

ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	1/19

APPROVAL SPECIFICATION				Prepared By	Checked By	Reviewed By	Approved By		
TITLE	Fixed Antenna	Model	LG-SD820	CUSTOMER		LGE			
DOCUMENT									
	CONTENTS						SHEETS		
1	Approval Specification						1		
2	Antenna Specification						1		
3	Contents						1		
4	Revision List						1		
5	Technical Items						1		
6	Test Equipment						1		
7	Electrical Demands						2		
8	Mechanical Demands						1		
9	Environmental demands						2		
10	Antenna drawing						2		
11	Packing specification						1		
12	Electrical data (V.S.W.R & GAIN).						5		
We want to approval the submitted product Approved date: MAY.12.2004									

ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	2/19

ANTENNA SPECIFICATION

ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	3/19

- CONTENTS ?

1. Revision LIST

2. Technical Specifications.

2.1 Electrical Spec.

2.2 Mechanical Spec.

2.3 Packing Spec.

3. Test equipment.

4. Electrical Demands.

4.1 V.S.W.R.

4.2 Radiation Pattern.

4.3 Gain.

5. Mechanical Demands.

5.1 Helix Deformation Test.

5.2 Torque Test.

5.3 Drop Test.

6. Environmental demands.

6.1 Operation temperature test

6.2 Temperature Change test.

6.3 High Humidity test.

7. Antenna Data

7.1. Antenna Drawing

7.2. Packing Spec Drawing

7.3 Electrical data (V.S.W.R, GAIN & Matching Circuit Diagram)



ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	4/19

1. REVISION LIST

REVISION LIST				
NO	DATE	CHANGE CONTENTS	CHANGE CAUSE	REV
1	2004.05.12			IR
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	5/19

2. Technical Items

2.1 Electrical Spec.

Impedance(Nominal)	50 ohms
Polarization	VERTICAL
Radiation Pattern	OMNI-DIRECTIONAL
Maximum Power	2 W

2.2 Mechanical Spec.

Mechanical Spec.	
Connector	SCREW(M4x0.5P) type
Overall length	See drawing
Operating Temperature	-30°C ~ +80°C
Weight	2.00 g (Unit)

2.3 Packing Spec.

Packing Spec.		
PRODUCT	QUANTITY(Antenna)	MATERIAL
TRAY	150 EA	P.S(0.5t)
TRAY INNER PAD	N/A	SW 2 type (B corrugated paper)
CARTON BOX	1,500 EA	DW 2 type (AB corrugated paper)

ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	6/19

3. Test Equipment

The equipment for antenna test are as follows .

- ? Network Analyzer(HP8752C) to measure the V.S.W.R and impedance of antenna
- ? Standard horn antenna that is adjustable in the CDMA band
- ? Anechoic Chamber installed the cables, connectors and equipments for measurement
- ? Digimatic Caliper to measure the dimensions
- ? Torque Driver to measure the torque force of the helix
- ? Push/Pull gauge to measure the pulling force
- ? Climatic Chamber for environmental test

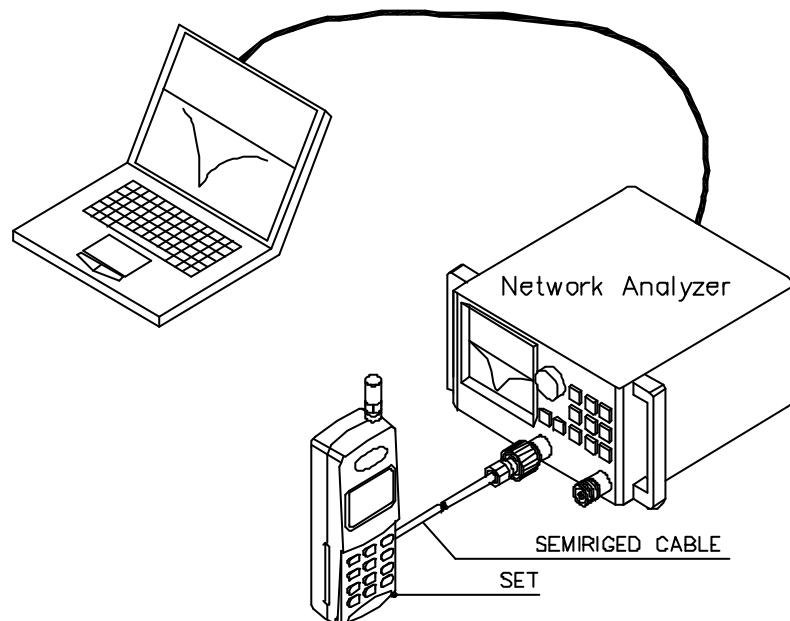
ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	7/19

4. Electrical Demands

4.1 V.S.W.R

The V.S.W.R characteristics must satisfy the electrical demands.

Frequency Range		CDMA (824MHz ~ 894MHz)	
V.S.W.R	Frequency	TX	RX
	Folder-open	less than 3.0 :1	less than 3.0 :1
	Folder-close	less than 5.0 :1	less than 3.5 :1



4.2 Radiation Pattern

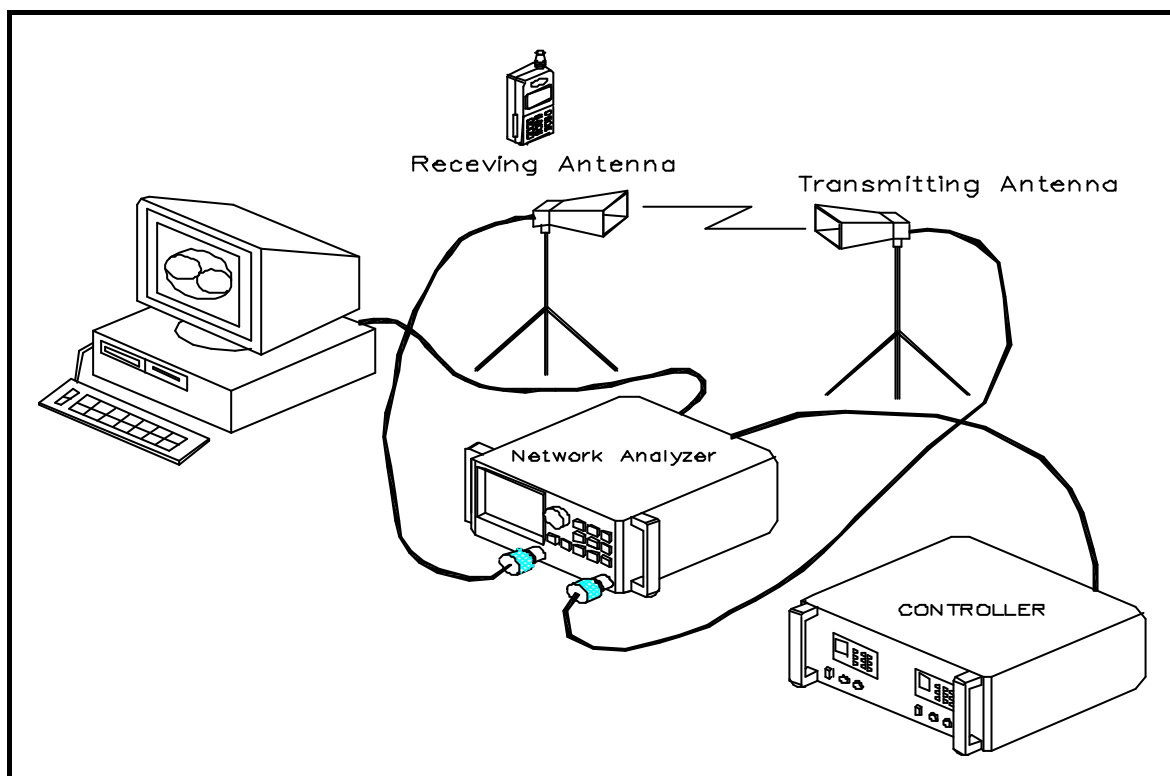
The radiation pattern must have the omni-directional characteristic in CDMA Band.

ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	8/19

4.3 Gain(AVERAGE, MINIMUM)

The gain is expressed as dBi that standardizes the half-wave length HORN antenna.

Frequency Range		CDMA (824MHz ~ 894MHz)	
		Tx	Rx
GAIN(dBi) (Folder open) MINIMUM	E1	-6.0 dBi	-5.5 dBi
	E2	-6.5 dBi	-5.5 dBi
	H	-5.0 dBi	-4.0 dBi
GAIN(dBi) (Folder close) MINIMUM	E1	-10.0 dBi	-8.0 dBi
	E2	-10.5 dBi	-8.0 dBi
	H	-8.0 dBi	-6.0 dBi



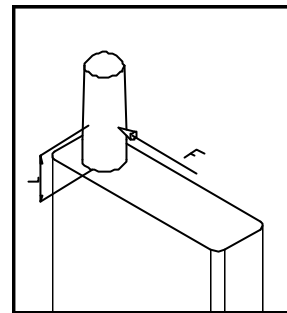
ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	9/19

5. Mechanical Demands

5.1 Helix Deformation Test.

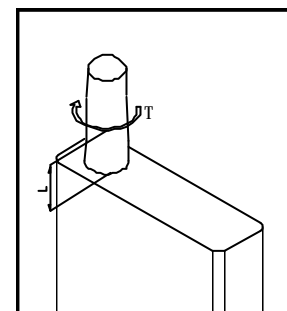
The antenna is assembled to the test equipment. Force(15 N) is applied to the antenna in the X direction Length(10 mm) above the bottom of the HELIX.

After the test, no visual deterioration shall occur and the cover and frame shall remain mechanically bonded. After the test, the antenna shall satisfy the electrical demands.



5.2 Torque Test

The antenna is assembled to the test equipment. A Torque(30 Ncm) force is applied to the antenna in clockwise direction. After the test, no visual deterioration shall occur and the part of the cover and the frame shall remain mechanically bonded. After the test, the antenna shall satisfy the electrical demands.



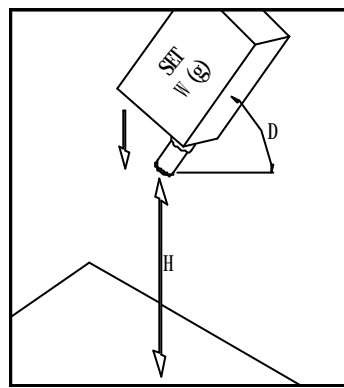
ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	10/19

5.3 Drop Test

The antenna is attached to the handset. The handset is dropped with the antenna downward onto a concrete surface at 1.5 m height and angle D(45 °).

The number of drop is 2 times.

After the test, the original shape shall be possible to restore. The antenna shall satisfy the electrical demands.



ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	11/19

6.Environmental Demands

6.1 Operation Temperature Test

Test A: Place the antennas for testing in chamber. The chamber condition should be as follows: 1hours at -30°C

Final measurements : The antenna shall be visually inspected and electrically and also mechanically checked as required by products standard.

Test B: Place the antennas for testing in chamber. The chamber condition should be as follows: 1hours at 80°C

Final measurements : The antenna shall be visually inspected and electrically and also mechanically checked as required by products standard.

6.2 Temperature Change Test

The object of temperature test is to evaluate the reliability of antenna component at temperature change.

Test: Temperature cycle is as follows. 2 hours at -40°C,
2 hours at +85°C.

Temperature increase/decrease time (Temperature change time) is
2 hours. 10 cycles.

Final measurements: The antenna shall be visually inspected and electrically and mechanically checked as required by products standard.



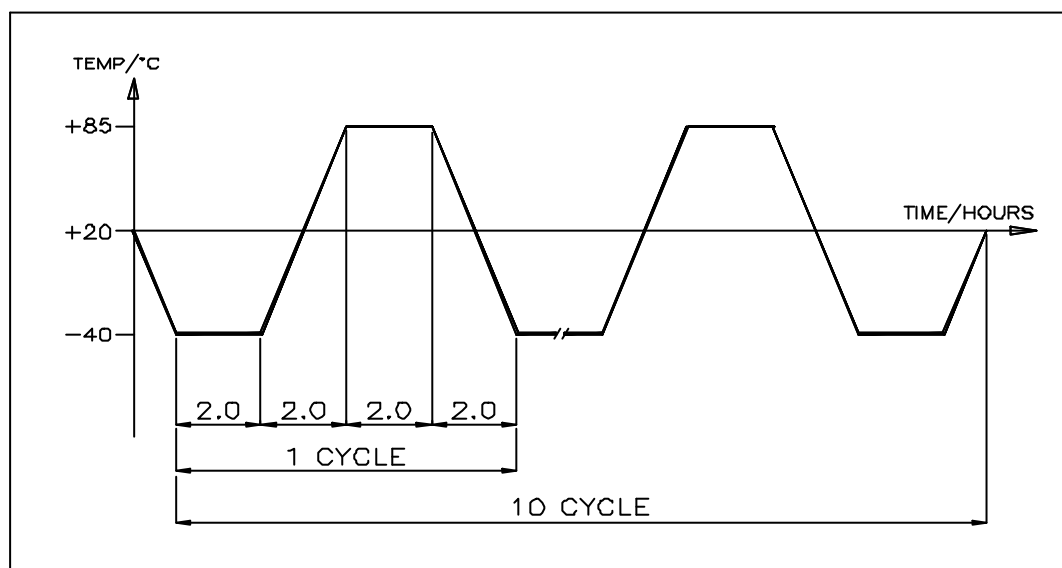
ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	12/19

6.3 High Humidity Test

Test: Place the antennas for testing in chamber. The chamber condition should be as follows:

24hours at +55°C, Relative humidity is 95%.

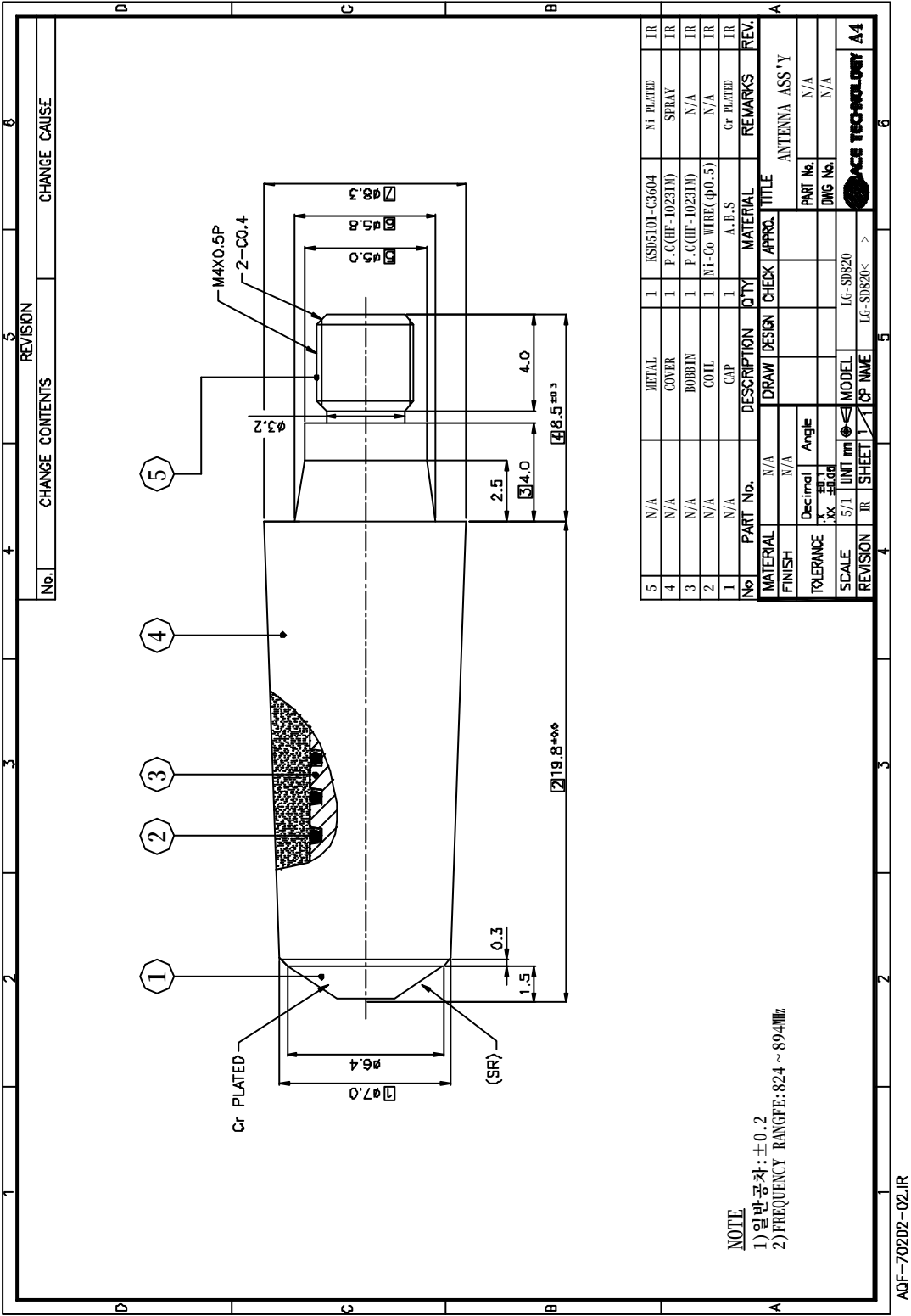
Final measurements : The antenna shall be visually inspected and electrically and also mechanically checked as required by products standard.



ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	13/19

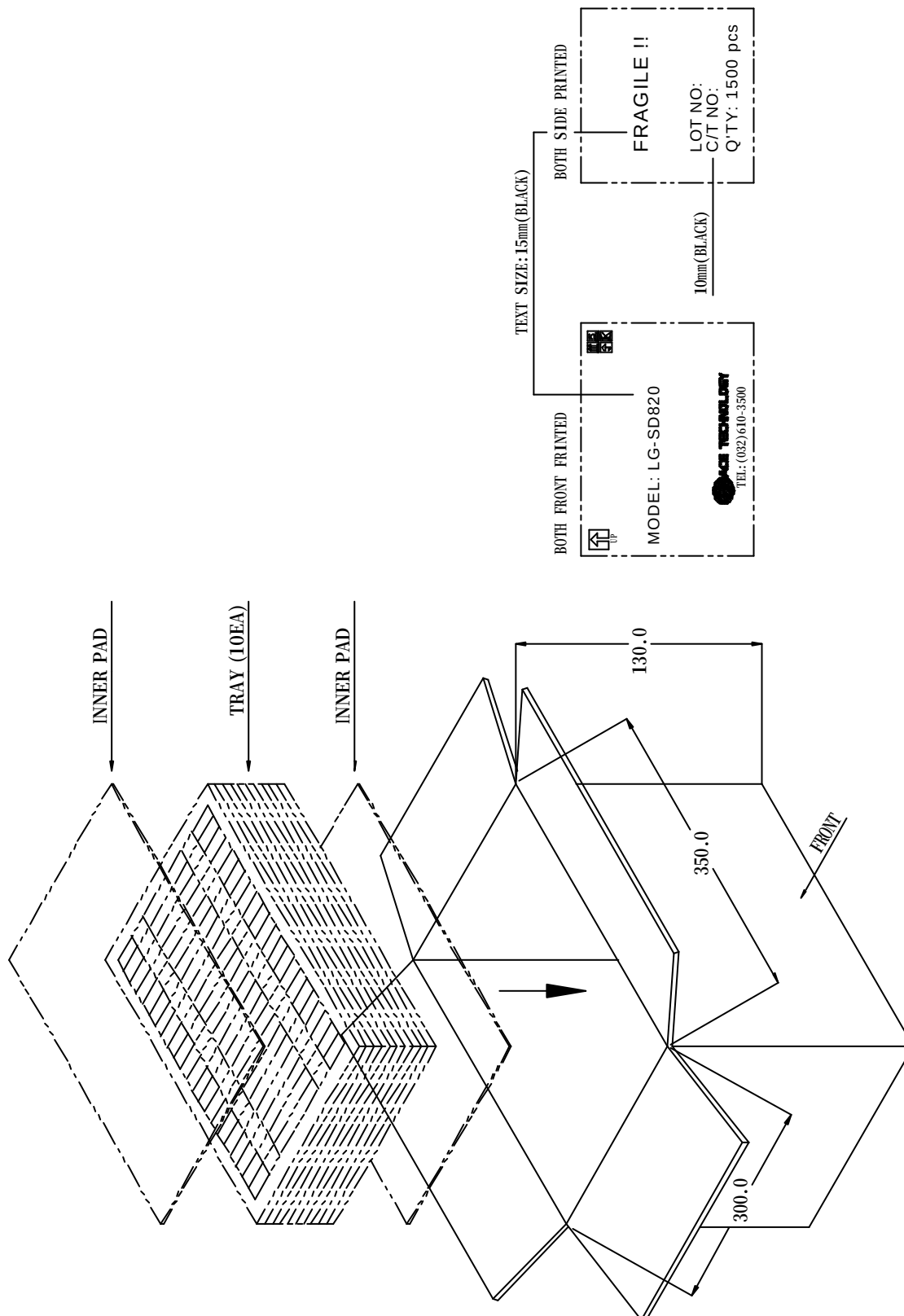
7. Antenna data

7.1. Antenna Drawing



ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	14/19

7.2 Packing Spec Drawing.

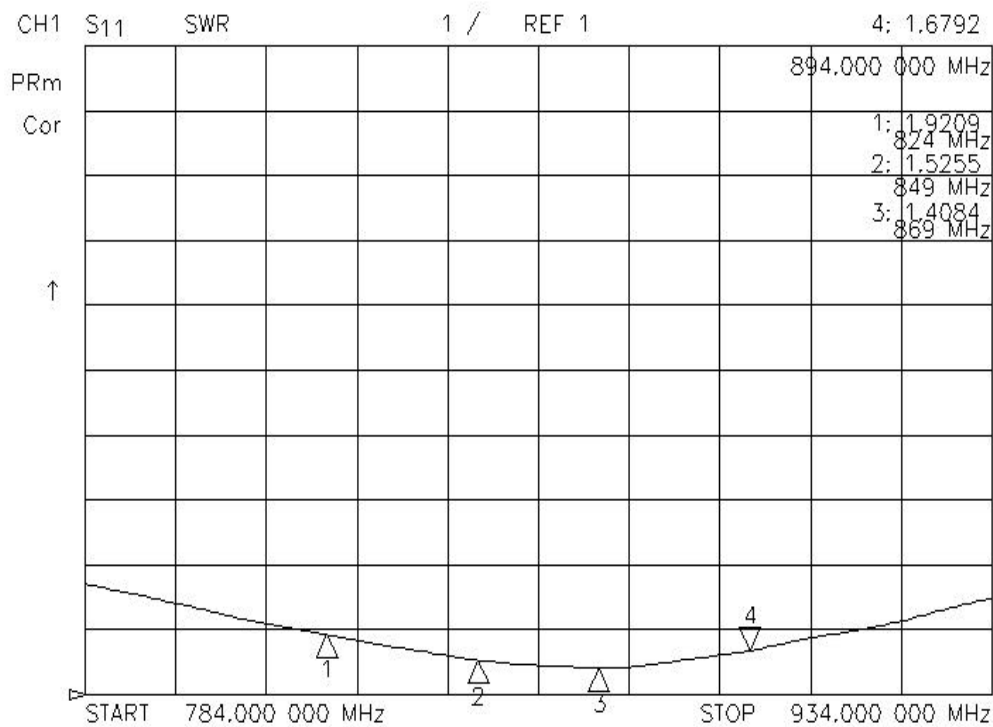


ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	15/19

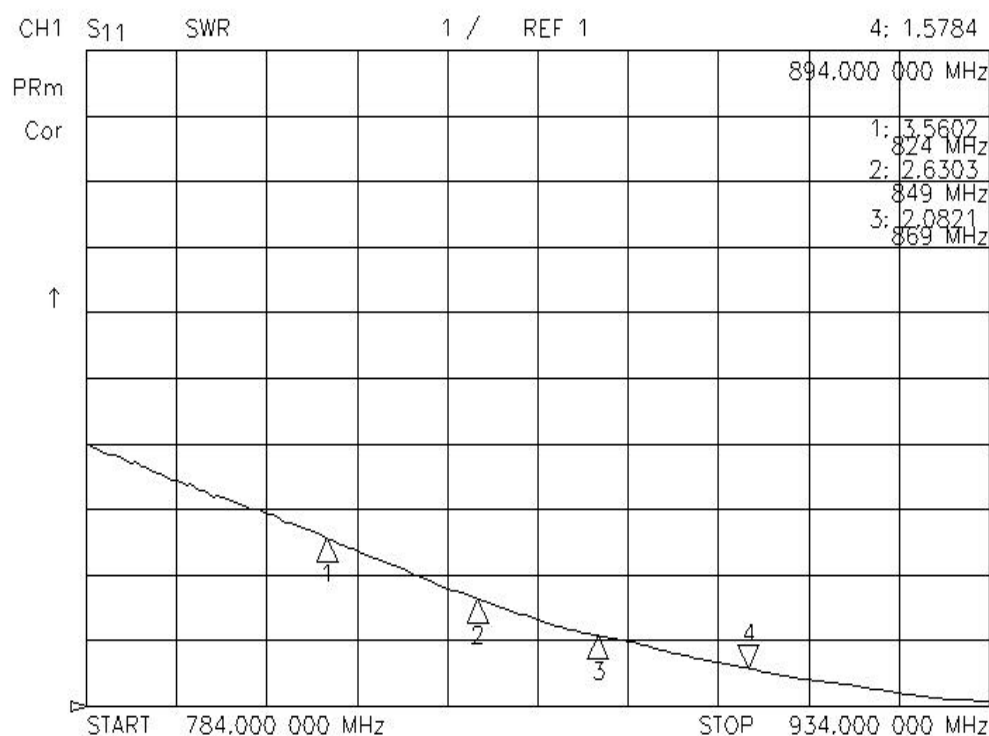
7.3 Electrical data (V.S.W.R, GAIN & Matching Circuit Diagram).

✍ V.S.W.R

Folder OPEN



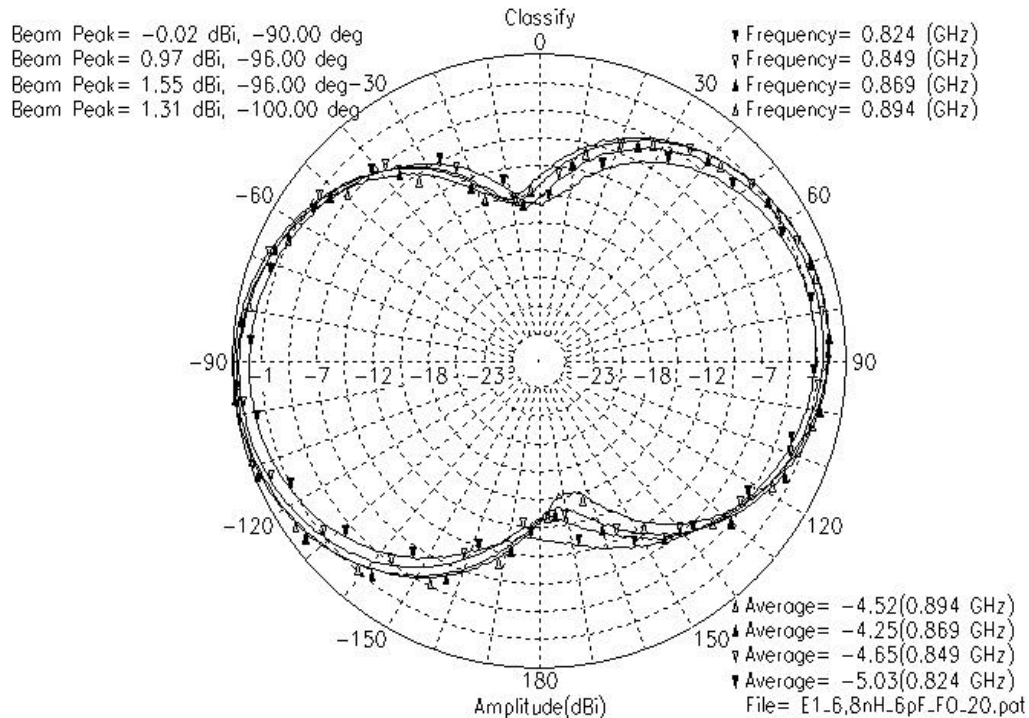
Folder CLOSE



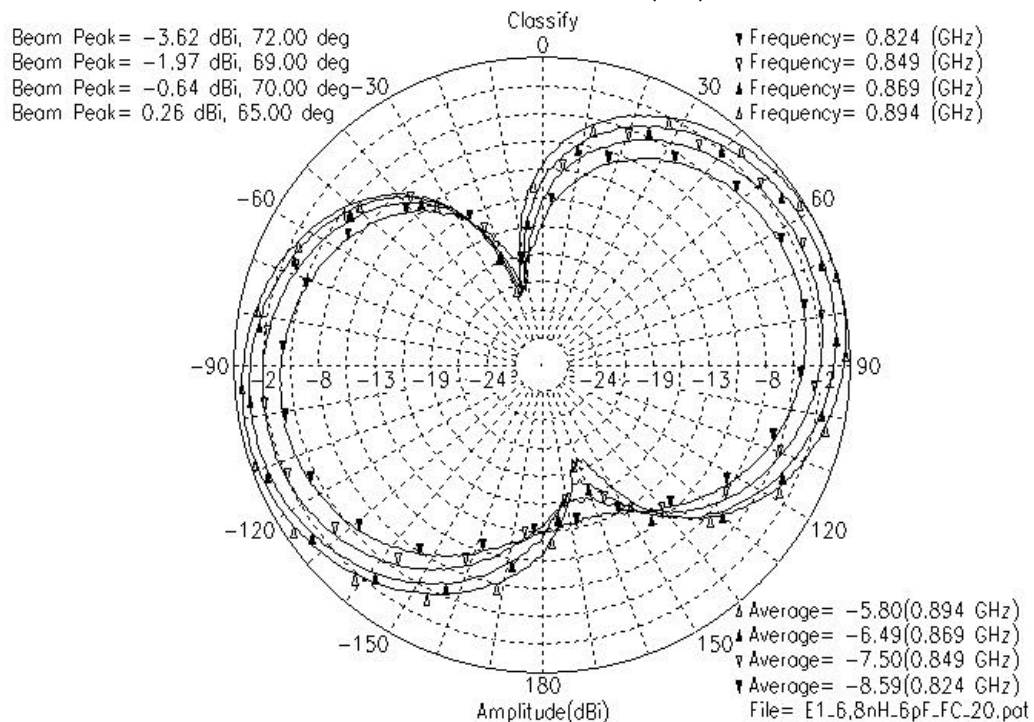
ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	16/19

✍ RADIATION PATTERN

- Folder Open State Radiation Pattern (E1)

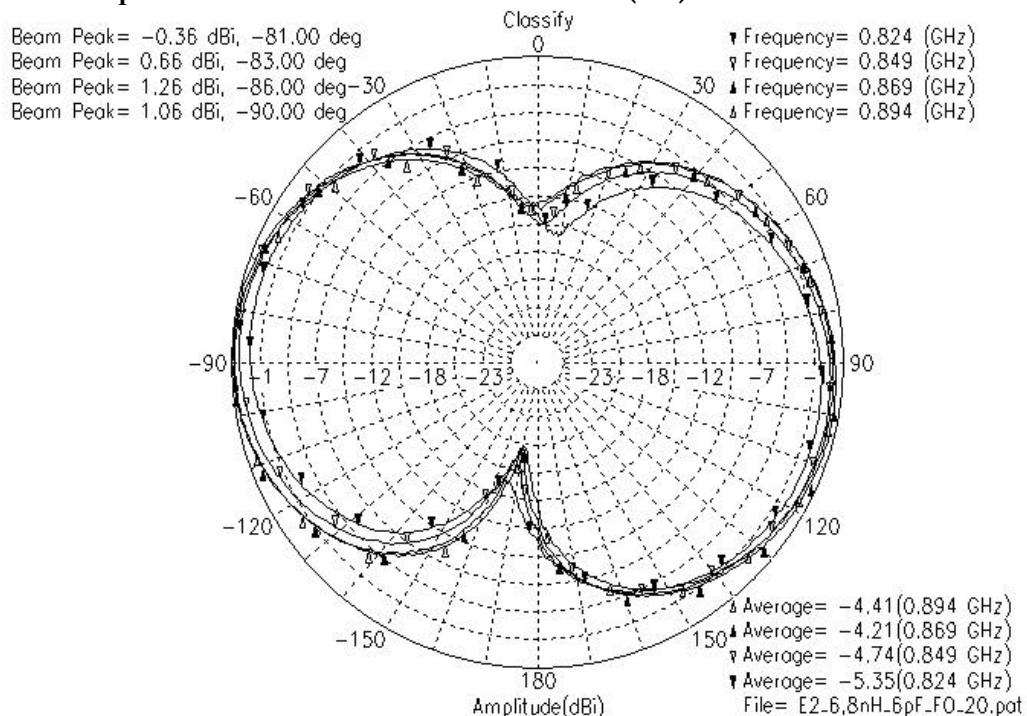


- Folder Close State Radiation Pattern (E1)

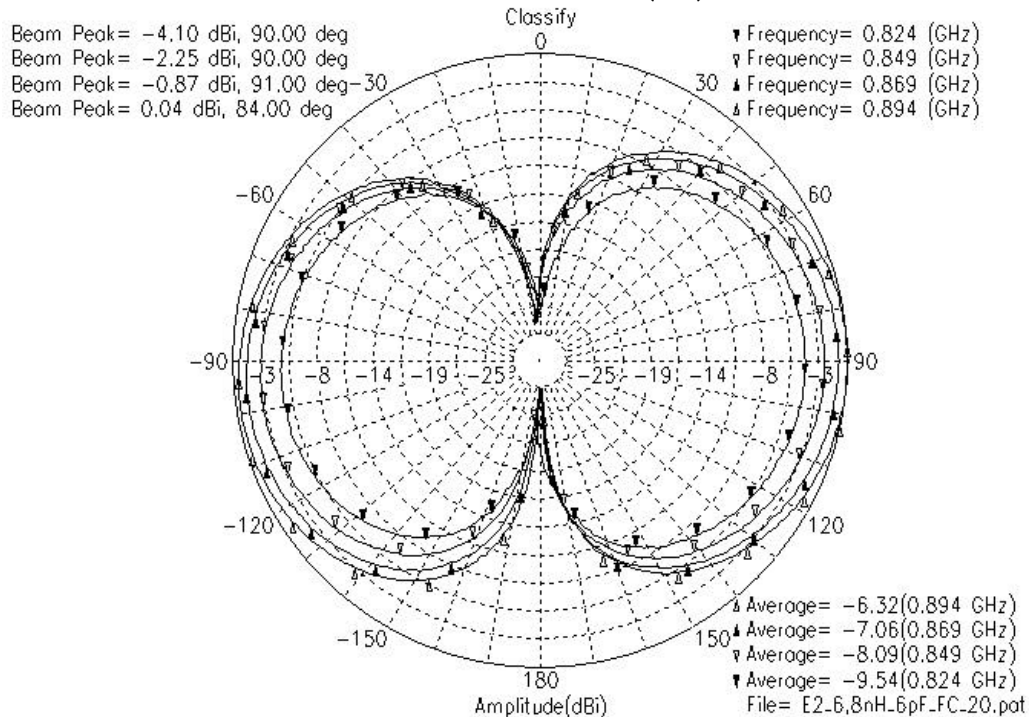


ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	17/19

- Folder Open State Radiation Pattern (E2)

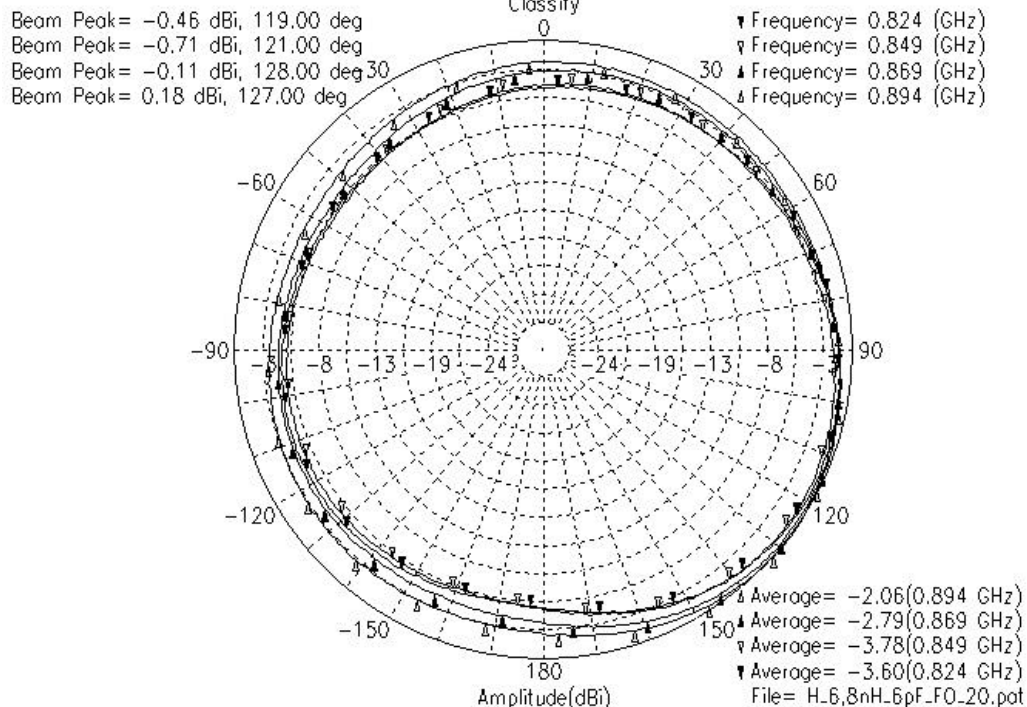


- Folder Close State Radiation Pattern (E2)

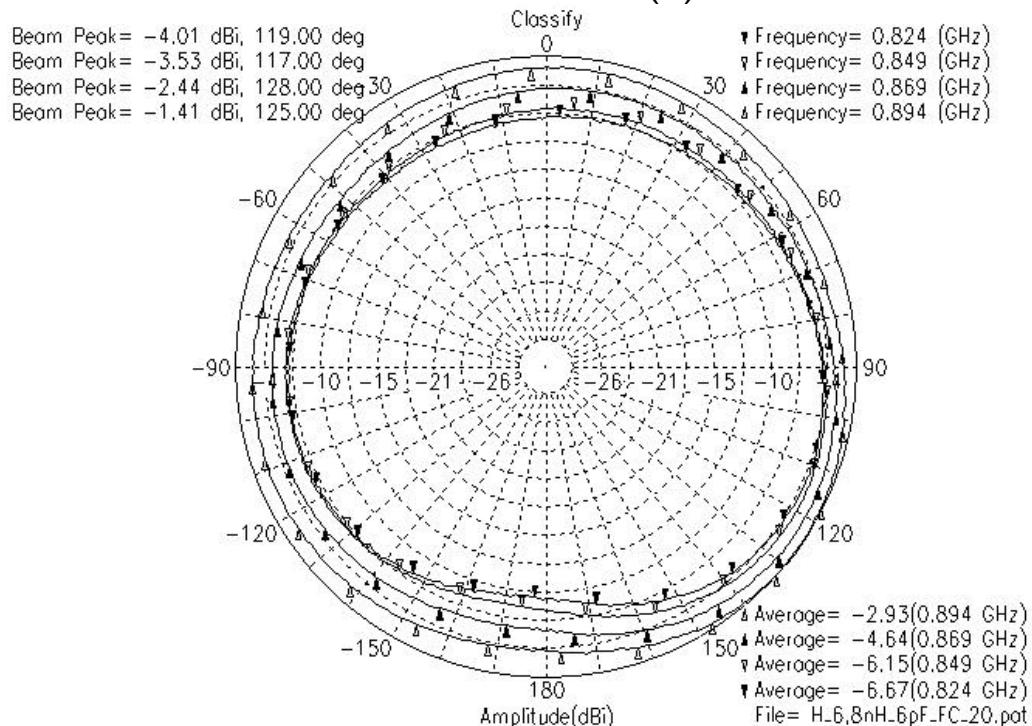


ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	18/19

- Folder Open State Radiation Pattern (H)



- Folder Close State Radiation Pattern (H)



ANTENNA SPECIFICATION		DATE	2004-05-12	REV.	IR
MODEL	LG-SD820(silver)	TYPE	FIXED	PAGE	19/19

✍ Matching Circuit Diagram

