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Deutschen Kalibrierdienst



Deutsche
Akkreditierungsstelle
D-K-15070-01-01

Kalibrierschein
Calibration certificate

Kalibrierzeichen
Calibration mark

| |
|---------------------|
| MUSTER |
| D-K- 15070-01-01 |
| 2018-08 |

Gegenstand
Object Spectrum Analyzer HMS3000 3GHz

Hersteller
Manufacturer Rohde&Schwarz Hameg

Typ
Type HMS3000

Fabrikat/Serien-Nr.
Serial no. 12345

Auftraggeber
Customer Mustermann GmbH
DE-12345 Musterhausen

Auftragsnummer
Order no. 654321

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI). Die DAkkS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

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Anzahl der Seiten des Kalibrierscheines - 13 -
Number of pages of the certificate

Datum der Kalibrierung 07.08.2018
Date of calibration

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V 5.22 / DE

Datum
Date

Leiter des Kalibrierlaboratoriums
Head of the calibration laboratory

Bearbeiter
Person in charge

03.05.2019

Max Mustermann

Max Mustermann

Kalibriergegenstand (KG) Calibration object

Spectrum Analyzer HMS3000 3GHz
 Equipment Nr. Equipment no. 12345678
 Inventar Nr. Inventory no. 123456
 Prüfmittel Nr. Test equipment no. 1234567

Kalibrierverfahren Calibration procedure

Die Kalibrierung erfolgt nach Herstelleranweisung durch Vergleich der Anzeige des Kalibriergegenstandes mit den durch die Kalibriergeräte/Normale dargestellten Messwerten.
 Bezug ist die Realisierung der Einheiten in den nationalen metrologischen Instituten (NMI).

The calibration is performed according to the manufacturer's procedure by direct comparison of the measured values of the calibration article with the reference-, or working-standard. The measurement is traceable to the national metrological institutes (NMI).

Verwendete Kalibrierprozedur Used calibration procedure

E:HAMEG:HMS3000:KIZ:MP2:ISO:RS232 / Rev.:2.0

Umgebungsbedingungen Ambient conditions

Temperatur Temperature (23 ± 1) °C
 Relative Luftfeuchte Relative humidity (20...70) %

Messeinrichtungen Measuring equipment

| Referenz Reference | Rückführung Traceability | Rekal. Next cal. | Zertifikats Nr. Certificate-no. | Eq.-Nr. EQ-no. |
|--------------------------------------|-----------------------------|---------------------|------------------------------------|-------------------|
| Frequency Standard 910 | GPS locked | --- | Support Device | 10640562 |
| Attenuator Driver 11713A | hilfsmittel | 2022-06 | -Hilfsmittel- | 10962085 |
| Step Attenuator 8494H | 15070-01-01 | 2018-11 | E54145 | 10996969 |
| Step Attenuator 8496H | 15070-01-01 | 2018-10 | E54145 | 10996970 |
| Frequenzzähler 5335A | GPS locked | --- | Support device | 11105446 |
| NETWORK ANALYZER 8510C System | 15070-01-01 | 2018-09 | E51993 | 11105533 |
| Synthesized Sweeper 83650L | GPS locked | --- | Support device | 11105539 |
| Power Meter E4417A | 15070-01-01 | 2018-09 | E52003 | 11287008 |
| Function Generator 3325B | GPS locked | --- | Support device | 11357820 |
| Power Sensor E9304A | 15070-01-01 | 2018-12 | E50702 | 11373066 |
| Signal Generator SMT03 | GPS locked | --- | 2182542 | 12771019 |
| (sonstige) elektr. Messmittel 11667A | 15070-01-01 | 2019-01 | E57283 | 13141910 |

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

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit (k=2) Measuring uncertainty (k=2) |
|---|---|---|--|--|---|---|
| Calibration conforms to VDI/VDE/DGQ/DKD 2622 Sep.2003 | | | | | | |
| ID QUERY: HAMEG,HMS3000,019635014,HW20000000,SW02.022 | | | | | | |
| 10 MHz Reference Output Accuracy | | | | | | |
| | 9.9999924 MHz | 10 MHz | 10.000000 MHz | ±0.00002 MHz | 38% pass | 0.58 Hz |
| Frequency Readout and Marker Count Accuracy | | | | | | |
| Frequency Reference: External | | | | | | |
| Span = 1 MHz | | | | | | |
| | 500.00000000 MHz | 500 MHz | 500.00000000 MHz | ±0.000005 MHz | 0% n/a | 5.0 Hz |
| Span = 10 MHz | | | | | | |
| | 500.00000000 MHz | 500 MHz | 500.00000000 MHz | ±0.000005 MHz | 0% n/a | 5.0 Hz |
| Span = 20 MHz | | | | | | |
| | 500.00000000 MHz | 500 MHz | 500.00000000 MHz | ±0.000005 MHz | 0% n/a | 5.0 Hz |
| Frequency Span Accuracy | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| Span = 1000 MHz, Start = 0 Hz, Stop = 1000 MHz | | | | | | |
| | 800.00 MHz | 800 MHz | 804.0 MHz | ±10 MHz | 40% pass | 802 kHz |
| Span = 100 MHz, Start = 10 MHz, Stop = 110 MHz | | | | | | |
| | 80.000 MHz | 80 MHz | 80.20 MHz | ±1 MHz | 20% pass | 80 kHz |
| Span = 100 kHz, Start = 10 MHz, Stop = 10.1 MHz | | | | | | |
| | 80.000 kHz | 80 kHz | 80.20 kHz | ±1 kHz | 20% pass | 80 Hz |
| Span = 100 MHz, Start = 800 MHz, Stop = 900 MHz | | | | | | |
| | 80.000 MHz | 80 MHz | 80.00 MHz | ±1 MHz | 0% pass | 80 kHz |
| Span = 100 kHz, Start = 800 MHz, Stop = 800.1 MHz | | | | | | |
| | 80.000 kHz | 80 kHz | 80.10 kHz | ±1 kHz | 10% pass | 80 Hz |
| Noise Sidebands | | | | | | |
| Offset from 500 MHz Signal | | | | | | |
| Tolerance = <-85 dBc, U = 1.31 dB | | | | | | |
| Sideband 30 kHz above signal = -92.2 dBc | | | | | pass | |
| Sideband 30 kHz below signal = -91.3 dBc | | | | | pass | |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|---|---|---|--|--|---|---|
| Tolerance = <-100 dBc, U = 1.31 dB | | | | | | |
| | Sideband 100 kHz above signal = -104.2 dBc | | | | pass | |
| | Sideband 100 kHz below signal = -104.5 dBc | | | | pass | |
| Tolerance = <-120 dBc, U = 1.31 dB | | | | | | |
| | Sideband 1 MHz above signal = -120.6 dBc | | | | pass | |
| | Sideband 1 MHz below signal = -120.4 dBc | | | | pass | |
| Sweep Time Accuracy | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| | 5.000 ms | 5 ms | 4.96 ms | ±0.5 ms | 8% pass | 50 µs |
| | 10.000 ms | 10 ms | 10.00 ms | ±1 ms | 0% pass | 0.10 ms |
| | 20.000 ms | 20 ms | 20.00 ms | ±2 ms | 0% pass | 0.20 ms |
| | 50.000 ms | 50 ms | 50.00 ms | ±5 ms | 0% pass | 0.50 ms |
| | 100.00 ms | 100 ms | 100.0 ms | ±10 ms | 0% pass | 1.0 ms |
| | 500.00 ms | 500 ms | 500.0 ms | ±50 ms | 0% pass | 5.0 ms |
| | 1.0000 s | 1 s | 0.999 s | ±0.1 s | 1% pass | 10 ms |
| | 10.000 s | 10 s | 9.52 s | ±1 s | 48% pass | 0.10 s |
| Log Display Scale Fidelity | | | | | | |
| Cumulative Error @ 50 MHz: Ref Lev = 0 dBm, rel. 0 dB | | | | | | |
| with RBW = 3kHz, Scale 10 dB/Div, Span = 45 kHz | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| | 0.000 dB | -4 dB | -0.01 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -8 dB | 0.07 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -12 dB | 0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -16 dB | 0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -20 dB | -0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -24 dB | -0.02 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -28 dB | -0.11 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -32 dB | -0.16 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -36 dB | -0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -40 dB | 0.17 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -44 dB | 0.17 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -48 dB | 0.19 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -52 dB | -0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -56 dB | 0.33 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -60 dB | 0.28 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -64 dB | 0.20 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -68 dB | 0.26 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -72 dB | 0.25 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -76 dB | 1.23 dB | ±2 dB | --- pass | 0.25 dB |
| | 0.000 dB | -80 dB | 1.21 dB | ±2 dB | --- pass | 0.25 dB |
| -4 dB Incremental Error | | | | | | |
| | 0.000 dB | 50 MHz | -0.01 dB | ±0.7 dB | --- pass | 0.20 dB |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|--|---|---|--|--|---|---|
| -8 dB Incremental Error | 0.000 dB | 50 MHz | 0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -12 dB Incremental Error | 0.000 dB | 50 MHz | -0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -16 dB Incremental Error | 0.000 dB | 50 MHz | -0.00 dB | ±0.7 dB | --- pass | 0.20 dB |
| -20 dB Incremental Error | 0.000 dB | 50 MHz | -0.10 dB | ±0.7 dB | --- pass | 0.20 dB |
| -24 dB Incremental Error | 0.000 dB | 50 MHz | 0.04 dB | ±0.7 dB | --- pass | 0.20 dB |
| -28 dB Incremental Error | 0.000 dB | 50 MHz | -0.09 dB | ±0.7 dB | --- pass | 0.20 dB |
| -32 dB Incremental Error | 0.000 dB | 50 MHz | -0.05 dB | ±0.7 dB | --- pass | 0.20 dB |
| -36 dB Incremental Error | 0.000 dB | 50 MHz | 0.11 dB | ±0.7 dB | --- pass | 0.20 dB |
| -40 dB Incremental Error | 0.000 dB | 50 MHz | 0.22 dB | ±0.7 dB | --- pass | 0.20 dB |
| -44 dB Incremental Error | 0.000 dB | 50 MHz | 0.01 dB | ±0.7 dB | --- pass | 0.20 dB |
| -48 dB Incremental Error | 0.000 dB | 50 MHz | 0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -52 dB Incremental Error | 0.000 dB | 50 MHz | -0.23 dB | ±0.7 dB | --- pass | 0.20 dB |
| -56 dB Incremental Error | 0.000 dB | 50 MHz | 0.37 dB | ±0.7 dB | --- pass | 0.20 dB |
| -60 dB Incremental Error | 0.000 dB | 50 MHz | -0.05 dB | ±0.7 dB | --- pass | 0.20 dB |
| -64 dB Incremental Error | 0.000 dB | 50 MHz | -0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -68 dB Incremental Error | 0.000 dB | 50 MHz | 0.06 dB | ±0.7 dB | --- pass | 0.20 dB |
| -72 dB Incremental Error | 0.000 dB | 50 MHz | -0.01 dB | ±0.7 dB | --- pass | 0.20 dB |
| -76 dB Incremental Error | 0.000 dB | 50 MHz | 0.99 dB | ±1 dB | --- n/a | 0.20 dB |
| -80 dB Incremental Error | 0.000 dB | 50 MHz | -0.03 dB | ±1 dB | --- pass | 0.20 dB |
| Log Display Scale Fidelity | | | | | | |
| Cumulative Error @ 100 MHz: Ref Lev = 0 dBm, rel. 0 dB | | | | | | |
| with RBW = 3kHz, Scale 10 dB/Div, Span = 45 kHz | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| | 0.000 dB | -4 dB | 0.12 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -8 dB | 0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -12 dB | 0.06 dB | ±1.5 dB | --- pass | 0.20 dB |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit (k=2) Measuring uncertainty (k=2) |
|--------------------------|---|---|--|--|---|---|
| | 0.000 dB | -16 dB | 0.14 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -20 dB | 0.17 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -24 dB | 0.19 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -28 dB | 0.08 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -32 dB | 0.13 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -36 dB | 0.15 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -40 dB | 0.09 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -44 dB | 0.10 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -48 dB | 0.24 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -52 dB | 0.17 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -56 dB | 0.21 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -60 dB | 0.43 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -64 dB | 0.45 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -68 dB | 0.93 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -72 dB | 1.17 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -76 dB | 1.71 dB | ±2 dB | --- pass | 0.25 dB |
| | 0.000 dB | -80 dB | 0.97 dB | ±2 dB | --- pass | 0.25 dB |
| -4 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.12 dB | ±0.7 dB | --- pass | 0.20 dB |
| -8 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.05 dB | ±0.7 dB | --- pass | 0.20 dB |
| -12 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.01 dB | ±0.7 dB | --- pass | 0.20 dB |
| -16 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.09 dB | ±0.7 dB | --- pass | 0.20 dB |
| -20 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -24 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -28 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | -0.12 dB | ±0.7 dB | --- pass | 0.20 dB |
| -32 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.05 dB | ±0.7 dB | --- pass | 0.20 dB |
| -36 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -40 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | -0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -44 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -48 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.13 dB | ±0.7 dB | --- pass | 0.20 dB |
| -52 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | -0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -56 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.04 dB | ±0.7 dB | --- pass | 0.20 dB |
| -60 dB Incremental Error | | | | | | |
| | 0.000 dB | 100 MHz | 0.22 dB | ±0.7 dB | --- pass | 0.20 dB |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|--|---|---|--|--|---|---|
| -64 dB Incremental Error | 0.000 dB | 100 MHz | 0.03 dB | ±0.7 dB | --- pass | 0.20 dB |
| -68 dB Incremental Error | 0.000 dB | 100 MHz | 0.47 dB | ±0.7 dB | --- pass | 0.20 dB |
| -72 dB Incremental Error | 0.000 dB | 100 MHz | 0.24 dB | ±0.7 dB | --- pass | 0.20 dB |
| -76 dB Incremental Error | 0.000 dB | 100 MHz | 0.55 dB | ±1 dB | --- pass | 0.20 dB |
| -80 dB Incremental Error | 0.000 dB | 100 MHz | -0.75 dB | ±1 dB | --- pass | 0.20 dB |
| Log Display Scale Fidelity | | | | | | |
| Cumulative Error @ 1 GHz: Ref Lev = 0 dBm, rel. 0 dB | | | | | | |
| with RBW = 3kHz, Scale 10 dB/Div, Span = 45 kHz | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| | 0.000 dB | -4 dB | 0.00 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -8 dB | -0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -12 dB | -0.11 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -16 dB | 0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -20 dB | -0.03 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -24 dB | 0.09 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -28 dB | -0.01 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -32 dB | -0.01 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -36 dB | 0.01 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -40 dB | -0.06 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -44 dB | -0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -48 dB | -0.07 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -52 dB | 0.13 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -56 dB | 0.35 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | -60 dB | 0.07 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -64 dB | 0.23 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -68 dB | 0.41 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -72 dB | 1.06 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | -76 dB | 0.93 dB | ±2 dB | --- pass | 0.25 dB |
| | 0.000 dB | -80 dB | 1.64 dB | ±2 dB | --- pass | 0.25 dB |
| -4 dB Incremental Error | 0.000 dB | 1 GHz | 0.00 dB | ±0.7 dB | --- pass | 0.20 dB |
| -8 dB Incremental Error | 0.000 dB | 1 GHz | -0.04 dB | ±0.7 dB | --- pass | 0.20 dB |
| -12 dB Incremental Error | 0.000 dB | 1 GHz | -0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -16 dB Incremental Error | 0.000 dB | 1 GHz | 0.15 dB | ±0.7 dB | --- pass | 0.20 dB |
| -20 dB Incremental Error | | | | | | |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|--------------------------------------|---|---|--|--|---|---|
| | 0.000 dB | 1 GHz | -0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -24 dB Incremental Error | 0.000 dB | 1 GHz | 0.12 dB | ±0.7 dB | --- pass | 0.20 dB |
| -28 dB Incremental Error | 0.000 dB | 1 GHz | -0.10 dB | ±0.7 dB | --- pass | 0.20 dB |
| -32 dB Incremental Error | 0.000 dB | 1 GHz | -0.00 dB | ±0.7 dB | --- pass | 0.20 dB |
| -36 dB Incremental Error | 0.000 dB | 1 GHz | 0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -40 dB Incremental Error | 0.000 dB | 1 GHz | -0.07 dB | ±0.7 dB | --- pass | 0.20 dB |
| -44 dB Incremental Error | 0.000 dB | 1 GHz | 0.01 dB | ±0.7 dB | --- pass | 0.20 dB |
| -48 dB Incremental Error | 0.000 dB | 1 GHz | -0.02 dB | ±0.7 dB | --- pass | 0.20 dB |
| -52 dB Incremental Error | 0.000 dB | 1 GHz | 0.21 dB | ±0.7 dB | --- pass | 0.20 dB |
| -56 dB Incremental Error | 0.000 dB | 1 GHz | 0.22 dB | ±0.7 dB | --- pass | 0.20 dB |
| -60 dB Incremental Error | 0.000 dB | 1 GHz | -0.27 dB | ±0.7 dB | --- pass | 0.20 dB |
| -64 dB Incremental Error | 0.000 dB | 1 GHz | 0.16 dB | ±0.7 dB | --- pass | 0.20 dB |
| -68 dB Incremental Error | 0.000 dB | 1 GHz | 0.18 dB | ±0.7 dB | --- pass | 0.20 dB |
| -72 dB Incremental Error | 0.000 dB | 1 GHz | 0.65 dB | ±0.7 dB | --- n/a | 0.20 dB |
| -76 dB Incremental Error | 0.000 dB | 1 GHz | -0.14 dB | ±1 dB | --- pass | 0.20 dB |
| -80 dB Incremental Error | 0.000 dB | 1 GHz | 0.71 dB | ±1 dB | --- pass | 0.20 dB |
| Linear Display Scale Fidelity | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| with RBW = 10kHz | | | | | | |
| 223.6 mV | 199.290 mV | -1 dB | 199.40 mV | ±11.18 mV | 1% pass | 3.6 mV |
| 223.6 mV | 177.620 mV | -2 dB | 177.30 mV | ±11.18 mV | 3% pass | 1.8 mV |
| 223.6 mV | 158.300 mV | -3 dB | 159.50 mV | ±11.18 mV | 11% pass | 2.9 mV |
| 223.6 mV | 141.090 mV | -4 dB | 141.60 mV | ±11.18 mV | 5% pass | 2.5 mV |
| 223.6 mV | 125.740 mV | -5 dB | 126.30 mV | ±11.18 mV | 5% pass | 2.3 mV |
| 223.6 mV | 112.070 mV | -6 dB | 113.00 mV | ±11.18 mV | 8% pass | 2.0 mV |
| 223.6 mV | 99.880 mV | -7 dB | 99.27 mV | ±11.18 mV | 5% pass | 1.8 mV |
| 223.6 mV | 89.020 mV | -8 dB | 88.95 mV | ±11.18 mV | 1% pass | 1.6 mV |
| 223.6 mV | 79.340 mV | -9 dB | 79.39 mV | ±11.18 mV | 0% pass | 1.4 mV |
| 223.6 mV | 70.710 mV | -10 dB | 70.51 mV | ±11.18 mV | 2% pass | 1.3 mV |
| 223.6 mV | 63.020 mV | -11 dB | 62.41 mV | ±11.18 mV | 5% pass | 1.1 mV |
| 223.6 mV | 56.170 mV | -12 dB | 55.95 mV | ±11.18 mV | 2% pass | 1.0 mV |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|---|---|---|--|--|---|---|
| 223.6 mV | 50.060 mV | -13 dB | 50.01 mV | ±11.18 mV | 0% pass | 0.90 mV |
| 223.6 mV | 44.620 mV | -14 dB | 44.61 mV | ±11.18 mV | 0% pass | 0.80 mV |
| 223.6 mV | 39.760 mV | -15 dB | 39.83 mV | ±11.18 mV | 1% pass | 0.72 mV |
| 223.6 mV | 35.440 mV | -16 dB | 35.08 mV | ±11.18 mV | 3% pass | 0.64 mV |
| 223.6 mV | 31.590 mV | -17 dB | 31.43 mV | ±11.18 mV | 1% pass | 0.57 mV |
| 223.6 mV | 28.150 mV | -18 dB | 27.91 mV | ±11.18 mV | 2% pass | 0.51 mV |
| 223.6 mV | 25.090 mV | -19 dB | 24.90 mV | ±11.18 mV | 2% pass | 0.45 mV |
| Reference Level Accuracy | | | | | | |
| Log Scale | | | | | | |
| by setting Ref Level = 0 dBm as reference with RBW = 1MHz | | | | | | |
| | 0.000 dB | RL-1 | 0.02 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-2 | 0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-3 | -0.03 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-4 | 0.06 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-5 | 0.03 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-6 | -0.02 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-7 | 0.00 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-8 | -0.03 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-9 | -0.02 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-10 | -0.06 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-20 | -0.14 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-30 | -0.16 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-40 | 0.09 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-50 | 0.02 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-60 | -0.10 dB | ±1.5 dB | --- pass | 0.25 dB |
| | 0.000 dB | RL-70 | -0.28 dB | ±1.5 dB | --- pass | 0.25 dB |
| by setting Ref Level = 0 dBm as reference, with RBW = 3kHz | | | | | | |
| | 0.000 dB | RL-1 | 0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-2 | 0.01 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-3 | -0.03 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-4 | 0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-5 | 0.02 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-6 | 0.00 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-7 | -0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-8 | 0.04 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-9 | 0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-10 | 0.01 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-20 | -0.12 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-30 | -0.12 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-40 | 0.11 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-50 | 0.08 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-60 | -0.05 dB | ±1.5 dB | --- pass | 0.20 dB |
| | 0.000 dB | RL-70 | -0.30 dB | ±1.5 dB | --- pass | 0.20 dB |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|---|---|---|--|--|---|---|
| <hr/> | | | | | | |
| Resolution Bandwidth Accuracy | | | | | | |
| (-3dB) | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 1 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 2 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 3 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 4 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 5 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 6 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 7 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 8 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 9 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 10 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 11 beachten.</i> | | | | | | |
| <hr/> | | | | | | |
| Frequency Response | | | | | | |
| at Inputlevel -10 dBm, relative to 50 MHz | | | | | | |
| by Laboratory Estimated Tolerance | | | | | | |
| | 0.000 dB | 10 MHz | 0.07 dB | ±1.5 dB | --- pass | 0.10 dB |
| | 0.000 dB | 20 MHz | -0.04 dB | ±1.5 dB | --- pass | 0.10 dB |
| | 0.000 dB | 30 MHz | 0.03 dB | ±1.5 dB | --- pass | 0.10 dB |
| | 0.000 dB | 40 MHz | -0.02 dB | ±1.5 dB | --- pass | 0.10 dB |
| | 0.000 dB | 60 MHz | 0.00 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 70 MHz | 0.11 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 80 MHz | 0.06 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 90 MHz | 0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 100 MHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 120 MHz | 0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 140 MHz | 0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 160 MHz | 0.03 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 180 MHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 200 MHz | 0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 220 MHz | 0.00 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 240 MHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 260 MHz | -0.03 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 280 MHz | -0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 300 MHz | 0.03 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 320 MHz | -0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 340 MHz | 0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 360 MHz | 0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 380 MHz | 0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 400 MHz | 0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 420 MHz | 0.03 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 440 MHz | -0.02 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 460 MHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 480 MHz | -0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 500 MHz | 0.11 dB | ±1.5 dB | --- pass | 0.13 dB |

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|------------------|---|---|--|--|---|---|
| | 0.000 dB | 520 MHz | -0.02 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 540 MHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 560 MHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 580 MHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 600 MHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 620 MHz | 0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 640 MHz | 0.06 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 660 MHz | 0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 680 MHz | -0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 700 MHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 720 MHz | -0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 740 MHz | 0.09 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 760 MHz | 0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 780 MHz | 0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 800 MHz | -0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 820 MHz | 0.00 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 840 MHz | -0.09 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 860 MHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 880 MHz | -0.08 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 900 MHz | -0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 920 MHz | 0.03 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 940 MHz | 0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 960 MHz | -0.03 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 980 MHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1 GHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.1 GHz | 0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.2 GHz | -0.02 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.3 GHz | 0.02 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.4 GHz | -0.05 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.5 GHz | 0.00 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.6 GHz | -0.04 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.7 GHz | -0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.8 GHz | -0.14 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 1.9 GHz | -0.15 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.0 GHz | -0.01 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.1 GHz | -0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.2 GHz | -0.19 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.3 GHz | -0.09 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.4 GHz | -0.06 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.5 GHz | -0.16 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.6 GHz | -0.13 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.7 GHz | -0.21 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.8 GHz | -0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 2.9 GHz | 0.07 dB | ±1.5 dB | --- pass | 0.13 dB |
| | 0.000 dB | 3.0 GHz | 0.20 dB | ±1.5 dB | --- pass | 0.13 dB |

Displayed Average Noise Level (DANL)

Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 12 beachten.

Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 13 beachten.

Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 14 beachten.

| Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|---|---|---|--|--|---|---|
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 15 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 16 beachten.</i> | | | | | | |
| <hr/> | | | | | | |
| Harmonic Rejection | | | | | | |
| -40 dBm signal level at mixer input | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 17 beachten.</i> | | | | | | |
| <hr/> | | | | | | |
| Input Related Spurious Response | | | | | | |
| at center frequency 100 MHz | | | | | | |
| Laboratory Estimated Tolerance (only -70dBc typ.) | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 18 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 19 beachten.</i> | | | | | | |
| center frequency 500 MHz | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 20 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 21 beachten.</i> | | | | | | |
| center frequency 900 MHz | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 22 beachten.</i> | | | | | | |
| <i>Messwert(e) nicht im akkreditierten Umfang. Bitte Anlage 1, Index 23 beachten.</i> | | | | | | |
| <hr/> | | | | | | |
| Input VSWR | | | | | | |
| 10 MHz - 3 GHz | | | | | | |
| <hr/> | | | | | | |
| Input Attenuator 10 dB | | | | | | |
| | 1.000 | 10 dBAtt | 1.00 | -0/ +0.5 | 1% pass | 0.02 |
| <hr/> | | | | | | |
| Input Attenuator 20 dB | | | | | | |
| | 1.000 | 20 dBAtt | 1.10 | -0/ +0.5 | 20% pass | 0.02 |
| <hr/> | | | | | | |
| Input Attenuator 0 dB | | | | | | |
| | 1.000 | 0 dBAtt | 1.02 | -0/ +0.5 | 4% pass | 0.02 |

Bewertung der Konformität Determination of conformity

Gesamtkonformität: Overall conformity:

Keine Bewertung, da Messwerte im Unsicherheitsbereich ¹⁾Indeterminate. Rating not applicable. ¹⁾

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)

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 | pass | |
| Keine Bewertung, da Messwert im Unsicherheitsbereich Indeterminate. Rating not applicable. | n/a | |
| Im Unsicherheitsbereich mit Berücksichtigung der Messunsicherheit Indeterminate, with measurement uncertainty taken into account | fail | |
| Ausserhalb der zulässigen Abweichung mit Berücksichtigung der Messunsicherheit Out-of-specification, with measurement uncertainty taken into account | fail | |

Ausnutzung der zulässigen Abweichung in % = $|Abweichung| / Zulässige\ Abweichung$ Utilization of allowed deviation % = $|deviation| / allowed\ deviation$

¹⁾ Die Konformitätsaussage erfolgt entsprechend der Richtlinie DAkkS-DKD-5 unter Berücksichtigung der Messunsicherheit gemäß der Kalibrieranweisung 4_AA_00120_DE. Zulässige Abweichung gemäß Herstellerangabe.

¹⁾ The statement of conformity was made according to DAkkS-DKD-5 taking into account the measuring uncertainty according to calibration instruction 4_AA_00120_DE. Allowed deviation in accordance with manufacturer.

Messunsicherheit Measuring 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 M: 2013 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 uncertainty of measurement multiplied by the coverage factor $k = 2$. This was determined in accordance with EA-4/02 M: 2013. 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.

Bemerkungen Special remarks

Weitere Messpunkte, ausserhalb des akkreditierten Leistungsumfangs, sind in der Anlage 1 aufgeführt.

Am Kalibriergegenstand ist eine Kalibriermarke angebracht, die mit der Kalibriernummer dieses DAkkS-Scheines sowie mit dem Kalibriermontat 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.

The German original text is valid in case of doubt.

Anlage attachment 1

zum Kalibrierschein of the calibration certificate MUSTER vom dated 03.05.2019

Seite Page 1 von of 1

Die nachfolgenden Messwerte sind rückführbar auf Normale eines nationalen metrologischen Instituts (NMI), sind aber außerhalb des akkreditierten Bereiches von Labor D-K-15070-01-01.

The following measurements are traceable to standards at the national metrological institute (NMI), but are not within the accredited scope of laboratory D-K-15070-01-01.

| Index | Bereich Range | Referenzwert (Normal) Reference value | Messbedingung Measuring condition | Angezeigter Wert KG Indicated value UUT | Zulässige Abweichung Allowed deviation | Ausnutzung der zul. Abw. in % Utilization of Allowed deviation % | Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$) |
|-------|------------------|---|---|--|--|---|---|
| 1 | | 1.0000 MHz | 1 MHz | 0.920 MHz | ±0.1 MHz | 80 % pass | 10 kHz |
| 2 | | 300.00 kHz | 300 kHz | 287.0 kHz | ±15 kHz | 87 % n/a | 3.0 kHz |
| 3 | | 200.00 kHz | 200 kHz | 196.8 kHz | ±10 kHz | 32 % pass | 2.0 kHz |
| 4 | | 100.00 kHz | 100 kHz | 98.0 kHz | ±5 kHz | 40 % pass | 1.0 kHz |
| 5 | | 30.000 kHz | 30 kHz | 29.10 kHz | ±1.5 kHz | 60 % pass | 300 Hz |
| 6 | | 10.000 kHz | 10 kHz | 9.72 kHz | ±0.5 kHz | 56 % pass | 100 Hz |
| 7 | | 3.0000 kHz | 3 kHz | 2.960 kHz | ±0.15 kHz | 27 % pass | 30 Hz |
| 8 | | 1.0000 kHz | 1 kHz | 0.980 kHz | ±0.05 kHz | 40 % pass | 10 Hz |
| 9 | | 300.00 Hz | 300 Hz | 300.0 Hz | ±15 Hz | 0 % pass | 3.0 Hz |
| 10 | | 300.00 Hz | 300 Hz | 300.0 Hz | ±15 Hz | 0 % pass | 3.0 Hz |
| 11 | | 100.00 Hz | 100 Hz | 100.0 Hz | ±5 Hz | 0 % pass | 1.0 Hz |
| 12 | | -115.00 dBm | 99 MHz | -119.5 dBm | -100/ +0 dB | --- pass | 1.5 dB |
| 13 | | -115.00 dBm | 499 MHz | -129.7 dBm | -100/ +0 dB | --- pass | 1.5 dB |
| 14 | | -115.00 dBm | 999 MHz | -118.9 dBm | -100/ +0 dB | --- pass | 1.5 dB |
| 15 | | -115.00 dBm | 1999 MHz | -122.9 dBm | -100/ +0 dB | --- pass | 1.5 dB |
| 16 | | -115.00 dBm | 2999 MHz | -116.8 dBm | -100/ +0 dB | --- pass | 1.5 dB |
| 17 | | -60.000 dBc | 100 MHz | -69.11 dBc | -40/ +0 dB | --- pass | 0.50 dB |
| 18 | | -65.000 dBc | 141.8 MHz | -70.33 dBc | -40/ +0 dB | --- pass | 0.90 dB |
| 19 | | -65.000 dBc | 89.3 MHz | -70.23 dBc | -40/ +0 dB | --- pass | 0.90 dB |
| 20 | | -65.000 dBc | 542.8 MHz | -71.94 dBc | -40/ +0 dB | --- pass | 0.90 dB |
| 21 | | -65.000 dBc | 489.3 MHz | -71.44 dBc | -40/ +0 dB | --- pass | 0.90 dB |
| 22 | | -65.000 dBc | 942.8 MHz | -76.85 dBc | -40/ +0 dB | --- pass | 0.90 dB |
| 23 | | -65.000 dBc | 889.3 MHz | -69.95 dBc | -40/ +0 dB | --- pass | 0.90 dB |