VSO ELECTRIC CO., LTD.
Cabling Manufacturer

承認書

APPROVAL SHEET

客戶名稱： 精英電腦股份有限公司
CUSTOMER

品　　名： CABLE.ANTENNA R...400.VSO
DRAWING NAME

鴻呈料號： 82-101-01210110
VSO PART NO.

客戶料號： 14-211-F66021
CUSTOMER PART NO.

APPROVAL BY

業務部門	品管部門	工程部門	採購部門
SALES DIV.:	QC DIV.:	TECHNIQUE DIV:	PARCHASE DIV:
簡祥鉉		吳淑美	洪麗雯

CUSTOMER APPROVEAL

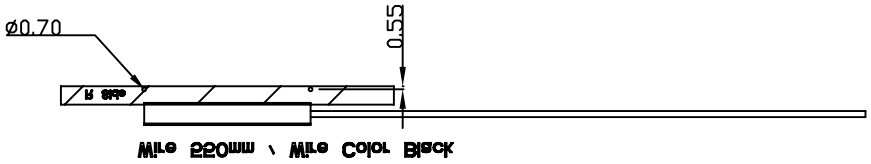
業務部門	品管部門	工程部門	採購部門
SALES DIV.:	QC DIV.:	TECHNIQUE DIV:	PARCHASE DIV:

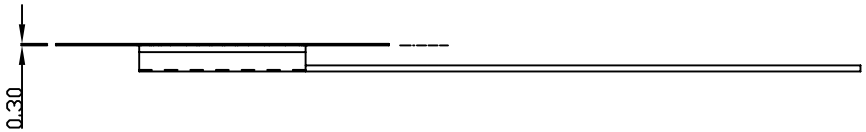
鴻呈實業股份有限公司

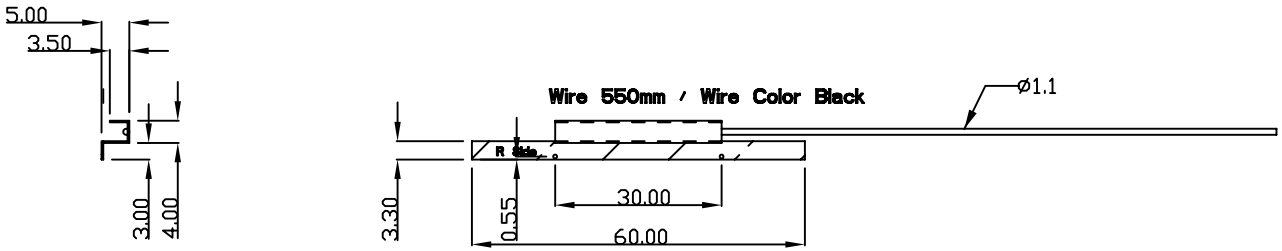
台北縣中和市員山路 581 巷 31 弄 1-8 號 4 樓　TEL: (02)3234-3038　FAX: (02)3234-3056
4F.,NO.1-8 ALLEY31, LANE581, YUEN-SHAN RD., CHUNG-HO CITY, TAIPEI HSIEN,
TAIWAN R.O.C.

INDEX

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







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

ECS CORPORATION

MODEL	TBD			
NAME	ANTENNA_330-R_400			APPROVAL: Peter
MATERIAL	TBD	UNIT	mm	PROJECT LEADER: SH
FINISH	TBD	SCALE	1.000	CHECK: Minnie
THE 3RD PROJECEION		DO'NT SCALE DRAWING		DRAWN: Minnie
DWG. NO.	TBD	DATE 13-Sep-05	REVISION 0.1	SHEET 1/1

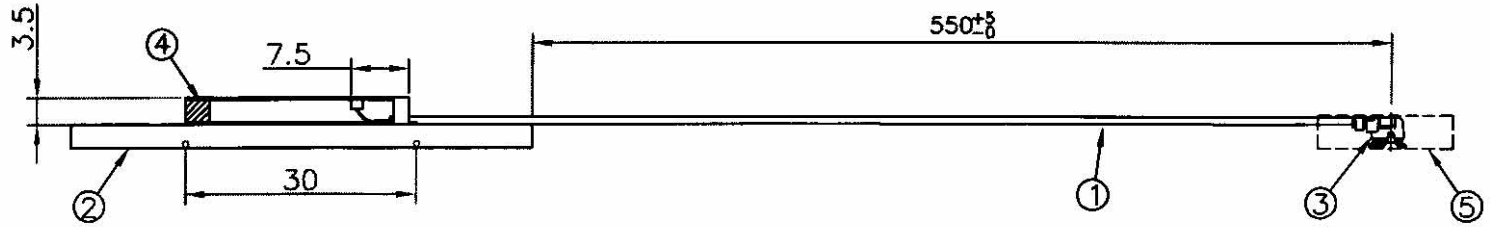
TOLERANCE TABLE	
ANGLE	±1/4°
DIM.	TOL. ±
0-10	0.05
10-50	0.10
50-100	0.15
100↗	0.20

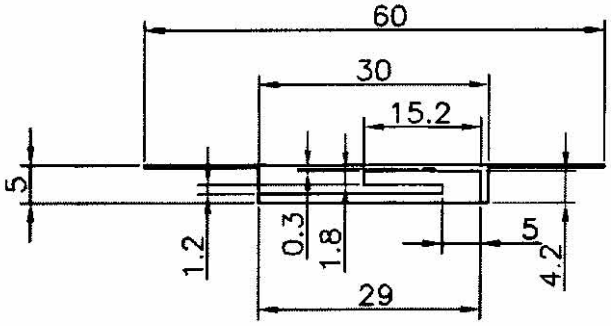
Stage
design_01

Form No:343-007-01

DRAW ID
CD

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





NOTE: 用網絡分析義測試

ITEM		DESCRIPTION	Q'TY
⑥	雙面膠	雙面膠:L60*W3.3*T0.05mm	1PCS
⑤	TUBE	PVC透明套管:ø3.1*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,右	1PCS
①	RF CABLE	CABLE:ø1.13 COAXIAL CABLE,COLOR:BLACK	1PCS

XX.	±0.5
X.	±0.3
.X	±0.1
.XX	±0.05

VSO ELECTRIC CO.,LTD.

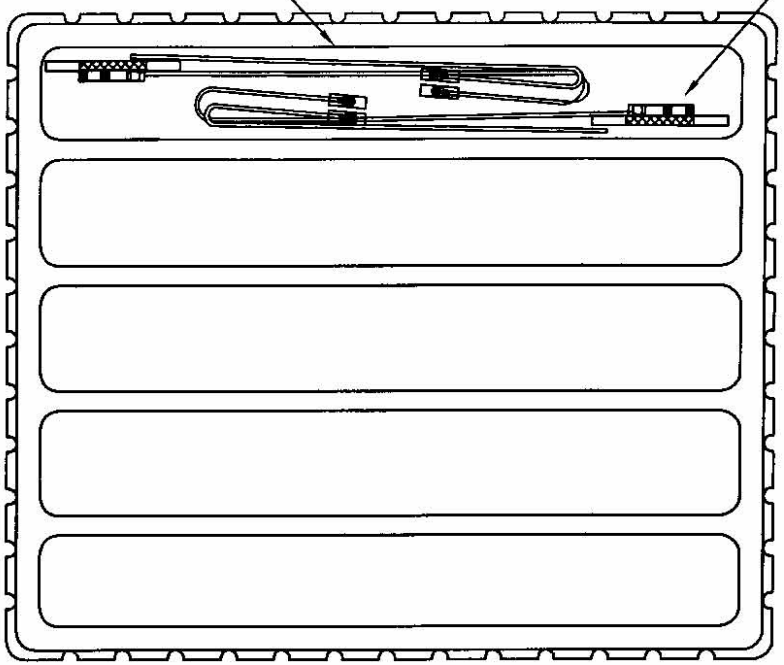
CUST. P/N: 精英 14-211-F66021				DRAW.: Jon 11/4
TITLE: PIFA ANTENNA				ENGIN:
VSO P/N: 82-101-01210110				CHECK:
UNITS mm	DWG. NO.: RF0003	PAGE: 1/3	REV. B	APPR.:

4 3 2 1

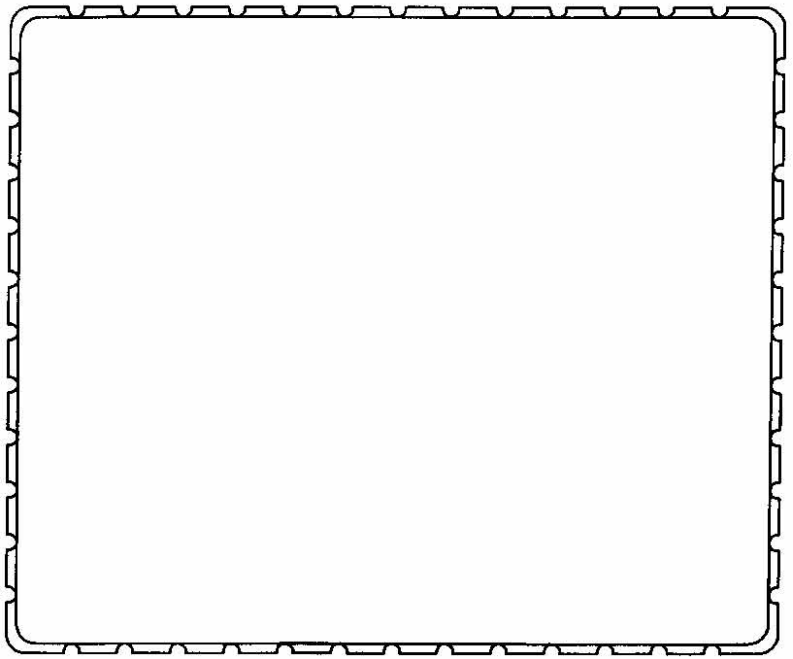
D C B A

DRAW ID
CD

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

XX.	±0.5
X.	±0.3
.X	±0.1
.XX	±0.05

VSO ELECTRIC CO.,LTD.

CUST. P/N: 精英 14-211-F66021				DRAW.: Jon 4/9
TITLE: 包裝圖				ENGIN:
VSO P/N: 82-101-01210110				CHECK: 劉引春
UNITS mm	DWG. NO.:	PAGE: 3/3	REV. A	APPR.: 4/9

D C B A

4 3 2 1

表單編號:DW-E-002

V. 03

ECSM P/N：14-211-F66021

Specification

1.Electical Properties

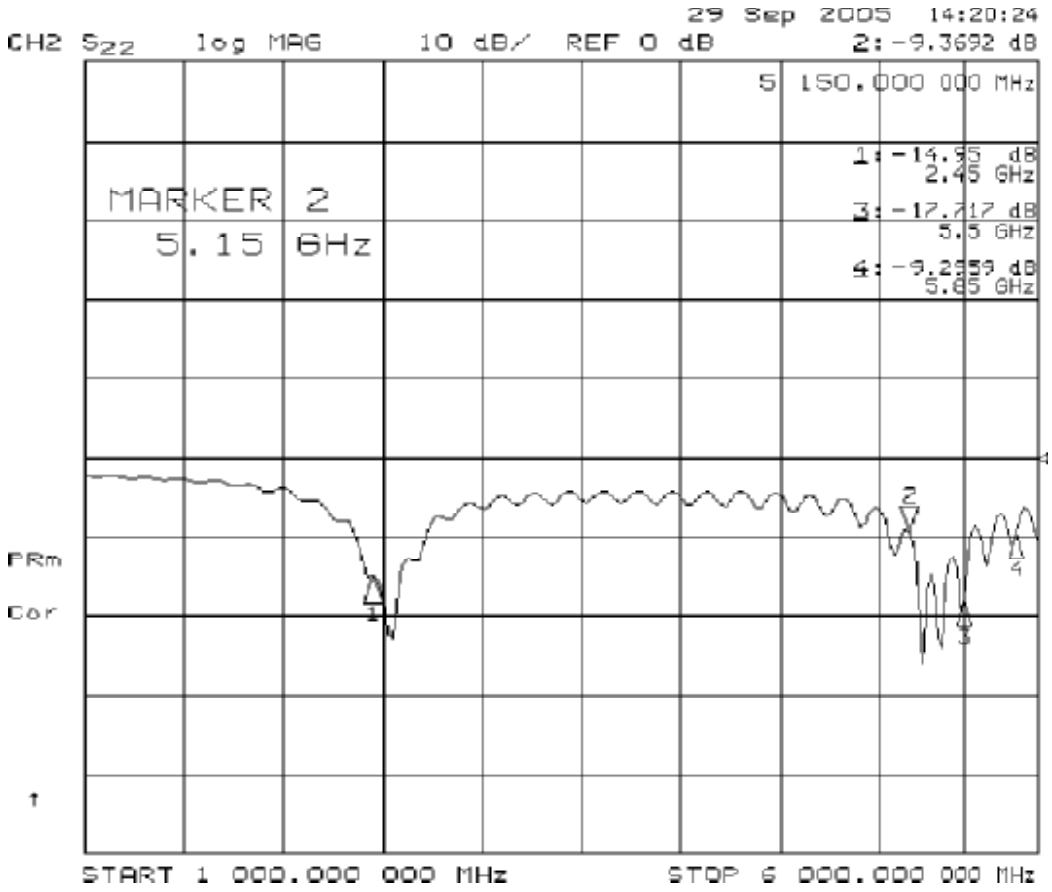
1.1 Frequency Range ..... 2.4~2.5GHz；5.15~5.85GHz
1.2 Impedance 50
1.3 VSWR ..... 2.0 max
1.4 Return Loss ..... -10 dB max
1.5 Gain

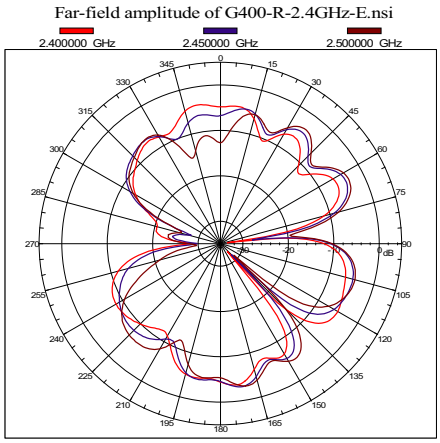
Pattern	Average			Peak		
頻率	Ex	Ey	Ex+Ey	Ex	Ey	Ex+Ey
2.40 GHz	-8.61	-6.07	-4.15	-3.68	-1.17	0.76
2.45 GHz	-8.24	-5.03	-3.34	-3.15	-0.74	1.23
2.50 GHz	-8.55	-4.94	-3.37	-3.15	-0.31	1.51
5.15 GHz	-9.96	-9.12	-6.51	-3.76	-3.04	-0.38
5.55 GHz	-9.23	-8.58	-5.88	-4.53	-3.75	-1.11
5.85 GHz	-8.45	-13.67	-7.31	-2.85	-6.40	-1.26

2.Physical Properties

2.1 Cable Type ..... ϕ 1.13 Coaxial；L：545 mm
2.2 Cable Color ..... Black
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℃ ～ +65℃
2.7 Storage Temperature ..... -30℃ ～ +75℃


29 Sep 2005 14:20:24
CH2 S22 log MAG 10 dB/ REF 0 dB
2: -9.3692 dB
5 150.000 000 MHz
1: -14.95 dB
2.45 GHz
MARKER 2
5.15 6Hz
3: -17.717 dB
5.5 GHz
4: -9.2959 dB
5.85 GHz
PRm
Cor
START 1 000.000 000 MHz
STOP 6 000.000 000 MHz



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -3.68265 dBi
Max far-field (global) = -50.33877 dB, Max far-field (plot) = -50.33881 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 174.000 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-2.4GHz-E

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-2.4GHz-E.nsi
Measurement date/time: 9/30/2005 1:42:15 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -8.608 dB
  -3. dB beam width: Not Found
  -6. dB beam width: Not Found
  -10. dB beam width: Not Found
  Left Sidelobe: -3.04 dB at 152.925 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
1	2.400 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -3.15302 dBi
Max far-field (global) = -50.3222 dB, Max far-field (plot) = -50.32221 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 172.000 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-2.4GHz-E

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-2.4GHz-E.nsi
Measurement date/time: 9/30/2005 1:42:15 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -8.235 dB
  -3. dB beam width: Not Found
  -6. dB beam width: Not Found
  -10. dB beam width: Not Found
  Left Sidelobe: -2.62 dB at 149.916 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
2	2.450 GHz	Azimuth	Elevation	Single-pol

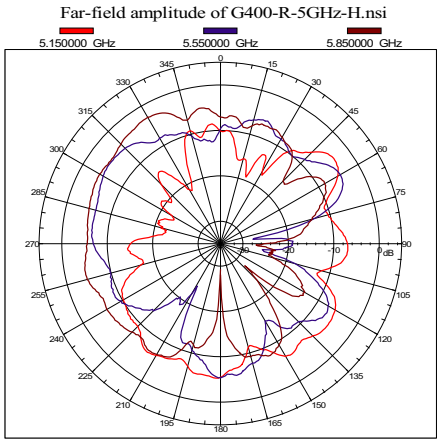
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -3.15288 dBi
Max far-field (global) = -50.57068 dB, Max far-field (plot) = -50.57077 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 169.000 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-2.4GHz-E

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-2.4GHz-E.nsi
Measurement date/time: 9/30/2005 1:42:15 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -8.546 dB
-3. dB beam width: Not Found
-6. dB beam width: Not Found
-10. dB beam width: Not Found
Left Sidelobe: -1.63 dB at 147.911 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 = -3.75938 dBi
Max far-field (global) = -59.5901 dB, Max far-field (plot) = -59.59016 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 52.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-5GHz-H

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-5GHz-H.nsi
Measurement date/time: 9/30/2005 1:30:21 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -9.955 dB
  -3. dB beam width: 18.44 deg
  -6. dB beam width: 31.60 deg
  -10. dB beam width: Not Found
  Left Sidelobe: -9.40 dB at 26.574 deg
  Right Sidelobe: -3.15 dB at 92.758 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	5.150 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -4.52887 dBi
Max far-field (global) = -61.53466 dB, Max far-field (plot) = -61.53471 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 59.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-5GHz-H

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-5GHz-H.nsi
Measurement date/time: 9/30/2005 1:30:21 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -9.227 dB
  -3. dB beam width: 20.59 deg
  -6. dB beam width: 73.71 deg
  -10. dB beam width: 211.73 deg
  Left Sidelobe: -3.87 dB at 32.591 deg

Right Sidelobe: -14.52 dB at 88.747 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	5.550 GHz	Azimuth	Elevation	Single-pol

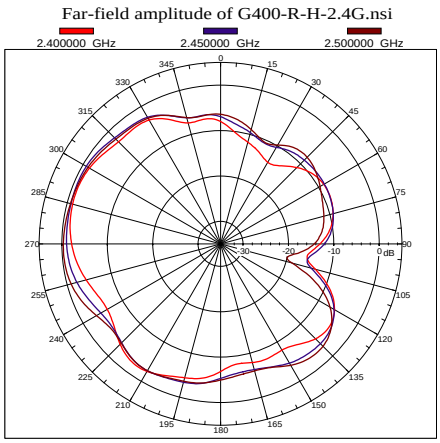
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -2.84636 dBi
Max far-field (global) = -60.0086 dB, Max far-field (plot) = -60.00864 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -30.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-5GHz-H

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-5GHz-H.nsi
Measurement date/time: 9/30/2005 1:30:21 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -8.446 dB
-3. dB beam width: 93.61 deg
-6. dB beam width: 170.79 deg
-10. dB beam width: 214.18 deg
Left Sidelobe: -1.66 dB at -100.780 deg
Right Sidelobe: -1.92 dB at -8.524 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	5.850 GHz	Azimuth	Elevation	Single-pol



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -1.1746 dBi
Max far-field (global) = -47.72234 dB, Max far-field (plot) = -47.72234 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -71.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-2.4GHz-H

NSI2000 V4.0.174, Filename:C:\PIFA\ECSM\G400-4mm\Data\G400-R-H-2.4G.nsi
Measurement date/time: 9/30/2005 1:36:54 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -6.068 dB
  -3. dB beam width: 77.93 deg
  -6. dB beam width: Not Found
  -10. dB beam width: Not Found
  Left Sidelobe: -1.18 dB at -145.905 deg
  Right Sidelobe: -7.53 dB at 61.671 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

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Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -0.73626 dBi
Max far-field (global) = -48.26367 dB, Max far-field (plot) = -48.26368 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -67.000 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-2.4GHz-H

NSI2000 V4.0.174, Filename:C:\PIFA\ECSM\G400-4mm\Data\G400-R-H-2.4G.nsi
Measurement date/time: 9/30/2005 1:36:54 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -5.027 dB
  -3. dB beam width: 90.06 deg
  -6. dB beam width: Not Found

-10. dB beam width: Not Found
Left Sidelobe: -1.96 dB at -148.914 deg
Right Sidelobe: -7.86 dB at 54.652 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

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Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -0.30923 dBi
Max far-field (global) = -48.12359 dB, Max far-field (plot) = -48.1236 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -91.000 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-2.4GHz-H

NSI2000 V4.0.174, Filename:C:\PIFA\ECSM\G400-4mm\Data\G400-R-H-2.4G.nsi
Measurement date/time: 9/30/2005 1:36:54 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -4.935 dB
-3. dB beam width: 92.20 deg
-6. dB beam width: Not Found
-10. dB beam width: Not Found
Left Sidelobe: -2.38 dB at -148.914 deg
Right Sidelobe: -7.64 dB at 43.621 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

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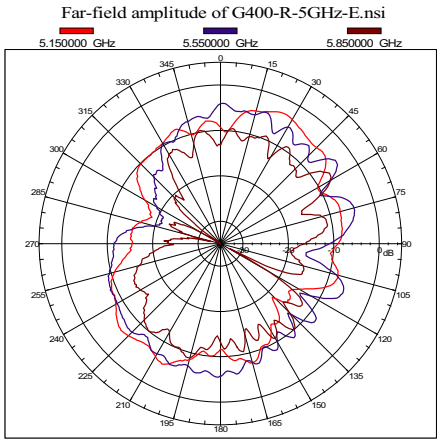

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -3.03579 dBi
Max far-field (global) = -58.86651 dB, Max far-field (plot) = -58.86652 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 26.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-5GHz-E

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-5GHz-E.nsi
Measurement date/time: 9/30/2005 1:07:45 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -9.124 dB
  -3. dB beam width: 43.78 deg
  -6. dB beam width: 52.61 deg
  -10. dB beam width: 172.02 deg
  Left Sidelobe: -4.75 dB at -6.518 deg
  Right Sidelobe: -4.57 dB at 74.708 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 = -3.75394 dBi
Max far-field (global) = -60.75973 dB, Max far-field (plot) = -60.75996 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 53.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-5GHz-E

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-5GHz-E.nsi
Measurement date/time: 9/30/2005 1:07:45 PM, Filetype: NSI-97
Far-field Cut Analysis:
  Avg value: -8.576 dB
  -3. dB beam width: 10.29 deg
  -6. dB beam width: 86.10 deg
  -10. dB beam width: 130.71 deg

Left Sidelobe: -2.18 dB at 42.618 deg
Right Sidelobe: -0.76 dB at 76.713 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 = -6.40201 dBi
Max far-field (global) = -63.56425 dB, Max far-field (plot) = -63.56453 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: 56.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

G400-R-5GHz-E

NSI2000 V4.0.116, Filename:C:\KUO\New Folder\G400-R-5GHz-E.nsi
Measurement date/time: 9/30/2005 1:07:45 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -13.672 dB
-3. dB beam width: 10.80 deg
-6. dB beam width: 16.14 deg
-10. dB beam width: 125.60 deg
Left Sidelobe: -5.07 dB at 43.621 deg
Right Sidelobe: -4.73 dB at 77.716 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