


Attachment 3: Calibration Report of the dipole

 SIMT No. L0134	NATIONAL CENTER OF MEASUREMENT AND TEST FOR EAST CHINA SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY	校准证书编号: 2007F33-10-001389 <small>Calibrated certificate series No.</small>
CALIBRATION CERTIFICATE		
华东国家计量测试中心 上海市计量测试技术研究院		
校准证书		
委托者 <small>Customer</small>	基础性能试验中心	
委托者地址 <small>Address of customer</small>	宜山路 716 号	
器具名称 <small>Name of instrument</small>	Dipole	
制造厂 <small>Manufacturer</small>	ANTENNESSA 公司	
型号/规格 <small>Model/Specification</small>	/	
器具编号 <small>No. of instrument</small>	36/05 DIP C20 (850MHz dipole), 36/05 DIP D21 (900MHz dipole), 36/05 DIP F22 (1800MHz dipole), SN 36/05 DIP G23 (1900MHz dipole), 36/05 DIP I24 (2000MHz dipole), SN 36/05 DIP J25(2450MHz dipole)	
器具准确度 <small>Instrument accuracy</small>	/	
(机构校准专用章)	证书批准人 <small>Approved by</small>	陆福敏
	核 验 员 <small>Checked by</small>	廖 敏
	校 准 员 <small>Calibrated by</small>	朱建刚
校准日期 <small>Date for calibrated</small>	2007 年 10 月 23 日 <small>Year Month Day</small>	
地址: 上海市张衡路 1500 号(总部) 电话: 021-38839800 传真: 021-50798390 邮编: 201203 <small>Address No. 1500 Zhangheng Road, Shanghai(headquarters) Tel. Fax. Post Code</small>		投诉电话: 021-50798262 <small>Tel. for complaint</small>
上海市宜山路 716 号(分部) 电话: 021-64701390 传真: 021-64701810 邮编: 200233 <small>No. 716 Yishan Road, Shanghai(branch) Tel. Fax. Post Code</small>		
未经本院批准, 部分采用本证书内容无效。 <small>Partly using this certificate will not be admitted unless allowed by SIMT.</small>		
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**SIMT**NATIONAL CENTER OF MEASUREMENT AND TEST FOR EAST CHINA
SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY

No. L0134

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国家法定计量检定机构计量授权证书号(中心/院): (国)法计(2002)01039号/(2002)01019号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No. (2002) 01039 / No. (2002) 01019

中国实验室国家认可委员会(CNAL)实验室认可证书号: No.L0134

The number of the certificate accredited by CNAL is No.L0134

本次校准所依据的技术规范(代号、名称):

Reference documents for the calibration (code, name)

IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head form Wireless Communications Devices: Measure Techniques", December 2003

CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz)", July 2001

Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

本次校准所使用的主要计量标准器具:

Main measurement standards used in this calibration

名称/型号 Name/Model	编号 Number	证书编号/有效期限 Certificate No./Due date	测量范围/准确度 Measuring range/accuracy
矢量网络分析仪 ZVB 8	容-027-27	2007F31-10-001767 2008.06.27	300 kHz to 8 GHz, 频率分辨率: 100 μ Hz, 测量时间: < 8 ms, 测量带宽: 1 Hz to 500 kHz

以上计量标准器具的量值溯源至国家基准。

Quantity values of above measurement standards used in this calibration are traced to those of the national primary standards in the P.R. China.

校准地点及环境条件:

Location and environmental condition for the calibration

地点: 上海市计量测试技术研究院
Location温度: 21.8-22.2 $^{\circ}$ C; 湿度: 43 %RH; 其它: /
Ambient temperature Relative humidity Others

本次校准结果的扩展不确定度:

Expanded uncertainty

/

校准结果/说明:

Results of calibration and additional explanation

参见校准结果/说明

校准规范要求:

Return Loss must be less than -20dB

符合校准规范要求

本证书提供的结果仅对本次被校的器具有效。

The data are valid only for the instrument(s).

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校准结果/说明 (续页):

Results of calibration and additional explanation (continued page)

1. Calibration procedure:

Return Loss is measured with the dipole mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis. During calibration, The flat phantom is filled with the liquid whose parameters are calibrated relative to different frequency.

2. Calibration Conditions:

A. The spacer from Dipole center to TSL:

Distance Dipole Center - TSL	Frequency
15mm±0.2mm with spacer	900MHz, 850MHz
10mm±0.2mm with spacer	1800MHz, 1900 MHz, 2000MHz, 2450 MHz

B. Head TSL parameters:

The following parameters and calculation were applied.

Head TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Head TSL Parameters (Permittivity/ Conductivity)	Measurement Head TSL parameters (Permittivity/ Conductivity)
850 MHz	42.53/0.94	41.97/0.96
900 MHz	42.00/0.99	41.20/0.97
1800 MHz	40.00/1.38	39.71/1.36
1900 MHz	40.00/1.40	39.65/1.37
2000 MHz	40.00/1.40	39.15/1.39
2450 MHz	39.00/1.84	38.56/1.82

C. Body TSL parameters:

The following parameters and calculation were applied.

Body TSL temperature change is well controlled to be within 22±0.2°C during test.

Frequency	Nominal Body TSL Parameters (Permittivity/ Conductivity)	Measurement Body TSL parameters (Permittivity/ Conductivity)
850 MHz	55.20/0.97	50.91/0.93
900 MHz	55.00/1.05	54.63/1.04
1800 MHz	53.30/1.52	51.39/1.53
1900 MHz	53.30/1.52	51.98/1.52
2000 MHz	53.30/1.52	51.58/1.51
2450 MHz	52.70/1.95	/

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Frequency	Return Loss with Head TSL	Return Loss with Body TSL
850 MHz Dipole	-28.06 dB	-27.15 dB
900 MHz Dipole	-23.17 dB	-22.19 dB
1800 MHz Dipole	-21.14 dB	-21.08 dB
1900 MHz Dipole	-22.43 dB	-21.56 dB
2000 MHz Dipole	-22.71 dB	-21.25 dB
2450 MHz Dipole	-37.56 dB	/

备注: /

校准结果内容结束

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