

SPECIFICATIONS SHEET

**Penta-Band ANTENNA
(FA5x)**

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1. General Application

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

Model Number	FA5x
Application	GSM850, GSM900, DCS1800, PCS1900, WCDAM2100

2. Technical Specification

2.1 Electrical Specification

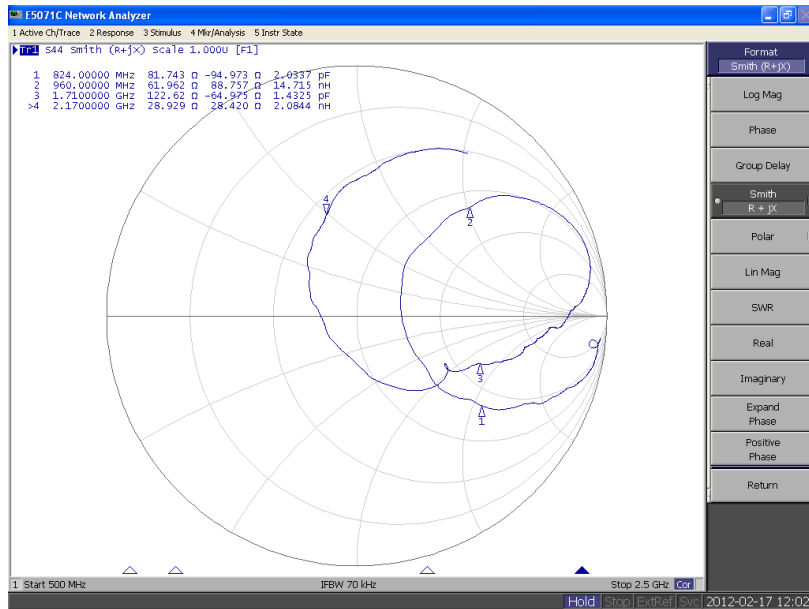
No	Item	Specification	Remarks
1	Frequency Range	880MHz ~ 960MHz 1710MHz ~ 2170MHz	
2	VSWR	5.0: 1	Test Jig
3	Impedance	50 Ω	
4	Polarization	Linear	
5	Radiation Pattern	Omni directional	

2.2 Mechanical Specification

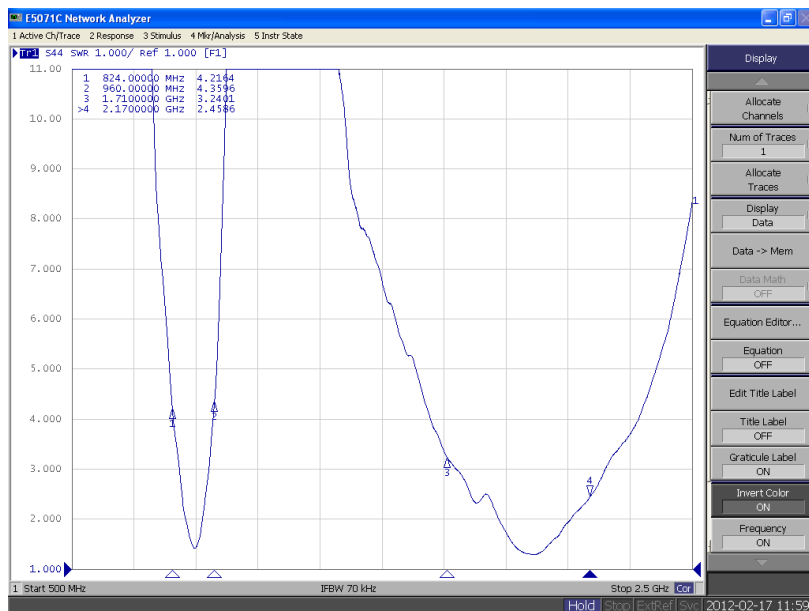
No	Item	Specification	Remarks
□	Dimension	8 X 20 X 3.2(H) mm	
2	Radiator Material	Copper	
3	Operating Temperature	-40℃ ~ +85℃	
4	Operating Humidity	10% ~ 90%	
5	Weight	N/A	
6	Connector Type	N/A	

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)	824	880	894	960	1710	1785	1805	1880	1920	1980	2110	2170
Efficiency(dB)	-2.99	-1.04	-1.03	-3.83	-2.53	-2.15	-1.84	-1.48	-1.35	-1.28	-1.27	-1.57
Efficiency(%)	50.28	78.64	78.86	41.42	55.90	61.00	65.48	71.07	73.34	74.51	74.65	69.65
TRG(dB)	-2.99	-1.04	-1.03	-3.83	-2.53	-2.15	-1.84	-1.48	-1.35	-1.28	-1.27	-1.57
TRG _{Theta} (dB)	-3.10	-1.14	-1.13	-3.94	-3.88	-3.69	-3.40	-3.06	-2.79	-2.59	-2.56	-2.68
TRG _{Phi} (dB)	-18.79	-17.44	-17.35	-19.66	-8.24	-7.40	-7.04	-6.65	-6.84	-7.11	-7.18	-8.04
UHRG(dB)	-6.66	-5.14	-5.16	-8.00	-8.31	-7.74	-7.44	-7.69	-7.56	-7.10	-6.58	-6.68
UHRG/TRG(%)	42.95	38.92	38.61	38.26	26.40	27.59	27.53	23.97	23.94	26.19	29.44	30.81
H-Plane	-0.95	0.69	0.73	-2.03	-2.60	-3.77	-3.95	-5.86	-6.68	-7.08	-9.48	-8.63
E1-Plane, AVG(dB)	-4.36	-2.34	-2.35	-5.21	-5.17	-4.83	-4.52	-3.75	-3.37	-3.29	-3.24	-3.31
E2-Plane, AVG(dB)	-4.25	-2.35	-2.36	-5.21	-3.61	-3.26	-3.03	-2.89	-2.53	-2.28	-2.63	-2.78
Peak Gain(dB)	-0.70	1.13	1.23	-1.42	0.94	1.76	2.20	2.49	2.70	2.71	2.67	2.29
Directivity(dB)	2.28	2.18	2.26	2.41	3.47	3.90	4.04	3.97	4.05	3.99	3.94	3.86
Minimum Gain(dB)	-9.97	-9.66	-10.52	-14.23	-13.81	-17.08	-16.35	-13.64	-12.01	-10.51	-10.13	-9.73
Test Condition	FS											
Antenna Type												
Average Efficiency	-1.79 dB,		66.23 %									

3.3 Radiation Pattern

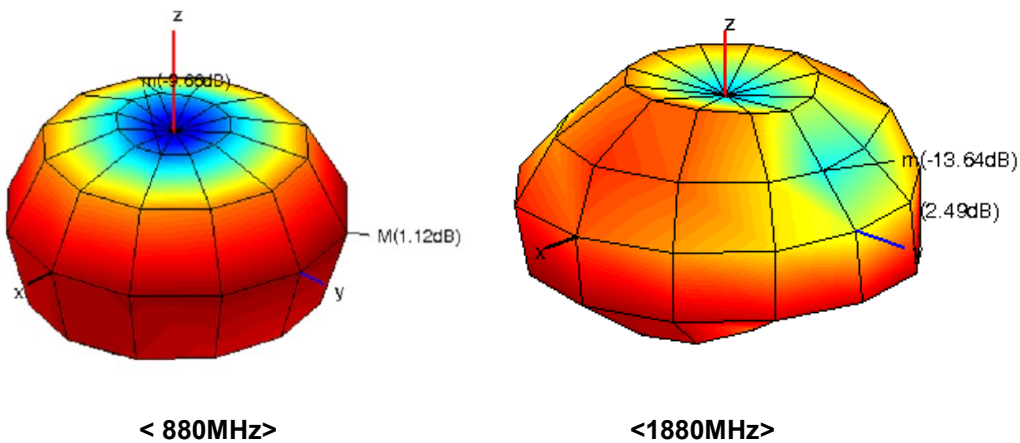
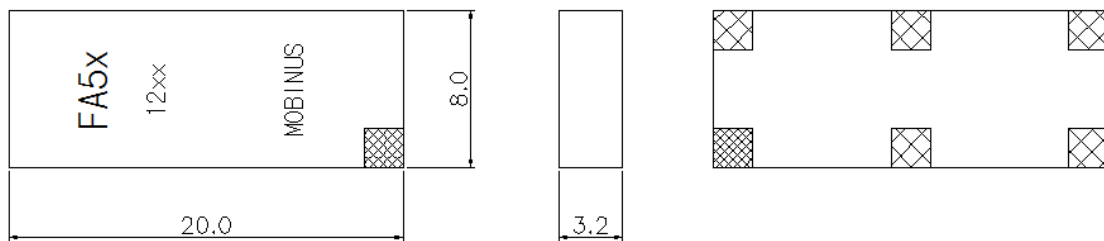
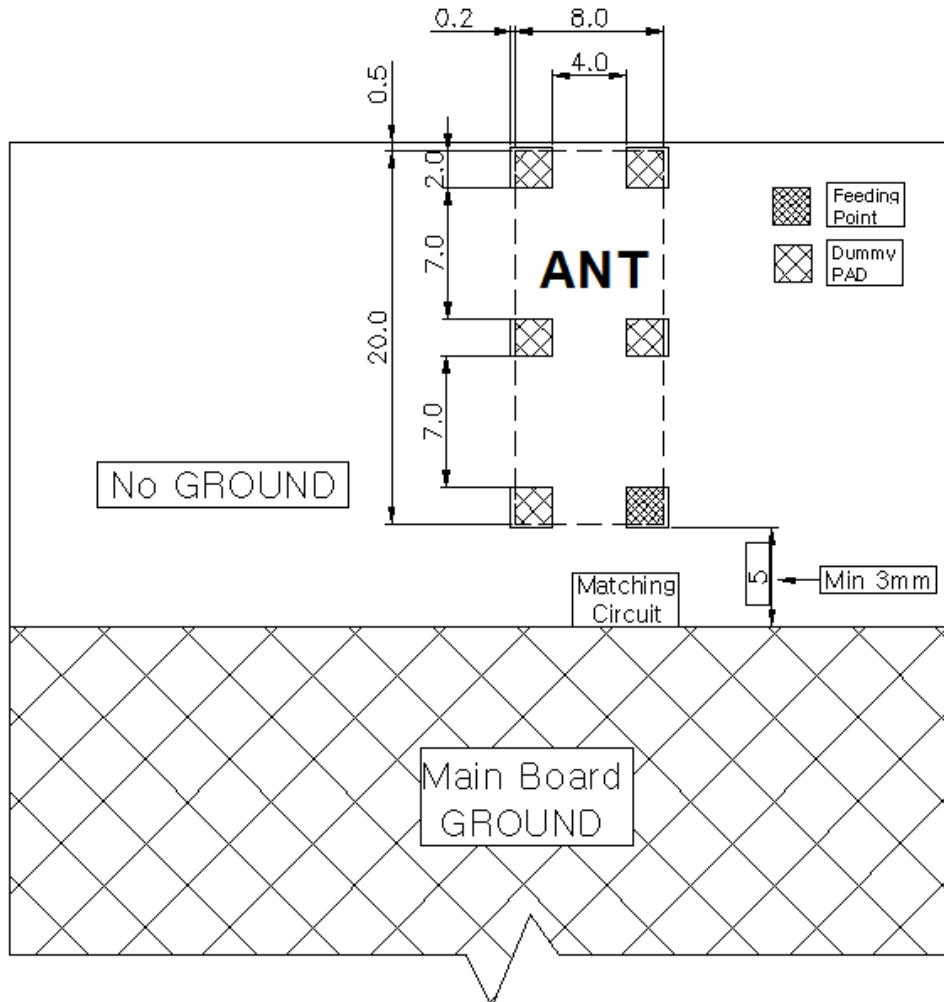


Fig 3. Radiation Pattern

4. Application Guide

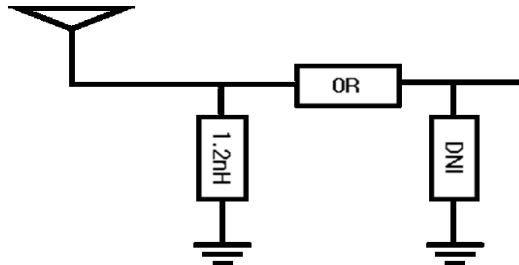
4.1 PCB Design Guide



< Mechanical Drawings >

* Test Jig Size : 60 x 100 x 1.2t mm

4.2 Default Condition Matching Circuit



< Default Matching Value >

* The component values for the matching circuit will vary depending on the size of the PCB and surrounding components.