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SPECIFICATIONS SHEET

**WLAN ANTENNA
(LDH6xD)**

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1. General Application

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

Model Number	LDH6xD
Application	WLAN Dual Band(2.4G, 5G)

2. Technical Specification

2.1 Electrical Specification

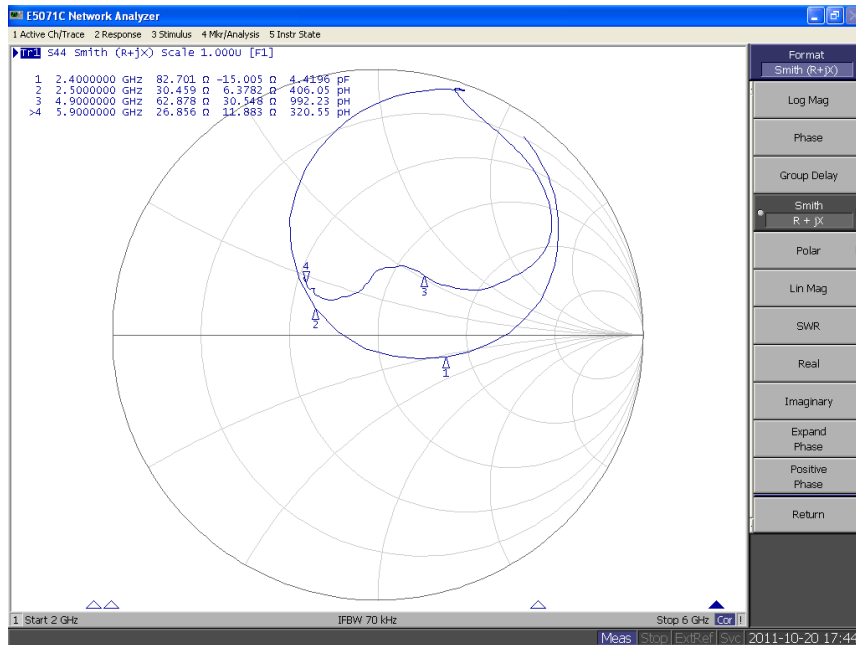
No	Item	Specification	Remarks
1	Frequency Range	2.4GHz ~ 2.5GHz 4.9GHz ~ 5.9GHz	
2	VSWR	2.0: 1	
3	Impedance	50 Ω	
4	3D Efficiency	70%, 90%	Test Jig
5	Polarization	Linear	
6	Radiation Pattern	Omni directional	

2.2 Mechanical Specification

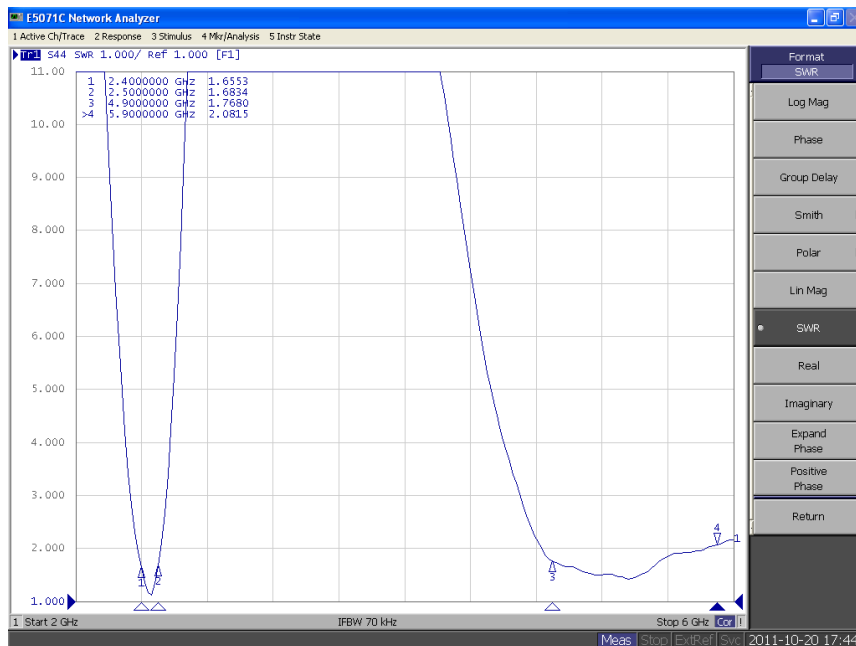
No	Item	Specification	Remarks
1	Dimension	3.0 X 12.5 X 2.0(T)	
2	Radiator Material	Copper	
3	Operating Temperature	-30℃ ~ +80℃	
4	Operating Humidity	10% ~ 90%	
5	Weight	0.15g	
6	Connector Type	N/A	

3. Measurement Data

3.1 VSWR & Smith Chart



< Smith Chart >



< VSWR >

Fig 2. VSWR & Smith Chart

3.2 Test Result (3D Efficiency)_2.4G

	1	2	3	4	5	6	7	8	9	10	11
Frequency(MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Efficiency(dB)	-0.78	-1.05	-1.09	-1.10	-1.10	-1.26	-1.48	-1.29	-1.55	-1.86	-2.28
Efficiency(%)	83.55	78.51	77.77	77.54	77.66	74.84	71.09	74.26	69.91	65.23	59.16
TRG(dB)	-0.78	-1.05	-1.09	-1.10	-1.10	-1.26	-1.48	-1.29	-1.55	-1.86	-2.28
TRG _{Thata} (dB)	-1.74	-2.01	-2.07	-2.07	-2.09	-2.25	-2.51	-2.32	-2.63	-2.93	-3.40
TRG _{Phi} (dB)	-7.81	-8.07	-8.05	-8.12	-8.02	-8.15	-8.24	-8.05	-8.15	-8.46	-8.71
UHRG(dB)	-4.39	-4.64	-4.66	-4.65	-4.61	-4.74	-4.94	-4.72	-4.96	-5.25	-5.66
UHRG/TRG(%)	43.52	43.79	44.02	44.25	44.58	44.86	45.15	45.38	45.64	45.75	45.96
H-Plane	-0.53	-0.81	-0.87	-0.89	-0.94	-1.12	-1.38	-1.18	-1.51	-1.84	-2.39
E1-Plane, AVG(dB)	-3.10	-3.35	-3.39	-3.38	-3.38	-3.53	-3.77	-3.58	-3.87	-4.14	-4.59
E2-Plane, AVG(dB)	-1.47	-1.78	-1.88	-1.90	-1.95	-2.16	-2.46	-2.33	-2.67	-2.99	-3.48
Peak Gain(dB)	2.80	2.52	2.43	2.37	2.30	2.07	1.77	1.91	1.59	1.34	0.92
Directivity(dB)	3.59	3.57	3.53	3.47	3.40	3.33	3.25	3.20	3.14	3.19	3.20
Minimum Gain(dB)	-16.17	-17.29	-17.53	-17.26	-16.49	-15.70	-15.09	-14.19	-13.91	-13.96	-14.08
Test Condition	FS										
Antenna Type											
Average Efficiency	-1.33 dB, 73.59 %										

※ 위 결과는 ㈜모비너스 무반사실(3M)를 이용하여 측정한 결과 임.
 ※ 무반사실 간의 측정 편차가 발생 할 수 있음.

3.3 Radiation Pattern_2.4G

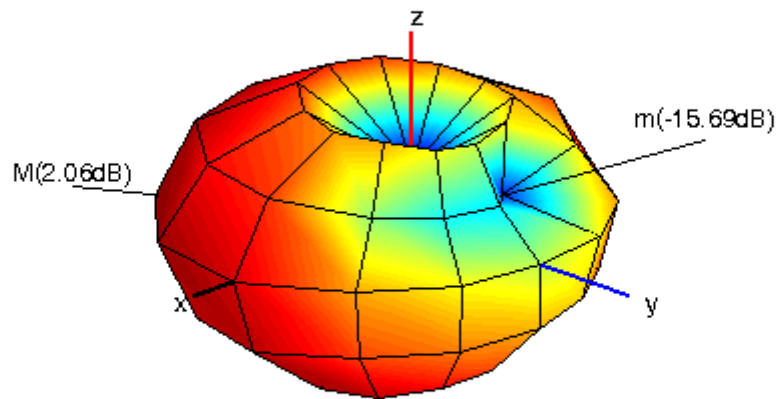


Fig 3. Radiation Pattern

	Efficiency (%)	Efficiency (dB)	UHRG(dB)	Peak Gain (dBi)
Radiation	74.86	-1.25	-4.74	2.07

3.4 Test Result (3D Efficiency)_5G

	1	2	3	4	5	6	7	8	9	10	11	12	13
Frequency(MHz)	4900	4950	5000	5050	5100	5150	5200	5250	5300	5350	5725	5775	5825
Efficiency(dB)	-0.50	-0.27	-0.36	-0.11	0.35	-0.09	0.09	0.02	-0.39	-0.21	-0.58	-0.13	-0.39
Efficiency(%)	89.17	93.90	92.02	97.56	108.37	97.87	102.15	100.40	91.36	95.17	87.60	97.07	91.48
TRG(dB)	-0.50	-0.27	-0.36	-0.11	0.35	-0.09	0.09	0.02	-0.39	-0.21	-0.58	-0.13	-0.39
TRG _{Theta} (dB)	-4.07	-3.86	-3.86	-3.52	-2.97	-3.37	-3.16	-3.23	-3.69	-3.53	-4.09	-3.70	-4.20
TRG _{Phi} (dB)	-3.01	-2.78	-2.93	-2.75	-2.37	-2.86	-2.69	-2.77	-3.14	-2.94	-3.13	-2.65	-2.72
UHRG(dB)	-2.26	-2.00	-2.10	-1.85	-1.40	-1.87	-1.73	-1.81	-2.23	-2.09	-2.38	-1.95	-2.20
UHRG/TRG(%)	66.63	67.12	67.02	66.99	66.83	66.45	65.74	65.59	65.55	64.96	65.96	65.83	65.82
H-Plane	-3.79	-3.74	-3.81	-3.45	-2.95	-3.47	-3.16	-3.20	-3.60	-3.42	-4.54	-4.17	-4.69
E1-Plane, AVG(dB)	-13.33	-13.58	-13.90	-13.79	-13.54	-14.08	-13.88	-13.79	-14.28	-14.46	-13.05	-12.33	-12.57
E2-Plane, AVG(dB)	-1.52	-1.38	-1.44	-1.13	-0.53	-0.96	-0.81	-0.90	-1.33	-1.13	-1.62	-1.17	-1.63
Peak Gain(dB)	5.38	5.56	5.33	5.49	5.94	5.48	5.59	5.57	5.20	5.39	4.83	5.29	5.36
Directivity(dB)	5.87	5.83	5.69	5.60	5.59	5.58	5.50	5.55	5.59	5.60	5.41	5.42	5.75
Minimum Gain(dB)	-12.31	-11.45	-10.86	-10.93	-10.20	-10.83	-10.44	-10.43	-10.63	-11.06	-14.05	-16.07	-18.00
Test Condition	FS												
Antenna Type													
Average Efficiency	-0.19 dB, 95.70 %												

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3.5 Radiation Pattern_5G

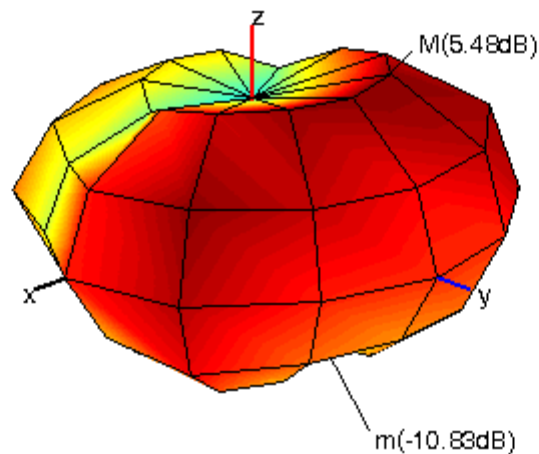
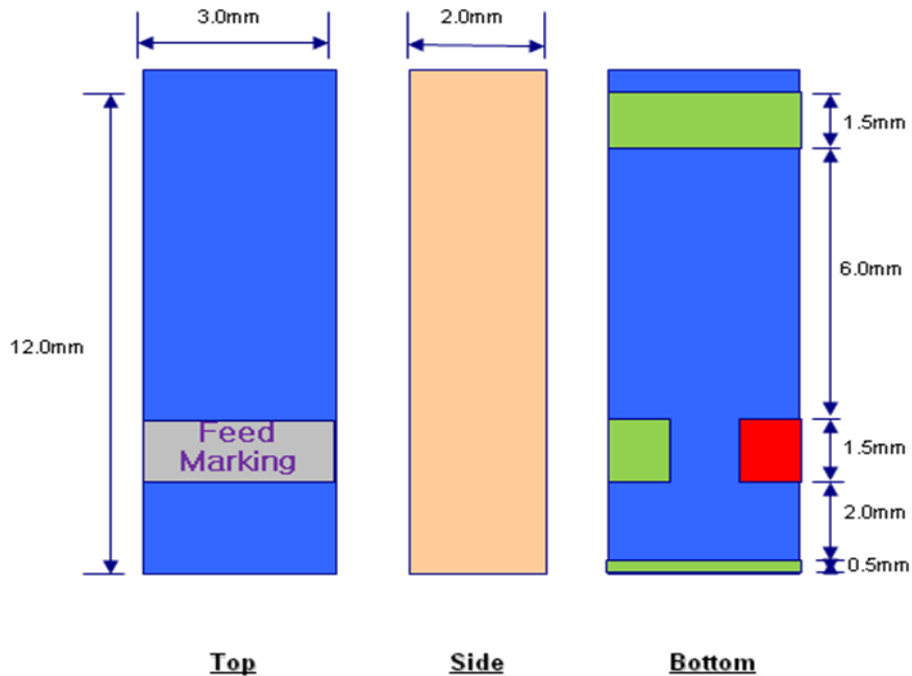


Fig 3. Radiation Pattern

	Efficiency (%)	Efficiency (dB)	UHRG(dB)	Peak Gain (dBi)
Radiation	97.87	-0.09	-1.87	5.48

4. Dimension

4.1 Antenna Footprint



4.2 Antenna Guide

