广州力赛计量检测有限公司

Guangzhou LiSai Metrology & Test Co. ,Ltd.

中国认可 国际互认 校准 CALIBRATION CNAS L7127

校 准 证 书

CALIBRATION CERTIFICATE

扫一扫验真伪

证书编号： Certificate No.	1GA23102043686-0001A
委 托 方： Client	Molto Luce GmbH
委托方地址： Address	Europastrabe 45, A-4600 Wels, Austria
仪器/样品名称： Description	IEC60598 Touch Current Measuring Network G.2andG.3
型号/规格： Model/Type	MNTC-G2G3
制造厂商： Manufacturer	LISUN GROUP
出厂编号： Serial No.	2310190938
管 理 号： Asset No.	/
样品接收日期： Date of Receipt	2023-10-25 Y M D
结果： Conclusion	所校准项目合格(Passed at Calibration Items)
校准日期： Date of Calibration	2023-10-25 Y M D
建议下次校准日期： Due Date	2024-10-24 Y M D
校准： Calibration by	
审核： Inspected by	
授权签字人： Approved Signatory	

广州力赛计量检测有限公司 证书报告专用章

证书专用章 (Stamp)

本实验室地址：广东省广州市番禺区石碁镇农科所南街8号 @力赛计量实验室

Address：No.8.South Street Shi Ji Institute Guangzhou.Guangdong.China

联系电话(Tel): 020-31134076　　投诉电话(CT.): 020-31104772

传真(Fax): 020-31134076　　邮政编码(Post): 511400

公司网址(Web): www.lisaitest.com　　电子邮件(E-mail): cal@lisaitest.com

校 准 说 明

DIRECTIONS OF CALIBRATION

证书编号：
Certificate No. 1GA23102043686-0001A

本机构质量管理体系符合ISO/IEC17025标准要求。
The quality system is in accordance with ISO/IEC17025.

1. 证书内页中"P"代表"合格","F"代表"不合格","N/A"代表"不适用"。
In the datasheet,"P" represents "Pass" and "F" represents "Fail" and "N/A" represents "Not Applicable".

2. 本证书编号具有唯一性，后缀若带有"A~Z"的证书为替换证书，自发出后原证书即刻作废。
Each certificate has a unique number,The suffix of "A~Z" will be added to the number as a replacement of the old version. The original certificate will be officially invalid once the new certificate number is issued.

3. 环境条件。(Environmental condition during the calibration).
温度(Temperature): 22℃ 相对湿度 (Relative Humidity): 52 %

4. 校准地点。(Place of the Calibration).
广州总部实验室(408电磁室)

5. 未加盖“证书报告专用章”无效,报告无校准或检测、审核、授权签字人签章无效。
The report is invalid without the official stamp，report is invalid without ‘report stamp’，The report is invalid without the signatures of Approval and Reviewer.

6. 样品及生产/研制方的相关信息由委托方提供并由委托方承担相应责任。
The information of the samples and the manufacturer/developer shall be provided by the applicants and applicant shall bear the corresponding responsibilities.

7. 本次校准的技术依据及CNAS认可范围，超出范围的内容未被认可。详细认可范围请查看CNAS网站中注册编号为L7127的证书附件.(Reference documents and accredited scope by CNAS for the Calibrationbeyond which isn't accredited. Please see the attachment of certificate No.L7127 on CNAS website for details.)

JJG 843-2022 泄漏电流测试仪检定规程 Verification Regulation of Leakage Current Testers

8. 本次校准使用的主要计量标准器具。(Main standards of measurement used in the Calibration).

名称 Description	出厂编号 Serial No.	证书号/有效期 Certificate No./ Due Date	溯源机构 Traceability Institute	技术特征 Technique Character
函数信号发生器	MY40023947	3GC22120131409-0012A / 2023-12-07	广州力赛计量检测有限公司	频率：Urel=1x10^{-7}, 幅度：±1%
数字多用表	535978082	DCsy2023-01273 / 2024-05-14	中国计量科学研究院	DCV:Urel=0.00014% ACV:Urel=0.0027% DCA:Urel=0.0004% ACA:Urel=0.012% OHM:Urel=0.0007%(k=2);
数字电桥	MY46413470	WWC202202063 / 2023-12-11	华南国家计量测试中心	R：±0.05% ;C：±0.05% L：±0.05%

1、外观以及一般性检查： 正常

In view of External and Generality check : Pass

2、测量网络：IEC60990/FIG3 U1

2.1、输入阻抗（Input impedance calibrate）：

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
0.02	1998	1996	2	0.3	± 100	P
0.05	1990	1987	3	0.3	± 100	P
0.06	1986	1982	4	0.3	± 99	P
0.1	1961	1957	4	0.3	± 98	P
0.2	1857	1851	6	0.3	± 93	P
0.5	1434	1424	10	0.3	± 72	P
1	979	974	5	0.3	± 49	P
2	675	678	-3	0.5	± 34	P
5	533	540	-7	0.5	± 27	P
10	509	516	-7	0.5	± 25	P
20	502	508	-6	0.5	± 25	P
50	500	507	-7	0.5	± 25	P
100	500	506	-6	3	± 25	P
200	500	506	-6	3	± 50	P
500	500	499	1	3	± 50	P
1000	500	497	3	3	± 50	P

2.2、传输阻抗校准（Transfer impedance）：

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
0.02	500	492	8	0.3	± 25	P
0.05	500	489	11	0.3	± 25	P
0.06	500	490	10	0.3	± 25	P
0.1	500	491	9	0.3	± 25	P
0.2	500	493	7	0.3	± 25	P
0.5	500	492	8	0.3	± 25	P
1	500	494	6	0.3	± 25	P
2	500	495	5	0.3	± 25	P
5	500	497	3	0.3	± 25	P
10	500	498	2	0.3	± 25	P
20	500	497	3	0.5	± 25	P
50	500	497	3	0.5	± 25	P
100	500	496	4	3	± 25	P
200	500	498	2	3	± 25	P
500	500	496	4	3	± 25	P
1000	500	496	4	3	± 25	P

3、测量网络：IEC60990/FIG4 U2

3.1、输入阻抗（Input impedance calibrate）：

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
0.02	1998	1995	3	0.3	± 100	P
0.05	1990	1987	3	0.3	± 100	P
0.06	1986	1983	3	0.3	± 99	P
0.1	1961	1957	4	0.3	± 98	P
0.2	1857	1851	6	0.3	± 93	P
0.5	1433	1424	9	0.3	± 72	P
1	973	968	5	0.3	± 49	P
2	661	663	-2	0.5	± 33	P
5	512	518	-6	0.5	± 26	P
10	485	492	-7	0.5	± 24	P

3、测量网络：IEC60990/FIG4 U2续上

3.1、输入阻抗（Input impedance calibrate）：

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
20	479	484	-5	0.5	± 24	P
50	477	482	-5	0.5	± 24	P
100	476	482	-6	3	± 24	P
200	476	482	-6	3	± 48	P
500	476	477	-1	3	± 48	P
1000	476	487	-11	3	± 48	P

3.2、传输阻抗校准（Transfer impedance）：

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
0.02	500	499	1	0.3	± 25	P
0.05	499	497	2	0.3	± 25	P
0.06	498	497	1	0.3	± 25	P
0.1	495	492	3	0.3	± 25	P
0.2	480	474	6	0.3	± 24	P
0.5	405	401	4	0.3	± 20	P
1	284	281	3	0.3	± 14	P
2	162.9	160.0	2.9	0.3	± 16.3	P
5	68.3	68.1	0.2	0.3	± 6.8	P
10	34.4	34.20	0.20	0.3	± 3.44	P
20	17.21	17.18	0.03	0.5	± 1.72	P
50	6.89	6.72	0.17	0.5	± 0.69	P
100	3.45	3.38	0.07	3	± 0.35	P
200	1.772	1.768	0.004	3	± 0.177	P
500	0.689	0.682	0.007	3	± 0.069	P
1000	0.345	0.322	0.023	3	± 0.035	P

4、测量网络：IEC60990/FIG5 U3

4.1、输入阻抗（Input impedance calibrate）：

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
0.02	1998	1995	3	0.3	± 100	P
0.05	1990	1986	4	0.3	± 100	P
0.06	1986	1982	4	0.3	± 99	P
0.1	1961	1956	5	0.3	± 98	P
0.2	1858	1851	7	0.3	± 93	P
0.5	1434	1424	10	0.3	± 72	P
1	976	971	5	0.3	± 49	P
2	667	669	-2	0.5	± 33	P
5	515	521	-6	0.5	± 26	P
10	487	493	-6	0.5	± 24	P
20	479	484	-5	0.5	± 24	P
50	477	482	-5	0.5	± 24	P
100	476	482	-6	3	± 24	P
200	476	481	-5	3	± 48	P
500	476	476	0	3	± 48	P
1000	476	480	-4	3	± 48	P

4.2、传输阻抗校准（Transfer impedance）

频率 Frequency (kHz)	标称值 Nominal (Ω)	实测值 Measure (Ω)	误差 Error (Ω)	不确定度 Uncertainty (%)	允许误差 MPE (Ω)	结论 Conclusion (Pass/Fail)
0.02	500	506	-6	0.3	± 25.0	P
0.05	499	505	-6	0.3	± 25.0	P
0.06	499	505	-6	0.3	± 25.0	P
0.1	496	502	-6	0.3	± 24.8	P
0.2	484	492	-8	0.3	± 24.2	P
0.5	427	435	-8	0.3	± 21.4	P
1	340	343	-3	0.3	± 17.0	P
2	251	253.0	-2.0	0.3	± 12.55	P
5	144.3	144.0	0.3	0.3	± 7.22	P
10	79.9	80.28	-0.38	0.3	± 4.00	P
20	41.2	41.50	-0.30	0.5	± 2.060	P
50	16.63	16.86	-0.23	0.5	± 0.832	P
100	8.32	8.47	-0.14	3	± 0.416	P
200	4.16	4.204	-0.044	3	± 0.416	P
500	1.666	1.511	0.155	3	± 0.167	P
1000	0.833	0.492	0.341	3	± 0.083	/

附：关于测量结果不确定度的说明：

appendix：Directions of uncertainty in the calibration

1.依据(Reference document)

JJF 1059.1-2012测量不确定度评定与表示

(JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2.本报告给出的扩展不确定度是由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到的。

The expanded uncertainty given in this report is obtained by multiplying the combined standard uncertainty by the corresponding coverage factor k when the coverage probability of about 95%.

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