



Kalibrierschein / Calibration certificate



Deutsche
Akkreditierungsstelle
D-K-15070-01-00

erstellt durch das Kalibrierlaboratorium
issued by the calibration laboratory

Testo Industrial Services GmbH
Gewerbestr. 3
79199 Kirchzarten

Kalibrierzeichen
Calibration mark

MUSTER

D-K-
15070-01-00

2024-12

Gegenstand <i>Object</i>	EMI Test Reciever
Hersteller <i>Manufacturer</i>	Rohde & Schwarz GmbH & Co. KG
Typ <i>Type</i>	ESR7
Fabrikat/Serien-Nr. <i>Serial no.</i>	12345
Equipment Nr. <i>Equipment no.</i>	12345678
Prüfmittel Nr. <i>Test equipment no.</i>	1234567
Auftraggeber <i>Customer</i>	Mustermann GmbH
	DE-12345 Musterhausen
Auftragsnummer <i>Order no.</i>	654321
Datum der Kalibrierung <i>Date of calibration</i>	11.12.2024
Datum der Rekalibrierung <i>Date of re-calibration</i>	11.12.2025

Dieser Kalibrierschein dokumentiert die metrologische Rückführbarkeit auf das Internationale 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. Die Messergebnisse beziehen sich nur auf den kalibrierten Gegenstand.

Das Laboratorium gibt keine Empfehlung über das Kalibrierintervall. Für die Festlegung und Einhaltung von Fristen zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

This calibration certificate documents the metrological traceability to the International System of Units (SI). The DAkkS is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates. The measurement results refer only to the calibration object. The laboratory does not make any recommendation about the calibration interval. The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des ausstellenden Kalibrierlaboratoriums.

This calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory.

V 8.03 / DE

Datum der Ausstellung
Date of issue

21.03.2025

Leiter des Kalibrierlaboratoriums
Head of the calibration laboratory

Max Mustermann

Freigabe des Kalibrierscheins durch
Approval of the certificate of calibration by

Max Mustermann

Kalibriergegenstand (KG) Calibration object

Gegenstand Object EMI Test Reciever

Inventar Nr. Inventory no. 123456

Standort Location ---

Kalibrierverfahren Calibration procedure

Die Kalibrierung erfolgte in Anlehnung an VDI/VDE/DGQ/DKD 2622 „Kalibrieren von Messmitteln für elektrische Größen“, Blatt 11 "Spektrumanalysatoren", November 2019.

The calibration was performed in accordance with VDI/VDE/DGQ/DKD 2622 "Calibration of measuring equipment for electrical quantities", Sheet 11 "Spectrum analyzers", November 2019.

Verwendete Kalibrierprozedur Used calibration procedure E:R&S:ESR:kiz:TISSD:SPA:VISA / Rev.: 1.2

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.
N-TYPE CALIBRATION KIT 85054B	15070-01-00	2025-04	E286688	10689466
Switch 11713A			Support Device	10712140
Network Analyzer E5071C	15070-01-00	2025-11	E316989	11198511
3325B Function Generator	GPS locked	---	Support device	11357820
Frequenznormal 910R	GPS locked	---	Support device	11846061
Power Meter E4419B	15070-01-00	2025-11	E314395	12108881
Power Sensor E9304A_H18	15070-01-00	2025-11	E314411	12451933
Multimeter 34401A	15070-01-00	2025-10	E312140	13113580
Frequenzzähler 5335A	ISO	2025-10	Support Device	13118482
Vector Signal Generator SMBV100	15070-01-00	2025-10	E261306	13479661
SMA100B Signal Generator SMA100B	GPS locked	---	Support device	15250917

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

Kalibrierschein vom Calibration certificate dated 21.03.2025

MUSTER
D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Calibration conforms to VDI/VDE/DGQ/DKD 2622 Apr.2022				
Device Identification				
Manufacturer:----->Rohde&Schwarz				
Model:----->ESR-7				
Serial Number:----->1316.3003K07/102330				
Softwarerevision:----->3.48 SP3				
Options: B5,B3,K14,K53,K54,B29,B50				
Internal Calibration Routine				
Self Cal: Pass				
Self Test: Pass				
Function				
Rotary Knob				
Keyboard				
Display				
Clock-Reference				
Internal Frequency Accuracy				
:by Measuring on Ref. Out				
10 MHz Reference Frequency Accuracy (Standard)				
* Drift not tested				
9.99999360 MHz		10.0000000 MHz	0.00000640 MHz	0.12 Hz
Spurious response				
Preamp Off				
-200.00 dBm	16 MHz	-125.3 dBm	74.7 dB	4.5 dB
-200.00 dBm	32 MHz	-121.4 dBm	78.6 dB	4.5 dB
-200.00 dBm	64 MHz	-124.9 dBm	75.1dB	4.5 dB
-200.00 dBm	128 MHz	-123.1dBm	76.9 dB	4.5 dB
-200.00 dBm	256 MHz	-121.3 dBm	78.7 dB	4.5 dB
-200.00 dBm	384 MHz	-121.4 dBm	78.6 dB	4.5 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

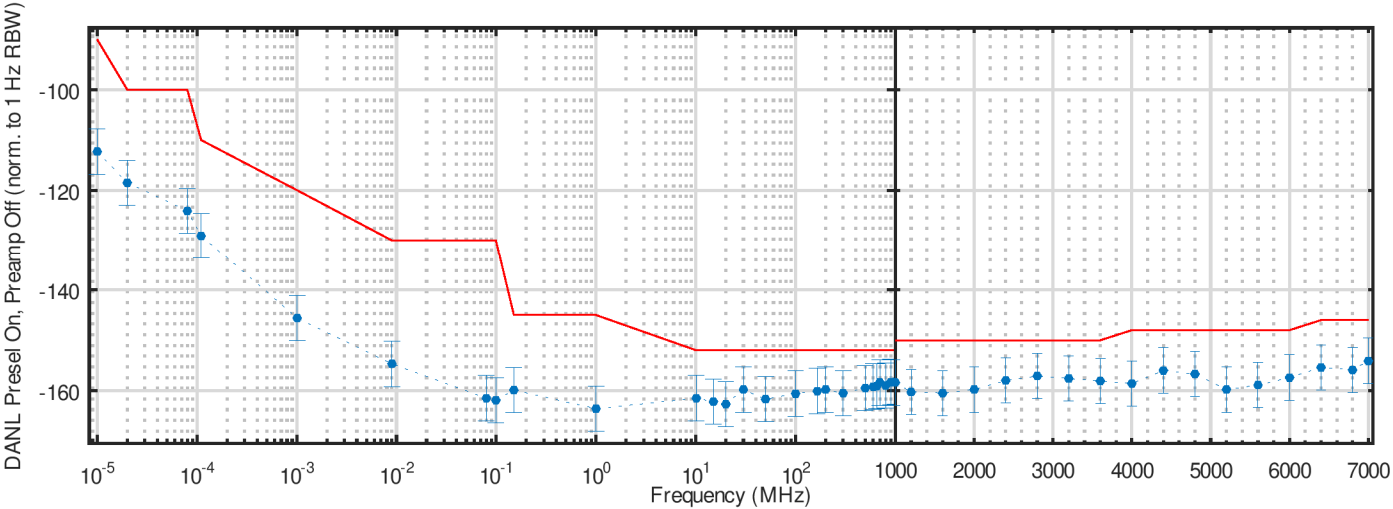
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D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Noise Floor (Presel Off)				
Preamp Off				
normalized to 1 Hz RBW				
-200.00 dBm	1e-005 MHz	-111.3 dBm	88.7 dB	4.5 dB
-200.00 dBm	0.00002 MHz	-115.4 dBm	84.6 dB	4.5 dB
-200.00 dBm	0.00008 MHz	-120.5 dBm	79.5 dB	4.5 dB
-200.00 dBm	0.00011 MHz	-124.7 dBm	75.3 dB	4.5 dB
-200.00 dBm	0.00101 MHz	-137.4 dBm	62.6 dB	4.5 dB
-200.00 dBm	0.009 MHz	-146.7 dBm	53.3 dB	4.5 dB
-200.00 dBm	0.0795 MHz	-153.0 dBm	47.0 dB	4.5 dB
-200.00 dBm	0.099 MHz	-153.8 dBm	46.2 dB	4.5 dB
-200.00 dBm	0.150 MHz	-154.5 dBm	45.5 dB	4.5 dB
-200.00 dBm	0.999 MHz	-157.4 dBm	42.6 dB	4.5 dB
-200.00 dBm	10.1 MHz	-157.8 dBm	42.2 dB	4.5 dB
-200.00 dBm	15 MHz	-157.0 dBm	43.0 dB	4.5 dB
-200.00 dBm	19.99 MHz	-157.3 dBm	42.7 dB	4.5 dB
-200.00 dBm	30 MHz	-154.6 dBm	45.4 dB	4.5 dB
-200.00 dBm	49.99 MHz	-155.8 dBm	44.2 dB	4.5 dB
-200.00 dBm	99.99 MHz	-155.5 dBm	44.5 dB	4.5 dB
-200.00 dBm	165 MHz	-155.1 dBm	44.9 dB	4.5 dB
-200.00 dBm	199.99 MHz	-155.1 dBm	44.9 dB	4.5 dB
-200.00 dBm	300 MHz	-155.4 dBm	44.6 dB	4.5 dB
-200.00 dBm	499.99 MHz	-155.9 dBm	44.1 dB	4.5 dB
-200.00 dBm	599.99 MHz	-155.4 dBm	44.6 dB	4.5 dB
-200.00 dBm	650 MHz	-155.1 dBm	44.9 dB	4.5 dB
-200.00 dBm	699.99 MHz	-154.5 dBm	45.5 dB	4.5 dB
-200.00 dBm	799.99 MHz	-154.5 dBm	45.5 dB	4.5 dB
-200.00 dBm	899.99 MHz	-153.8 dBm	46.2 dB	4.5 dB
-200.00 dBm	999.99 MHz	-154.5 dBm	45.5 dB	4.5 dB
-200.00 dBm	1000 MHz	-154.8 dBm	45.2 dB	4.5 dB
-200.00 dBm	1199.99 MHz	-154.1 dBm	45.9 dB	4.5 dB
-200.00 dBm	1599.99 MHz	-154.3 dBm	45.7 dB	4.5 dB
-200.00 dBm	1999.99 MHz	-154.6 dBm	45.4 dB	4.5 dB
-200.00 dBm	2399.99 MHz	-154.0 dBm	46.0 dB	4.5 dB
-200.00 dBm	2799.99 MHz	-154.2 dBm	45.8 dB	4.5 dB
-200.00 dBm	3199.99 MHz	-152.5 dBm	47.5 dB	4.5 dB
-200.00 dBm	3599.99 MHz	-152.7 dBm	47.3 dB	4.5 dB
-200.00 dBm	3999.99 MHz	-152.7 dBm	47.3 dB	4.5 dB
-200.00 dBm	4399.99 MHz	-151.5 dBm	48.5 dB	4.5 dB
-200.00 dBm	4799.99 MHz	-152.2 dBm	47.8 dB	4.5 dB
-200.00 dBm	5199.99 MHz	-151.5 dBm	48.5 dB	4.5 dB
-200.00 dBm	5599.99 MHz	-150.8 dBm	49.2 dB	4.5 dB
-200.00 dBm	5999.99 MHz	-150.2 dBm	49.8 dB	4.5 dB
-200.00 dBm	6399.99 MHz	-150.3 dBm	49.7 dB	4.5 dB
-200.00 dBm	6799.99 MHz	-149.6 dBm	50.4 dB	4.5 dB
-200.00 dBm	6999 MHz	-149.2 dBm	50.8 dB	4.5 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
P:\Zertifikate_ISO\METCAL_Diagramme\16050906_DANL_ESR_2024.12.10_0945_44.png				
Noise Floor (Presel On) Preamp Off normalized to 1 Hz RBW				
-200.00 dBm	1e-005 MHz	-112.3 dBm	87.7 dB	4.5 dB
-200.00 dBm	0.00002 MHz	-118.5 dBm	81.5 dB	4.5 dB
-200.00 dBm	0.00008 MHz	-124.1 dBm	75.9 dB	4.5 dB
-200.00 dBm	0.00011 MHz	-129.1 dBm	70.9 dB	4.5 dB
-200.00 dBm	0.00101 MHz	-145.6 dBm	54.4 dB	4.5 dB
-200.00 dBm	0.009 MHz	-154.7 dBm	45.3 dB	4.5 dB
-200.00 dBm	0.0795 MHz	-161.5 dBm	38.5 dB	4.5 dB
-200.00 dBm	0.099 MHz	-161.9 dBm	38.1 dB	4.5 dB
-200.00 dBm	0.150 MHz	-159.9 dBm	40.1 dB	4.5 dB
-200.00 dBm	0.999 MHz	-163.6 dBm	36.4 dB	4.5 dB
-200.00 dBm	10.1 MHz	-161.5 dBm	38.5 dB	4.5 dB
-200.00 dBm	15 MHz	-162.2 dBm	37.8 dB	4.5 dB
-200.00 dBm	19.99 MHz	-162.7 dBm	37.3 dB	4.5 dB
-200.00 dBm	30 MHz	-159.8 dBm	40.2 dB	4.5 dB
-200.00 dBm	49.99 MHz	-161.7 dBm	38.3 dB	4.5 dB
-200.00 dBm	99.99 MHz	-160.6 dBm	39.4 dB	4.5 dB
-200.00 dBm	165 MHz	-160.1 dBm	39.9 dB	4.5 dB
-200.00 dBm	199.99 MHz	-159.8 dBm	40.2 dB	4.5 dB
-200.00 dBm	300 MHz	-160.5 dBm	39.5 dB	4.5 dB
-200.00 dBm	499.99 MHz	-159.5 dBm	40.5 dB	4.5 dB
-200.00 dBm	599.99 MHz	-159.2 dBm	40.8 dB	4.5 dB
-200.00 dBm	650 MHz	-159.1 dBm	40.9 dB	4.5 dB
-200.00 dBm	699.99 MHz	-158.4 dBm	41.6 dB	4.5 dB
-200.00 dBm	799.99 MHz	-159.0 dBm	41.0 dB	4.5 dB
-200.00 dBm	899.99 MHz	-158.3 dBm	41.7 dB	4.5 dB
-200.00 dBm	999.99 MHz	-158.2 dBm	41.8 dB	4.5 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
-200.00 dBm	1000 MHz	-158.4 dBm	41.6 dB	4.5 dB
-200.00 dBm	1199.99 MHz	-160.3 dBm	39.7 dB	4.5 dB
-200.00 dBm	1599.99 MHz	-160.5 dBm	39.5 dB	4.5 dB
-200.00 dBm	1999.99 MHz	-159.8 dBm	40.2 dB	4.5 dB
-200.00 dBm	2399.99 MHz	-158.0 dBm	42.0 dB	4.5 dB
-200.00 dBm	2799.99 MHz	-157.1 dBm	42.9 dB	4.5 dB
-200.00 dBm	3199.99 MHz	-157.6 dBm	42.4 dB	4.5 dB
-200.00 dBm	3599.99 MHz	-158.1 dBm	41.9 dB	4.5 dB
-200.00 dBm	3999.99 MHz	-158.6 dBm	41.4 dB	4.5 dB
-200.00 dBm	4399.99 MHz	-156.0 dBm	44.0 dB	4.5 dB
-200.00 dBm	4799.99 MHz	-156.7 dBm	43.3 dB	4.5 dB
-200.00 dBm	5199.99 MHz	-159.8 dBm	40.2 dB	4.5 dB
-200.00 dBm	5599.99 MHz	-158.9 dBm	41.1 dB	4.5 dB
-200.00 dBm	5999.99 MHz	-157.4 dBm	42.6 dB	4.5 dB
-200.00 dBm	6399.99 MHz	-155.4 dBm	44.6 dB	4.5 dB
-200.00 dBm	6799.99 MHz	-155.9 dBm	44.1 dB	4.5 dB
-200.00 dBm	6999 MHz	-154.1 dBm	45.9 dB	4.5 dB



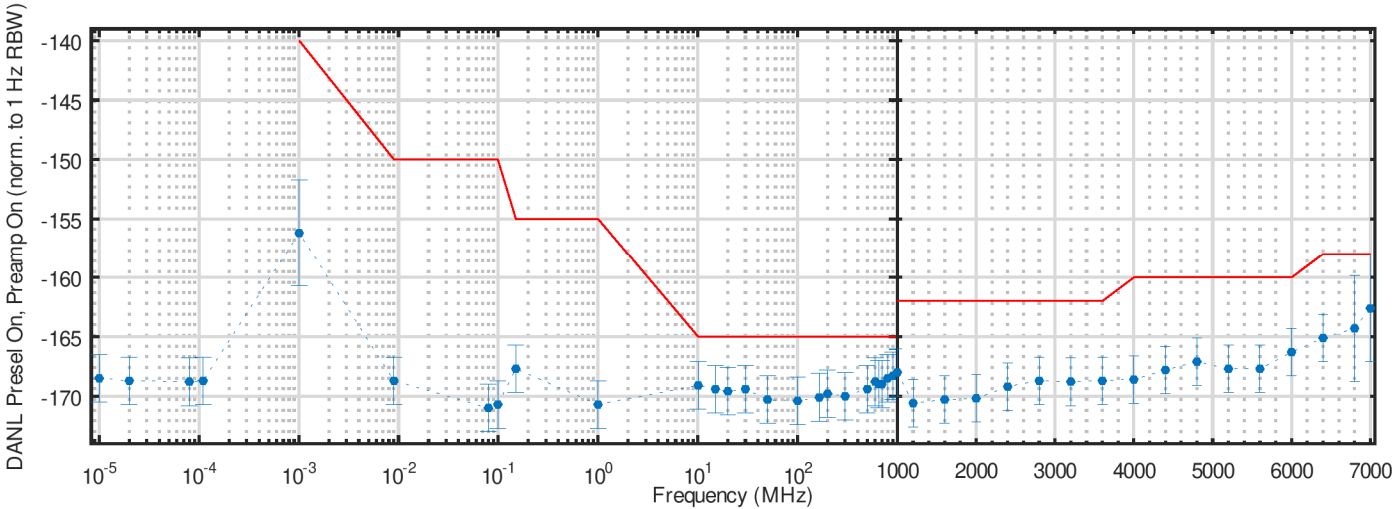
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Noise Floor (Presel On)
Preamp ON
normalized to 1 Hz RBW

*	-200.00 dBm	1e-005 MHz	-168.5 dBm	31.5 dB	2.0 dB
*	-200.00 dBm	0.00002 MHz	-168.7 dBm	31.3 dB	2.0 dB
*	-200.00 dBm	0.00008 MHz	-168.8 dBm	31.2 dB	2.0 dB
*	-200.00 dBm	0.00011 MHz	-168.7 dBm	31.3 dB	2.0 dB
*	-200.00 dBm	0.00101 MHz	-156.2 dBm	43.8 dB	4.5 dB
*	-200.00 dBm	0.009 MHz	-168.7 dBm	31.3 dB	2.0 dB
*	-200.00 dBm	0.0795 MHz	-171.0 dBm	29.0 dB	2.0 dB
*	-200.00 dBm	0.099 MHz	-170.7 dBm	29.3 dB	2.0 dB
*	-200.00 dBm	0.150 MHz	-167.7 dBm	32.3 dB	2.0 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
* -200.00 dBm	0.999 MHz	-170.7 dBm	29.3 dB	2.0 dB
* -200.00 dBm	10.1 MHz	-169.1 dBm	30.9 dB	2.0 dB
* -200.00 dBm	15 MHz	-169.4 dBm	30.6 dB	2.0 dB
* -200.00 dBm	19.99 MHz	-169.6 dBm	30.4 dB	2.0 dB
* -200.00 dBm	30 MHz	-169.4 dBm	30.6 dB	2.0 dB
* -200.00 dBm	49.99 MHz	-170.3 dBm	29.7 dB	2.0 dB
* -200.00 dBm	99.99 MHz	-170.4 dBm	29.6 dB	2.0 dB
* -200.00 dBm	165 MHz	-170.1 dBm	29.9 dB	2.0 dB
* -200.00 dBm	199.99 MHz	-169.8 dBm	30.2 dB	2.0 dB
* -200.00 dBm	300 MHz	-170.0 dBm	30.0 dB	2.0 dB
* -200.00 dBm	499.99 MHz	-169.4 dBm	30.6 dB	2.0 dB
* -200.00 dBm	599.99 MHz	-168.8 dBm	31.2 dB	2.0 dB
* -200.00 dBm	650 MHz	-169.0 dBm	31.0 dB	2.0 dB
* -200.00 dBm	699.99 MHz	-169.0 dBm	31.0 dB	2.0 dB
* -200.00 dBm	799.99 MHz	-168.5 dBm	31.5 dB	2.0 dB
* -200.00 dBm	899.99 MHz	-168.3 dBm	31.7 dB	2.0 dB
* -200.00 dBm	999.99 MHz	-168.1 dBm	31.9 dB	2.0 dB
* -200.00 dBm	1000 MHz	-168.0 dBm	32.0 dB	2.0 dB
* -200.00 dBm	1199.99 MHz	-170.6 dBm	29.4 dB	2.0 dB
* -200.00 dBm	1599.99 MHz	-170.3 dBm	29.7 dB	2.0 dB
* -200.00 dBm	1999.99 MHz	-170.2 dBm	29.8 dB	2.0 dB
* -200.00 dBm	2399.99 MHz	-169.2 dBm	30.8 dB	2.0 dB
* -200.00 dBm	2799.99 MHz	-168.7 dBm	31.3 dB	2.0 dB
* -200.00 dBm	3199.99 MHz	-168.8 dBm	31.2 dB	2.0 dB
* -200.00 dBm	3599.99 MHz	-168.7 dBm	31.3 dB	2.0 dB
* -200.00 dBm	3999.99 MHz	-168.6 dBm	31.4 dB	2.0 dB
* -200.00 dBm	4399.99 MHz	-167.8 dBm	32.2 dB	2.0 dB
* -200.00 dBm	4799.99 MHz	-167.1 dBm	32.9 dB	2.0 dB
* -200.00 dBm	5199.99 MHz	-167.7 dBm	32.3 dB	2.0 dB
* -200.00 dBm	5599.99 MHz	-167.7 dBm	32.3 dB	2.0 dB
* -200.00 dBm	5999.99 MHz	-166.3 dBm	33.7 dB	2.0 dB
* -200.00 dBm	6399.99 MHz	-165.1 dBm	34.9 dB	2.0 dB
* -200.00 dBm	6799.99 MHz	-164.3 dBm	35.7 dB	4.5 dB
* -200.00 dBm	6999 MHz	-162.6 dBm	37.4 dB	4.5 dB



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Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Input Attenuator Switching Uncertainty				
Input Attenuator = 10 dB (REF), Ref Level = -35 dBm				
@ Frequency 128.1 MHz				
-9.797 dB	0 dB	-9.84 dB	-0.04 dB	0.13 dB
-4.975 dB	5 dB	-4.80 dB	0.17 dB	0.13 dB
0.000 dB	10 dB	0.02 dB	0.02 dB	0.13 dB
4.984 dB	15 dB	5.16 dB	0.18 dB	0.13 dB
9.959 dB	20 dB	10.04 dB	0.081 dB	0.070 dB
14.938 dB	25 dB	15.13 dB	0.192 dB	0.070 dB
19.912 dB	30 dB	20.02 dB	0.108 dB	0.070 dB
29.957 dB	40 dB	30.06 dB	0.103 dB	0.070 dB
39.881 dB	50 dB	39.97 dB	0.089 dB	0.070 dB
49.929 dB	60 dB	50.05 dB	0.121 dB	0.070 dB
59.867 dB	70 dB	59.79 dB	-0.077 dB	0.070 dB
Immunity to interference (input level -10 dBm)				
(1st, 2nd and 3rd image, 2nd and 3rd IF rejection)				
f_center 101 MHz, freq of interfer signal 1560.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-117.01 dBc	83.0 dB	4.0 dB
f_center 1799 MHz, freq of interfer signal 3258.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-117.34 dBc	82.7 dB	4.0 dB
f_center 3599 MHz, freq of interfer signal 5058.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-116.19 dBc	83.8 dB	4.0 dB
f_center 5299 MHz, freq of interfer signal 6758.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-115.61 dBc	84.4 dB	4.0 dB
f_center 6999 MHz, freq of interfer signal 8458.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-112.16 dBc	87.8 dB	4.0 dB
f_center 101 MHz, freq of interfer signal 280.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-118.32 dBc	81.7 dB	4.0 dB
f_center 3599 MHz, freq of interfer signal 3778.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-115.09 dBc	84.9 dB	4.0 dB
f_center 6999 MHz, freq of interfer signal 7178.8 MHz (Tol. -80 dBc)				
* -200.000 dBc		-111.40 dBc	88.6 dB	4.0 dB
f_center 101 MHz, freq of interfer signal 729.9 MHz (Tol. -80 dBc)				
* -200.000 dBc		-116.73 dBc	83.3 dB	4.0 dB
f_center 3599 MHz, freq of interfer signal 729.9 MHz (Tol. -80 dBc)				
* -200.000 dBc		-115.75 dBc	84.3 dB	4.0 dB
f_center 5299 MHz, freq of interfer signal 729.9 MHz (Tol. -80 dBc)				
* -200.000 dBc		-115.43 dBc	84.6 dB	4.0 dB
f_center 6999 MHz, freq of interfer signal 729.9 MHz (Tol. -80 dBc)				
* -200.000 dBc		-111.73 dBc	88.3 dB	4.0 dB
f_center 1001 MHz, freq of interfer signal 89.9 MHz (Tol. -80 dBc)				
* -200.000 dBc		-115.44 dBc	84.6 dB	4.0 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
3rd order intercept point (2x -15 dBm at 100 kHz separation)				
Preamp off / Presel off				
30.000 dBm	10 MHz	34.30 dBm	4.3 dB	4.5 dB
30.000 dBm	20 MHz	33.80 dBm	3.8 dB	4.5 dB
30.000 dBm	40 MHz	18.50 dBm	-11.5 dB	1.5 dB
30.000 dBm	45 MHz	18.50 dBm	-11.5 dB	1.5 dB
30.000 dBm	50 MHz	18.70 dBm	-11.3 dB	1.5 dB
30.000 dBm	100 MHz	18.80 dBm	-11.2 dB	1.5 dB
30.000 dBm	500 MHz	32.50 dBm	2.5 dB	4.5 dB
30.000 dBm	1000 MHz	20.00 dBm	-10.0 dB	1.5 dB
30.000 dBm	1500 MHz	22.00 dBm	-8.0 dB	1.5 dB
30.000 dBm	2000 MHz	21.60 dBm	-8.4 dB	1.5 dB
30.000 dBm	2500 MHz	21.10 dBm	-8.9 dB	1.5 dB
30.000 dBm	3000 MHz	31.00 dBm	1.0 dB	4.5 dB
30.000 dBm	3500 MHz	22.00 dBm	-8.0 dB	1.5 dB
30.000 dBm	4000 MHz	31.10 dBm	1.1 dB	4.5 dB
30.000 dBm	4500 MHz	21.40 dBm	-8.6 dB	1.5 dB
30.000 dBm	5000 MHz	21.50 dBm	-8.5 dB	1.5 dB
30.000 dBm	5500 MHz	24.80 dBm	-5.2 dB	1.5 dB
30.000 dBm	6000 MHz	22.90 dBm	-7.1 dB	1.5 dB
30.000 dBm	6500 MHz	26.10 dBm	-3.9 dB	1.5 dB
30.000 dBm	6999 MHz	24.30 dBm	-5.7 dB	1.5 dB

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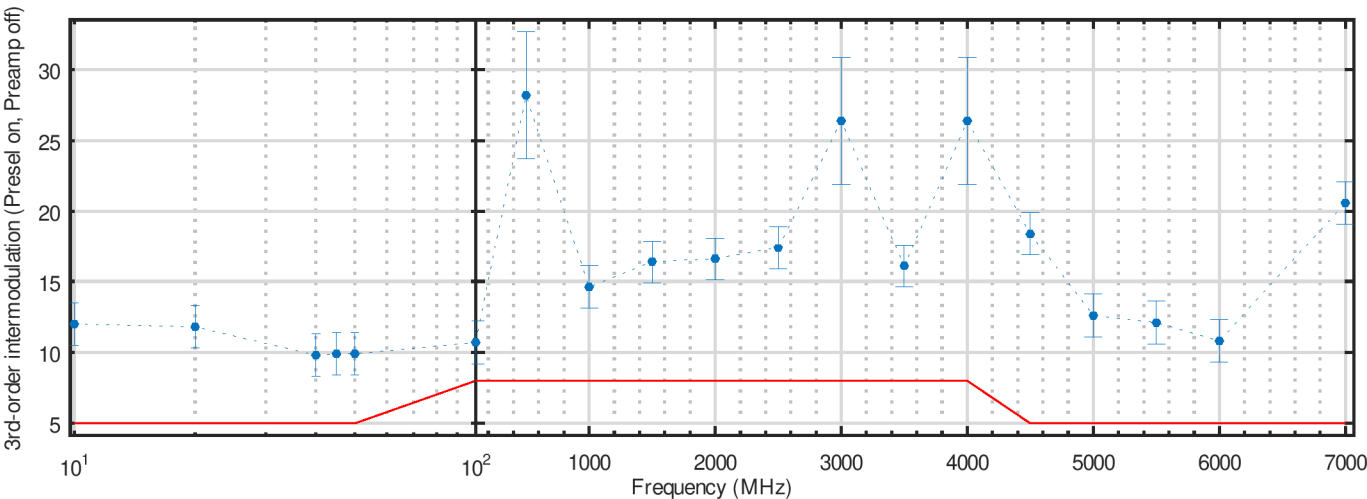
3rd order intercept point (2x -20 dBm at 100 kHz separation)

Presel On, Preamp off

30.000 dBm	10 MHz	12.00 dBm	-18.0 dB	1.5 dB
30.000 dBm	20 MHz	11.80 dBm	-18.2 dB	1.5 dB
30.000 dBm	40 MHz	9.80 dBm	-20.2 dB	1.5 dB
30.000 dBm	45 MHz	9.90 dBm	-20.1 dB	1.5 dB
30.000 dBm	50 MHz	9.90 dBm	-20.1 dB	1.5 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
30.000 dBm	100 MHz	10.70 dBm	-19.3 dB	1.5 dB
30.000 dBm	500 MHz	28.20 dBm	-1.8 dB	4.5 dB
30.000 dBm	1000 MHz	14.60 dBm	-15.4 dB	1.5 dB
30.000 dBm	1500 MHz	16.40 dBm	-13.6 dB	1.5 dB
30.000 dBm	2000 MHz	16.60 dBm	-13.4 dB	1.5 dB
30.000 dBm	2500 MHz	17.40 dBm	-12.6 dB	1.5 dB
30.000 dBm	3000 MHz	26.40 dBm	-3.6 dB	4.5 dB
30.000 dBm	3500 MHz	16.10 dBm	-13.9 dB	1.5 dB
30.000 dBm	4000 MHz	26.40 dBm	-3.6 dB	4.5 dB
30.000 dBm	4500 MHz	18.40 dBm	-11.6 dB	1.5 dB
30.000 dBm	5000 MHz	12.60 dBm	-17.4 dB	1.5 dB
30.000 dBm	5500 MHz	12.10 dBm	-17.9 dB	1.5 dB
30.000 dBm	6000 MHz	10.80 dBm	-19.2 dB	1.5 dB
30.000 dBm	6500 MHz	21.40 dBm	-8.6 dB	1.5 dB
30.000 dBm	6999 MHz	20.60 dBm	-9.4 dB	1.5 dB



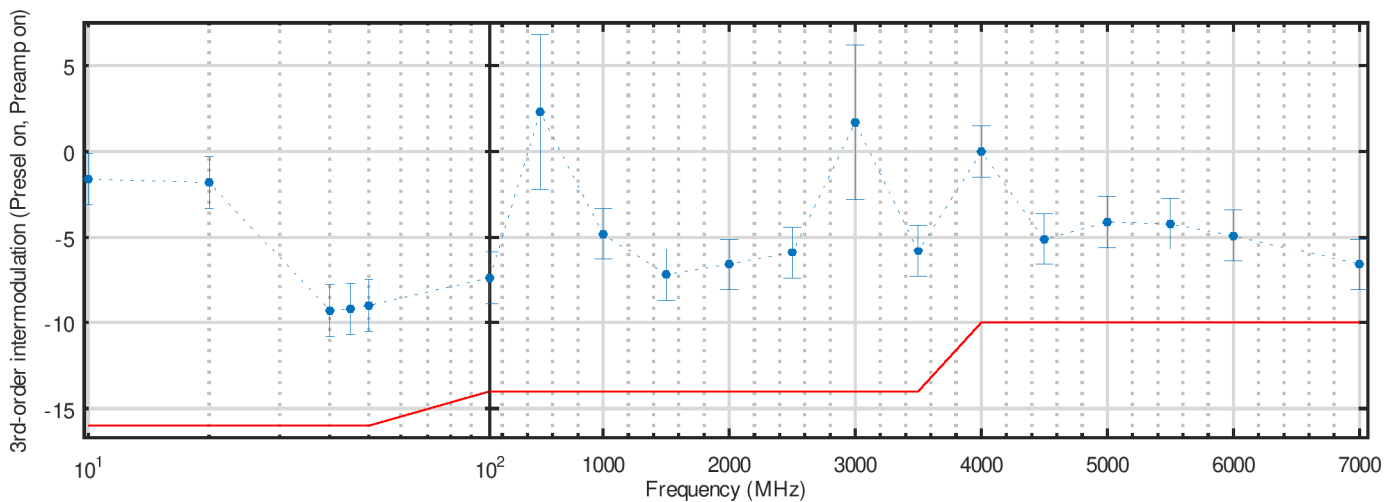
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3rd order intercept point (2x -45 dBm at 100 kHz separation)

Presel On, Preamp On

30.000 dBm	10 MHz	-1.60 dBm	-31.6 dB	1.5 dB
30.000 dBm	20 MHz	-1.80 dBm	-31.8 dB	1.5 dB
30.000 dBm	40 MHz	-9.30 dBm	-39.3 dB	1.5 dB
30.000 dBm	45 MHz	-9.20 dBm	-39.2 dB	1.5 dB
30.000 dBm	50 MHz	-9.00 dBm	-39.0 dB	1.5 dB
30.000 dBm	100 MHz	-7.40 dBm	-37.4 dB	1.5 dB
30.000 dBm	500 MHz	2.30 dBm	-27.7 dB	4.5 dB
30.000 dBm	1000 MHz	-4.80 dBm	-34.8 dB	1.5 dB
30.000 dBm	1500 MHz	-7.20 dBm	-37.2 dB	1.5 dB
30.000 dBm	2000 MHz	-6.60 dBm	-36.6 dB	1.5 dB
30.000 dBm	2500 MHz	-5.90 dBm	-35.9 dB	1.5 dB
30.000 dBm	3000 MHz	1.70 dBm	-28.3 dB	4.5 dB
30.000 dBm	3500 MHz	-5.80 dBm	-35.8 dB	1.5 dB
30.000 dBm	4000 MHz	0.00 dBm	-30.0 dB	1.5 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
30.000 dBm	4500 MHz	-5.10 dBm	-35.1dB	1.5 dB
30.000 dBm	5000 MHz	-4.10 dBm	-34.1dB	1.5 dB
30.000 dBm	5500 MHz	-4.20 dBm	-34.2 dB	1.5 dB
30.000 dBm	6000 MHz	-4.90 dBm	-34.9 dB	1.5 dB
30.000 dBm	6500 MHz	-4.40 dBm	-34.4 dB	1.5 dB
30.000 dBm	6999 MHz	-6.60 dBm	-36.6 dB	1.5 dB



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2nd harmonic intercept (SHI 2x -10 dBm at 100 kHz separation)

only nominal

Preamp off

100.000 dBm	100 MHz	50.54 dBm	-49.5 dB	1.5 dB
100.000 dBm	500 MHz	68.13 dBm	-31.9 dB	1.5 dB
100.000 dBm	1000 MHz	82.13 dBm	-17.9 dB	4.0 dB
100.000 dBm	1500 MHz	71.58 dBm	-28.4 dB	4.5 dB
100.000 dBm	2000 MHz	78.16 dBm	-21.8 dB	4.5 dB
100.000 dBm	2500 MHz	80.25 dBm	-19.8 dB	4.0 dB
100.000 dBm	3000 MHz	80.52 dBm	-19.5 dB	4.0 dB
100.000 dBm	3499.5 MHz	75.77 dBm	-24.2 dB	4.5 dB

RBW switching uncertainty

Filters: 3 dB Sweep Filters, Relative to 10 kHz @ 64 MHz

Preamp Off, Detector RMS

0.000 dB	0.1 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	1 kHz	0.00 dB	0.000 dB	0.012 dB
0.000 dB	10 kHz	-0.00 dB	0.000 dB	0.012 dB
0.000 dB	100 kHz	-0.05 dB	-0.050 dB	0.012 dB
0.000 dB	200 kHz	-0.05 dB	-0.050 dB	0.012 dB
0.000 dB	300 kHz	-0.05 dB	-0.050 dB	0.012 dB
0.000 dB	500 kHz	-0.05 dB	-0.050 dB	0.012 dB
0.000 dB	1000 kHz	-0.05 dB	-0.050 dB	0.012 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

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Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	2000 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	3000 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	5000 kHz	-0.03 dB	-0.030 dB	0.012 dB
0.000 dB	10000 kHz	-0.04 dB	-0.040 dB	0.012 dB
0.000 dB	20000 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	28000 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	40000 kHz	-0.02 dB	-0.020 dB	0.012 dB
RBW switching uncertainty				
Filters: FFT Filters, Relative to 10 kHz @ 64 MHz (sweep mode)				
Preamp Off, Detector RMS				
0.000 dB	0.1 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	1 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	10 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	100 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	200 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	300 kHz	-0.01 dB	-0.010 dB	0.012 dB
RBW switching uncertainty				
Filters: EMI Filters (Sweep mode), Relative to 10 kHz @ 64 MHz (normal mode)				
Preamp Off, Detector RMS				
0.000 dB	0.01 kHz	0.01 dB	0.010 dB	0.012 dB
0.000 dB	0.1 kHz	0.01 dB	0.010 dB	0.012 dB
0.000 dB	0.2 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	1 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	9 kHz	0.00 dB	0.000 dB	0.012 dB
0.000 dB	10 kHz	-0.00 dB	0.000 dB	0.012 dB
0.000 dB	100 kHz	-0.05 dB	-0.050 dB	0.012 dB
0.000 dB	120 kHz	-0.05 dB	-0.050 dB	0.012 dB
0.000 dB	1000 kHz	-0.05 dB	-0.050 dB	0.012 dB
RBW switching uncertainty				
Filters: EMI Filters (FFT mode), Relative to 10 kHz @ 64 MHz (sweep mode)				
Preamp Off, Detector RMS				
0.000 dB	0.01 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	0.1 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	0.2 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	1 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	9 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	10 kHz	-0.02 dB	-0.020 dB	0.012 dB
0.000 dB	100 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	120 kHz	-0.01 dB	-0.010 dB	0.012 dB
0.000 dB	1000 kHz	-0.01 dB	-0.010 dB	0.012 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Bandwidth of the selection filter (-3dB normal)				
0.10000 kHz		0.0990 kHz	-0.00100 kHz	0.50 Hz
1.00000 kHz		0.9942 kHz	-0.0058 kHz	5.0 Hz
10.00000 kHz		9.8990 kHz	-0.101kHz	50 Hz
100.00000 kHz		98.9900 kHz	-1.01kHz	500 Hz
200.00000 kHz		197.9700 kHz	-2.0 kHz	1.0 kHz
300.00000 kHz		297.0000 kHz	-3.0 kHz	1.5 kHz
500.00000 kHz		494.9000 kHz	-5.1kHz	2.5 kHz
1000.00000 kHz		989.9000 kHz	-10.1kHz	5.0 kHz
2000.00000 kHz		1988.4000 kHz	-11.60 kHz	10 kHz
3000.00000 kHz		2944.0000 kHz	-56.00 kHz	15 kHz
5000.00000 kHz		5058.0000 kHz	58.00 kHz	25 kHz
10000.00000 kHz		10159.0000 kHz	159.00 kHz	50 kHz
IF Filter Shape Factor 60dB:3dB (Sweep Filter)				
1.0000	0.1 kHz	3.860	2.860	0.010
1.0000	1 kHz	3.814	2.814	0.010
1.0000	10 kHz	3.860	2.860	0.010
1.0000	100 kHz	3.860	2.860	0.010
1.0000	200 kHz	3.860	2.860	0.010
1.0000	300 kHz	3.859	2.859	0.010
1.0000	500 kHz	3.859	2.859	0.010
1.0000	1000 kHz	3.860	2.860	0.010
1.0000	2000 kHz	3.843	2.843	0.010
1.0000	3000 kHz	4.572	3.572	0.010
1.0000	5000 kHz	4.435	3.435	0.010
1.0000	10000 kHz	4.160	3.160	0.010
Bandwidth of the EMI filter (6 dB)				
0.010000 kHz		0.00990 kHz	-0.000100 kHz	50 mHz
0.100000 kHz		0.09899 kHz	-0.00101 kHz	0.50 Hz
0.200000 kHz		0.19797 kHz	-0.0020 kHz	1.0 Hz
1.000000 kHz		0.98990 kHz	-0.0101 kHz	5.0 Hz
9.000000 kHz		8.90900 kHz	-0.091 kHz	45 Hz
10.000000 kHz		9.89900 kHz	-0.101 kHz	50 Hz
100.000000 kHz		98.99000 kHz	-1.01 kHz	500 Hz
120.000000 kHz		118.78000 kHz	-1.22 kHz	600 Hz
1000.000000 kHz		989.90000 kHz	-10.1 kHz	5.0 kHz
Shape Factor EMI 60dB:6dB (Sweep Filter)				
1.0000	0.01 kHz	2.690	1.690	0.010
1.0000	0.1 kHz	2.690	1.690	0.010
1.0000	0.2 kHz	2.690	1.690	0.010

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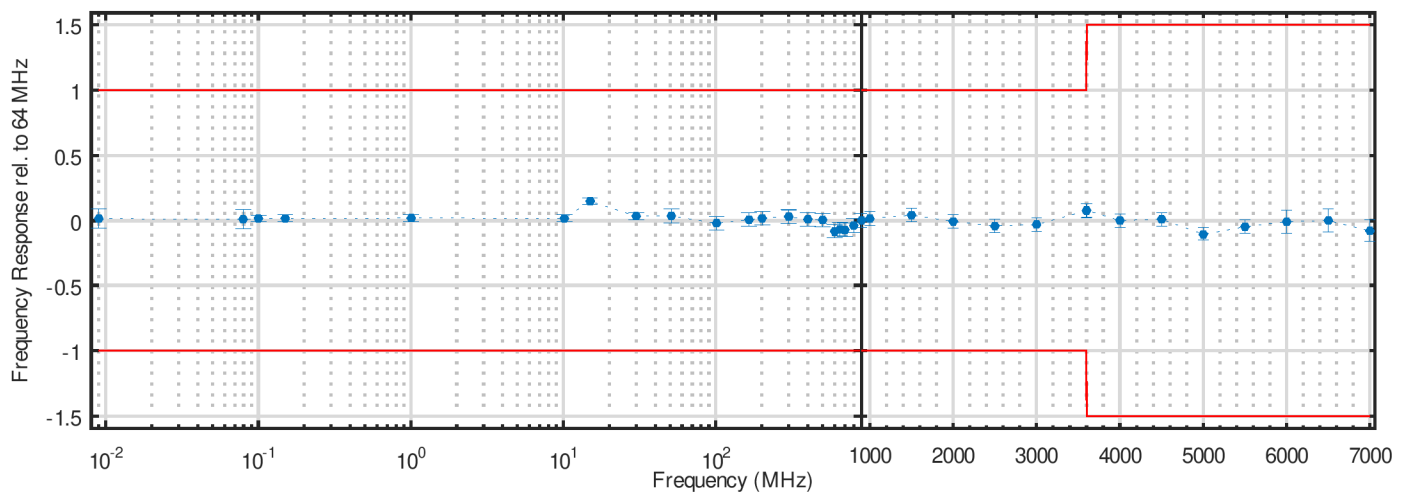
Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
1.0000	1 kHz	2.690	1.690	0.010
1.0000	9 kHz	2.691	1.691	0.010
1.0000	10 kHz	2.690	1.690	0.010
1.0000	100 kHz	2.690	1.690	0.010
1.0000	120 kHz	2.690	1.690	0.010
1.0000	1000 kHz	2.690	1.690	0.010
Reference Level Accuracy				
tolerance by lab.				
9.938 dB	0 dB	9.94 dB	0.002 dB	0.070 dB
0.000 dB	-10 dB	-0.00 dB	0.000 dB	0.070 dB
-10.048 dB	-20 dB	-10.04 dB	0.008 dB	0.070 dB
-19.972 dB	-30 dB	-19.97 dB	0.002 dB	0.070 dB
-30.017 dB	-40 dB	-30.02 dB	-0.003 dB	0.070 dB
-39.970 dB	-50 dB	-39.97 dB	0.000 dB	0.070 dB
-49.929 dB	-60 dB	-50.02 dB	-0.09 dB	0.13 dB
Display linearity (10 kHz digital)				
Log. scaling @ 128.1 MHz, 0 dBm Ref Level (10 dB att.)				
10.036 dB	-0 dBm	9.99 dB	-0.046 dB	0.070 dB
8.090 dB	-2 dBm	8.07 dB	-0.020 dB	0.070 dB
6.060 dB	-4 dBm	6.05 dB	-0.010 dB	0.070 dB
4.113 dB	-6 dBm	4.11 dB	-0.003 dB	0.070 dB
2.091 dB	-8 dBm	2.09 dB	-0.001 dB	0.070 dB
0.000 dB	-10 dBm	0.00 dB	0.000 dB	0.070 dB
-1.946 dB	-12 dBm	-1.95 dB	-0.004 dB	0.070 dB
-3.976 dB	-14 dBm	-3.97 dB	0.006 dB	0.070 dB
-5.923 dB	-16 dBm	-5.92 dB	0.003 dB	0.070 dB
-7.945 dB	-18 dBm	-7.95 dB	-0.005 dB	0.070 dB
-9.938 dB	-20 dBm	-9.93 dB	0.008 dB	0.070 dB
-11.884 dB	-22 dBm	-11.88 dB	0.004 dB	0.070 dB
-13.913 dB	-24 dBm	-13.91 dB	0.003 dB	0.070 dB
-15.861 dB	-26 dBm	-15.86 dB	0.001 dB	0.070 dB
-17.883 dB	-28 dBm	-17.89 dB	-0.007 dB	0.070 dB
-19.986 dB	-30 dBm	-19.97 dB	0.016 dB	0.070 dB
-21.932 dB	-32 dBm	-21.92 dB	0.012 dB	0.070 dB
-23.962 dB	-34 dBm	-23.95 dB	0.012 dB	0.070 dB
-25.909 dB	-36 dBm	-25.90 dB	0.009 dB	0.070 dB
-27.931 dB	-38 dBm	-27.93 dB	0.001 dB	0.070 dB
-29.910 dB	-40 dBm	-29.90 dB	0.010 dB	0.070 dB
-31.856 dB	-42 dBm	-31.85 dB	0.006 dB	0.070 dB
-33.886 dB	-44 dBm	-33.88 dB	0.006 dB	0.070 dB
-35.833 dB	-46 dBm	-35.83 dB	0.003 dB	0.070 dB
-37.855 dB	-48 dBm	-37.85 dB	0.005 dB	0.070 dB
-39.954 dB	-50 dBm	-39.94 dB	0.014 dB	0.070 dB
-44.929 dB	-55 dBm	-44.92 dB	0.009 dB	0.070 dB
-49.908 dB	-60 dBm	-49.88 dB	0.028 dB	0.070 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

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2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
-54.882 dB	-65 dBm	-54.86 dB	0.02 dB	0.13 dB
-59.867 dB	-70 dBm	-59.93 dB	-0.06 dB	0.13 dB
Phase Noise with Carrier 500 MHz Referred to 1 Hz RBW				
* f_offset 0.1 kHz (Tol. -84 dBc)				
-200.000 dBc/Hz		-96.91 dBc/Hz	103.1 dB	3.0 dB
* f_offset 1 kHz (Tol. -101 dBc)				
-200.000 dBc/Hz		-114.16 dBc/Hz	85.8 dB	3.0 dB
* f_offset 10 kHz (Tol. -106 dBc)				
-200.000 dBc/Hz		-120.01 dBc/Hz	80.0 dB	3.0 dB
* f_offset 100 kHz (Tol. -115 dBc)				
-200.000 dBc/Hz		-118.52 dBc/Hz	81.5 dB	3.0 dB
* f_offset 1000 kHz (Tol. -134 dBc)				
-200.000 dBc/Hz		-134.75 dBc/Hz	65.3 dB	3.0 dB
Frequency Response				
Input 1, preselector off, Preamplifier off, RF attenuation 5 dB, DC coupled				
at input level -10 dBm				
64 MHz Reference Frequency				
0.000 dB	0.009 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	0.01 dB	0.010 dB	0.075 dB
0.000 dB	0.10002 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	0.15 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	1.005 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	10.150 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	15 MHz	0.15 dB	0.150 dB	0.027 dB
0.000 dB	30 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	51.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	101.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	165 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	201.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	300 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	301.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	401.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	501.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	601.000 MHz	-0.08 dB	-0.080 dB	0.053 dB
0.000 dB	650 MHz	-0.06 dB	-0.060 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	701.000 MHz	-0.07 dB	-0.070 dB	0.053 dB
0.000 dB	801.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	901.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	1001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	1501.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	3599.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	3601.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	4001.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	4501.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.10 dB	-0.100 dB	0.053 dB
0.000 dB	5501.000 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	6001.000 MHz	-0.01 dB	-0.010 dB	0.088 dB
0.000 dB	6501.000 MHz	0.00 dB	0.000 dB	0.088 dB
0.000 dB	6999 MHz	-0.08 dB	-0.080 dB	0.088 dB



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Frequency Response

Input 1, preselector off, Preamplifier off, RF attenuation 10 dB, DC coupled

at input level -5 dBm

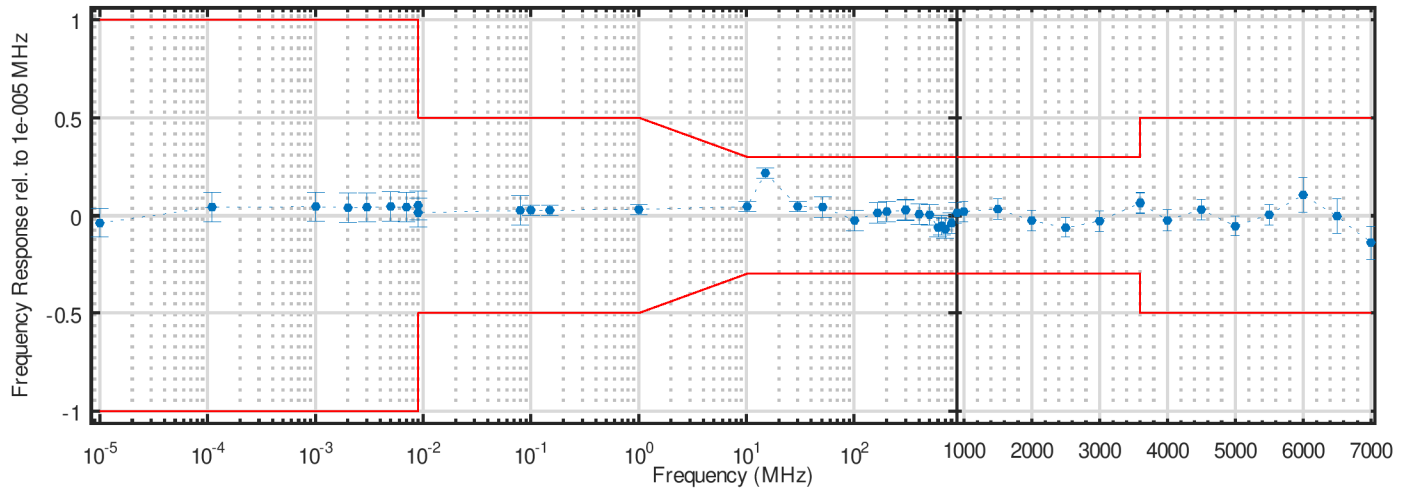
64 MHz Reference Frequency

0.000 dB	1e-005 MHz	-0.04 dB	-0.040 dB	0.075 dB
0.000 dB	0.00011 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.00101 MHz	0.05 dB	0.050 dB	0.075 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	0.00201 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.00301 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.00501 MHz	0.05 dB	0.050 dB	0.075 dB
0.000 dB	0.00701 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.00899 MHz	0.05 dB	0.050 dB	0.075 dB
0.000 dB	0.009 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	0.03 dB	0.030 dB	0.075 dB
0.000 dB	0.10002 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	0.15 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	1.005 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	10.150 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	15 MHz	0.22 dB	0.220 dB	0.027 dB
0.000 dB	30 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	51.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	101.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	165 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	201.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	300 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	301.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	401.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	501.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	601.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	650 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	701.000 MHz	-0.07 dB	-0.070 dB	0.053 dB
0.000 dB	801.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	901.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	1001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	1501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	3599.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	3601.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	4001.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	4501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	5501.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	6001.000 MHz	0.11 dB	0.110 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.00 dB	0.000 dB	0.088 dB
0.000 dB	6999 MHz	-0.14 dB	-0.140 dB	0.088 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
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P:\Zertifikate_ISO\METCAL_Diagramme\16050906_Freq_Resp_10dB_DC_Presel_off_Preamp_off_2024.12.10_1133_26.png

Frequency Response

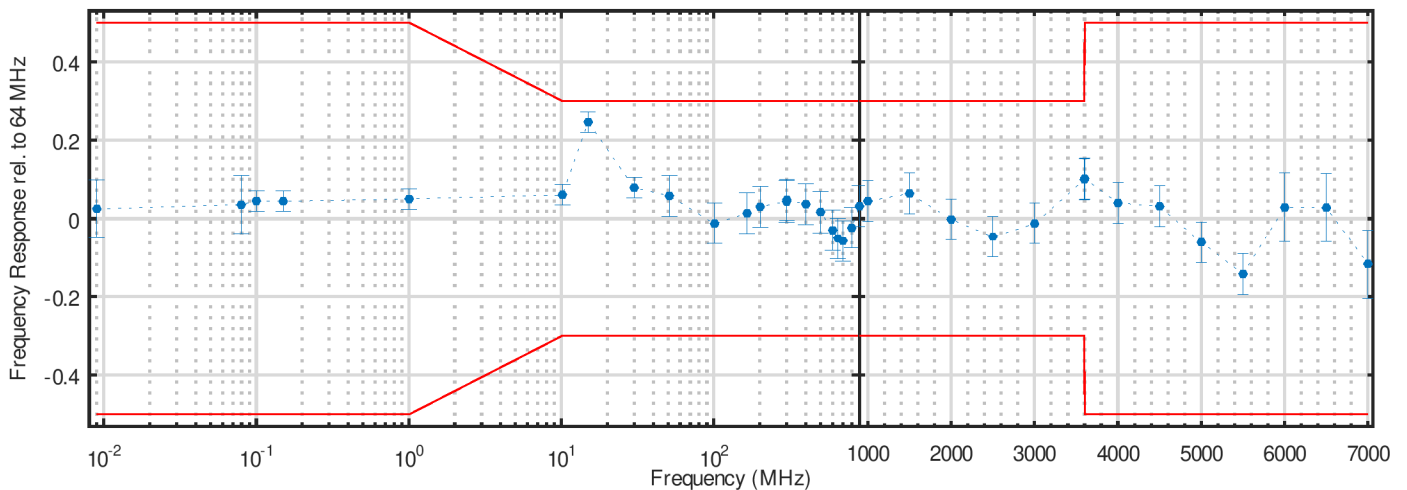
Input 1, preselector off, Preamplifier off, RF attenuation 20 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.03 dB	0.030 dB	0.075 dB
0.000 dB	0.0795 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.10002 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	0.15 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	1.005 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	10.150 MHz	0.06 dB	0.060 dB	0.027 dB
0.000 dB	15 MHz	0.25 dB	0.250 dB	0.027 dB
0.000 dB	30 MHz	0.08 dB	0.080 dB	0.027 dB
0.000 dB	51.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	101.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	165 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	201.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	300 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	301.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	401.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	501.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	601.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	650 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	701.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	801.000 MHz	-0.02 dB	-0.020 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	901.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	1001.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	1501.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	3599.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	3601.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	4001.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	4501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	5501.000 MHz	-0.14 dB	-0.140 dB	0.053 dB
0.000 dB	6001.000 MHz	0.03 dB	0.030 dB	0.088 dB
0.000 dB	6501.000 MHz	0.03 dB	0.030 dB	0.088 dB
0.000 dB	6999 MHz	-0.12 dB	-0.120 dB	0.088 dB



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Frequency Response

Input 1, preselector off, Preamplifier off, RF attenuation 30 dB, DC coupled

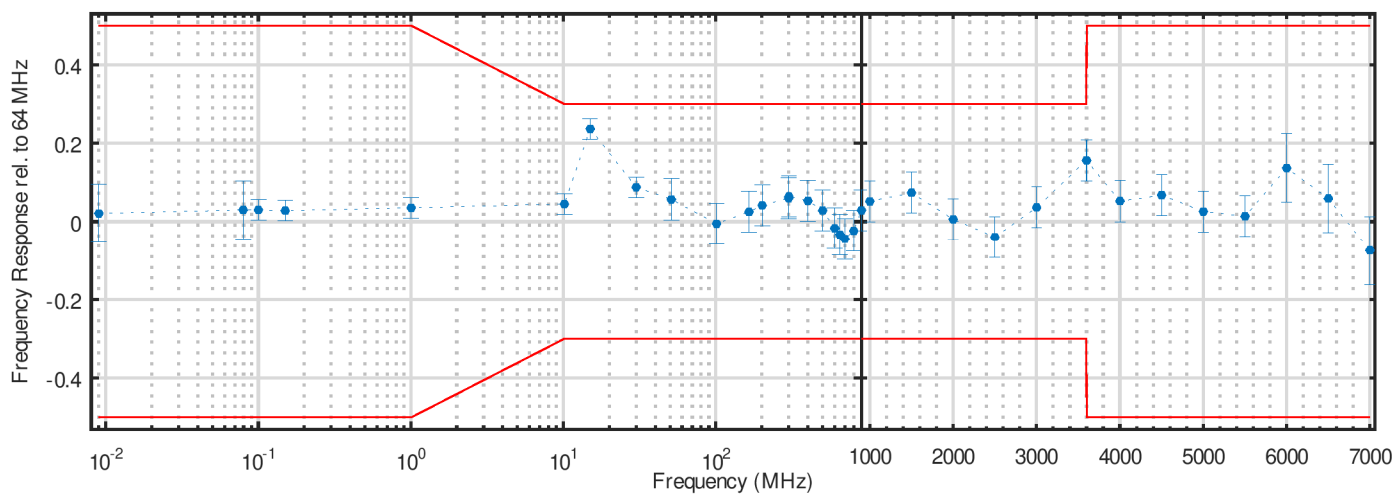
at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	0.03 dB	0.030 dB	0.075 dB
0.000 dB	0.10002 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	0.15 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	1.005 MHz	0.04 dB	0.040 dB	0.027 dB

Kalibrierschein vom Calibration certificate dated 21.03.2025

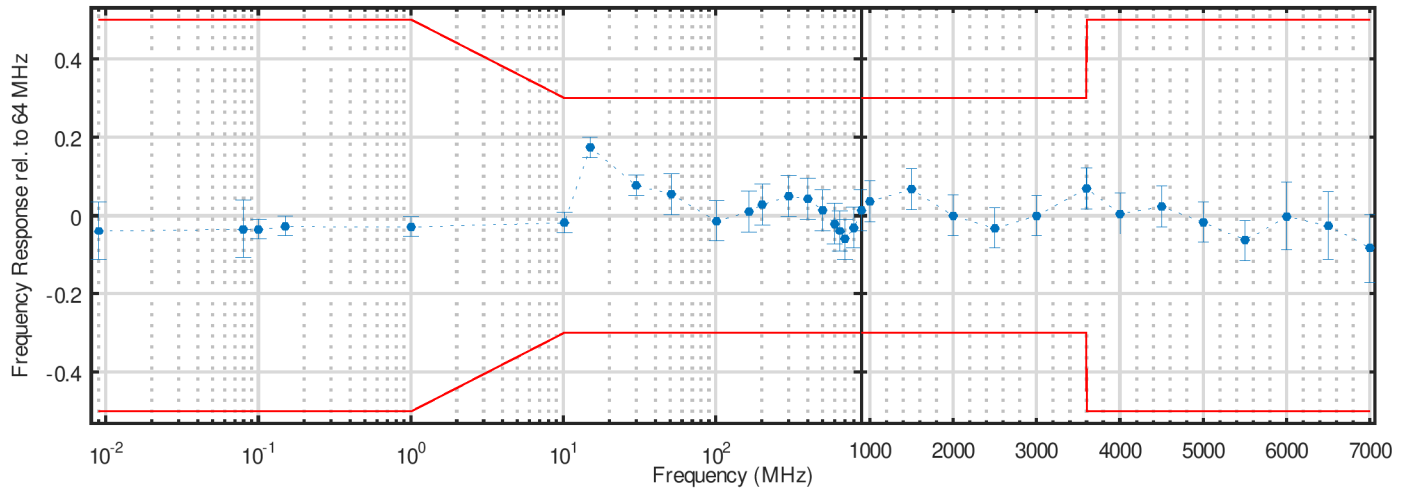
Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	10.150 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	15 MHz	0.24 dB	0.240 dB	0.027 dB
0.000 dB	30 MHz	0.09 dB	0.090 dB	0.027 dB
0.000 dB	51.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	101.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	165 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	201.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	300 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	301.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	401.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	601.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	650 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	701.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	801.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	901.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	1001.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	1501.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	2001.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	3001.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	3599.000 MHz	0.16 dB	0.160 dB	0.053 dB
0.000 dB	3601.000 MHz	0.16 dB	0.160 dB	0.053 dB
0.000 dB	4001.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	4501.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	5001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5501.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	6001.000 MHz	0.14 dB	0.140 dB	0.088 dB
0.000 dB	6501.000 MHz	0.06 dB	0.060 dB	0.088 dB
0.000 dB	6999 MHz	-0.07 dB	-0.070 dB	0.088 dB



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Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Frequency Response				
Input 1, preselector off, Preamplifier off, RF attenuation 40 dB, DC coupled				
at input level -5 dBm				
64 MHz Reference Frequency				
0.000 dB	0.009 MHz	-0.04 dB	-0.040 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.03 dB	-0.030 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.04 dB	-0.040 dB	0.027 dB
0.000 dB	0.15 MHz	-0.03 dB	-0.030 dB	0.027 dB
0.000 dB	1.005 MHz	-0.03 dB	-0.030 dB	0.027 dB
0.000 dB	10.150 MHz	-0.02 dB	-0.020 dB	0.027 dB
0.000 dB	15 MHz	0.17 dB	0.170 dB	0.027 dB
0.000 dB	30 MHz	0.08 dB	0.080 dB	0.027 dB
0.000 dB	51.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	101.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	165 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	201.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	300 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	301.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	401.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	501.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	601.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	650 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	701.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	801.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	901.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	1001.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	1501.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	3599.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	3601.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	4001.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	4501.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	5501.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	6001.000 MHz	-0.00 dB	0.000 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.03 dB	-0.030 dB	0.088 dB
0.000 dB	6999 MHz	-0.08 dB	-0.080 dB	0.088 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
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P:\Zertifikate_ISO\METCAL_Diagramme\16050906_Freq_Resp_40dB_DC_Presel_off_Preampl_off_2024.12.10_1229_05.png

Frequency Response

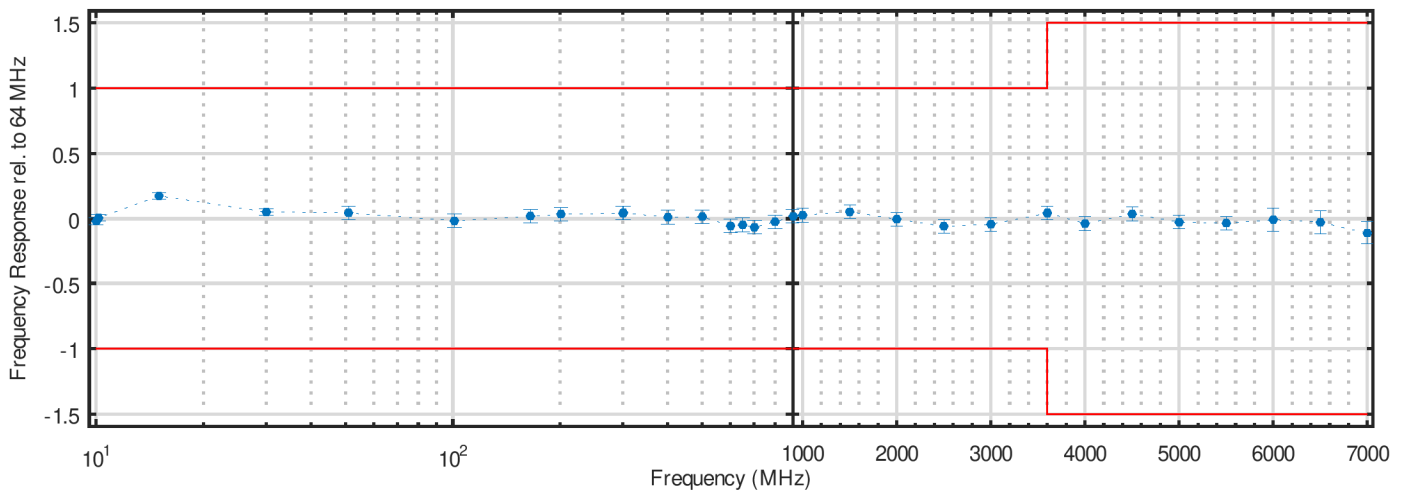
Input 1, preselector off, Preamplifier off, RF attenuation 10 dB, AC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	10 MHz	-0.02 dB	-0.020 dB	0.027 dB
0.000 dB	10.150 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	15 MHz	0.17 dB	0.170 dB	0.027 dB
0.000 dB	30 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	51.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	101.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	165 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	201.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	300 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	301.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	401.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	501.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	601.000 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	650 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	701.000 MHz	-0.07 dB	-0.070 dB	0.053 dB
0.000 dB	801.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	901.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	1001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	1501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.00 dB	0.000 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	2501.000 MHz	-0.06 dB	-0.060 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	3599.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	3601.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	4001.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	4501.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	5501.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	6001.000 MHz	-0.01 dB	-0.010 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.03 dB	-0.030 dB	0.088 dB
0.000 dB	6999 MHz	-0.11 dB	-0.110 dB	0.088 dB



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Frequency Response

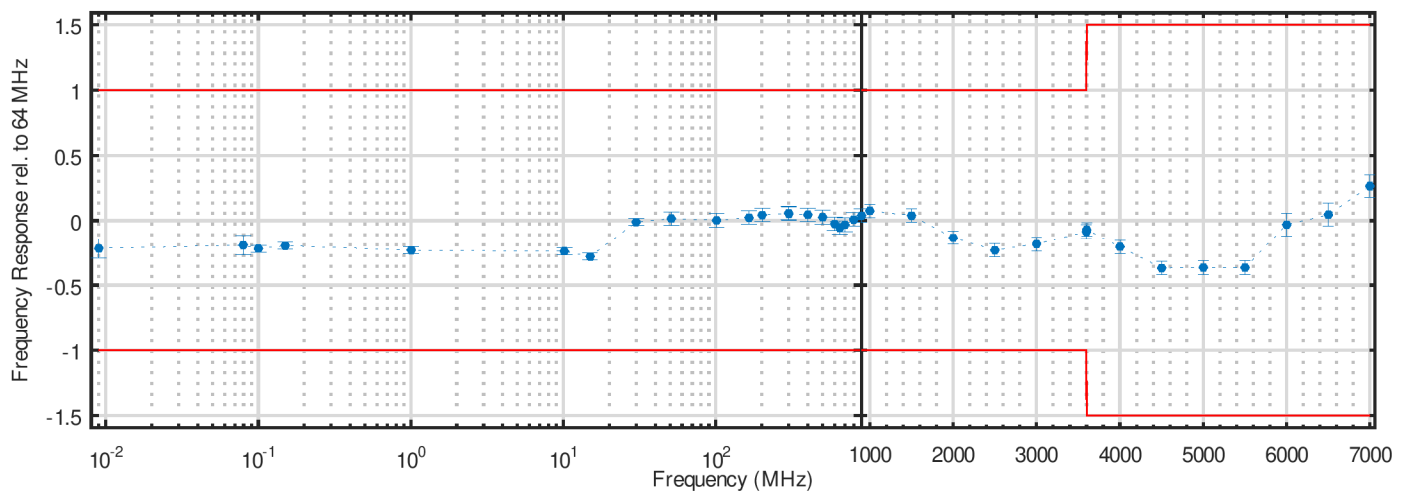
Input 1, preselector on, Preamplifier off, RF attenuation 5 dB, DC coupled

at input level -10 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.22 dB	-0.220 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.19 dB	-0.190 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.22 dB	-0.220 dB	0.027 dB
0.000 dB	0.15 MHz	-0.20 dB	-0.200 dB	0.027 dB
0.000 dB	1.005 MHz	-0.23 dB	-0.230 dB	0.027 dB
0.000 dB	10.150 MHz	-0.24 dB	-0.240 dB	0.027 dB
0.000 dB	15 MHz	-0.28 dB	-0.280 dB	0.027 dB
0.000 dB	30 MHz	-0.01 dB	-0.010 dB	0.027 dB
0.000 dB	51.000 MHz	0.02 dB	0.020 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	101.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	165 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	201.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	300 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	301.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	401.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	601.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	650 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	701.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	801.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	901.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	1001.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	1501.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.13 dB	-0.130 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.23 dB	-0.230 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.18 dB	-0.180 dB	0.053 dB
0.000 dB	3599.000 MHz	-0.09 dB	-0.090 dB	0.053 dB
0.000 dB	3601.000 MHz	-0.07 dB	-0.070 dB	0.053 dB
0.000 dB	4001.000 MHz	-0.20 dB	-0.200 dB	0.053 dB
0.000 dB	4501.000 MHz	-0.37 dB	-0.370 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.37 dB	-0.370 dB	0.053 dB
0.000 dB	5501.000 MHz	-0.37 dB	-0.370 dB	0.053 dB
0.000 dB	6001.000 MHz	-0.03 dB	-0.030 dB	0.088 dB
0.000 dB	6501.000 MHz	0.05 dB	0.050 dB	0.088 dB
0.000 dB	6999 MHz	0.27 dB	0.270 dB	0.088 dB



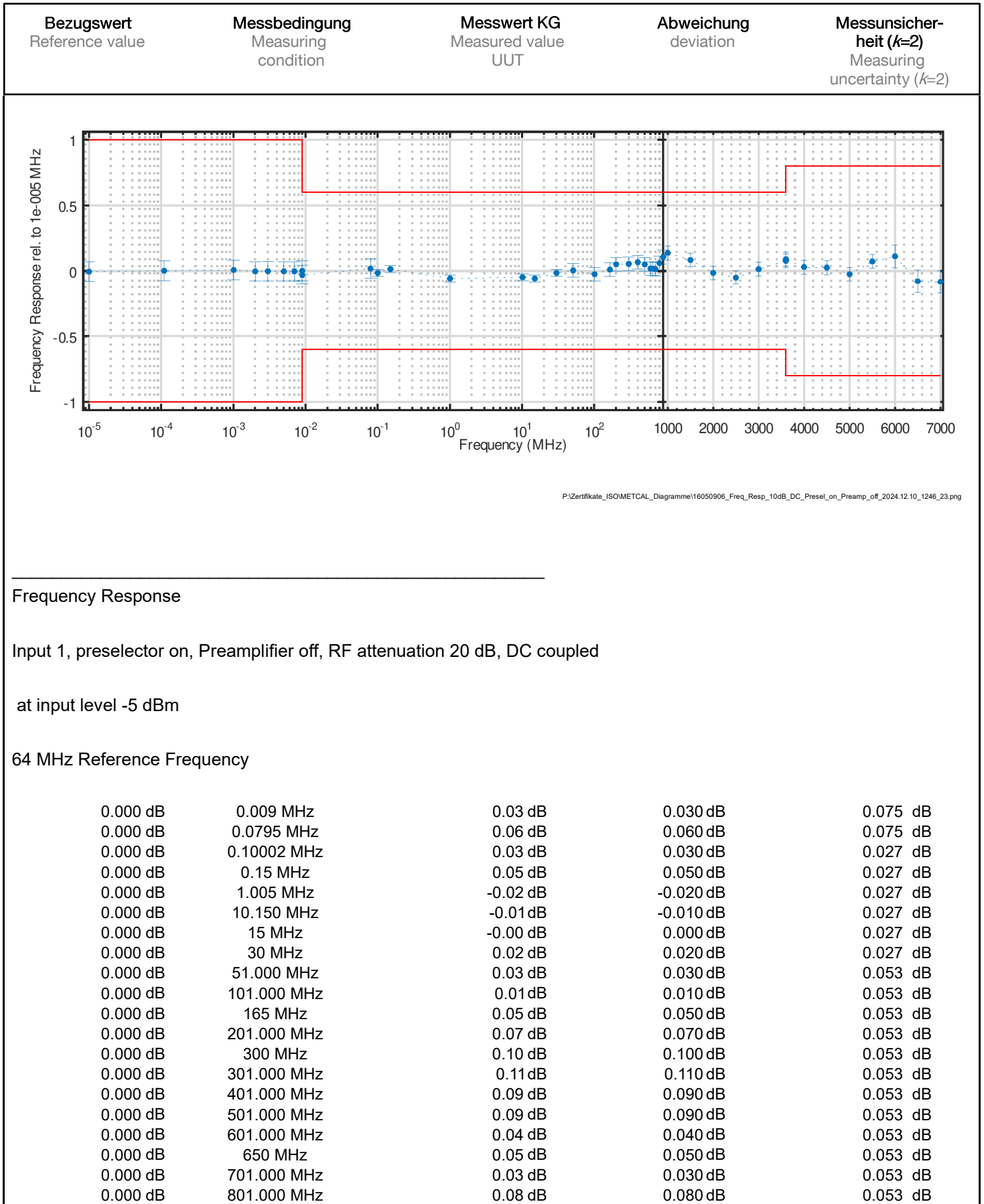
P:\Zertifikate_ISOIMETCAL_Diagramme\16050906_Freq_Resp_5dB_DC_Presel_on_Preampl_off_2024.12.10_1235_52.png

Frequency Response

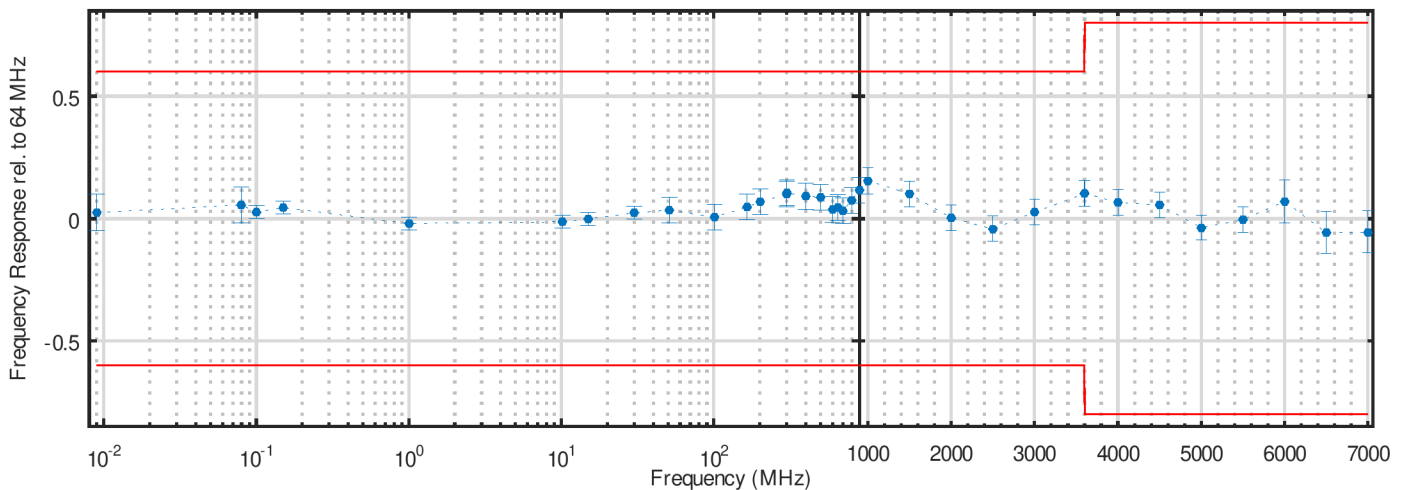
Input 1, preselector on, Preamplifier off, RF attenuation 10 dB, DC coupled

Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
at input level -5 dBm				
64 MHz Reference Frequency				
0.000 dB	1e-005 MHz	-0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.00011 MHz	0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.00101 MHz	0.01 dB	0.010 dB	0.075 dB
0.000 dB	0.00201 MHz	-0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.00301 MHz	-0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.00501 MHz	-0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.00701 MHz	-0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.00899 MHz	0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.009 MHz	-0.03 dB	-0.030 dB	0.075 dB
0.000 dB	0.0795 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.01 dB	-0.010 dB	0.027 dB
0.000 dB	0.15 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	1.005 MHz	-0.06 dB	-0.060 dB	0.027 dB
0.000 dB	10.150 MHz	-0.05 dB	-0.050 dB	0.027 dB
0.000 dB	15 MHz	-0.06 dB	-0.060 dB	0.027 dB
0.000 dB	30 MHz	-0.01 dB	-0.010 dB	0.027 dB
0.000 dB	51.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	101.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	165 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	201.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	300 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	301.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	401.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	601.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	650 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	701.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	801.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	901.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	1001.000 MHz	0.14 dB	0.140 dB	0.053 dB
0.000 dB	1501.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	3001.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	3599.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	3601.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	4001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	4501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	5501.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	6001.000 MHz	0.11 dB	0.110 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.08 dB	-0.080 dB	0.088 dB
0.000 dB	6999 MHz	-0.08 dB	-0.080 dB	0.088 dB



Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	901.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	1001.000 MHz	0.15 dB	0.150 dB	0.053 dB
0.000 dB	1501.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	2001.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	3001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	3599.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	3601.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	4001.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	4501.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	5001.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	5501.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	6001.000 MHz	0.07 dB	0.070 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.06 dB	-0.060 dB	0.088 dB
0.000 dB	6999 MHz	-0.06 dB	-0.060 dB	0.088 dB



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Frequency Response

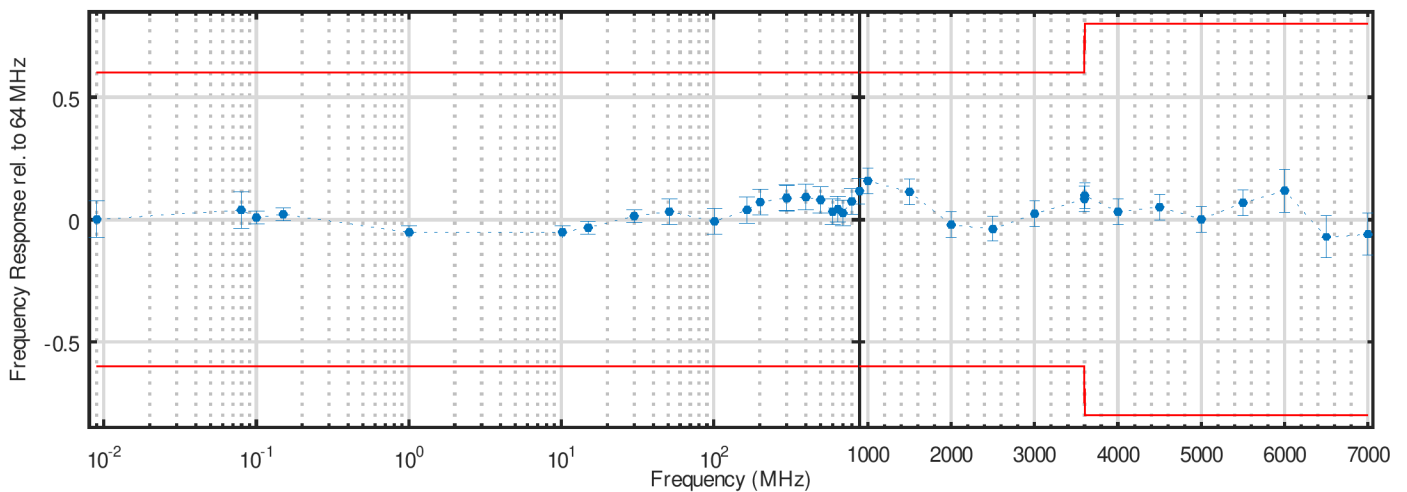
Input 1, preselector on, Preamplifier off, RF attenuation 30 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.00 dB	0.000 dB	0.075 dB
0.000 dB	0.0795 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.10002 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	0.15 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	1.005 MHz	-0.05 dB	-0.050 dB	0.027 dB

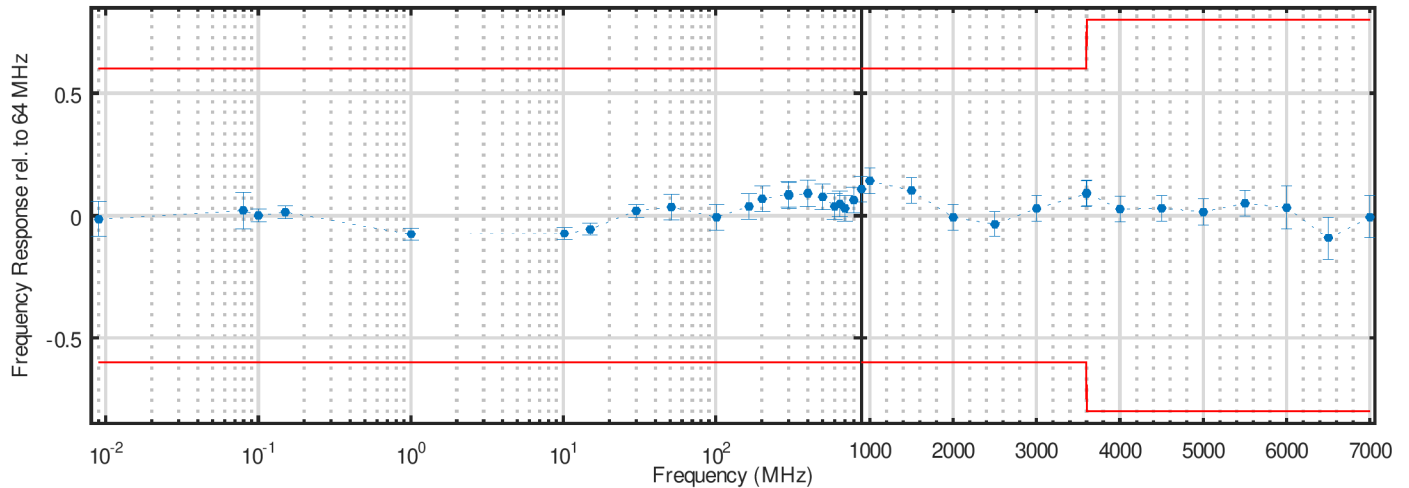
Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	10.150 MHz	-0.05 dB	-0.050 dB	0.027 dB
0.000 dB	15 MHz	-0.03 dB	-0.030 dB	0.027 dB
0.000 dB	30 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	51.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	101.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	165 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	201.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	300 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	301.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	401.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	501.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	601.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	650 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	701.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	801.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	901.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	1001.000 MHz	0.16 dB	0.160 dB	0.053 dB
0.000 dB	1501.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	3001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	3599.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	3601.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	4001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	4501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	5001.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	5501.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	6001.000 MHz	0.12 dB	0.120 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.07 dB	-0.070 dB	0.088 dB
0.000 dB	6999 MHz	-0.06 dB	-0.060 dB	0.088 dB



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Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Frequency Response				
Input 1, preselector on, Preamplifier off, RF attenuation 40 dB, DC coupled				
at input level -5 dBm				
64 MHz Reference Frequency				
0.000 dB	0.009 MHz	-0.01 dB	-0.010 dB	0.075 dB
0.000 dB	0.0795 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.10002 MHz	0.00 dB	0.000 dB	0.027 dB
0.000 dB	0.15 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	1.005 MHz	-0.08 dB	-0.080 dB	0.027 dB
0.000 dB	10.150 MHz	-0.07 dB	-0.070 dB	0.027 dB
0.000 dB	15 MHz	-0.06 dB	-0.060 dB	0.027 dB
0.000 dB	30 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	51.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	101.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	165 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	201.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	300 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	301.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	401.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	501.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	601.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	650 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	701.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	801.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	901.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	1001.000 MHz	0.14 dB	0.140 dB	0.053 dB
0.000 dB	1501.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	3001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	3599.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	3601.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	4001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	4501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	5501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	6001.000 MHz	0.03 dB	0.030 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.09 dB	-0.090 dB	0.088 dB
0.000 dB	6999 MHz	-0.01 dB	-0.010 dB	0.088 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
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Frequency Response

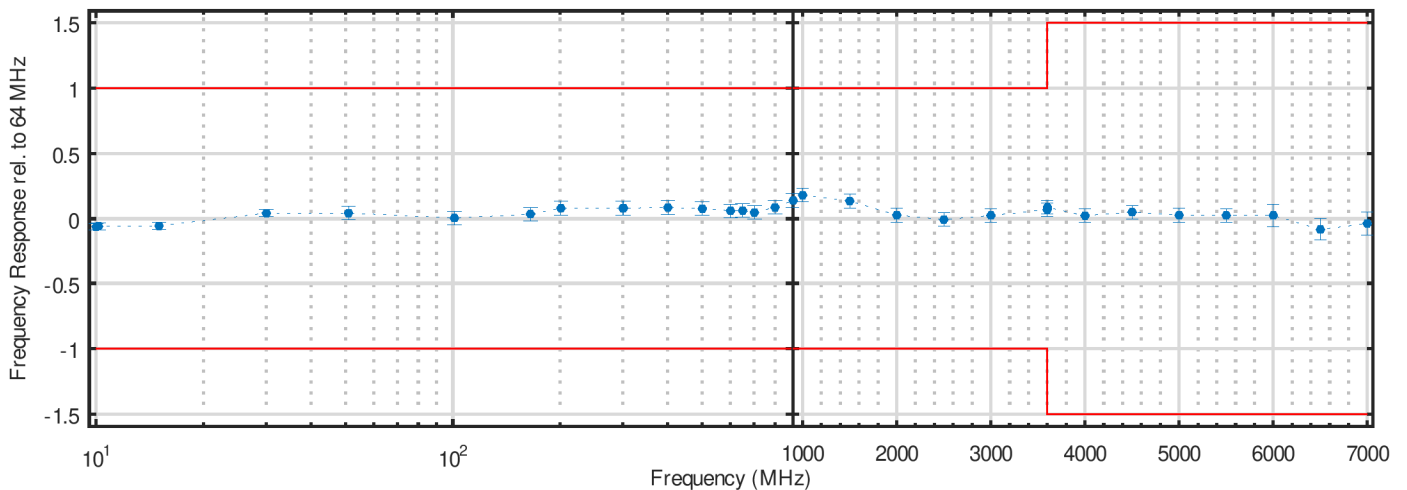
Input 1, preselector on, Preamplifier off, RF attenuation 10 dB, AC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	10 MHz	-0.06 dB	-0.060 dB	0.027 dB
0.000 dB	10.150 MHz	-0.06 dB	-0.060 dB	0.027 dB
0.000 dB	15 MHz	-0.05 dB	-0.050 dB	0.027 dB
0.000 dB	30 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	51.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	101.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	165 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	201.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	300 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	301.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	401.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	501.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	601.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	650 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	701.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	801.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	901.000 MHz	0.14 dB	0.140 dB	0.053 dB
0.000 dB	1001.000 MHz	0.18 dB	0.180 dB	0.053 dB
0.000 dB	1501.000 MHz	0.14 dB	0.140 dB	0.053 dB
0.000 dB	2001.000 MHz	0.03 dB	0.030 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	2501.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	3001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	3599.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	3601.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	4001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	4501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	5001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5501.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	6001.000 MHz	0.02 dB	0.020 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.08 dB	-0.080 dB	0.088 dB
0.000 dB	6999 MHz	-0.04 dB	-0.040 dB	0.088 dB



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Frequency Response

Input 1, preselector on, Preamplifier on, RF attenuation 10 dB, DC coupled

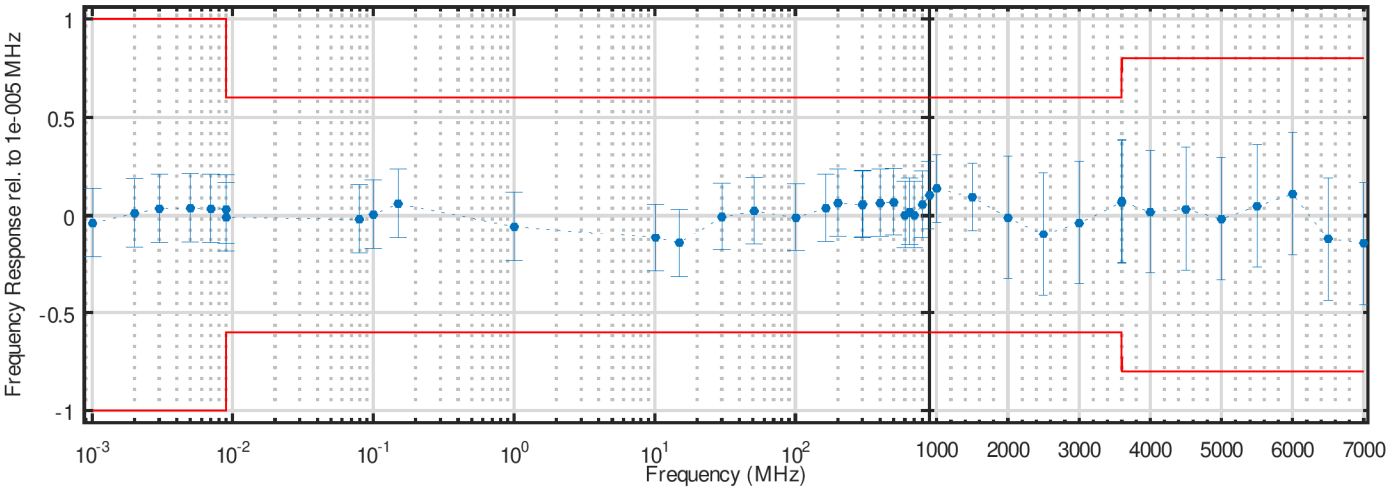
at input level -25 dBm

64 MHz Reference Frequency

*	0.000 dB	0.00101 MHz	-0.04 dB	-0.04 dB	0.18 dB
*	0.000 dB	0.00201 MHz	0.01 dB	0.01 dB	0.18 dB
*	0.000 dB	0.00301 MHz	0.04 dB	0.04 dB	0.18 dB
*	0.000 dB	0.00501 MHz	0.04 dB	0.04 dB	0.18 dB
*	0.000 dB	0.00701 MHz	0.03 dB	0.03 dB	0.18 dB
*	0.000 dB	0.00899 MHz	0.03 dB	0.03 dB	0.18 dB
*	0.000 dB	0.009 MHz	-0.01 dB	-0.01 dB	0.18 dB
*	0.000 dB	0.0795 MHz	-0.02 dB	-0.02 dB	0.18 dB
*	0.000 dB	0.10002 MHz	0.01 dB	0.01 dB	0.18 dB

Kalibrierschein vom
 Calibration certificate dated
 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
*	0.000 dB	0.15 MHz	0.06 dB	0.18 dB
*	0.000 dB	1.005 MHz	-0.06 dB	0.18 dB
	0.000 dB	10.150 MHz	-0.12 dB	0.17 dB
	0.000 dB	15 MHz	-0.14 dB	0.17 dB
	0.000 dB	30 MHz	-0.01dB	0.17 dB
	0.000 dB	51.000 MHz	0.02 dB	0.17 dB
	0.000 dB	101.000 MHz	-0.01dB	0.17 dB
	0.000 dB	165 MHz	0.04 dB	0.17 dB
	0.000 dB	201.000 MHz	0.06 dB	0.17 dB
	0.000 dB	300 MHz	0.06 dB	0.17 dB
	0.000 dB	301.000 MHz	0.06 dB	0.17 dB
	0.000 dB	401.000 MHz	0.06 dB	0.17 dB
	0.000 dB	501.000 MHz	0.07 dB	0.17 dB
	0.000 dB	601.000 MHz	0.00 dB	0.17 dB
	0.000 dB	650 MHz	0.02 dB	0.17 dB
	0.000 dB	701.000 MHz	0.00 dB	0.17 dB
	0.000 dB	801.000 MHz	0.06 dB	0.17 dB
	0.000 dB	901.000 MHz	0.10 dB	0.17 dB
	0.000 dB	1001.000 MHz	0.14 dB	0.17 dB
	0.000 dB	1501.000 MHz	0.09 dB	0.17 dB
	0.000 dB	2001.000 MHz	-0.01dB	0.31 dB
	0.000 dB	2501.000 MHz	-0.10 dB	0.31 dB
	0.000 dB	3001.000 MHz	-0.04 dB	0.31 dB
	0.000 dB	3599.000 MHz	0.07 dB	0.31 dB
	0.000 dB	3601.000 MHz	0.07 dB	0.31 dB
	0.000 dB	4001.000 MHz	0.02 dB	0.31 dB
	0.000 dB	4501.000 MHz	0.03 dB	0.31 dB
	0.000 dB	5001.000 MHz	-0.02 dB	0.31 dB
	0.000 dB	5501.000 MHz	0.05 dB	0.31 dB
	0.000 dB	6001.000 MHz	0.11 dB	0.31 dB
	0.000 dB	6501.000 MHz	-0.12 dB	0.31 dB
	0.000 dB	6999 MHz	-0.14 dB	0.31 dB



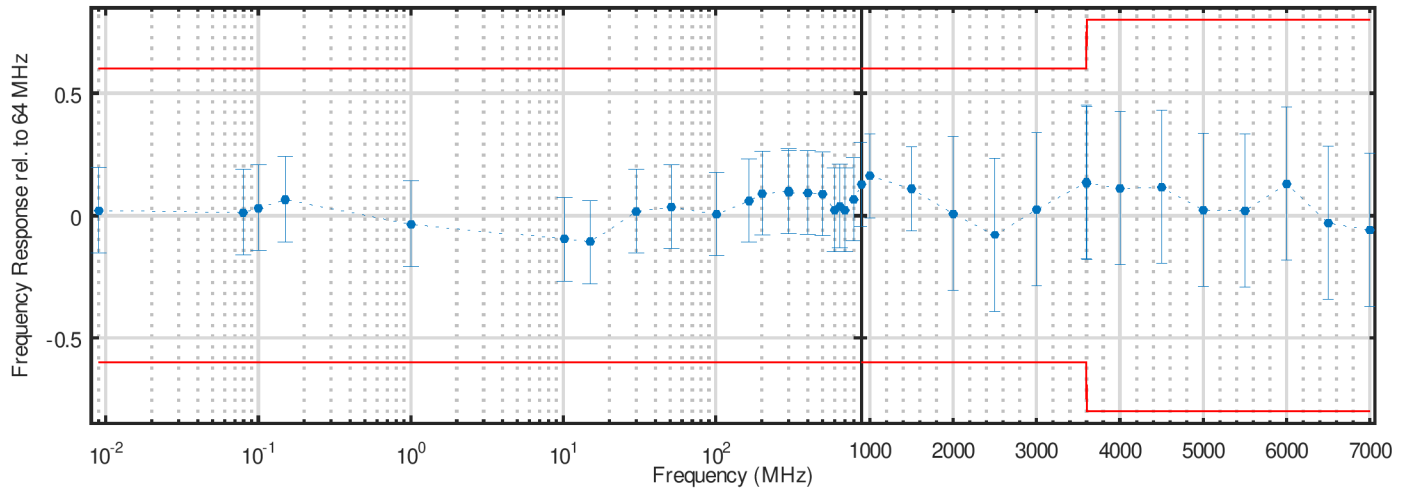
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Kalibrierschein vom Calibration certificate dated 21.03.2025

MUSTER
D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Frequency Response				
Input 1, preselector on, Preamplifier on, RF attenuation 20 dB, DC coupled				
at input level -15 dBm				
64 MHz Reference Frequency				
*	0.000 dB	0.009 MHz	0.02 dB	0.18 dB
*	0.000 dB	0.0795 MHz	0.01 dB	0.18 dB
*	0.000 dB	0.10002 MHz	0.03 dB	0.18 dB
*	0.000 dB	0.15 MHz	0.07 dB	0.18 dB
*	0.000 dB	1.005 MHz	-0.04 dB	0.18 dB
	0.000 dB	10.150 MHz	-0.10 dB	0.17 dB
	0.000 dB	15 MHz	-0.11 dB	0.17 dB
	0.000 dB	30 MHz	0.02 dB	0.17 dB
	0.000 dB	51.000 MHz	0.04 dB	0.17 dB
	0.000 dB	101.000 MHz	0.01 dB	0.17 dB
	0.000 dB	165 MHz	0.06 dB	0.17 dB
	0.000 dB	201.000 MHz	0.09 dB	0.17 dB
	0.000 dB	300 MHz	0.10 dB	0.17 dB
	0.000 dB	301.000 MHz	0.09 dB	0.17 dB
	0.000 dB	401.000 MHz	0.09 dB	0.17 dB
	0.000 dB	501.000 MHz	0.09 dB	0.17 dB
	0.000 dB	601.000 MHz	0.02 dB	0.17 dB
	0.000 dB	650 MHz	0.04 dB	0.17 dB
	0.000 dB	701.000 MHz	0.02 dB	0.17 dB
	0.000 dB	801.000 MHz	0.07 dB	0.17 dB
	0.000 dB	901.000 MHz	0.13 dB	0.17 dB
	0.000 dB	1001.000 MHz	0.16 dB	0.17 dB
	0.000 dB	1501.000 MHz	0.11 dB	0.17 dB
	0.000 dB	2001.000 MHz	0.01 dB	0.31 dB
	0.000 dB	2501.000 MHz	-0.08 dB	0.31 dB
	0.000 dB	3001.000 MHz	0.03 dB	0.31 dB
	0.000 dB	3599.000 MHz	0.14 dB	0.31 dB
	0.000 dB	3601.000 MHz	0.13 dB	0.31 dB
	0.000 dB	4001.000 MHz	0.11 dB	0.31 dB
	0.000 dB	4501.000 MHz	0.12 dB	0.31 dB
	0.000 dB	5001.000 MHz	0.02 dB	0.31 dB
	0.000 dB	5501.000 MHz	0.02 dB	0.31 dB
	0.000 dB	6001.000 MHz	0.13 dB	0.31 dB
	0.000 dB	6501.000 MHz	-0.03 dB	0.31 dB
	0.000 dB	6999 MHz	-0.06 dB	0.31 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
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Frequency Response

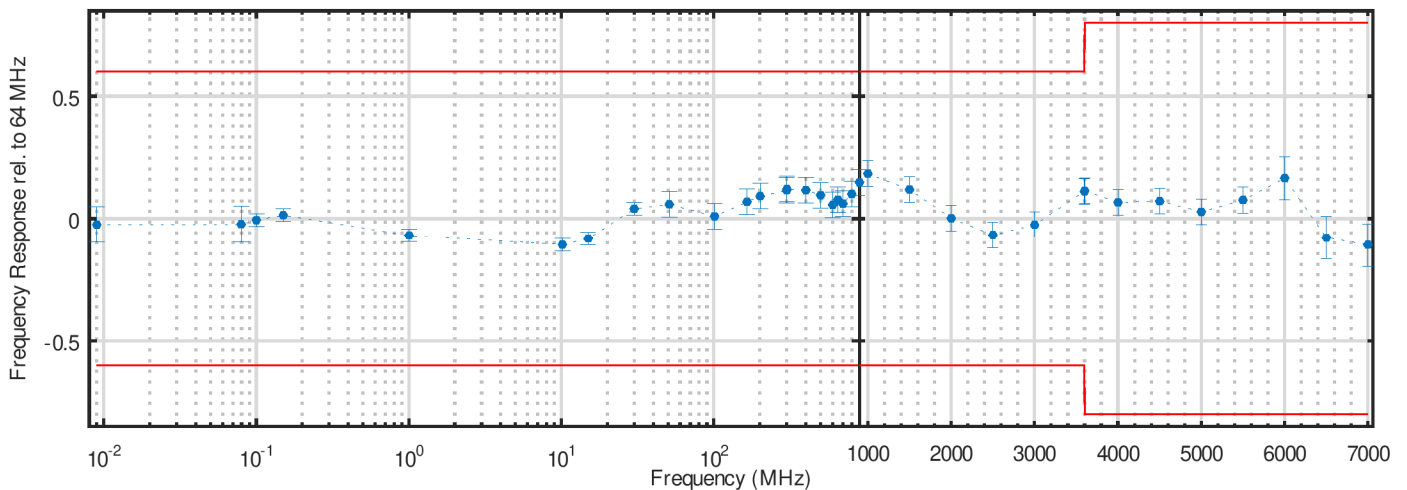
Input 1, preselector on, Preamplifier on, RF attenuation 30 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.02 dB	-0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.02 dB	-0.020 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.01 dB	-0.010 dB	0.027 dB
0.000 dB	0.15 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	1.005 MHz	-0.07 dB	-0.070 dB	0.027 dB
0.000 dB	10.150 MHz	-0.11 dB	-0.110 dB	0.027 dB
0.000 dB	15 MHz	-0.08 dB	-0.080 dB	0.027 dB
0.000 dB	30 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	51.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	101.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	165 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	201.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	300 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	301.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	401.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	501.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	601.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	650 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	701.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	801.000 MHz	0.10 dB	0.100 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	901.000 MHz	0.15 dB	0.150 dB	0.053 dB
0.000 dB	1001.000 MHz	0.18 dB	0.180 dB	0.053 dB
0.000 dB	1501.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	2001.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.07 dB	-0.070 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	3599.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	3601.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	4001.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	4501.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	5001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	5501.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	6001.000 MHz	0.17 dB	0.170 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.08 dB	-0.080 dB	0.088 dB
0.000 dB	6999 MHz	-0.11 dB	-0.110 dB	0.088 dB



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Frequency Response

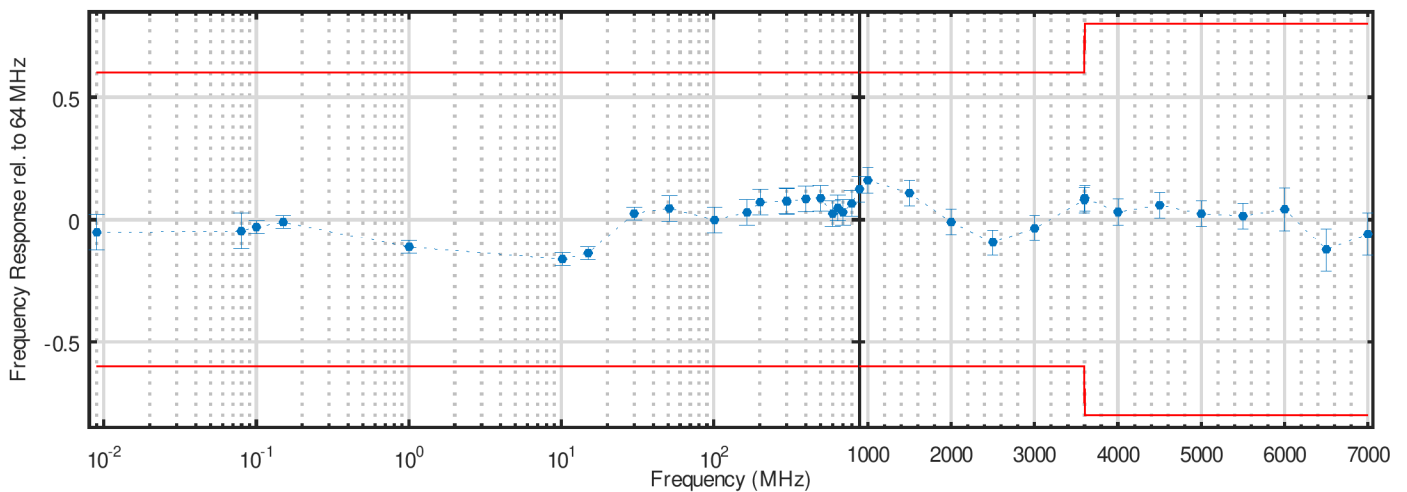
Input 1, preselector on, Preamplifier on, RF attenuation 40 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.05 dB	-0.050 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.05 dB	-0.050 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.03 dB	-0.030 dB	0.027 dB
0.000 dB	0.15 MHz	-0.01 dB	-0.010 dB	0.027 dB
0.000 dB	1.005 MHz	-0.11 dB	-0.110 dB	0.027 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	10.150 MHz	-0.16 dB	-0.160 dB	0.027 dB
0.000 dB	15 MHz	-0.14 dB	-0.140 dB	0.027 dB
0.000 dB	30 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	51.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	101.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	165 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	201.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	300 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	301.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	401.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	501.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	601.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	650 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	701.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	801.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	901.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	1001.000 MHz	0.16 dB	0.160 dB	0.053 dB
0.000 dB	1501.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	2001.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	2501.000 MHz	-0.09 dB	-0.090 dB	0.053 dB
0.000 dB	3001.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	3599.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	3601.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	4001.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	4501.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	5001.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	5501.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	6001.000 MHz	0.04 dB	0.040 dB	0.088 dB
0.000 dB	6501.000 MHz	-0.13 dB	-0.130 dB	0.088 dB
0.000 dB	6999 MHz	-0.06 dB	-0.060 dB	0.088 dB

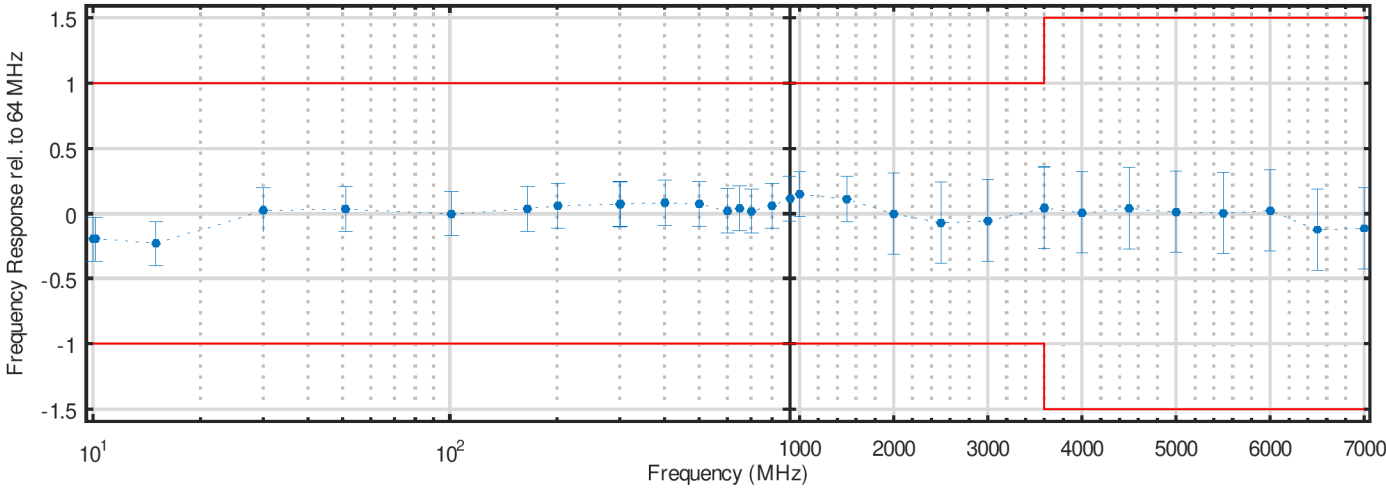


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Kalibrierschein vom Calibration certificate dated 21.03.2025

MUSTER
D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Frequency Response				
Input 1, preselector on, Preamplifier on, RF attenuation 10 dB, AC coupled				
at input level -25 dBm				
64 MHz Reference Frequency				
0.000 dB	10 MHz	-0.20 dB	-0.20 dB	0.17 dB
0.000 dB	10.150 MHz	-0.20 dB	-0.20 dB	0.17 dB
0.000 dB	15 MHz	-0.23 dB	-0.23 dB	0.17 dB
0.000 dB	30 MHz	0.03 dB	0.03 dB	0.17 dB
0.000 dB	51.000 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	101.000 MHz	-0.00 dB	0.00 dB	0.17 dB
0.000 dB	165 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	201.000 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	300 MHz	0.07 dB	0.07 dB	0.17 dB
0.000 dB	301.000 MHz	0.08 dB	0.08 dB	0.17 dB
0.000 dB	401.000 MHz	0.08 dB	0.08 dB	0.17 dB
0.000 dB	501.000 MHz	0.08 dB	0.08 dB	0.17 dB
0.000 dB	601.000 MHz	0.02 dB	0.02 dB	0.17 dB
0.000 dB	650 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	701.000 MHz	0.02 dB	0.02 dB	0.17 dB
0.000 dB	801.000 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	901.000 MHz	0.12 dB	0.12 dB	0.17 dB
0.000 dB	1001.000 MHz	0.15 dB	0.15 dB	0.17 dB
0.000 dB	1501.000 MHz	0.11 dB	0.11 dB	0.17 dB
0.000 dB	2001.000 MHz	-0.00 dB	0.00 dB	0.31 dB
0.000 dB	2501.000 MHz	-0.07 dB	-0.07 dB	0.31 dB
0.000 dB	3001.000 MHz	-0.05 dB	-0.05 dB	0.31 dB
0.000 dB	3599.000 MHz	0.04 dB	0.04 dB	0.31 dB
0.000 dB	3601.000 MHz	0.04 dB	0.04 dB	0.31 dB
0.000 dB	4001.000 MHz	0.01 dB	0.01 dB	0.31 dB
0.000 dB	4501.000 MHz	0.04 dB	0.04 dB	0.31 dB
0.000 dB	5001.000 MHz	0.01 dB	0.01 dB	0.31 dB
0.000 dB	5501.000 MHz	0.00 dB	0.00 dB	0.31 dB
0.000 dB	6001.000 MHz	0.02 dB	0.02 dB	0.31 dB
0.000 dB	6501.000 MHz	-0.12 dB	-0.12 dB	0.31 dB
0.000 dB	6999 MHz	-0.11 dB	-0.11 dB	0.31 dB

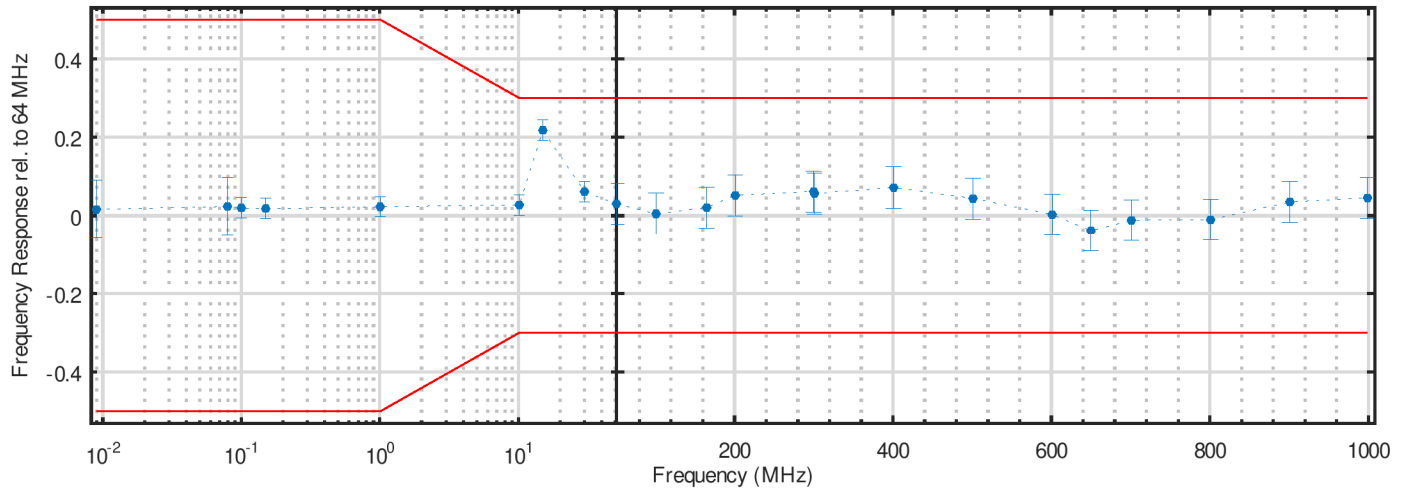
Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
 P:\Zertifikate_ISO\METCAL_Diagramme\16050906_Freq_Resp_10dB_AC_Preset_on_Preamp_on_2024.12.10_1429_03.png				
Absolute Level Accuracy at 64 MHz				
Input 1, preselector off, Preamplifier off, RF attenuation 10 dB, DC coupled				
at input level -10 dBm				
-10.000 dBm		-9.92 dBm	0.080 dB	0.053 dB
Absolute Level Accuracy at 64 MHz				
Input 1, preselector on, Preamplifier off, RF attenuation 10 dB, DC coupled				
at input level -10 dBm				
-10.000 dBm		-9.92 dBm	0.080 dB	0.053 dB
Absolute Level Accuracy at 64 MHz				
Input 1, preselector on, Preamplifier on, RF attenuation 30 dB, DC coupled				

Kalibrierschein vom Calibration certificate dated 21.03.2025

MUSTER
D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
at input level -10 dBm				
-10.000 dBm		-9.91 dBm	0.090 dB	0.053 dB
Frequency Response				
Input 2, preselector off, Preamplifier off, RF attenuation 10 dB, DC coupled				
at input level -5 dBm				
64 MHz Reference Frequency				
0.000 dB	0.009 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.10002 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	0.15 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	1.005 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	10.150 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	15 MHz	0.22 dB	0.220 dB	0.027 dB
0.000 dB	30 MHz	0.06 dB	0.060 dB	0.027 dB
0.000 dB	51.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	101.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	165 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	201.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	300 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	301.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	401.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	501.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	601.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	650 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	701.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	801.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	901.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	999 MHz	0.05 dB	0.050 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
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Frequency Response

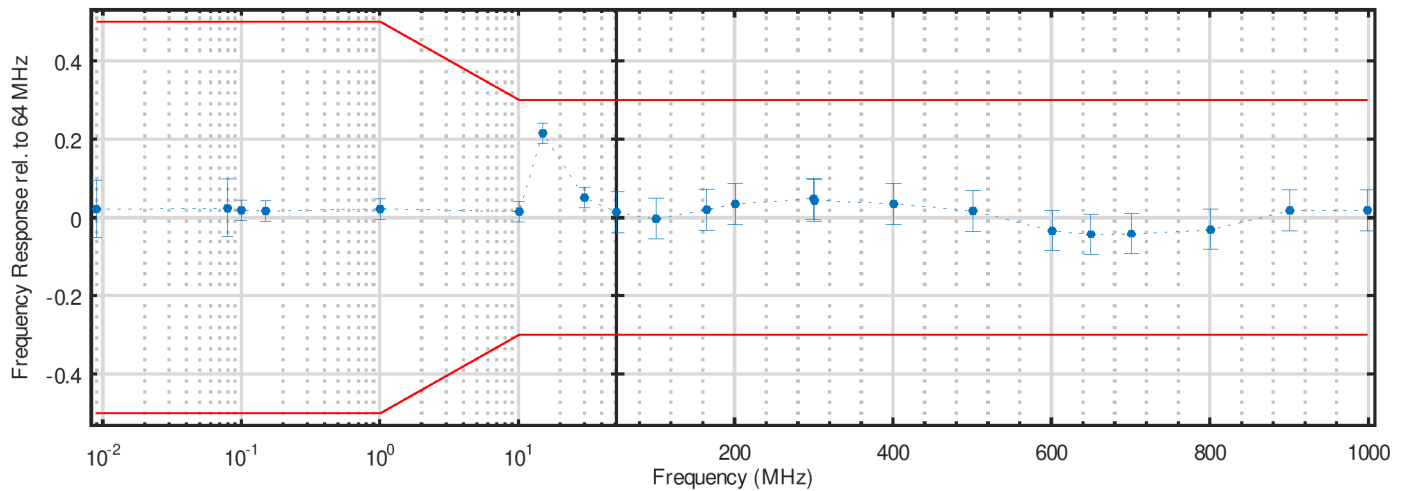
Input 2, preselector off, Preamplifier off, RF attenuation 20 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.10002 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	0.15 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	1.005 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	10.150 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	15 MHz	0.22 dB	0.220 dB	0.027 dB
0.000 dB	30 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	51.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	101.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	165 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	201.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	300 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	301.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	401.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	501.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	601.000 MHz	-0.03 dB	-0.030 dB	0.053 dB
0.000 dB	650 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	701.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	801.000 MHz	-0.03 dB	-0.030 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB 0.000 dB	901.000 MHz 999 MHz	0.02 dB 0.02 dB	0.020 dB 0.020 dB	0.053 dB 0.053 dB



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Frequency Response

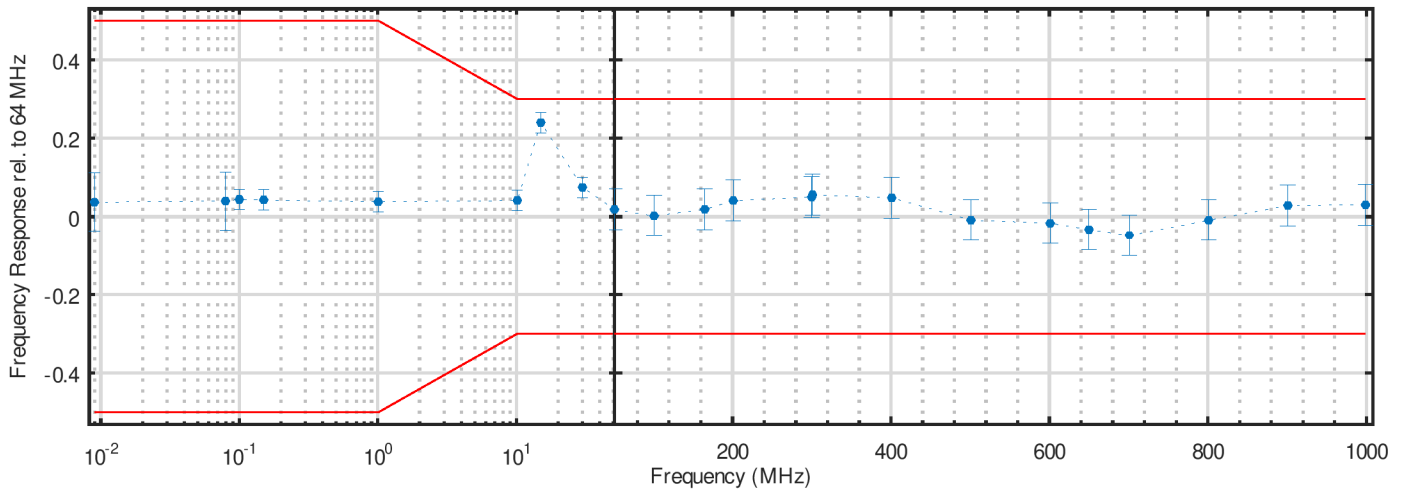
Input 2, preselector off, Preamplifier off, RF attenuation 30 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.0795 MHz	0.04 dB	0.040 dB	0.075 dB
0.000 dB	0.10002 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	0.15 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	1.005 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	10.150 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	15 MHz	0.24 dB	0.240 dB	0.027 dB
0.000 dB	30 MHz	0.08 dB	0.080 dB	0.027 dB
0.000 dB	51.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	101.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	165 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	201.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	300 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	301.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	401.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	501.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	601.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	650 MHz	-0.03 dB	-0.030 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	701.000 MHz	-0.05 dB	-0.050 dB	0.053 dB
0.000 dB	801.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	901.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	999 MHz	0.03 dB	0.030 dB	0.053 dB



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Frequency Response

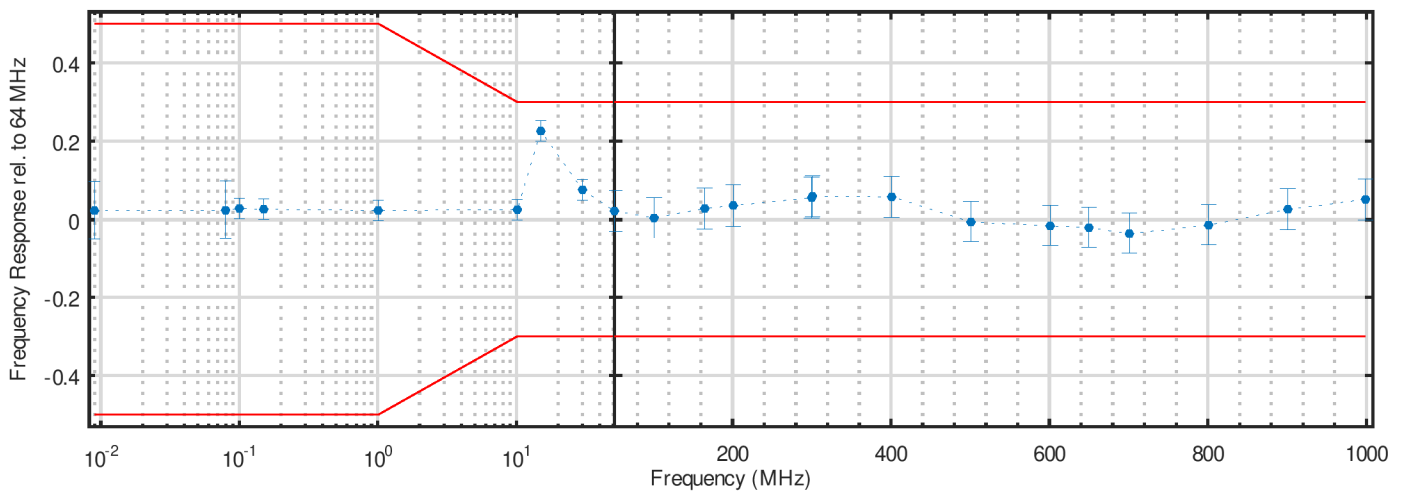
Input 2, preselector off, Preamplifier off, RF attenuation 40 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.0795 MHz	0.02 dB	0.020 dB	0.075 dB
0.000 dB	0.10002 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	0.15 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	1.005 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	10.150 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	15 MHz	0.23 dB	0.230 dB	0.027 dB
0.000 dB	30 MHz	0.08 dB	0.080 dB	0.027 dB
0.000 dB	51.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	101.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	165 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	201.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	300 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	301.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	401.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	501.000 MHz	-0.01 dB	-0.010 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	601.000 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	650 MHz	-0.02 dB	-0.020 dB	0.053 dB
0.000 dB	701.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	801.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	901.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	999 MHz	0.05 dB	0.050 dB	0.053 dB



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Frequency Response

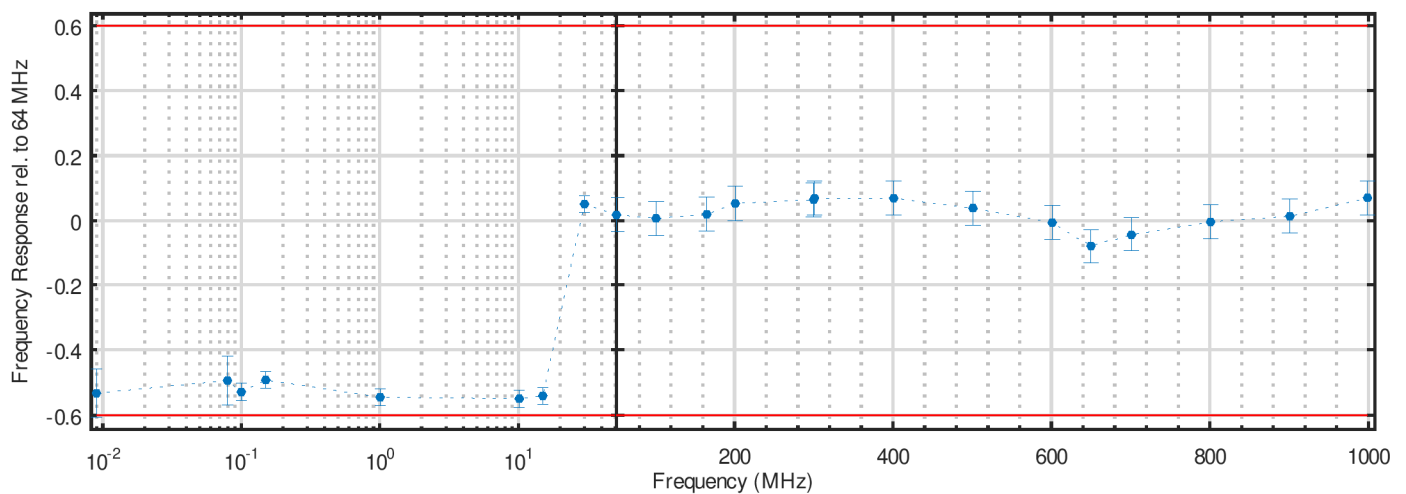
Input 2, preselector on, Preamplifier off, RF attenuation 10 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.53 dB	-0.530 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.49 dB	-0.490 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.53 dB	-0.530 dB	0.027 dB
0.000 dB	0.15 MHz	-0.49 dB	-0.490 dB	0.027 dB
0.000 dB	1.005 MHz	-0.55 dB	-0.550 dB	0.027 dB
0.000 dB	10.150 MHz	-0.55 dB	-0.550 dB	0.027 dB
0.000 dB	15 MHz	-0.54 dB	-0.540 dB	0.027 dB
0.000 dB	30 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	51.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	101.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	165 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	201.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	300 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	301.000 MHz	0.07 dB	0.070 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	401.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	501.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	601.000 MHz	-0.01 dB	-0.010 dB	0.053 dB
0.000 dB	650 MHz	-0.08 dB	-0.080 dB	0.053 dB
0.000 dB	701.000 MHz	-0.04 dB	-0.040 dB	0.053 dB
0.000 dB	801.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	901.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	999 MHz	0.07 dB	0.070 dB	0.053 dB



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Frequency Response

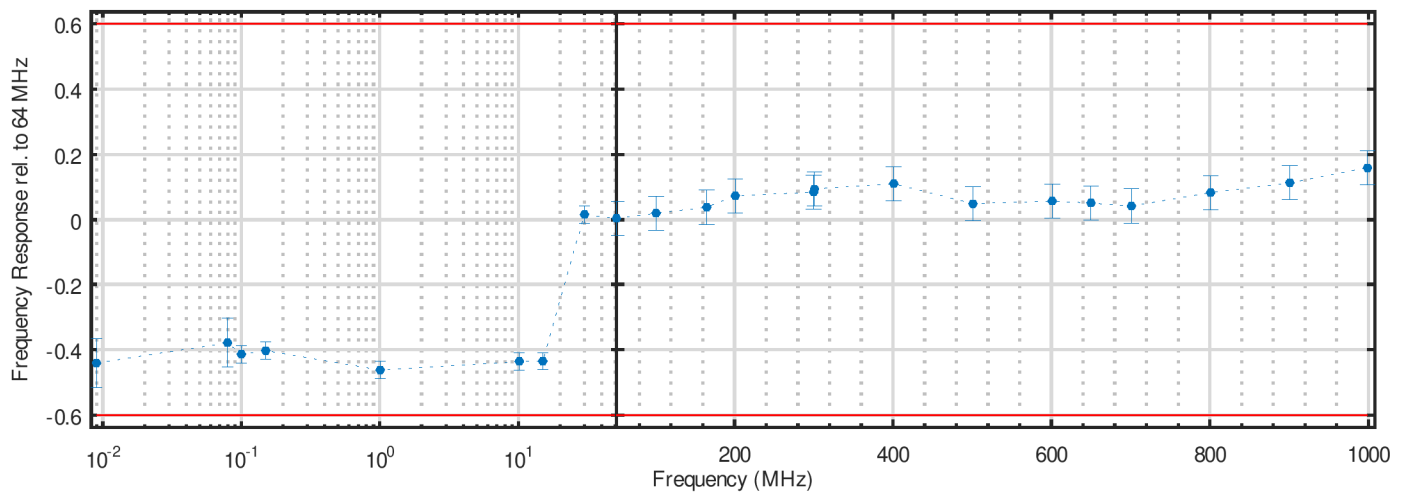
Input 2, preselector on, Preamplifier off, RF attenuation 20 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.44 dB	-0.440 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.38 dB	-0.380 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.41 dB	-0.410 dB	0.027 dB
0.000 dB	0.15 MHz	-0.40 dB	-0.400 dB	0.027 dB
0.000 dB	1.005 MHz	-0.46 dB	-0.460 dB	0.027 dB
0.000 dB	10.150 MHz	-0.44 dB	-0.440 dB	0.027 dB
0.000 dB	15 MHz	-0.43 dB	-0.430 dB	0.027 dB
0.000 dB	30 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	51.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	101.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	165 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	201.000 MHz	0.07 dB	0.070 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	300 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	301.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	401.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	601.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	650 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	701.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	801.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	901.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	999 MHz	0.16 dB	0.160 dB	0.053 dB



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Frequency Response

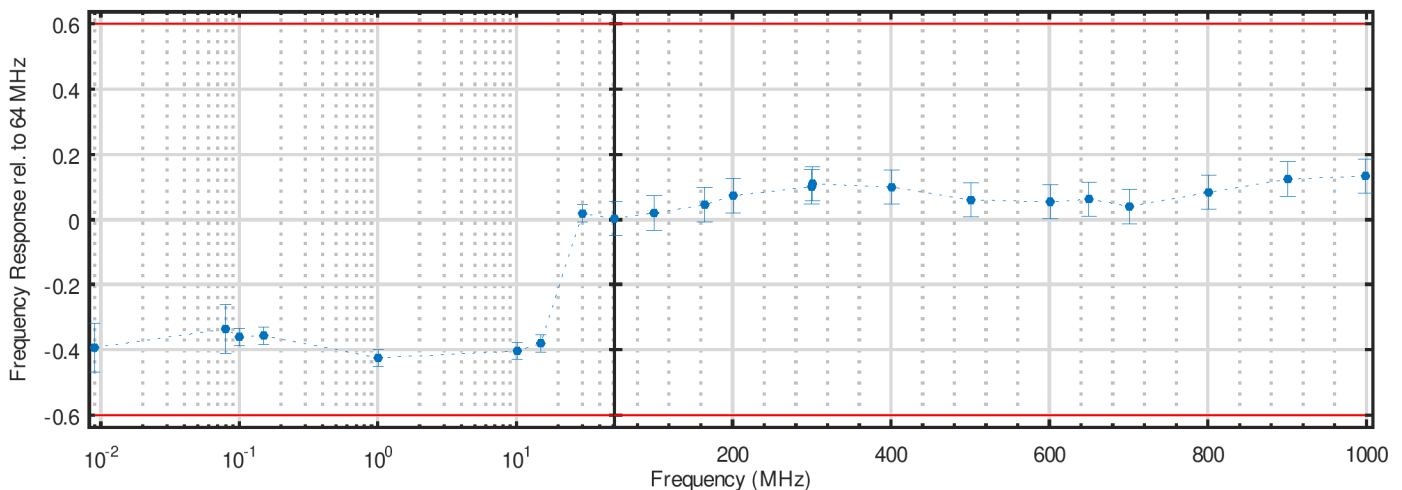
Input 2, preselector on, Preamplifier off, RF attenuation 30 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.39 dB	-0.390 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.34 dB	-0.340 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.36 dB	-0.360 dB	0.027 dB
0.000 dB	0.15 MHz	-0.36 dB	-0.360 dB	0.027 dB
0.000 dB	1.005 MHz	-0.42 dB	-0.420 dB	0.027 dB
0.000 dB	10.150 MHz	-0.40 dB	-0.400 dB	0.027 dB
0.000 dB	15 MHz	-0.38 dB	-0.380 dB	0.027 dB
0.000 dB	30 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	51.000 MHz	0.00 dB	0.000 dB	0.053 dB
0.000 dB	101.000 MHz	0.02 dB	0.020 dB	0.053 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	165 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	201.000 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	300 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	301.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	401.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	501.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	601.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	650 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	701.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	801.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	901.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	999 MHz	0.13 dB	0.130 dB	0.053 dB



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Frequency Response

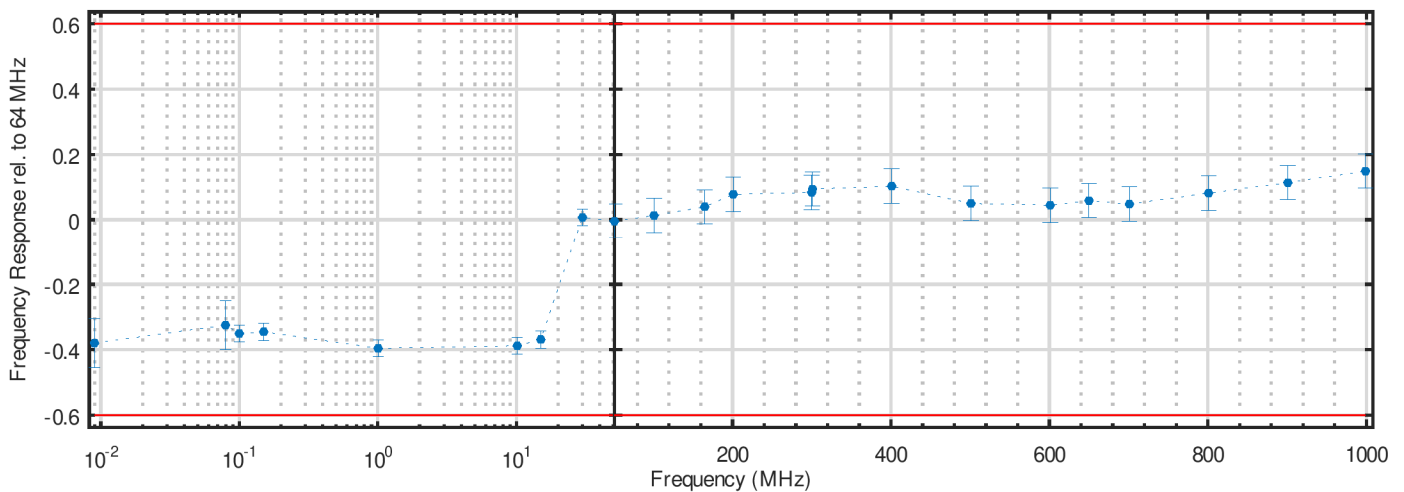
Input 2, preselector on, Preamplifier off, RF attenuation 40 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	-0.38 dB	-0.380 dB	0.075 dB
0.000 dB	0.0795 MHz	-0.32 dB	-0.320 dB	0.075 dB
0.000 dB	0.10002 MHz	-0.35 dB	-0.350 dB	0.027 dB
0.000 dB	0.15 MHz	-0.35 dB	-0.350 dB	0.027 dB
0.000 dB	1.005 MHz	-0.40 dB	-0.400 dB	0.027 dB
0.000 dB	10.150 MHz	-0.39 dB	-0.390 dB	0.027 dB
0.000 dB	15 MHz	-0.37 dB	-0.370 dB	0.027 dB
0.000 dB	30 MHz	0.01 dB	0.010 dB	0.027 dB

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	51.000 MHz	-0.00 dB	0.000 dB	0.053 dB
0.000 dB	101.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	165 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	201.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	300 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	301.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	401.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	601.000 MHz	0.04 dB	0.040 dB	0.053 dB
0.000 dB	650 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	701.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	801.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	901.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	999 MHz	0.15 dB	0.150 dB	0.053 dB



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Frequency Response

Input 2, preselector on, Preamplifier on, RF attenuation 10 dB, DC coupled

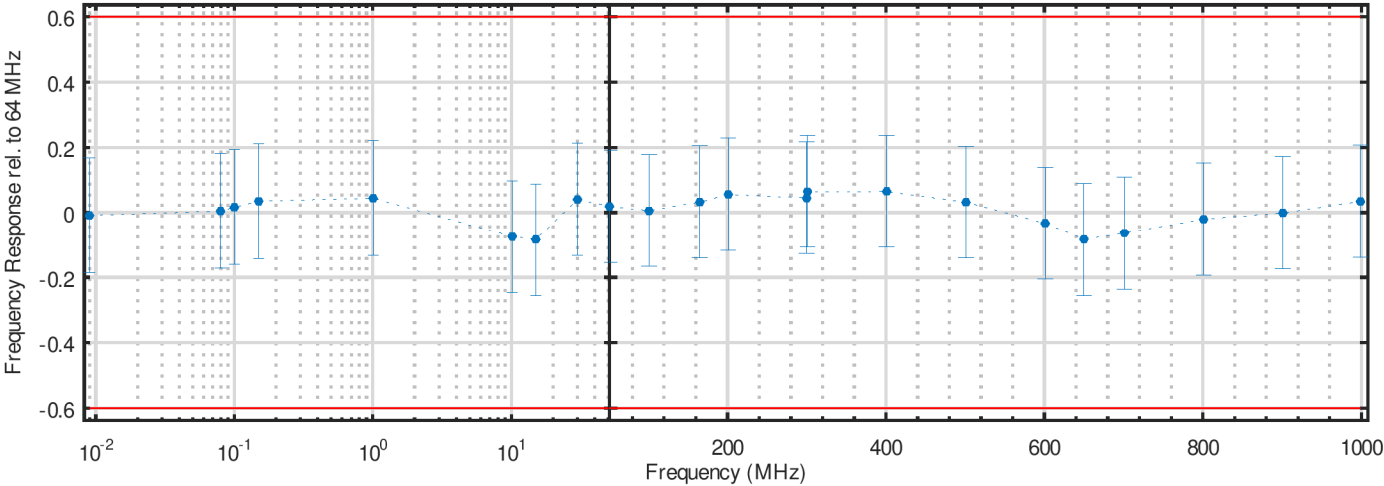
at input level -25 dBm

64 MHz Reference Frequency

*	0.000 dB	0.009 MHz	-0.01 dB	-0.01 dB	0.18 dB
*	0.000 dB	0.0795 MHz	0.00 dB	0.00 dB	0.18 dB
*	0.000 dB	0.10002 MHz	0.02 dB	0.02 dB	0.18 dB
*	0.000 dB	0.15 MHz	0.04 dB	0.04 dB	0.18 dB
*	0.000 dB	1.005 MHz	0.04 dB	0.04 dB	0.18 dB
	0.000 dB	10.150 MHz	-0.07 dB	-0.07 dB	0.17 dB

Kalibrierschein vom
 Calibration certificate dated
 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	15 MHz	-0.08 dB	-0.08 dB	0.17 dB
0.000 dB	30 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	51.000 MHz	0.02 dB	0.02 dB	0.17 dB
0.000 dB	101.000 MHz	0.01dB	0.01dB	0.17 dB
0.000 dB	165 MHz	0.03 dB	0.03 dB	0.17 dB
0.000 dB	201.000 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	300 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	301.000 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	401.000 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	501.000 MHz	0.03 dB	0.03 dB	0.17 dB
0.000 dB	601.000 MHz	-0.03 dB	-0.03 dB	0.17 dB
0.000 dB	650 MHz	-0.08 dB	-0.08 dB	0.17 dB
0.000 dB	701.000 MHz	-0.06 dB	-0.06 dB	0.17 dB
0.000 dB	801.000 MHz	-0.02 dB	-0.02 dB	0.17 dB
0.000 dB	901.000 MHz	-0.00 dB	0.00 dB	0.17 dB
0.000 dB	999 MHz	0.03 dB	0.03 dB	0.17 dB



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Frequency Response

Input 2, preselector on, Preamplifier on, RF attenuation 20 dB, DC coupled

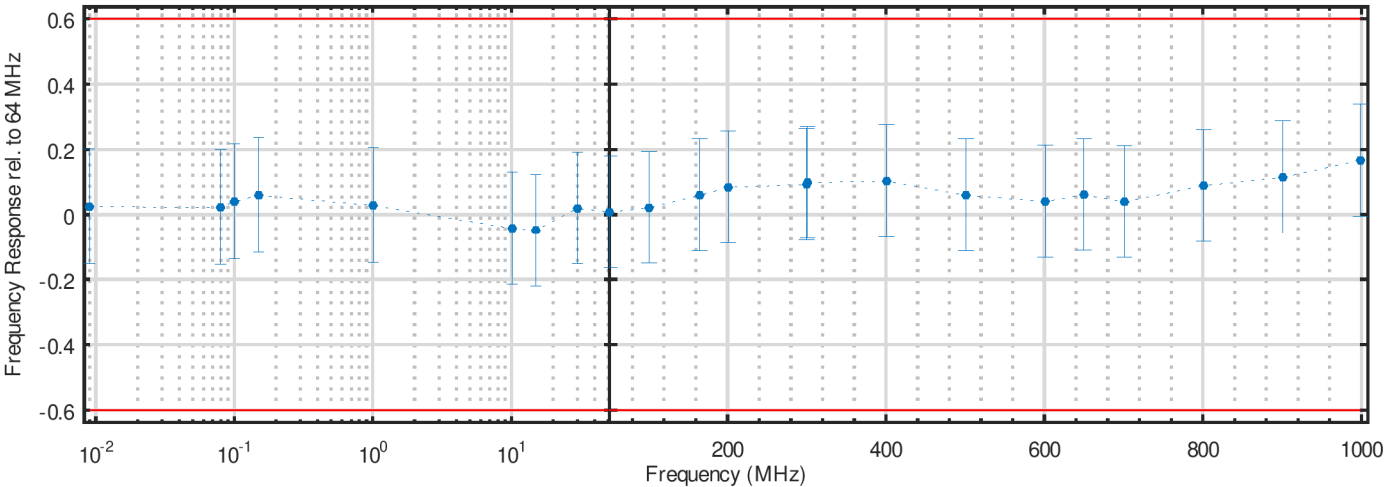
at input level -15 dBm

64 MHz Reference Frequency

*	0.000 dB	0.009 MHz	0.02 dB	0.02 dB	0.18 dB
*	0.000 dB	0.0795 MHz	0.02 dB	0.02 dB	0.18 dB
*	0.000 dB	0.10002 MHz	0.04 dB	0.04 dB	0.18 dB
*	0.000 dB	0.15 MHz	0.06 dB	0.06 dB	0.18 dB

Kalibrierschein vom
 Calibration certificate dated
 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	1.005 MHz	0.03 dB	0.03 dB	0.18 dB
0.000 dB	10.150 MHz	-0.04 dB	-0.04 dB	0.17 dB
0.000 dB	15 MHz	-0.05 dB	-0.05 dB	0.17 dB
0.000 dB	30 MHz	0.02 dB	0.02 dB	0.17 dB
0.000 dB	51.000 MHz	0.01dB	0.01dB	0.17 dB
0.000 dB	101.000 MHz	0.02 dB	0.02 dB	0.17 dB
0.000 dB	165 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	201.000 MHz	0.08 dB	0.08 dB	0.17 dB
0.000 dB	300 MHz	0.09 dB	0.09 dB	0.17 dB
0.000 dB	301.000 MHz	0.10 dB	0.10 dB	0.17 dB
0.000 dB	401.000 MHz	0.10 dB	0.10 dB	0.17 dB
0.000 dB	501.000 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	601.000 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	650 MHz	0.06 dB	0.06 dB	0.17 dB
0.000 dB	701.000 MHz	0.04 dB	0.04 dB	0.17 dB
0.000 dB	801.000 MHz	0.09 dB	0.09 dB	0.17 dB
0.000 dB	901.000 MHz	0.11dB	0.11dB	0.17 dB
0.000 dB	999 MHz	0.17 dB	0.17 dB	0.17 dB



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Frequency Response

Input 2, preselector on, Preamplifier on, RF attenuation 30 dB, DC coupled

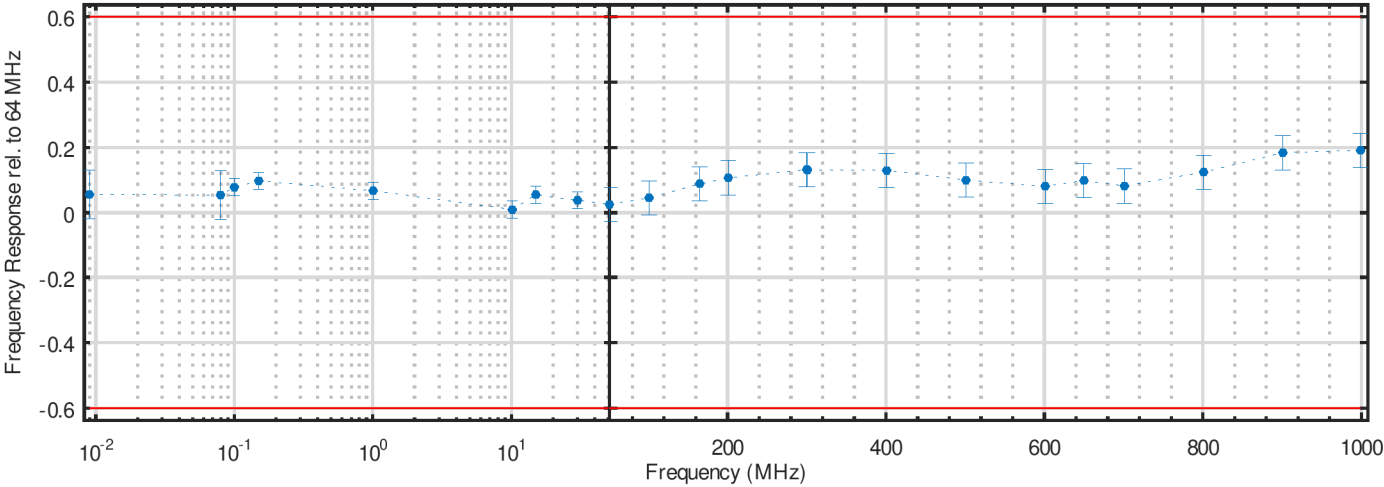
at input level -5 dBm

64 MHz Reference Frequency

0.000 dB	0.009 MHz	0.06 dB	0.060 dB	0.075 dB
0.000 dB	0.0795 MHz	0.05 dB	0.050 dB	0.075 dB

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Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
0.000 dB	0.10002 MHz	0.08 dB	0.080 dB	0.027 dB
0.000 dB	0.15 MHz	0.10 dB	0.100 dB	0.027 dB
0.000 dB	1.005 MHz	0.07 dB	0.070 dB	0.027 dB
0.000 dB	10.150 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	15 MHz	0.06 dB	0.060 dB	0.027 dB
0.000 dB	30 MHz	0.04 dB	0.040 dB	0.027 dB
0.000 dB	51.000 MHz	0.03 dB	0.030 dB	0.053 dB
0.000 dB	101.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	165 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	201.000 MHz	0.11 dB	0.110 dB	0.053 dB
0.000 dB	300 MHz	0.13 dB	0.130 dB	0.053 dB
0.000 dB	301.000 MHz	0.13 dB	0.130 dB	0.053 dB
0.000 dB	401.000 MHz	0.13 dB	0.130 dB	0.053 dB
0.000 dB	501.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	601.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	650 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	701.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	801.000 MHz	0.12 dB	0.120 dB	0.053 dB
0.000 dB	901.000 MHz	0.18 dB	0.180 dB	0.053 dB
0.000 dB	999 MHz	0.19 dB	0.190 dB	0.053 dB



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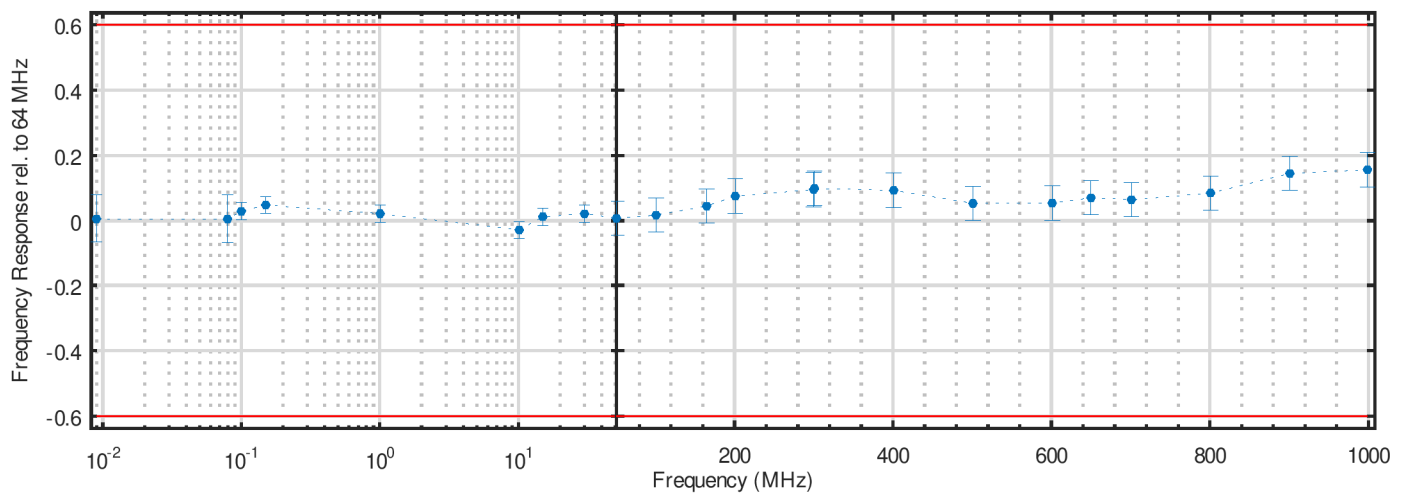
Frequency Response

Input 2, preselector on, Preamplifier on, RF attenuation 40 dB, DC coupled

at input level -5 dBm

64 MHz Reference Frequency

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
0.000 dB	0.009 MHz	0.01 dB	0.010 dB	0.075 dB
0.000 dB	0.0795 MHz	0.01 dB	0.010 dB	0.075 dB
0.000 dB	0.10002 MHz	0.03 dB	0.030 dB	0.027 dB
0.000 dB	0.15 MHz	0.05 dB	0.050 dB	0.027 dB
0.000 dB	1.005 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	10.150 MHz	-0.03 dB	-0.030 dB	0.027 dB
0.000 dB	15 MHz	0.01 dB	0.010 dB	0.027 dB
0.000 dB	30 MHz	0.02 dB	0.020 dB	0.027 dB
0.000 dB	51.000 MHz	0.01 dB	0.010 dB	0.053 dB
0.000 dB	101.000 MHz	0.02 dB	0.020 dB	0.053 dB
0.000 dB	165 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	201.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	300 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	301.000 MHz	0.10 dB	0.100 dB	0.053 dB
0.000 dB	401.000 MHz	0.09 dB	0.090 dB	0.053 dB
0.000 dB	501.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	601.000 MHz	0.05 dB	0.050 dB	0.053 dB
0.000 dB	650 MHz	0.07 dB	0.070 dB	0.053 dB
0.000 dB	701.000 MHz	0.06 dB	0.060 dB	0.053 dB
0.000 dB	801.000 MHz	0.08 dB	0.080 dB	0.053 dB
0.000 dB	901.000 MHz	0.14 dB	0.140 dB	0.053 dB
0.000 dB	999 MHz	0.16 dB	0.160 dB	0.053 dB



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Absolute Level Accuracy at 64 MHz

Input 2, preselector off, Preamplifier off, RF attenuation 10 dB, DC coupled

at input level -10 dBm

Kalibrierschein vom Calibration certificate dated 21.03.2025

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D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
-10.000 dBm		-10.10 dBm	-0.100 dB	0.053 dB
Absolute Level Accuracy at 64 MHz Input 2, preselector on, Preamplifier off, RF attenuation 10 dB, DC coupled at input level -10 dBm				
-10.000 dBm		-10.10 dBm	-0.100 dB	0.053 dB
Absolute Level Accuracy at 64 MHz Input 2, preselector on, Preamplifier on, RF attenuation 30 dB, DC coupled at input level -10 dBm				
-10.000 dBm		-10.09 dBm	-0.090 dB	0.053 dB
Input VSWR Input 1, preselector off, Preamplifier off, RF attenuation 0 dB, DC coupled Unit is VSWR				
1.4542	0.009 MHz	1.000	-0.454	0.016
1.5049	0.010 MHz	1.000	-0.505	0.016
1.5088	0.020 MHz	1.000	-0.509	0.017
1.5071	0.030 MHz	1.000	-0.507	0.017
1.5061	0.050 MHz	1.000	-0.506	0.017
1.5064	0.100 MHz	1.000	-0.506	0.017
1.5052	0.200 MHz	1.000	-0.505	0.017
1.5033	0.500 MHz	1.000	-0.503	0.016
1.5077	1.000 MHz	1.000	-0.508	0.017
1.5111	2.000 MHz	1.000	-0.511	0.017
1.5234	5.000 MHz	1.000	-0.523	0.017
1.5014	10.000 MHz	1.000	-0.501	0.016
1.5020	15.000 MHz	1.000	-0.502	0.016
1.5130	20.000 MHz	1.000	-0.513	0.017
1.4997	50.000 MHz	1.000	-0.500	0.016
1.4685	100.000 MHz	1.000	-0.469	0.016
1.2382	200.000 MHz	1.000	-0.238	0.012

Kalibrierschein vom
 Calibration certificate dated
 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
1.3524	300.000 MHz	1.000	-0.352	0.014
1.5938	400.000 MHz	1.000	-0.594	0.018
1.3064	475.000 MHz	1.000	-0.306	0.013
1.7199	500.000 MHz	1.000	-0.720	0.020
1.4605	600.000 MHz	1.000	-0.461	0.016
1.2175	700.000 MHz	1.000	-0.217	0.012
1.0682	800.000 MHz	1.000	-0.0682	0.0099
1.1437	900.000 MHz	1.000	-0.144	0.011
1.0555	1000.000 MHz	1.000	-0.0555	0.0098
1.3975	1500.000 MHz	1.000	-0.397	0.015
1.1358	2000.000 MHz	1.000	-0.136	0.011
1.3111	2500.000 MHz	1.000	-0.311	0.013
1.3291	3000.000 MHz	1.000	-0.329	0.014
2.7352	3500.000 MHz	1.000	-1.735	0.043
1.1543	4000.000 MHz	1.000	-0.154	0.011
1.5687	4500.000 MHz	1.000	-0.569	0.018
1.1802	5000.000 MHz	1.000	-0.180	0.012
1.3328	5500.000 MHz	1.000	-0.333	0.014
1.4842	6000.000 MHz	1.000	-0.484	0.016
1.4445	6500.000 MHz	1.000	-0.444	0.016
1.1038	7000.000 MHz	1.000	-0.104	0.010

The graph shows the S11 parameter in VSWR units plotted against frequency in MHz on a logarithmic scale. The y-axis ranges from 1 to 3, and the x-axis ranges from 10⁻² to 7000 MHz. A horizontal red line is drawn at S11 = 2.0. Blue data points are plotted, showing a relatively flat response around S11 = 1.5 until approximately 100 MHz, after which the response becomes more erratic, with a significant peak reaching nearly 3.0 VSWR around 3500 MHz. A dashed blue line connects the data points.

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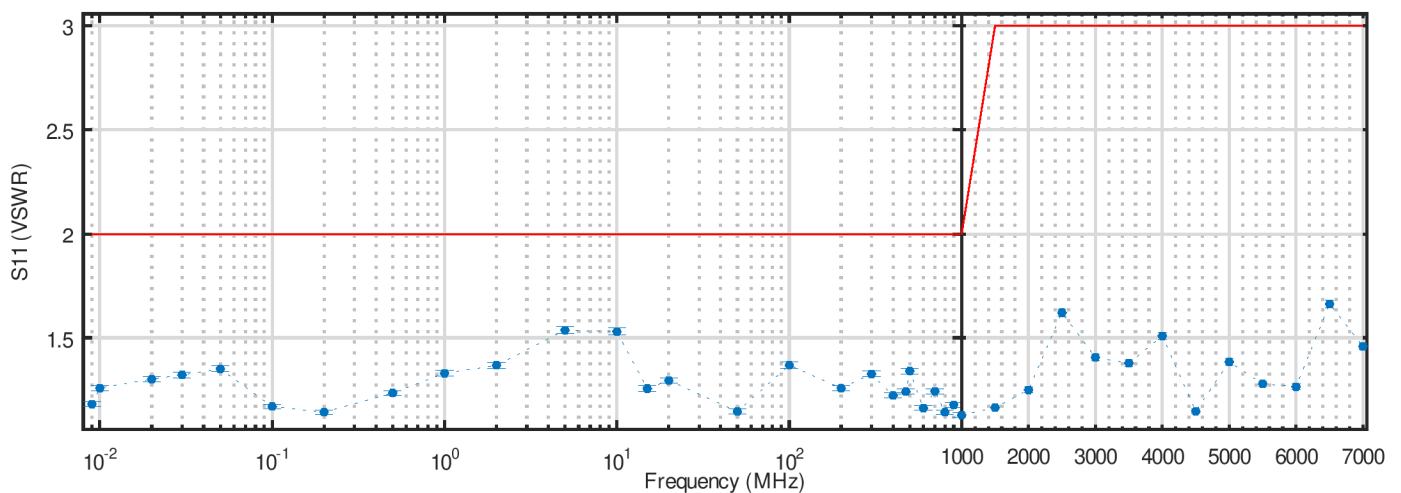
Input VSWR

Input 1, preselector on, Preamplifier off, RF attenuation 0 dB, DC coupled

Unit is VSWR

1.1832	0.009 MHz	1.000	-0.183	0.012
1.2600	0.010 MHz	1.000	-0.260	0.013
1.3020	0.020 MHz	1.000	-0.302	0.013

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
1.3227	0.030 MHz	1.000	-0.323	0.014
1.3517	0.050 MHz	1.000	-0.352	0.014
1.1713	0.100 MHz	1.000	-0.171	0.011
1.1444	0.200 MHz	1.000	-0.144	0.011
1.2358	0.500 MHz	1.000	-0.236	0.012
1.3302	1.000 MHz	1.000	-0.330	0.014
1.3684	2.000 MHz	1.000	-0.368	0.014
1.5368	5.000 MHz	1.000	-0.537	0.017
1.5300	10.000 MHz	1.000	-0.530	0.017
1.2573	15.000 MHz	1.000	-0.257	0.013
1.2964	20.000 MHz	1.000	-0.296	0.013
1.1480	50.000 MHz	1.000	-0.148	0.011
1.3692	100.000 MHz	1.000	-0.369	0.014
1.2592	200.000 MHz	1.000	-0.259	0.013
1.3271	300.000 MHz	1.000	-0.327	0.014
1.2237	400.000 MHz	1.000	-0.224	0.012
1.2422	475.000 MHz	1.000	-0.242	0.012
1.3407	500.000 MHz	1.000	-0.341	0.014
1.1643	600.000 MHz	1.000	-0.164	0.011
1.2444	700.000 MHz	1.000	-0.244	0.012
1.1443	800.000 MHz	1.000	-0.144	0.011
1.1795	900.000 MHz	1.000	-0.180	0.011
1.1303	1000.000 MHz	1.000	-0.130	0.011
1.1664	1500.000 MHz	1.000	-0.166	0.011
1.2510	2000.000 MHz	1.000	-0.251	0.013
1.6202	2500.000 MHz	1.000	-0.620	0.018
1.4064	3000.000 MHz	1.000	-0.406	0.015
1.3785	3500.000 MHz	1.000	-0.379	0.014
1.5091	4000.000 MHz	1.000	-0.509	0.017
1.1487	4500.000 MHz	1.000	-0.149	0.011
1.3849	5000.000 MHz	1.000	-0.385	0.015
1.2799	5500.000 MHz	1.000	-0.280	0.013
1.2663	6000.000 MHz	1.000	-0.266	0.013
1.6617	6500.000 MHz	1.000	-0.662	0.019
1.4592	7000.000 MHz	1.000	-0.459	0.016



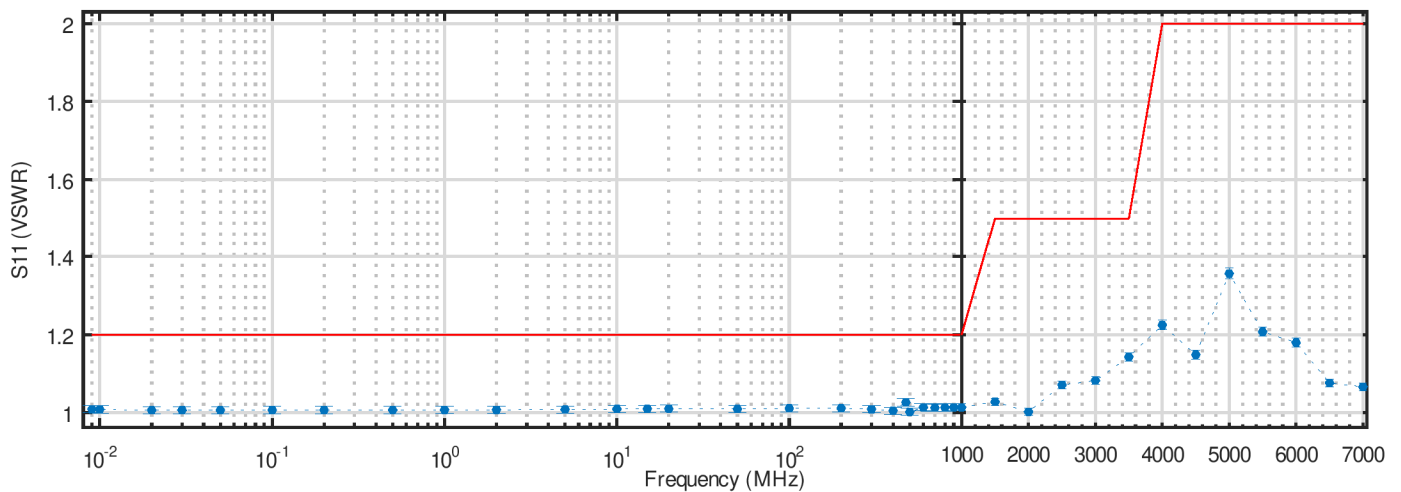
Kalibrierschein vom Calibration certificate dated 21.03.2025

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D-K- 15070-01-00
2024-12

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Input VSWR				
Input 1, preselector off, Preamplifier off, RF attenuation 10 dB, DC coupled				
Unit is VSWR				
1.0481	0.009 MHz	1.000	-0.0481	0.0097
1.0476	0.010 MHz	1.000	-0.0476	0.0097
1.0464	0.020 MHz	1.000	-0.0464	0.0097
1.0465	0.030 MHz	1.000	-0.0465	0.0097
1.0465	0.050 MHz	1.000	-0.0465	0.0097
1.0465	0.100 MHz	1.000	-0.0465	0.0097
1.0463	0.200 MHz	1.000	-0.0463	0.0097
1.0464	0.500 MHz	1.000	-0.0464	0.0097
1.0466	1.000 MHz	1.000	-0.0466	0.0097
1.0468	2.000 MHz	1.000	-0.0468	0.0097
1.0474	5.000 MHz	1.000	-0.0474	0.0097
1.0480	10.000 MHz	1.000	-0.0480	0.0097
1.0479	15.000 MHz	1.000	-0.0479	0.0097
1.0475	20.000 MHz	1.000	-0.0475	0.0097
1.0381	50.000 MHz	1.000	-0.0381	0.0095
1.0339	100.000 MHz	1.000	-0.0339	0.0095
1.0265	200.000 MHz	1.000	-0.0265	0.0094
1.0314	300.000 MHz	1.000	-0.0314	0.0095
1.0543	400.000 MHz	1.000	-0.0543	0.0098
1.1857	475.000 MHz	1.000	-0.186	0.012
1.0465	500.000 MHz	1.000	-0.0465	0.0097
1.0491	600.000 MHz	1.000	-0.0491	0.0097
1.0339	700.000 MHz	1.000	-0.0339	0.0095
1.0225	800.000 MHz	1.000	-0.0225	0.0093
1.0324	900.000 MHz	1.000	-0.0324	0.0095
1.0405	1000.000 MHz	1.000	-0.0405	0.0096
1.0241	1500.000 MHz	1.000	-0.0241	0.0094
1.0292	2000.000 MHz	1.000	-0.0292	0.0094
1.0777	2500.000 MHz	1.000	-0.078	0.010
1.0855	3000.000 MHz	1.000	-0.086	0.010
1.1864	3500.000 MHz	1.000	-0.186	0.012
1.2207	4000.000 MHz	1.000	-0.221	0.012
1.2296	4500.000 MHz	1.000	-0.230	0.012
1.1201	5000.000 MHz	1.000	-0.120	0.011
1.3651	5500.000 MHz	1.000	-0.365	0.014
1.3949	6000.000 MHz	1.000	-0.395	0.015
1.0682	6500.000 MHz	1.000	-0.0682	0.0099
1.0313	7000.000 MHz	1.000	-0.0313	0.0095

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
P:\Zertifikate_ISO\METCAL_Diagramme\16050906_S-Param_2024.12.11_1328_35.png				
Input VSWR Input 1, preselector off, Preamplifier off, RF attenuation 20 dB, DC coupled Unit is VSWR				
1.0094	0.009 MHz	1.000	-0.0094	0.0092
1.0088	0.010 MHz	1.000	-0.0088	0.0092
1.0071	0.020 MHz	1.000	-0.0071	0.0092
1.0071	0.030 MHz	1.000	-0.0071	0.0092
1.0070	0.050 MHz	1.000	-0.0070	0.0092
1.0072	0.100 MHz	1.000	-0.0072	0.0092
1.0072	0.200 MHz	1.000	-0.0072	0.0092
1.0073	0.500 MHz	1.000	-0.0073	0.0092
1.0075	1.000 MHz	1.000	-0.0075	0.0092
1.0078	2.000 MHz	1.000	-0.0078	0.0092
1.0085	5.000 MHz	1.000	-0.0085	0.0092
1.0097	10.000 MHz	1.000	-0.0097	0.0092
1.0104	15.000 MHz	1.000	-0.0104	0.0092
1.0108	20.000 MHz	1.000	-0.0108	0.0092
1.0098	50.000 MHz	1.000	-0.0098	0.0092
1.0114	100.000 MHz	1.000	-0.0114	0.0092
1.0119	200.000 MHz	1.000	-0.0119	0.0092
1.0095	300.000 MHz	1.000	-0.0095	0.0092
1.0054	400.000 MHz	1.000	-0.0054	0.0091
1.0268	475.000 MHz	1.000	-0.0268	0.0094
1.0026	500.000 MHz	1.000	-0.0026	0.0091
1.0141	600.000 MHz	1.000	-0.0141	0.0092
1.0130	700.000 MHz	1.000	-0.0130	0.0092
1.0139	800.000 MHz	1.000	-0.0139	0.0092

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
1.0145	900.000 MHz	1.000	-0.0145	0.0092
1.0140	1000.000 MHz	1.000	-0.0140	0.0092
1.0280	1500.000 MHz	1.000	-0.0280	0.0094
1.0029	2000.000 MHz	1.000	-0.0029	0.0091
1.0715	2500.000 MHz	1.000	-0.0715	0.0100
1.0824	3000.000 MHz	1.000	-0.082	0.010
1.1433	3500.000 MHz	1.000	-0.143	0.011
1.2249	4000.000 MHz	1.000	-0.225	0.012
1.1488	4500.000 MHz	1.000	-0.149	0.011
1.3565	5000.000 MHz	1.000	-0.356	0.014
1.2075	5500.000 MHz	1.000	-0.208	0.012
1.1798	6000.000 MHz	1.000	-0.180	0.012
1.0766	6500.000 MHz	1.000	-0.077	0.010
1.0667	7000.000 MHz	1.000	-0.0667	0.0099



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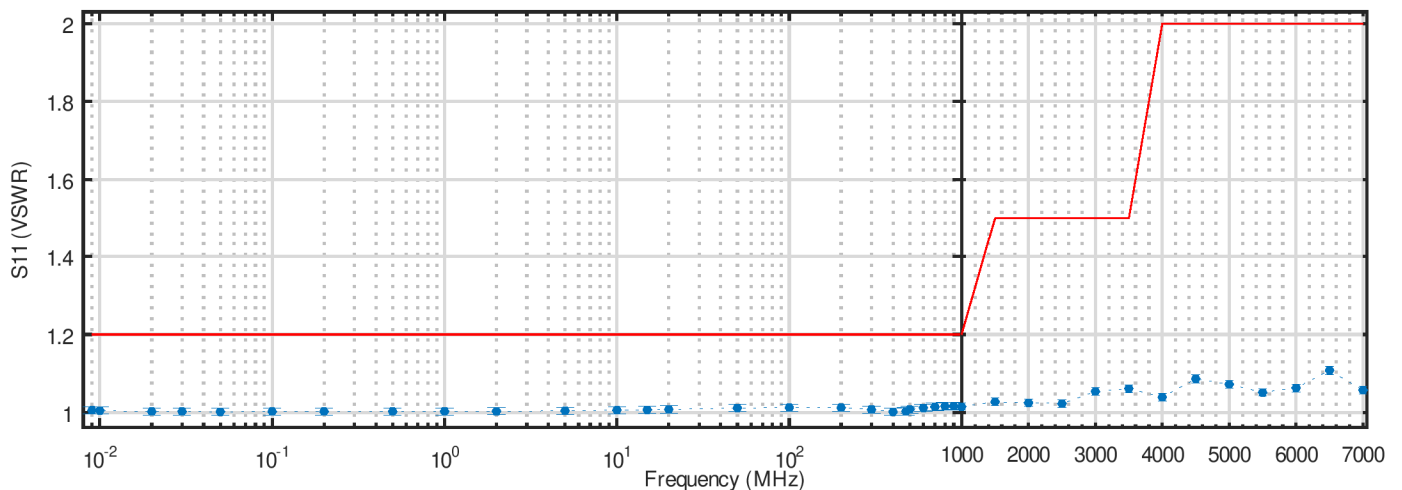
Input VSWR

Input 1, preselector off, Preamplifier off, RF attenuation 40 dB, DC coupled

Unit is VSWR

1.0056	0.009 MHz	1.000	-0.0056	0.0091
1.0050	0.010 MHz	1.000	-0.0050	0.0091
1.0025	0.020 MHz	1.000	-0.0025	0.0091
1.0024	0.030 MHz	1.000	-0.0024	0.0091
1.0023	0.050 MHz	1.000	-0.0023	0.0091
1.0024	0.100 MHz	1.000	-0.0024	0.0091
1.0024	0.200 MHz	1.000	-0.0024	0.0091
1.0027	0.500 MHz	1.000	-0.0027	0.0091
1.0029	1.000 MHz	1.000	-0.0029	0.0091
1.0033	2.000 MHz	1.000	-0.0033	0.0091

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
1.0044	5.000 MHz	1.000	-0.0044	0.0091
1.0061	10.000 MHz	1.000	-0.0061	0.0091
1.0072	15.000 MHz	1.000	-0.0072	0.0092
1.0080	20.000 MHz	1.000	-0.0080	0.0092
1.0117	50.000 MHz	1.000	-0.0117	0.0092
1.0128	100.000 MHz	1.000	-0.0128	0.0092
1.0124	200.000 MHz	1.000	-0.0124	0.0092
1.0075	300.000 MHz	1.000	-0.0075	0.0092
1.0018	400.000 MHz	1.000	-0.0018	0.0091
1.0031	475.000 MHz	1.000	-0.0031	0.0091
1.0077	500.000 MHz	1.000	-0.0077	0.0092
1.0122	600.000 MHz	1.000	-0.0122	0.0092
1.0148	700.000 MHz	1.000	-0.0148	0.0093
1.0164	800.000 MHz	1.000	-0.0164	0.0093
1.0166	900.000 MHz	1.000	-0.0166	0.0093
1.0151	1000.000 MHz	1.000	-0.0151	0.0093
1.0276	1500.000 MHz	1.000	-0.0276	0.0094
1.0252	2000.000 MHz	1.000	-0.0252	0.0094
1.0228	2500.000 MHz	1.000	-0.0228	0.0094
1.0539	3000.000 MHz	1.000	-0.0539	0.0098
1.0615	3500.000 MHz	1.000	-0.0615	0.0099
1.0393	4000.000 MHz	1.000	-0.0393	0.0096
1.0866	4500.000 MHz	1.000	-0.087	0.010
1.0723	5000.000 MHz	1.000	-0.0723	0.0100
1.0516	5500.000 MHz	1.000	-0.0516	0.0097
1.0631	6000.000 MHz	1.000	-0.0631	0.0099
1.1081	6500.000 MHz	1.000	-0.108	0.011
1.0574	7000.000 MHz	1.000	-0.0574	0.0098



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Input VSWR

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Input 1, preselector on, Preamplifier off, RF attenuation 0 dB, AC coupled				
Unit is VSWR				
1.3711	10.000 MHz	1.000	-0.371	0.014
1.1852	15.000 MHz	1.000	-0.185	0.012
1.3164	20.000 MHz	1.000	-0.316	0.013
1.1308	50.000 MHz	1.000	-0.131	0.011
1.3697	100.000 MHz	1.000	-0.370	0.014
1.2438	200.000 MHz	1.000	-0.244	0.012
1.3196	300.000 MHz	1.000	-0.320	0.014
1.2324	400.000 MHz	1.000	-0.232	0.012
1.0713	475.000 MHz	1.000	-0.0713	0.0100
1.3245	500.000 MHz	1.000	-0.325	0.014
1.2368	600.000 MHz	1.000	-0.237	0.012
1.2415	700.000 MHz	1.000	-0.241	0.012
1.1268	800.000 MHz	1.000	-0.127	0.011
1.1974	900.000 MHz	1.000	-0.197	0.012
1.1464	1000.000 MHz	1.000	-0.146	0.011
1.1012	1500.000 MHz	1.000	-0.101	0.010
1.3513	2000.000 MHz	1.000	-0.351	0.014
2.0483	2500.000 MHz	1.000	-1.048	0.027
2.3360	3000.000 MHz	1.000	-1.336	0.033
1.5798	3500.000 MHz	1.000	-0.580	0.018
1.9584	4000.000 MHz	1.000	-0.958	0.025
1.8772	4500.000 MHz	1.000	-0.877	0.023
1.7031	5000.000 MHz	1.000	-0.703	0.020
1.3096	5500.000 MHz	1.000	-0.310	0.013
1.5891	6000.000 MHz	1.000	-0.589	0.018
1.6179	6500.000 MHz	1.000	-0.618	0.018
1.3107	7000.000 MHz	1.000	-0.311	0.013

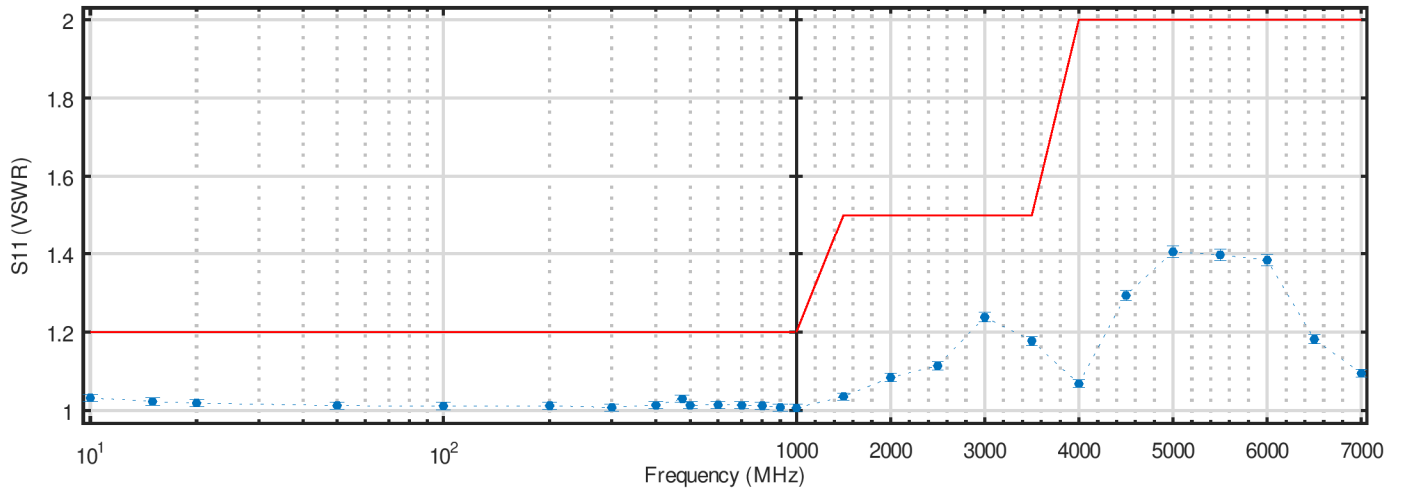
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Kalibrierschein vom Calibration certificate dated 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicher- heit ($k=2$) Measuring uncertainty ($k=2$)
Input VSWR				
Input 1, preselector off, Preamplifier off, RF attenuation 10 dB, AC coupled				
Unit is VSWR				
1.0642	10.000 MHz	1.000	-0.0642	0.0099
1.0596	15.000 MHz	1.000	-0.0596	0.0098
1.0576	20.000 MHz	1.000	-0.0576	0.0098
1.0442	50.000 MHz	1.000	-0.0442	0.0096
1.0308	100.000 MHz	1.000	-0.0308	0.0095
1.0279	200.000 MHz	1.000	-0.0279	0.0094
1.0278	300.000 MHz	1.000	-0.0278	0.0094
1.0626	400.000 MHz	1.000	-0.0626	0.0099
1.0463	475.000 MHz	1.000	-0.0463	0.0097
1.0533	500.000 MHz	1.000	-0.0533	0.0097
1.0423	600.000 MHz	1.000	-0.0423	0.0096
1.0320	700.000 MHz	1.000	-0.0320	0.0095
1.0406	800.000 MHz	1.000	-0.0406	0.0096
1.0154	900.000 MHz	1.000	-0.0154	0.0093
1.0196	1000.000 MHz	1.000	-0.0196	0.0093
1.0477	1500.000 MHz	1.000	-0.0477	0.0097
1.0778	2000.000 MHz	1.000	-0.078	0.010
1.1227	2500.000 MHz	1.000	-0.123	0.011
1.2470	3000.000 MHz	1.000	-0.247	0.012
1.2314	3500.000 MHz	1.000	-0.231	0.012
1.1811	4000.000 MHz	1.000	-0.181	0.012
1.0861	4500.000 MHz	1.000	-0.086	0.010
1.0922	5000.000 MHz	1.000	-0.092	0.010
1.1393	5500.000 MHz	1.000	-0.139	0.011
1.0865	6000.000 MHz	1.000	-0.086	0.010
1.0518	6500.000 MHz	1.000	-0.0518	0.0097
1.0534	7000.000 MHz	1.000	-0.0534	0.0097

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
P:\Zertifikate_ISO\METCAL_Diagramme\16050906_S-Param_2024.12.11_1338_05.png				
Input VSWR				
Input 1, preselector off, Preamplifier off, RF attenuation 20 dB, AC coupled				
Unit is VSWR				
1.0316	10.000 MHz	1.000	-0.0316	0.0095
1.0225	15.000 MHz	1.000	-0.0225	0.0093
1.0186	20.000 MHz	1.000	-0.0186	0.0093
1.0120	50.000 MHz	1.000	-0.0120	0.0092
1.0110	100.000 MHz	1.000	-0.0110	0.0092
1.0118	200.000 MHz	1.000	-0.0118	0.0092
1.0071	300.000 MHz	1.000	-0.0071	0.0092
1.0134	400.000 MHz	1.000	-0.0134	0.0092
1.0297	475.000 MHz	1.000	-0.0297	0.0094
1.0132	500.000 MHz	1.000	-0.0132	0.0092
1.0139	600.000 MHz	1.000	-0.0139	0.0092
1.0134	700.000 MHz	1.000	-0.0134	0.0092
1.0118	800.000 MHz	1.000	-0.0118	0.0092
1.0075	900.000 MHz	1.000	-0.0075	0.0092
1.0065	1000.000 MHz	1.000	-0.0065	0.0091
1.0351	1500.000 MHz	1.000	-0.0351	0.0095
1.0838	2000.000 MHz	1.000	-0.084	0.010
1.1136	2500.000 MHz	1.000	-0.114	0.011
1.2377	3000.000 MHz	1.000	-0.238	0.012
1.1769	3500.000 MHz	1.000	-0.177	0.011
1.0677	4000.000 MHz	1.000	-0.0677	0.0099
1.2929	4500.000 MHz	1.000	-0.293	0.013
1.4038	5000.000 MHz	1.000	-0.404	0.015
1.3965	5500.000 MHz	1.000	-0.396	0.015

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
1.3827	6000.000 MHz	1.000	-0.383	0.015
1.1813	6500.000 MHz	1.000	-0.181	0.012
1.0942	7000.000 MHz	1.000	-0.094	0.010



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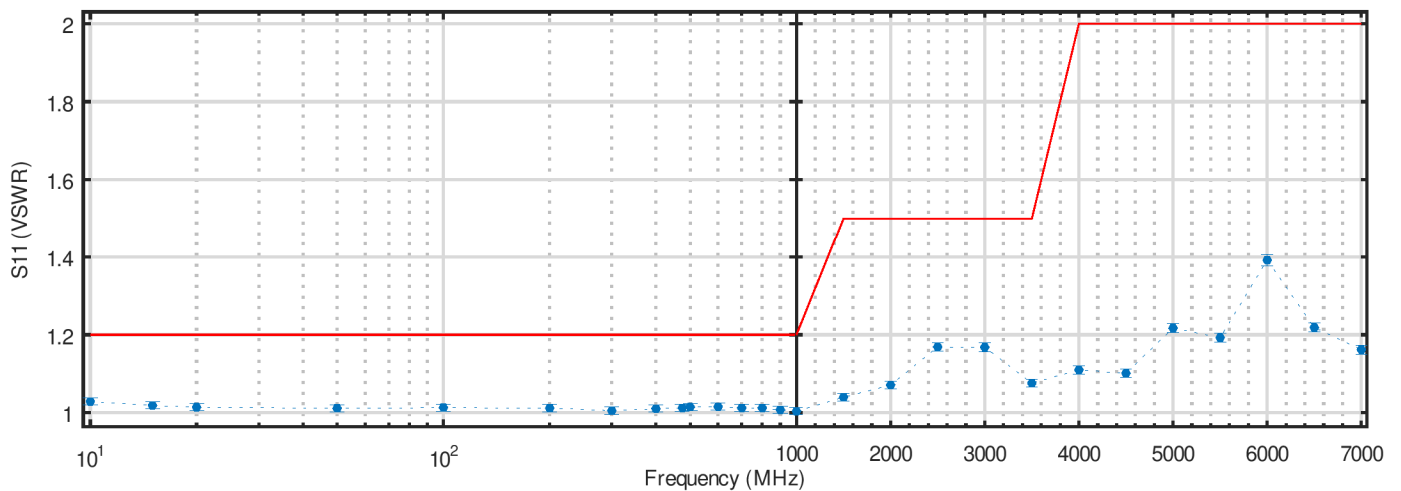
Input VSWR

Input 1, preselector off, Preamplifier off, RF attenuation 40 dB, AC coupled

Unit is VSWR

1.0290	10.000 MHz	1.000	-0.0290	0.0094
1.0188	15.000 MHz	1.000	-0.0188	0.0093
1.0143	20.000 MHz	1.000	-0.0143	0.0092
1.0116	50.000 MHz	1.000	-0.0116	0.0092
1.0131	100.000 MHz	1.000	-0.0131	0.0092
1.0118	200.000 MHz	1.000	-0.0118	0.0092
1.0052	300.000 MHz	1.000	-0.0052	0.0091
1.0105	400.000 MHz	1.000	-0.0105	0.0092
1.0123	475.000 MHz	1.000	-0.0123	0.0092
1.0144	500.000 MHz	1.000	-0.0144	0.0092
1.0156	600.000 MHz	1.000	-0.0156	0.0093
1.0124	700.000 MHz	1.000	-0.0124	0.0092
1.0123	800.000 MHz	1.000	-0.0123	0.0092
1.0072	900.000 MHz	1.000	-0.0072	0.0092
1.0040	1000.000 MHz	1.000	-0.0040	0.0091
1.0397	1500.000 MHz	1.000	-0.0397	0.0096
1.0710	2000.000 MHz	1.000	-0.0710	0.0100
1.1689	2500.000 MHz	1.000	-0.169	0.011
1.1680	3000.000 MHz	1.000	-0.168	0.011
1.0760	3500.000 MHz	1.000	-0.076	0.010
1.1099	4000.000 MHz	1.000	-0.110	0.011

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit ($k=2$) Measuring uncertainty ($k=2$)
1.1012	4500.000 MHz	1.000	-0.101	0.010
1.2171	5000.000 MHz	1.000	-0.217	0.012
1.1925	5500.000 MHz	1.000	-0.192	0.012
1.3918	6000.000 MHz	1.000	-0.392	0.015
1.2187	6500.000 MHz	1.000	-0.219	0.012
1.1619	7000.000 MHz	1.000	-0.162	0.011



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Input VSWR

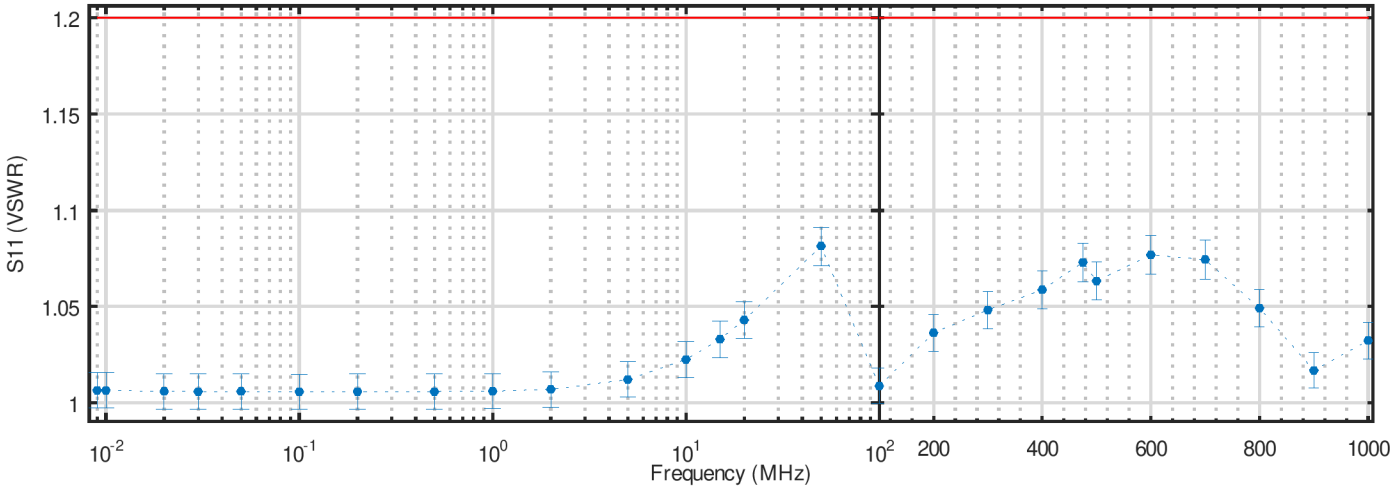
Input 2, preselector off, Preamplifier off, RF attenuation 10 dB, DC coupled

Unit is VSWR

1.0065	0.009 MHz	1.000	-0.0065	0.0091
1.0064	0.010 MHz	1.000	-0.0064	0.0091
1.0059	0.020 MHz	1.000	-0.0059	0.0091
1.0058	0.030 MHz	1.000	-0.0058	0.0091
1.0059	0.050 MHz	1.000	-0.0059	0.0091
1.0057	0.100 MHz	1.000	-0.0057	0.0091
1.0058	0.200 MHz	1.000	-0.0058	0.0091
1.0058	0.500 MHz	1.000	-0.0058	0.0091
1.0060	1.000 MHz	1.000	-0.0060	0.0091
1.0069	2.000 MHz	1.000	-0.0069	0.0092
1.0121	5.000 MHz	1.000	-0.0121	0.0092
1.0224	10.000 MHz	1.000	-0.0224	0.0093
1.0329	15.000 MHz	1.000	-0.0329	0.0095
1.0428	20.000 MHz	1.000	-0.0428	0.0096
1.0810	50.000 MHz	1.000	-0.081	0.010
1.0087	100.000 MHz	1.000	-0.0087	0.0092
1.0362	200.000 MHz	1.000	-0.0362	0.0095
1.0481	300.000 MHz	1.000	-0.0481	0.0097

Kalibrierschein vom
 Calibration certificate dated
 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
1.0584	400.000 MHz	1.000	-0.0584	0.0098
1.0727	475.000 MHz	1.000	-0.0727	0.0100
1.0630	500.000 MHz	1.000	-0.0630	0.0099
1.0765	600.000 MHz	1.000	-0.077	0.010
1.0741	700.000 MHz	1.000	-0.074	0.010
1.0490	800.000 MHz	1.000	-0.0490	0.0097
1.0168	900.000 MHz	1.000	-0.0168	0.0093
1.0322	1000.000 MHz	1.000	-0.0322	0.0095



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Input VSWR

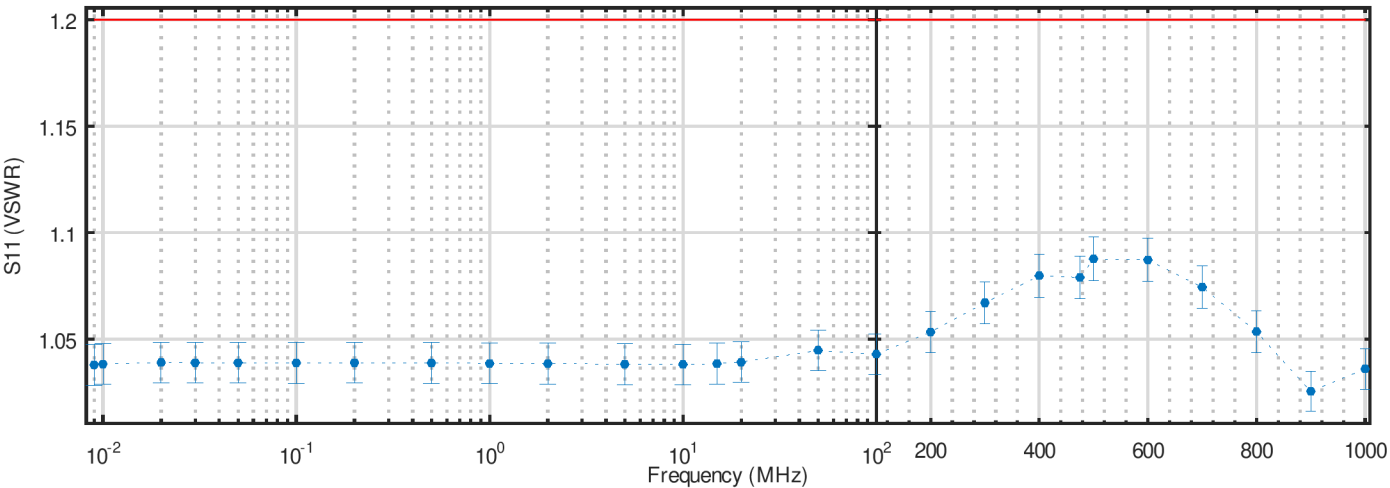
Input 2, preselector off, Preamplifier off, RF attenuation 20 dB, DC coupled

Unit is VSWR

1.0379	0.009 MHz	1.000	-0.0379	0.0095
1.0383	0.010 MHz	1.000	-0.0383	0.0096
1.0390	0.020 MHz	1.000	-0.0390	0.0096
1.0390	0.030 MHz	1.000	-0.0390	0.0096
1.0390	0.050 MHz	1.000	-0.0390	0.0096
1.0389	0.100 MHz	1.000	-0.0389	0.0096
1.0390	0.200 MHz	1.000	-0.0390	0.0096
1.0388	0.500 MHz	1.000	-0.0388	0.0096
1.0387	1.000 MHz	1.000	-0.0387	0.0096
1.0386	2.000 MHz	1.000	-0.0386	0.0096
1.0383	5.000 MHz	1.000	-0.0383	0.0096
1.0381	10.000 MHz	1.000	-0.0381	0.0095
1.0385	15.000 MHz	1.000	-0.0385	0.0096
1.0393	20.000 MHz	1.000	-0.0393	0.0096
1.0447	50.000 MHz	1.000	-0.0447	0.0096
1.0429	100.000 MHz	1.000	-0.0429	0.0096

Kalibrierschein vom
 Calibration certificate dated
 21.03.2025

Bezugswert Reference value	Messbedingung Measuring condition	Messwert KG Measured value UUT	Abweichung deviation	Messunsicherheit (k=2) Measuring uncertainty (k=2)
1.0533	200.000 MHz	1.000	-0.0533	0.0097
1.0670	300.000 MHz	1.000	-0.0670	0.0099
1.0796	400.000 MHz	1.000	-0.080	0.010
1.0788	475.000 MHz	1.000	-0.079	0.010
1.0875	500.000 MHz	1.000	-0.087	0.010
1.0871	600.000 MHz	1.000	-0.087	0.010
1.0743	700.000 MHz	1.000	-0.074	0.010
1.0535	800.000 MHz	1.000	-0.0535	0.0097
1.0256	900.000 MHz	1.000	-0.0256	0.0094
1.0361	1000.000 MHz	1.000	-0.0361	0.0095



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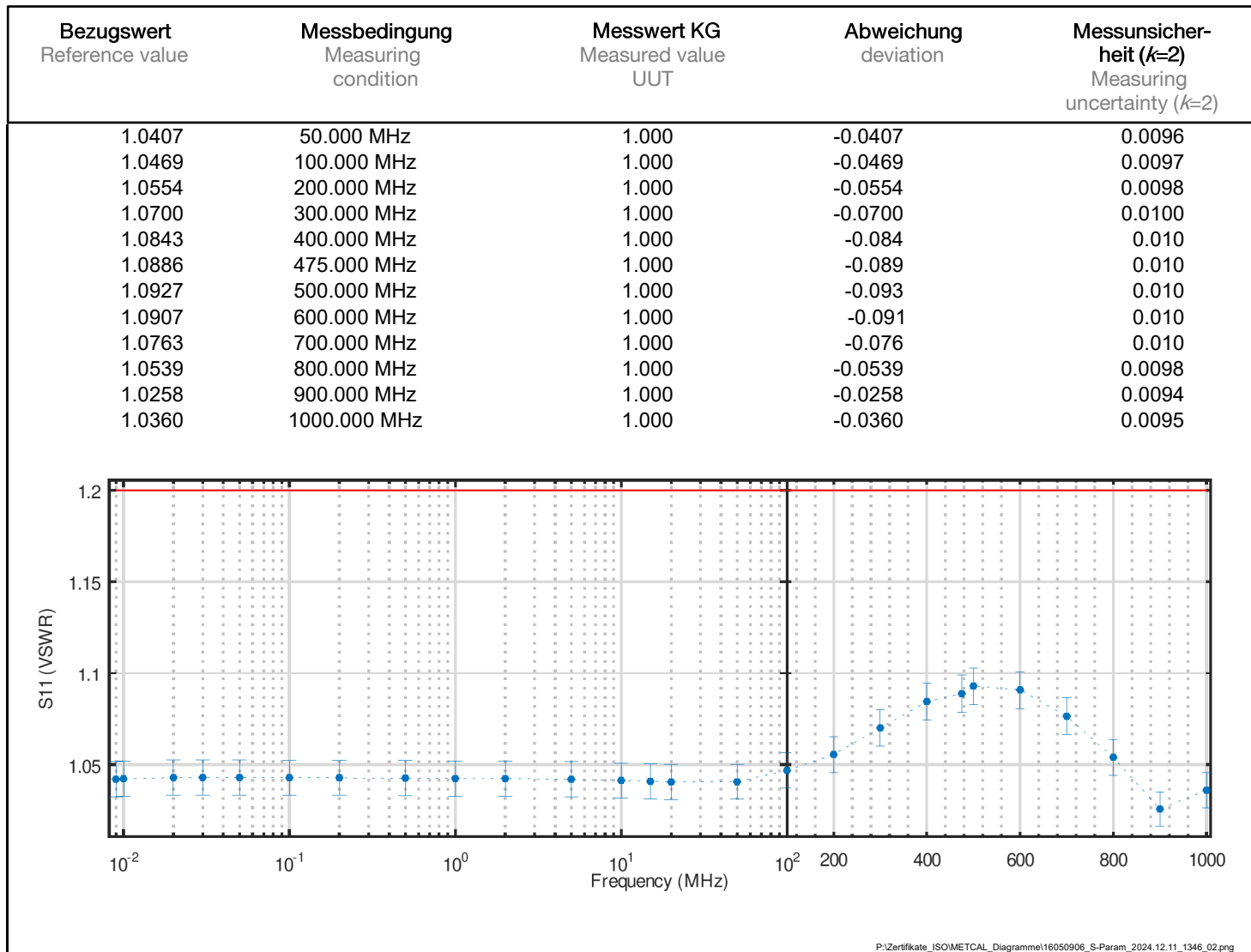
Input VSWR

Input 2, preselector off, Preamplifier off, RF attenuation 40 dB, DC coupled

Unit is VSWR

1.0420	0.009 MHz	1.000	-0.0420	0.0096
1.0423	0.010 MHz	1.000	-0.0423	0.0096
1.0429	0.020 MHz	1.000	-0.0429	0.0096
1.0430	0.030 MHz	1.000	-0.0430	0.0096
1.0430	0.050 MHz	1.000	-0.0430	0.0096
1.0428	0.100 MHz	1.000	-0.0428	0.0096
1.0428	0.200 MHz	1.000	-0.0428	0.0096
1.0427	0.500 MHz	1.000	-0.0427	0.0096
1.0425	1.000 MHz	1.000	-0.0425	0.0096
1.0424	2.000 MHz	1.000	-0.0424	0.0096
1.0419	5.000 MHz	1.000	-0.0419	0.0096
1.0413	10.000 MHz	1.000	-0.0413	0.0096
1.0409	15.000 MHz	1.000	-0.0409	0.0096
1.0405	20.000 MHz	1.000	-0.0405	0.0096

Kalibrierschein vom Calibration certificate dated 21.03.2025

**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: 2022 ermittelt. Der Wert der Messgröße liegt mit einer Wahrscheinlichkeit von etwa 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: 2022. Usually the true value is located in the corresponding interval with a probability of approximately 95%. The non-dimensional fractions of the measuring uncertainty are relative values in relation to the indicated value.

Bemerkungen Special remarks

Die mit * gekennzeichneten Messwerte sind rückführbar auf Normale eines nationalen metrologischen Instituts (NMI), sind aber außerhalb des akkreditierten Bereiches des ausstellenden Labors

The measurements marked with * are traceable to standards at the national metrological institute (NMI), but are not within the accredited scope of the issuing laboratory

Kalibrierschein vom Calibration certificate dated 21.03.2025

The German original text is valid in case of doubt.

- Ende des Kalibrierscheins -
- End of the calibration certificate. -

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2024-12