

Project Name: Customer: ODM: Ba

C250 BandRich



For GSM850/900/DCS/PCS/WCDMA

Antenna Tested by Ethertronics Taiwan Lab.

Test Date: May 22nd 2008 Report Date: May 22nd 2008

Contact Information:

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Revision History

Revision	Date	Description of changes	
Rev. A	2008/03/20	Initial Release	
Rev. B	2008/04/01	Using the original method of connecting the USB connecter and DUT PCB	
Rev. C	2008/04/10	Fine tune the antenna under the test condition defined by BandRich	
Rev. D	2008/05/22	Fine tune the antenna under the test condition defined by BandRich C240_main_M23 C240_Div_Rev C & C240_Div_Rev D	



Project: C250	Date: 22-May, 2008
Author: Charles Lee, Tommy Lin	Check: CC Heng
Language: English	Rev. D

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1. Technical Summary

This report summarizes the RF performance of the proposed penta-band antenna to support BandRich C250 program.

2. General Description



Figure 1 Location of antenna

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2.1. Test fixtures condition



Figure 2-1 Test fixture condition used during testing



Figure 3-2 Test fixture condition used during testing

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2.2. Matching Network

No matching network used.

3. Test Setup

3.1. VNA Test Setup

VSWR measurements (S_{11}) were performed using an Agilent E5071B Network Analyzer (Figure 4) and the test fixture shown in Figure 3. The testing was performed in free space.



Figure 4 Agilent E5071B Network Analyzer

3.2. Anechoic Chamber Test Setup

The antenna efficiency and gain were measured with Ethertronics 3D chamber (<u>www.ethertronics.com</u>). The configuration and the accuracy of the chamber are shown in **Figure 5** and **Figure 6**.

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Airlink Co	mpact Anechoic Chamber	Communication Ant.
3D Motion Controller	Controller Computer	Base Station Simulator

Figure 5 Ethertronics compact 3D chamber setup

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Frequency List	Ripple Value	Azimuth Condition	
800 MHz	+/- 0.2 dB	Rotate 360` , 2`Step	
900 MHz	+/- 0.25 dB	Rotate 360` , 2`Step	
1500 MHz	+/- 0.4dB	Rotate 360` , 2`Step	
1800 MHz	+/- 0.9 dB	Rotate 360` , 2`Step	
1900 Mhz	+/- 1 dB	Rotate 360` , 2`Step	
2100 MHz	+/- 1.2 dB	Rotate 360` , 2`Step	
2400 MHz	+/- 1.7 dB	Rotate 360` , 2`Step	

Figure 6 Azimuth ripple characteristics

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4. Measurement results

All these measurements are based on the above test fixture (Figure 3) and equipments setup (Figure 4 and 錯誤! 找不到參照來源。). The numerical data are presented from Table 1.

*Antenna gain includes the connector and cable loss.

project	C250			
	Main antenna		Diversity	Diversity
			Rev.C	Rev.D
Frequency (MHz)	Eff. in %	Eff. in dBi	Eff. in %	Eff. in %
824	26	-5.84		
851.2	30	-5.22		
878.4	35	-4.59		
905.6	30	-5.30		
932.8	23	-6.41		
960	15	-8.37		
1710	59	-2.31		
1744	55	-2.61		
1778	63	-2.03		
1812	71	-1.46		
1846	75	-1.25		
1880	93	-0.31		
1930	96	-0.17	55	59
1990	83	-0.83	54	48
2020	69	-1.64		
2070	60	-2.25		
2110	52	-2.82	57	20
2170	44	-3.53	43	25



Table 1 3D gain

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5. Conclusion

The active performance of main antenna is confirmed by Bandrich for hard tooling in SGS.

The passive data and pattern of diversity antenna are shown in Figure 1 and Table 1 including Rev C and Rev D. The pattern for hard tooling will be decides by Bandrich on May 23.

Should you have any questions, please do not hesitate to contact us.

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