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SPEED Communication Technology Limited

Approval Sheet of ZTE P671M8-G Internal Antenna

Customer/Project	ZTE/P671M8-G	Band	GSM850/900/1800/1900 WCDMA900/2100
SCT P/N	084-067	Version	R: A
Check	Kelly	Design	Sean/Lr
Date	14.07.2008	Confirm by	
Speed Communication Technology			

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1 Indication

This report summarizes the electrical performance results of the proposed internal antenna to support the P671M8 program. The antenna covers GSM850/900/1800/1900 WCDMA900/2100 band. (see Figure1).



Figure 1: Proposed Antenna

2 Electrical Performance

2.1 Specification

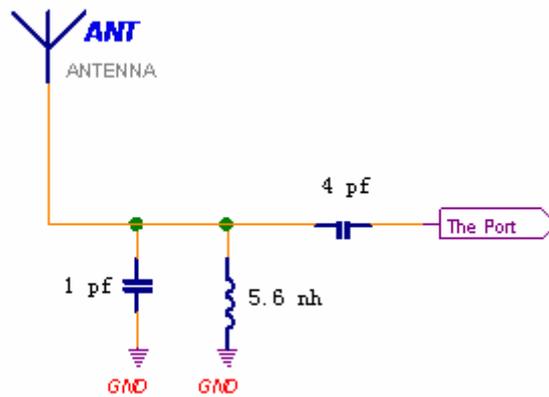
Band	Frequency (MHz)	VSWR	Frequency (MHz)	VSWR
	TX		RX	
GSM850	824-849	≤ 5	869-894	≤ 6
GSM900	880-910	≤ 6	930-960	≤ 7
DCS	1710-1785	≤ 2.6	1805-1880	≤ 2.2
PCS	1850-1910	≤ 2.0	1930-1990	≤ 2.0
WCDMA Band I	1920-1980	≤ 2.0	2110-2170	≤ 2.3
WCDMA Band VIII	880-910	≤ 6	930-960	≤ 7

2.2 Matching Circuit Description

Matching circuit please refer to the following graphic

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2.3 Test Set-up

The antenna was evaluated using the customer provided prototype phone. Figure 2 shows the antenna mounted on the test fixture. This section of the report describes the testing on this test fixture.



Figure 2: Antenna Mounted on P671M8-G Test Fixture

2.3.1 Return Loss

Return Loss were performed using Agilent E5071C Network Analyzer and the previously described test fixture. A ferrite-loaded coaxial cable was used to mitigate surface currents on the outside of the cabling. The testing was performed in free space without laptop.

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2.3.2 Efficiency & Radiation Patterns

The efficiency of the antenna was measured in the Speed Communication Technology anechoic chamber. The network card is measured in free space with ThinkPad T61. The chamber provides less than -40 dB reflectivity from 800 MHz through 6 GHz and 25cm diameter spherical quiet zone. The measurement results are calibrated using both dipole and leaky wave horn standards.

2.4 Measurement Data

2.4.1 VSWR

Freq (MHz)	824	894	880	960	1710	1880	1990	2170
Free Space	4.5	5.5	5.2	6.9	1.5	1.2	1.4	2.0

2.4.2 Efficiency

Frequency	Efficiency	Frequency	Efficiency
824(MHz)	31.02%	1790(MHz)	58.93%
830(MHz)	30.66%	1810(MHz)	57.59%
840(MHz)	29.91%	1830(MHz)	57.87%
850(MHz)	28.37%	1850(MHz)	58.05%
860(MHz)	29.20%	1870(MHz)	59.60%
870(MHz)	29.53%	1890(MHz)	59.10%
880(MHz)	30.32%	1910(MHz)	60.71%
890(MHz)	34.04%	1930(MHz)	59.58%
894(MHz)	34.29%	1950(MHz)	58.30%
900(MHz)	33.68%	1970(MHz)	57.14%
910(MHz)	34.66%	1990(MHz)	56.41%
920(MHz)	33.31%	2010(MHz)	55.08%
930(MHz)	32.52%	2030(MHz)	50.54%
940(MHz)	31.86%	2050(MHz)	52.91%
950(MHz)	28.88%	2070(MHz)	51.84%
960(MHz)	30.66%	2090(MHz)	49.67%
1710(MHz)	52.19%	2110(MHz)	48.74%
1730(MHz)	55.78%	2130(MHz)	47.00%
1750(MHz)	57.04%	2150(MHz)	49.95%
1770(MHz)	56.68%	2170(MHz)	47.38%

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2.4.3 TRP&TIS

Test Result:	GSM 850			GSM 900		
Modulation	EGSM	EGSM	EGSM	EGSM	EGSM	EGSM
Channel	128	190	251	975	38	124
Average Power(dBm)	25.88	26.29	26.81	28.91	29.74	30.20
Frequency(MHz)	869.2	881.6	893.8	935.2	947.4	959.8
Sensitivity	-99.40	-99.11	-100.94	-100.97	-100.76	-100.22

Test Result:	GSM 1800			GSM 1900		
Modulation	DCS	DCS	DCS	PCS	PCS	PCS
Channel	512	698	885	512	661	810
Average Power(dBm)	25.38	26.95	25.73	24.52	24.82	25.55
Frequency(MHz)	1805.2	1842.4	1879.8	1930.2	1960	1989.8
Sensitivity	-101.62	-101.46	-102.72	-103.23	-100.41	-102.96

Test Result:	WCDMA 900			WCDMA 2100		
Modulation	WCDMA	WCDMA	WCDMA	WCDMA	WCDMA	WCDMA
Channel	2712	2788	2836	9612	9750	9888
Average Power(dBm)	19.00	18.47	18.51	18.58	18.76	18.76
Channel	2937	3013	3088	10562	10700	10838
Sensitivity	-103.49	-103.72	-103.07	-103.53	-105.63	-104.68

3 Suggestions and Conclusion

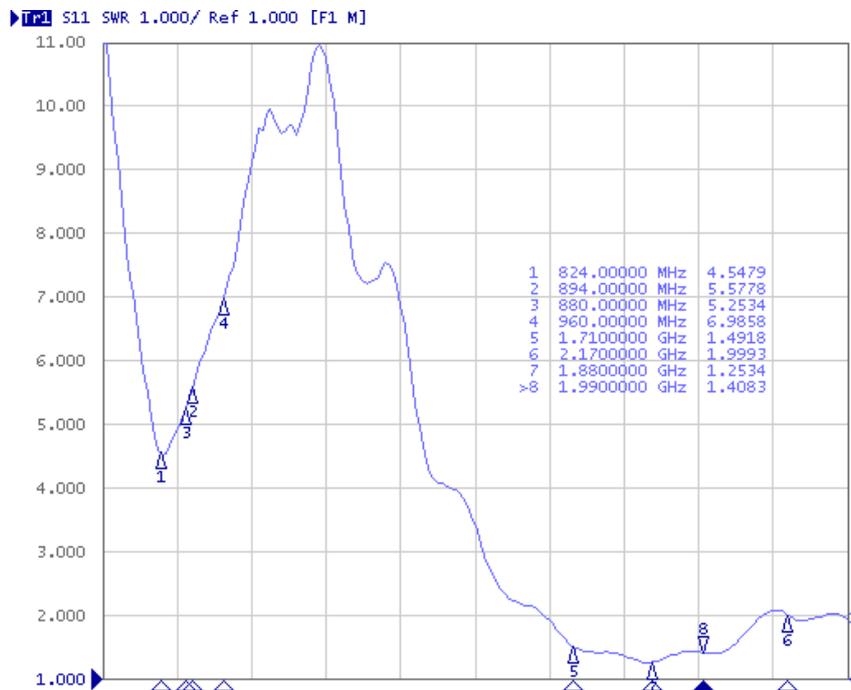
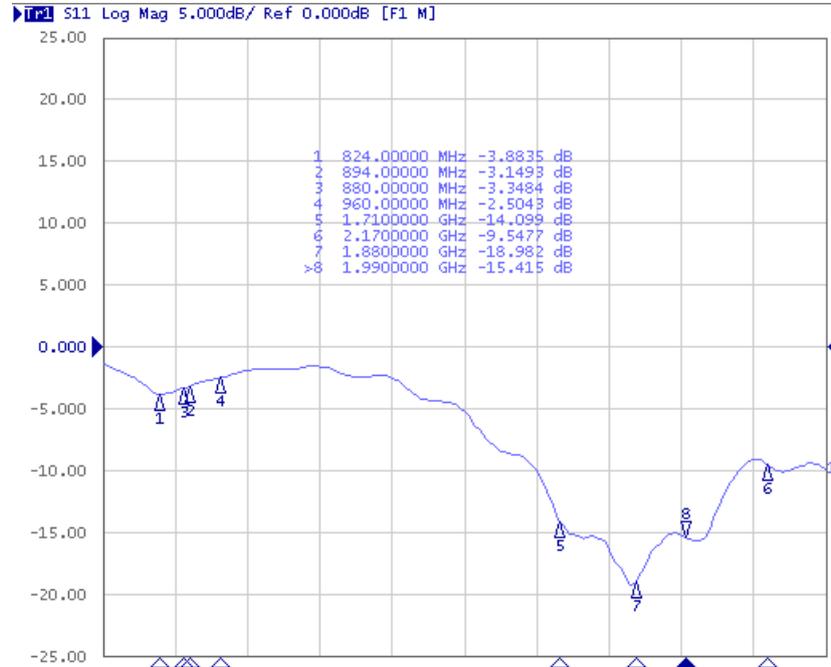
This report summarizes the electrical performance of internal Monopole antenna for ZTE P671M8. The antenna was tested using the customer provided prototype USB Modem test fixture. The report shows satisfied RF performance across the band. SCT team is looking forward to getting your approval. Thanks for your cooperation.

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4 Attachment

4.1 S11 & VSWR

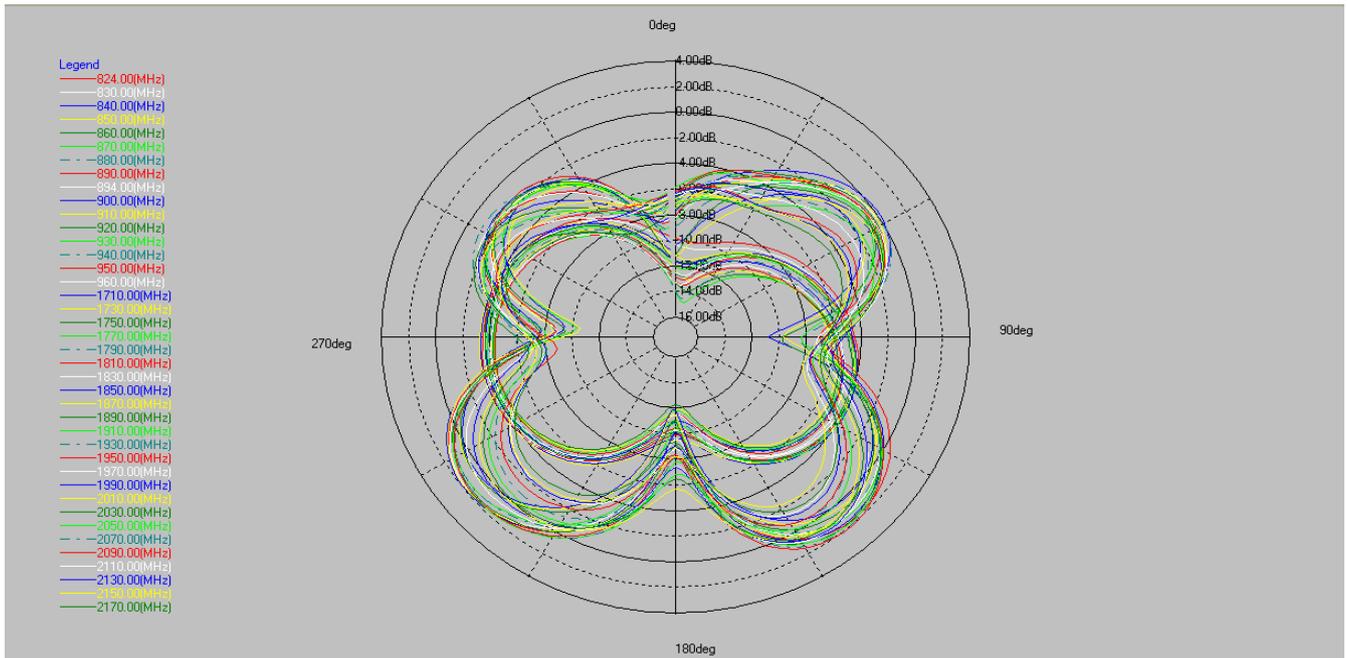


P671M8-G, Antenna

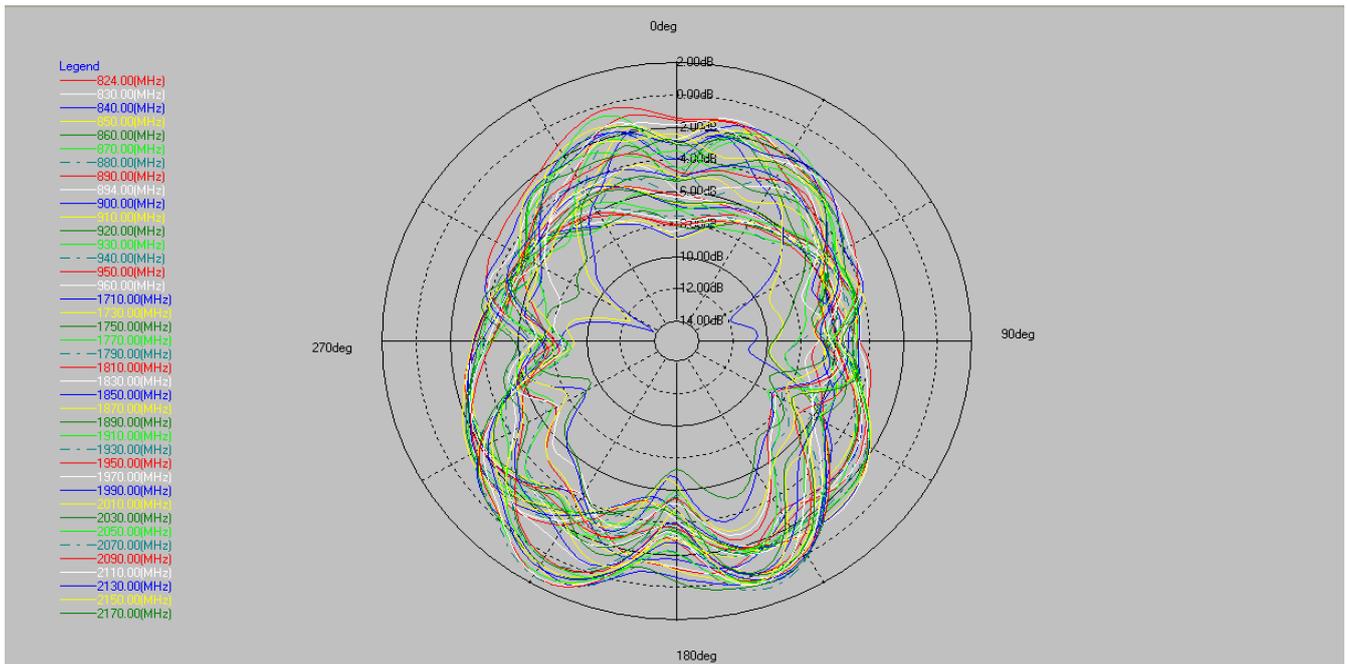
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4.2 Radiation Pattern



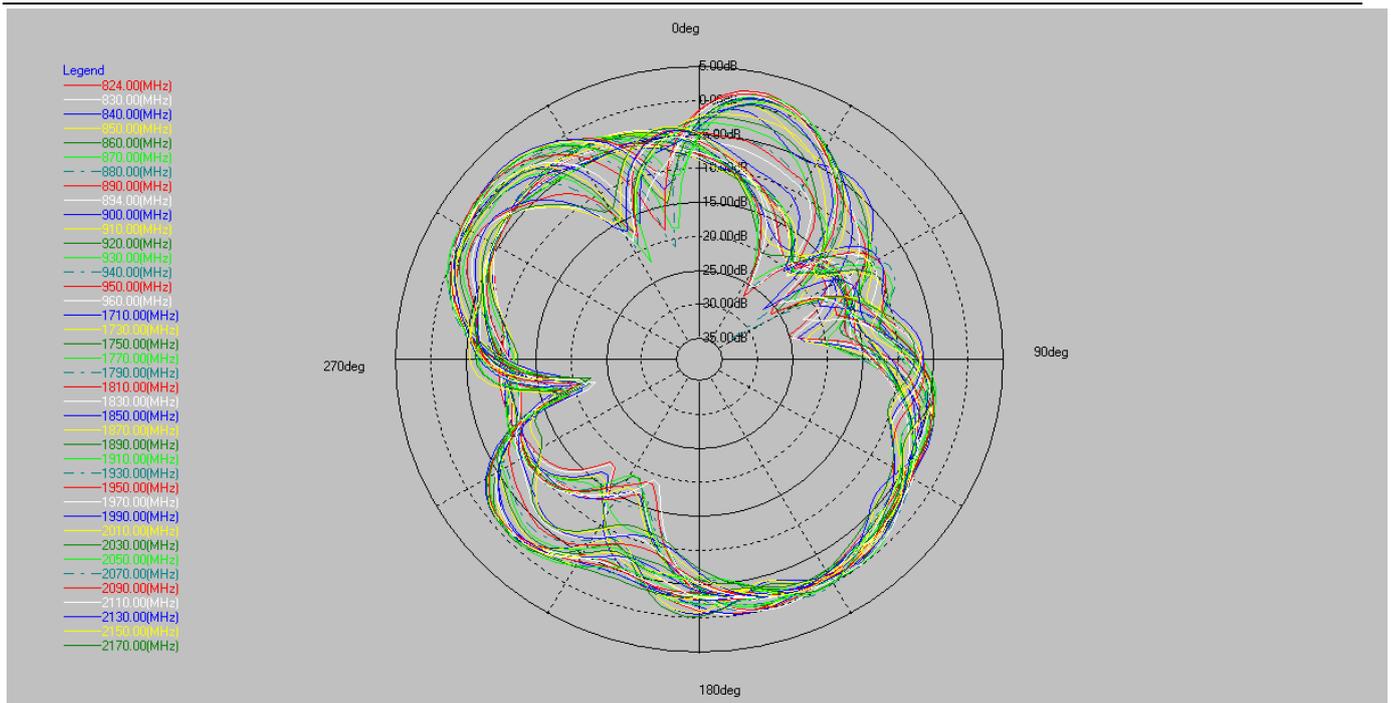
H Plane



E1 Plane

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E2 Plane

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