



No. : SEKWANG 2008-07

Date :2008. 01. 10

SPECIFICATION

Product Name	ANTENNA
Customer	EZZEMOBILE
Model Name	MASS2(850)
Customer Code.	
Provider	SE KWANG
Part Code.	SKE803-0000AA

Buyer	Submitted	Checked		Approved
SE KWANG	Submitted	Checked	Checked	Approved
				



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1. Product History

LIST					
NO	Data	Front	After	Change	REV
1	2008.01.10			Proto Approval	0
2					
3					
4					
5					
6					
7					
8					
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10					
11					
12					
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14					
15					



2. Electrical Feature

2.1. Frequency Band

BAND	GSM850		DCS1800		PCS1900	
FREQUENCY	Tx	Rx	Tx	Rx	Tx	Rx
	824MHz ~ 849MHz	869MHz ~ 894MHz	1710MHz ~ 1785MHz	1805MHz ~ 1880MHz	1850MHz ~ 1910MHz	1930MHz ~ 1990MHz

2.2 Impedance

2.2.1 Input Impedance

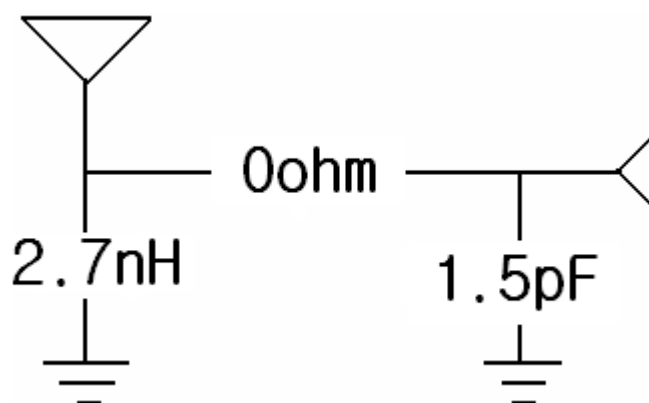
- $R = 50\Omega$

2.2.2 Measuring Method

By using Network Analyzer, connect the antenna installed handset to the reflection point of Analyzer and measure the impedance value within the designated frequency band.

2.3 Matching circuit

Matching Circuit is composed in free space of 2.1 frequency band while satisfying customer's requirements.



<Figure 2.3.1 Matching circuit>



2.4 VSWR

Impedance Matching optimization is performed under the below mentioned environment.

2.4.1 Free Space Environment

BAND	GSM850		DCS1800	PCS
FREQ	824MHz	894MHz	1710MHz	1990MHz
CLOSE	6.5:1	3.5:1	5.5:1	4.0:1
OPEN	8.0:1	3.5:1	5.0:1	4.0:1

2.4.2 Measuring Method

Connect (soldering) 50Ω semi-rigid coaxial cable to the 50Ω spot in handset. To minimize the loss of transmission, semi-rigid coaxial cable is used. Including PCB, the handset shouldn't be different from the one, which will be used for mass production.

Specification should be the same for all frequency bands. Free Space means that Handset is put on the surface of no conducting plastic.

2.5 Directivity

Omni-directional (Horizontal)

BAND		GSM850	DCS1800	PCS
CLOSE	Avg.	-10.93dBi	-5.31dBi	-5.18dBi
	Peak	-6.84dBi	-0.80dBi	-0.48dBi
OPEN	Avg.	-7.63dBi	-5.17dBi	-4.65dBi
	Peak	-4.67dBi	-0.52dBi	0 dBi

2.6 Maximum Power

- P=2W Under



3. Environment Test

3.1 Operating Temperature Test

3.1.1 Test Condition

Temperature = -30°C , $+80^{\circ}\text{C}$

Duration time = 1 hour

3.1.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

3.1.3 Measuring Method

Antenna is kept at -30°C for 1 hour and $+80^{\circ}\text{C}$ for 1 hour and then passed test of 2.4

3.2 Temperature Cycling Test

3.2.1 Test Condition

- Low cycling Temperature TLC = -40°C
- High cycling Temperature THC = $+80^{\circ}\text{C}$
- 1Cycle = 4 hours
- Test number = 10Cycle

3.2.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.



3.2.3 Measuring Method

Antenna is kept at low temperature -40°C for 2 hours and increase the temperature up to $+80^{\circ}\text{C}$ within 2 hour and kept for another 2 hours at the same temperature will be 1 cycle. As shown in Figure 3.2.1 repeat 10 cycle and kept for 2 hour in normal temperature.

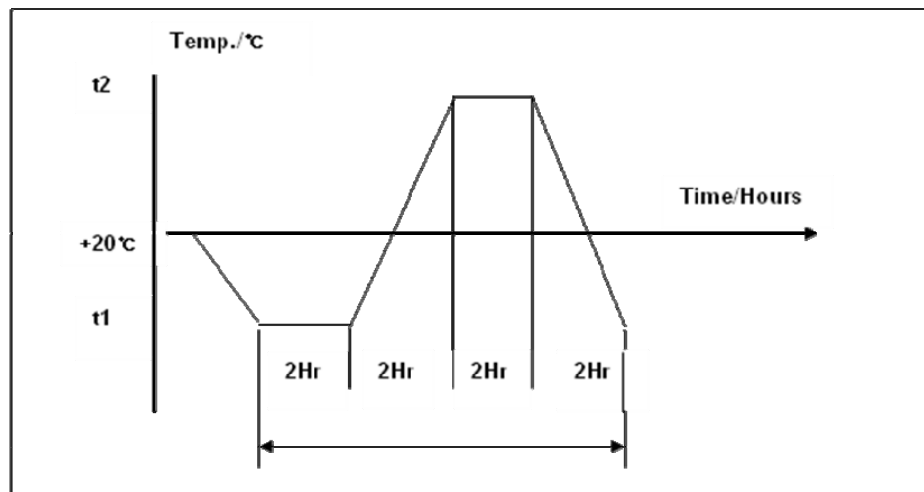


Figure 3.2.1 Temperature Cycling

3.3 Corrosion Resistance Test

3.3.1 Test Condition

- NaCl = 90%
- Water Temperature = 60°C
- Duration Time = 96 hours

3.3.2 Requirements

After the test, the antenna must not have an outer damage, and also it must pass requirement shown in 2.4.

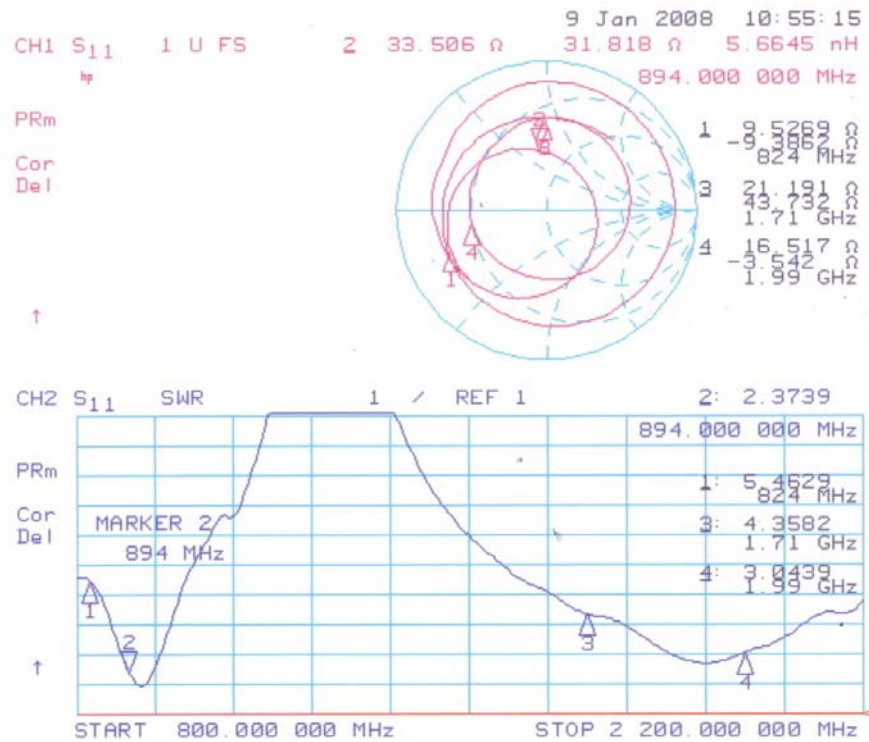
3.3.3 Measuring Method

Antenna is soaked in sodium chloride solution at temperature $+60^{\circ}\text{C}$ and 90%(NaCl) for 96 hours and dry out.

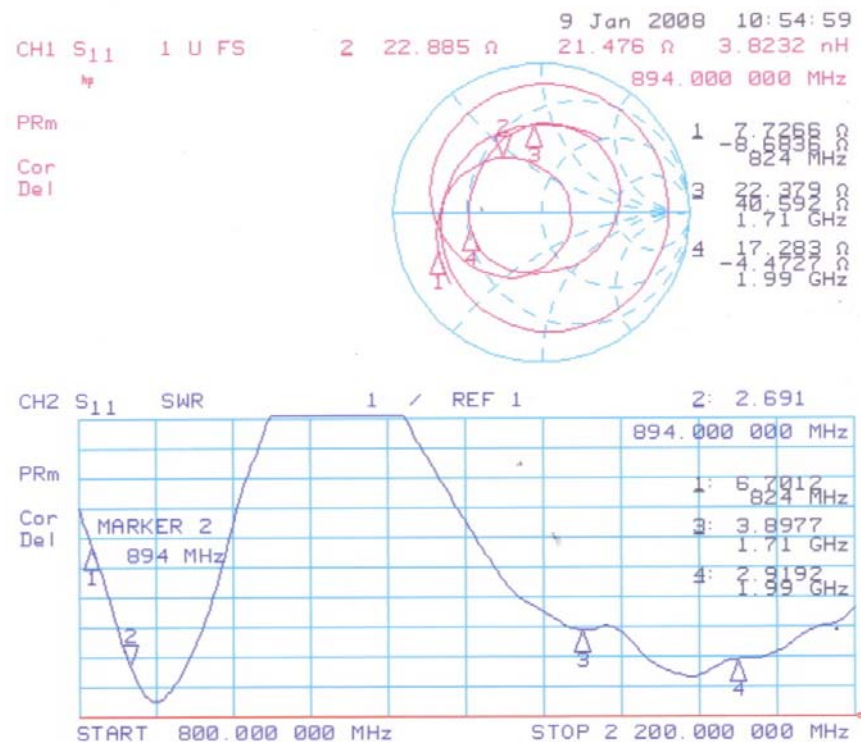


4. Electric Performance Data

4.1.1. Smith Chart & VSWR (CLOSE)

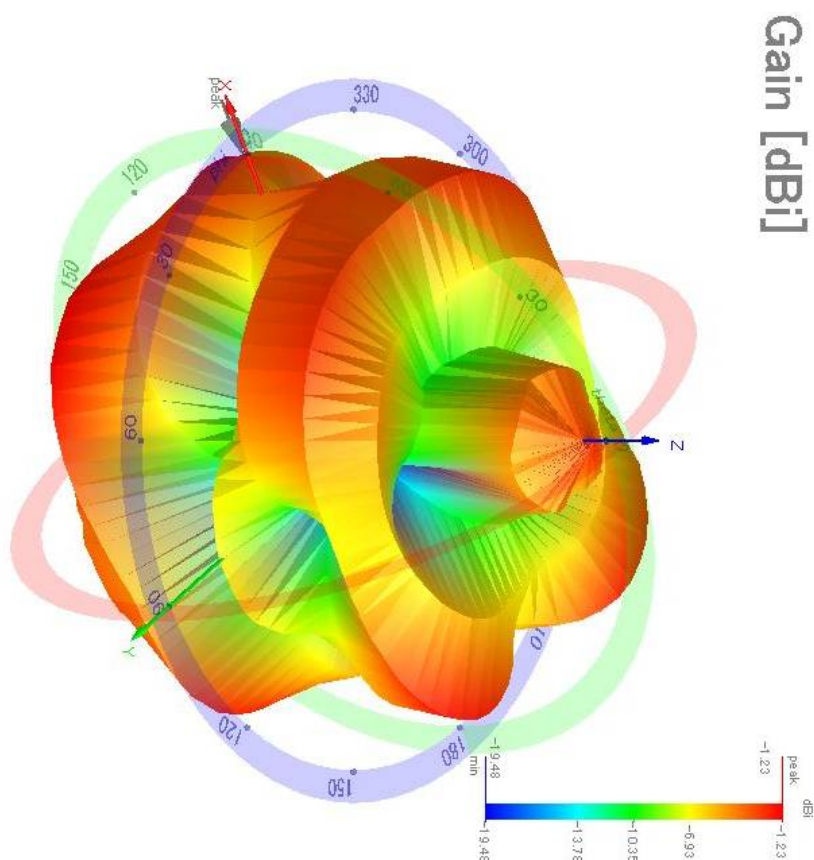


4.1.2. Smith-Chart & VSWR (OPEN)





Freq. [MHz]	Polarization	Beam Peak			Beam Null			Gain[dB]	Efficiency
		Value	Phi	Theta	Value	Phi	Theta		
1710		-2.198	85	90	-24.501	330	15	-6.877	20.53%
1785		-0.911	90	90	-21.533	85	105	-5.495	28.21%
1805		0.002	85	90	-22.159	70	150	-4.341	36.80%
1850		-0.349	95	105	-19.365	70	150	-4.841	32.80%
1880		-0.129	95	105	-17.909	290	165	-4.573	34.89%
1910		0.027	95	105	-19.285	295	165	-4.526	35.27%
1930		-0.157	95	105	-18.142	300	165	-4.919	32.21%
1990		-1.457	-155	120	-23.242	35	45	-6.453	22.63%



Test Name :	Test #1
Operator :	Operator Name
Date :	2008-01-10
Time :	오후 3:30:49
Description :	Test Descriptions
Calibration :	071206

Frequency [MHz]	Plot Data Type
824,000 849,000 869,000 894,000 1710,000 1795,000 1805,000 1850,000 1880,000 1910,000 1930,000 1990,000	VH Sum Amplitude [dB] Normalization Global Peak
☒ Default Range	Range Change Max Amplitude 5

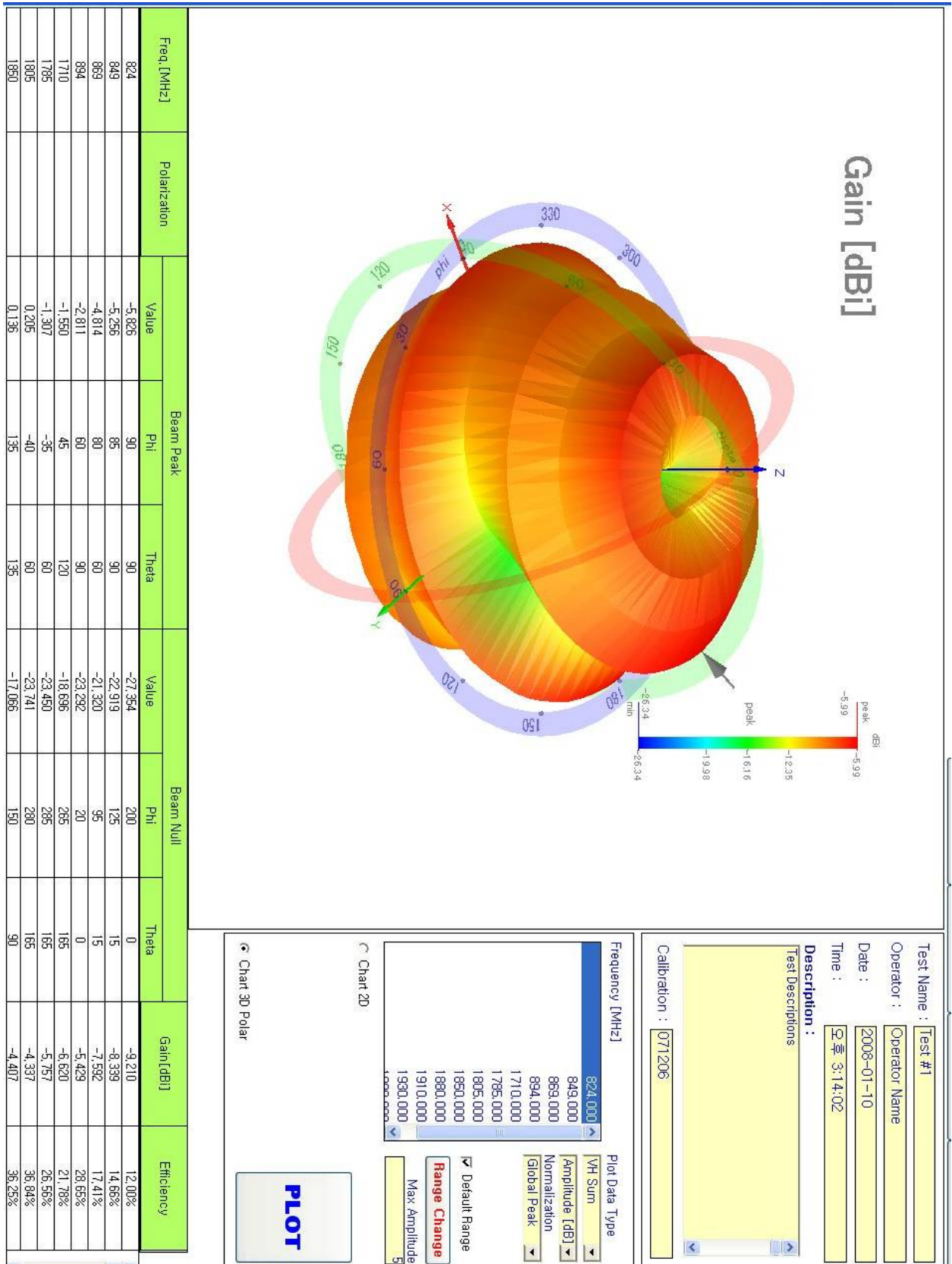
☐ Chart 2D
 ☐ Chart 3D Polar

PLOT



4.2.2. 3D-Gain Data (OPEN)

Gsm850





Dcs1800, Pcs1800

