APPROVAL SPECIFICATION

Prepared By	Checked By	Reviewed By	Approved By

TITLE	Fixed Antenna	Model	LG-SD820	CUSTOMER	LGE

DOCUMENT

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We want to approval the submitted product

Approved date: MAY.12.2004

ANTENNA SPECIFICATION

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1. REVISION LIST

REVISION LIST				
NO	DATE	CHANGE CONTENTS	CHANGE CAUSE	REV
1	2004.05.12			IR
2				
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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℃ ? +80℃
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)

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

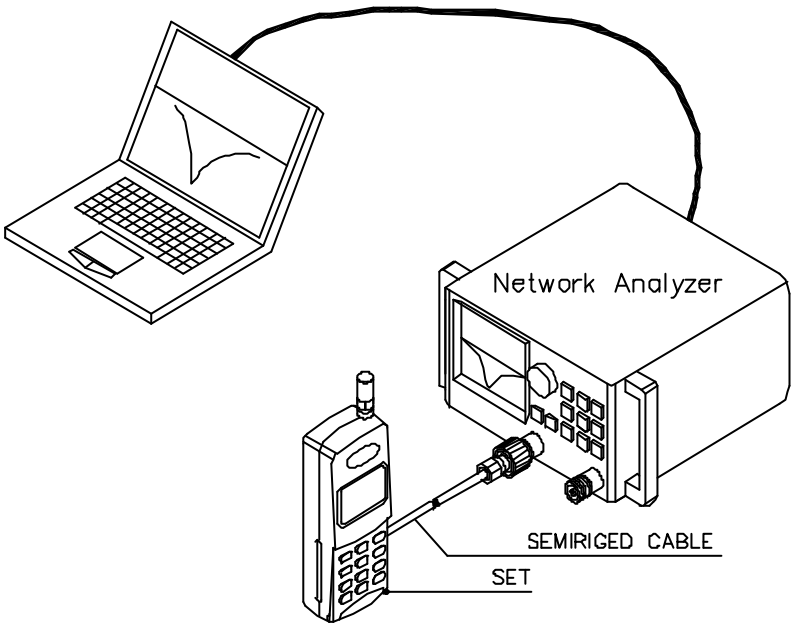
? Climatic Chamber for environmental test

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



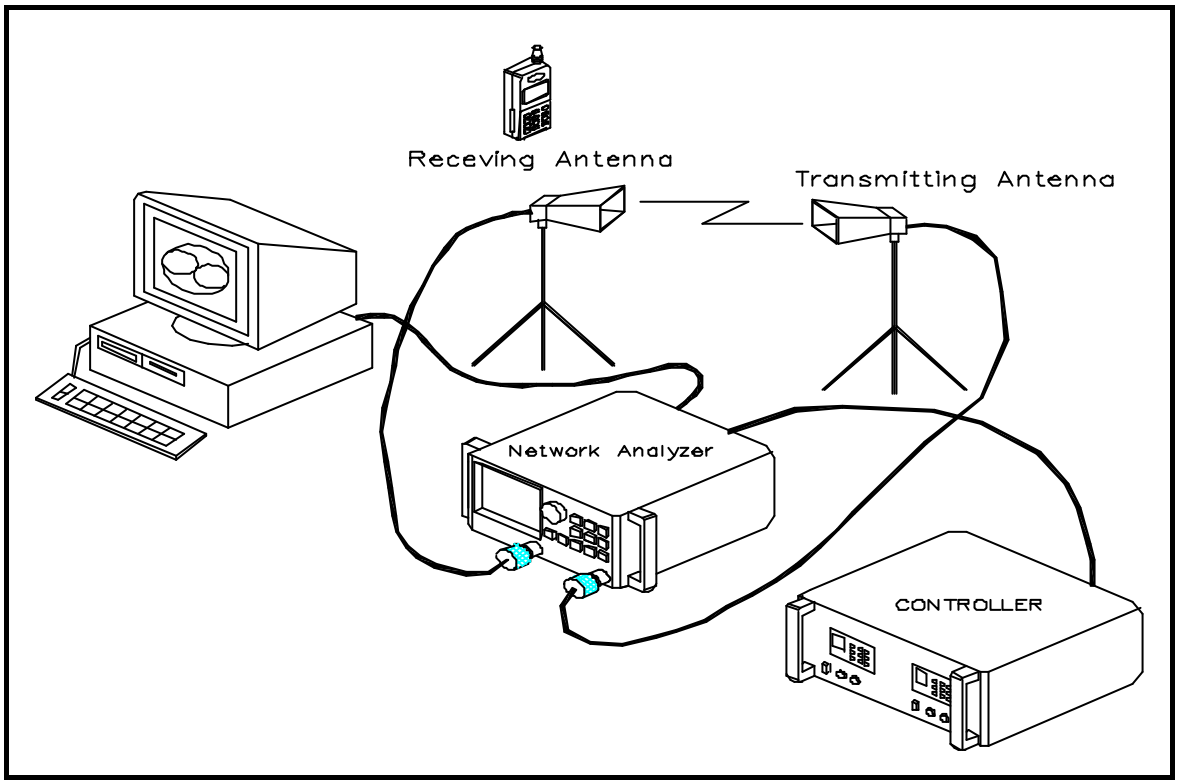
4.2 Radiation Pattern

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

4.3 Gain(AVERAGE, MINIMUN)

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) MINIMUN	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) MINIMUN	E1	-10.0 dBi	-8.0 dBi
	E2	-10.5 dBi	-8.0 dBi
	H	-8.0 dBi	-6.0 dBi

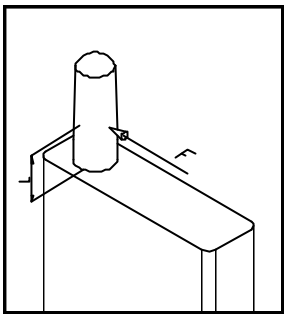


5. Mechanical Demands

5.1 Helix Deformation Test.

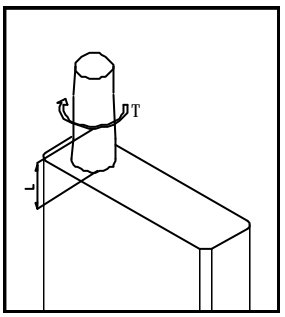
The antenna is assembled to the test equipment. Force(15 N) is applied to the antenna in the X direction Length(10 mm) above the bottom of the HELIX.

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.

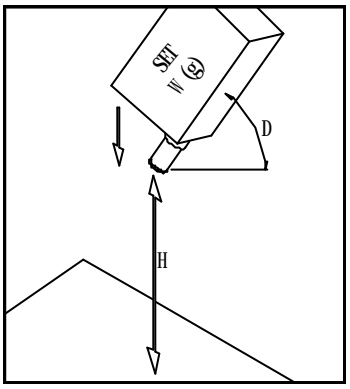


5.3 Drop Test

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.



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℃

✍✍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℃

✍✍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℃,
2 hours at +85℃.
Temperature increase/decrease time (Temperature change time) is
2 hours. 10 cycles.

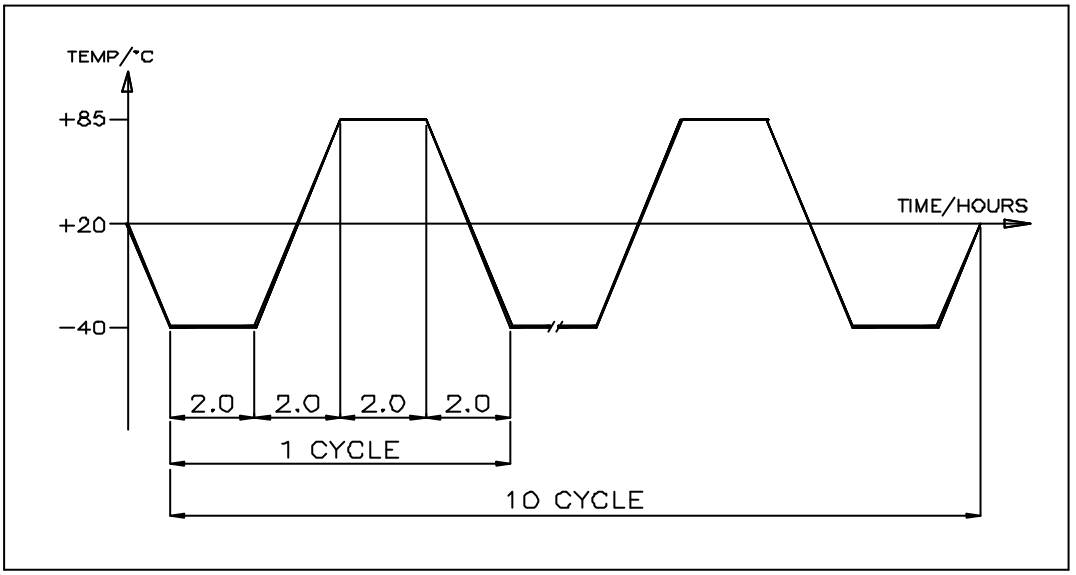
✍✍Final measurements: The antenna shall be visually inspected and electrically and mechanically checked as required by products standard.

6.3 High Humidity Test

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

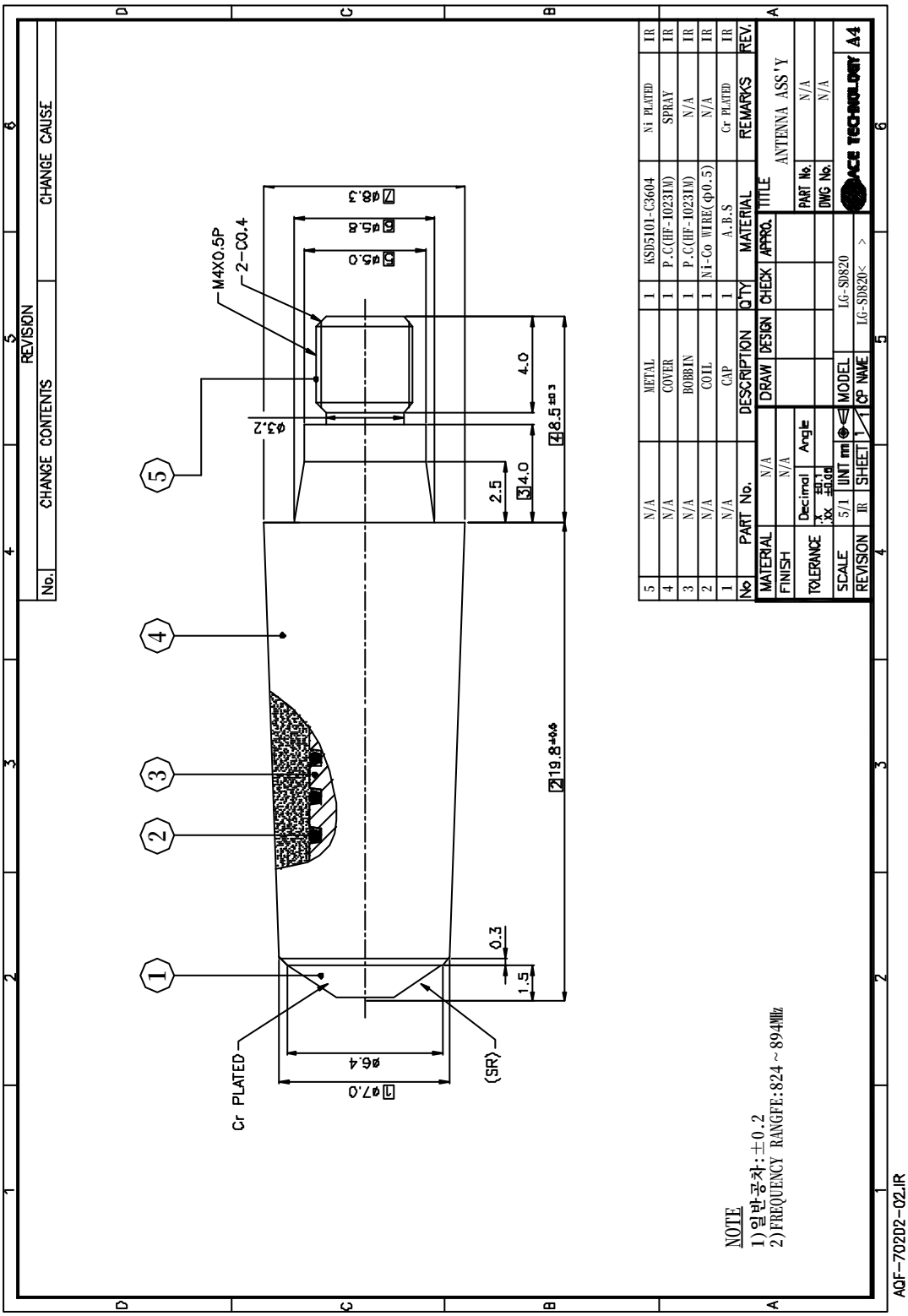
24hours at +55℃, Relative humidity is 95%.

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

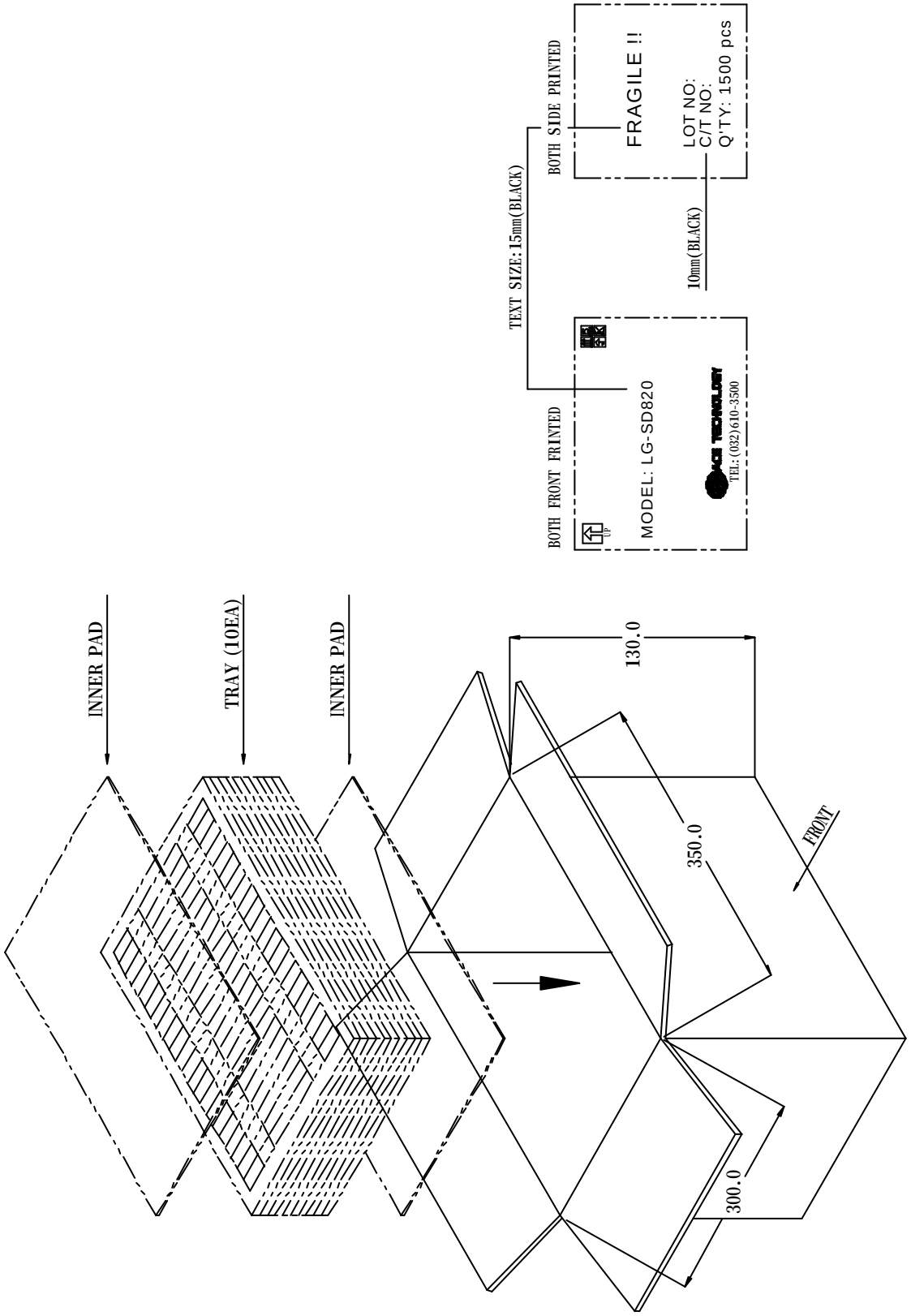


7. Antenna data

7.1. Antenna Drawing



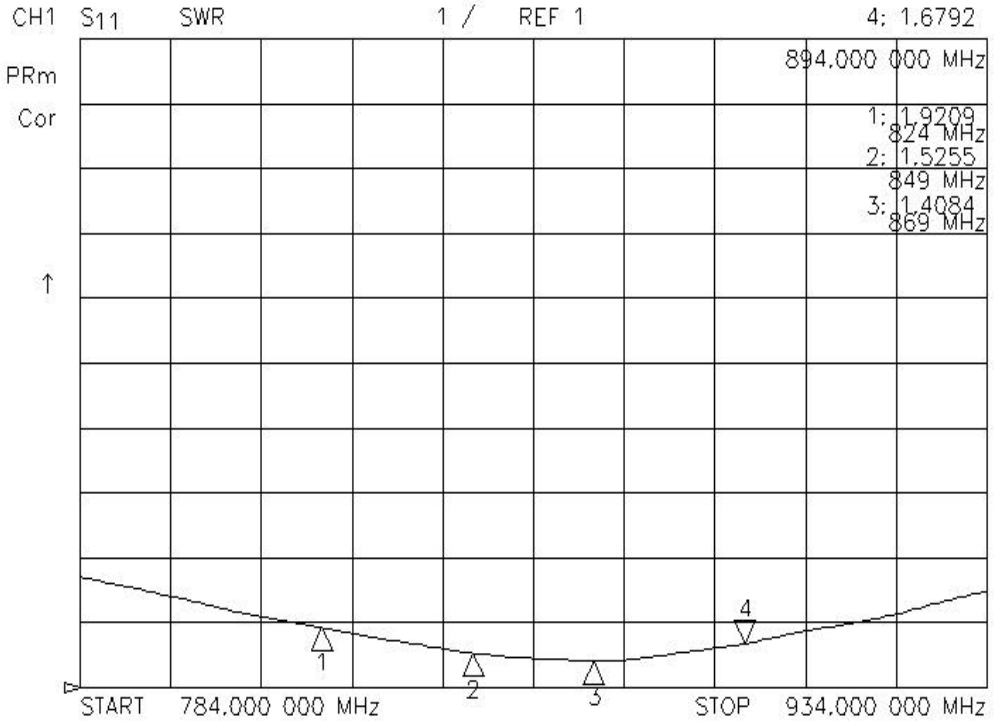
7.2 Packing Spec Drawing.



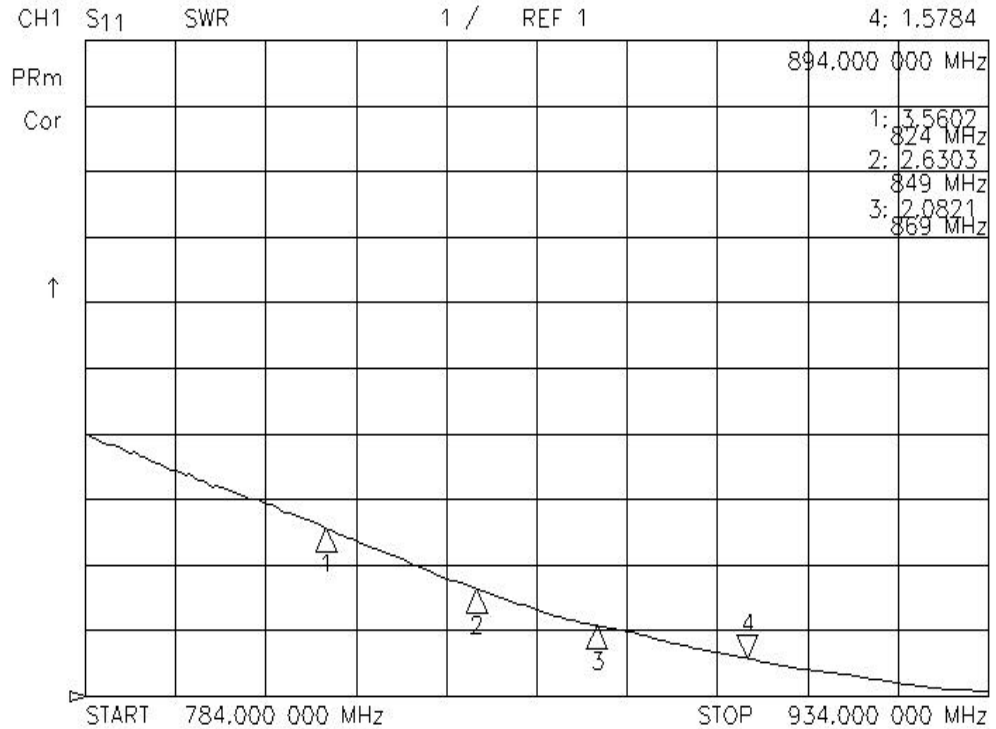
7.3 Electrical data (V.S.W.R, GAIN & Matching Circuit Diagram).

✍ V.S.W.R

Folder OPEN

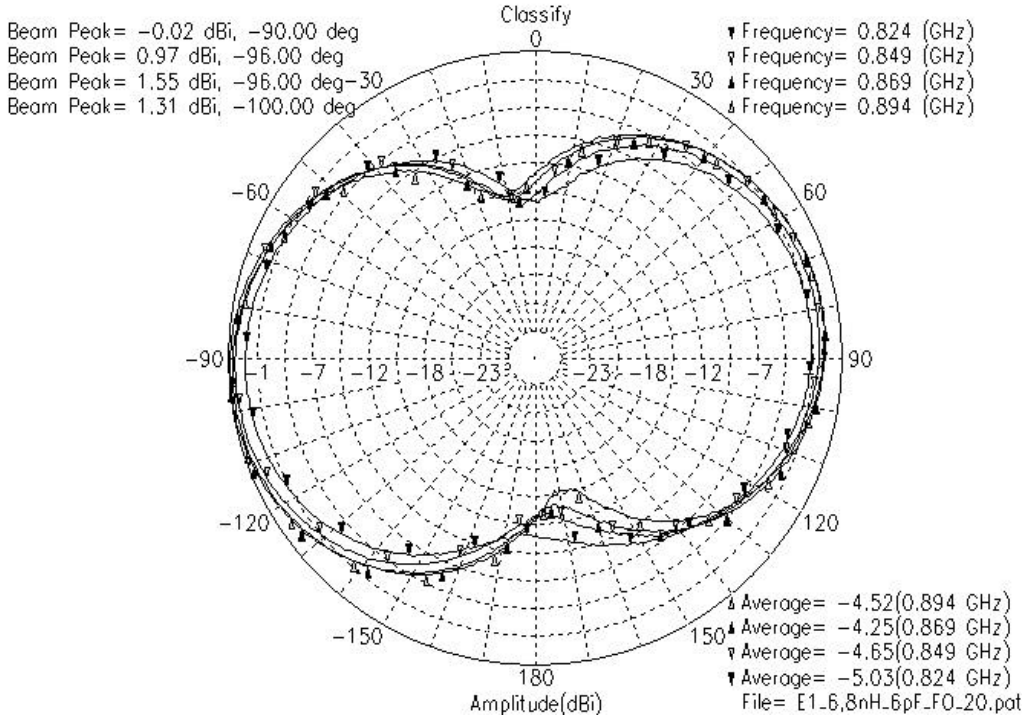


Folder CLOSE

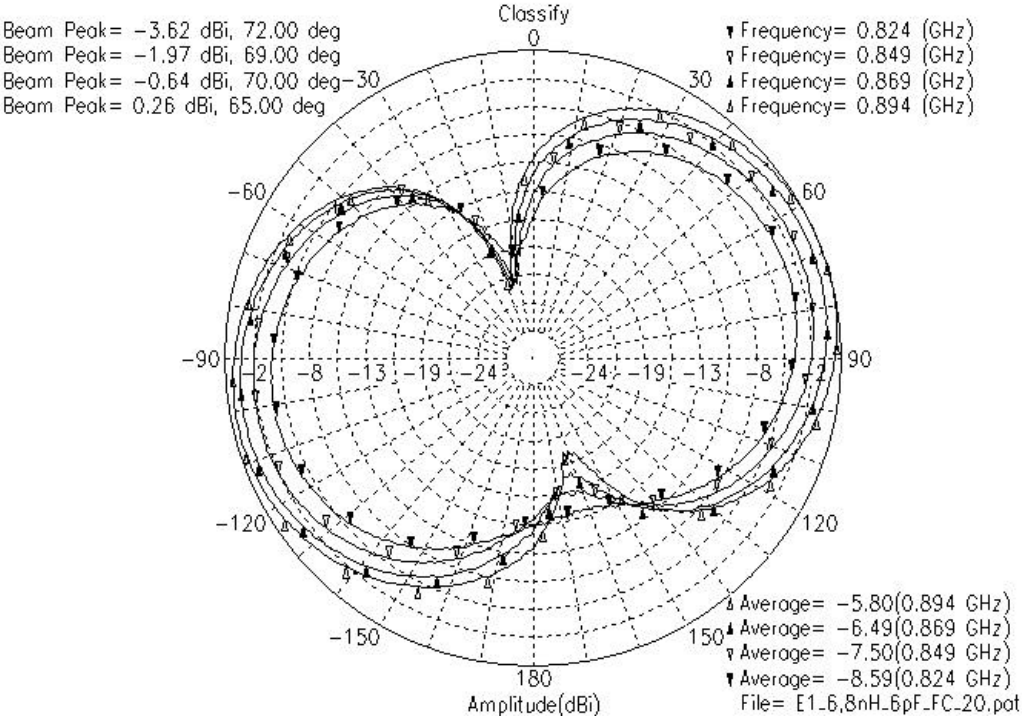


✍ RADIATION PATTERN

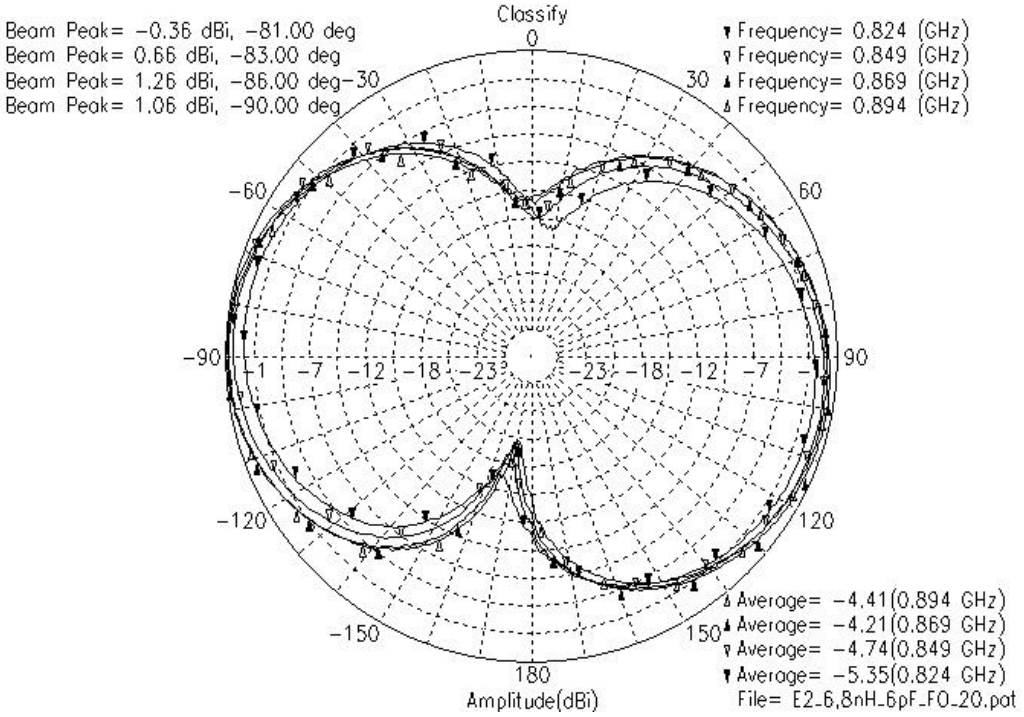
- Folder Open State Radiation Pattern (E1)



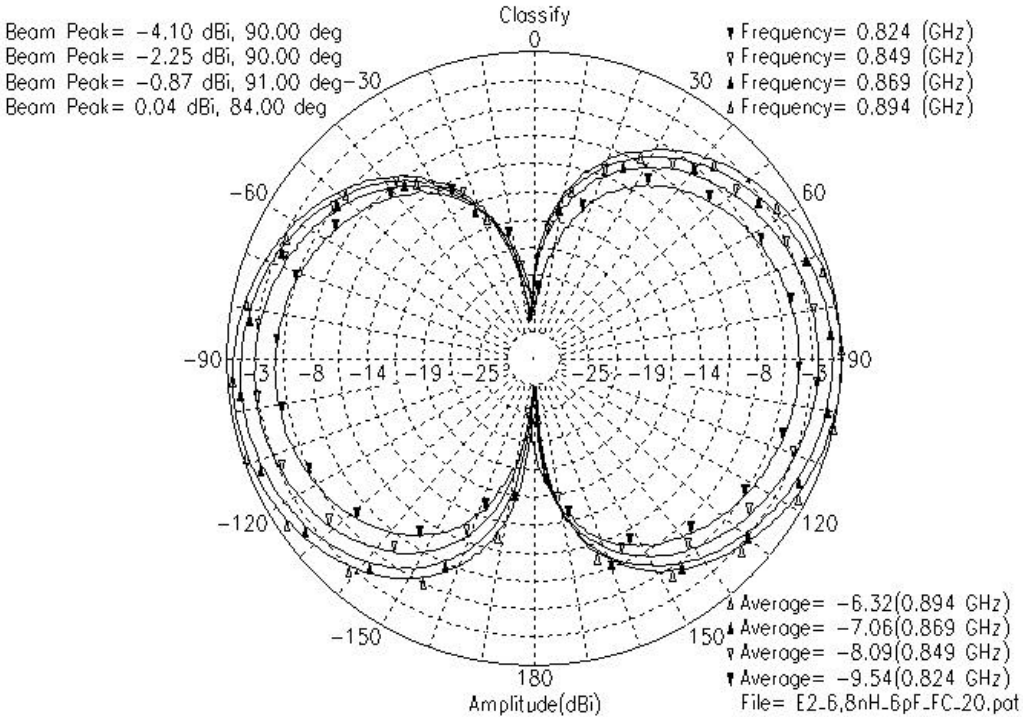
- Folder Close State Radiation Pattern (E1)



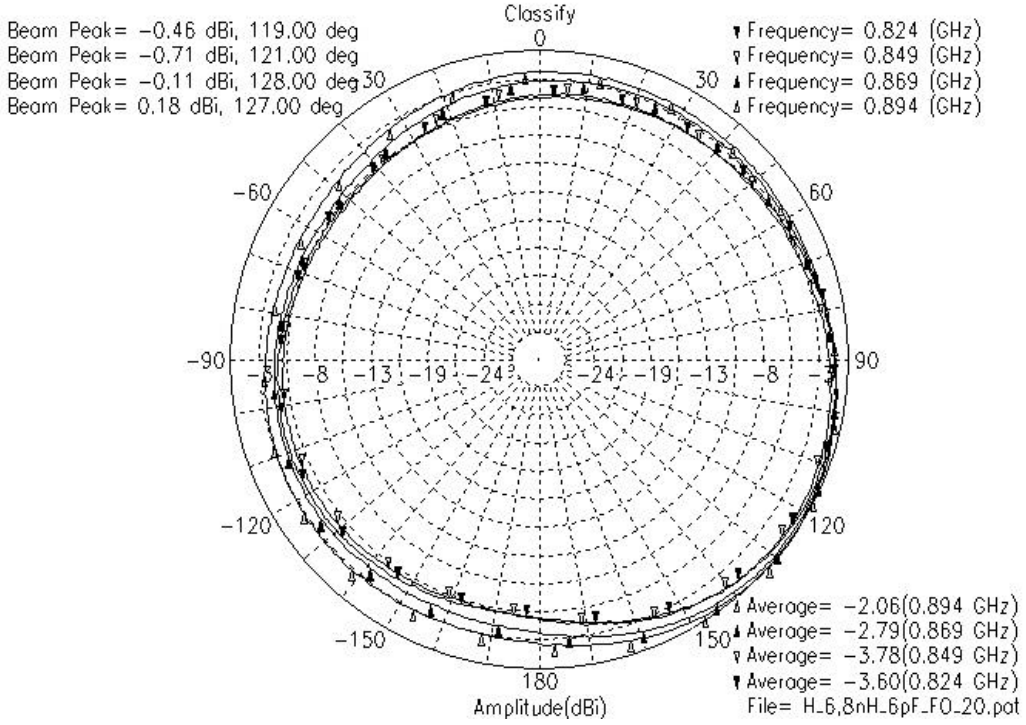
- Folder Open State Radiation Pattern (E2)



- Folder Close State Radiation Pattern (E2)



- Folder Open State Radiation Pattern (H)



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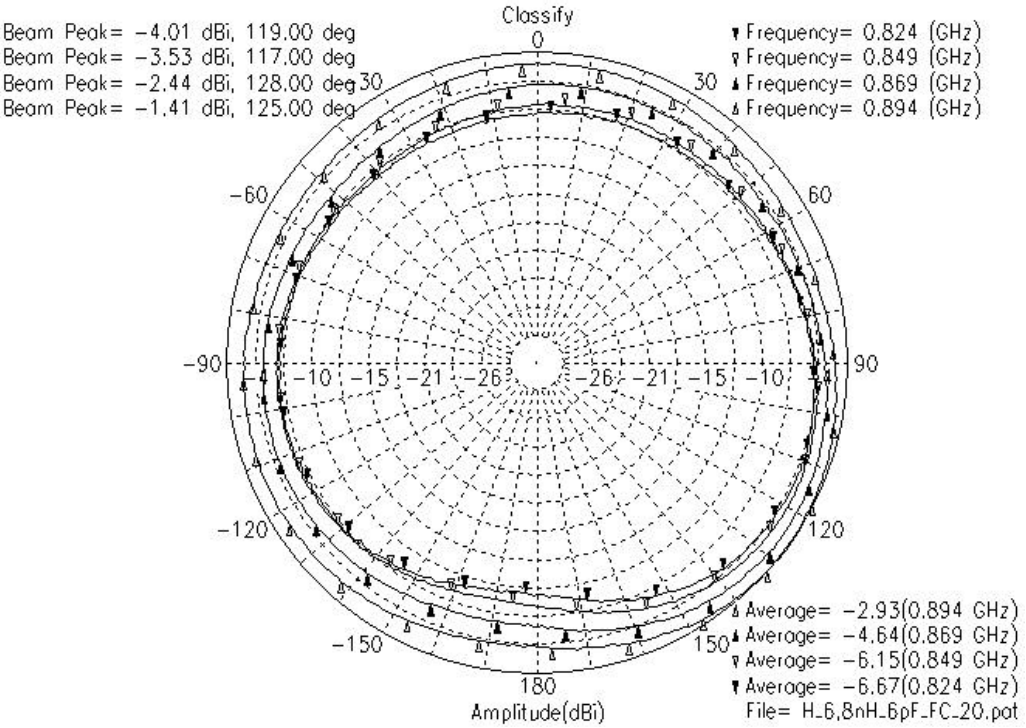

✍ Matching Circuit Diagram