



中国赛宝实验室计量检测中心
(工业和信息化部电子第五研究所计量检测中心)
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校准证书

CALIBRATION CERTIFICATE

证书编号: 2GB21003359-0004

Certificate No.



中国认可
国际互认
校准
CALIBRATION
CNAS L13344

委托单位:
Client

台山核电合营有限公司

委托方地址:
Address

广东省江门市台山市赤溪镇钦头村

仪器名称:
Description

便携式故障录波器

型号规格:
Model/Type

CC2007A01008

制造商:
Manufacturer

畅思电子

机身号:
Serial No.

MC3030111

接收日期:
Rec. Date

2021-03-29

校准日期:
Cal. Date

2021-03-29

签发日期:
App. Date

2021-03-30

建议校准周期:
Reference Cal. Period

12个月(12 months)

结论:
Conclusion

所校准项目合格(Passed at Calibration Items)

校准:
Calibrated by

吴凤娟

核验:
Inspected by

黄晓娜

签发:
Approved by

王洪喜

印章:
Stamp



赛宝计量检测中心

广州总部地址: 广州市增城区朱村街朱村大道西38号

客服热线: 020-87237633 传真: 020-87236189

投诉电话: 020-87236896

邮件: cal@ceprei.com

网址: www.ceprei-cal.com

CEPREI Calibration and Testing Center

HQ Addr: No. 38, Zhocun Avenue, Zhocun Street, Zengcheng District, Guangzhou, China

Service Tel: 020-87237633 Fax: 020-87236189

Complaint Tel: 020-87236896

Email: cal@ceprei.com

Website: www.ceprei-cal.com



说 明

DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求, 获得中国合格评定国家认可委员会 (CNAS) 认可, 认可证书号为: CNAS L13344。

This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):

- JJF 1587-2016 数字多用表校准规范: DC Voltage: 10mV~1000V; DC Current: 10 μ A~100A; AC Voltage: (10mV~1000V)@(10Hz~1MHz); AC Current: (100 μ A~100A)@(10Hz~30kHz); Resistance: 1 Ω ~1000M Ω
- 详细内容请查看CNAS网站中证书编号为L13344的证书附件, 超出范围的内容未被认可。(Please see the attachment of certificate No. L13344 & CNAS website for details, beyond which is not accredited).

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration):

名 称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)	测量范围 (Measuring Range)
超级产品校准器	4GC20000175-0005/2021-05-22/舜宝	DCV: $\pm 1.2 \times 10^{-5}$; DCI: $\pm 1 \times 10^{-4}$; ACV: $\pm 1.2 \times 10^{-4}$; ACI: $\pm 0.06\%$; R: $\pm 2.8 \times 10^{-5}$; AC Power: $\pm 0.08\%$; DCPower: $\pm 0.023\%$; T: $\pm 0.14^\circ\text{C}$; Phase: $\pm 0.07^\circ$; f: $\pm 2.5 \times 10^{-6}$; C: $\pm 0.19\%$	DCV: (0~ ± 1020) V; DCI: (0~ ± 20.5) A; ACV: (1mV~1020 V)@(10Hz~500kHz); ACI: (29 μ A~20.5A)@(10Hz~30kHz); R: (0~1100) M Ω ; DCPower: 109 μ W~20.3kW; AC Power: (109 μ W~20.5kW)@(45Hz~65Hz, PF=1); T: (-250~2316) $^\circ\text{C}$; Phase: (0~179.99) $^\circ$;(10Hz~10kHz); f: 0.01Hz~2MHz; C: 0.22nF~1.1mF

4. 校准地点(The calibration place):

广州市增城区朱村街朱村大道西78号9栋306室

5. 环境条件(Environmental conditions):

温度(Temperature): 22 $^\circ\text{C}$ 相对湿度(Relative Humidity): 55%

6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 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。

The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.

7. 证书中"P"、"合格"代表"测量结果在允许范围内", "F"、"不合格"代表"测量结果不在允许范围内", "N/A"代表"不适用"。本证书报告的判定规则和结论仅供参考, 使用人员应结合实际测量的要求合理使用, 如考虑测量结果测量不确定度的影响等。

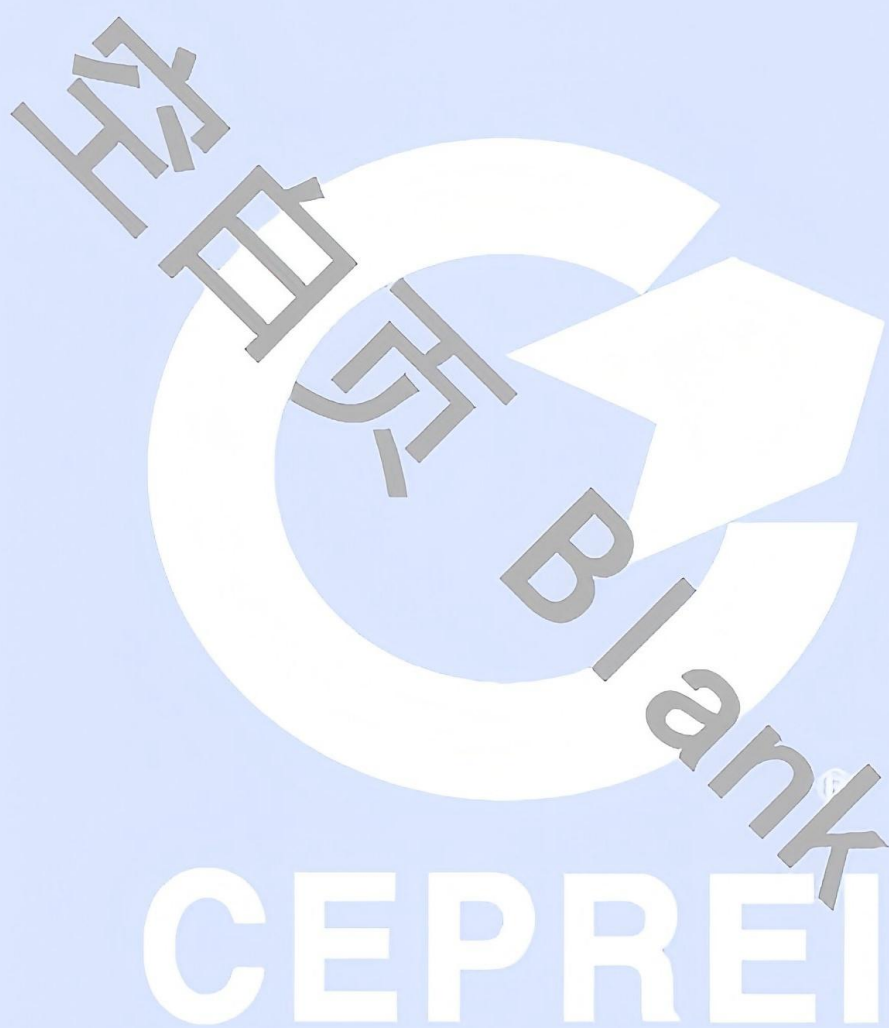
"P" and "Pass" in this certificate stand for "Low Limit $\leq$ the measured value $\leq$ High Limit", "F" and "Fail" stand for "the measured value < Low Limit or the measured value > High Limit". "N/A" stands for "Not Applicable". The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议校准周期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议, 供委托方参考。委托方可以根据实际使用情况自行决定样品的建议校准周期。

The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the actual use.

注: 1. 本证书未经本机构书面授权, 不得部分复制。(The certificate shall not be partly reproduced without written approval of the laboratory.)

2. 本次校准结果仅与被校物有关。(The results are only related to the items calibrated.)



1. 外观与工作正常性检查(Appearance and Function Check)

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

#1

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	500.000	499.760	-0.240	± 1.000	P	0.20
	1000.000	999.355	-0.645	± 2.000	P	0.40
100	500.000	499.650	-0.350	± 1.000	P	0.20
	1000.000	999.160	-0.840	± 2.000	P	0.40
DC	500.000	501.000	1.000	± 2.500	P	0.51
	1000.000	1000.580	0.580	± 5.000	P	1.0

#2

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	500.000	500.000	0.000	± 1.000	P	0.20
	1000.000	1001.000	1.000	± 2.000	P	0.40
100	500.000	500.030	0.030	± 1.000	P	0.20
	1000.000	1001.000	1.000	± 2.000	P	0.40
DC	500.000	500.380	0.380	± 2.500	P	0.51
	1000.000	1001.180	1.180	± 5.000	P	1.0

#3

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	500.000	500.340	0.340	± 1.000	P	0.20
	1000.000	1000.765	0.765	± 2.000	P	0.40
100	500.000	500.300	0.300	± 1.000	P	0.20
	1000.000	1000.610	0.610	± 2.000	P	0.40
DC	500.000	499.460	-0.540	± 2.500	P	0.51
	1000.000	999.580	-0.420	± 5.000	P	1.0

#4

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	500.000	499.760	-0.240	± 1.000	P	0.20
	1000.000	999.560	-0.440	± 2.000	P	0.40
100	500.000	499.760	-0.240	± 1.000	P	0.20
	1000.000	999.380	-0.620	± 2.000	P	0.40
DC	500.000	500.930	0.930	± 2.500	P	0.51
	1000.000	1000.460	0.460	± 5.000	P	1.0

#11

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	250.000	250.338	0.338	± 0.500	P	0.10
	500.000	500.590	0.590	± 1.000	P	0.20
100	250.000	250.320	0.320	± 0.500	P	0.10
	500.000	500.560	0.560	± 1.000	P	0.20
DC	250.000	250.470	0.470	± 1.250	P	0.26
	500.000	500.720	0.720	± 2.500	P	0.51

#12

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	250.000	250.220	0.220	± 0.500	P	0.10
	500.000	500.360	0.360	± 1.000	P	0.20
100	250.000	250.230	0.230	± 0.500	P	0.10
	500.000	500.370	0.370	± 1.000	P	0.20
DC	250.000	250.440	0.440	± 1.250	P	0.26
	500.000	500.620	0.620	± 2.500	P	0.51

#13

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	250.000	250.256	0.256	± 0.500	P	0.10
	500.000	500.500	0.500	± 1.000	P	0.20
100	250.000	250.220	0.220	± 0.500	P	0.10
	500.000	500.480	0.480	± 1.000	P	0.20
DC	250.000	250.410	0.410	± 1.250	P	0.26
	500.000	500.600	0.600	± 2.500	P	0.51

#14

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	250.000	250.190	0.190	± 0.500	P	0.10
	500.000	500.300	0.300	± 1.000	P	0.20
100	250.000	250.170	0.170	± 0.500	P	0.10
	500.000	500.250	0.250	± 1.000	P	0.20
DC	250.000	249.950	-0.050	± 1.250	P	0.26
	500.000	500.040	0.040	± 2.500	P	0.51

#21

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	125.000	125.090	0.090	± 0.250	P	0.05
	250.000	250.110	0.110	± 0.500	P	0.10
100	125.000	125.090	0.090	± 0.250	P	0.05
	250.000	250.150	0.150	± 0.500	P	0.10
DC	125.000	124.889	-0.111	± 0.625	P	0.13
	250.000	249.930	-0.070	± 1.250	P	0.26

#22

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	125.000	125.110	0.110	± 0.250	P	0.05
	250.000	250.160	0.160	± 0.500	P	0.10
100	125.000	125.100	0.100	± 0.250	P	0.05
	250.000	250.140	0.140	± 0.500	P	0.10
DC	125.000	125.020	0.020	± 0.625	P	0.13
	250.000	250.100	0.100	± 1.250	P	0.26

#23

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	125.000	125.230	0.230	± 0.250	P	0.05
	250.000	250.390	0.390	± 0.500	P	0.10
100	125.000	125.226	0.226	± 0.250	P	0.05
	250.000	250.370	0.370	± 0.500	P	0.10
DC	125.000	125.270	0.270	± 0.625	P	0.13
	250.000	250.460	0.460	± 1.250	P	0.26

#24

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	125.000	125.060	0.060	± 0.250	P	0.05
	250.000	250.068	0.068	± 0.500	P	0.10
100	125.000	125.056	0.056	± 0.250	P	0.05
	250.000	250.080	0.080	± 0.500	P	0.10
DC	125.000	124.900	-0.100	± 0.625	P	0.13
	250.000	249.930	-0.070	± 1.250	P	0.26

#31

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	50.000	50.030	0.030	± 0.100	P	0.02
	100.000	100.055	0.055	± 0.200	P	0.04
100	50.000	50.033	0.033	± 0.100	P	0.02
	100.000	100.050	0.050	± 0.200	P	0.04
DC	50.000	50.030	0.030	± 0.250	P	0.05
	100.000	100.050	0.050	± 0.500	P	0.10

#32

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	50.000	50.020	0.020	± 0.100	P	0.02
	100.000	100.048	0.048	± 0.200	P	0.04
100	50.000	50.022	0.022	± 0.100	P	0.02
	100.000	100.050	0.050	± 0.200	P	0.04
DC	50.000	50.020	0.020	± 0.250	P	0.05
	100.000	100.038	0.038	± 0.500	P	0.10

#33

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	50.000	50.050	0.050	± 0.100	P	0.02
	100.000	100.094	0.094	± 0.200	P	0.04
100	50.000	50.055	0.055	± 0.100	P	0.02
	100.000	100.090	0.090	± 0.200	P	0.04
DC	50.000	50.128	0.128	± 0.250	P	0.05
	100.000	100.170	0.170	± 0.500	P	0.10

#34

2. 电压测量(Voltage Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(V)	(V)	(V)	(V)		(V)
50	50.000	50.050	0.050	± 0.100	P	0.02
	100.000	100.094	0.094	± 0.200	P	0.04
100	50.000	50.047	0.047	± 0.100	P	0.02
	100.000	100.080	0.080	± 0.200	P	0.04
DC	50.000	50.097	0.097	± 0.250	P	0.05
	100.000	100.133	0.133	± 0.500	P	0.10

#41

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	2.5000	2.5006	0.0006	± 0.0050	P	0.0016
	5.0000	5.0031	0.0031	± 0.0100	P	0.0030
100	2.5000	2.5005	0.0005	± 0.0050	P	0.0016
	5.0000	5.0020	0.0020	± 0.0100	P	0.0030
DC	2.5000	2.5009	0.0009	± 0.0125	P	0.0029
	5.0000	5.0018	0.0018	± 0.0250	P	0.0055

#42

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	2.5000	2.5001	0.0001	± 0.0050	P	0.0016
	5.0000	5.0017	0.0017	± 0.0100	P	0.0030
100	2.5000	2.4998	-0.0002	± 0.0050	P	0.0016
	5.0000	5.0009	0.0009	± 0.0100	P	0.0030
DC	2.5000	2.5018	0.0018	± 0.0125	P	0.0029
	5.0000	5.0011	0.0011	± 0.0250	P	0.0055

#43

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	2.5000	2.5000	0.0000	± 0.0050	P	0.0016
	5.0000	5.0029	0.0029	± 0.0100	P	0.0030
100	2.5000	2.5003	0.0003	± 0.0050	P	0.0016
	5.0000	5.0025	0.0025	± 0.0100	P	0.0030
DC	2.5000	2.5021	0.0021	± 0.0125	P	0.0029
	5.0000	5.0033	0.0033	± 0.0250	P	0.0055

#44

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	2.5000	2.5005	0.0005	± 0.0050	P	0.0016
	5.0000	5.0033	0.0033	± 0.0100	P	0.0030
100	2.5000	2.5000	0.0000	± 0.0050	P	0.0016
	5.0000	5.0018	0.0018	± 0.0100	P	0.0030
DC	2.5000	2.5022	0.0022	± 0.0125	P	0.0029
	5.0000	5.0030	0.0030	± 0.0250	P	0.0055

#51

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	0.5000	0.5007	0.0007	± 0.0010	P	0.0003
	1.0000	1.0012	0.0012	± 0.0020	P	0.0006
100	0.5000	0.5006	0.0006	± 0.0010	P	0.0003
	1.0000	1.0009	0.0009	± 0.0020	P	0.0006
DC	0.5000	0.5008	0.0008	± 0.0025	P	0.0006
	1.0000	1.0012	0.0012	± 0.0050	P	0.0011

#52

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	0.5000	0.5002	0.0002	± 0.0010	P	0.0003
	1.0000	1.0000	0.0000	± 0.0020	P	0.0006
100	0.5000	0.5000	0.0000	± 0.0010	P	0.0003
	1.0000	0.9999	-0.0001	± 0.0020	P	0.0006
DC	0.5000	0.5007	0.0007	± 0.0025	P	0.0006
	1.0000	1.0005	0.0005	± 0.0050	P	0.0011

#53

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	0.5000	0.5002	0.0002	± 0.0010	P	0.0003
	1.0000	0.9999	-0.0001	± 0.0020	P	0.0006
100	0.5000	0.5000	0.0000	± 0.0010	P	0.0003
	1.0000	0.9998	-0.0002	± 0.0020	P	0.0006
DC	0.5000	0.5007	0.0007	± 0.0025	P	0.0006
	1.0000	1.0005	0.0005	± 0.0050	P	0.0011

#54

2. 电流测量(Current Measurement)

频率	标准值	指示值	误差	允许误差	结论	U
Frequency	(Reference)	(Indicated)	(Error)	(Limit)	(Pass/Fail)	($k=2$)
(Hz)	(A)	(A)	(A)	(A)		(A)
50	0.5000	0.5001	0.0001	± 0.0010	P	0.0003
	1.0000	0.9999	-0.0001	± 0.0020	P	0.0006
100	0.5000	0.5000	0.0000	± 0.0010	P	0.0003
	1.0000	0.9998	-0.0002	± 0.0020	P	0.0006
DC	0.5000	0.5010	0.0010	± 0.0025	P	0.0006
	1.0000	1.0008	0.0008	± 0.0050	P	0.0011

以下空白/No data hereafter