



# Calibration Certificate Kalibrier-Zertifikat

# MUSTER

Object  
Gegenstand Network Analyzer

Manufacturer  
Hersteller Agilent

Type description  
Typ 8722ES

Serial no.  
Serien Nr. 12345

Inventory no.  
Inventar Nr. ---

Test equipment no.  
Prüfmittel Nr. ---

Equipment no.  
Equipment Nr. 12345678

Location  
Standort ---

Client  
Auftraggeber Mustermann GmbH

Customer ID no.  
Kunden Nr. DE-12345 Musterhausen

Order no.  
Auftrags Nr. 654321

Date of calibration  
Datum der Kalibrierung 05.05.2023

Date of the recommended re-calibration  
Datum der empfohlenen Rekalibrierung ---

**Conformity** **pass**  
Konformitätsaussage

Hereby we confirm that the performing calibration laboratory is working with a management system according to ISO 9001:2015 and ISO/IEC 17025:2018. Accreditation certificates can be found under www.testotis.de. The measuring installations used for calibration are regularly calibrated and traceable to the national standards of the German Federal Physical Technical Institute (PTB) or other national standards. Should no national standards exist, the measuring procedure corresponds with the technical regulations and norms valid at the time of the measurement. The documents established for this procedure are available for viewing. All the necessary measured data can be found on this calibration certificate.

Hiermit bestätigen wir, dass das durchführende Kalibrierlabor ein Managementsystem nach ISO 9001:2015, sowie ISO/IEC 17025:2018 eingeführt hat. Die Urkunden finden Sie auf www.testotis.de. Die für die Kalibrierung verwendeten Messeinrichtungen werden regelmäßig kalibriert und sind rückführbar auf die nationalen Normale der Physikalisch Technischen Bundesanstalt (PTB) Deutschlands oder auf andere nationale Normale. Wo keine nationalen Normale existieren, entspricht das Messverfahren den derzeit gültigen technischen Regeln und Normen. Die für diesen Vorgang angefertigte Dokumentation kann eingesehen werden. Alle erforderlichen Messdaten sind auf der(n) nachfolgenden Seite(n) dieses Kalibrier-Zertifikats aufgelistet.

<sup>1)</sup> The expanded measurement uncertainty was calculated according to EA-4/02 M:2022 with a coverage probability of 95% and contains the uncertainty of the reference, the method and the uncertainty of the unit under test. The statement of conformity is based on the decision rule 'confidence level 50' .  
<sup>1)</sup> Die erweiterte Messunsicherheit wurde nach EA-4/02 M:2022 mit einer Überdeckungswahrscheinlichkeit von 95% berechnet und enthält die Unsicherheit der Referenz, des Verfahrens sowie die Unsicherheit des Prüflings. Die Konformitätsaussage erfolgt nach der Entscheidungsregel 'Vertrauensniveau 50' .

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V 5.07 / EN

Seal Stempel



Supervisor Fachverantwortlicher  
*Max Mustermann*  
Max Mustermann

Technician Bearbeiter  
*Martina Musterfrau*  
Martina Musterfrau



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## Measuring equipment Messeinrichtung

Reference Referenz	Traceability Rückführung	Next cal. Rekal.	Certificate-no. Zertifikat-Nr.	EQ-no. EQ-Nr.
Power Sensor HP N8487A	15070-01-00 2023-03	2025-03	E233432	10954843
Frequenzzähler Agilent 53152A	GPS locked ---	---	Support device	10954848
2.4mm Calibration Kit AGILENT DEUTSCHLAND GMBH 85056A	15070-01-01 2022-11	2023-11	E222312	11103246
ATTENUATOR/SWITCH DRIVER HEWLETT PACKARD 11713A	GPS locked ---	---	Support device	11105439
Frequenzzähler HEWLETT PACKARD 5335A	GPS locked ---	---	Support device	11374124
Frequenznormal Fluke 910R	GPS locked ---	---	Support device	11846061
2.4mm Step Attenuator, 60 dB Agilent 84905M	METAS 2022-09	2024-09	4717018	12043751
Spektrumanalyzer Rohde & Schwarz FSEK30	15070-01-00 2023-03	2024-03	E234147	12108912
Power Meter Agilent E4417A	15070-01-01 2022-11	2023-11	E220883	12433694

Reference certificates are available at [www.primasonline.com](http://www.primasonline.com) Referenzzertifikate sind auf [www.primasonline.com](http://www.primasonline.com) abrufbar

## Ambient conditions Umgebungsbedingungen

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

## Measuring procedure Messverfahren

The calibration is performed according to the manufacturer's procedure  
Die Kalibrierung erfolgt nach Herstelleranweisung

Procedure Prüfprozedur E:Agilent:8722ES:TISSD:NWA:IEEE / Rev.:1.2

## Measuring results Messergebnisse

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## Special remarks Besondere Bemerkungen

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Reference value Bezugswert	Measuring condition Messbedingung	Indicated value UUT Angezeigter Wert UUT	Deviation Abweichung	allowed deviation zulässige Abweichung	Utilization of allowed deviation in % Ausnutzung der zul.	Measuring uncertainty (k=2) Messunsicherheit (k=2)
<b>Device Identification</b>						
Manufacturer:----->HEWLETT PACKARD						
Model:----->8722ES						
Softwarerevision:----->7.74						
Serialnummer----->US39175089						
<b>Frequency Range and Accuracy</b>						
50.00000250 MHz		50.0000000 MHz	-0.00000250 MHz	±0.0005 MHz	1% pass	0.58 Hz
100.0000050 MHz		100.0000000 MHz	-0.0000050 MHz	±0.001 MHz	1% pass	1.2 Hz
1000.000049 MHz		1000.0000000 MHz	-0.000049 MHz	±0.01 MHz	0% pass	12 Hz
10.00000048 GHz		10.0000000 GHz	-0.00000048 GHz	±0.0001 GHz	0% pass	115 Hz
40.0000019 GHz		40.0000000 GHz	-0.00000194 GHz	±0.0004 GHz	0% pass	462 Hz
<b>Output Power Accuracy and Flatness (Port 1)</b>						
at -15 dBm output power						
-14.933 dBm	50 MHz	-15.00 dBm	-0.07 dB	±3 dB	--- pass	0.50 dB
-14.795 dBm	100 MHz	-15.00 dBm	-0.20 dB	±3 dB	--- pass	0.50 dB
-14.743 dBm	200 MHz	-15.00 dBm	-0.26 dB	±3 dB	--- pass	0.50 dB
-15.259 dBm	500 MHz	-15.00 dBm	0.26 dB	±3 dB	--- pass	0.50 dB
-14.993 dBm	1 GHz	-15.00 dBm	-0.01 dB	±3 dB	--- pass	0.50 dB
-15.285 dBm	2 GHz	-15.00 dBm	0.28 dB	±3 dB	--- pass	0.50 dB
-14.842 dBm	3 GHz	-15.00 dBm	-0.16 dB	±3 dB	--- pass	0.64 dB
-14.528 dBm	4 GHz	-15.00 dBm	-0.47 dB	±3 dB	--- pass	0.64 dB
-14.451 dBm	5 GHz	-15.00 dBm	-0.55 dB	±3 dB	--- pass	0.64 dB
-14.384 dBm	6 GHz	-15.00 dBm	-0.62 dB	±3 dB	--- pass	0.64 dB
-14.665 dBm	7 GHz	-15.00 dBm	-0.33 dB	±3 dB	--- pass	0.64 dB
-14.603 dBm	8 GHz	-15.00 dBm	-0.40 dB	±3 dB	--- pass	0.64 dB
-14.712 dBm	9 GHz	-15.00 dBm	-0.29 dB	±3 dB	--- pass	0.64 dB
-15.060 dBm	10 GHz	-15.00 dBm	0.06 dB	±3 dB	--- pass	0.64 dB
-15.529 dBm	11 GHz	-15.00 dBm	0.53 dB	±3 dB	--- pass	0.64 dB
-15.595 dBm	12 GHz	-15.00 dBm	0.60 dB	±3 dB	--- pass	0.64 dB
-16.292 dBm	13 GHz	-15.00 dBm	1.29 dB	±3 dB	--- pass	0.64 dB
-16.774 dBm	14 GHz	-15.00 dBm	1.77 dB	±3 dB	--- pass	0.64 dB
-16.621 dBm	15 GHz	-15.00 dBm	1.62 dB	±3 dB	--- pass	0.64 dB
-16.114 dBm	16 GHz	-15.00 dBm	1.11 dB	±3 dB	--- pass	0.64 dB
-16.198 dBm	17 GHz	-15.00 dBm	1.20 dB	±3 dB	--- pass	0.64 dB
-15.701 dBm	18 GHz	-15.00 dBm	0.70 dB	±3 dB	--- pass	0.64 dB
-15.744 dBm	19 GHz	-15.00 dBm	0.74 dB	±3 dB	--- pass	0.85 dB
-15.708 dBm	20 GHz	-15.00 dBm	0.71 dB	±3 dB	--- pass	0.85 dB
-15.330 dBm	21 GHz	-15.00 dBm	0.33 dB	±3 dB	--- pass	0.85 dB



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-15.452dBm	22 GHz	-15.00dBm	0.45dB	±3dB	--- pass	0.85 dB
-15.353dBm	23 GHz	-15.00dBm	0.35dB	±3dB	--- pass	0.85 dB
-14.945dBm	24 GHz	-15.00dBm	-0.05dB	±3dB	--- pass	0.85 dB
-14.957dBm	25 GHz	-15.00dBm	-0.04dB	±3dB	--- pass	0.85 dB
-14.464dBm	26 GHz	-15.00dBm	-0.54dB	±3dB	--- pass	0.85 dB
-14.378dBm	27 GHz	-15.00dBm	-0.62dB	±3dB	--- pass	0.85 dB
-14.269dBm	28 GHz	-15.00dBm	-0.73dB	±3dB	--- pass	0.85 dB
-14.501dBm	29 GHz	-15.00dBm	-0.50dB	±3dB	--- pass	0.85 dB
-15.269dBm	30 GHz	-15.00dBm	0.27dB	±3dB	--- pass	0.85 dB
-15.497dBm	31 GHz	-15.00dBm	0.50dB	±3dB	--- pass	0.85 dB
-15.840dBm	32 GHz	-15.00dBm	0.84dB	±3dB	--- pass	0.85 dB
-15.777dBm	33 GHz	-15.00dBm	0.78dB	±3dB	--- pass	0.85 dB
-15.788dBm	34 GHz	-15.00dBm	0.79dB	±3dB	--- pass	0.85 dB
-16.798dBm	35 GHz	-15.00dBm	1.80dB	±3dB	--- pass	0.85 dB
-16.340dBm	36 GHz	-15.00dBm	1.34dB	±3dB	--- pass	0.85 dB
-15.660dBm	37 GHz	-15.00dBm	0.66dB	±3dB	--- pass	0.85 dB
-14.858dBm	38 GHz	-15.00dBm	-0.14dB	±3dB	--- pass	0.85 dB
-15.031dBm	39 GHz	-15.00dBm	0.03dB	±3dB	--- pass	0.85 dB
-15.918dBm	40 GHz	-15.00dBm	0.92dB	±3dB	--- pass	0.85 dB

## Output Power Accuracy and Flatness (Port 2)

at -15 dBm output power

-15.228 dBm	50 MHz	-15.00 dBm	0.23dB	±3dB	--- pass	0.50 dB
-15.030 dBm	100 MHz	-15.00 dBm	0.03dB	±3dB	--- pass	0.50 dB
-14.994 dBm	200 MHz	-15.00 dBm	-0.01dB	±3dB	--- pass	0.50 dB
-15.497 dBm	500 MHz	-15.00 dBm	0.50dB	±3dB	--- pass	0.50 dB
-15.270 dBm	1 GHz	-15.00 dBm	0.27dB	±3dB	--- pass	0.50 dB
-15.515 dBm	2 GHz	-15.00 dBm	0.51dB	±3dB	--- pass	0.50 dB
-14.992 dBm	3 GHz	-15.00 dBm	-0.01dB	±3dB	--- pass	0.64 dB
-14.660 dBm	4 GHz	-15.00 dBm	-0.34dB	±3dB	--- pass	0.64 dB
-14.460 dBm	5 GHz	-15.00 dBm	-0.54dB	±3dB	--- pass	0.64 dB
-14.446 dBm	6 GHz	-15.00 dBm	-0.55dB	±3dB	--- pass	0.64 dB
-14.561 dBm	7 GHz	-15.00 dBm	-0.44dB	±3dB	--- pass	0.64 dB
-14.541 dBm	8 GHz	-15.00 dBm	-0.46dB	±3dB	--- pass	0.64 dB
-14.685 dBm	9 GHz	-15.00 dBm	-0.31dB	±3dB	--- pass	0.64 dB
-14.894 dBm	10 GHz	-15.00 dBm	-0.11dB	±3dB	--- pass	0.64 dB
-15.146 dBm	11 GHz	-15.00 dBm	0.15dB	±3dB	--- pass	0.64 dB
-15.064 dBm	12 GHz	-15.00 dBm	0.06dB	±3dB	--- pass	0.64 dB
-15.323 dBm	13 GHz	-15.00 dBm	0.32dB	±3dB	--- pass	0.64 dB
-15.421 dBm	14 GHz	-15.00 dBm	0.42dB	±3dB	--- pass	0.64 dB
-15.284 dBm	15 GHz	-15.00 dBm	0.28dB	±3dB	--- pass	0.64 dB
-14.973 dBm	16 GHz	-15.00 dBm	-0.03dB	±3dB	--- pass	0.64 dB



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-15.344 dBm	17 GHz	-15.00 dBm	0.34 dB	±3 dB	--- pass	0.64 dB
-15.209 dBm	18 GHz	-15.00 dBm	0.21 dB	±3 dB	--- pass	0.64 dB
-15.087 dBm	19 GHz	-15.00 dBm	0.09 dB	±3 dB	--- pass	0.85 dB
-15.137 dBm	20 GHz	-15.00 dBm	0.14 dB	±3 dB	--- pass	0.85 dB
-14.924 dBm	21 GHz	-15.00 dBm	-0.08 dB	±3 dB	--- pass	0.85 dB
-14.918 dBm	22 GHz	-15.00 dBm	-0.08 dB	±3 dB	--- pass	0.85 dB
-14.813 dBm	23 GHz	-15.00 dBm	-0.19 dB	±3 dB	--- pass	0.85 dB
-14.906 dBm	24 GHz	-15.00 dBm	-0.09 dB	±3 dB	--- pass	0.85 dB
-14.967 dBm	25 GHz	-15.00 dBm	-0.03 dB	±3 dB	--- pass	0.85 dB
-14.384 dBm	26 GHz	-15.00 dBm	-0.62 dB	±3 dB	--- pass	0.85 dB
-14.225 dBm	27 GHz	-15.00 dBm	-0.77 dB	±3 dB	--- pass	0.85 dB
-14.039 dBm	28 GHz	-15.00 dBm	-0.96 dB	±3 dB	--- pass	0.85 dB
-14.237 dBm	29 GHz	-15.00 dBm	-0.76 dB	±3 dB	--- pass	0.85 dB
-15.086 dBm	30 GHz	-15.00 dBm	0.09 dB	±3 dB	--- pass	0.85 dB
-15.466 dBm	31 GHz	-15.00 dBm	0.47 dB	±3 dB	--- pass	0.85 dB
-15.572 dBm	32 GHz	-15.00 dBm	0.57 dB	±3 dB	--- pass	0.85 dB
-15.870 dBm	33 GHz	-15.00 dBm	0.87 dB	±3 dB	--- pass	0.85 dB
-16.335 dBm	34 GHz	-15.00 dBm	1.34 dB	±3 dB	--- pass	0.85 dB
-17.047 dBm	35 GHz	-15.00 dBm	2.05 dB	±3 dB	--- pass	0.85 dB
-16.163 dBm	36 GHz	-15.00 dBm	1.16 dB	±3 dB	--- pass	0.85 dB
-15.637 dBm	37 GHz	-15.00 dBm	0.64 dB	±3 dB	--- pass	0.85 dB
-14.797 dBm	38 GHz	-15.00 dBm	-0.20 dB	±3 dB	--- pass	0.85 dB
-14.163 dBm	39 GHz	-15.00 dBm	-0.84 dB	±3 dB	--- pass	0.85 dB
-15.580 dBm	40 GHz	-15.00 dBm	0.58 dB	±3 dB	--- pass	0.85 dB

## Output Power Linearity (Port 1)

referenced to -10 dBm

below -20 dBm: Tolerance by Laboratory

### 50 MHz

0.00 dB	-5 dBm	0.1 dB	0.10 dB	±0.35 dB	--- pass	0.36 dB
0.00 dB	-15 dBm	-0.0 dB	0.00 dB	±0.35 dB	--- pass	0.36 dB
0.00 dB	-20 dBm	0.0 dB	0.00 dB	±0.6 dB	--- pass	0.36 dB
0.00 dB	-25 dBm	0.0 dB	0.00 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-30 dBm	0.1 dB	0.10 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-35 dBm	0.2 dB	0.20 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-40 dBm	0.3 dB	0.30 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-45 dBm	0.3 dB	0.30 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-50 dBm	0.3 dB	0.30 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-55 dBm	0.4 dB	0.40 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-60 dBm	0.4 dB	0.40 dB	±2 dB	--- pass	0.36 dB

### 1 GHz

0.00 dB	-5 dBm	0.1 dB	0.10 dB	±0.35 dB	--- pass	0.36 dB
0.00 dB	-15 dBm	-0.0 dB	0.00 dB	±0.35 dB	--- pass	0.36 dB



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0.00dB	-20 dBm	0.1dB	0.10dB	±0.6dB	--- pass	0.36 dB
0.00dB	-25 dBm	-0.0dB	0.00dB	±2dB	--- pass	0.36 dB
0.00dB	-30 dBm	0.1dB	0.10dB	±2dB	--- pass	0.36 dB
0.00dB	-35 dBm	0.2dB	0.20dB	±2dB	--- pass	0.36 dB
0.00dB	-40 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-45 dBm	0.2dB	0.20dB	±2dB	--- pass	0.36 dB
0.00dB	-50 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-55 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-60 dBm	0.4dB	0.40dB	±2dB	--- pass	0.36 dB
<b>10 GHz</b>						
0.00dB	-5 dBm	0.2dB	0.20dB	±0.35dB	--- pass	0.36 dB
0.00dB	-15 dBm	-0.0dB	0.00dB	±0.35dB	--- pass	0.36 dB
0.00dB	-20 dBm	0.0dB	0.00dB	±0.6dB	--- pass	0.36 dB
0.00dB	-25 dBm	0.1dB	0.10dB	±2dB	--- pass	0.36 dB
0.00dB	-30 dBm	0.2dB	0.20dB	±2dB	--- pass	0.36 dB
0.00dB	-35 dBm	0.2dB	0.20dB	±2dB	--- pass	0.36 dB
0.00dB	-40 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-45 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-50 dBm	0.4dB	0.40dB	±2dB	--- pass	0.36 dB
0.00dB	-55 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-60 dBm	0.6dB	0.60dB	±2dB	--- pass	0.36 dB
<b>20 GHz</b>						
0.00dB	-5 dBm	0.1dB	0.10dB	±0.35dB	--- pass	0.36 dB
0.00dB	-15 dBm	0.1dB	0.10dB	±0.35dB	--- pass	0.36 dB
0.00dB	-20 dBm	0.2dB	0.20dB	±0.6dB	--- pass	0.36 dB
0.00dB	-25 dBm	0.2dB	0.20dB	±2dB	--- pass	0.36 dB
0.00dB	-30 dBm	0.4dB	0.40dB	±2dB	--- pass	0.36 dB
0.00dB	-35 dBm	0.4dB	0.40dB	±2dB	--- pass	0.36 dB
0.00dB	-40 dBm	0.5dB	0.50dB	±2dB	--- pass	0.36 dB
0.00dB	-45 dBm	0.5dB	0.50dB	±2dB	--- pass	0.36 dB
0.00dB	-50 dBm	0.6dB	0.60dB	±2dB	--- pass	0.36 dB
0.00dB	-55 dBm	0.6dB	0.60dB	±2dB	--- pass	0.36 dB
0.00dB	-60 dBm	0.8dB	0.80dB	±2dB	--- pass	0.36 dB
<b>30 GHz</b>						
0.00dB	-15 dBm	0.0dB	0.00dB	±0.6dB	--- pass	0.36 dB
0.00dB	-20 dBm	0.1dB	0.10dB	±0.6dB	--- pass	0.36 dB
0.00dB	-25 dBm	0.3dB	0.30dB	±2dB	--- pass	0.36 dB
0.00dB	-30 dBm	0.5dB	0.50dB	±2dB	--- pass	0.36 dB
0.00dB	-35 dBm	0.5dB	0.50dB	±2dB	--- pass	0.36 dB
0.00dB	-40 dBm	0.6dB	0.60dB	±2dB	--- pass	0.36 dB
0.00dB	-45 dBm	0.5dB	0.50dB	±2dB	--- pass	0.36 dB
0.00dB	-50 dBm	0.6dB	0.60dB	±2dB	--- pass	0.36 dB

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0.00 dB	-55 dBm	0.8 dB	0.80 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-60 dBm	0.8 dB	0.80 dB	±2 dB	--- pass	0.36 dB
<b>39.9 GHz</b>						
0.00 dB	-15 dBm	0.4 dB	0.40 dB	±0.6 dB	--- pass	0.36 dB
0.00 dB	-20 dBm	0.7 dB	0.70 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-30 dBm	0.8 dB	0.80 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-35 dBm	1.1 dB	1.10 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-40 dBm	1.0 dB	1.00 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-45 dBm	0.9 dB	0.90 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-50 dBm	1.1 dB	1.10 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-55 dBm	1.4 dB	1.40 dB	±2 dB	--- pass	0.36 dB
0.00 dB	-60 dBm	1.5 dB	1.50 dB	±2 dB	--- pass	0.36 dB

### Trace Noise

3 kHz IFBW

value given represents a noise variation that is three standard deviations away from the trace's mean value

#### Tolerance by Laboratory

Trace Noise S21, 50 MHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.0338 dB

pass

Trace Noise S21, 1 GHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.0097 dB

pass

Trace Noise S21, 13 GHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.035 dB

pass

Trace Noise S21, 20 GHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.038 dB

pass

Trace Noise S21, 40 GHz TOL = <0.2 dB, U = 0.002 dB

Trace Noise = 0.1526 dB

pass

Trace Noise S12, 50 MHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.0264 dB

pass

Trace Noise S12, 1 GHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.0203 dB

pass

Trace Noise S12, 13 GHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.038 dB

pass

Trace Noise S12, 20 GHz TOL = <0.05 dB, U = 0.002 dB

Trace Noise = 0.0458 dB

pass

Trace Noise S12, 40 GHz TOL = <0.2 dB, U = 0.002 dB

Trace Noise = 0.0459 dB

pass

### Dynamic Range



# Calibration Certificate Kalibrier-Zertifikat

## MUSTER

Reference value Bezugswert	Measuring condition Messbedingung	Indicated value UUT Angezeigter Wert UUT	Deviation Abweichung	allowed deviation zulässige Abweichung	Utilization of allowed deviation in % Ausnutzung der zul.	Measuring uncertainty (k=2) Messunsicherheit (k=2)
value given represents a noise variation that is three standard deviations away from the trace's mean value						
Dynamic Range S12, 50 MHz to 840 MHz, Tol: >67 dB, U = 3 dB						
Dynamic Range = 77.9 dB					pass	
Dynamic Range S12, 840 MHz to 8 GHz, Tol: >93 dB, U = 1.4 dB						
Dynamic Range = 96.1 dB					pass	
Dynamic Range S12, 8 GHz to 20 GHz, Tol: >91 dB, U = 1.4 dB						
Dynamic Range = 94.6 dB					pass	
Dynamic Range S12, 20 GHz to 40 GHz, Tol: >80 dB, U = 1.4 dB						
Dynamic Range = 82.8 dB					pass	
Dynamic Range S21, 50 MHz to 840 MHz, Tol: >67 dB, U = 3 dB						
Dynamic Range = 83.7 dB					pass	
Dynamic Range S21, 840 MHz to 8 GHz, Tol: >93 dB, U = 1.4 dB						
Dynamic Range = 95.1 dB					pass	
Dynamic Range S21, 8 GHz to 20 GHz, Tol: >91 dB, U = 1.4 dB						
Dynamic Range = 92.1 dB					pass	
Dynamic Range S21, 20 GHz to 40 GHz, Tol: >80 dB, U = 1.4 dB						
Dynamic Range = 84.9 dB					pass	
<b>Dynamic Accuracy (S21)</b>						
-10.000557190 dB	50 MHz	-9.99596400 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-10.000631150 dB	100 MHz	-10.00685000 dB	-0.006 dB	±0.2 dB	--- pass	0.070 dB
-10.000719550 dB	500 MHz	-10.01493000 dB	-0.014 dB	±0.2 dB	--- pass	0.070 dB
-9.9998519420 dB	1000 MHz	-10.00625000 dB	-0.006 dB	±0.2 dB	--- pass	0.070 dB
-9.9978287080 dB	2000 MHz	-10.00051000 dB	-0.003 dB	±0.2 dB	--- pass	0.070 dB
-9.9990347450 dB	3000 MHz	-10.00814000 dB	-0.009 dB	±0.2 dB	--- pass	0.070 dB
-9.9978404190 dB	4000 MHz	-10.00662000 dB	-0.009 dB	±0.2 dB	--- pass	0.070 dB
-10.001441630 dB	5000 MHz	-10.00667000 dB	-0.005 dB	±0.2 dB	--- pass	0.070 dB
-10.002290860 dB	6000 MHz	-10.00455000 dB	-0.002 dB	±0.2 dB	--- pass	0.070 dB
-10.003913850 dB	7000 MHz	-10.00800000 dB	-0.004 dB	±0.2 dB	--- pass	0.070 dB
-10.002942170 dB	8000 MHz	-10.00423000 dB	-0.001 dB	±0.2 dB	--- pass	0.070 dB
-10.001658590 dB	9000 MHz	-10.00915000 dB	-0.007 dB	±0.2 dB	--- pass	0.070 dB
-10.009713050 dB	10000 MHz	-10.01801000 dB	-0.008 dB	±0.2 dB	--- pass	0.070 dB
-10.001536630 dB	11000 MHz	-10.00883000 dB	-0.007 dB	±0.2 dB	--- pass	0.070 dB
-10.015259520 dB	12000 MHz	-10.01526000 dB	0.000 dB	±0.2 dB	--- pass	0.070 dB





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-10.016653160 dB	13000 MHz	10.02660000 dB	-0.010 dB	±0.2 dB	--- pass	0.070 dB
-10.012599910 dB	14000 MHz	10.01108000 dB	0.002 dB	±0.2 dB	--- pass	0.070 dB
-10.007198670 dB	15000 MHz	10.00657000 dB	0.001 dB	±0.2 dB	--- pass	0.070 dB
-10.004383110 dB	16000 MHz	10.00901000 dB	-0.005 dB	±0.2 dB	--- pass	0.070 dB
-10.00523990 dB	17000 MHz	10.01094000 dB	-0.006 dB	±0.2 dB	--- pass	0.070 dB
-9.9948057910 dB	18000 MHz	9.996883000 dB	-0.002 dB	±0.2 dB	--- pass	0.070 dB
-10.00756850 dB	19000 MHz	10.02058000 dB	-0.013 dB	±0.2 dB	--- pass	0.070 dB
-10.009752350 dB	20000 MHz	9.996424000 dB	0.013 dB	±0.2 dB	--- pass	0.070 dB
-10.018078980 dB	22000 MHz	10.02509000 dB	-0.007 dB	±0.2 dB	--- pass	0.070 dB
-10.020991310 dB	24000 MHz	10.03877000 dB	-0.018 dB	±0.2 dB	--- pass	0.070 dB
-10.019187410 dB	26000 MHz	10.03147000 dB	-0.012 dB	±0.2 dB	--- pass	0.070 dB
-10.037727140 dB	28000 MHz	10.04162000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-10.021191750 dB	30000 MHz	10.04438000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-10.053831070 dB	32000 MHz	10.07864000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-10.067755160 dB	34000 MHz	10.08264000 dB	-0.01 dB	±0.2 dB	--- pass	0.10 dB
-10.075955440 dB	36000 MHz	10.09591000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-10.081331290 dB	38000 MHz	10.08673000 dB	-0.01 dB	±0.2 dB	--- pass	0.10 dB
-10.080931350 dB	40000 MHz	10.10037000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-19.942937310 dB	50 MHz	20.07075000 dB	-0.128 dB	±0.2 dB	--- pass	0.070 dB
-19.942731150 dB	100 MHz	20.08343000 dB	-0.141 dB	±0.2 dB	--- pass	0.070 dB
-19.942733240 dB	500 MHz	20.08210000 dB	-0.139 dB	±0.2 dB	--- pass	0.070 dB
-19.941908420 dB	1000 MHz	20.08536000 dB	-0.143 dB	±0.2 dB	--- pass	0.070 dB
-19.940809960 dB	2000 MHz	20.08021000 dB	-0.139 dB	±0.2 dB	--- pass	0.070 dB
-19.940731890 dB	3000 MHz	20.07617000 dB	-0.135 dB	±0.2 dB	--- pass	0.070 dB
-19.937967430 dB	4000 MHz	20.06896000 dB	-0.131 dB	±0.2 dB	--- pass	0.070 dB
-19.940678770 dB	5000 MHz	20.06817000 dB	-0.127 dB	±0.2 dB	--- pass	0.070 dB
-19.940266740 dB	6000 MHz	20.06583000 dB	-0.126 dB	±0.2 dB	--- pass	0.070 dB
-19.942190710 dB	7000 MHz	20.05968000 dB	-0.117 dB	±0.2 dB	--- pass	0.070 dB
-19.9394870 dB	8000 MHz	-20.048190 dB	-0.109 dB	±0.2 dB	--- pass	0.070 dB
-19.940935460 dB	9000 MHz	20.04498000 dB	-0.104 dB	±0.2 dB	--- pass	0.070 dB
-19.949343880 dB	10000 MHz	20.04792000 dB	-0.099 dB	±0.2 dB	--- pass	0.070 dB
-19.934577660 dB	11000 MHz	20.03363000 dB	-0.099 dB	±0.2 dB	--- pass	0.070 dB
-19.946658850 dB	12000 MHz	20.03666000 dB	-0.090 dB	±0.2 dB	--- pass	0.070 dB
-19.94293620 dB	13000 MHz	20.03988000 dB	-0.097 dB	±0.2 dB	--- pass	0.070 dB
-19.944421180 dB	14000 MHz	20.02394000 dB	-0.080 dB	±0.2 dB	--- pass	0.070 dB
-19.944341270 dB	15000 MHz	20.01236000 dB	-0.068 dB	±0.2 dB	--- pass	0.070 dB
-19.939084580 dB	16000 MHz	20.00929000 dB	-0.070 dB	±0.2 dB	--- pass	0.070 dB
-19.945222180 dB	17000 MHz	20.01195000 dB	-0.067 dB	±0.2 dB	--- pass	0.070 dB
-19.933270080 dB	18000 MHz	20.00093000 dB	-0.068 dB	±0.2 dB	--- pass	0.070 dB
-19.944694190 dB	19000 MHz	20.01788000 dB	-0.073 dB	±0.2 dB	--- pass	0.070 dB
-19.945654320 dB	20000 MHz	19.99666000 dB	-0.051 dB	±0.2 dB	--- pass	0.070 dB
-19.957220960 dB	22000 MHz	20.00805000 dB	-0.051 dB	±0.2 dB	--- pass	0.070 dB
-19.957191610 dB	24000 MHz	20.00966000 dB	-0.052 dB	±0.2 dB	--- pass	0.070 dB
-19.949097240 dB	26000 MHz	19.99859000 dB	-0.049 dB	±0.2 dB	--- pass	0.070 dB



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-19.96660150 dB	28000 MHz	20.0087800 dB	-0.04 dB	±0.2 dB	--- pass	0.10 dB
-19.935968930 dB	30000 MHz	19.97773000 dB	-0.04 dB	±0.2 dB	--- pass	0.10 dB
-19.962264390 dB	32000 MHz	20.01117000 dB	-0.05 dB	±0.2 dB	--- pass	0.10 dB
-19.976874470 dB	34000 MHz	20.00915000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-19.977372530 dB	36000 MHz	20.01365000 dB	-0.04 dB	±0.2 dB	--- pass	0.10 dB
-19.984434110 dB	38000 MHz	19.99358000 dB	-0.01 dB	±0.2 dB	--- pass	0.10 dB
-19.974537910 dB	40000 MHz	20.00741000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-30.007846090 dB	50 MHz	29.93929000 dB	0.069 dB	±0.2 dB	--- pass	0.070 dB
-30.007485760 dB	100 MHz	30.02964000 dB	-0.022 dB	±0.2 dB	--- pass	0.070 dB
-30.006318780 dB	500 MHz	30.01660000 dB	-0.010 dB	±0.2 dB	--- pass	0.070 dB
-30.003541210 dB	1000 MHz	30.02285000 dB	-0.019 dB	±0.2 dB	--- pass	0.070 dB
-30.000249160 dB	2000 MHz	30.01816000 dB	-0.018 dB	±0.2 dB	--- pass	0.070 dB
-30.004076160 dB	3000 MHz	30.01812000 dB	-0.014 dB	±0.2 dB	--- pass	0.070 dB
-30.000568660 dB	4000 MHz	30.01701000 dB	-0.016 dB	±0.2 dB	--- pass	0.070 dB
-30.001658040 dB	5000 MHz	30.02059000 dB	-0.019 dB	±0.2 dB	--- pass	0.070 dB
-30.002876560 dB	6000 MHz	30.02055000 dB	-0.018 dB	±0.2 dB	--- pass	0.070 dB
-30.005160010 dB	7000 MHz	30.02569000 dB	-0.021 dB	±0.2 dB	--- pass	0.070 dB
-30.003099180 dB	8000 MHz	30.01821000 dB	-0.015 dB	±0.2 dB	--- pass	0.070 dB
-30.002766840 dB	9000 MHz	30.01780000 dB	-0.015 dB	±0.2 dB	--- pass	0.070 dB
-30.023196340 dB	10000 MHz	30.03773000 dB	-0.015 dB	±0.2 dB	--- pass	0.070 dB
-30.016204530 dB	11000 MHz	30.02863000 dB	-0.012 dB	±0.2 dB	--- pass	0.070 dB
-30.019129280 dB	12000 MHz	30.03368000 dB	-0.015 dB	±0.2 dB	--- pass	0.070 dB
-30.017304930 dB	13000 MHz	30.04397000 dB	-0.027 dB	±0.2 dB	--- pass	0.070 dB
-30.021698570 dB	14000 MHz	30.02207000 dB	0.000 dB	±0.2 dB	--- pass	0.070 dB
-30.021248830 dB	15000 MHz	30.02675000 dB	-0.006 dB	±0.2 dB	--- pass	0.070 dB
-30.018420860 dB	16000 MHz	30.03336000 dB	-0.015 dB	±0.2 dB	--- pass	0.070 dB
-30.029383760 dB	17000 MHz	30.04181000 dB	-0.012 dB	±0.2 dB	--- pass	0.070 dB
-30.02842120 dB	18000 MHz	30.04406000 dB	-0.016 dB	±0.2 dB	--- pass	0.070 dB
-30.031023380 dB	19000 MHz	30.05959000 dB	-0.029 dB	±0.2 dB	--- pass	0.070 dB
-30.031477930 dB	20000 MHz	30.03745000 dB	-0.006 dB	±0.2 dB	--- pass	0.070 dB
-30.053281280 dB	22000 MHz	30.06744000 dB	-0.014 dB	±0.2 dB	--- pass	0.070 dB
-30.056111680 dB	24000 MHz	30.08297000 dB	-0.027 dB	±0.2 dB	--- pass	0.070 dB
-30.083499530 dB	26000 MHz	30.09652000 dB	-0.013 dB	±0.2 dB	--- pass	0.070 dB
-30.109711530 dB	28000 MHz	30.13359000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-30.078501650 dB	30000 MHz	30.12923000 dB	-0.05 dB	±0.2 dB	--- pass	0.10 dB
-30.122416660 dB	32000 MHz	30.17635000 dB	-0.05 dB	±0.2 dB	--- pass	0.10 dB
-30.132376250 dB	34000 MHz	30.16432000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-30.149618830 dB	36000 MHz	30.20249000 dB	-0.05 dB	±0.2 dB	--- pass	0.10 dB
-30.152659010 dB	38000 MHz	30.18959000 dB	-0.04 dB	±0.2 dB	--- pass	0.10 dB
-30.171593120 dB	40000 MHz	30.16722000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-40.007995350 dB	50 MHz	40.05519000 dB	-0.047 dB	±0.5 dB	--- pass	0.070 dB
-40.007612960 dB	100 MHz	39.96580000 dB	0.042 dB	±0.5 dB	--- pass	0.070 dB
-40.006019090 dB	500 MHz	40.00943000 dB	-0.003 dB	±0.5 dB	--- pass	0.070 dB



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Reference value Bezugswert	Measuring condition Messbedingung	Indicated value UUT Angezeigter Wert UUT	Deviation Abweichung	allowed deviation zulässige Abweichung	Utilization of allowed deviation in % Ausnutzung der zul.	Measuring uncertainty (k=2) Messunsicherheit (k=2)
-40.003513240 dB	1000 MHz	40.01018000 dB	-0.007 dB	±0.5 dB	--- pass	0.070 dB
-39.999105180 dB	2000 MHz	40.00920000 dB	-0.010 dB	±0.2 dB	--- pass	0.070 dB
-40.001447350 dB	3000 MHz	40.00765000 dB	-0.006 dB	±0.2 dB	--- pass	0.070 dB
-39.998909210 dB	4000 MHz	40.00948000 dB	-0.011 dB	±0.2 dB	--- pass	0.070 dB
-40.002762220 dB	5000 MHz	40.01316000 dB	-0.010 dB	±0.2 dB	--- pass	0.070 dB
-40.005715650 dB	6000 MHz	40.01445000 dB	-0.009 dB	±0.2 dB	--- pass	0.070 dB
-40.009061610 dB	7000 MHz	40.03094000 dB	-0.022 dB	±0.2 dB	--- pass	0.070 dB
-40.008432450 dB	8000 MHz	40.02565000 dB	-0.017 dB	±0.2 dB	--- pass	0.070 dB
-40.006438760 dB	9000 MHz	40.02175000 dB	-0.015 dB	±0.2 dB	--- pass	0.070 dB
-40.023767790 dB	10000 MHz	40.04619000 dB	-0.022 dB	±0.2 dB	--- pass	0.070 dB
-40.020146980 dB	11000 MHz	40.04260000 dB	-0.022 dB	±0.2 dB	--- pass	0.070 dB
-40.032903980 dB	12000 MHz	40.06005000 dB	-0.027 dB	±0.2 dB	--- pass	0.070 dB
-40.036398240 dB	13000 MHz	40.06810000 dB	-0.032 dB	±0.2 dB	--- pass	0.070 dB
-40.03711420 dB	14000 MHz	40.06396000 dB	-0.027 dB	±0.2 dB	--- pass	0.070 dB
-40.032394740 dB	15000 MHz	40.05235000 dB	-0.020 dB	±0.2 dB	--- pass	0.070 dB
-40.02564820 dB	16000 MHz	40.02621000 dB	-0.001 dB	±0.2 dB	--- pass	0.070 dB
-40.028938430 dB	17000 MHz	40.05418000 dB	-0.025 dB	±0.2 dB	--- pass	0.070 dB
-40.023095850 dB	18000 MHz	40.03723000 dB	-0.014 dB	±0.2 dB	--- pass	0.070 dB
-40.032506950 dB	19000 MHz	40.07811000 dB	-0.046 dB	±0.2 dB	--- pass	0.070 dB
-40.042041390 dB	20000 MHz	40.03893000 dB	0.003 dB	±0.2 dB	--- pass	0.070 dB
-40.068019870 dB	22000 MHz	40.07770000 dB	-0.010 dB	±0.2 dB	--- pass	0.070 dB
-40.082861290 dB	24000 MHz	40.10718000 dB	-0.024 dB	±0.2 dB	--- pass	0.070 dB
-40.102205140 dB	26000 MHz	40.13098000 dB	-0.029 dB	±0.2 dB	--- pass	0.070 dB
-40.134043770 dB	28000 MHz	40.16612000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-40.123074670 dB	30000 MHz	40.15069000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-40.174000250 dB	32000 MHz	40.20566000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-40.201226650 dB	34000 MHz	40.23548000 dB	-0.03 dB	±0.2 dB	--- pass	0.10 dB
-40.223898560 dB	36000 MHz	40.28958000 dB	-0.07 dB	±0.2 dB	--- pass	0.10 dB
-40.244529470 dB	38000 MHz	40.30176000 dB	-0.06 dB	±0.2 dB	--- pass	0.10 dB
-40.244542260 dB	40000 MHz	40.42385000 dB	-0.18 dB	±0.2 dB	--- pass	0.10 dB
-49.950740560 dB	50 MHz	49.43890000 dB	0.512 dB	±1.5 dB	--- pass	0.070 dB
-49.950147890 dB	100 MHz	50.37430000 dB	-0.424 dB	±1.5 dB	--- pass	0.070 dB
-49.948674620 dB	500 MHz	50.33217000 dB	-0.383 dB	±1.5 dB	--- pass	0.070 dB
-49.945681920 dB	1000 MHz	50.29041000 dB	-0.345 dB	±1.5 dB	--- pass	0.070 dB
-49.940746250 dB	2000 MHz	50.11762000 dB	-0.177 dB	±0.2 dB	--- pass	0.070 dB
-49.94331630 dB	3000 MHz	50.09488000 dB	-0.152 dB	±0.2 dB	--- pass	0.070 dB
-49.939746810 dB	4000 MHz	50.06939000 dB	-0.130 dB	±0.2 dB	--- pass	0.070 dB
-49.942036010 dB	5000 MHz	50.09125000 dB	-0.149 dB	±0.2 dB	--- pass	0.070 dB
-49.944145320 dB	6000 MHz	50.07816000 dB	-0.134 dB	±0.2 dB	--- pass	0.070 dB
-49.947476030 dB	7000 MHz	50.07632000 dB	-0.129 dB	±0.2 dB	--- pass	0.070 dB
-49.945635660 dB	8000 MHz	50.06011000 dB	-0.114 dB	±0.2 dB	--- pass	0.070 dB
-49.943309090 dB	9000 MHz	50.08813000 dB	-0.145 dB	±0.2 dB	--- pass	0.070 dB
-49.961521640 dB	10000 MHz	50.05349000 dB	-0.092 dB	±0.2 dB	--- pass	0.070 dB
-49.955764010 dB	11000 MHz	50.05538000 dB	-0.100 dB	±0.2 dB	--- pass	0.070 dB



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-49.963586150 dB	12000 MHz	50.06843000 dB	-0.105 dB	±0.2 dB	--- pass	0.070 dB
-49.964359740 dB	13000 MHz	50.03223000 dB	-0.068 dB	±0.2 dB	--- pass	0.070 dB
-49.968979230 dB	14000 MHz	50.04881000 dB	-0.080 dB	±0.2 dB	--- pass	0.070 dB
-49.967602570 dB	15000 MHz	50.05974000 dB	-0.092 dB	±0.2 dB	--- pass	0.070 dB
-49.961967170 dB	16000 MHz	50.05592000 dB	-0.094 dB	±0.2 dB	--- pass	0.070 dB
-49.966483720 dB	17000 MHz	50.03457000 dB	-0.068 dB	±0.2 dB	--- pass	0.070 dB
-49.96242940 dB	18000 MHz	50.03255000 dB	-0.070 dB	±0.2 dB	--- pass	0.070 dB
-49.970741390 dB	19000 MHz	50.05566000 dB	-0.085 dB	±0.2 dB	--- pass	0.070 dB
-49.976277590 dB	20000 MHz	50.05170000 dB	-0.075 dB	±0.35 dB	--- pass	0.070 dB
-50.004170740 dB	22000 MHz	50.06140000 dB	-0.057 dB	±0.35 dB	--- pass	0.070 dB
-50.018884680 dB	24000 MHz	50.05147000 dB	-0.033 dB	±0.35 dB	--- pass	0.070 dB
-50.037284880 dB	26000 MHz	50.11946000 dB	-0.082 dB	±0.35 dB	--- pass	0.070 dB
-50.058100590 dB	28000 MHz	50.09359000 dB	-0.04 dB	±0.35 dB	--- pass	0.10 dB
-50.038080130 dB	30000 MHz	50.09746000 dB	-0.06 dB	±0.35 dB	--- pass	0.10 dB
-50.089619080 dB	32000 MHz	50.26791000 dB	-0.18 dB	±0.35 dB	--- pass	0.10 dB
-50.102679410 dB	34000 MHz	50.08018000 dB	0.02 dB	±0.35 dB	--- pass	0.10 dB
-50.124533160 dB	36000 MHz	50.15211000 dB	-0.03 dB	±0.35 dB	--- pass	0.10 dB
-50.137385360 dB	38000 MHz	50.30273000 dB	-0.17 dB	±0.35 dB	--- pass	0.10 dB
-50.162092520 dB	40000 MHz	50.08229000 dB	0.08 dB	±0.35 dB	--- pass	0.10 dB
-59.950889760 dB	50 MHz	58.74945000 dB	1.201 dB	±4 dB	--- pass	0.070 dB
-59.950274980 dB	100 MHz	59.69352000 dB	0.257 dB	±4 dB	--- pass	0.070 dB
-59.948374580 dB	500 MHz	60.13719000 dB	-0.189 dB	±4 dB	--- pass	0.070 dB
-59.945654130 dB	1000 MHz	59.97408000 dB	-0.028 dB	±4 dB	--- pass	0.070 dB
-59.939601870 dB	2000 MHz	59.90799000 dB	0.032 dB	±0.35 dB	--- pass	0.070 dB
-59.940687110 dB	3000 MHz	60.06526000 dB	-0.125 dB	±0.35 dB	--- pass	0.070 dB
-59.938088720 dB	4000 MHz	59.93343000 dB	0.005 dB	±0.35 dB	--- pass	0.070 dB
-59.94313870 dB	5000 MHz	59.98134000 dB	-0.038 dB	±0.35 dB	--- pass	0.070 dB
-59.946984890 dB	6000 MHz	59.97142000 dB	-0.024 dB	±0.35 dB	--- pass	0.070 dB
-59.951377630 dB	7000 MHz	59.98726000 dB	-0.036 dB	±0.35 dB	--- pass	0.070 dB
-59.950970680 dB	8000 MHz	59.95327000 dB	-0.002 dB	±0.45 dB	--- pass	0.070 dB
-59.946978910 dB	9000 MHz	60.08184000 dB	-0.135 dB	±0.45 dB	--- pass	0.070 dB
-59.962089280 dB	10000 MHz	60.06577000 dB	-0.104 dB	±0.45 dB	--- pass	0.070 dB
-59.959717640 dB	11000 MHz	59.92654000 dB	0.033 dB	±0.45 dB	--- pass	0.070 dB
-59.977353120 dB	12000 MHz	60.00122000 dB	-0.024 dB	±0.45 dB	--- pass	0.070 dB
-59.983450640 dB	13000 MHz	59.96655000 dB	0.017 dB	±0.45 dB	--- pass	0.070 dB
-59.98439850 dB	14000 MHz	60.05672000 dB	-0.072 dB	±0.45 dB	--- pass	0.070 dB
-59.97875280 dB	15000 MHz	60.08460000 dB	-0.106 dB	±0.45 dB	--- pass	0.070 dB
-59.969192020 dB	16000 MHz	60.03752000 dB	-0.068 dB	±0.45 dB	--- pass	0.070 dB
-59.966028740 dB	17000 MHz	60.01175000 dB	-0.046 dB	±0.45 dB	--- pass	0.070 dB
-59.957116340 dB	18000 MHz	59.97509000 dB	-0.018 dB	±0.45 dB	--- pass	0.070 dB
-59.972223890 dB	19000 MHz	59.87601000 dB	0.096 dB	±0.45 dB	--- pass	0.070 dB
-59.986838050 dB	20000 MHz	60.04611000 dB	-0.059 dB	±0.7 dB	--- pass	0.070 dB
-60.018907740 dB	22000 MHz	60.12787000 dB	-0.109 dB	±0.7 dB	--- pass	0.070 dB
-60.045625480 dB	24000 MHz	60.21584000 dB	-0.170 dB	±0.7 dB	--- pass	0.070 dB



# Calibration Certificate Kalibrier-Zertifikat

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Reference value Bezugswert	Measuring condition Messbedingung	Indicated value UUT Angezeigter Wert UUT	Deviation Abweichung	allowed deviation zulässige Abweichung	Utilization of allowed deviation in % Ausnutzung der zul.	Measuring uncertainty (k=2) Messunsicherheit (k=2)
-60.056001970 dB	26000 MHz	60.27669000 dB	-0.221 dB	±0.7 dB	--- pass	0.070 dB
-60.08242030 dB	28000 MHz	59.8079400 dB	0.27 dB	±0.7 dB	--- pass	0.10 dB
-60.082667150 dB	30000 MHz	59.95213000 dB	0.13 dB	±0.7 dB	--- pass	0.10 dB
-60.141212240 dB	32000 MHz	60.38610000 dB	-0.24 dB	±0.7 dB	--- pass	0.10 dB
-60.171524870 dB	34000 MHz	60.28933000 dB	-0.12 dB	±0.7 dB	--- pass	0.10 dB
-60.19881140 dB	36000 MHz	60.0786700 dB	0.12 dB	±0.7 dB	--- pass	0.10 dB
-60.229253240 dB	38000 MHz	60.50700000 dB	-0.28 dB	±0.7 dB	--- pass	0.10 dB
-60.235052350 dB	40000 MHz	59.67106000 dB	0.56 dB	±0.7 dB	--- pass	0.10 dB
<b>Dynamic Accuracy (S12)</b>						
-10.000557190 dB	50 MHz	-9.99513800 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-10.000631150 dB	100 MHz	-9.98755800 dB	0.013 dB	±0.2 dB	--- pass	0.070 dB
-10.000719550 dB	500 MHz	-9.99054300 dB	0.010 dB	±0.2 dB	--- pass	0.070 dB
-9.9998519420 dB	1000 MHz	-9.989855000 dB	0.010 dB	±0.2 dB	--- pass	0.070 dB
-9.9978287080 dB	2000 MHz	-9.978556000 dB	0.019 dB	±0.2 dB	--- pass	0.070 dB
-9.9990347450 dB	3000 MHz	-9.986179000 dB	0.013 dB	±0.2 dB	--- pass	0.070 dB
-9.9978404190 dB	4000 MHz	-9.978142000 dB	0.020 dB	±0.2 dB	--- pass	0.070 dB
-10.001441630 dB	5000 MHz	-9.98292000 dB	0.019 dB	±0.2 dB	--- pass	0.070 dB
-10.002290860 dB	6000 MHz	-9.98246000 dB	0.020 dB	±0.2 dB	--- pass	0.070 dB
-10.003913850 dB	7000 MHz	-9.99040600 dB	0.014 dB	±0.2 dB	--- pass	0.070 dB
-10.002942170 dB	8000 MHz	-9.98259700 dB	0.020 dB	±0.2 dB	--- pass	0.070 dB
-10.001658590 dB	9000 MHz	-9.98314900 dB	0.019 dB	±0.2 dB	--- pass	0.070 dB
-10.009713050 dB	10000 MHz	-9.98843000 dB	0.021 dB	±0.2 dB	--- pass	0.070 dB
-10.001536630 dB	11000 MHz	-9.99665300 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-10.015259520 dB	12000 MHz	-9.99706600 dB	0.018 dB	±0.2 dB	--- pass	0.070 dB
-10.016653160 dB	13000 MHz	-9.99490700 dB	0.022 dB	±0.2 dB	--- pass	0.070 dB
-10.012599910 dB	14000 MHz	-9.99449300 dB	0.018 dB	±0.2 dB	--- pass	0.070 dB
-10.007198670 dB	15000 MHz	-9.98948700 dB	0.018 dB	±0.2 dB	--- pass	0.070 dB
-10.004383110 dB	16000 MHz	-9.98907500 dB	0.015 dB	±0.2 dB	--- pass	0.070 dB
-10.00523990 dB	17000 MHz	-9.9890750 dB	0.016 dB	±0.2 dB	--- pass	0.070 dB
-9.9948057910 dB	18000 MHz	-9.967209000 dB	0.028 dB	±0.2 dB	--- pass	0.070 dB
-10.00756850 dB	19000 MHz	-9.9963780 dB	0.011 dB	±0.2 dB	--- pass	0.070 dB
-10.009752350 dB	20000 MHz	-9.99725000 dB	0.013 dB	±0.2 dB	--- pass	0.070 dB
-10.018078980 dB	22000 MHz	-9.99918000 dB	0.019 dB	±0.2 dB	--- pass	0.070 dB
-10.020991310 dB	24000 MHz	-10.01595000 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-10.019187410 dB	26000 MHz	-9.99578100 dB	0.023 dB	±0.2 dB	--- pass	0.070 dB
-10.037727140 dB	28000 MHz	-10.03616000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-10.021191750 dB	30000 MHz	-10.00042000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB
-10.053831070 dB	32000 MHz	-10.03441000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB
-10.067755160 dB	34000 MHz	-10.05191000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB
-10.075955440 dB	36000 MHz	-10.08044000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-10.081331290 dB	38000 MHz	-10.08076000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-10.080931350 dB	40000 MHz	-10.06257000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB



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Reference value Bezugswert	Measuring condition Messbedingung	Indicated value UUT Angezeigter Wert UUT	Deviation Abweichung	allowed deviation zulässige Abweichung	Utilization of allowed deviation in % Ausnutzung der zul.	Measuring uncertainty (k=2) Messunsicherheit (k=2)
-19.942937310 dB	50 MHz	20.10010000 dB	-0.157 dB	±0.2 dB	--- pass	0.070 dB
-19.942731150 dB	100 MHz	20.10548000 dB	-0.163 dB	±0.2 dB	--- pass	0.070 dB
-19.942733240 dB	500 MHz	20.09275000 dB	-0.150 dB	±0.2 dB	--- pass	0.070 dB
-19.941908420 dB	1000 MHz	20.09399000 dB	-0.152 dB	±0.2 dB	--- pass	0.070 dB
-19.940809960 dB	2000 MHz	20.08889000 dB	-0.148 dB	±0.2 dB	--- pass	0.070 dB
-19.940731890 dB	3000 MHz	20.09091000 dB	-0.150 dB	±0.2 dB	--- pass	0.070 dB
-19.937967430 dB	4000 MHz	20.07851000 dB	-0.141 dB	±0.2 dB	--- pass	0.070 dB
-19.940678770 dB	5000 MHz	20.07580000 dB	-0.135 dB	±0.2 dB	--- pass	0.070 dB
-19.940266740 dB	6000 MHz	20.06280000 dB	-0.123 dB	±0.2 dB	--- pass	0.070 dB
-19.942190710 dB	7000 MHz	20.05977000 dB	-0.118 dB	±0.2 dB	--- pass	0.070 dB
-19.9394870 dB	8000 MHz	20.043230 dB	-0.104 dB	±0.2 dB	--- pass	0.070 dB
-19.940935460 dB	9000 MHz	20.05348000 dB	-0.113 dB	±0.2 dB	--- pass	0.070 dB
-19.949343880 dB	10000 MHz	20.04434000 dB	-0.095 dB	±0.2 dB	--- pass	0.070 dB
-19.934577660 dB	11000 MHz	20.03193000 dB	-0.097 dB	±0.2 dB	--- pass	0.070 dB
-19.946658850 dB	12000 MHz	20.02771000 dB	-0.081 dB	±0.2 dB	--- pass	0.070 dB
-19.94293620 dB	13000 MHz	20.01554000 dB	-0.073 dB	±0.2 dB	--- pass	0.070 dB
-19.944421180 dB	14000 MHz	20.00653000 dB	-0.062 dB	±0.2 dB	--- pass	0.070 dB
-19.944341270 dB	15000 MHz	20.00166000 dB	-0.057 dB	±0.2 dB	--- pass	0.070 dB
-19.939084580 dB	16000 MHz	19.98205000 dB	-0.043 dB	±0.2 dB	--- pass	0.070 dB
-19.945222180 dB	17000 MHz	20.00199000 dB	-0.057 dB	±0.2 dB	--- pass	0.070 dB
-19.933270080 dB	18000 MHz	19.97553000 dB	-0.042 dB	±0.2 dB	--- pass	0.070 dB
-19.944694190 dB	19000 MHz	19.98880000 dB	-0.044 dB	±0.2 dB	--- pass	0.070 dB
-19.945654320 dB	20000 MHz	19.97645000 dB	-0.031 dB	±0.2 dB	--- pass	0.070 dB
-19.957220960 dB	22000 MHz	19.98486000 dB	-0.028 dB	±0.2 dB	--- pass	0.070 dB
-19.957191610 dB	24000 MHz	19.98306000 dB	-0.026 dB	±0.2 dB	--- pass	0.070 dB
-19.949097240 dB	26000 MHz	19.96630000 dB	-0.017 dB	±0.2 dB	--- pass	0.070 dB
-19.96660150 dB	28000 MHz	19.99000000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-19.935968930 dB	30000 MHz	19.93148000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-19.962264390 dB	32000 MHz	19.96800000 dB	-0.01 dB	±0.2 dB	--- pass	0.10 dB
-19.976874470 dB	34000 MHz	19.99064000 dB	-0.01 dB	±0.2 dB	--- pass	0.10 dB
-19.977372530 dB	36000 MHz	19.98991000 dB	-0.01 dB	±0.2 dB	--- pass	0.10 dB
-19.984434110 dB	38000 MHz	19.98761000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-19.974537910 dB	40000 MHz	19.95559000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB
-30.007846090 dB	50 MHz	29.92574000 dB	0.082 dB	±0.2 dB	--- pass	0.070 dB
-30.007485760 dB	100 MHz	29.99827000 dB	0.009 dB	±0.2 dB	--- pass	0.070 dB
-30.006318780 dB	500 MHz	30.00507000 dB	0.001 dB	±0.2 dB	--- pass	0.070 dB
-30.003541210 dB	1000 MHz	29.99933000 dB	0.004 dB	±0.2 dB	--- pass	0.070 dB
-30.000249160 dB	2000 MHz	29.98982000 dB	0.010 dB	±0.2 dB	--- pass	0.070 dB
-30.004076160 dB	3000 MHz	29.99873000 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-30.000568660 dB	4000 MHz	29.99501000 dB	0.006 dB	±0.2 dB	--- pass	0.070 dB
-30.001658040 dB	5000 MHz	29.99804000 dB	0.004 dB	±0.2 dB	--- pass	0.070 dB
-30.002876560 dB	6000 MHz	29.99317000 dB	0.010 dB	±0.2 dB	--- pass	0.070 dB
-30.005160010 dB	7000 MHz	29.99570000 dB	0.009 dB	±0.2 dB	--- pass	0.070 dB
-30.003099180 dB	8000 MHz	29.98987000 dB	0.013 dB	±0.2 dB	--- pass	0.070 dB



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-30.002766840 dB	9000 MHz	29.99676000 dB	0.006 dB	±0.2 dB	--- pass	0.070 dB
-30.023196340 dB	10000 MHz	30.01095000 dB	0.012 dB	±0.2 dB	--- pass	0.070 dB
-30.016204530 dB	11000 MHz	30.01375000 dB	0.002 dB	±0.2 dB	--- pass	0.070 dB
-30.019129280 dB	12000 MHz	30.02225000 dB	-0.003 dB	±0.2 dB	--- pass	0.070 dB
-30.017304930 dB	13000 MHz	30.00773000 dB	0.010 dB	±0.2 dB	--- pass	0.070 dB
-30.021698570 dB	14000 MHz	30.01062000 dB	0.011 dB	±0.2 dB	--- pass	0.070 dB
-30.021248830 dB	15000 MHz	30.02395000 dB	-0.003 dB	±0.2 dB	--- pass	0.070 dB
-30.018420860 dB	16000 MHz	30.01843000 dB	0.000 dB	±0.2 dB	--- pass	0.070 dB
-30.029383760 dB	17000 MHz	30.03424000 dB	-0.005 dB	±0.2 dB	--- pass	0.070 dB
-30.02842120 dB	18000 MHz	30.02216000 dB	0.006 dB	±0.2 dB	--- pass	0.070 dB
-30.031023380 dB	19000 MHz	30.02785000 dB	0.003 dB	±0.2 dB	--- pass	0.070 dB
-30.031477930 dB	20000 MHz	30.02643000 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-30.053281280 dB	22000 MHz	30.05794000 dB	-0.005 dB	±0.2 dB	--- pass	0.070 dB
-30.056111680 dB	24000 MHz	30.06643000 dB	-0.010 dB	±0.2 dB	--- pass	0.070 dB
-30.083499530 dB	26000 MHz	30.07209000 dB	0.011 dB	±0.2 dB	--- pass	0.070 dB
-30.109711530 dB	28000 MHz	30.13097000 dB	-0.02 dB	±0.2 dB	--- pass	0.10 dB
-30.078501650 dB	30000 MHz	30.06226000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB
-30.122416660 dB	32000 MHz	30.09161000 dB	0.03 dB	±0.2 dB	--- pass	0.10 dB
-30.132376250 dB	34000 MHz	30.13525000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-30.149618830 dB	36000 MHz	30.14425000 dB	0.01 dB	±0.2 dB	--- pass	0.10 dB
-30.152659010 dB	38000 MHz	30.13102000 dB	0.02 dB	±0.2 dB	--- pass	0.10 dB
-30.171593120 dB	40000 MHz	30.13594000 dB	0.04 dB	±0.2 dB	--- pass	0.10 dB
-40.007995350 dB	50 MHz	39.98128000 dB	0.027 dB	±0.5 dB	--- pass	0.070 dB
-40.007612960 dB	100 MHz	39.90016000 dB	0.107 dB	±0.5 dB	--- pass	0.070 dB
-40.006019090 dB	500 MHz	40.01849000 dB	-0.012 dB	±0.5 dB	--- pass	0.070 dB
-40.003513240 dB	1000 MHz	40.00163000 dB	0.002 dB	±0.5 dB	--- pass	0.070 dB
-39.999105180 dB	2000 MHz	39.97747000 dB	0.022 dB	±0.2 dB	--- pass	0.070 dB
-40.001447350 dB	3000 MHz	39.99194000 dB	0.010 dB	±0.2 dB	--- pass	0.070 dB
-39.998909210 dB	4000 MHz	39.99061000 dB	0.008 dB	±0.2 dB	--- pass	0.070 dB
-40.002762220 dB	5000 MHz	39.98955000 dB	0.013 dB	±0.2 dB	--- pass	0.070 dB
-40.005715650 dB	6000 MHz	39.99823000 dB	0.007 dB	±0.2 dB	--- pass	0.070 dB
-40.009061610 dB	7000 MHz	39.99331000 dB	0.016 dB	±0.2 dB	--- pass	0.070 dB
-40.008432450 dB	8000 MHz	39.98096000 dB	0.027 dB	±0.2 dB	--- pass	0.070 dB
-40.006438760 dB	9000 MHz	40.00802000 dB	-0.002 dB	±0.2 dB	--- pass	0.070 dB
-40.023767790 dB	10000 MHz	40.01863000 dB	0.005 dB	±0.2 dB	--- pass	0.070 dB
-40.020146980 dB	11000 MHz	40.03360000 dB	-0.013 dB	±0.2 dB	--- pass	0.070 dB
-40.032903980 dB	12000 MHz	40.01202000 dB	0.021 dB	±0.2 dB	--- pass	0.070 dB
-40.036398240 dB	13000 MHz	40.01509000 dB	0.021 dB	±0.2 dB	--- pass	0.070 dB
-40.03711420 dB	14000 MHz	40.00122000 dB	0.036 dB	±0.2 dB	--- pass	0.070 dB
-40.032394740 dB	15000 MHz	40.02014000 dB	0.012 dB	±0.2 dB	--- pass	0.070 dB
-40.02564820 dB	16000 MHz	40.01145000 dB	0.014 dB	±0.2 dB	--- pass	0.070 dB
-40.028938430 dB	17000 MHz	40.01174000 dB	0.017 dB	±0.2 dB	--- pass	0.070 dB
-40.023095850 dB	18000 MHz	39.98624000 dB	0.037 dB	±0.2 dB	--- pass	0.070 dB
-40.032506950 dB	19000 MHz	39.99966000 dB	0.033 dB	±0.2 dB	--- pass	0.070 dB



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Reference value Bezugswert	Measuring condition Messbedingung	Indicated value UUT Angezeigter Wert UUT	Deviation Abweichung	allowed deviation zulässige Abweichung	Utilization of allowed deviation in % Ausnutzung der zul.	Measuring uncertainty (k=2) Messunsicherheit (k=2)
-40.042041390 dB	20000 MHz	40.01495000 dB	0.027 dB	±0.2 dB	--- pass	0.070 dB
-40.068019870 dB	22000 MHz	40.04894000 dB	0.019 dB	±0.2 dB	--- pass	0.070 dB
-40.082861290 dB	24000 MHz	40.04651000 dB	0.036 dB	±0.2 dB	--- pass	0.070 dB
-40.102205140 dB	26000 MHz	40.01688000 dB	0.085 dB	±0.2 dB	--- pass	0.070 dB
-40.134043770 dB	28000 MHz	40.13673000 dB	0.00 dB	±0.2 dB	--- pass	0.10 dB
-40.123074670 dB	30000 MHz	40.01486000 dB	0.11 dB	±0.2 dB	--- pass	0.10 dB
-40.174000250 dB	32000 MHz	40.13429000 dB	0.04 dB	±0.2 dB	--- pass	0.10 dB
-40.201226650 dB	34000 MHz	40.15014000 dB	0.05 dB	±0.2 dB	--- pass	0.10 dB
-40.223898560 dB	36000 MHz	40.15637000 dB	0.07 dB	±0.2 dB	--- pass	0.10 dB
-40.244529470 dB	38000 MHz	40.20484000 dB	0.04 dB	±0.2 dB	--- pass	0.10 dB
-40.244542260 dB	40000 MHz	40.32334000 dB	-0.08 dB	±0.2 dB	--- pass	0.10 dB
-49.950740560 dB	50 MHz	49.70635000 dB	-0.756 dB	±1.5 dB	--- pass	0.070 dB
-49.950147890 dB	100 MHz	49.98832000 dB	-0.038 dB	±1.5 dB	--- pass	0.070 dB
-49.948674620 dB	500 MHz	49.99962000 dB	-0.051 dB	±1.5 dB	--- pass	0.070 dB
-49.945681920 dB	1000 MHz	49.98372000 dB	-0.038 dB	±1.5 dB	--- pass	0.070 dB
-49.940746250 dB	2000 MHz	49.95148000 dB	-0.011 dB	±0.2 dB	--- pass	0.070 dB
-49.94331630 dB	3000 MHz	49.97366000 dB	-0.030 dB	±0.2 dB	--- pass	0.070 dB
-49.939746810 dB	4000 MHz	49.01060000 dB	-0.071 dB	±0.2 dB	--- pass	0.070 dB
-49.942036010 dB	5000 MHz	49.01858000 dB	-0.077 dB	±0.2 dB	--- pass	0.070 dB
-49.944145320 dB	6000 MHz	49.94812000 dB	-0.004 dB	±0.2 dB	--- pass	0.070 dB
-49.947476030 dB	7000 MHz	49.95290000 dB	-0.005 dB	±0.2 dB	--- pass	0.070 dB
-49.945635660 dB	8000 MHz	49.94013000 dB	0.006 dB	±0.2 dB	--- pass	0.070 dB
-49.943309090 dB	9000 MHz	49.98693000 dB	-0.044 dB	±0.2 dB	--- pass	0.070 dB
-49.961521640 dB	10000 MHz	49.97913000 dB	-0.018 dB	±0.2 dB	--- pass	0.070 dB
-49.955764010 dB	11000 MHz	49.01523000 dB	-0.059 dB	±0.2 dB	--- pass	0.070 dB
-49.963586150 dB	12000 MHz	49.98023000 dB	-0.017 dB	±0.2 dB	--- pass	0.070 dB
-49.964359740 dB	13000 MHz	49.91652000 dB	0.048 dB	±0.2 dB	--- pass	0.070 dB
-49.968979230 dB	14000 MHz	49.90527000 dB	0.064 dB	±0.2 dB	--- pass	0.070 dB
-49.967602570 dB	15000 MHz	49.95056000 dB	0.017 dB	±0.2 dB	--- pass	0.070 dB
-49.961967170 dB	16000 MHz	49.99103000 dB	-0.029 dB	±0.2 dB	--- pass	0.070 dB
-49.966483720 dB	17000 MHz	49.98446000 dB	-0.018 dB	±0.2 dB	--- pass	0.070 dB
-49.96242940 dB	18000 MHz	49.92387000 dB	0.039 dB	±0.2 dB	--- pass	0.070 dB
-49.970741390 dB	19000 MHz	49.92961000 dB	0.041 dB	±0.2 dB	--- pass	0.070 dB
-49.976277590 dB	20000 MHz	49.85943000 dB	0.117 dB	±0.35 dB	--- pass	0.070 dB
-50.004170740 dB	22000 MHz	50.04458000 dB	-0.040 dB	±0.35 dB	--- pass	0.070 dB
-50.018884680 dB	24000 MHz	49.94036000 dB	0.079 dB	±0.35 dB	--- pass	0.070 dB
-50.037284880 dB	26000 MHz	50.00375000 dB	0.034 dB	±0.35 dB	--- pass	0.070 dB
-50.058100590 dB	28000 MHz	50.18803000 dB	-0.13 dB	±0.35 dB	--- pass	0.10 dB
-50.038080130 dB	30000 MHz	50.01358000 dB	0.02 dB	±0.35 dB	--- pass	0.10 dB
-50.089619080 dB	32000 MHz	50.26199000 dB	-0.17 dB	±0.35 dB	--- pass	0.10 dB
-50.102679410 dB	34000 MHz	50.32942000 dB	-0.23 dB	±0.35 dB	--- pass	0.10 dB
-50.124533160 dB	36000 MHz	50.02006000 dB	0.10 dB	±0.35 dB	--- pass	0.10 dB
-50.137385360 dB	38000 MHz	50.15221000 dB	-0.01 dB	±0.35 dB	--- pass	0.10 dB
-50.162092520 dB	40000 MHz	50.28532000 dB	-0.12 dB	±0.35 dB	--- pass	0.10 dB





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-59.950889760 dB	50 MHz	60.98880000 dB	-1.038 dB	±4 dB	--- pass	0.070 dB
-59.950274980 dB	100 MHz	60.35877000 dB	-0.408 dB	±4 dB	--- pass	0.070 dB
-59.948374580 dB	500 MHz	60.17546000 dB	-0.227 dB	±4 dB	--- pass	0.070 dB
-59.945654130 dB	1000 MHz	59.86996000 dB	0.076 dB	±4 dB	--- pass	0.070 dB
-59.939601870 dB	2000 MHz	59.85424000 dB	0.085 dB	±0.35 dB	--- pass	0.070 dB
-59.940687110 dB	3000 MHz	59.81515000 dB	0.126 dB	±0.35 dB	--- pass	0.070 dB
-59.938088720 dB	4000 MHz	59.98349000 dB	-0.045 dB	±0.35 dB	--- pass	0.070 dB
-59.94313870 dB	5000 MHz	60.0152900 dB	-0.072 dB	±0.35 dB	--- pass	0.070 dB
-59.946984890 dB	6000 MHz	59.91837000 dB	0.029 dB	±0.35 dB	--- pass	0.070 dB
-59.951377630 dB	7000 MHz	59.88249000 dB	0.069 dB	±0.35 dB	--- pass	0.070 dB
-59.950970680 dB	8000 MHz	59.84276000 dB	0.108 dB	±0.45 dB	--- pass	0.070 dB
-59.946978910 dB	9000 MHz	59.92723000 dB	0.020 dB	±0.45 dB	--- pass	0.070 dB
-59.962089280 dB	10000 MHz	60.17192000 dB	-0.210 dB	±0.45 dB	--- pass	0.070 dB
-59.959717640 dB	11000 MHz	60.07330000 dB	-0.114 dB	±0.45 dB	--- pass	0.070 dB
-59.977353120 dB	12000 MHz	59.92249000 dB	0.055 dB	±0.45 dB	--- pass	0.070 dB
-59.983450640 dB	13000 MHz	59.89521000 dB	0.088 dB	±0.45 dB	--- pass	0.070 dB
-59.98439850 dB	14000 MHz	60.1124300 dB	-0.128 dB	±0.45 dB	--- pass	0.070 dB
-59.97875280 dB	15000 MHz	59.9708700 dB	0.008 dB	±0.45 dB	--- pass	0.070 dB
-59.969192020 dB	16000 MHz	60.19323000 dB	-0.224 dB	±0.45 dB	--- pass	0.070 dB
-59.966028740 dB	17000 MHz	60.24430000 dB	-0.278 dB	±0.45 dB	--- pass	0.070 dB
-59.957116340 dB	18000 MHz	59.83407000 dB	0.123 dB	±0.45 dB	--- pass	0.070 dB
-59.972223890 dB	19000 MHz	59.88258000 dB	0.090 dB	±0.45 dB	--- pass	0.070 dB
-59.986838050 dB	20000 MHz	59.97271000 dB	0.014 dB	±0.7 dB	--- pass	0.070 dB
-60.018907740 dB	22000 MHz	60.25684000 dB	-0.238 dB	±0.7 dB	--- pass	0.070 dB
-60.045625480 dB	24000 MHz	59.93536000 dB	0.110 dB	±0.7 dB	--- pass	0.070 dB
-60.056001970 dB	26000 MHz	59.90376000 dB	0.152 dB	±0.7 dB	--- pass	0.070 dB
-60.08242030 dB	28000 MHz	60.4267100 dB	-0.34 dB	±0.7 dB	--- pass	0.10 dB
-60.082667150 dB	30000 MHz	59.67464000 dB	0.41 dB	±0.7 dB	--- pass	0.10 dB
-60.141212240 dB	32000 MHz	60.22690000 dB	-0.09 dB	±0.7 dB	--- pass	0.10 dB
-60.171524870 dB	34000 MHz	60.24632000 dB	-0.07 dB	±0.7 dB	--- pass	0.10 dB
-60.19881140 dB	36000 MHz	59.6358300 dB	0.56 dB	±0.7 dB	--- pass	0.10 dB
-60.229253240 dB	38000 MHz	60.07435000 dB	0.15 dB	±0.7 dB	--- pass	0.10 dB
-60.235052350 dB	40000 MHz	59.91147000 dB	0.32 dB	±0.7 dB	--- pass	0.10 dB

allowed deviation in accordance with manufacturer.  
zulässige Abweichung gemäß Herstellerangabe.



# Calibration Certificate Kalibrier-Zertifikat

## MUSTER

Utilization of allowed deviation in % =  $|Deviation| / \text{allowed deviation}$   
Ausnutzung der zul. Abw. in % =  $|Abweichung| / \text{zul. Abw.}$

The indication of the tolerance utilization in % is not applicable for logarithmic units and is invalidated with "---".  
Die Angabe der Toleranzausnutzung in % ist bei logarithmischen Einheiten nicht sinnvoll und wird mit "---" entwertet.