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Deutsche
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D-K-15070-01-01

Kalibrierschein
Calibration certificate

Kalibrierzeichen
Calibration mark

MUSTER

D-K-
15070-01-01

2015-03

Gegenstand
Object
Multimeter

Hersteller
Manufacturer
Agilent

Typ
Type
3458A

Fabrikat/Serien-Nr.
Serial no.
12345

Auftraggeber
Customer
Mustermann GmbH
DE-12345 Musterhausen

Auftragsnummer
Order no.
654321

Anzahl der Seiten des Kalibrierscheines - 9 -
Number of pages of the certificate

Datum der Kalibrierung
Date of calibration
11.03.2015

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V 3.4 / DE

Datum
Date
Leiter des Kalibrierlaboratoriums
Head of the calibration laboratory

Max Mustermann

Bearbeiter
Person in charge

Max Mustermann

11.03.2015

Kalibriergegenstand Calibration object

	Multimeter
Equipment Nr. Equipment no.	12345678
Inventar Nr. Inventory no.	123456
Prüfmittel Nr. Test equipment no.	1234567

Kalibrierverfahren Calibration procedure

Die Kalibrierung erfolgt nach Kalibrieranweisung QSA - TIS 7.5-67 - in Abstimmung nach VDI/VDE/DGQ/DKD 2622. durch Vergleich der Anzeige des Kalibriergegenstandes mit den durch die Kalibriergeräte/Normale dargestellten Messwerten. Bezug ist die Realisierung der Einheiten in der Physikalisch-Technischen Bundesanstalt (PTB) Deutschland.

The calibration is performed according to the QSA - TIS 7.5-67 procedure- in accordance with VDI/VDE/DGQ/DKD 2622. by direct comparison of the measured values of the calibration article with the reference-, or working-standard. The measurement is traceable to the Physikalisch-Technischen Bundesanstalt (PTB) Germany.

Verwendete Kalibrierprozedur Used calibration procedure F:AGILENT:3458A:KIZ:ACDC2:5720:IEEE / Rev.:12.0

Messunsicherheit Measuring uncertainty

Angegeben ist die erweiterte Messunsicherheit, die sich aus der Standardmessunsicherheit durch Multiplikation mit dem Erweiterungsfaktor $k = 2$ ergibt. Sie wurde gemäß DAkkS-DKD-3 ermittelt. Der Wert der Messgröße liegt mit einer Wahrscheinlichkeit von 95 % im zugeordneten Werteintervall. Ein Anteil für die Langzeit-Instabilität ist nicht enthalten. Die dimensionslosen Anteile der Messunsicherheit sind als relative Messunsicherheiten bezogen auf den Messwert zu verstehen.

The expanded uncertainty of measurement corresponding to the measurement results is stated as the standard unertainty of measurement multiplied by the coverage factor $k = 2$. This was determined in accordance with DAkkS-DKD-3. Usually the true value is located in the corresponding interval with a probability of ca. 95%. The non-dimensional fractions of the measuring uncertainty are relative values in relation to the indicated value.

Umgebungsbedingungen Ambient conditions

Temperatur Temperature	(23 ± 1) °C	Druck Pressure	(960 ± 30) hPa
Relative Luftfeuchte Humidity	(40 ± 20) %		

Messeinrichtungen Measuring equipment

Referenz Reference	Rückführung Traceability	Rekal. Next cal.	Zertifikats Nr. Certificate-no.	Eq.-Nr. EQ-no.
Hochlast-Messwiderstand 10 mOhm 1282-0.01	15070-01-01	2015-06	E26506	10568543
Hochlast-Messwiderstand 100 mOhm 1282-0.1	15070-01-01	2015-06	E26508	10568544
Gebrauchs-Widerstandsnormale 100 µOhm ... 1 GOhm	15070-01-01	2016-01	E29292	10963489
Counter 3 GHz 53131A-030	GPS locked	---	---	10968156
AC Measurement Standard 5790A-03	15070-01-01	2015-09	E27654	11008524
Resistance Standards (Satz 3) 742A	15070-01-01	2016-01	E29344	11339411
Calibrator 5720A-03	15070-01-01	2015-04	E29463	11406985

Referenzzertifikate sind auf www.primasonline.com abrufbar Reference certificates are available at www.primasonline.com

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Messwert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der zul. Abw. in % Utilization of allowed deviation %	Messunsicher- heit (k=2) Measuring uncertainty (k=2)
Terminals: FRONT						
ACAL ALL durchgeführt						
interne Temperatur: 35 °C						
Gleichspannung DC voltage (NPLC 100 ; MATH NULL ; AZERO ON)						
Internal Offset Tests(Rear)						
100mV	0.000000mV		0.00026 mV	±0.001000mV	26% pass [+]	100 nV
1V	0.000000000V		0.00000023 V	±0.000001000V	23% pass [+]	100 nV
10V	0.000000000V		0.0000001V	±0.00000200V	5% pass [+]	118 nV
100V	0.0000000V		-0.000001V	±0.0000300V	5% pass [+]	4.4 µV
1000V	0.000000V		-0.00001V	±0.000100V	8% pass [+]	5.3 µV
Internal Offset Tests(Front)						
100mV	0.000000mV		0.00057 mV	±0.001000mV	57% pass [+]	102 nV
1V	0.000000000V		0.00000043 V	±0.000001000V	43% pass [+]	102 nV
10V	0.000000000V		0.0000004 V	±0.00000200V	19% pass [+]	115 nV
100V	0.0000000V		-0.000003 V	±0.0000300V	9% pass [+]	3.3 µV
1000V	0.000000V		-0.00001V	±0.000100V	11% pass [+]	6.6 µV
100mV	-100.000000mV		-100.00040 mV	±0.001200mV	33% pass [+]	1.6 · 10 ⁻⁶
100mV	100.000000mV		100.00000 mV	±0.001200mV	0% pass [+]	1.6 · 10 ⁻⁶
1V	-1.000000000V		-1.00000313 V	±0.000008300V	38% pass [+]	643 · 10 ⁻⁹
1V	0.100000000V		0.09999972 V	±0.000001100V	25% pass [+]	1.6 · 10 ⁻⁶
1V	1.000000000V		1.00000225 V	±0.000008300V	27% pass [+]	643 · 10 ⁻⁹
10V	-10.00000000V		-10.0000408 V	±0.00008050V	51% pass [+]	504 · 10 ⁻⁹
10V	1.00000000V		1.0000032 V	±0.00000850V	38% pass [+]	646 · 10 ⁻⁹
10V	2.00000000V		2.0000058 V	±0.00001650V	35% pass [+]	725 · 10 ⁻⁹
10V	4.00000000V		4.0000139 V	±0.00003250V	43% pass [+]	725 · 10 ⁻⁹
10V	5.00000000V		5.0000184 V	±0.00004050V	45% pass [+]	724 · 10 ⁻⁹
10V	6.00000000V		6.0000216 V	±0.00004850V	45% pass [+]	723 · 10 ⁻⁹
10V	8.00000000V		8.0000286 V	±0.00006450V	44% pass [+]	724 · 10 ⁻⁹
10V	10.00000000V		10.0000402 V	±0.00008050V	50% pass [+]	504 · 10 ⁻⁹
100V	-100.0000000V		-100.000349 V	±0.0010300V	34% pass [+]	643 · 10 ⁻⁹
100V	10.0000000V		10.000004 V	±0.0001300V	3% pass [+]	726 · 10 ⁻⁹
100V	13.0000000V		13.000007 V	±0.0001600V	4% pass [+]	725 · 10 ⁻⁹
100V	15.0000000V		15.000017 V	±0.0001800V	9% pass [+]	727 · 10 ⁻⁹
100V	18.0000000V		18.000025 V	±0.0002100V	12% pass [+]	722 · 10 ⁻⁹
100V	100.0000000V		100.000306 V	±0.0010300V	30% pass [+]	643 · 10 ⁻⁹
1000V	-1000.000000V		-1000.00050 V	±0.022100V	2% pass [+]	987 · 10 ⁻⁹
1000V	100.000000V		100.00018 V	±0.002300V	8% pass [+]	646 · 10 ⁻⁹
1000V	1000.000000V		999.99981V	±0.022100V	1% pass [+]	987 · 10 ⁻⁹
Gleichstromwiderstand DC resistance						

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Messwert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der zul. Abw. in % Utilization of allowed deviation %	Messunsicher- heit (k=2) Measuring uncertainty (k=2)
2-Leiter-Technik OHM						
Rear Input Shorted						
10Ohm	0.000000 Ohm		0.00661 Ohm	±0.250000 Ohm	3% pass [+]	23 µOhm
Front Input Shorted						
10Ohm	0.000000 Ohm		-0.00709 Ohm	±0.250000 Ohm	3% pass [+]	46 µOhm
4-Leiter-Technik OHMF						
(NPLC 100 ; OCOMP ON (0 Ohm - 10 kOhm) ; AZERO ON ; DELAY 1)						
Rear Input Shorted						
10Ohm	0.000000 Ohm		0.00001 Ohm	±0.000050 Ohm	11% pass [+]	5.0 µOhm
Front Input Shorted						
10Ohm	0.000000 Ohm		0.00000 Ohm	±0.000050 Ohm	6% pass [+]	8.5 µOhm
10Ohm	0.010000 Ohm		0.01000 Ohm	±0.000050 Ohm	6% pass [+]	427 · 10 ⁻⁶
10Ohm	0.100000 Ohm		0.10001 Ohm	±0.000052 Ohm	15% pass [+]	43 · 10 ⁻⁶
10Ohm	1.000000 Ohm		1.00000 Ohm	±0.000065 Ohm	6% pass [+]	10 · 10 ⁻⁶
10Ohm	10.000000 Ohm		9.99992 Ohm	±0.000200 Ohm	42% pass [+]	3.1 · 10 ⁻⁶
100Ohm	100.000000 Ohm		100.00025 Ohm	±0.001700 Ohm	15% pass [+]	2.0 · 10 ⁻⁶
1kOhm	1.00000000 kOhm		1.0000026 kOhm	±0.00001050 kOhm	25% pass [+]	974 · 10 ⁻⁹
10kOhm	10.00000000 kOhm		10.000058 kOhm	±0.0001050 kOhm	56% pass [+]	974 · 10 ⁻⁹
100kOhm	100.000000 kOhm		100.00038 kOhm	±0.001050 kOhm	36% pass [+]	974 · 10 ⁻⁹
2-Leiter-Technik OHM						
1 MOhm	1.00000000 MOhm		1.0000043 MOhm	±0.00001700 MOhm	25% pass [+]	5.5 · 10 ⁻⁶
10 MOhm	10.00000000 MOhm		9.999964 MOhm	±0.0006000 MOhm	6% pass [+]	9.3 · 10 ⁻⁶
100 MOhm	100.000000 MOhm		100.00370 MOhm	±0.051000 MOhm	7% pass [+]	3.0 · 10 ⁻⁶
1 GOhm	1.00000000 GOhm		1.0006332 GOhm	±0.00501000 GOhm	13% pass [+]	8.0 · 10 ⁻⁶
Gleichstromstärke DC current						
(NPLC 100 ; AZERO ON)						
Rear Input Open						
100nA	0.0000 nA		-0.000 nA	±0.0400 nA	1% pass [+]	78 fA
1 µA	0.0000000 µA		0.000002 µA	±0.0000400 µA	5% pass [+]	435 fA
10 µA	0.0000000 µA		0.000020 µA	±0.0001000 µA	20% pass [+]	2.4 pA
100 µA	0.000000 µA		0.00006 µA	±0.000800 µA	7% pass [+]	26 pA
1 mA	0.00000000 mA		0.0000006 mA	±0.00000500 mA	12% pass [+]	191 pA
10 mA	0.00000000 mA		0.000006 mA	±0.0000500 mA	13% pass [+]	2.0 nA
100 mA	0.000000 mA		0.00004 mA	±0.000500 mA	9% pass [+]	15 nA
1 A	0.00000000 A		-0.0000014 A	±0.00001000 A	14% pass [+]	311 nA

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Messwert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der zul. Abw. in % Utilization of allowed deviation %	Messunsicher- heit (k=2) Measuring uncertainty (k=2)
Front Input Open						
100nA	0.0000nA		-0.000 nA	±0.0400nA	0% pass [+]	136 fA
1µA	0.0000000µA		0.000001µA	±0.0000400µA	3% pass [+]	535 fA
10µA	0.0000000µA		0.000007 µA	±0.0001000µA	7% pass [+]	9.6 pA
100µA	0.000000µA		0.00004 µA	±0.000800µA	5% pass [+]	23 pA
1mA	0.00000000mA		0.0000002 mA	±0.00000500mA	4% pass [+]	171 pA
10mA	0.0000000mA		0.000002 mA	±0.0000500mA	4% pass [+]	2.3 nA
100mA	0.000000mA		0.00003 mA	±0.000500mA	6% pass [+]	29 nA
1A	0.00000000A		-0.0000013 A	±0.00001000A	13% pass [+]	209 nA
100nA	-100.0000nA		-100.016 nA	±0.0430nA	38% pass [+]	132 · 10 ⁻⁶
100nA	100.0000nA		99.999 nA	±0.0430nA	2% pass [+]	145 · 10 ⁻⁶
1µA	-1.0000000µA		-0.999997 µA	±0.0000600µA	6% pass [+]	16 · 10 ⁻⁶
1µA	1.0000000µA		1.000028 µA	±0.0000600µA	46% pass [+]	19 · 10 ⁻⁶
10µA	-10.0000000µA		-9.999897 µA	±0.0003000µA	34% pass [+]	8.3 · 10 ⁻⁶
10µA	10.0000000µA		9.999815 µA	±0.0003000µA	62% pass [+]	8.2 · 10 ⁻⁶
100µA	-100.000000µA		-99.99944 µA	±0.002800µA	20% pass [+]	8.0 · 10 ⁻⁶
100µA	100.000000µA		99.99946 µA	±0.002800µA	19% pass [+]	8.0 · 10 ⁻⁶
1mA	-1.00000000mA		-1.0000003 mA	±0.00002500mA	1% pass [+]	8.0 · 10 ⁻⁶
1mA	1.00000000mA		0.9999997 mA	±0.00002500mA	1% pass [+]	8.0 · 10 ⁻⁶
10mA	-10.0000000mA		-10.000119 mA	±0.0002500mA	48% pass [+]	8.0 · 10 ⁻⁶
10mA	10.0000000mA		10.000103 mA	±0.0002500mA	41% pass [+]	8.0 · 10 ⁻⁶
100mA	-100.000000mA		-100.00280 mA	±0.004000mA	70% pass [+]	8.0 · 10 ⁻⁶
100mA	100.000000mA		100.00251 mA	±0.004000mA	63% pass [+]	8.0 · 10 ⁻⁶
1A	-1.00000000A		-1.0000035 A	±0.00012000A	3% pass [+]	12 · 10 ⁻⁶
1A	1.00000000A		0.9999964 A	±0.00012000A	3% pass [+]	11 · 10 ⁻⁶
Wechselstromstärke AC current (NPLC 100, ACBAND 2 MHz)						
100µA	100.00000µA	20 Hz	99.9414 µA	±0.18000µA	33% pass [+]	66 · 10 ⁻⁶
100µA	100.00000µA	40 Hz	99.9825 µA	±0.18000µA	10% pass [+]	66 · 10 ⁻⁶
100µA	100.00000µA	1 kHz	99.9807 µA	±0.09000µA	21% pass [+]	61 · 10 ⁻⁶
1mA	1.0000000mA	20 Hz	0.999505 mA	±0.0017000mA	29% pass [+]	41 · 10 ⁻⁶
1mA	1.0000000mA	40 Hz	0.999926 mA	±0.0017000mA	4% pass [+]	37 · 10 ⁻⁶
1mA	1.0000000mA	1 kHz	1.000036 mA	±0.0005000mA	7% pass [+]	37 · 10 ⁻⁶
1mA	1.0000000mA	5 kHz	1.000169 mA	±0.0005000mA	34% pass [+]	47 · 10 ⁻⁶
10mA	10.000000mA	20 Hz	9.99516 mA	±0.017000mA	28% pass [+]	30 · 10 ⁻⁶
10mA	10.000000mA	40 Hz	9.99938 mA	±0.017000mA	4% pass [+]	24 · 10 ⁻⁶
10mA	10.000000mA	1 kHz	9.99920 mA	±0.005000mA	16% pass [+]	22 · 10 ⁻⁶
10mA	10.000000mA	5 kHz	9.99884 mA	±0.005000mA	23% pass [+]	39 · 10 ⁻⁶
100mA	100.00000mA	20 Hz	99.9581mA	±0.17000mA	25% pass [+]	29 · 10 ⁻⁶
100mA	100.00000mA	40 Hz	99.9999 mA	±0.17000mA	0% pass [+]	23 · 10 ⁻⁶
100mA	100.00000mA	1 kHz	99.9926 mA	±0.05000mA	15% pass [+]	23 · 10 ⁻⁶

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Messwert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der zul. Abw. in % Utilization of allowed deviation %	Messunsicher- heit (k=2) Measuring uncertainty (k=2)
100mA	100.00000mA	5 kHz	99.9966 mA	±0.05000mA	7% pass [+]	39 · 10 ⁻⁶
1A	1.0000000A	20 Hz	0.999454 A	±0.0018000A	30% pass [+]	56 · 10 ⁻⁶
1A	1.0000000A	40 Hz	0.999878 A	±0.0018000A	7% pass [+]	56 · 10 ⁻⁶
1A	1.0000000A	1 kHz	0.999805 A	±0.0012000A	16% pass [+]	55 · 10 ⁻⁶
1A	1.0000000A	5 kHz	0.999358 A	±0.0012000A	54% pass [+]	55 · 10 ⁻⁶
Der Einfluss der Eingangsinduktivität des Prüflings auf die Anzeige wurde kompensiert.						
Wechselspannung AC voltage (LFILTER ON, ACBAND 2 MHz)						
Analog Mode						
10mV	10.000000mV	1 kHz	9.99936 mV	±0.027000mV	2% pass [+]	400 · 10 ⁻⁶
100mV	100.00000mV	1 kHz	99.9993 mV	±0.03000mV	2% pass [+]	40 · 10 ⁻⁶
1V	1.0000000V	20 Hz	0.999256 V	±0.0017000V	44% pass [+]	45 · 10 ⁻⁶
1V	1.0000000V	1 kHz	1.000038 V	±0.0003000V	13% pass [+]	22 · 10 ⁻⁶
1V	1.0000000V	100 kHz	1.000557 V	±0.0068000V	8% pass [+]	35 · 10 ⁻⁶
10V	1.000000V	1 kHz	0.99994 V	±0.001200V	5% pass [+]	23 · 10 ⁻⁶
10V	10.000000V	20 Hz	9.99431V	±0.017000V	34% pass [+]	45 · 10 ⁻⁶
10V	10.000000V	1 kHz	10.00058 V	±0.003000V	19% pass [+]	22 · 10 ⁻⁶
10V	10.000000V	100 kHz	10.00202 V	±0.068000V	3% pass [+]	35 · 10 ⁻⁶
10V	10.000000V	1 MHz	10.14804 V	±0.700000V	21% pass [+]	413 · 10 ⁻⁶
100V	100.00000V	20 Hz	99.9447 V	±0.17000V	33% pass [+]	45 · 10 ⁻⁶
100V	100.00000V	1 kHz	100.0073 V	±0.04000V	18% pass [+]	30 · 10 ⁻⁶
100V	100.00000V	100 kHz	100.0840 V	±0.68000V	12% pass [+]	56 · 10 ⁻⁶
1000V	700.0000V	50 Hz	699.834 V	±0.7600V	22% pass [+]	55 · 10 ⁻⁶
1000V	700.0000V	1 kHz	699.901V	±0.6200V	16% pass [+]	50 · 10 ⁻⁶
1000V	700.0000V	20 kHz	699.884 V	±0.6200V	19% pass [+]	54 · 10 ⁻⁶
Random Sampled Mode (LFILTER ON, ACBAND 2 MHz)						
10mV	10.0000mV	1 kHz	9.997 mV	±0.0520mV	6% pass [+]	578 · 10 ⁻⁶
100mV	100.000mV	1 kHz	100.00 mV	±0.082mV	3% pass [+]	529 · 10 ⁻⁶
1V	1.00000V	40 Hz	0.9994 V	±0.00082V	77% pass [+]	432 · 10 ⁻⁶
1V	1.00000V	1 kHz	0.9998 V	±0.00082V	19% pass [+]	249 · 10 ⁻⁶

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Messwert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der zul. Abw. in % Utilization of allowed deviation %	Messunsicher- heit (k=2) Measuring uncertainty (k=2)
1V	1.00000V	100 kHz	0.9998 V	±0.00082V	21% pass [+]	654 · 10 ⁻⁶
10V	1.0000V	1 kHz	1.000 V	±0.0010V	9% pass [+]	147 · 10 ⁻⁶
10V	10.0000V	40 Hz	9.995 V	±0.0082V	56% pass [+]	644 · 10 ⁻⁶
10V	10.0000V	1 kHz	9.998 V	±0.0082V	23% pass [+]	312 · 10 ⁻⁶
10V	10.0000V	100 kHz	9.998 V	±0.0082V	20% pass [+]	1.3 · 10 ⁻³
10V	10.0000V	1 MHz	10.086 V	±0.1010V	85% pass [+]	800 · 10 ⁻⁶
100V	100.000V	40 Hz	100.01V	±0.122V	5% pass [+]	387 · 10 ⁻⁶
100V	100.000V	1 kHz	99.98 V	±0.122V	17% pass [+]	459 · 10 ⁻⁶
100V	100.000V	100 kHz	99.99 V	±0.122V	5% pass [+]	1.4 · 10 ⁻³
1000V	700.00V	50 Hz	700.2 V	±2.20V	8% pass [+]	526 · 10 ⁻⁶
1000V	700.00V	1 kHz	699.9 V	±2.20V	4% pass [+]	431 · 10 ⁻⁶
1000V	700.00V	20 kHz	699.6 V	±2.20V	20% pass [+]	1.5 · 10 ⁻³
Synchronous Sub-Sample Mode (RES 0.001 ; SSRC LEVEL,HOLD)						
10mV	10.000000mV	1 kHz	9.99835 mV	±0.003100mV	53% pass [+]	72 · 10 ⁻⁶
100mV	10.000000mV	1 kHz	9.99949 mV	±0.002700mV	19% pass [+]	80 · 10 ⁻⁶
100mV	100.000000mV	10 Hz	99.99369 mV	±0.011000mV	57% pass [+]	67 · 10 ⁻⁶
100mV	100.000000mV	20 Hz	99.99354 mV	±0.011000mV	59% pass [+]	28 · 10 ⁻⁶
100mV	100.000000mV	40 Hz	99.99331mV	±0.009000mV	74% pass [+]	17 · 10 ⁻⁶
100mV	100.000000mV	1 kHz	99.99255 mV	±0.009000mV	83% pass [+]	13 · 10 ⁻⁶
100mV	100.000000mV	10 kHz	99.99312 mV	±0.016000mV	43% pass [+]	41 · 10 ⁻⁶
100mV	100.000000mV	20 kHz	99.99301mV	±0.016000mV	44% pass [+]	40 · 10 ⁻⁶
100mV	100.000000mV	50 kHz	99.99394 mV	±0.032000mV	19% pass [+]	43 · 10 ⁻⁶
100mV	100.000000mV	100 kHz	99.97473 mV	±0.082000mV	31% pass [+]	63 · 10 ⁻⁶
100mV	100.000000mV	200 kHz	99.93020 mV	±0.310000mV	23% pass [+]	148 · 10 ⁻⁶
100mV	100.000000mV	500 kHz	99.76196 mV	±1.010000mV	24% pass [+]	213 · 10 ⁻⁶
100mV	100.000000mV	1 MHz	98.94815 mV	±1.510000mV	70% pass [+]	502 · 10 ⁻⁶
1V	1.00000000V	10 Hz	0.9999641V	±0.00011000V	33% pass [+]	24 · 10 ⁻⁶
1V	1.00000000V	20 Hz	0.9999715 V	±0.00011000V	26% pass [+]	13 · 10 ⁻⁶
1V	1.00000000V	40 Hz	0.9999877 V	±0.00009000V	14% pass [+]	23 · 10 ⁻⁶
1V	0.10000000V	1 kHz	0.0999897 V	±0.00002700V	38% pass [+]	27 · 10 ⁻⁶
1V	0.30000000V	1 kHz	0.2999958 V	±0.00004100V	10% pass [+]	25 · 10 ⁻⁶
1V	0.50000000V	1 kHz	0.4999994 V	±0.00005500V	1% pass [+]	24 · 10 ⁻⁶
1V	0.70000000V	1 kHz	0.6999919 V	±0.00006900V	12% pass [+]	23 · 10 ⁻⁶
1V	0.90000000V	1 kHz	0.8999844 V	±0.00008300V	19% pass [+]	23 · 10 ⁻⁶
1V	1.00000000V	1 kHz	0.9999770 V	±0.00009000V	26% pass [+]	23 · 10 ⁻⁶
1V	1.00000000V	10 kHz	0.9999410 V	±0.00016000V	37% pass [+]	23 · 10 ⁻⁶
1V	1.00000000V	20 kHz	1.0000084 V	±0.00016000V	5% pass [+]	23 · 10 ⁻⁶
1V	1.00000000V	50 kHz	1.0001573 V	±0.00032000V	49% pass [+]	22 · 10 ⁻⁶
1V	1.00000000V	100 kHz	1.0002172 V	±0.00082000V	27% pass [+]	36 · 10 ⁻⁶
1V	1.00000000V	200 kHz	1.0007478 V	±0.00310000V	24% pass [+]	72 · 10 ⁻⁶
1V	1.00000000V	500 kHz	1.0027177 V	±0.01010000V	27% pass [+]	165 · 10 ⁻⁶

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Messwert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der zul. Abw. in % Utilization of allowed deviation %	Messunsicher- heit (k=2) Measuring uncertainty (k=2)
1V	1.0000000V	1 MHz	1.0068456 V	±0.01510000V	45% pass [+]	413 · 10 ⁻⁶
10V	1.0000000V	1 kHz	1.000070 V	±0.0003400V	21% pass [+]	31 · 10 ⁻⁶
10V	10.0000000V	10 Hz	9.999976 V	±0.0011000V	2% pass [+]	11 · 10 ⁻⁶
10V	10.0000000V	20 Hz	10.000069 V	±0.0011000V	6% pass [+]	9.0 · 10 ⁻⁶
10V	10.0000000V	40 Hz	10.000108 V	±0.0009000V	12% pass [+]	22 · 10 ⁻⁶
10V	10.0000000V	1 kHz	10.000166 V	±0.0009000V	18% pass [+]	23 · 10 ⁻⁶
10V	10.0000000V	10 kHz	9.999700 V	±0.0016000V	19% pass [+]	23 · 10 ⁻⁶
10V	10.0000000V	20 kHz	9.999658 V	±0.0016000V	21% pass [+]	22 · 10 ⁻⁶
10V	10.0000000V	50 kHz	9.999973 V	±0.0032000V	1% pass [+]	23 · 10 ⁻⁶
10V	10.0000000V	100 kHz	9.998726 V	±0.0082000V	16% pass [+]	37 · 10 ⁻⁶
10V	10.0000000V	200 kHz	9.998424 V	±0.0310000V	5% pass [+]	121 · 10 ⁻⁶
10V	10.0000000V	500 kHz	10.013270 V	±0.1010000V	13% pass [+]	181 · 10 ⁻⁶
10V	10.0000000V	1 MHz	10.075724 V	±0.1510000V	50% pass [+]	413 · 10 ⁻⁶
100V	10.000000V	1 kHz	10.00016 V	±0.004000V	4% pass [+]	23 · 10 ⁻⁶
100V	100.000000V	10 Hz	99.99866 V	±0.024000V	6% pass [+]	14 · 10 ⁻⁶
100V	100.000000V	20 Hz	99.99906 V	±0.024000V	4% pass [+]	46 · 10 ⁻⁶
100V	100.000000V	40 Hz	99.99998 V	±0.022000V	0% pass [+]	35 · 10 ⁻⁶
100V	100.000000V	1 kHz	100.00045 V	±0.022000V	2% pass [+]	31 · 10 ⁻⁶
100V	100.000000V	10 kHz	100.00215 V	±0.022000V	10% pass [+]	31 · 10 ⁻⁶
100V	100.000000V	20 kHz	100.00338 V	±0.022000V	15% pass [+]	30 · 10 ⁻⁶
100V	100.000000V	50 kHz	100.02147 V	±0.037000V	58% pass [+]	31 · 10 ⁻⁶
100V	100.000000V	100 kHz	100.05997 V	±0.122000V	49% pass [+]	56 · 10 ⁻⁶
1000V	100.00000V	1 kHz	99.9899 V	±0.06000V	17% pass [+]	31 · 10 ⁻⁶
1000V	500.00000V	40 Hz	499.9651V	±0.22000V	16% pass [+]	41 · 10 ⁻⁶
1000V	500.00000V	500 Hz	499.9601V	±0.22000V	18% pass [+]	40 · 10 ⁻⁶
1000V	500.00000V	1 kHz	499.9653 V	±0.22000V	16% pass [+]	40 · 10 ⁻⁶
1000V	500.00000V	10 kHz	499.9296 V	±0.32000V	22% pass [+]	45 · 10 ⁻⁶
1000V	500.00000V	20 kHz	499.9040 V	±0.32000V	30% pass [+]	45 · 10 ⁻⁶
1000V	500.00000V	50 kHz	500.2227 V	±0.62000V	36% pass [+]	174 · 10 ⁻⁶
1000V	700.00000V	50 Hz	699.9442 V	±0.30000V	19% pass [+]	55 · 10 ⁻⁶
1000V	700.00000V	1 kHz	699.9527 V	±0.30000V	16% pass [+]	50 · 10 ⁻⁶
1000V	700.00000V	20 kHz	699.8255 V	±0.44000V	40% pass [+]	54 · 10 ⁻⁶
Frequenz Frequency (FSOURCE ACV)						
10000kHz	1.0000000kHz	1 V	1.000002 kHz	±0.0001000kHz	2% pass [+]	1.3 · 10 ⁻⁶
10000kHz	100.00000kHz	1 V	100.0002 kHz	±0.01000kHz	2% pass [+]	1.3 · 10 ⁻⁶
10MHz	1.0000000MHz	1 V	1.000003 MHz	±0.0001000MHz	3% pass [+]	1.3 · 10 ⁻⁶
10MHz	10.0000000MHz	1 V	10.000026 MHz	±0.0010000MHz	3% pass [+]	1.2 · 10 ⁻⁶

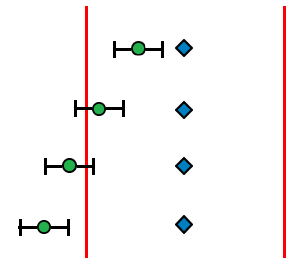
Bewertung der Konformität Determination of conformityKeine Bewertung, da Messwerte im Unsicherheitsbereich ¹⁾

Die Einhaltung der Spezifikation wird im Kalibrierzertifikat wie folgt angezeigt:

The compliance to specification is represented on the calibration certificate as follows:

[+]	Innerhalb der zulässigen Abweichung mit Berücksichtigung der Messunsicherheit Within specification, with measurement uncertainty taken into account
[+']	Innerhalb der zulässigen Abweichung ohne Berücksichtigung der Messunsicherheit Within specification, without measurement uncertainty taken into account
[±]	Im Unsicherheitsbereich mit Berücksichtigung der Messunsicherheit Indeterminate, with measurement uncertainty taken into account
[-]	Ausserhalb der zulässigen Abweichung mit Berücksichtigung der Messunsicherheit Out-of-specification, with measurement uncertainty taken into account

Zeichenerklärung zum Diagramm:
 ◆ blau = Normal (4Eck; μ N normiert)
 ● grün = Kalibriergegenst. (Kreis; μ (KG) normiert)
 | rot = \pm zulässige Abweichung (normiert auf $\pm 100\%$)
 H schwarz = erw. Messunsicherheit für $k=2$ (normiert)



Bewertung "fail" : |Abweichung| > zulässige Abweichung

Conformity "fail" : |deviation| > allowed deviation

Ausnutzung der Spezifikationsgrenze in % = |Abweichung| / (zulässige Abweichung - Messunsicherheit)

Utilization of allowed deviation % = deviation / (allowed deviation - Measuring uncertainty)

¹⁾ Die Konformitätsaussage erfolgte nach DIN EN ISO 14253-1 unter Berücksichtigung der Messunsicherheit gemäß der Kalibrieranweisung QSA-TIS 7.5-02. zulässige Abweichung gemäß Herstellerangabe.

¹⁾ The statement of conformity was made according to DIN EN ISO 14253-1 taking into account the measuring uncertainty according to calibration instruction QSA-TIS 7.5-02. allowed deviation in accordance with manufacturer.

Bemerkungen Special remarks

Am Kalibriergegenstand ist eine Kalibriermarke angebracht, die mit der Kalibriernummer dieses DAkKS-Scheines, sowie mit dem Kalibriermonat und Jahr versehen wurde.

A calibration mark is attached to the calibration object which indicates the calibration number of this DAkKS certificate as well as the calibration month and year.

Die Deutsche Akkreditierungsstelle ist Unterzeichner des multilateralen Übereinkommens der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine. Die weiteren Unterzeichner innerhalb und außerhalb Europas sind den Internetseiten von EA (www.european-accreditation.org) und ILAC (www.ilac.org) zu entnehmen.

The German Accreditation Body is signatory of the multilateral convention of the European cooperation for Accreditation (EA) and the International Laboratory Accreditation Cooperation (ILAC) for mutual acceptance of calibration certificates. Further signatories within and outside Europe are to be seen on the internet pages of EA (www.european-accreditation.org) and of ILAC (www.ilac.org).

The German original text is valid in case of doubt.