DEWETRON GmbH

Parkring 4
8074 Grambach
Austria

AAT2550006
Akkreditierung Austria 0632
06.02.2025

Kalibrierstelle für elektrische Messgrößen
Calibration body for electrical measurands

akkreditiert durch / *accredited by*
AKKREDITIERUNG AUSTRIA

Kalibrierzeichen
Calibration Mark

Kalibrierschein nach ISO/IEC 17025
Calibration certificate according to ISO/IEC 17025

Gegenstand *Object*	8 Channel Data Acquisition
Hersteller *Manufacturer*	DEWETRON
Typ *Type*	TRION-1820-POWER-4
Herstellernummer *Serial number*	A1244711
Auftraggeber *Customer*	
Kalibriernummer *Order number*	AAT2550006
Anzahl der Seiten des Kalibrierscheines *Number of pages of the certificate*	12
Datum der Kalibrierung *Date of calibration*	06.02.2025

Dieser Kalibrierschein dokumentiert die Rückführbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).

Akkreditierung Austria ist Unterzeichner der multilateralen Übereinkommen der European Co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements according to the International system of Units (SI).

Akkreditierung Austria is a signatory to the multilateral agreements of the European Co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.

Stempel *Seal*	Datum *Date*	Zeichnungsberechtigter *Authorised person*	Bearbeiter *Person responsible*
	06.02.2025	Stefan Strohmaier	Nandor Nagy

1. Kalibriergegenstand / *Calibration object*

8 Channel Data Acquisition DEWETRON TRION-1820-POWER-4, S/N: A1244711

2. Kalibrierverfahren / *Calibration procedure*

Die Kalibrierung erfolgt durch Vergleich der durch die Kalibrierstelle / Normale dargestellten Werte mit den Ausgangsgrößen am Kalibriergegenstand beziehungsweise den am Kalibriergegenstand angezeigten Werten.
The calibration is made by comparing the readings from the laboratory / standards to the output of the calibration object respectively the values displayed on the calibration object.

Prüfroutine / *Calibration procedure*: TRION-Active-Power-1-4-Phase_Akkred, Rev. 2.00

3. Messergebnisse / *Measurement results*

Die Kalibrierung im Rahmen der Akkreditierung umfasst die Messgrößen Gleichspannung, Wechselspannung, Gleichstrom, Wechselstrom und Gleichstromwiderstand.
Die Messergebnisse beziehen sich ausschließlich auf diesen Kalibriergegenstand zum Zeitpunkt der Kalibrierung.
The calibration scope of the accreditation contains the quantities direct voltage, alternating voltage, direct current, alternating current and direct current resistance.
The measurement results are exclusively linked to this calibration object at the time of calibration.

4. Messunsicherheit / *Measurement uncertainty*

Angegeben ist die erweiterte Messunsicherheit, die sich aus der Standardmessunsicherheit durch Multiplikation mit dem Erweiterungsfaktor k=2 ergibt. Sie wurde gemäß EA-4/02 ermittelt. Der Wert der Messgröße liegt im Regelfall mit einer Wahrscheinlichkeit von annähernd 95% im zugeordneten Werteintervall.
Ein Anteil für die Langzeitstabilität des Kalibriergegenstandes ist nicht enthalten.
The stated extended measurement uncertainty is derived from the standard uncertainty of measurement multiplied by the coverage factor k=2. It has been determined according to EA-4/02. The measured quantity is inside the corresponding value interval with a probability of approximately 95%.
A factor for the long time stability of the calibration object is not taken into account.

5. Umgebungsbedingungen / *environmental conditions*

Temperatur / *Temperature:*	23,0 °C
Rel. Luftfeuchte / *Rel. humidity:*	36,0 % r.H.
Kalibrierort / *Place of calibration:*	DEWETRON GmbH, Parkring 4, 8074 Grambach, Austria

6. Auftragnummer / *Reference Number*

7. Status / *Status*

PASS ()

AS-FOUND:	Eingangskalibration / *Incoming calibration*
AS-LEFT:	Ausgangskalibration / *Outgoing calibration*
FOUND/LEFT:	Eingangskalibration erfüllt Herstellerspezifikation / *Incoming calibration according to manufacturer specifications*
PASS:	Messergebnis liegt innerhalb der Herstellerspezifikationen (ohne Berücksichtigung der Messunsicherheiten) / *Measurement result is within manufacturer's specifications (without taking into account the measurement uncertainties)*
FAIL:	Das Messergebnis liegt nicht innerhalb der Herstellerspezifikationen (ohne Berücksichtigung der Messunsicherheiten) / *Measurement result is out of manufacturer's specifications (without taking into account the measurement uncertainties)*

8. Verwendete Fußnoten / *Used foot notes:*

(1) Zusätzliche Messwerte außerhalb des akkreditierten Bereiches, es kann keine Konformitätsaussage getroffen werden.
(1) Additional measured values outside the accreditited scope, a conformity statement cannot be made.

9. Kommentare / *Comments*

Sub-cur 0.2 A

Für die Festlegung und Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.
The user is responsible for the definition and the compliance to a resonable period for repeating the calibration.

10. Verwendete Normale / Standards used

Asset	Description	Serial Number	Certificate No.	Cal Date	Due Date
5522A 01	5522A CALIBRATOR	3904901	16082024	2-Aug-2024	2-Aug-2025
6105A	6105A Electrical Power Standard	514177505	099967	25-Nov-2024	25-Nov-2025

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	

Kalibrierverfahren / calibration method:
CAL-KV-01_Gleichspannung_v1.0_2024-07-04.xlsx-02
CAL-KV-02_Wechselspannung_v1.0_2024-07-04.xlsx-02C
CAL-KV-03_Gleichstromstärke_v1.0_2024-07-04.xlsx-02C
CAL-KV-04_Wechselstromstärke_v1.0_2024-07-04.xlsx-02C
CAL-KV-08 Gleichstromleistung v1.0 2024-07-04.xlsx-01C
CAL-KV-09_Wechselstromwirkleistung_v1.0_2024-07-04.xlsx-01C

Current Temperature Calibrator: 26.72°C

DEWE3 device S/N: CB210022

Oxygen Version: 7.3.2
TRION API: 7.3.2.6198"
TRION Board Type: TRION-1820-POWER-4
TRION Board S/N: A1244711
TRION Board FW: 0078

TRION-SUB-CUR Type: TRION-POWER-SUB-CUR-02A-1
@I1: SN: 1322506
@I2: SN: 1322547
@I3: SN: 1322572
@I4: SN: 1322554

All Tests done with appropriate Range
SampleRate for all Tests: 2000000S/s
Filter Type/Frequency for U: Butterworth/8th order/600kHz
Filter Type/Frequency for I: Butterworth/8th order/300kHz
Update Rate of power group: 3s

Frequency Accuracy:
DEWE3 : ±0.005% of reading ± 1 mHz

Voltage Accuracy:
DC : ±0.02% of reading ±0.02% of range
>0.5Hz to 1kHz : ±0.03% of reading
>1kHz to 5kHz : ±0.15% of reading
>5kHz to 10kHz : ±0.35% of reading
>10kHz to 50kHz : ±0.6% of reading
>50kHz to 300kHz : ±(0.02% * f[kHz]) of reading

Current Accuracy:
DC and AC below 1 % of range add : 25 ppm of range
DC with no zero level add : ±0.03% of range

DC : ±0.02% of reading ±0.02% of range
>0.5Hz to 10kHz : ±0.03% of reading
>10kHz to 30kHz : ±0.1% of reading
>30kHz to 200kHz : ±(0.015% * f[kHz]) of reading
>200kHz to 300kHz : ±(0.1% * f[kHz]) of reading

Power Accuracy with PF=1:
DC with no zero level add : ±0.03% of range

DC : ±0.03% of reading ±0.03% of range
>0.5Hz to 1kHz : ±0.04% of reading
>1kHz to 5kHz : ±0.2% of reading
>5kHz to 10kHz : ±0.5% of reading
>10kHz to 50kHz : ±(0.5% + 0.05% * f[kHz]) of reading

Influence of PF : add 0.01 % * f[Hz]/50 * sqrt(1/PF²-1)

##

AC Power Calibration

Range U: 1000V Range I: 0.2A

Following tests @ 20Hz

Frequency	20.00000 Hz	19.99989 Hz	19.99800 Hz	20.00200 Hz		-0,00011 Hz	5.55%	Pass	(1)

Phase 1
Test @ 50% U 20% I

Voltage U1	500.00000 V	500.00248 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00248 V	1.66%	Pass	

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status
Current I1	0.040000 A	0.040001 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000001 A	11%	Pass
Power @ PF 1	20.00000 W	20.00062 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00062 W	7.79%	Pass
Test @ 50% U 50% I								
Voltage U1	500.00000 V	500.00279 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00279 V	1.86%	Pass
Current I1	0.100000 A	0.100004 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000004 A	13.4%	Pass
Power @ PF 1	50.00000 W	50.00223 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00223 W	11.2%	Pass
Test @ 50% U 100% I								
Voltage U1	500.00000 V	500.00302 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00302 V	2.02%	Pass
Current I1	0.200000 A	0.200009 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000009 A	15.5%	Pass
Power @ PF 1	100.00000 W	100.00523 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00523 W	13.1%	Pass
Test @ 90% U 90% I								
Voltage U1	900.00000 V	900.03259 V	899.73000 V	900.27000 V	89.00 e-03 V	0,03259 V	12.1%	Pass
Current I1	0.180000 A	0.180008 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000008 A	14.5%	Pass
Power @ PF 1	162.00000 W	162.01289 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01289 W	19.9%	Pass
Test @ 100% U 100% I								
Voltage U1	1000.00000 V	1000.04363 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,04363 V	14.5%	Pass
Current I1	0.200000 A	0.200009 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000009 A	14.7%	Pass
Power @ PF 1	200.00000 W	200.01750 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01750 W	21.9%	Pass
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Phase 2								
Test @ 50% U 20% I								
Voltage U2	500.00000 V	499.99791 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00209 V	1.4%	Pass
Current I2	0.040000 A	0.040002 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000002 A	19.3%	Pass
Power @ PF 1	20.00000 W	20.00094 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00094 W	11.8%	Pass
Test @ 50% U 50% I								
Voltage U2	500.00000 V	499.99826 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00174 V	1.16%	Pass
Current I2	0.100000 A	0.100007 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000007 A	22.6%	Pass
Power @ PF 1	50.00000 W	50.00318 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00318 W	15.9%	Pass
Test @ 50% U 100% I								
Voltage U2	500.00000 V	499.99887 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00113 V	0.753%	Pass
Current I2	0.200000 A	0.200015 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000015 A	25%	Pass
Power @ PF 1	100.00000 W	100.00723 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00723 W	18.1%	Pass
Test @ 90% U 90% I								
Voltage U2	900.00000 V	900.02356 V	899.73000 V	900.27000 V	89.00 e-03 V	0,02356 V	8.73%	Pass
Current I2	0.180000 A	0.180013 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000013 A	23.9%	Pass
Power @ PF 1	162.00000 W	162.01580 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01580 W	24.4%	Pass
Test @ 100% U 100% I								
Voltage U2	1000.00000 V	1000.03177 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,03177 V	10.6%	Pass
Current I2	0.200000 A	0.200015 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000015 A	24.7%	Pass
Power @ PF 1	200.00000 W	200.02111 W	199.92000 W	200.08000 W	40.00 e-03 W	0,02111 W	26.4%	Pass
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Phase 3								
Test @ 50% U 20% I								
Voltage U3	500.00000 V	499.99489 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00511 V	3.4%	Pass
Current I3	0.040000 A	0.040002 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000002 A	13.8%	Pass
Power @ PF 1	20.00000 W	20.00049 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00049 W	6.17%	Pass
Test @ 50% U 50% I								
Voltage U3	500.00000 V	499.99497 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00503 V	3.36%	Pass
Current I3	0.100000 A	0.100004 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000004 A	14.8%	Pass
Power @ PF 1	50.00000 W	50.00167 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00167 W	8.33%	Pass
Test @ 50% U 100% I								
Voltage U3	500.00000 V	499.99495 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00505 V	3.36%	Pass
Current I3	0.200000 A	0.200011 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000011 A	18.5%	Pass
Power @ PF 1	100.00000 W	100.00450 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00450 W	11.2%	Pass
Test @ 90% U 90% I								
Voltage U3	900.00000 V	900.02220 V	899.73000 V	900.27000 V	89.00 e-03 V	0,02220 V	8.22%	Pass
Current I3	0.180000 A	0.180009 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000009 A	17.4%	Pass
Power @ PF 1	162.00000 W	162.01241 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01241 W	19.2%	Pass
Test @ 100% U 100% I								
Voltage U3	1000.00000 V	1000.03170 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,03170 V	10.6%	Pass
Current I3	0.200000 A	0.200011 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000011 A	17.9%	Pass
Power @ PF 1	200.00000 W	200.01705 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01705 W	21.3%	Pass
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Phase 4								
Test @ 50% U 20% I								
Voltage U4	500.00000 V	499.99379 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00621 V	4.14%	Pass
Current I4	0.040000 A	0.040001 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000001 A	6.26%	Pass
Power @ PF 1	20.00000 W	19.99999 W	19.99200 W	20.00800 W	9.00 e-03 W	-0,00001 W	0.0625%	Pass
Test @ 50% U 50% I								
Voltage U4	500.00000 V	499.99441 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00559 V	3.72%	Pass
Current I4	0.100000 A	0.100002 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000002 A	7.61%	Pass
Power @ PF 1	50.00000 W	50.00053 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00053 W	2.67%	Pass
Test @ 50% U 100% I								
Voltage U4	500.00000 V	499.99457 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00543 V	3.62%	Pass
Current I4	0.200000 A	0.200007 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000007 A	11.4%	Pass
Power @ PF 1	100.00000 W	100.00230 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00230 W	5.74%	Pass
Test @ 90% U 90% I								
Voltage U4	900.00000 V	900.02002 V	899.73000 V	900.27000 V	89.00 e-03 V	0,02002 V	7.41%	Pass
Current I4	0.180000 A	0.180005 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000005 A	10%	Pass
Power @ PF 1	162.00000 W	162.00843 W	161.93520 W	162.06480 W	32.00 e-03 W	0,00843 W	13%	Pass

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	
Test @ 100% U 100% I									
Voltage U4	1000.00000 V	1000.02847 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,02847 V	9.49%	Pass	
Current I4	0.200000 A	0.200007 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000007 A	11.1%	Pass	
Power @ PF 1	200.00000 W	200.01229 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01229 W	15.4%	Pass	
Following tests @ 53Hz									
Frequency	53.00000 Hz	52.99972 Hz	52.99635 Hz	53.00365 Hz		-0,00028 Hz	7.62%	Pass	(1)
Phase 1									
Test @ 50% U 20% I									
Voltage U1	500.00000 V	500.01399 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01399 V	9.33%	Pass	
Current I1	0.040000 A	0.040001 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000001 A	11.1%	Pass	
Power @ PF 1	20.00000 W	20.00109 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00109 W	13.6%	Pass	
Test @ 50% U 50% I									
Voltage U1	500.00000 V	500.01379 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01379 V	9.2%	Pass	
Current I1	0.100000 A	0.100004 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000004 A	12.9%	Pass	
Power @ PF 1	50.00000 W	50.00327 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00327 W	16.3%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00236 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00236 W	11.6%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00352 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00352 W	17.3%	Pass	
Power @ PF 0.5 cap	25.00000 W	25.00032 W	24.98541 W	25.01459 W	5.80 e-03 W	0,00032 W	2.2%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00274 W	24.98541 W	25.01459 W	5.80 e-03 W	0,00274 W	18.8%	Pass	
Power @ PF 0.1 cap	5.000000 W	4.998896 W	4.992727 W	5.007273 W	3.10 e-03 W	-0,001104 W	15.2%	Pass	
Power @ PF 0.1 ind	5.000000 W	5.001682 W	4.992727 W	5.007273 W	3.10 e-03 W	0,001682 W	23.1%	Pass	
Test @ 50% U 100% I									
Voltage U1	500.00000 V	500.01099 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01099 V	7.33%	Pass	
Current I1	0.200000 A	0.200009 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000009 A	15.3%	Pass	
Power @ PF 1	100.00000 W	100.00677 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00677 W	16.9%	Pass	
Test @ 90% U 90% I									
Voltage U1	900.00000 V	900.04453 V	899.73000 V	900.27000 V	89.00 e-03 V	0,04453 V	16.5%	Pass	
Current I1	0.180000 A	0.180008 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000008 A	14.5%	Pass	
Power @ PF 1	162.00000 W	162.01500 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01500 W	23.1%	Pass	
Test @ 100% U 100% I									
Voltage U1	1000.00000 V	1000.05537 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,05537 V	18.5%	Pass	
Current I1	0.200000 A	0.200009 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000009 A	15.2%	Pass	
Power @ PF 1	200.00000 W	200.02015 W	199.92000 W	200.08000 W	40.00 e-03 W	0,02015 W	25.2%	Pass	
Phase 2									
Test @ 50% U 20% I									
Voltage U2	500.00000 V	500.00171 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00171 V	1.14%	Pass	
Current I2	0.040000 A	0.040002 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000002 A	20.3%	Pass	
Power @ PF 1	20.00000 W	20.00116 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00116 W	14.5%	Pass	
Test @ 50% U 50% I									
Voltage U2	500.00000 V	500.00207 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00207 V	1.38%	Pass	
Current I2	0.100000 A	0.100007 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000007 A	21.8%	Pass	
Power @ PF 1	50.00000 W	50.00343 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00343 W	17.2%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00236 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00236 W	11.6%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00397 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00397 W	19.5%	Pass	
Power @ PF 0.5 cap	25.00000 W	25.00012 W	24.98541 W	25.01459 W	5.80 e-03 W	0,00012 W	0.793%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00333 W	24.98541 W	25.01459 W	5.80 e-03 W	0,00333 W	22.8%	Pass	
Power @ PF 0.1 cap	5.000000 W	4.998650 W	4.992727 W	5.007273 W	3.10 e-03 W	-0,001350 W	18.6%	Pass	
Power @ PF 0.1 ind	5.000000 W	5.002128 W	4.992727 W	5.007273 W	3.10 e-03 W	0,002128 W	29.3%	Pass	
Test @ 50% U 100% I									
Voltage U2	500.00000 V	500.00146 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00146 V	0.976%	Pass	
Current I2	0.200000 A	0.200015 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000015 A	24.9%	Pass	
Power @ PF 1	100.00000 W	100.00773 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00773 W	19.3%	Pass	
Test @ 90% U 90% I									
Voltage U2	900.00000 V	900.02773 V	899.73000 V	900.27000 V	89.00 e-03 V	0,02773 V	10.3%	Pass	
Current I2	0.180000 A	0.180013 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000013 A	24.1%	Pass	
Power @ PF 1	162.00000 W	162.01665 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01665 W	25.7%	Pass	
Test @ 100% U 100% I									
Voltage U2	1000.00000 V	1000.03560 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,03560 V	11.9%	Pass	
Current I2	0.200000 A	0.200015 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000015 A	24.7%	Pass	
Power @ PF 1	200.00000 W	200.02190 W	199.92000 W	200.08000 W	40.00 e-03 W	0,02190 W	27.4%	Pass	
Phase 3									
Test @ 50% U 20% I									
Voltage U3	500.00000 V	499.99734 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00266 V	1.78%	Pass	
Current I3	0.040000 A	0.040001 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000001 A	11.2%	Pass	
Power @ PF 1	20.00000 W	20.00044 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00044 W	5.45%	Pass	
Test @ 50% U 50% I									
Voltage U3	500.00000 V	499.99744 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00256 V	1.71%	Pass	
Current I3	0.100000 A	0.100004 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000004 A	13.9%	Pass	
Power @ PF 1	50.00000 W	50.00178 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00178 W	8.88%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00080 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00080 W	3.94%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00246 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00246 W	12.1%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99932 W	24.98541 W	25.01459 W	5.80 e-03 W	-0,00068 W	4.67%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00242 W	24.98541 W	25.01459 W	5.80 e-03 W	0,00242 W	16.6%	Pass	
Power @ PF 0.1 cap	5.000000 W	4.998358 W	4.992727 W	5.007273 W	3.10 e-03 W	-0,001642 W	22.6%	Pass	
Power @ PF 0.1 ind	5.000000 W	5.002018 W	4.992727 W	5.007273 W	3.10 e-03 W	0,002018 W	27.7%	Pass	

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	
Test @ 50% U 100% I									
Voltage U3	500.00000 V	499.99664 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00336 V	2.24%	Pass	
Current I3	0.200000 A	0.200010 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000010 A	17.3%	Pass	
Power @ PF 1	100.00000 W	100.00448 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00448 W	11.2%	Pass	
Test @ 90% U 90% I									
Voltage U3	900.00000 V	900.02348 V	899.73000 V	900.27000 V	89.00 e-03 V	0,02348 V	8.7%	Pass	
Current I3	0.180000 A	0.180009 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000009 A	16.7%	Pass	
Power @ PF 1	162.00000 W	162.01230 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01230 W	19%	Pass	
Test @ 100% U 100% I									
Voltage U3	1000.00000 V	1000.03407 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,03407 V	11.4%	Pass	
Current I3	0.200000 A	0.200010 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000010 A	17.1%	Pass	
Power @ PF 1	200.00000 W	200.01702 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01702 W	21.3%	Pass	

Phase 4									
Test @ 50% U 20% I									
Voltage U4	500.00000 V	499.99353 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00647 V	4.31%	Pass	
Current I4	0.040000 A	0.040000 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000000 A	4%	Pass	
Power @ PF 1	20.00000 W	19.99985 W	19.99200 W	20.00800 W	9.00 e-03 W	-0,00015 W	1.89%	Pass	
Test @ 50% U 50% I									
Voltage U4	500.00000 V	499.99354 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00646 V	4.31%	Pass	
Current I4	0.100000 A	0.100002 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000002 A	7.06%	Pass	
Power @ PF 1	50.00000 W	50.00036 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00036 W	1.82%	Pass	
Power @ PF 0.9 cap	45.00000 W	44.99958 W	44.97969 W	45.02031 W	9.00 e-03 W	-0,00042 W	2.08%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00091 W	44.97969 W	45.02031 W	9.00 e-03 W	0,00091 W	4.49%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99876 W	24.98541 W	25.01459 W	5.80 e-03 W	-0,00124 W	8.51%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00142 W	24.98541 W	25.01459 W	5.80 e-03 W	0,00142 W	9.74%	Pass	
Power @ PF 0.1 cap	5.000000 W	4.998468 W	4.992727 W	5.007273 W	3.10 e-03 W	-0,001532 W	21.1%	Pass	
Power @ PF 0.1 ind	5.000000 W	5.001677 W	4.992727 W	5.007273 W	3.10 e-03 W	0,001677 W	23.1%	Pass	
Test @ 50% U 100% I									
Voltage U4	500.00000 V	499.99399 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00601 V	4.01%	Pass	
Current I4	0.200000 A	0.200006 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000006 A	10.7%	Pass	
Power @ PF 1	100.00000 W	100.00198 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00198 W	4.94%	Pass	
Test @ 90% U 90% I									
Voltage U4	900.00000 V	900.01923 V	899.73000 V	900.27000 V	89.00 e-03 V	0,01923 V	7.12%	Pass	
Current I4	0.180000 A	0.180005 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000005 A	9.67%	Pass	
Power @ PF 1	162.00000 W	162.00811 W	161.93520 W	162.06480 W	32.00 e-03 W	0,00811 W	12.5%	Pass	
Test @ 100% U 100% I									
Voltage U4	1000.00000 V	1000.02843 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,02843 V	9.48%	Pass	
Current I4	0.200000 A	0.200006 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000006 A	10.1%	Pass	
Power @ PF 1	200.00000 W	200.01172 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01172 W	14.7%	Pass	

Following tests @ 180Hz									
Frequency	180.00000 Hz	179.99905 Hz	179.99000 Hz	180.01000 Hz		-0,00095 Hz	9.5%	Pass	(1)

Phase 1									
Test @ 50% U 50% I									
Voltage U1	500.00000 V	500.01492 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01492 V	9.95%	Pass	
Current I1	0.100000 A	0.100006 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000006 A	18.7%	Pass	
Power @ PF 1	50.00000 W	50.00425 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00425 W	21.2%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00299 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00299 W	11.6%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00453 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00453 W	17.5%	Pass	
Power @ PF 0.5 cap	25.00000 W	25.00067 W	24.97441 W	25.02559 W	8.30 e-03 W	0,00067 W	2.63%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00363 W	24.97441 W	25.02559 W	8.30 e-03 W	0,00363 W	14.2%	Pass	

Phase 2									
Test @ 50% U 50% I									
Voltage U2	500.00000 V	500.00489 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00489 V	3.26%	Pass	
Current I2	0.100000 A	0.100009 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000009 A	29.1%	Pass	
Power @ PF 1	50.00000 W	50.00481 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00481 W	24%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00290 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00290 W	11.2%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00556 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00556 W	21.5%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99957 W	24.97441 W	25.02559 W	8.30 e-03 W	-0,00043 W	1.69%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00512 W	24.97441 W	25.02559 W	8.30 e-03 W	0,00512 W	20%	Pass	

Phase 3									
Test @ 50% U 50% I									
Voltage U3	500.00000 V	499.99918 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00082 V	0.544%	Pass	
Current I3	0.100000 A	0.100006 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000006 A	21%	Pass	
Power @ PF 1	50.00000 W	50.00302 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00302 W	15.1%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00134 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00134 W	5.18%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00409 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00409 W	15.8%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99868 W	24.97441 W	25.02559 W	8.30 e-03 W	-0,00132 W	5.15%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00417 W	24.97441 W	25.02559 W	8.30 e-03 W	0,00417 W	16.3%	Pass	

Phase 4									
Test @ 50% U 50% I									
Voltage U4	500.00000 V	499.99685 V	499.85000 V	500.15000 V	56.00 e-03 V	-0,00315 V	2.1%	Pass	
Current I4	0.100000 A	0.100004 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000004 A	14.5%	Pass	
Power @ PF 1	50.00000 W	50.00181 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00181 W	9.03%	Pass	

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	
Power @ PF 0.9 cap	45.00000 W	45.00037 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00037 W	1.44%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00260 W	44.97415 W	45.02585 W	12.00 e-03 W	0,00260 W	10.1%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99852 W	24.97441 W	25.02559 W	8.30 e-03 W	-0,00148 W	5.78%	Pass	
Power @ PF 0.5 ind	25.00000 W	25.00306 W	24.97441 W	25.02559 W	8.30 e-03 W	0,00306 W	12%	Pass	

Following tests @ 400Hz									
Frequency	400.00000 Hz	399.99789 Hz	399.97900 Hz	400.02100 Hz		-0,00211 Hz	10%	Pass	(1)

Phase 1									
Test @ 50% U 20% I									
Voltage U1	500.00000 V	500.01527 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01527 V	10.2%	Pass	
Current I1	0.040000 A	0.040002 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000002 A	13.1%	Pass	
Power @ PF 1	20.00000 W	20.00126 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00126 W	15.8%	Pass	
Test @ 50% U 50% I									
Voltage U1	500.00000 V	500.01524 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01524 V	10.2%	Pass	
Current I1	0.100000 A	0.100004 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000004 A	14%	Pass	
Power @ PF 1	50.00000 W	50.00357 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00357 W	17.9%	Pass	
Power @ PF 0.9 cap	45.00000 W	45.00053 W	44.96456 W	45.03544 W	12.00 e-03 W	0,00053 W	1.5%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00584 W	44.96456 W	45.03544 W	12.00 e-03 W	0,00584 W	16.5%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99648 W	24.95536 W	25.04464 W		-0,00352 W	7.89%	Pass	(1)
Power @ PF 0.5 ind	25.00000 W	25.00710 W	24.95536 W	25.04464 W		0,00710 W	15.9%	Pass	(1)
Test @ 50% U 100% I									
Voltage U1	500.00000 V	500.01518 V	499.85000 V	500.15000 V	56.00 e-03 V	0,01518 V	10.1%	Pass	
Current I1	0.200000 A	0.200008 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000008 A	14.1%	Pass	
Power @ PF 1	100.00000 W	100.00723 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00723 W	18.1%	Pass	
Test @ 90% U 90% I									
Voltage U1	900.00000 V	900.05467 V	899.73000 V	900.27000 V	89.00 e-03 V	0,05467 V	20.2%	Pass	
Current I1	0.180000 A	0.180007 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000007 A	13.6%	Pass	
Power @ PF 1	162.00000 W	162.01640 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01640 W	25.3%	Pass	
Test @ 100% U 100% I									
Voltage U1	1000.00000 V	1000.06673 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,06673 V	22.2%	Pass	
Current I1	0.200000 A	0.200008 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000008 A	13.9%	Pass	
Power @ PF 1	200.00000 W	200.02163 W	199.92000 W	200.08000 W	40.00 e-03 W	0,02163 W	27%	Pass	

Phase 2									
Test @ 50% U 20% I									
Voltage U2	500.00000 V	500.00582 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00582 V	3.88%	Pass	
Current I2	0.040000 A	0.040003 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000003 A	20.9%	Pass	
Power @ PF 1	20.00000 W	20.00136 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00136 W	17%	Pass	
Test @ 50% U 50% I									
Voltage U2	500.00000 V	500.00643 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00643 V	4.29%	Pass	
Current I2	0.100000 A	0.100007 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000007 A	23.9%	Pass	
Power @ PF 1	50.00000 W	50.00418 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00418 W	20.9%	Pass	
Power @ PF 0.9 cap	45.00000 W	44.99965 W	44.96456 W	45.03544 W	12.00 e-03 W	-0,00035 W	0.997%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00766 W	44.96456 W	45.03544 W	12.00 e-03 W	0,00766 W	21.6%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99414 W	24.95536 W	25.04464 W		-0,00586 W	13.1%	Pass	(1)
Power @ PF 0.5 ind	25.00000 W	25.00993 W	24.95536 W	25.04464 W		0,00993 W	22.2%	Pass	(1)
Test @ 50% U 100% I									
Voltage U2	500.00000 V	500.00511 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00511 V	3.4%	Pass	
Current I2	0.200000 A	0.200015 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000015 A	24.3%	Pass	
Power @ PF 1	100.00000 W	100.00827 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00827 W	20.7%	Pass	
Test @ 90% U 90% I									
Voltage U2	900.00000 V	900.03764 V	899.73000 V	900.27000 V	89.00 e-03 V	0,03764 V	13.9%	Pass	
Current I2	0.180000 A	0.180013 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000013 A	24.1%	Pass	
Power @ PF 1	162.00000 W	162.01841 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01841 W	28.4%	Pass	
Test @ 100% U 100% I									
Voltage U2	1000.00000 V	1000.04600 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,04600 V	15.3%	Pass	
Current I2	0.200000 A	0.200014 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000014 A	24.1%	Pass	
Power @ PF 1	200.00000 W	200.02361 W	199.92000 W	200.08000 W	40.00 e-03 W	0,02361 W	29.5%	Pass	

Phase 3									
Test @ 50% U 20% I									
Voltage U3	500.00000 V	500.00236 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00236 V	1.57%	Pass	
Current I3	0.040000 A	0.040002 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000002 A	14.7%	Pass	
Power @ PF 1	20.00000 W	20.00084 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00084 W	10.6%	Pass	
Test @ 50% U 50% I									
Voltage U3	500.00000 V	500.00232 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00232 V	1.55%	Pass	
Current I3	0.100000 A	0.100005 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000005 A	15.8%	Pass	
Power @ PF 1	50.00000 W	50.00255 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00255 W	12.8%	Pass	
Power @ PF 0.9 cap	45.00000 W	44.99848 W	44.96456 W	45.03544 W	12.00 e-03 W	-0,00152 W	4.29%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00632 W	44.96456 W	45.03544 W	12.00 e-03 W	0,00632 W	17.8%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99362 W	24.95536 W	25.04464 W		-0,00638 W	14.3%	Pass	(1)
Power @ PF 0.5 ind	25.00000 W	25.00901 W	24.95536 W	25.04464 W		0,00901 W	20.2%	Pass	(1)
Test @ 50% U 100% I									
Voltage U3	500.00000 V	500.00224 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00224 V	1.49%	Pass	
Current I3	0.200000 A	0.200010 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000010 A	17.1%	Pass	
Power @ PF 1	100.00000 W	100.00554 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00554 W	13.8%	Pass	
Test @ 90% U 90% I									
Voltage U3	900.00000 V	900.03723 V	899.73000 V	900.27000 V	89.00 e-03 V	0,03723 V	13.8%	Pass	

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	
Current I3	0.180000 A	0.180009 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000009 A	16.8%	Pass	
Power @ PF 1	162.00000 W	162.01482 W	161.93520 W	162.06480 W	32.00 e-03 W	0,01482 W	22.9%	Pass	
Test @ 100% U 100% I									
Voltage U3	1000.00000 V	1000.04877 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,04877 V	16.3%	Pass	
Current I3	0.200000 A	0.200010 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000010 A	16.8%	Pass	
Power @ PF 1	200.00000 W	200.01979 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01979 W	24.7%	Pass	

Phase 4									
Test @ 50% U 20% I									
Voltage U4	500.00000 V	500.00247 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00247 V	1.65%	Pass	
Current I4	0.040000 A	0.040001 A	0.039988 A	0.040012 A	10.00 e-06 A	0,000001 A	5.74%	Pass	
Power @ PF 1	20.00000 W	20.00031 W	19.99200 W	20.00800 W	9.00 e-03 W	0,00031 W	3.9%	Pass	
Test @ 50% U 50% I									
Voltage U4	500.00000 V	500.00266 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00266 V	1.77%	Pass	
Current I4	0.100000 A	0.100003 A	0.099970 A	0.100030 A	15.00 e-06 A	0,000003 A	8.82%	Pass	
Power @ PF 1	50.00000 W	50.00154 W	49.98000 W	50.02000 W	10.00 e-03 W	0,00154 W	7.71%	Pass	
Power @ PF 0.9 cap	45.00000 W	44.99785 W	44.96456 W	45.03544 W	12.00 e-03 W	-0,00215 W	6.07%	Pass	
Power @ PF 0.9 ind	45.00000 W	45.00460 W	44.96456 W	45.03544 W	12.00 e-03 W	0,00460 W	13%	Pass	
Power @ PF 0.5 cap	25.00000 W	24.99387 W	24.95536 W	25.04464 W		-0,00613 W	13.7%	Pass	(1)
Power @ PF 0.5 ind	25.00000 W	25.00740 W	24.95536 W	25.04464 W		0,00740 W	16.6%	Pass	(1)
Test @ 50% U 100% I									
Voltage U4	500.00000 V	500.00020 V	499.85000 V	500.15000 V	56.00 e-03 V	0,00020 V	0.136%	Pass	
Current I4	0.200000 A	0.200006 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000006 A	10%	Pass	
Power @ PF 1	100.00000 W	100.00302 W	99.96000 W	100.04000 W	20.00 e-03 W	0,00302 W	7.56%	Pass	
Test @ 90% U 90% I									
Voltage U4	900.00000 V	900.02445 V	899.73000 V	900.27000 V	89.00 e-03 V	0,02445 V	9.06%	Pass	
Current I4	0.180000 A	0.180005 A	0.179946 A	0.180054 A	21.00 e-06 A	0,000005 A	10%	Pass	
Power @ PF 1	162.00000 W	162.00923 W	161.93520 W	162.06480 W	32.00 e-03 W	0,00923 W	14.2%	Pass	
Test @ 100% U 100% I									
Voltage U4	1000.00000 V	1000.03530 V	999.70000 V	1000.30000 V	97.00 e-03 V	0,03530 V	11.8%	Pass	
Current I4	0.200000 A	0.200006 A	0.199940 A	0.200060 A	23.00 e-06 A	0,000006 A	10.3%	Pass	
Power @ PF 1	200.00000 W	200.01320 W	199.92000 W	200.08000 W	40.00 e-03 W	0,01320 W	16.5%	Pass	

AC Voltage Calibration									
Test @ 100V_RMS @ 1000Hz									
Channel U1	100.00000 V	100.01256 V	99.97000 V	100.03000 V	29.00 e-03 V	0,01256 V	41.9%	Pass	
Channel U2	100.00000 V	100.00881 V	99.97000 V	100.03000 V	29.00 e-03 V	0,00881 V	29.4%	Pass	
Channel U3	100.00000 V	100.01016 V	99.97000 V	100.03000 V	29.00 e-03 V	0,01016 V	33.9%	Pass	
Channel U4	100.00000 V	100.00953 V	99.97000 V	100.03000 V	29.00 e-03 V	0,00953 V	31.8%	Pass	
Test @ 100V_RMS @ 10000Hz									
Channel U1	100.00000 V	100.10937 V	99.65000 V	100.35000 V	32.00 e-03 V	0,10937 V	31.2%	Pass	
Channel U2	100.00000 V	100.05515 V	99.65000 V	100.35000 V	32.00 e-03 V	0,05515 V	15.8%	Pass	
Channel U3	100.00000 V	100.10261 V	99.65000 V	100.35000 V	32.00 e-03 V	0,10261 V	29.3%	Pass	
Channel U4	100.00000 V	100.10785 V	99.65000 V	100.35000 V	32.00 e-03 V	0,10785 V	30.8%	Pass	
Test @ 100V_RMS @ 30000Hz									
Channel U1	100.00000 V	100.11001 V	99.40000 V	100.60000 V	160.00 e-03 V	0,11001 V	18.3%	Pass	
Channel U2	100.00000 V	100.03163 V	99.40000 V	100.60000 V	160.00 e-03 V	0,03163 V	5.27%	Pass	
Channel U3	100.00000 V	100.02958 V	99.40000 V	100.60000 V	160.00 e-03 V	0,02958 V	4.93%	Pass	
Channel U4	100.00000 V	100.07478 V	99.40000 V	100.60000 V	160.00 e-03 V	0,07478 V	12.5%	Pass	
AC Current Calibration									
Test @ 0.02A RMS @ 1000Hz									
Channel I1	0.020000 A	0.020001 A	0.019994 A	0.020006 A	34.00 e-06 A	0,000001 A	8.93%	Pass	
Channel I2	0.020000 A	0.020001 A	0.019994 A	0.020006 A	34.00 e-06 A	0,000001 A	19%	Pass	
Channel I3	0.020000 A	0.020001 A	0.019994 A	0.020006 A	34.00 e-06 A	0,000001 A	10.2%	Pass	
Channel I4	0.020000 A	0.020000 A	0.019994 A	0.020006 A	34.00 e-06 A	0,000000 A	3.37%	Pass	
DC Power Calibration									
Range U: 1000V Range I: 0.2A									

Phase 1									
Test @ 0% U 0% I									
Voltage U1	0.00000 V	0.00043 V	-0.20000 V	0.20000 V	140.00 e-06 V	0,00043 V	0.214%	Pass	
Current I1	0.000000 A	0.000040 A	-0.000105 A	0.000105 A	440.00 e-09 A	0,000040 A	38.5%	Pass	
Power	0.000000 W	0.000000 W	-0.120000 W	0.120000 W		0,000000 W	1.43e-005%	Pass	(1)
Test @ 5% U 10% I									
Voltage U1	50.00000 V	50.00015 V	49.79000 V	50.21000 V	1.50 e-03 V	0,00015 V	0.0703%	Pass	
Current I1	0.020000 A	0.020022 A	0.019896 A	0.020104 A	2.80 e-06 A	0,000022 A	21.4%	Pass	
Power	1.000000 W	1.001116 W	0.879700 W	1.120300 W	140.00 e-06 W	0,001116 W	0.927%	Pass	
Test @ 5% U 2% I									
Voltage U1	50.00000 V	49.99879 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00121 V	0.575%	Pass	
Current I1	0.004000 A	0.004022 A	0.003899 A	0.004101 A	920.00 e-09 A	0,000022 A	21.6%	Pass	
Power	0.200000 W	0.201083 W	0.079940 W	0.320060 W	46.00 e-06 W	0,001083 W	0.902%	Pass	

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	
Test @ 50% U 20% I									
Voltage U1	500.00000 V	499.99865 V	499.70000 V	500.30000 V	13.00 e-03 V	-0,00135 V	0.451%	Pass	
Current I1	0.040000 A	0.040027 A	0.039892 A	0.040108 A	7.80 e-06 A	0,000027 A	24.6%	Pass	
Power	20.00000 W	20.01321 W	19.87400 W	20.12600 W		0,01321 W	10.5%	Pass	(1)
Test @ 30% U 30% I									
Voltage U1	300.00000 V	299.99730 V	299.74000 V	300.26000 V	7.80 e-03 V	-0,00270 V	1.04%	Pass	
Current I1	0.060000 A	0.060022 A	0.059888 A	0.060112 A	10.00 e-06 A	0,000022 A	19.9%	Pass	
Power	18.00000 W	18.00652 W	17.87460 W	18.12540 W		0,00652 W	5.2%	Pass	(1)
Test @ 5% U 50% I									
Voltage U1	50.00000 V	49.99969 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00031 V	0.148%	Pass	
Current I1	0.100000 A	0.100020 A	0.099880 A	0.100120 A	15.00 e-06 A	0,000020 A	16.8%	Pass	
Power	5.000000 W	5.000974 W	4.878500 W	5.121500 W	1.00 e-03 W	0,000974 W	0.802%	Pass	
Test @ -50% U -50% I									
Voltage U1	-500.00000 V	-499.99644 V	-500.30000 V	-499.70000 V	13.00 e-03 V	0,00356 V	1.19%	Pass	
Current I1	-0.100000 A	-0.099979 A	-0.100120 A	-0.099880 A	15.00 e-06 A	0,000021 A	17.8%	Pass	
Power	50.00000 W	49.98898 W	49.86500 W	50.13500 W		-0,01102 W	8.17%	Pass	(1)
Test @ 5% U 100% I									
Voltage U1	50.00000 V	50.00062 V	49.79000 V	50.21000 V	1.50 e-03 V	0,00062 V	0.293%	Pass	
Current I1	0.200000 A	0.200036 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000036 A	26%	Pass	
Power	10.00000 W	10.00194 W	9.87700 W	10.12300 W	2.10 e-03 W	0,00194 W	1.58%	Pass	
Test @ 70% U 70% I									
Voltage U1	700.00000 V	700.00037 V	699.66000 V	700.34000 V	18.00 e-03 V	0,00037 V	0.109%	Pass	
Current I1	0.140000 A	0.140024 A	0.139872 A	0.140128 A	21.00 e-06 A	0,000024 A	18.4%	Pass	
Power	98.00000 W	98.01654 W	97.85060 W	98.14940 W		0,01654 W	11.1%	Pass	(1)
Test @ 100% U 100% I									
Voltage U1	1000.00000 V	1000.01063 V	999.60000 V	1000.40000 V	26.00 e-03 V	0,01063 V	2.66%	Pass	
Current I1	0.200000 A	0.200036 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000036 A	25.6%	Pass	
Power	200.00000 W	200.03801 W	199.82000 W	200.18000 W		0,03801 W	21.1%	Pass	(1)

Phase 2									
Test @ 0% U 0% I									
Voltage U2	0.00000 V	0.00122 V	-0.20000 V	0.20000 V	140.00 e-06 V	0,00122 V	0.611%	Pass	
Current I2	0.000000 A	0.000026 A	-0.000105 A	0.000105 A	440.00 e-09 A	0,000026 A	24.5%	Pass	
Power	0.000000 W	0.000000 W	-0.120000 W	0.120000 W		0,000000 W	2.6e-005%	Pass	(1)
Test @ 5% U 10% I									
Voltage U2	50.00000 V	50.00086 V	49.79000 V	50.21000 V	1.50 e-03 V	0,00086 V	0.407%	Pass	
Current I2	0.020000 A	0.020007 A	0.019896 A	0.020104 A	2.80 e-06 A	0,000007 A	6.66%	Pass	
Power	1.000000 W	1.000364 W	0.879700 W	1.120300 W	140.00 e-06 W	0,000364 W	0.302%	Pass	
Test @ 5% U 2% I									
Voltage U2	50.00000 V	50.00148 V	49.79000 V	50.21000 V	1.50 e-03 V	0,00148 V	0.705%	Pass	
Current I2	0.004000 A	0.004006 A	0.003899 A	0.004101 A	920.00 e-09 A	0,000006 A	6.24%	Pass	
Power	0.200000 W	0.200320 W	0.079940 W	0.320060 W	46.00 e-06 W	0,000320 W	0.267%	Pass	
Test @ 50% U 20% I									
Voltage U2	500.00000 V	499.99346 V	499.70000 V	500.30000 V	13.00 e-03 V	-0,00654 V	2.18%	Pass	
Current I2	0.040000 A	0.040006 A	0.039892 A	0.040108 A	7.80 e-06 A	0,000006 A	5.1%	Pass	
Power	20.00000 W	20.00249 W	19.87400 W	20.12600 W		0,00249 W	1.98%	Pass	(1)
Test @ 30% U 30% I									
Voltage U2	300.00000 V	299.99474 V	299.74000 V	300.26000 V	7.80 e-03 V	-0,00526 V	2.02%	Pass	
Current I2	0.060000 A	0.060015 A	0.059888 A	0.060112 A	10.00 e-06 A	0,000015 A	13.2%	Pass	
Power	18.00000 W	18.00413 W	17.87460 W	18.12540 W		0,00413 W	3.29%	Pass	(1)
Test @ 5% U 50% I									
Voltage U2	50.00000 V	49.99903 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00097 V	0.46%	Pass	
Current I2	0.100000 A	0.100019 A	0.099880 A	0.100120 A	15.00 e-06 A	0,000019 A	15.6%	Pass	
Power	5.000000 W	5.000837 W	4.878500 W	5.121500 W	1.00 e-03 W	0,000837 W	0.689%	Pass	
Test @ -50% U -50% I									
Voltage U2	-500.00000 V	-499.99082 V	-500.30000 V	-499.70000 V	13.00 e-03 V	0,00918 V	3.06%	Pass	
Current I2	-0.100000 A	-0.100008 A	-0.100120 A	-0.099880 A	15.00 e-06 A	-0,000008 A	6.47%	Pass	
Power	50.00000 W	50.00296 W	49.86500 W	50.13500 W		0,00296 W	2.19%	Pass	(1)
Test @ 5% U 100% I									
Voltage U2	50.00000 V	49.99994 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00006 V	0.0284%	Pass	
Current I2	0.200000 A	0.200031 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000031 A	21.8%	Pass	
Power	10.00000 W	10.00151 W	9.87700 W	10.12300 W	2.10 e-03 W	0,00151 W	1.23%	Pass	
Test @ 70% U 70% I									
Voltage U2	700.00000 V	699.99044 V	699.66000 V	700.34000 V	18.00 e-03 V	-0,00956 V	2.81%	Pass	
Current I2	0.140000 A	0.140021 A	0.139872 A	0.140128 A	21.00 e-06 A	0,000021 A	16.5%	Pass	
Power	98.00000 W	98.01341 W	97.85060 W	98.14940 W		0,01341 W	8.98%	Pass	(1)
Test @ 100% U 100% I									
Voltage U2	1000.00000 V	999.99620 V	999.60000 V	1000.40000 V	26.00 e-03 V	-0,00380 V	0.951%	Pass	
Current I2	0.200000 A	0.200017 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000017 A	12.4%	Pass	
Power	200.00000 W	200.01656 W	199.82000 W	200.18000 W		0,01656 W	9.2%	Pass	(1)

Phase 3									
Test @ 0% U 0% I									
Voltage U3	0.00000 V	0.00209 V	-0.20000 V	0.20000 V	140.00 e-06 V	0,00209 V	1.05%	Pass	
Current I3	0.000000 A	0.000013 A	-0.000105 A	0.000105 A	440.00 e-09 A	0,000013 A	12.8%	Pass	
Power	0.000000 W	0.000000 W	-0.120000 W	0.120000 W		0,000000 W	2.33e-005%	Pass	(1)
Test @ 5% U 10% I									
Voltage U3	50.00000 V	49.99999 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00001 V	0.00667%	Pass	
Current I3	0.020000 A	0.019991 A	0.019896 A	0.020104 A	2.80 e-06 A	-0,000009 A	9.11%	Pass	
Power	1.000000 W	0.999526 W	0.879700 W	1.120300 W	140.00 e-06 W	-0,000474 W	0.394%	Pass	

11. Testergebnisse / Test results

Test Description	True Value	Test Result	Lower limit	Upper limit	Exp Uncert	Error	% of Tol	Status	
Test @ 5% U 2% I									
Voltage U3	50.00000 V	49.99963 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00037 V	0.176%	Pass	
Current I3	0.004000 A	0.003990 A	0.003899 A	0.004101 A	920.00 e-09 A	-0,000010 A	9.46%	Pass	
Power	0.200000 W	0.199522 W	0.079940 W	0.320060 W	46.00 e-06 W	-0,000478 W	0.398%	Pass	
Test @ 50% U 20% I									
Voltage U3	500.00000 V	499.98984 V	499.70000 V	500.30000 V	13.00 e-03 V	-0,01016 V	3.39%	Pass	
Current I3	0.040000 A	0.039997 A	0.039892 A	0.040108 A	7.80 e-06 A	-0,000003 A	3.12%	Pass	
Power	20.00000 W	19.99791 W	19.87400 W	20.12600 W		-0,00209 W	1.66%	Pass	(1)
Test @ 30% U 30% I									
Voltage U3	300.00000 V	299.99390 V	299.74000 V	300.26000 V	7.80 e-03 V	-0,00610 V	2.35%	Pass	
Current I3	0.060000 A	0.059988 A	0.059888 A	0.060112 A	10.00 e-06 A	-0,000012 A	10.3%	Pass	
Power	18.00000 W	17.99618 W	17.87460 W	18.12540 W		-0,00382 W	3.05%	Pass	(1)
Test @ 5% U 50% I									
Voltage U3	50.00000 V	50.00016 V	49.79000 V	50.21000 V	1.50 e-03 V	0,00016 V	0.0746%	Pass	
Current I3	0.100000 A	0.099989 A	0.099880 A	0.100120 A	15.00 e-06 A	-0,000011 A	8.82%	Pass	
Power	5.000000 W	4.999487 W	4.878500 W	5.121500 W	1.00 e-03 W	-0,000513 W	0.423%	Pass	
Test @ -50% U -50% I									
Voltage U3	-500.00000 V	-499.98792 V	-500.30000 V	-499.70000 V	13.00 e-03 V	0,01208 V	4.03%	Pass	
Current I3	-0.100000 A	-0.100019 A	-0.100120 A	-0.099880 A	15.00 e-06 A	-0,000019 A	15.5%	Pass	
Power	50.00000 W	50.00807 W	49.86500 W	50.13500 W		0,00807 W	5.98%	Pass	(1)
Test @ 5% U 100% I									
Voltage U3	50.00000 V	49.99933 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00067 V	0.32%	Pass	
Current I3	0.200000 A	0.200011 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000011 A	7.62%	Pass	
Power	10.00000 W	10.00040 W	9.87700 W	10.12300 W	2.10 e-03 W	0,00040 W	0.324%	Pass	
Test @ 70% U 70% I									
Voltage U3	700.00000 V	699.99092 V	699.66000 V	700.34000 V	18.00 e-03 V	-0,00908 V	2.67%	Pass	
Current I3	0.140000 A	0.139999 A	0.139872 A	0.140128 A	21.00 e-06 A	-0,000001 A	0.529%	Pass	
Power	98.00000 W	97.99825 W	97.85060 W	98.14940 W		-0,00175 W	1.17%	Pass	(1)
Test @ 100% U 100% I									
Voltage U3	1000.00000 V	1000.00343 V	999.60000 V	1000.40000 V	26.00 e-03 V	0,00343 V	0.858%	Pass	
Current I3	0.200000 A	0.200003 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000003 A	1.83%	Pass	
Power	200.00000 W	200.00325 W	199.82000 W	200.18000 W		0,00325 W	1.8%	Pass	(1)

Phase 4									
Test @ 0% U 0% I									
Voltage U4	0.00000 V	-0.00458 V	-0.20000 V	0.20000 V	140.00 e-06 V	-0,00458 V	2.29%	Pass	
Current I4	0.000000 A	0.000004 A	-0.000105 A	0.000105 A	440.00 e-09 A	0,000004 A	3.92%	Pass	
Power	0.000000 W	-0.000000 W	-0.120000 W	0.120000 W		0,000000 W	1.56e-005%	Pass	(1)
Test @ 5% U 10% I									
Voltage U4	50.00000 V	49.99462 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00538 V	2.56%	Pass	
Current I4	0.020000 A	0.019984 A	0.019896 A	0.020104 A	2.80 e-06 A	-0,000016 A	15.5%	Pass	
Power	1.000000 W	0.999087 W	0.879700 W	1.120300 W	140.00 e-06 W	-0,000913 W	0.759%	Pass	
Test @ 5% U 2% I									
Voltage U4	50.00000 V	49.99548 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00452 V	2.15%	Pass	
Current I4	0.004000 A	0.003984 A	0.003899 A	0.004101 A	920.00 e-09 A	-0,000016 A	15.7%	Pass	
Power	0.200000 W	0.199193 W	0.079940 W	0.320060 W	46.00 e-06 W	-0,000807 W	0.672%	Pass	
Test @ 50% U 20% I									
Voltage U4	500.00000 V	499.98450 V	499.70000 V	500.30000 V	13.00 e-03 V	-0,01550 V	5.17%	Pass	
Current I4	0.040000 A	0.039982 A	0.039892 A	0.040108 A	7.80 e-06 A	-0,000018 A	16.4%	Pass	
Power	20.00000 W	19.99054 W	19.87400 W	20.12600 W		-0,00946 W	7.5%	Pass	(1)
Test @ 30% U 30% I									
Voltage U4	300.00000 V	299.98881 V	299.74000 V	300.26000 V	7.80 e-03 V	-0,01119 V	4.3%	Pass	
Current I4	0.060000 A	0.059992 A	0.059888 A	0.060112 A	10.00 e-06 A	-0,000008 A	7.18%	Pass	
Power	18.00000 W	17.99692 W	17.87460 W	18.12540 W		-0,00308 W	2.46%	Pass	(1)
Test @ 5% U 50% I									
Voltage U4	50.00000 V	49.99577 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00423 V	2.02%	Pass	
Current I4	0.100000 A	0.099988 A	0.099880 A	0.100120 A	15.00 e-06 A	-0,000012 A	9.99%	Pass	
Power	5.000000 W	4.998977 W	4.878500 W	5.121500 W	1.00 e-03 W	-0,001023 W	0.842%	Pass	
Test @ -50% U -50% I									
Voltage U4	-500.00000 V	-499.98760 V	-500.30000 V	-499.70000 V	13.00 e-03 V	0,01240 V	4.13%	Pass	
Current I4	-0.100000 A	-0.100025 A	-0.100120 A	-0.099880 A	15.00 e-06 A	-0,000025 A	20.6%	Pass	
Power	50.00000 W	50.01111 W	49.86500 W	50.13500 W		0,01111 W	8.23%	Pass	(1)
Test @ 5% U 100% I									
Voltage U4	50.00000 V	49.99597 V	49.79000 V	50.21000 V	1.50 e-03 V	-0,00403 V	1.92%	Pass	
Current I4	0.200000 A	0.200000 A	0.199860 A	0.200140 A	29.00 e-06 A	0,000000 A	0.107%	Pass	
Power	10.00000 W	9.99919 W	9.87700 W	10.12300 W	2.10 e-03 W	-0,00081 W	0.661%	Pass	
Test @ 70% U 70% I									
Voltage U4	700.00000 V	699.98157 V	699.66000 V	700.34000 V	18.00 e-03 V	-0,01843 V	5.42%	Pass	
Current I4	0.140000 A	0.139993 A	0.139872 A	0.140128 A	21.00 e-06 A	-0,000007 A	5.69%	Pass	
Power	98.00000 W	97.99232 W	97.85060 W	98.14940 W		-0,00768 W	5.14%	Pass	(1)
Test @ 100% U 100% I									
Voltage U4	1000.00000 V	999.98938 V	999.60000 V	1000.40000 V	26.00 e-03 V	-0,01062 V	2.66%	Pass	
Current I4	0.200000 A	0.199989 A	0.199860 A	0.200140 A	29.00 e-06 A	-0,000011 A	7.61%	Pass	
Power	200.00000 W	199.98721 W	199.82000 W	200.18000 W		-0,01279 W	7.11%	Pass	(1)

Ende des Kalibrierscheines / *End of Calibration Certificate*