EA-276C (PG500) Antenna Specification

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Revision: Rev. 0.1

Revision History

Date	Revision	Explanation of Changes	Revised by
2006.01.10	0.1		Steven Tsai

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INTRODUCTION

This document provides a Triple-band antenna (EA-276B) design specification for 2700 cellular phone. This antenna is stubby.

1. GENERAL DESCRIPTION

ARIMA MODEL& P/N	AIR WAVE P/N
PWG500	EA-276C

Below is a table summarizing the antenna design specification.

Parameter	Description
Number of antenna	1
Frequency Band	EGS, GSM, DCS, PCS
Antenna Type	Dipole Antenna
Touch	Snap-in Type (see Fig-1)
Nominal Impedance	50 ohm
VSWR MHz	2.2 : 1 max
VSWR 880~960 MHz	2.2 : 1 max
VSWR 1710~1880 MHz	2.0 : 1 max
VSWR 1850~1990 MHz	2.0 : 1 max
Polarization	Vertical
Antenna Gain	Please see 2.6.3
Note : Gain includes the cable loss	

Test Setup
Cellular under test sitting on a non-conductive table
The cellular under test must be fully populated with a battery, LCM/display, Cover, etc… The purpose is to characterize the antennas on a fully populated customer deliverable unit.
Note : the unit must be update with changes

2. Electronics Performance

2.1 Frequency

The antennas shall operate and meet the required specification in the following frequency bands:

Freq. / Band	Tx	Rx
EGS	824~860MHz	860~896MHz
GSM	880~915MHz	925~960MHz
DCS	1710~1785MHz	1805~1880MHz
PCS	1850~1910MHz	1930~1990MHz

2.2 PCB History

Arima communication will provide PCB (update with change) to AIR WAVE for tuning antenna, And AIR WAVE will support to match PCB network.

PCB	Description
Receive Date	200/01/10
Part Number	2700REVFP2
Match Component	0 Ω & 8.2nH
Revision	FP2
Note: The matching circuit in the PCB shall be equivalent to Fig 2.2.1.	

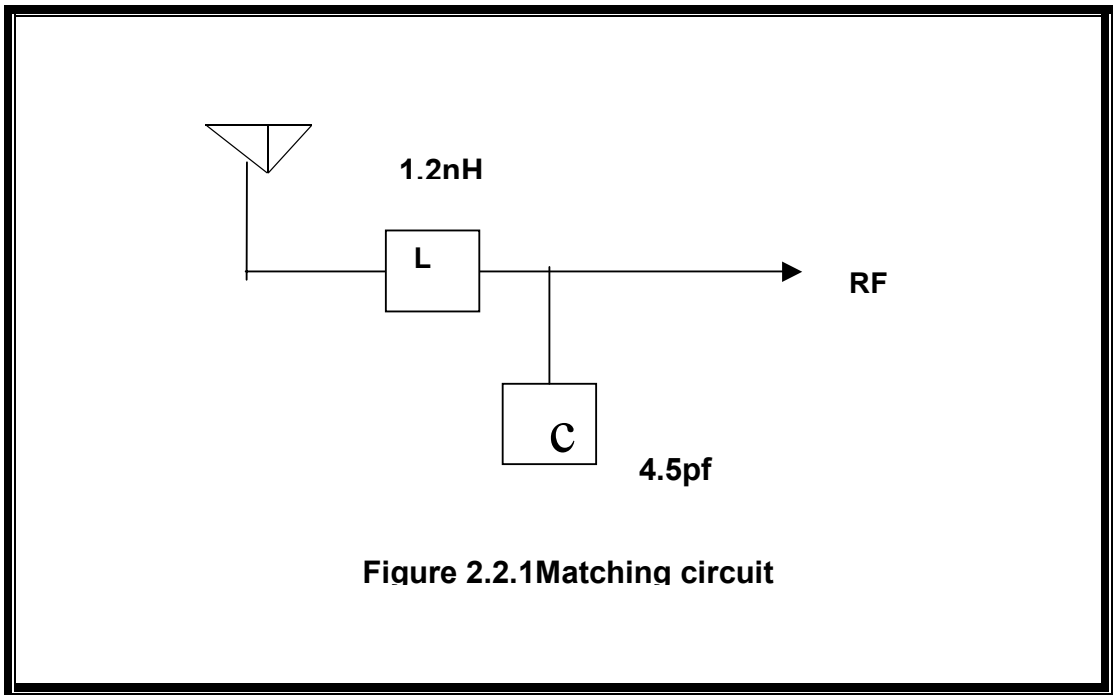


Figure 2.2.1Matching circuit

2.3 VSWR (Voltage Standing Wave Ratio)

The VSWR over the frequencies shall be measured at the connector end of the cable for antenna assembly. The antennas must be placed in a indicated place under test containing cover, LCM, etc.

∗ Set-up

Equipment	Description
Network Analyzer	Anritsu MS4622B
Transmission Cable	RG-400 low loss cable ,600m/m length
Test Base	Non-conductive table (polystyrene)
Measuring Mobile Phone	2700

Note: a. Network Analyzer, extension cable position, fixed length.
b. Calibration before use.
c. polystyrene Base must put on the wood material.
e.The antenna under test must be away from metal

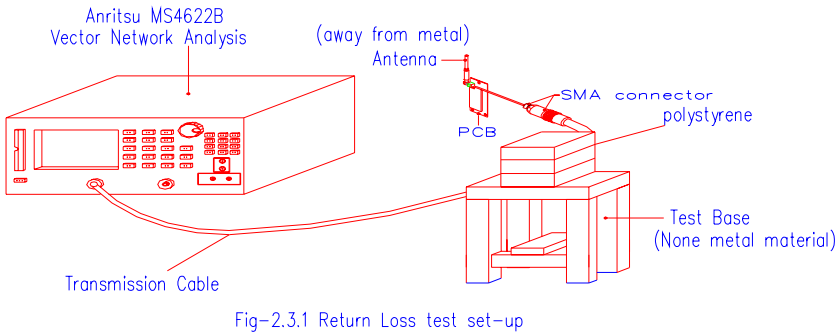


Fig-2.3.1 Return Loss test set-up

Test Parameter	VSWR
EGS	2.2 : 1 max
GSM	2.2 : 1 max
DCS	2.0 : 1 max
PCS	2.0 : 1 max

2.4 Nominal Impedance

2.4.1 Nominal Value: 50Ω

2.4.2 Method

AIR WAVE will supply engineering assistance to get the test possible matching of the handset antenna system. The impedance over the frequency bands shall be as closed as possible to 50Ω.

2.5 Power Rating

The antenna shall be able to withstand a maximum specified power.

Equipment	Description
EGS	2 W
GSM	2 W
DCS	1 W
PCS	1 W

2.6 Antenna Gain Radiation Pattern

The radiation pattern shall be as close to omni-directional as possible in the azimuth plane. In the azimuth plane, the antenna pattern should be measured at 2° increment (max).

2.6.1 Test Environment

The radiation pattern and antenna gain shall be tested in an anechoic chamber with at least a 3-meter separation from the received antenna to the antenna under test. The anechoic chamber must be lined with absorptive material rated. The mobile phone with the antenna assemblies installed shall be placed on RJC table at a height of 1 meter. All test equipment including horn antennas, adapters, cables, network analyzer, and receiver shall be calibrated per manufacturer's minimum calibration requirements.

2.6.2 Measurement System: NSI FFC-700S

Equipment	Description
Network Analyzer	VNA8753ET
Chamber Dimension	7X3.25X3.25 (m)
Test Base	Non-conductive RJC table
SBC	Standard beam controller
ARC	Antenna range controller
Measurement Software	NSI 2000

2.6.3 Antenna Gain :

Test Parameter	Dominant	Gain
EGS	@ 896 MHz	-3.10 dBi
GSM	@ 960 MHz	-3.01 dBi
DCS	@1850 MHz	-3.03 dBi
PCS	@1990 MHz	-3.02 dBi

3. Mechanical Performance

3.1 Appearance

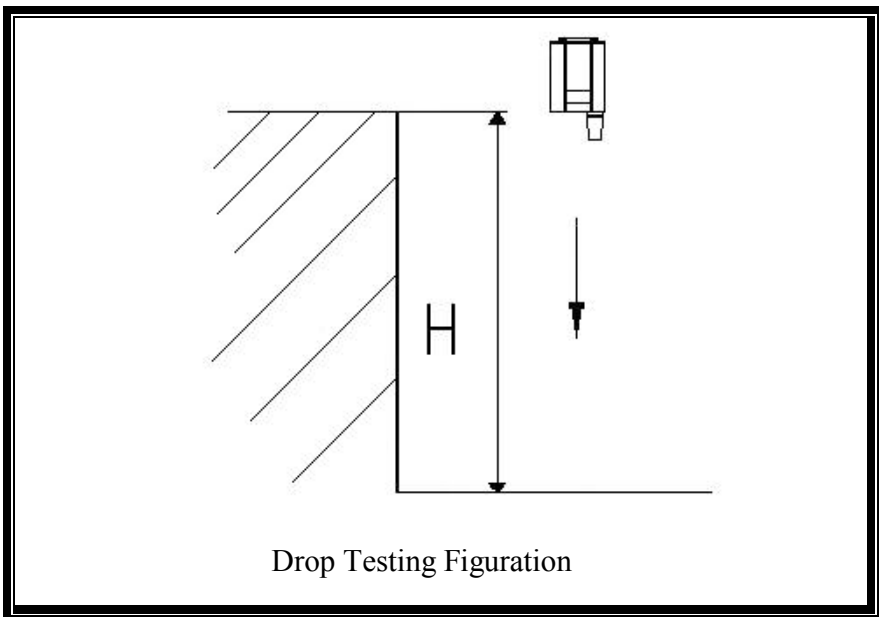
Cellular phone weight: 91g
Antenna weight: 1.5g

Please see Fig-1

3.2 Mechanical Testing

Test Parameter	Value
Drop Test	6 times at 1 m/ 0°

Note: a. the antenna is assembled to the test equipment. The antenna is exposed to the specified test value.
b. No visual deterioration shall be occurred, the fitting and plastic shall remain mechanically bonded. During the test, the antenna shall satisfy the electrical demands



Drop Testing Figuration

` • **4 Packing standard**

• **4.1**

Antenna to be packed in compartmentalized blisters tray. Each 100pcs. Per tray, Five trays are packed in a corrugated fiberboard inner box, 10 Inner boxes of one carton. (Fig -2)