

SPECIFICATIONS SHEET

**Triple-Band ANTENNA
(Tri-4)**

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1. General Application

This document specifies the chip antenna for the mobile communication terminal.

Model Number	Tri-4
Application	GSM900 / DCS1800 / USPCS

2. Technical Specification

2.1 Electrical Specification

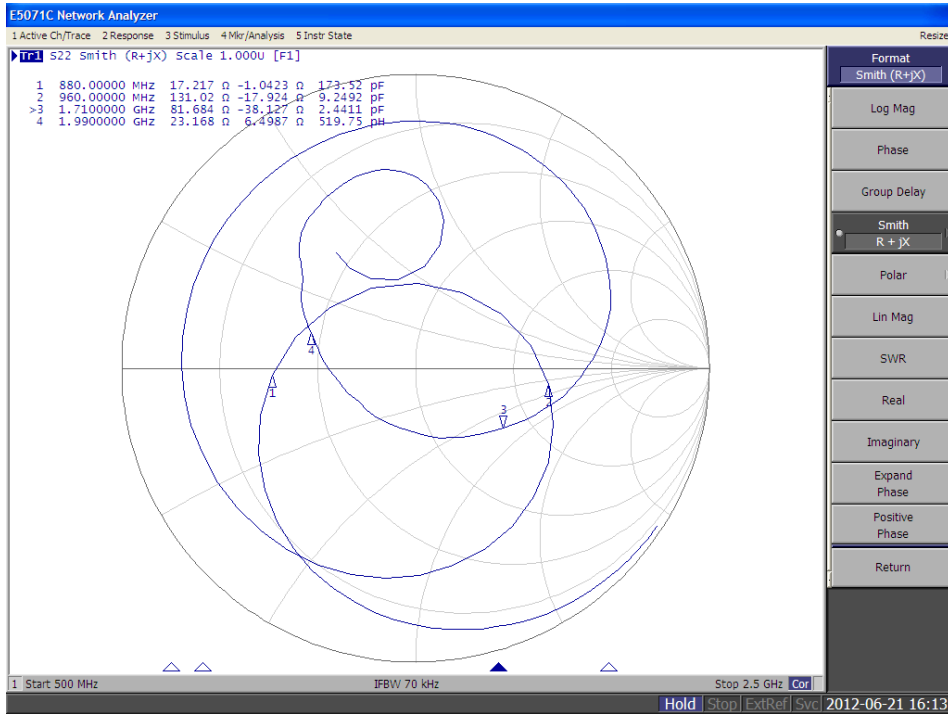
No	Item	Specification		Remarks
1	Frequency Range	880MHz ~ 960MHz		GSM900
		1710MHz ~ 1880MHz		DCS1800
		1850MHz ~ 1990MHz		USPCS
2	VSWR	GSM900	3 : 1	Test Jig (40 x90 x 1.2mm)
		DCS1800/USPCS	3 : 1	
3	Impedance	50 Ω		
4	3D Efficiency	GSM900	40%	Test Jig
		DCS1800/USPCS	50%	
5	Polarization	Linear		
6	Radiation Pattern	Omni directional		

2.2 Mechanical Specification

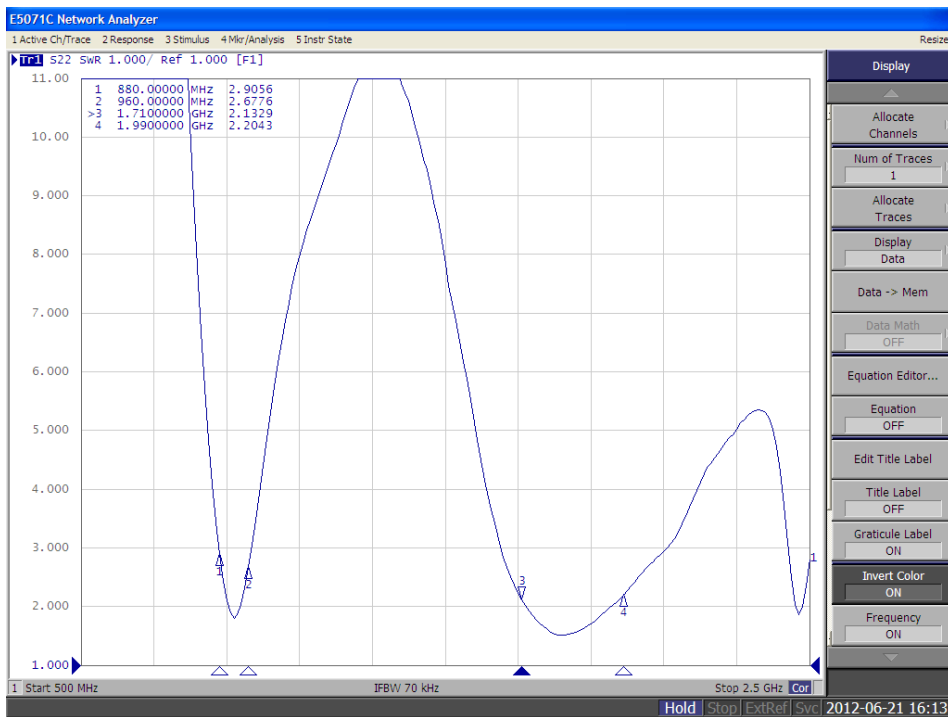
No	Item	Specification	Remarks
1	Dimension	13.5 * 6 * 2.4(H)mm	
2	Radiator Material	Copper	
3	Operating Temperature	-30℃ ~ +80℃	
4	Operating Humidity	10% ~ 90%	
5	Weight	N/A	
6	Connector Type	solder	

3. Measurement Data

3.1 VSWR & Smith Chart



< Smith Chart >



< VSWR >

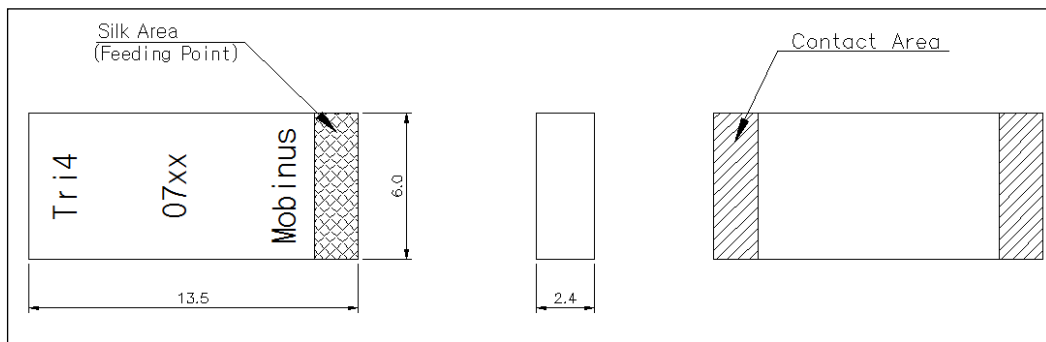
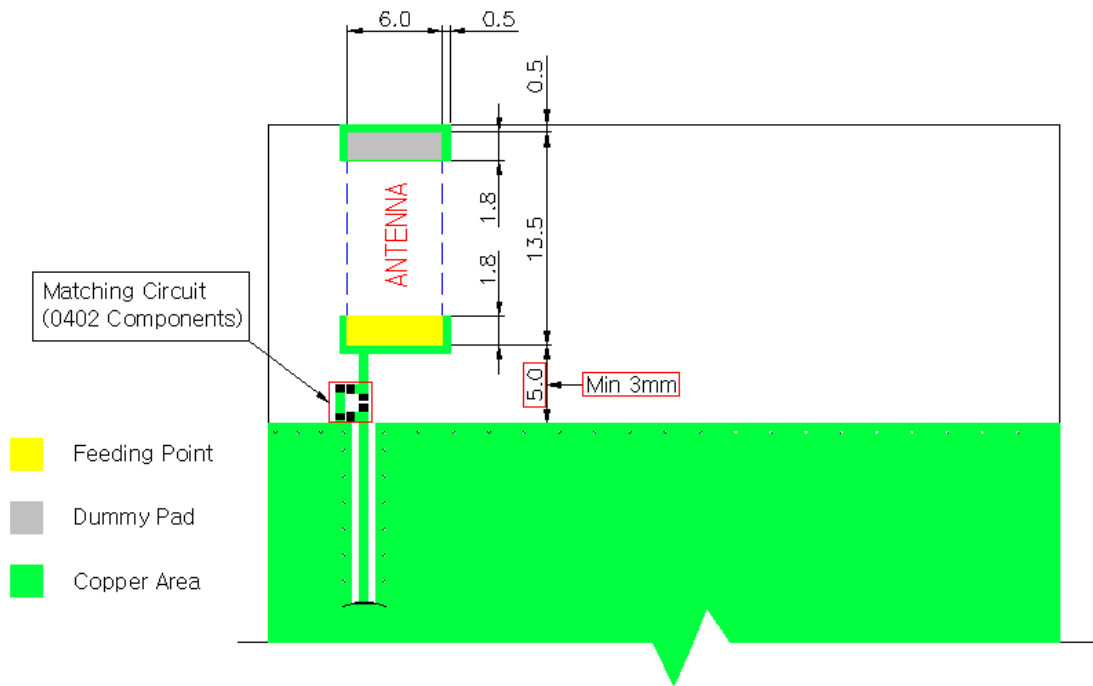
Fig 2. VSWR & Smith Chart

3.2 Test Result (3D Efficiency)

	1	2	3	4	5	6	7	8	9	10	11	12
Frequency(MHz)	880	915	925	960	1710	1785	1805	1850	1880	1910	1930	1990
Efficiency(dB)	-3.92	-3.63	-3.97	-4.02	-2.73	-2.95	-2.78	-2.76	-2.57	-2.55	-2.26	-2.02
Efficiency(%)	40.51	43.38	40.12	39.60	53.29	50.75	52.68	53.02	55.31	55.61	59.48	62.83
TRG(dB)	-3.92	-3.63	-3.97	-4.02	-2.73	-2.95	-2.78	-2.76	-2.57	-2.55	-2.26	-2.02
TRG_{Theta}(dB)	-4.78	-4.50	-4.84	-4.87	-3.27	-3.79	-3.72	-3.81	-3.66	-3.64	-3.36	-3.28
TRG_{Phi}(dB)	-11.38	-11.02	-11.34	-11.56	-12.06	-10.46	-9.89	-9.43	-9.11	-9.09	-8.75	-8.00
TRG(dB)	-8.20	-7.84	-8.16	-8.11	-7.37	-7.06	-6.89	-6.80	-6.68	-6.76	-6.55	-6.37
UHRG/TRG(%)	37.38	37.92	38.05	39.02	34.37	38.80	38.87	39.42	38.80	37.88	37.22	36.73
H-Plane	-2.72	-2.57	-2.94	-2.99	-0.97	-1.86	-1.97	-2.34	-2.47	-2.61	-2.39	-2.56
E1-Plane, AVG(dB)	-7.11	-6.86	-7.18	-7.12	-4.19	-4.75	-4.62	-4.64	-4.53	-4.53	-4.28	-4.05
E2-Plane, AVG(dB)	-4.66	-4.44	-4.81	-4.89	-3.71	-3.81	-3.72	-3.69	-3.33	-3.20	-2.83	-2.62
Peak Gain(dB)	-0.63	-0.59	-0.96	-0.93	2.52	2.11	2.05	1.89	1.91	1.72	1.98	1.88
Directivity(dB)	3.30	3.04	3.01	3.09	5.26	5.05	4.83	4.64	4.48	4.27	4.24	3.90
Minimum Gain(dB)	-18.07	-19.32	-19.97	-20.11	-20.15	-15.48	-17.16	-19.16	-20.67	-20.54	-18.25	-14.50
Test Condition	FS											
Antenna Type												
<i>FS=Free Space, BHR=Beside Head Right Side, BHL=Beside Head Left Side, HR=Hand Right, HL=Hand Left, BHHR=Beside Head</i>												
Average Efficiency	-2.96 dB,		50.55 %									

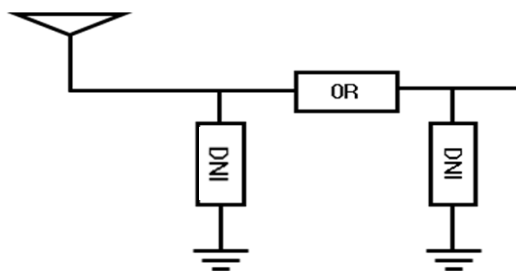
4. Application Guide

4.1 PCB Design Guide



< Mechanical Drawings >

4.2 Default Condition Matching Circuit



< Default Matching Value >

5. Packing Specification

5.1 Packing Specification

Item	Quantity	Materials	Remarks
Reel or Tray	2,000	P.S/PET	
Carton Box	10,000	Double Wall Paper	5 Reels/Carton

5.2 Reel Tape Drawing

NO. C24W333

Packing Quantity
2,000 pcs / reel

A0	6.40±0.10	E	1.75±0.10
B0	13.90±0.10	F	11.50±0.10
D0	1.55±0.05	t	0.30±0.05
K0	2.85±0.10	W	24.00±0.30

Scale N/S Unit m/m

Date 2013

Designed By: _____

Checked By: _____

Approved By: _____

Customer & Title

(주)이산전자

5.2 Reel Tape Drawing

