



SIMT

校准证书编号: 2008F33-10-001186
Calibrated certificate series No.

SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
NATIONAL CENTER OF MEASUREMENT / TEST TECHNOLOGY

CALIBRATION CERTIFICATE

上海市计量测试技术研究院
华东国家计量测试中心

校准证书

委托者
Customer

敦吉电子(上海)有限公司

委托者地址
Address of customer

/

器具名称
Name of instrument

EMI 测量接收机

制造厂
Manufacturer

R&S

型号/规格
Model/Specification

ESHS10

器具编号
No. of instrument

830223/007

器具准确度
Instrument accuracy

/

(机构校准专用章)

证书批准人
Approved by

核 验 员
Checked by

校 准 员
Calibrated by

黄玉萍
李 建
陈 颖

校准日期 2008 年 03 月 07 日
Date for calibrated Year Month Day

投诉电话: 021-50798262

地址: 上海市张衡路 1500 号(总部) 电话: 021-38839800 传真: 021-50798390 邮编: 201203
Address No. 1500 Zhangheng Road, Shanghai(headquarters) Tel. Fax. Post Code
上海市宜山路 716 号(分部) 电话: 021-64701390 传真: 021-64701810 邮编: 200233
No. 716 Yishan Road, Shanghai(branch) Tel. Fax. Post Code

未经本院批准, 部分采用本证书内容无效。
Partly using this certificate will not be admitted unless allowed by SIMT.

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SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
NATIONAL CENTER OF METROLOGY AND TEST FOR EAST CHINA

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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(2007)01039号/(2007)01019号
The number of the Certificate of Metrological Authorization to The Legal Metrological Verification Institution is No. (2007) 01039 / No. (2007) 01019

中国合格评定国家认可委员会实验室认可证书号: No. CNAS L0134
The number of the certificate accredited by CNAS 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)

JJF 1144-2006 电磁骚扰测量接收机校准规范

CISPR 16-1-1 Radio disturbance and immunity measuring apparatus - Measuring apparatus

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/准确度等级或 最大允差或不确定度 Measurement range/accuracy class or maximum permissible errors or uncertainty of measurement
信号发生器/8648C	3642U01967	2007F33-10-000556 /2008.05.17	f: 9kHz~3200MHz, P: (-136~13)dBm
网络分析仪 /37347C	021104	2007F31-10-001709 /2008.07.19	f: 40MHz~20GHz, 阻抗: $\pm 2.0\%$
网络分析仪 /MS4630B	6100253588	2007F31-10-001321 /2008.04.20	f: 20Hz~300MHz, 阻抗: $\pm 2.0\%$
脉冲响应校准器/ IGUU2916	122	XDdj2007-5552 /2008.07.02	U: (0~60)dB μ V (9kHz~1GHz)/ ± 0.5 dB

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: 上海市张衡路 1500 号
Location

温度: 20 °C; 湿度: 57 %RH; 其它: /
Ambient temperature Relative humidity Others

本次校准结果的扩展不确定度:
Expanded uncertainty

电平: $U_{rel}=0.6$ dB ($k=2$); 脉冲重复频率响应: $U_{rel}=0.8$ dB ($k=2$)

脉冲幅值响应: $U_{rel}=0.7$ dB ($k=2$)

校准结果/说明:

Results of calibration and additional explanation

见续页。

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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SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
SHANGHAI CENTER OF MEASUREMENT AND TEST FOR ELECTRONICS

校准结果/说明 (续页):

Results of calibration and additional explanation (continued page)

一. 电平

频率(MHz)	标准值(dBμV)	指示值(dBμV)
0.009	20	19.9
0.01	20	19.8
0.01	30	30.1
0.01	40	39.8
0.01	50	49.8
0.01	60	59.8
0.01	70	69.9
0.01	80	79.8
0.01	90	89.8
0.01	100	99.7
0.01	110	109.7
0.01	120	120.0
0.015	20	19.8
0.025	20	19.8
0.035	20	19.9
0.055	20	19.9
0.1	20	19.9
0.16	20	19.8
0.24	20	20.0
0.55	20	20.0
1	20	19.8
1	30	29.8
1	40	39.9
1	50	49.8
1	60	59.8
1	70	70.1
1	80	80.1
1	90	90.0
1	100	100.1
1	110	110.0
1	120	119.9



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SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
NATIONAL INSTITUTE FOR ENBAAS, REE-BIT AND IFOT FOR LAY THERIA

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Results of calibration and additional explanation (continued page)

频率(MHz)	标准值(dB μ V)	指示值(dB μ V)
1.4	20	19.8
2.0	20	19.9
3.5	20	19.9
6.0	20	19.9
10	20	19.9
22	20	19.8
30	20	19.9
30	30	29.8
30	40	39.8
30	50	49.9
30	60	59.8
30	70	70.1
30	80	80.0
30	90	90.1
30	100	100.0
30	110	110.1
30	120	120.1

二. 通频带:

标称值	实测值
200Hz	204.0Hz
10 kHz	9.44kHz

三. 噪声电平

频率	噪声电平 (dB μ V)		
	平均值检波	峰值检波	准峰值检波
10kHz	-21	-10	-20
100kHz	-16	-16	-32
1MHz	-16	-4	-16
20MHz	-15	-3	-15



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SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
CERTIFIED LABORATORY FOR SUPPLY-1 AND TL1-100 (AS) CHINA

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Results of calibration and additional explanation (continued page)

四. 脉冲响应

重复频率(Hz)	标定频段一定时, 脉冲的相对等效电平(dB)			
	A 频段		B 频段	
	标准值	实测值	标准值	实测值
1000	/	/	-4.5±1.0	-4.5
100	-4.0±1.0	-3.5	0(rel.)	0(rel.)
60	-3.0±1.0	-2.6	/	/
25	0(rel.)	/	/	/
20	/	/	+6.5±1.0	+6.2
10	+4.0±1.0	+4.3	+10.0±1.5	+10.3
5	+7.5±1.0	+8.0	/	/
2	+13.0±2.0	+14.0	+20.5±2.0	+20.7
1	+17.0±2.0	+17.8	+22.5±2.0	+22.6
Isolated pulse	+19.0±2.0	+20.2	+23.5±2.0	+23.1

五. 脉冲幅度响应

频 率 (MHz)	标准值 dB(μV)	指示值 dB (μV)	
		正弦波	脉冲波
1	60	60.4	60.1
10	60	59.8	60.2

六. 输入阻抗和驻波比 (输入阻抗 50Ω)

频率 (MHz)	驻波比	
	输入衰减器 10dB	输入衰减器 0dB
0.009	1.046	1.89
0.1	1.043	1.90
0.3	1.054	1.90
1	1.015	1.88
3	1.012	1.84
10	1.012	1.78
20	1.007	1.85
30	1.014	1.79



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Results of calibration and additional explanation (continued page)

七. Overall selectivity (passband)

Band A

Frequency	Δf	Overall selectivity	
		Actual Value	Limit
10kHz	-220Hz	+19.7dB	Limit > +6dB
	-200Hz	+16.4dB	Limit > +6dB
	-175Hz	+13.4dB	Limit > +6dB
	-150Hz	+11.1dB	Limit > +6dB
	-125Hz	+8.1dB	Limit > +6dB
	-100Hz	+5.5dB	Limit > -1.5dB
	-75Hz	+3.7dB	-1.5dB <Limit<+6dB
	-50Hz	+1.2dB	-1.5dB <Limit<+1.5dB
	-25Hz	+0.8dB	-1.5dB <Limit<+1.5dB
	0	-0.5 dB	-1.5dB <Limit<+1.5dB
	+25Hz	+0.1dB	-1.5dB <Limit<+1.5dB
	+50Hz	+1.0 dB	-1.5dB <Limit<+1.5dB
	+75Hz	+2.7 dB	-1.5dB <Limit<+6dB
	+100Hz	+3.6 dB	Limit > -1.5dB
	+125Hz	+6.5 dB	Limit > +6dB
	+150Hz	+9.2 dB	Limit > +6dB
	+175Hz	+14.1 dB	Limit > +6dB
	+200Hz	+15.7 dB	Limit > +6dB
	+220Hz	+18.8 dB	Limit > +6dB

校准结果/说明 (续页):

Results of calibration and additional explanation (continued page)

Band A

Frequency	Δf	Overall selectivity	
		Actual Value	Limit
100kHz	-220Hz	+19.1dB	Limit > +6dB
	-200Hz	+16.8dB	Limit > +6dB
	-175Hz	+13.3dB	Limit > +6dB
	-150Hz	+11.0dB	Limit > +6dB
	-125Hz	+8.0dB	Limit > +6dB
	-100Hz	+5.6dB	Limit > -1.5dB
	-75Hz	+3.5dB	-1.5dB <Limit<+6dB
	-50Hz	+1.2dB	-1.5dB <Limit<+1.5dB
	-25Hz	+0.8dB	-1.5dB <Limit<+1.5dB
	0	-0.2 dB	-1.5dB <Limit<+1.5dB
	+25Hz	+0.1dB	-1.5dB <Limit<+1.5dB
	+50Hz	+1.1 dB	-1.5dB <Limit<+1.5dB
	+75Hz	+2.3 dB	-1.5dB <Limit<+6dB
	+100Hz	+3.2 dB	Limit > -1.5dB
	+125Hz	+6.6 dB	Limit > +6dB
	+150Hz	+9.1 dB	Limit > +6dB
	+175Hz	+14.3 dB	Limit > +6dB
	+200Hz	+15.6 dB	Limit > +6dB
	+220Hz	+18.9 dB	Limit > +6dB

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Results of calibration and additional explanation (continued page)

Band A

Frequency	Δf	Overall selectivity	
		Actual Value	Limit
150kHz	-220Hz	+19.3dB	Limit > +6dB
	-200Hz	+16.6dB	Limit > +6dB
	-175Hz	+13.5dB	Limit > +6dB
	-150Hz	+11.3dB	Limit > +6dB
	-125Hz	+8.0dB	Limit > +6dB
	-100Hz	+5.0dB	Limit > -1.5dB
	-75Hz	+3.5dB	-1.5dB <Limit<+6dB
	-50Hz	+1.1dB	-1.5dB <Limit<+1.5dB
	-25Hz	+0.7dB	-1.5dB <Limit<+1.5dB
	0	-0.2 dB	-1.5dB <Limit<+1.5dB
	+25Hz	+0.2dB	-1.5dB <Limit<+1.5dB
	+50Hz	+0.8 dB	-1.5dB <Limit<+1.5dB
	+75Hz	+2.5 dB	-1.5dB <Limit<+6dB
	+100Hz	+3.5 dB	Limit > -1.5dB
	+125Hz	+6.7 dB	Limit > +6dB
	+150Hz	+9.2 dB	Limit > +6dB
	+175Hz	+14.3 dB	Limit > +6dB
	+200Hz	+15.4 dB	Limit > +6dB
	+220Hz	+18.5 dB	Limit > +6dB

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NATIONAL CENTER OF MEASUREMENT CALIBRATION FOR EAST CHINA

校准结果/说明 (续页):

Results of calibration and additional explanation (continued page)

Band B

Frequency	Δf	Overall selectivity	
		Actual Value	Limit
150kHz	-10kHz	+19.5dB	Limit<+20dB
	-9kHz	+16.8dB	Limit<+17.2dB
	-8kHz	+14.0dB	Limit<+14.4dB
	-7kHz	+11.2dB	Limit<+11.6dB
	-6kHz	+8.0dB	Limit<+8.8dB
	-5kHz	+5.8dB	Limit<+6dB
	-4kHz	+4.2dB	-1.5dB <Limit<+6dB
	-3kHz	+2.7dB	-1.5dB <Limit<+6dB
	-2kHz	+1.8dB	-1.5dB <Limit<+6dB
	-1kHz	+0.8 dB	Limit > -1.5dB
	0	-0.4 dB	Limit > -1.5dB
	+1kHz	+0.5dB	Limit > -1.5dB
	+2kHz	+1.2 dB	-1.5dB <Limit<+6dB
	+3kHz	+1.9 dB	-1.5dB <Limit<+6dB
	+4kHz	+3.7 dB	-1.5dB <Limit<+6dB
	+5kHz	+5.6 dB	Limit<+6dB
	+6kHz	+7.5 dB	Limit<+8.8dB
	+7kHz	+10.9 dB	Limit<+11.6dB
	+8kHz	+13.8 dB	Limit<+14.4dB
	+9kHz	+16.6 dB	Limit<+17.2dB
	+10kHz	+19.6 dB	Limit<+20dB

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SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
NATIONAL CENTER OF METROLOGY STANDARDS FOR ELECTRONICS

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Band B

Frequency	Δf	Overall selectivity	
		Actual Value	Limit
10MHz	-10kHz	+18.8dB	Limit<+20dB
	-9kHz	+16.8dB	Limit<+17.2dB
	-8kHz	+14.0dB	Limit<+14.4dB
	-7kHz	+10.7dB	Limit<+11.6dB
	-6kHz	+7.9dB	Limit<+8.8dB
	-5kHz	+5.5dB	Limit<+6dB
	-4kHz	+4.1dB	-1.5dB <Limit<+6dB
	-3kHz	+2.5dB	-1.5dB <Limit<+6dB
	-2kHz	+1.7dB	-1.5dB <Limit<+6dB
	-1kHz	+0.7 dB	Limit > -1.5dB
	0	-0.3 dB	Limit > -1.5dB
	+1kHz	+0.4dB	Limit > -1.5dB
	+2kHz	+1.1 dB	-1.5dB <Limit<+6dB
	+3kHz	+1.8 dB	-1.5dB <Limit<+6dB
	+4kHz	+3.2 dB	-1.5dB <Limit<+6dB
	+5kHz	+5.4 dB	Limit<+6dB
	+6kHz	+7.2 dB	Limit<+8.8dB
	+7kHz	+10.8 dB	Limit<+11.6dB
	+8kHz	+13.3 dB	Limit<+14.4dB
	+9kHz	+16.1 dB	Limit<+17.2dB
	+10kHz	+19.0 dB	Limit<+20dB



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SHANGHAI INSTITUTE OF MEASUREMENT AND TESTING TECHNOLOGY
SHANGHAI 201305 CHINA

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Band B

Frequency	Δf	Overall selectivity	
		Actual Value	Limit
30MHz	-10kHz	+19.2dB	Limit<+20dB
	-9kHz	+16.5dB	Limit<+17.2dB
	-8kHz	+13.7dB	Limit<+14.4dB
	-7kHz	+11.0dB	Limit<+11.6dB
	-6kHz	+8.1dB	Limit<+8.8dB
	-5kHz	+5.5dB	Limit<+6dB
	-4kHz	+3.9dB	-1.5dB <Limit<+6dB
	-3kHz	+2.6dB	-1.5dB <Limit<+6dB
	-2kHz	+1.6dB	-1.5dB <Limit<+6dB
	-1kHz	+0.5 dB	Limit > -1.5dB
	0	-0.5 dB	Limit > -1.5dB
	+1kHz	+0.6dB	Limit > -1.5dB
	+2kHz	+1.3 dB	-1.5dB <Limit<+6dB
	+3kHz	+1.7 dB	-1.5dB <Limit<+6dB
	+4kHz	+3.8 dB	-1.5dB <Limit<+6dB
	+5kHz	+5.7 dB	Limit<+6dB
	+6kHz	+8.3 dB	Limit<+8.8dB
	+7kHz	+11.3 dB	Limit<+11.6dB
	+8kHz	+13.9 dB	Limit<+14.4dB
	+9kHz	+16.8 dB	Limit<+17.2dB
	+10kHz	+19.7 dB	Limit<+20dB

校准结果内容结束