

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Gegenstand Object	Analyzer
Hersteller Manufacturer	Rohde & Schwarz
Typ Type description	FSV30
Serien Nr. Serial no.	12345
Inventar Nr. Inventory no.	---
Prüfmittel Nr. Test equipment no.	---
Equipment Nr. Equipment no.	12345678
Standort Location	---
Auftraggeber Customer	Mustermann GmbH DE-12345 Musterhausen
Kunden Nr. Customer ID no.	1234567
Auftrags Nr. Order no.	654321
Datum der Kalibrierung Date of calibration	25.09.2018
Datum der empfohlenen Rekalibrierung Date of the recommended re-calibration	30.09.2019

Hiermit bestätigen wir, dass das durchführende Kalibrierlabor ein Managementsystem nach ISO 9001:2008, sowie ISO/IEC 17025:2005 eingeführt hat. Die Urkunden finden Sie auf [www.testotis.de](http://www.testotis.de). Die für die Kalibrierung verwendeten Messeinrichtungen werden regelmäßig kalibriert und sind rückführbar auf die nationalen Normale der Physikalisch Technischen Bundesanstalt (PTB) Deutschlands oder auf andere nationale Normale. Wo keine nationalen Normale existieren, entspricht das Messverfahren den derzeit gültigen technischen Regeln und Normen. Die für diesen Vorgang angefertigte Dokumentation kann eingesehen werden. Alle erforderlichen Messdaten sind in diesem Kalibrier-Zertifikat aufgelistet.

Hereby we confirm that the performing calibration laboratory is working with a management system according to ISO 9001:2008 and ISO/IEC 17025:2005. Accreditation certificates can be found under [www.testotis.de](http://www.testotis.de). The measuring installations used for calibration are regularly calibrated and traceable to the national standards of the German Federal Physical Technical Institute (PTB) or other national standards. Should no national standards exist, the measuring procedure corresponds with the technical regulations and norms valid at the time of the measurement. The documents established for this procedure are available for viewing. All the necessary measured data can be found on the following page(s) of this calibration certificate.

## Konformitätsaussage Conformity

- Messwert(e) innerhalb der zulässigen Abweichung<sup>1)</sup>. Measured value(s) within the allowed deviation<sup>1)</sup>.  
 Messwert(e) außerhalb der zulässigen Abweichung<sup>1)</sup>. Measured value(s) beyond the allowed deviation<sup>1)</sup>.

<sup>1)</sup> Die Messunsicherheit wurde nach GUM mit dem Erweiterungsfaktor k=2 berechnet und enthält die Unsicherheit des Verfahrens sowie die Unsicherheit des Prüflings. Die Konformitätsaussage erfolgte nach DIN EN ISO 14253-1 gemäß der Kalibrieranweisung QSA - TIS 7.5-02.

<sup>1)</sup> The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system. The statement of conformity was made according to DIN EN ISO 14253-1 according to calibration instruction QSA - TIS 7.5-02.

Dieser Kalibrierschein darf nur vollständig weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift und Stempel haben keine Gültigkeit.

This calibration certificate may not be reproduced other than in full except with permission of the issuing laboratory. Calibration certificates without signature and seal are not valid.

V 4.52 / DE

Stempel Seal



Fachverantwortlicher Supervisor

*Max Mustermann*

Max Mustermann

Bearbeiter Technician

*Martina Musterfrau*

Martina Musterfrau

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

## Messeinrichtung Measuring equipment

Referenz Reference	Rückführung Traceability	Rekal. Next cal.	Zertifikat-Nr. Certificate-no.	EQ-Nr. EQ-no.
Frequency Standard Fluke Corporation 910	GPS locked ---	---	Support Device	10640562
Power Splitter 11667C AGILENT DEUTSCHLAND GMBH 11667C	15070-01-01 2017-09	2019-09	E52487	10954849
Attenuator Driver Hewlett Packard 11713A	hilfsmittel 2014-02	2022-06	-Hilfsmittel-	10962085
Step Attenuator AGILENT DEUTSCHLAND GMBH 8494H	15070-01-01 2017-11	2018-11	E54145	10996969
Step Attenuator AGILENT DEUTSCHLAND GMBH 8496H	15070-01-01 2017-10	2018-10	E54145	10996970
Calibration Kit AGILENT DEUTSCHLAND GMBH 85054D	15070-01-01 2017-09	2018-10	E52135	10997099
Frequenzzähler HP 5335A	GPS locked ---	---	Support device	11105446
MULTIMETER AGILENT DEUTSCHLAND GMBH 34401A	15070-01-01 2017-12	2018-12	E55738	11105510
Synthesized Sweeper Agilent 83650L	GPS locked ---	---	Support device	11105539
Signal Generator Rohde & Schwarz SML03	GPS locked ---	---	Support device	11105578
Power Meter AGILENT DEUTSCHLAND GMBH E4417A	15070-01-01 2018-09	2019-09	E72184	11287008
Power Sensor AGILENT DEUTSCHLAND GMBH E9304A	15070-01-01 2018-09	2019-09	E73135	11373066
Vector Signal Generator Rohde & Schwarz SMBV100A	15070-01-01 2017-05	2019-05	E47153	11662707
Signal Generator Rohde & Schwarz SMT03	GPS locked ---	---	2182542	12771019
(sonstige) elektr. Messmittel HEWLETT PACKARD 11667A	15070-01-01 2018-01	2019-01	E57283	13141910

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

## Umgebungsbedingungen Ambient conditions

Temperatur Temperature (23 ± 1) °C  
 Relative Luftfeuchte Relative Humidity (40 ± 20) %

## Messverfahren Measuring procedure

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

Prüfprozedur Procedure E:R&S:FSV30:kiz:HF-MP2:SPA:IEEE / Rev.:2

## Messergebnisse Measuring results

Seite Page 3 bis to 23

## Besondere Bemerkungen Special remarks

---



# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
Calibration conforms to VDI/VDE/DGQ/DKD 2622 Sep.2003						
ID Query: -Rohde&Schwarz,FSV-30,1307.9002K30/101708,1.71 SP3						
Function						
	Rotary Knob					pass
	Keyboard					pass
	Display					pass
Equipment sets to compatible Mode FSU						
Internal Calibration Routine						
Self Cal: Pass						
Clock-Reference						
Internal Frequency Accuracy						
:by Measuring on Ref. Out						
Deviation of 10 MHz (Standard), Drift not tested						
	0.000 Hz	10 MHz	-4.07 Hz	±15 Hz	27%	pass 12 mHz
1st IF Image Frequency Rejection						
fcenter = 9999 MHz, fimage = 11459 MHz						
	-200.00 dBc	1 st_IF	-101.8 dBc	-0/ +120 dBc		pass 2.0 dB
fcenter = 12999 MHz, fimage = 14459 MHz						
	-200.00 dBc	1 st_IF	-100.7 dBc	-0/ +120 dBc		pass 2.0 dB
fcenter = 15999 MHz, fimage = 17459 MHz						
	-200.00 dBc	1 st_IF	-98.4 dBc	-0/ +120 dBc		pass 2.0 dB
fcenter = 18999 MHz, fimage = 20459 MHz						
	-200.00 dBc	1 st_IF	-96.1 dBc	-0/ +120 dBc		pass 2.0 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
<b>fcenter = 21999 MHz, fimage = 23459 MHz</b>						
	-200.00 dBc	1 st_IF	-98.3 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 24999 MHz, fimage = 26459 MHz</b>						
	-200.00 dBc	1 st_IF	-98.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 27999 MHz, fimage = 29459 MHz</b>						
	-200.00 dBc	1 st_IF	-98.8 dBc	-0/ +120 dBc		pass 2.0 dB
<b>2nd IF Image Frequency Rejection</b>						
<b>fcenter = 101 MHz, fimage = 1561 MHz</b>						
	-200.00 dBc	2 nd_IF	-90.1 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 1799 MHz, fimage = 3259 MHz</b>						
	-200.00 dBc	2 nd_IF	-103.5 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 3599 MHz, fimage = 5059 MHz</b>						
	-200.00 dBc	2 nd_IF	-100.4 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 5299 MHz, fimage = 6759 MHz</b>						
	-200.00 dBc	2 nd_IF	-98.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 6999 MHz, fimage = 8459 MHz</b>						
	-200.00 dBc	2 nd_IF	-97.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 9999 MHz, fimage = 10179 MHz</b>						
	-200.00 dBc	2 nd_IF	-100.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 12999 MHz, fimage = 13179 MHz</b>						
	-200.00 dBc	2 nd_IF	-99.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 15999 MHz, fimage = 16179 MHz</b>						
	-200.00 dBc	2 nd_IF	-99.4 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 18999 MHz, fimage = 19179 MHz</b>						
	-200.00 dBc	2 nd_IF	-97.8 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 21999 MHz, fimage = 22179 MHz</b>						

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	-200.00 dBc	2 nd_IF	-95.1 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 24999 MHz, fimage = 25179 MHz</b>						
	-200.00 dBc	2 nd_IF	-95.3 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 27999 MHz, fimage = 28179 MHz</b>						
	-200.00 dBc	2 nd_IF	-96.4 dBc	-0/ +120 dBc		pass 2.0 dB
<b>3rd IF Image Frequency Rejection</b>						
<b>fcenter = 101 MHz, fimage = 280.8 MHz</b>						
	-200.00 dBc	3 rd_IF	-91.0 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 1799 MHz, fimage = 1979 MHz</b>						
	-200.00 dBc	3 rd_IF	-94.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 3599 MHz, fimage = 3779 MHz</b>						
	-200.00 dBc	3 rd_IF	-101.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 5299 MHz, fimage = 5479 MHz</b>						
	-200.00 dBc	3 rd_IF	-99.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 6999 MHz, fimage = 7179 MHz</b>						
	-200.00 dBc	3 rd_IF	-96.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>1st IF Rejection</b>						
<b>fcenter = 101 MHz, fimage = 8409.9 MHz</b>						
	-200.00 dBc	1 st_IF	-105.6 dBc	-0/ +130 dBc		pass 2.0 dB
<b>fcenter = 1799 MHz, fimage = 8409.9 MHz</b>						
	-200.00 dBc	1 st_IF	-102.9 dBc	-0/ +130 dBc		pass 2.0 dB
<b>fcenter = 3599 MHz, fimage = 8409.9 MHz</b>						
	-200.00 dBc	1 st_IF	-102.2 dBc	-0/ +130 dBc		pass 2.0 dB
<b>fcenter = 5299 MHz, fimage = 8409.9 MHz</b>						
	-200.00 dBc	1 st_IF	-98.2 dBc	-0/ +130 dBc		pass 2.0 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
<b>fcenter = 6999 MHz, fimage = 8409.9 MHz</b>						
	-200.00 dBc	1 st_IF	-97.7 dBc	-0/ +130 dBc		pass 2.0 dB
<b>fcenter = 9999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-98.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 12999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-100.3 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 15999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-97.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 18999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-100.7 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 21999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-98.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 24999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-96.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 27999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	1 st_IF	-98.5 dBc	-0/ +120 dBc		pass 2.0 dB
<b>2nd IF Rejection</b>						
<b>fcenter = 101 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-92.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 1799 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-91.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 3599 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-98.5 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 5299 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-96.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 6999 MHz, fimage = 729.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-97.8 dBc	-0/ +120 dBc		pass 2.0 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
<b>fcenter = 9999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-99.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 12999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-98.9 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 15999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-100.8 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 18999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-96.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 21999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-96.2 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 24999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-97.1 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 27999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	2 nd_IF	-99.7 dBc	-0/ +120 dBc		pass 2.0 dB
<b>3rd IF Rejection</b>						
<b>fcenter = 101 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	3 rd_IF	-88.3 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 1799 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	3 rd_IF	-100.0 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 3599 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	3 rd_IF	-101.1 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 5299 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	3 rd_IF	-99.6 dBc	-0/ +120 dBc		pass 2.0 dB
<b>fcenter = 6999 MHz, fimage = 89.9 MHz</b>						
	-200.00 dBc	3 rd_IF	-97.5 dBc	-0/ +120 dBc		pass 2.0 dB
<b>3rd Order Intermodulation Intercept Point</b>						

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	12.00 dBm	10 MHz	19.4 dBm	-0/ +18 dBm	pass	2.0 dB
	12.00 dBm	50 MHz	12.1 dBm	-0/ +18 dBm	pass	2.0 dB
	13.00 dBm	100 MHz	13.1 dBm	-0/ +17 dBm	pass	2.0 dB
	13.00 dBm	500 MHz	16.2 dBm	-0/ +17 dBm	pass	2.0 dB
	13.00 dBm	1 GHz	19.1 dBm	-0/ +17 dBm	pass	2.0 dB
	13.00 dBm	1.5 GHz	21.6 dBm	-0/ +17 dBm	pass	2.0 dB
	13.00 dBm	2 GHz	19.1 dBm	-0/ +17 dBm	pass	2.0 dB
	13.00 dBm	2.5 GHz	17.9 dBm	-0/ +17 dBm	pass	2.0 dB
<hr/>						
<b>2nd Order Intermodulation Intercept Point</b>						
<b>(specs only typical)</b>						
	45.00 dBm	100 MHz	67.1 dBm	-0/ +55 dBm	pass	2.0 dB
	45.00 dBm	500 MHz	60.6 dBm	-0/ +55 dBm	pass	2.0 dB
	45.00 dBm	1 GHz	69.7 dBm	-0/ +55 dBm	pass	2.0 dB
	45.00 dBm	1.5 GHz	71.8 dBm	-0/ +55 dBm	pass	2.0 dB
	45.00 dBm	2 GHz	72.2 dBm	-0/ +55 dBm	pass	2.0 dB
	45.00 dBm	2.5 GHz	68.8 dBm	-0/ +55 dBm	pass	2.0 dB
<hr/>						
<b>IF Filters</b>						
<b>Bandwidth Switching Uncertainty</b>						
Filters: 3 dB Sweep Filters, Relative to 10 kHz						
Detector RMS						
<hr/>						
<b>10 Hz Bandwidth, 50 Hz Span</b>						
	0.0000 dB	50 MHz	-0.010 dB	±0.1 dB	pass	0.020 dB
<b>30 Hz Bandwidth, 100 Hz Span</b>						
	0.0000 dB	50 MHz	-0.015 dB	±0.1 dB	pass	0.020 dB
<b>100 Hz Bandwidth, 500 Hz Span</b>						
	0.0000 dB	50 MHz	0.002 dB	±0.1 dB	pass	0.020 dB
<b>300 Hz Bandwidth, 1 kHz Span</b>						
	0.0000 dB	50 MHz	-0.007 dB	±0.1 dB	pass	0.020 dB
<b>1 kHz Bandwidth, 5 kHz Span</b>						
	0.000 dB	50 MHz	0.02 dB	±0.1 dB	pass	0.021 dB
<b>3 kHz Bandwidth, 10 kHz Span</b>						
	0.0000 dB	50 MHz	0.029 dB	±0.1 dB	pass	0.020 dB
<b>10 kHz Bandwidth, 50 kHz Span</b>						
	0.0000 dB	50 MHz	0.032 dB	±0.1 dB	pass	0.020 dB
<b>30 kHz Bandwidth, 100 kHz Span</b>						
	0.0000 dB	50 MHz	0.018 dB	±0.1 dB	pass	0.020 dB



# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
<b>100 kHz Bandwidth, 500 kHz Span</b>	0.0000 dB	50 MHz	0.019 dB	±0.1 dB	pass	0.020 dB
<b>300 kHz Bandwidth, 1 MHz Span</b>	0.0000 dB	50 MHz	0.022 dB	±0.1 dB	pass	0.020 dB
<b>1 MHz Bandwidth, 5 MHz Span</b>	0.0000 dB	50 MHz	0.040 dB	±0.1 dB	pass	0.020 dB
<b>3 MHz Bandwidth, 10 MHz Span</b>	0.0000 dB	50 MHz	0.040 dB	±0.1 dB	pass	0.020 dB
<b>5 MHz Bandwidth, 25 MHz Span</b>	0.0000 dB	50 MHz	0.042 dB	±0.1 dB	pass	0.020 dB
<b>10 MHz Bandwidth, 50 MHz Span</b>	0.0000 dB	50 MHz	0.030 dB	±0.1 dB	pass	0.020 dB
<b>IF Filters</b>						
<b>Bandwidth Switching Uncertainty</b>						
Filters: 3 dB FFT Filters, Relative to 10 kHz						
Detector RMS						
—						
<b>1 Hz Bandwidth, 30 Hz Span</b>	0.0000 dB	50 MHz	0.006 dB	±0.2 dB	pass	0.020 dB
<b>3 Hz Bandwidth, 50 Hz Span</b>	0.0000 dB	50 MHz	0.008 dB	±0.2 dB	pass	0.020 dB
<b>10 Hz Bandwidth, 100 Hz Span</b>	0.0000 dB	50 MHz	0.008 dB	±0.2 dB	pass	0.020 dB
<b>30 Hz Bandwidth, 300 Hz Span</b>	0.0000 dB	50 MHz	0.008 dB	±0.2 dB	pass	0.020 dB
<b>100 Hz Bandwidth, 500 Hz Span</b>	0.0000 dB	50 MHz	0.008 dB	±0.2 dB	pass	0.020 dB
<b>300 Hz Bandwidth, 1 kHz Span</b>	0.0000 dB	50 MHz	0.009 dB	±0.2 dB	pass	0.020 dB
<b>1 kHz Bandwidth, 5 kHz Span</b>	0.0000 dB	50 MHz	0.008 dB	±0.2 dB	pass	0.020 dB
<b>3 kHz Bandwidth, 10 kHz Span</b>	0.0000 dB	50 MHz	0.009 dB	±0.2 dB	pass	0.020 dB
<b>10 kHz Bandwidth, 50 kHz Span</b>	0.0000 dB	50 MHz	0.009 dB	±0.2 dB	pass	0.020 dB
<b>30 kHz Bandwidth, 100 kHz Span</b>	0.0000 dB	50 MHz	0.007 dB	±0.2 dB	pass	0.020 dB
<b>100 kHz Bandwidth, 500 kHz Span</b>	0.0000 dB	50 MHz	0.006 dB	±0.2 dB	pass	0.020 dB
<b>300 kHz Bandwidth, 1 MHz Span</b>						

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)
	0.0000 dB	50 MHz	0.006 dB	±0.2 dB		pass	0.020 dB
<b>IF Filter Bandwidth</b>							
<b>(-3dB), Sweep Filter selection in auto mode</b>							
	10.0000 MHz	10 MHz	10.032 MHz	±0.3 MHz	11%	pass	100 kHz
	3.0000 MHz	3 MHz	2.974 MHz	±0.09 MHz	29%	pass	30 kHz
	1.0000 MHz	1 MHz	0.994 MHz	±0.03 MHz	20%	pass	10 kHz
	300.00 kHz	300 kHz	299.5 kHz	±9 kHz	5%	pass	3.0 kHz
	100.00 kHz	100 kHz	99.4 kHz	±3 kHz	21%	pass	1.0 kHz
	30.000 kHz	30 kHz	29.81 kHz	±0.9 kHz	21%	pass	300 Hz
	10.000 kHz	10 kHz	9.94 kHz	±0.3 kHz	21%	pass	100 Hz
	3.0000 kHz	3 kHz	2.981 kHz	±0.09 kHz	21%	pass	30 Hz
	1.0000 kHz	1 kHz	0.994 kHz	±0.03 kHz	20%	pass	10 Hz
	300.00 Hz	300 Hz	298.4 Hz	±9 Hz	18%	pass	3.0 Hz
	100.00 Hz	100 Hz	99.2 Hz	±3 Hz	27%	pass	1.0 Hz
	30.00 Hz	30 Hz	30.0 Hz	±0.9 Hz	3%	pass	306 mHz
	10.00 Hz	10 Hz	10.0 Hz	±0.3 Hz	11%	pass	115 mHz
<b>IF Filter Shape Factor 60dB:3dB (Sweep Filter)</b>							
<b>only given nominal</b>							
	5.00 :1	10 MHz	4.3 :1	-4/ +0 :1	19%	pass	0.21 :1
	5.00 :1	3 MHz	4.5 :1	-4/ +0 :1	11%	pass	0.21 :1
	5.00 :1	1 MHz	4.8 :1	-4/ +0 :1	4%	pass	0.21 :1
	5.00 :1	300 kHz	4.5 :1	-4/ +0 :1	12%	pass	0.21 :1
	5.00 :1	100 kHz	4.5 :1	-4/ +0 :1	12%	pass	0.21 :1
	5.00 :1	30 kHz	4.6 :1	-4/ +0 :1	9%	pass	0.21 :1
	5.00 :1	10 kHz	2.1 :1	-4/ +0 :1	73%	pass	0.21 :1
	5.00 :1	3 kHz	2.0 :1	-4/ +0 :1	74%	pass	0.21 :1
	5.00 :1	1 kHz	1.4 :1	-4/ +0 :1	91%	pass	0.21 :1
	5.00 :1	300 Hz	4.5 :1	-4/ +0 :1	13%	pass	0.21 :1
	5.00 :1	100 Hz	4.5 :1	-4/ +0 :1	12%	pass	0.21 :1
	5.00 :1	30 Hz	4.6 :1	-4/ +0 :1	11%	pass	0.21 :1
	5.00 :1	10 Hz	4.5 :1	-4/ +0 :1	11%	pass	0.21 :1
<b>Noise Floor</b>							
<b>by normalized at 1 Hz RBW</b>							
	-200.0 dBm	9 kHz	-144 dBm	-0/ +70 dBm		pass	1.6 dB
	-200.0 dBm	99 kHz	-148 dBm	-0/ +70 dBm		pass	1.6 dB
	-200.0 dBm	999 kHz	-155 dBm	-0/ +55 dBm		pass	1.6 dB
	-200.0 dBm	10.1 MHz	-156 dBm	-0/ +49 dBm		pass	1.6 dB
	-200.0 dBm	19.99 MHz	-155 dBm	-0/ +49 dBm		pass	1.6 dB
	-200.0 dBm	49.99 MHz	-157 dBm	-0/ +49 dBm		pass	1.6 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	-200.0 dBm	99.99 MHz	-156 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	199.99 MHz	-156 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	499.99 MHz	-156 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	599.99 MHz	-156 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	699.99 MHz	-156 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	799.99 MHz	-164 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	899.99 MHz	-156 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	999.99 MHz	-155 dBm	-0/ +49 dBm		pass 1.6 dB
	-200.0 dBm	1199.99 MHz	-154 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	1599.99 MHz	-155 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	1999.99 MHz	-155 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	2399.99 MHz	-154 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	2799.99 MHz	-152 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	3199.99 MHz	-154 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	3599.99 MHz	-153 dBm	-0/ +51 dBm		pass 1.6 dB
	-200.0 dBm	3999.99 MHz	-152 dBm	-0/ +54 dBm		pass 1.6 dB
	-200.0 dBm	4399.99 MHz	-153 dBm	-0/ +54 dBm		pass 1.6 dB
	-200.0 dBm	4799.99 MHz	-152 dBm	-0/ +54 dBm		pass 1.6 dB
	-200.0 dBm	5199.99 MHz	-152 dBm	-0/ +54 dBm		pass 1.6 dB
	-200.0 dBm	5599.99 MHz	-151 dBm	-0/ +54 dBm		pass 1.6 dB
	-200.0 dBm	5999.99 MHz	-151 dBm	-0/ +54 dBm		pass 1.6 dB
	-200.0 dBm	6399.99 MHz	-151 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	6799.99 MHz	-150 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	7199.99 MHz	-153 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	7599.99 MHz	-153 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	7999.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	8399.99 MHz	-154 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	8799.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	9199.99 MHz	-153 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	9599.99 MHz	-154 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	9999.99 MHz	-153 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	10399.99 MHz	-153 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	10799.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	11199.99 MHz	-151 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	11599.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	11999.99 MHz	-153 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	12399.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	12799.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	13199.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	13599.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	13999.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	14399.99 MHz	-152 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	14799.99 MHz	-151 dBm	-0/ +52 dBm		pass 1.6 dB
	-200.0 dBm	15199.99 MHz	-151 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	15599.99 MHz	-152 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	15999.99 MHz	-151 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	16399.99 MHz	-150 dBm	-0/ +56 dBm		pass 1.6 dB
	-200.0 dBm	16799.99 MHz	-151 dBm	-0/ +56 dBm		pass 1.6 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	-200.0 dBm	17199.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	17599.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	17999.99 MHz	-149 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	18399.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	18799.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	19199.99 MHz	-149 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	19599.99 MHz	-148 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	19999.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	20399.99 MHz	-149 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	20799.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	21199.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	21599.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	21999.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	22399.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	22799.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	23199.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	23599.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	23999.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	24399.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	24799.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	25199.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	25599.99 MHz	-150 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	25999.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	26399.99 MHz	-152 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	26799.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	27199.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	27599.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	27999.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	28399.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	28799.99 MHz	-151 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	29199.99 MHz	-149 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	29599.99 MHz	-149 dBm	-0/ +56 dBm	pass	1.6 dB
	-200.0 dBm	29999.99 MHz	-149 dBm	-0/ +56 dBm	pass	1.6 dB
<hr/>						
<b>Input Attenuator Switching Uncertainty</b>						
Input Attenuator = 10 dB, (REF), Ref Level = -55 dBm						
<hr/>						
	0.000 dB	50 MHz	-0.03 dB	±0.2 dB	pass	0.16 dB
<hr/>						
	0.000 dB	50 MHz	-0.06 dB	±0.2 dB	pass	0.15 dB
<hr/>						
	0.000 dB	50 MHz	-0.05 dB	±0.2 dB	pass	0.15 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
Input Attenuator = 20 dB, Ref Level = -45 dBm	0.000 dB	50 MHz	0.01 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 25 dB, Ref Level = -40 dBm	0.000 dB	50 MHz	-0.08 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 30 dB, Ref Level = -35 dBm	0.000 dB	50 MHz	0.01 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 35 dB, Ref Level = -30 dBm	0.000 dB	50 MHz	-0.09 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 40 dB, Ref Level = -25 dBm	0.000 dB	50 MHz	0.02 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 45 dB, Ref Level = -20 dBm	0.000 dB	50 MHz	-0.08 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 50 dB, Ref Level = -15 dBm	0.000 dB	50 MHz	0.00 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 55 dB, Ref Level = -10 dBm	0.000 dB	50 MHz	-0.06 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 60 dB, Ref Level = -5 dBm	0.000 dB	50 MHz	0.01 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 65 dB, Ref Level = 0 dBm	0.000 dB	50 MHz	-0.03 dB	±0.2 dB	pass	0.15 dB
Input Attenuator = 70 dB, Ref Level = 5 dBm	0.000 dB	50 MHz	0.00 dB	±0.2 dB	pass	0.15 dB
Reference Level Accuracy						
Log Scale, 10 dB Steps						
by laboratory estimated tolerance						
—						
Ref Level = -15 dBm						

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	0.000 dB	50 MHz	0.00 dB	±0.2 dB		pass 0.15 dB
<b>Ref Level = -5 dBm</b>						
	0.000 dB	50 MHz	-0.01 dB	±0.2 dB		pass 0.15 dB
<b>Ref Level = -35 dBm</b>						
	0.000 dB	50 MHz	0.00 dB	±0.2 dB		pass 0.15 dB
<b>Ref Level = -45 dBm</b>						
	0.000 dB	50 MHz	0.00 dB	±0.2 dB		pass 0.15 dB
<b>Ref Level = -55 dBm</b>						
	0.000 dB	50 MHz	0.00 dB	±0.2 dB		pass 0.15 dB
<b>Ref Level = -65 dBm</b>						
	0.000 dB	50 MHz	-0.02 dB	±0.2 dB		pass 0.16 dB
<b>Ref Level = -75 dBm</b>						
	0.000 dB	50 MHz	-0.08 dB	±0.2 dB		pass 0.20 dB
<b>Scale Fidelity</b>						
<b>Log Display Scale Fidelity</b>						
	0.000 dB	-8 dB	0.00 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-12 dB	0.01 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-16 dB	0.04 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-20 dB	0.01 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-24 dB	0.04 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-28 dB	0.01 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-32 dB	0.01 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-36 dB	0.03 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-40 dB	0.00 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-44 dB	0.03 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-48 dB	0.02 dB	±0.1 dB		pass 0.10 dB
	0.000 dB	-52 dB	0.01 dB	±0.15 dB		pass 0.10 dB
	0.000 dB	-56 dB	0.03 dB	±0.15 dB		pass 0.10 dB
	0.000 dB	-60 dB	-0.03 dB	±0.2 dB		pass 0.10 dB
	0.000 dB	-64 dB	-0.04 dB	±0.2 dB		pass 0.10 dB
	0.000 dB	-68 dB	-0.04 dB	±0.2 dB		pass 0.15 dB
<b>Linear Display Scale Fidelity</b>						
223.6 mV	199.290 mV	-1 dB	198.28 mV	±11.18 mV	9%	pass 2.0 mV
223.6 mV	177.620 mV	-2 dB	177.02 mV	±11.18 mV	5%	pass 1.8 mV
223.6 mV	158.300 mV	-3 dB	157.60 mV	±11.18 mV	6%	pass 1.6 mV
223.6 mV	141.090 mV	-4 dB	140.28 mV	±11.18 mV	7%	pass 1.4 mV
223.6 mV	125.740 mV	-5 dB	125.30 mV	±11.18 mV	4%	pass 1.3 mV
223.6 mV	112.070 mV	-6 dB	111.89 mV	±11.18 mV	2%	pass 1.1 mV
223.6 mV	99.880 mV	-7 dB	99.67 mV	±11.18 mV	2%	pass 1.0 mV
223.6 mV	89.020 mV	-8 dB	88.72 mV	±11.18 mV	3%	pass 890 µV
223.6 mV	79.340 mV	-9 dB	79.00 mV	±11.18 mV	3%	pass 793 µV
223.6 mV	70.710 mV	-10 dB	70.01 mV	±11.18 mV	6%	pass 707 µV
223.6 mV	63.020 mV	-11 dB	62.34 mV	±11.18 mV	6%	pass 630 µV

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)
223.6 mV	56.170 mV	-12 dB	55.65 mV	±11.18 mV	5%	pass	562 µV
223.6 mV	50.060 mV	-13 dB	49.55 mV	±11.18 mV	5%	pass	501 µV
223.6 mV	44.620 mV	-14 dB	44.27 mV	±11.18 mV	3%	pass	446 µV
223.6 mV	39.760 mV	-15 dB	39.42 mV	±11.18 mV	3%	pass	398 µV
223.6 mV	35.440 mV	-16 dB	35.20 mV	±11.18 mV	2%	pass	354 µV
223.6 mV	31.590 mV	-17 dB	31.33 mV	±11.18 mV	2%	pass	316 µV
223.6 mV	28.150 mV	-18 dB	27.89 mV	±11.18 mV	2%	pass	282 µV
223.6 mV	25.090 mV	-19 dB	24.82 mV	±11.18 mV	2%	pass	251 µV

## Frequency Response, at 20 to 30 Degrees C

DC coupled , Input Attenuator 15 dB

### at Inputlevel -10 dBm, referenced to 64 MHz

0.000 dB	9 kHz	-0.12 dB	±1 dB	pass	0.10 dB
0.000 dB	1 MHz	-0.45 dB	±1 dB	pass	0.10 dB
0.000 dB	10 MHz	-0.41 dB	±1 dB	pass	0.10 dB
0.000 dB	50 MHz	-0.04 dB	±1 dB	pass	0.10 dB
0.000 dB	100 MHz	-0.01 dB	±1 dB	pass	0.10 dB
0.000 dB	200 MHz	0.04 dB	±1 dB	pass	0.10 dB
0.000 dB	300 MHz	0.12 dB	±1 dB	pass	0.10 dB
0.000 dB	400 MHz	0.01 dB	±1 dB	pass	0.10 dB
0.000 dB	500 MHz	-0.09 dB	±1 dB	pass	0.10 dB
0.000 dB	600 MHz	-0.10 dB	±1 dB	pass	0.10 dB
0.000 dB	700 MHz	-0.05 dB	±1 dB	pass	0.10 dB
0.000 dB	800 MHz	-0.02 dB	±1 dB	pass	0.10 dB
0.000 dB	900 MHz	-0.09 dB	±1 dB	pass	0.10 dB
0.000 dB	1000 MHz	-0.06 dB	±1 dB	pass	0.10 dB
0.000 dB	1500 MHz	-0.07 dB	±1 dB	pass	0.10 dB
0.000 dB	2000 MHz	-0.12 dB	±1 dB	pass	0.10 dB
0.000 dB	2500 MHz	-0.12 dB	±1 dB	pass	0.10 dB
0.000 dB	3000 MHz	-0.12 dB	±1 dB	pass	0.10 dB
0.000 dB	3599 MHz	-0.17 dB	±1 dB	pass	0.10 dB
0.000 dB	3600 MHz	-0.16 dB	±1.5 dB	pass	0.50 dB
0.000 dB	4000 MHz	-0.15 dB	±1.5 dB	pass	0.50 dB
0.000 dB	4500 MHz	-0.07 dB	±1.5 dB	pass	0.50 dB
0.000 dB	5000 MHz	-0.12 dB	±1.5 dB	pass	0.50 dB
0.000 dB	5500 MHz	-0.15 dB	±1.5 dB	pass	0.50 dB
0.000 dB	6000 MHz	-0.09 dB	±1.5 dB	pass	0.50 dB
0.000 dB	6500 MHz	-0.14 dB	±1.5 dB	pass	0.50 dB
0.000 dB	6999 MHz	-0.23 dB	±1.5 dB	pass	0.50 dB
0.000 dB	7000 MHz	0.21 dB	±2.5 dB	pass	0.50 dB
0.000 dB	8000 MHz	0.04 dB	±2.5 dB	pass	0.50 dB
0.000 dB	9000 MHz	0.30 dB	±2.5 dB	pass	0.50 dB
0.000 dB	10000 MHz	0.12 dB	±2.5 dB	pass	0.50 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	0.000 dB	11000 MHz	0.03 dB	±2.5 dB		pass 0.50 dB
	0.000 dB	12000 MHz	0.33 dB	±2.5 dB		pass 0.50 dB
	0.000 dB	13000 MHz	0.11 dB	±2.5 dB		pass 0.50 dB
	0.000 dB	13599 MHz	0.02 dB	±2.5 dB		pass 0.50 dB
	0.000 dB	13600 MHz	0.05 dB	±3 dB		pass 0.66 dB
	0.000 dB	14000 MHz	0.15 dB	±3 dB		pass 0.66 dB
	0.000 dB	15000 MHz	0.02 dB	±3 dB		pass 0.66 dB
	0.000 dB	16000 MHz	0.08 dB	±3 dB		pass 0.66 dB
	0.000 dB	17000 MHz	0.23 dB	±3 dB		pass 0.66 dB
	0.000 dB	18000 MHz	-0.25 dB	±3 dB		pass 0.66 dB
	0.000 dB	19000 MHz	0.32 dB	±3 dB		pass 0.66 dB
	0.000 dB	20000 MHz	-0.22 dB	±3 dB		pass 0.66 dB
	0.000 dB	21000 MHz	0.01 dB	±3 dB		pass 0.66 dB
	0.000 dB	22000 MHz	-0.31 dB	±3 dB		pass 0.66 dB
	0.000 dB	23000 MHz	-0.14 dB	±3 dB		pass 0.66 dB
	0.000 dB	24000 MHz	0.03 dB	±3 dB		pass 0.66 dB
	0.000 dB	25000 MHz	0.00 dB	±3 dB		pass 0.66 dB
	0.000 dB	26000 MHz	0.96 dB	±3 dB		pass 0.66 dB
	0.000 dB	26500 MHz	-0.71 dB	±3 dB		pass 0.66 dB
	0.000 dB	27000 MHz	0.02 dB	±3 dB		pass 0.66 dB
	0.000 dB	28000 MHz	0.90 dB	±3 dB		pass 0.66 dB
	0.000 dB	29000 MHz	-0.33 dB	±3 dB		pass 0.66 dB
	0.000 dB	29999 MHz	-0.44 dB	±3.5 dB		pass 0.83 dB

## Frequency Response, at 20 to 30 Degrees C

DC coupled , Input Attenuator 10 dB

at Inputlevel -10 dBm, referenced to 64 MHz

0.000 dB	9 kHz	-0.09 dB	±0.5 dB	pass	0.17 dB
0.000 dB	1 MHz	-0.38 dB	±0.5 dB	pass	0.17 dB
0.000 dB	10 MHz	-0.07 dB	±0.3 dB	pass	0.10 dB
0.000 dB	50 MHz	0.01 dB	±0.3 dB	pass	0.10 dB
0.000 dB	100 MHz	-0.03 dB	±0.3 dB	pass	0.10 dB
0.000 dB	200 MHz	0.05 dB	±0.3 dB	pass	0.10 dB
0.000 dB	300 MHz	0.03 dB	±0.3 dB	pass	0.10 dB
0.000 dB	400 MHz	0.03 dB	±0.3 dB	pass	0.10 dB
0.000 dB	500 MHz	-0.05 dB	±0.3 dB	pass	0.10 dB
0.000 dB	600 MHz	-0.05 dB	±0.3 dB	pass	0.10 dB
0.000 dB	700 MHz	-0.03 dB	±0.3 dB	pass	0.10 dB
0.000 dB	800 MHz	-0.03 dB	±1 dB	pass	0.10 dB
0.000 dB	900 MHz	-0.03 dB	±0.3 dB	pass	0.10 dB
0.000 dB	1000 MHz	-0.02 dB	±0.3 dB	pass	0.10 dB
0.000 dB	1500 MHz	-0.06 dB	±0.3 dB	pass	0.10 dB
0.000 dB	2000 MHz	-0.07 dB	±0.3 dB	pass	0.10 dB
0.000 dB	2500 MHz	-0.05 dB	±0.3 dB	pass	0.10 dB
0.000 dB	3000 MHz	-0.06 dB	±0.3 dB	pass	0.10 dB



# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	0.000 dB	3599 MHz	-0.12 dB	±0.3 dB	pass	0.10 dB
	0.000 dB	3600 MHz	-0.12 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	4000 MHz	-0.12 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	4500 MHz	-0.01 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	5000 MHz	-0.07 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	5500 MHz	-0.04 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	6000 MHz	-0.09 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	6500 MHz	-0.19 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	6999 MHz	-0.16 dB	±0.5 dB	pass	0.17 dB
	0.000 dB	7000 MHz	0.28 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	8000 MHz	0.12 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	9000 MHz	0.40 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	10000 MHz	0.34 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	11000 MHz	0.08 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	12000 MHz	0.36 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	13000 MHz	0.20 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	13599 MHz	0.09 dB	±1.5 dB	pass	0.50 dB
	0.000 dB	13600 MHz	0.12 dB	±2 dB	pass	0.66 dB
	0.000 dB	14000 MHz	0.19 dB	±2 dB	pass	0.66 dB
	0.000 dB	15000 MHz	0.04 dB	±2 dB	pass	0.66 dB
	0.000 dB	16000 MHz	0.15 dB	±2 dB	pass	0.66 dB
	0.000 dB	17000 MHz	0.29 dB	±2 dB	pass	0.66 dB
	0.000 dB	18000 MHz	-0.21 dB	±2 dB	pass	0.66 dB
	0.000 dB	19000 MHz	0.50 dB	±2 dB	pass	0.66 dB
	0.000 dB	20000 MHz	-0.16 dB	±2 dB	pass	0.66 dB
	0.000 dB	21000 MHz	0.07 dB	±2 dB	pass	0.66 dB
	0.000 dB	22000 MHz	-0.21 dB	±2 dB	pass	0.66 dB
	0.000 dB	23000 MHz	-0.04 dB	±2 dB	pass	0.66 dB
	0.000 dB	24000 MHz	0.12 dB	±2 dB	pass	0.66 dB
	0.000 dB	25000 MHz	0.10 dB	±2 dB	pass	0.66 dB
	0.000 dB	26000 MHz	1.02 dB	±2 dB	pass	0.66 dB
	0.000 dB	26500 MHz	-0.66 dB	±2 dB	pass	0.66 dB
	0.000 dB	27000 MHz	0.09 dB	±2 dB	pass	0.66 dB
	0.000 dB	28000 MHz	0.92 dB	±2 dB	pass	0.66 dB
	0.000 dB	29000 MHz	-0.26 dB	±2 dB	pass	0.66 dB
	0.000 dB	29999 MHz	-0.24 dB	±2.5 dB	pass	0.83 dB

  

**Absolute Level Accuracy, at 20 to 30 Degrees C**  
**DC coupled , Input Attenuator 10 dB**

**at Inputlevel -10 dBm**

-10.000 dBm	64 MHz	-9.94 dBm	±0.2 dBm	pass	0.050 dB
-------------	--------	-----------	----------	------	----------

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
<b>Total Measurement Accuracy at Carrier 50 MHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	0.08 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-10 dBm	0.10 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-20 dBm	0.11 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-30 dBm	0.11 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-40 dBm	0.12 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-50 dBm	0.12 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-60 dBm	0.10 dB	±0.28 dB		pass 0.16 dB
	0.000 dB	-70 dBm	0.02 dB	±0.28 dB		pass 0.16 dB
<b>Total Measurement Accuracy at Carrier 1 GHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	0.02 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-10 dBm	-0.00 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-20 dBm	0.00 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-30 dBm	0.01 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-40 dBm	0.01 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-50 dBm	0.02 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-60 dBm	-0.02 dB	±0.28 dB		pass 0.16 dB
	0.000 dB	-70 dBm	-0.07 dB	±0.28 dB		pass 0.16 dB
<b>Total Measurement Accuracy at Carrier 3 GHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	0.04 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-10 dBm	0.04 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-20 dBm	0.04 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-30 dBm	0.05 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-40 dBm	0.07 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-50 dBm	0.08 dB	±0.28 dB		pass 0.15 dB
	0.000 dB	-60 dBm	0.11 dB	±0.28 dB		pass 0.16 dB
	0.000 dB	-70 dBm	-0.06 dB	±0.28 dB		pass 0.16 dB
<b>Total Measurement Accuracy at Carrier 6 GHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	0.01 dB	±0.39 dB		pass 0.20 dB
	0.000 dB	-10 dBm	-0.00 dB	±0.39 dB		pass 0.20 dB
	0.000 dB	-20 dBm	-0.01 dB	±0.39 dB		pass 0.20 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
	0.000 dB	-30 dBm	-0.00 dB	±0.39 dB	pass	0.20 dB
	0.000 dB	-40 dBm	0.01 dB	±0.39 dB	pass	0.20 dB
	0.000 dB	-50 dBm	0.01 dB	±0.39 dB	pass	0.20 dB
	0.000 dB	-60 dBm	-0.02 dB	±0.39 dB	pass	0.20 dB
	0.000 dB	-70 dBm	0.10 dB	±0.39 dB	pass	0.30 dB
<b>Total Measurement Accuracy at Carrier 9 GHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	0.02 dB	±1 dB	pass	0.20 dB
	0.000 dB	-10 dBm	-0.02 dB	±1 dB	pass	0.20 dB
	0.000 dB	-20 dBm	0.00 dB	±1 dB	pass	0.20 dB
	0.000 dB	-30 dBm	-0.00 dB	±1 dB	pass	0.20 dB
	0.000 dB	-40 dBm	-0.01 dB	±1 dB	pass	0.20 dB
	0.000 dB	-50 dBm	0.01 dB	±1 dB	pass	0.20 dB
	0.000 dB	-60 dBm	-0.00 dB	±1 dB	pass	0.20 dB
	0.000 dB	-70 dBm	0.06 dB	±1 dB	pass	0.30 dB
<b>Total Measurement Accuracy at Carrier 14 GHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	-0.00 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-10 dBm	0.01 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-20 dBm	-0.00 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-30 dBm	-0.01 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-40 dBm	-0.01 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-50 dBm	-0.05 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-60 dBm	-0.02 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-70 dBm	-0.06 dB	±1.32 dB	pass	0.30 dB
<b>Total Measurement Accuracy at Carrier 18 GHz</b>						
<b>0 dBm Reference Level</b>						
	0.000 dB	0 dBm	-0.01 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-10 dBm	-0.08 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-20 dBm	-0.03 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-30 dBm	-0.08 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-40 dBm	-0.08 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-50 dBm	-0.15 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-60 dBm	-0.05 dB	±1.32 dB	pass	0.20 dB
	0.000 dB	-70 dBm	-0.27 dB	±1.32 dB	pass	0.30 dB

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. Messunsicherheit (k=2) Measuring uncertainty (k=2)
<b>Phase Noise with Carrier 500 MHz</b>						
<b>Referred to 1 Hz RBW</b>						
	-200.0 dBc	0.1 kHz	-97 dBc	-0/ +116 dBc		pass 2.1 dB
	-200.0 dBc	1 kHz	-104 dBc	-0/ +99 dBc		pass 2.1 dB
	-200.0 dBc	10 kHz	-108 dBc	-0/ +94 dBc		pass 2.1 dB
	-200.0 dBc	100 kHz	-115 dBc	-0/ +85 dBc		pass 2.1 dB
<b>Input VSWR</b>						
<b>Adapter System:</b>						
<b>Customer Supplied Type-3.5 mm Female</b>						
<b>Input Attenuator 10 dB, AC coupled</b>						
	1.000 VSWR	50 MHz	1.09 VSWR	-0/ +0.5 VSW	18%	pass 0.015
	1.000 VSWR	250 MHz	1.04 VSWR	-0/ +0.5 $\bar{V}$ SW	8%	pass 0.015
	1.000 VSWR	500 MHz	1.11 VSWR	-0/ +0.5 $\bar{V}$ SW	22%	pass 0.015
	1.000 VSWR	750 MHz	1.08 VSWR	-0/ +0.5 $\bar{V}$ SW	17%	pass 0.015
	1.000 VSWR	1000 MHz	1.06 VSWR	-0/ +0.5 $\bar{V}$ SW	12%	pass 0.015
	1.000 VSWR	1250 MHz	1.04 VSWR	-0/ +0.5 $\bar{V}$ SW	8%	pass 0.015
	1.000 VSWR	1500 MHz	1.03 VSWR	-0/ +0.5 $\bar{V}$ SW	6%	pass 0.015
	1.000 VSWR	1750 MHz	1.06 VSWR	-0/ +0.5 $\bar{V}$ SW	12%	pass 0.015
	1.000 VSWR	2000 MHz	1.13 VSWR	-0/ +0.5 $\bar{V}$ SW	27%	pass 0.015
	1.000 VSWR	2250 MHz	1.12 VSWR	-0/ +0.5 $\bar{V}$ SW	25%	pass 0.015
	1.000 VSWR	2500 MHz	1.09 VSWR	-0/ +0.5 $\bar{V}$ SW	18%	pass 0.015
	1.000 VSWR	2750 MHz	1.04 VSWR	-0/ +0.5 $\bar{V}$ SW	9%	pass 0.015
	1.000 VSWR	3000 MHz	1.06 VSWR	-0/ +0.5 $\bar{V}$ SW	13%	pass 0.015
	1.000 VSWR	3250 MHz	1.13 VSWR	-0/ +0.5 $\bar{V}$ SW	26%	pass 0.015
	1.000 VSWR	3500 MHz	1.15 VSWR	-0/ +0.5 $\bar{V}$ SW	31%	pass 0.015
	1.000 VSWR	3750 MHz	1.20 VSWR	-0/ +1 $\bar{V}$ SW	20%	pass 0.029
	1.000 VSWR	4000 MHz	1.14 VSWR	-0/ +1 $\bar{V}$ SW	14%	pass 0.029
	1.000 VSWR	4250 MHz	1.07 VSWR	-0/ +1 $\bar{V}$ SW	7%	pass 0.029
	1.000 VSWR	4500 MHz	1.07 VSWR	-0/ +1 $\bar{V}$ SW	7%	pass 0.029
	1.000 VSWR	4750 MHz	1.07 VSWR	-0/ +1 $\bar{V}$ SW	7%	pass 0.029
	1.000 VSWR	5000 MHz	1.18 VSWR	-0/ +1 $\bar{V}$ SW	18%	pass 0.029
	1.000 VSWR	5250 MHz	1.36 VSWR	-0/ +1 $\bar{V}$ SW	36%	pass 0.029
	1.000 VSWR	5500 MHz	1.20 VSWR	-0/ +1 $\bar{V}$ SW	20%	pass 0.029
	1.000 VSWR	5750 MHz	1.39 VSWR	-0/ +1 $\bar{V}$ SW	40%	pass 0.029
	1.000 VSWR	6000 MHz	1.21 VSWR	-0/ +1 $\bar{V}$ SW	21%	pass 0.029
	1.000 VSWR	6250 MHz	1.23 VSWR	-0/ +1 $\bar{V}$ SW	23%	pass 0.029
	1.000 VSWR	6750 MHz	1.05 VSWR	-0/ +1 $\bar{V}$ SW	5%	pass 0.029
	1.000 VSWR	7000 MHz	1.09 VSWR	-0/ +1 $\bar{V}$ SW	9%	pass 0.029
	1.000 VSWR	7250 MHz	1.29 VSWR	-0/ +1 $\bar{V}$ SW	29%	pass 0.029

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)	
	1.000 VSWR	7500 MHz	1.27 VSWR	-0/ +1	VSW	27%	pass	0.029
	1.000 VSWR	7750 MHz	1.09 VSWR	-0/ +1	$\bar{V}$ SW	9%	pass	0.029
	1.000 VSWR	8000 MHz	1.15 VSWR	-0/ +1	$\bar{V}$ SW	15%	pass	0.029
	1.000 VSWR	8250 MHz	1.02 VSWR	-0/ +1	$\bar{V}$ SW	2%	pass	0.029
	1.000 VSWR	8500 MHz	1.09 VSWR	-0/ +1	$\bar{V}$ SW	9%	pass	0.029
	1.000 VSWR	8750 MHz	1.05 VSWR	-0/ +1	$\bar{V}$ SW	5%	pass	0.029
	1.000 VSWR	9000 MHz	1.14 VSWR	-0/ +1	$\bar{V}$ SW	14%	pass	0.029
	1.000 VSWR	9250 MHz	1.13 VSWR	-0/ +1	$\bar{V}$ SW	13%	pass	0.029
	1.000 VSWR	9500 MHz	1.28 VSWR	-0/ +1	$\bar{V}$ SW	28%	pass	0.029
	1.000 VSWR	9750 MHz	1.13 VSWR	-0/ +1	$\bar{V}$ SW	13%	pass	0.029
	1.000 VSWR	10000 MHz	1.15 VSWR	-0/ +1	$\bar{V}$ SW	15%	pass	0.029
	1.000 VSWR	10250 MHz	1.13 VSWR	-0/ +1	$\bar{V}$ SW	14%	pass	0.029
	1.000 VSWR	10500 MHz	1.23 VSWR	-0/ +1	$\bar{V}$ SW	23%	pass	0.029
	1.000 VSWR	10750 MHz	1.19 VSWR	-0/ +1	$\bar{V}$ SW	19%	pass	0.029
	1.000 VSWR	11000 MHz	1.32 VSWR	-0/ +1	$\bar{V}$ SW	32%	pass	0.029
	1.000 VSWR	11250 MHz	1.34 VSWR	-0/ +1	$\bar{V}$ SW	34%	pass	0.029
	1.000 VSWR	11500 MHz	1.28 VSWR	-0/ +1	$\bar{V}$ SW	28%	pass	0.029
	1.000 VSWR	11750 MHz	1.32 VSWR	-0/ +1	$\bar{V}$ SW	32%	pass	0.029
	1.000 VSWR	12000 MHz	1.15 VSWR	-0/ +1	$\bar{V}$ SW	15%	pass	0.029
	1.000 VSWR	12250 MHz	1.23 VSWR	-0/ +1	$\bar{V}$ SW	23%	pass	0.029
	1.000 VSWR	12500 MHz	1.33 VSWR	-0/ +1	$\bar{V}$ SW	33%	pass	0.029
	1.000 VSWR	12750 MHz	1.26 VSWR	-0/ +1	$\bar{V}$ SW	26%	pass	0.029
	1.000 VSWR	13000 MHz	1.11 VSWR	-0/ +1	$\bar{V}$ SW	11%	pass	0.029
	1.000 VSWR	13250 MHz	1.15 VSWR	-0/ +1	$\bar{V}$ SW	15%	pass	0.029
	1.000 VSWR	13500 MHz	1.10 VSWR	-0/ +1	$\bar{V}$ SW	10%	pass	0.029
	1.000 VSWR	13750 MHz	1.18 VSWR	-0/ +1	$\bar{V}$ SW	18%	pass	0.029
	1.000 VSWR	14000 MHz	1.08 VSWR	-0/ +1	$\bar{V}$ SW	8%	pass	0.029
	1.000 VSWR	14250 MHz	1.09 VSWR	-0/ +1	$\bar{V}$ SW	9%	pass	0.029
	1.000 VSWR	14500 MHz	1.35 VSWR	-0/ +1	$\bar{V}$ SW	35%	pass	0.029
	1.000 VSWR	14750 MHz	1.31 VSWR	-0/ +1	$\bar{V}$ SW	31%	pass	0.029
	1.000 VSWR	15000 MHz	1.32 VSWR	-0/ +1	$\bar{V}$ SW	32%	pass	0.029
	1.000 VSWR	15250 MHz	1.26 VSWR	-0/ +1	$\bar{V}$ SW	26%	pass	0.029
	1.000 VSWR	15500 MHz	1.08 VSWR	-0/ +1	$\bar{V}$ SW	8%	pass	0.029
	1.000 VSWR	15750 MHz	1.18 VSWR	-0/ +1	$\bar{V}$ SW	18%	pass	0.029
	1.000 VSWR	16000 MHz	1.08 VSWR	-0/ +1	$\bar{V}$ SW	8%	pass	0.029
	1.000 VSWR	16250 MHz	1.34 VSWR	-0/ +1	$\bar{V}$ SW	34%	pass	0.029
	1.000 VSWR	16500 MHz	1.40 VSWR	-0/ +1	$\bar{V}$ SW	40%	pass	0.029
	1.000 VSWR	16750 MHz	1.12 VSWR	-0/ +1	$\bar{V}$ SW	12%	pass	0.029
	1.000 VSWR	17000 MHz	1.47 VSWR	-0/ +1	$\bar{V}$ SW	47%	pass	0.029
	1.000 VSWR	17250 MHz	1.15 VSWR	-0/ +1	$\bar{V}$ SW	15%	pass	0.029
	1.000 VSWR	17500 MHz	1.17 VSWR	-0/ +1	$\bar{V}$ SW	17%	pass	0.029
	1.000 VSWR	17750 MHz	1.22 VSWR	-0/ +1	$\bar{V}$ SW	22%	pass	0.029
	1.000 VSWR	18000 MHz	1.09 VSWR	-0/ +1	$\bar{V}$ SW	9%	pass	0.029
<b>Input Attenuator 40 dB, AC coupled</b>								
	1.000 VSWR	50 MHz	1.11 VSWR	-0/ +0.5	VSW	21%	pass	0.015
	1.000 VSWR	250 MHz	1.03 VSWR	-0/ +0.5	$\bar{V}$ SW	7%	pass	0.015
	1.000 VSWR	500 MHz	1.05 VSWR	-0/ +0.5	$\bar{V}$ SW	11%	pass	0.015

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)	
	1.000 VSWR	750 MHz	1.07 VSWR	-0/ +0.5	VSW	14%	pass	0.015
	1.000 VSWR	1000 MHz	1.01 VSWR	-0/ +0.5	$\bar{V}SW$	2%	pass	0.015
	1.000 VSWR	1250 MHz	1.08 VSWR	-0/ +0.5	$\bar{V}SW$	15%	pass	0.015
	1.000 VSWR	1500 MHz	1.07 VSWR	-0/ +0.5	$\bar{V}SW$	14%	pass	0.015
	1.000 VSWR	1750 MHz	1.06 VSWR	-0/ +0.5	$\bar{V}SW$	13%	pass	0.015
	1.000 VSWR	2000 MHz	1.07 VSWR	-0/ +0.5	$\bar{V}SW$	15%	pass	0.015
	1.000 VSWR	2250 MHz	1.06 VSWR	-0/ +0.5	$\bar{V}SW$	12%	pass	0.015
	1.000 VSWR	2500 MHz	1.06 VSWR	-0/ +0.5	$\bar{V}SW$	11%	pass	0.015
	1.000 VSWR	2750 MHz	1.08 VSWR	-0/ +0.5	$\bar{V}SW$	15%	pass	0.015
	1.000 VSWR	3000 MHz	1.12 VSWR	-0/ +0.5	$\bar{V}SW$	24%	pass	0.015
	1.000 VSWR	3250 MHz	1.06 VSWR	-0/ +0.5	$\bar{V}SW$	13%	pass	0.015
	1.000 VSWR	3500 MHz	1.11 VSWR	-0/ +0.5	$\bar{V}SW$	22%	pass	0.015
	1.000 VSWR	3750 MHz	1.14 VSWR	-0/ +1	$\bar{V}SW$	14%	pass	0.029
	1.000 VSWR	4000 MHz	1.13 VSWR	-0/ +1	$\bar{V}SW$	13%	pass	0.029
	1.000 VSWR	4250 MHz	1.12 VSWR	-0/ +1	$\bar{V}SW$	12%	pass	0.029
	1.000 VSWR	4500 MHz	1.17 VSWR	-0/ +1	$\bar{V}SW$	17%	pass	0.029
	1.000 VSWR	4750 MHz	1.13 VSWR	-0/ +1	$\bar{V}SW$	13%	pass	0.029
	1.000 VSWR	5000 MHz	1.19 VSWR	-0/ +1	$\bar{V}SW$	19%	pass	0.029
	1.000 VSWR	5250 MHz	1.18 VSWR	-0/ +1	$\bar{V}SW$	18%	pass	0.029
	1.000 VSWR	5500 MHz	1.07 VSWR	-0/ +1	$\bar{V}SW$	7%	pass	0.029
	1.000 VSWR	5750 MHz	1.17 VSWR	-0/ +1	$\bar{V}SW$	17%	pass	0.029
	1.000 VSWR	6000 MHz	1.16 VSWR	-0/ +1	$\bar{V}SW$	16%	pass	0.029
	1.000 VSWR	6250 MHz	1.08 VSWR	-0/ +1	$\bar{V}SW$	8%	pass	0.029
	1.000 VSWR	6750 MHz	1.10 VSWR	-0/ +1	$\bar{V}SW$	10%	pass	0.029
	1.000 VSWR	7000 MHz	1.12 VSWR	-0/ +1	$\bar{V}SW$	12%	pass	0.029
	1.000 VSWR	7250 MHz	1.15 VSWR	-0/ +1	$\bar{V}SW$	15%	pass	0.029
	1.000 VSWR	7500 MHz	1.06 VSWR	-0/ +1	$\bar{V}SW$	6%	pass	0.029
	1.000 VSWR	7750 MHz	1.07 VSWR	-0/ +1	$\bar{V}SW$	7%	pass	0.029
	1.000 VSWR	8000 MHz	1.10 VSWR	-0/ +1	$\bar{V}SW$	10%	pass	0.029
	1.000 VSWR	8250 MHz	1.07 VSWR	-0/ +1	$\bar{V}SW$	7%	pass	0.029
	1.000 VSWR	8500 MHz	1.03 VSWR	-0/ +1	$\bar{V}SW$	3%	pass	0.029
	1.000 VSWR	8750 MHz	1.06 VSWR	-0/ +1	$\bar{V}SW$	6%	pass	0.029
	1.000 VSWR	9000 MHz	1.07 VSWR	-0/ +1	$\bar{V}SW$	7%	pass	0.029
	1.000 VSWR	9250 MHz	1.06 VSWR	-0/ +1	$\bar{V}SW$	6%	pass	0.029
	1.000 VSWR	9500 MHz	1.18 VSWR	-0/ +1	$\bar{V}SW$	18%	pass	0.029
	1.000 VSWR	9750 MHz	1.14 VSWR	-0/ +1	$\bar{V}SW$	14%	pass	0.029
	1.000 VSWR	10000 MHz	1.04 VSWR	-0/ +1	$\bar{V}SW$	4%	pass	0.029
	1.000 VSWR	10250 MHz	1.18 VSWR	-0/ +1	$\bar{V}SW$	18%	pass	0.029
	1.000 VSWR	10500 MHz	1.17 VSWR	-0/ +1	$\bar{V}SW$	18%	pass	0.029
	1.000 VSWR	10750 MHz	1.08 VSWR	-0/ +1	$\bar{V}SW$	8%	pass	0.029
	1.000 VSWR	11000 MHz	1.17 VSWR	-0/ +1	$\bar{V}SW$	17%	pass	0.029
	1.000 VSWR	11250 MHz	1.16 VSWR	-0/ +1	$\bar{V}SW$	16%	pass	0.029
	1.000 VSWR	11500 MHz	1.13 VSWR	-0/ +1	$\bar{V}SW$	13%	pass	0.029
	1.000 VSWR	11750 MHz	1.15 VSWR	-0/ +1	$\bar{V}SW$	15%	pass	0.029
	1.000 VSWR	12000 MHz	1.23 VSWR	-0/ +1	$\bar{V}SW$	23%	pass	0.029
	1.000 VSWR	12250 MHz	1.14 VSWR	-0/ +1	$\bar{V}SW$	14%	pass	0.029
	1.000 VSWR	12500 MHz	1.28 VSWR	-0/ +1	$\bar{V}SW$	28%	pass	0.029
	1.000 VSWR	12750 MHz	1.15 VSWR	-0/ +1	$\bar{V}SW$	15%	pass	0.029

# Kalibrier-Zertifikat

# Calibration Certificate

# MUSTER

Bereich Range	Referenzwert (Normal) Reference value	Messbedingung Measuring condition	Angezeigter Wert UUT Indicated value UUT	zulässige Abweichung allowed deviation	Ausnutzung der Abw. in % Utilization of allowed dev. in %	zul. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)	
	1.000 VSWR	13000 MHz	1.10 VSWR	-0/ +1	VSW	10%	pass	0.029
	1.000 VSWR	13250 MHz	1.09 VSWR	-0/ +1	$\bar{V}SW$	9%	pass	0.029
	1.000 VSWR	13500 MHz	1.21 VSWR	-0/ +1	$\bar{V}SW$	21%	pass	0.029
	1.000 VSWR	13750 MHz	1.12 VSWR	-0/ +1	$\bar{V}SW$	12%	pass	0.029
	1.000 VSWR	14000 MHz	1.28 VSWR	-0/ +1	$\bar{V}SW$	28%	pass	0.029
	1.000 VSWR	14250 MHz	1.25 VSWR	-0/ +1	$\bar{V}SW$	25%	pass	0.029
	1.000 VSWR	14500 MHz	1.22 VSWR	-0/ +1	$\bar{V}SW$	22%	pass	0.029
	1.000 VSWR	14750 MHz	1.33 VSWR	-0/ +1	$\bar{V}SW$	33%	pass	0.029
	1.000 VSWR	15000 MHz	1.20 VSWR	-0/ +1	$\bar{V}SW$	20%	pass	0.029
	1.000 VSWR	15250 MHz	1.24 VSWR	-0/ +1	$\bar{V}SW$	24%	pass	0.029
	1.000 VSWR	15500 MHz	1.20 VSWR	-0/ +1	$\bar{V}SW$	20%	pass	0.029
	1.000 VSWR	15750 MHz	1.30 VSWR	-0/ +1	$\bar{V}SW$	30%	pass	0.029
	1.000 VSWR	16000 MHz	1.09 VSWR	-0/ +1	$\bar{V}SW$	9%	pass	0.029
	1.000 VSWR	16250 MHz	1.16 VSWR	-0/ +1	$\bar{V}SW$	16%	pass	0.029
	1.000 VSWR	16500 MHz	1.25 VSWR	-0/ +1	$\bar{V}SW$	25%	pass	0.029
	1.000 VSWR	16750 MHz	1.15 VSWR	-0/ +1	$\bar{V}SW$	16%	pass	0.029
	1.000 VSWR	17000 MHz	1.20 VSWR	-0/ +1	$\bar{V}SW$	20%	pass	0.029
	1.000 VSWR	17250 MHz	1.08 VSWR	-0/ +1	$\bar{V}SW$	8%	pass	0.029
	1.000 VSWR	17500 MHz	1.16 VSWR	-0/ +1	$\bar{V}SW$	16%	pass	0.029
	1.000 VSWR	17750 MHz	1.24 VSWR	-0/ +1	$\bar{V}SW$	24%	pass	0.029
	1.000 VSWR	18000 MHz	1.06 VSWR	-0/ +1	$\bar{V}SW$	6%	pass	0.029
<b>Noise Floor (Option B29)</b>								
by normalized at 1 Hz RBW								
	-200.0 dBm	10 Hz	-115 dBm	-0/ +110	dBm	pass	1.6 dB	
	-200.0 dBm	20 Hz	-117 dBm	-0/ +100	dBm	pass	1.6 dB	
	-200.0 dBm	100 Hz	-120 dBm	-0/ +90	dBm	pass	1.6 dB	
	-200.0 dBm	1 kHz	-125 dBm	-0/ +80	dBm	pass	1.6 dB	

zulässige Abweichung gemäß Herstellerangabe  
allowed deviation in accordance with manufacturer

Die dimensionslosen Anteile der Messunsicherheit U sind als relative Messunsicherheiten e bezogen auf den Messwert zu verstehen (U = e \* MW).

The non-dimensional fractions of the measuring uncertainty U are relative values e in relation to the indicated value (U = e \* i.v.).