



Kalibrier-Zertifikat

Calibration Certificate

MUSTER

Gegenstand Object	Spektrum Analyzer
Hersteller Manufacturer	Rohde & Schwarz
Typ Type description	FSEK30
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

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. 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. 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.

Datum der Kalibrierung Date of calibration	21.02.2017
Datum der empfohlenen Rekalibrierung Date of the recommended re-calibration	21.02.2018

Konformitätsaussage Conformity

- Messwert(e) innerhalb der zulässigen Abweichung¹⁾. Measured value(s) within the allowed deviation¹⁾.
 Messwert(e) außerhalb der zulässigen Abweichung¹⁾. Measured value(s) beyond the allowed deviation¹⁾.

¹⁾ 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.

¹⁾ 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.

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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 910R	GPS locked ---	---	Support Device	10640562
Measuring Receiver HEWLETT PACKARD 8902A	15070-01-01 2016-05	2017-05	E37987	10952883
Attenuator Driver Hewlett Packard 11713A	hilfsmittel 2014-02	2022-06	-Hilfsmittel-	10962085
Step Attenuator AGILENT DEUTSCHLAND GMBH 8494H	15070-01-01 2016-10	2017-10	E46778	10996969
Step Attenuator AGILENT DEUTSCHLAND GMBH 8496H	15070-01-01 2016-04	2017-10	E37520	10996970
Power Sensor AGILENT DEUTSCHLAND GMBH ECP-E26A	15070-01-01 2016-09	2017-09	E41257	11104509
Frequenzzähler HP 5335A	GPS locked ---	---	Support device	11105446
NETWORK ANALYZER HEWLETT PACKARD 8510C System	15070-01-01 2016-09	2017-09	E40950	11105533
Synthesized Sweeper Agilent 83650L	GPS locked ---	---	Support device	11105539
Signal Generator Rhode & Schwarz SML03	GPS locked ---	---	Support device	11105575
Power Meter AGILENT DEUTSCHLAND GMBH E4417A	15070-01-01 2016-09	2017-09	E40959	11287008
Power Sensor AGILENT DEUTSCHLAND GMBH E9304A	15070-01-01 2016-08	2017-08	E40071	11373066
Power Splitter AGILENT DEUTSCHLAND GMBH 11667A	15070-01-01 2016-12	2017-12	E43560	11645640
Vector Signal Generator Rohde & Schwarz SMBV100A	15070-01-01 2015-05	2017-05	E31003	11662707

Referenzzertifikate sind auf www.primasonline.com abrufbar Reference certificates are available at 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:FSEK30:1088.3494.30:kiz:HF-MP2:IEEE / Rev.:3.1

Messergebnisse Measuring results

Seite Page 3 bis to 16

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. pass	Messunsicherheit (k=2) Measuring uncertainty (k=2)
ID Query: Rohde&Schwarz,FSEK 30,827455/008,3.40.2							
-Customer supplied Type N Adapter							
Internal Calibration Routine							
Self Cal: Pass							
Calibration Source							
	-40.000 dBm	120 MHz	-39.79 dBm	±0.3 dBm		pass	0.15 dB
10 MHz Reference Frequency Accuracy							
* Drift not tested							
Deviation of 10 MHz							
	0.000 Hz		-0.08 Hz	±1 Hz	8%	pass	12 mHz
Input Reflection							
RF Attenuator 10dB							
Adapter System:							
Customer Supplied Type-N Female							
	0.0000 Rho	50 MHz	0.023 Rho	-0/ +0.2 Rho	12%	pass	0.0070 Rho
	0.0000 Rho	250 MHz	0.026 Rho	-0/ +0.2 Rho	13%	pass	0.0070 Rho
	0.0000 Rho	500 MHz	0.060 Rho	-0/ +0.2 Rho	30%	pass	0.0070 Rho
	0.0000 Rho	750 MHz	0.029 Rho	-0/ +0.2 Rho	15%	pass	0.0070 Rho
	0.0000 Rho	999 MHz	0.022 Rho	-0/ +0.2 Rho	11%	pass	0.0070 Rho
	0.0000 Rho	1250 MHz	0.029 Rho	-0/ +0.2 Rho	15%	pass	0.0070 Rho
	0.0000 Rho	1500 MHz	0.039 Rho	-0/ +0.2 Rho	20%	pass	0.0070 Rho
	0.0000 Rho	1750 MHz	0.015 Rho	-0/ +0.2 Rho	8%	pass	0.0070 Rho
	0.0000 Rho	2000 MHz	0.017 Rho	-0/ +0.2 Rho	9%	pass	0.0070 Rho
	0.0000 Rho	2250 MHz	0.045 Rho	-0/ +0.2 Rho	23%	pass	0.010 Rho
	0.0000 Rho	2500 MHz	0.047 Rho	-0/ +0.2 Rho	24%	pass	0.010 Rho
	0.0000 Rho	2750 MHz	0.073 Rho	-0/ +0.2 Rho	37%	pass	0.010 Rho
	0.0000 Rho	3000 MHz	0.031 Rho	-0/ +0.2 Rho	16%	pass	0.010 Rho
	0.0000 Rho	3250 MHz	0.023 Rho	-0/ +0.2 Rho	12%	pass	0.010 Rho
	0.0000 Rho	3499 MHz	0.055 Rho	-0/ +0.2 Rho	28%	pass	0.010 Rho
	0.0000 Rho	3750 MHz	0.111 Rho	-0/ +0.333 Rho	33%	pass	0.010 Rho
	0.0000 Rho	4000 MHz	0.082 Rho	-0/ +0.333 Rho	25%	pass	0.010 Rho
	0.0000 Rho	4250 MHz	0.074 Rho	-0/ +0.333 Rho	22%	pass	0.010 Rho



Kalibrier-Zertifikat

Calibration Certificate

MUSTER

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	0.0000 Rho	4500 MHz	0.042 Rho	-0/ +0.333	Rho 13%	pass 0.010 Rho
	0.0000 Rho	4750 MHz	0.072 Rho	-0/ +0.333	Rho 22%	pass 0.010 Rho
	0.0000 Rho	5000 MHz	0.121 Rho	-0/ +0.333	Rho 36%	pass 0.010 Rho
	0.0000 Rho	5250 MHz	0.057 Rho	-0/ +0.333	Rho 17%	pass 0.010 Rho
	0.0000 Rho	5500 MHz	0.048 Rho	-0/ +0.333	Rho 14%	pass 0.010 Rho
	0.0000 Rho	5750 MHz	0.098 Rho	-0/ +0.333	Rho 29%	pass 0.010 Rho
	0.0000 Rho	6000 MHz	0.113 Rho	-0/ +0.333	Rho 34%	pass 0.010 Rho
	0.0000 Rho	6250 MHz	0.028 Rho	-0/ +0.333	Rho 8%	pass 0.010 Rho
	0.0000 Rho	6500 MHz	0.098 Rho	-0/ +0.333	Rho 29%	pass 0.010 Rho
	0.0000 Rho	6750 MHz	0.071 Rho	-0/ +0.333	Rho 21%	pass 0.010 Rho
	0.0000 Rho	7000 MHz	0.059 Rho	-0/ +0.333	Rho 18%	pass 0.010 Rho
	0.0000 Rho	7250 MHz	0.118 Rho	-0/ +0.429	Rho 28%	pass 0.015 Rho
	0.0000 Rho	7500 MHz	0.013 Rho	-0/ +0.429	Rho 3%	pass 0.015 Rho
	0.0000 Rho	7750 MHz	0.080 Rho	-0/ +0.429	Rho 19%	pass 0.015 Rho
	0.0000 Rho	8000 MHz	0.090 Rho	-0/ +0.429	Rho 21%	pass 0.015 Rho
	0.0000 Rho	8250 MHz	0.095 Rho	-0/ +0.429	Rho 22%	pass 0.015 Rho
	0.0000 Rho	8500 MHz	0.083 Rho	-0/ +0.429	Rho 19%	pass 0.015 Rho
	0.0000 Rho	8750 MHz	0.064 Rho	-0/ +0.429	Rho 15%	pass 0.015 Rho
	0.0000 Rho	9000 MHz	0.086 Rho	-0/ +0.429	Rho 20%	pass 0.015 Rho
	0.0000 Rho	9250 MHz	0.184 Rho	-0/ +0.429	Rho 43%	pass 0.015 Rho
	0.0000 Rho	9500 MHz	0.174 Rho	-0/ +0.429	Rho 41%	pass 0.015 Rho
	0.0000 Rho	9750 MHz	0.047 Rho	-0/ +0.429	Rho 11%	pass 0.015 Rho
	0.0000 Rho	10000 MHz	0.089 Rho	-0/ +0.429	Rho 21%	pass 0.015 Rho
	0.0000 Rho	10250 MHz	0.057 Rho	-0/ +0.429	Rho 13%	pass 0.015 Rho
	0.0000 Rho	10500 MHz	0.060 Rho	-0/ +0.429	Rho 14%	pass 0.015 Rho
	0.0000 Rho	10750 MHz	0.121 Rho	-0/ +0.429	Rho 28%	pass 0.015 Rho
	0.0000 Rho	11000 MHz	0.044 Rho	-0/ +0.429	Rho 10%	pass 0.015 Rho
	0.0000 Rho	11250 MHz	0.066 Rho	-0/ +0.429	Rho 15%	pass 0.015 Rho
	0.0000 Rho	11500 MHz	0.031 Rho	-0/ +0.429	Rho 7%	pass 0.015 Rho
	0.0000 Rho	11750 MHz	0.112 Rho	-0/ +0.429	Rho 26%	pass 0.015 Rho
	0.0000 Rho	12000 MHz	0.064 Rho	-0/ +0.429	Rho 15%	pass 0.015 Rho
	0.0000 Rho	12250 MHz	0.132 Rho	-0/ +0.429	Rho 31%	pass 0.015 Rho
	0.0000 Rho	12500 MHz	0.112 Rho	-0/ +0.429	Rho 26%	pass 0.015 Rho
	0.0000 Rho	12750 MHz	0.058 Rho	-0/ +0.429	Rho 14%	pass 0.015 Rho
	0.0000 Rho	13000 MHz	0.178 Rho	-0/ +0.429	Rho 42%	pass 0.015 Rho
	0.0000 Rho	13250 MHz	0.124 Rho	-0/ +0.429	Rho 29%	pass 0.015 Rho
	0.0000 Rho	13750 MHz	0.071 Rho	-0/ +0.429	Rho 17%	pass 0.015 Rho
	0.0000 Rho	14000 MHz	0.051 Rho	-0/ +0.429	Rho 12%	pass 0.015 Rho
	0.0000 Rho	14250 MHz	0.113 Rho	-0/ +0.429	Rho 26%	pass 0.015 Rho
	0.0000 Rho	15500 MHz	0.124 Rho	-0/ +0.429	Rho 29%	pass 0.015 Rho
	0.0000 Rho	15750 MHz	0.117 Rho	-0/ +0.429	Rho 27%	pass 0.015 Rho
	0.0000 Rho	16000 MHz	0.138 Rho	-0/ +0.429	Rho 32%	pass 0.015 Rho
	0.0000 Rho	16250 MHz	0.103 Rho	-0/ +0.429	Rho 24%	pass 0.015 Rho
	0.0000 Rho	16500 MHz	0.036 Rho	-0/ +0.429	Rho 8%	pass 0.015 Rho
	0.0000 Rho	16750 MHz	0.091 Rho	-0/ +0.429	Rho 21%	pass 0.015 Rho
	0.0000 Rho	17000 MHz	0.032 Rho	-0/ +0.429	Rho 7%	pass 0.015 Rho
	0.0000 Rho	17250 MHz	0.086 Rho	-0/ +0.429	Rho 20%	pass 0.015 Rho
	0.0000 Rho	17500 MHz	0.115 Rho	-0/ +0.429	Rho 27%	pass 0.015 Rho



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MUSTER

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	0.0000 Rho	17750 MHz	0.123 Rho	-0/ +0.429	Rho 29%	pass	0.015 Rho
	0.0000 Rho	18000 MHz	0.111 Rho	-0/ +0.429	Rho 26%	pass	0.015 Rho
First IF Image							
	-80.00 dB	11 MHz	-107.5 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	100 MHz	-106.1 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	1701 MHz	-103.1 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	2999 MHz	-102.7 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	3499 MHz	-101.8 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	6999 MHz	-94.4 dB	-120/ +0	dB	pass	2.0 dB
Second IF Image							
	-80.00 dB	999 MHz	-103.6 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	7999 MHz	-98.2 dB	-120/ +0	dB	pass	2.0 dB
First IF Rejection							
	-80.00 dB	100 MHz	-106.6 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	1701 MHz	-102.1 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	3500 MHz	-102.4 dB	-120/ +0	dB	pass	2.0 dB
	-80.00 dB	7001 MHz	-98.9 dB	-120/ +0	dB	pass	2.0 dB
3rd Order Intermodulation Intercept Point							
	10.00 dB	20 MHz	13.3 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	285 MHz	13.2 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	475 MHz	12.5 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	600 MHz	11.3 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	730 MHz	12.3 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	980 MHz	12.1 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	1010 MHz	11.3 dB	-0/ +20	dB	pass	2.0 dB
	10.00 dB	2000 MHz	11.0 dB	-0/ +20	dB	pass	2.0 dB
2nd Order Intermodulation Intercept Point							
	25.00 dB	100 kHz	51.6 dB	-0/ +75	dB	pass	2.0 dB
	25.00 dB	1 MHz	53.7 dB	-0/ +75	dB	pass	2.0 dB
	25.00 dB	10 MHz	59.2 dB	-0/ +75	dB	pass	2.0 dB
	25.00 dB	20 MHz	59.7 dB	-0/ +75	dB	pass	2.0 dB
	40.00 dB	285 MHz	65.9 dB	-0/ +60	dB	pass	2.0 dB
	40.00 dB	475 MHz	67.7 dB	-0/ +60	dB	pass	2.0 dB
	40.00 dB	600 MHz	68.5 dB	-0/ +60	dB	pass	2.0 dB
	40.00 dB	730 MHz	69.3 dB	-0/ +60	dB	pass	2.0 dB



Kalibrier-Zertifikat

Calibration Certificate

MUSTER

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	40.00 dB	980 MHz	71.4 dB	-0/ +60 dB		pass 2.0 dB
	40.00 dB	1010 MHz	76.8 dB	-0/ +60 dB		pass 2.0 dB
	40.00 dB	2000 MHz	71.9 dB	-0/ +60 dB		pass 2.0 dB
IF Filter Level Error						
Filters: 3 dB						
Relative to 5 kHz						
10 Hz Bandwidth, 50 Hz Span						
	0.000 dB		0.01 dB	±0.2 dB		pass 0.15 dB
30 Hz Bandwidth, 100 Hz Span						
	0.000 dB		-0.00 dB	±0.2 dB		pass 0.15 dB
100 Hz Bandwidth, 500 Hz Span						
	0.000 dB		-0.01 dB	±0.2 dB		pass 0.15 dB
300 Hz Bandwidth, 1 kHz Span						
	0.000 dB		-0.01 dB	±0.2 dB		pass 0.15 dB
1 kHz Bandwidth, 5 kHz Span						
	0.000 dB		-0.09 dB	±0.2 dB		pass 0.15 dB
3 kHz Bandwidth, 10 kHz Span						
	0.000 dB		0.10 dB	±0.2 dB		pass 0.15 dB
10 kHz Bandwidth, 50 kHz Span						
	0.000 dB		0.07 dB	±0.2 dB		pass 0.15 dB
30 kHz Bandwidth, 100 kHz Span						
	0.000 dB		0.02 dB	±0.2 dB		pass 0.15 dB
100 kHz Bandwidth, 500 kHz Span						
	0.000 dB		0.18 dB	±0.2 dB		pass 0.15 dB
300 kHz Bandwidth, 1 MHz Span						
	0.000 dB		0.08 dB	±0.2 dB		pass 0.15 dB
1 MHz Bandwidth, 5 MHz Span						
	0.000 dB		0.08 dB	±0.3 dB		pass 0.15 dB
3 MHz Bandwidth, 10 MHz Span						
	0.000 dB		-0.01 dB	±0.3 dB		pass 0.15 dB
10 MHz Bandwidth, 50 MHz Span						
	0.000 dB		0.13 dB	±0.3 dB		pass 0.15 dB
IF Filter Bandwidth						
3 dB Filters						
	10.000 MHz		10.91 MHz	-1/ +2.5 MHz	37%	pass 102 kHz
	3.0000 MHz		3.210 MHz	±0.3 MHz	70%	pass 30 kHz
	1.0000 MHz		1.061 MHz	±0.1 MHz	61%	pass 10 kHz
	300.00 kHz		315.6 kHz	±30 kHz	52%	pass 3.0 kHz



Kalibrier-Zertifikat

Calibration Certificate

MUSTER

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	100.00 kHz		104.6 kHz	±10 kHz	46%	pass	1.0 kHz
	30.000 kHz		30.93 kHz	±3 kHz	31%	pass	301 Hz
	10.000 kHz		10.34 kHz	±1 kHz	34%	pass	102 Hz
	3.0000 kHz		2.985 kHz	±0.3 kHz	5%	pass	30 Hz
	1.0000 kHz		1.019 kHz	±0.1 kHz	19%	pass	10 Hz
	300.00 Hz		297.6 Hz	±30 Hz	8%	pass	3.0 Hz
	100.00 Hz		100.2 Hz	±10 Hz	2%	pass	1.0 Hz
IF Filter Shape Factor							
3 dB Filters							
	7.00 :1	10 MHz	3.3 :1	-6/ +0 :1	62%	pass	0.30 :1
	7.00 :1	3 MHz	5.5 :1	-6/ +0 :1	25%	pass	0.30 :1
	12.00 :1	1 MHz	7.2 :1	-11/ +0 :1	44%	pass	0.37 :1
	12.00 :1	300 kHz	10.2 :1	-11/ +0 :1	17%	pass	0.37 :1
	12.00 :1	100 kHz	9.9 :1	-11/ +0 :1	19%	pass	0.46 :1
	12.00 :1	30 kHz	8.2 :1	-11/ +0 :1	35%	pass	0.46 :1
	12.00 :1	10 kHz	9.8 :1	-11/ +0 :1	20%	pass	0.46 :1
	12.00 :1	3 kHz	10.4 :1	-11/ +0 :1	14%	pass	0.46 :1
	12.00 :1	1 kHz	11.1 :1	-11/ +0 :1	8%	pass	0.30 :1
	6.00 :1	300 Hz	4.8 :1	-5/ +0 :1	23%	pass	0.30 :1
	6.00 :1	100 Hz	4.8 :1	-5/ +0 :1	24%	pass	0.30 :1
Analyzer Noise Floor							
	-74.0 dBm	20 Hz	-103 dBm	-126/ +0 dBm		pass	0.79 dB
	-104.0 dBm	1 kHz	-128 dBm	-96/ +0 dBm		pass	0.79 dB
	-119.0 dBm	9.9 kHz	-137 dBm	-81/ +0 dBm		pass	0.79 dB
	-129.0 dBm	95 kHz	-143 dBm	-71/ +0 dBm		pass	0.79 dB
	-142.0 dBm	999 kHz	-145 dBm	-58/ +0 dBm		pass	0.79 dB
	-138.0 dBm	9.99 MHz	-144 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	19.99 MHz	-146 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	49.99 MHz	-142 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	99.99 MHz	-146 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	199.99 MHz	-142 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	499.99 MHz	-142 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	999.99 MHz	-141 dBm	-62/ +0 dBm		pass	0.79 dB
	-138.0 dBm	1999.99 MHz	-141 dBm	-62/ +0 dBm		pass	0.98 dB
	-138.0 dBm	3499.99 MHz	-139 dBm	-62/ +0 dBm		pass	0.98 dB
	-138.0 dBm	5999.99 MHz	-138 dBm	-62/ +0 dBm		pass	0.98 dB
	-135.0 dBm	6999.99 MHz	-136 dBm	-65/ +0 dBm		pass	1.0 dB
	-134.0 dBm	7199.99 MHz	-138 dBm	-66/ +0 dBm		pass	1.6 dB
	-134.0 dBm	11999.9 MHz	-139 dBm	-66/ +0 dBm		pass	1.6 dB
	-134.0 dBm	17999.9 MHz	-142 dBm	-66/ +0 dBm		pass	1.6 dB



Kalibrier-Zertifikat

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MUSTER

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Frequency Response						
RF Input Connector Type-N female						
-						
Input Attenuator 10 dB						
at Inputlevel -10 dBm, referenced to 120 MHz						
	0.000 dB	10 MHz	0.04 dB	±0.5 dB		pass 0.12 dB
	0.000 dB	50 MHz	-0.06 dB	±0.5 dB		pass 0.12 dB
	0.000 dB	100 MHz	-0.08 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	200 MHz	-0.09 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	300 MHz	-0.13 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	400 MHz	-0.14 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	500 MHz	-0.09 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	600 MHz	-0.11 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	700 MHz	-0.10 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	800 MHz	-0.14 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	900 MHz	-0.20 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	1000 MHz	-0.14 dB	±0.5 dB		pass 0.13 dB
	0.000 dB	1500 MHz	-0.08 dB	±1 dB		pass 0.13 dB
	0.000 dB	2000 MHz	-0.08 dB	±1 dB		pass 0.13 dB
	0.000 dB	2500 MHz	-0.15 dB	±1 dB		pass 0.13 dB
	0.000 dB	3000 MHz	-0.15 dB	±1 dB		pass 0.13 dB
	0.000 dB	3499 MHz	-0.14 dB	±1 dB		pass 0.13 dB
	0.000 dB	4000 MHz	-0.09 dB	±1 dB		pass 0.15 dB
	0.000 dB	4500 MHz	-0.12 dB	±1 dB		pass 0.15 dB
	0.000 dB	5000 MHz	-0.16 dB	±1 dB		pass 0.15 dB
	0.000 dB	5500 MHz	-0.04 dB	±1 dB		pass 0.15 dB
	0.000 dB	6000 MHz	0.07 dB	±1 dB		pass 0.15 dB
	0.000 dB	6500 MHz	0.09 dB	±1 dB		pass 0.17 dB
	0.000 dB	6999 MHz	0.00 dB	±1 dB		pass 0.17 dB
	0.000 dB	8000 MHz	0.65 dB	±2 dB		pass 0.18 dB
	0.000 dB	9000 MHz	0.70 dB	±2 dB		pass 0.18 dB
	0.000 dB	10000 MHz	0.63 dB	±2 dB		pass 0.18 dB
	0.000 dB	11000 MHz	0.89 dB	±2 dB		pass 0.18 dB
	0.000 dB	12000 MHz	0.53 dB	±2 dB		pass 0.18 dB
	0.000 dB	13000 MHz	0.68 dB	±2 dB		pass 0.18 dB
	0.000 dB	14000 MHz	0.48 dB	±2 dB		pass 0.18 dB
	0.000 dB	15000 MHz	0.12 dB	±2 dB		pass 0.18 dB
	0.000 dB	16000 MHz	0.39 dB	±2 dB		pass 0.18 dB
	0.000 dB	17000 MHz	0.53 dB	±2 dB		pass 0.18 dB
	0.000 dB	18000 MHz	0.69 dB	±2 dB		pass 0.18 dB
<hr/>						
Display Linearity						
Carrier Frequency = 5 MHz						
RBW = 3 kHz						
	0.000 dB	8 dB	0.01 dB	±0.3 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)
	0.000 dB	12 dB	0.03 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	16 dB	0.10 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	20 dB	0.09 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	24 dB	0.11 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	28 dB	0.06 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	32 dB	0.07 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	36 dB	0.09 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	40 dB	0.02 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	44 dB	0.05 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	48 dB	0.02 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	52 dB	0.05 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	56 dB	0.07 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	60 dB	0.00 dB	±0.3 dB	pass	0.30 dB
	0.000 dB	64 dB	0.01 dB	±0.3 dB	pass	0.35 dB
	0.000 dB	68 dB	-0.02 dB	±0.5 dB	pass	0.35 dB
	0.000 dB	72 dB	-0.04 dB	±0.5 dB	pass	0.35 dB
	0.000 dB	76 dB	-0.00 dB	±0.5 dB	pass	0.35 dB
	0.000 dB	80 dB	0.17 dB	±1 dB	pass	0.35 dB
<hr/>						
Attenuator Accuracy						
Reference Level = -55 dBm						
Attenuator = 0 dB, Reference Level = -65 dBm						
	0.000 dB	5 MHz	-0.05 dB	±0.3 dB	pass	0.30 dB
Attenuator = 10 dB, Reference Level = -55 dBm						
	0.000 dB	5 MHz	-0.08 dB	±0.3 dB	pass	0.30 dB
Attenuator = 20 dB, Reference Level = -45 dBm						
	0.000 dB	5 MHz	-0.05 dB	±0.3 dB	pass	0.30 dB
Attenuator = 30 dB, Reference Level = -35 dBm						
	0.000 dB	5 MHz	-0.06 dB	±0.3 dB	pass	0.30 dB
Attenuator = 40 dB, Reference Level = -25 dBm						
	0.000 dB	5 MHz	-0.15 dB	±0.3 dB	pass	0.30 dB
Attenuator = 50 dB, Reference Level = -15 dBm						
	0.000 dB	5 MHz	-0.13 dB	±0.3 dB	pass	0.30 dB
Attenuator = 60 dB, Reference Level = -5 dBm						
	0.000 dB	5 MHz	-0.05 dB	±0.3 dB	pass	0.30 dB
Attenuator = 70 dB, Reference Level = 5 dBm						
	0.000 dB	5 MHz	-0.06 dB	±0.3 dB	pass	0.30 dB
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IF Gain Switching Uncertainty						
Reference Level = -15 dBm						
	0.000 dB	5 MHz	0.04 dB	±0.2 dB	pass	0.30 dB
Reference Level = -5 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	5 MHz	0.07 dB	±0.2 dB		pass 0.30 dB
	Reference Level = -35 dBm					
	0.000 dB	5 MHz	0.03 dB	±0.2 dB		pass 0.30 dB
	Reference Level = -45 dBm					
	0.000 dB	5 MHz	0.07 dB	±0.2 dB		pass 0.30 dB
	Reference Level = -55 dBm					
	0.000 dB	5 MHz	0.09 dB	±0.2 dB		pass 0.30 dB
	Reference Level = -65 dBm					
	0.000 dB	5 MHz	0.11 dB	±0.2 dB		pass 0.30 dB
	Reference Level = -75 dBm					
	0.000 dB	5 MHz	0.19 dB	±0.2 dB		pass 0.35 dB
Phase Noise						
Referred to 1 Hz RBW						
	-81.0 dBc	0.1 kHz	-102 dBc	-119/ +0 dBc		pass 2.0 dB
	-100.0 dBc	1 kHz	-114 dBc	-100/ +0 dBc		pass 2.0 dB
	-114.0 dBc	10 kHz	-114 dBc	-86/ +0 dBc		pass 2.0 dB
	-200.0 dBc	100 kHz	-120 dBc	-0/ +89 dBc		pass 2.0 dB
Absolute Accuracy / Linearity (Option B7)						
	0.000 dB	120 MHz	-0.15 dB	±0.5 dB		pass 0.087 dB
Linearity						
	0.000 dB	10 dB	-0.05 dB	±0.2 dB		pass 0.30 dB
	0.000 dB	30 dB	-0.00 dB	±0.85 dB		pass 0.30 dB
	0.000 dB	50 dB	0.13 dB	±0.85 dB		pass 0.30 dB
Dynamic Burst (Option B7)						
-						
GSM						
	200.00 dB	>67.3dB	74.2 dB	-132.7/ +0 dB		pass 1.0 dB
-						
NADC						
	200.00 dB	>72dB	79.6 dB	-128/ +0 dB		pass 1.0 dB
Modulation Errors no FSK (Option B7)						
Optional Test with laboratory estimated tolerance						



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)
PCS 1900 / GSM 1900						
EVM rms:	0.000 %		0.24 %	-0/ +1.4 %	17% pass	0.10 %
Magnitude Error rms:	0.000 %		0.08 %	-0/ +1.4 %	6% pass	0.10 %
Phase Error rms:	0.000 °		0.13 °	-0/ +0.7 °	19% pass	0.10 °
Phase Error pk:	0.000 °		0.38 °	-0/ +3 °	13% pass	0.10 °
I/Q-Offset:	0.000 %		0.03 %	-0/ +0.28 %	11% pass	0.10 %
NADC						
EVM rms:	0.000 %		0.27 %	-0/ +0.7 %	39% pass	0.10 %
EVM pk:	0.000 %		0.49 %	-0/ +3 %	16% pass	0.10 %
Magnitude Error rms:	0.000 %		0.10 %	-0/ +0.7 %	14% pass	0.10 %
I/Q-Offset:	0.000 %		0.02 %	-0/ +0.28 %	7% pass	0.10 %
Freq Error:	0.000 Hz		0.01 Hz	±0.3 Hz	3% pass	100 mHz
PDC						
EVM rms:	0.000 %		0.48 %	-0/ +0.7 %	69% pass	0.10 %
EVM pk:	0.000 %		0.87 %	-0/ +3 %	29% pass	0.10 %
Magnitude Error rms:	0.000 %		0.04 %	-0/ +0.7 %	6% pass	0.10 %
I/Q-Offset:	0.000 %		0.01 %	-0/ +0.28 %	4% pass	0.10 %
Freq Error:	0.000 Hz		0.04 Hz	±0.3 Hz	13% pass	100 mHz
Tetra						
EVM rms:	0.000 %		0.30 %	-0/ +0.7 %	43% pass	0.10 %
EVM pk:	0.000 %		0.53 %	-0/ +3 %	18% pass	0.10 %
Magnitude Error rms:						



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)
I/Q-Offset:	0.000 %		0.11 %	-0/ +0.7 %	16%	pass	0.10 %
Freq Error:	0.000 %		0.02 %	-0/ +0.28 %	7%	pass	0.10 %
	0.000 Hz		0.06 Hz	±0.3 Hz	20%	pass	100 mHz
PHS							
EVM rms:	0.000 %		0.16 %	-0/ +1.4 %	11%	pass	0.10 %
EVM pk:	0.000 %		0.38 %	-0/ +6.3 %	6%	pass	0.10 %
Magnitude Error rms:	0.000 %		0.05 %	-0/ +1.4 %	4%	pass	0.10 %
I/Q-Offset:	0.000 %		0.02 %	-0/ +0.28 %	7%	pass	0.10 %
Freq Error:	0.000 Hz		-0.05 Hz	±1.4 Hz	4%	pass	100 mHz
Modulation Errors FSK (Option B7)							
Optional Test with laboratory estimated tolerance							
DECT							
Magnitude Error rms:	0.000 %		0.14 %	-0/ +2.8 %	5%	pass	0.10 %
FSK Dev Error rms:	0.000 kHz		1.39 kHz	-0/ +8 kHz	17%	pass	100 Hz
FSK Dev Error nom:	0.000 kHz		7.95 kHz	±8 kHz	99%	pass	100 Hz
Freq Error:	0.0 Hz		3 Hz	±2000 Hz	0%	pass	586 mHz
Analog Demodulation (AM Real Time off)							
AM = 50%; AF = 500Hz; Demod BW = 5kHz; IF-BW = 30kHz							
	50.000 %	1 GHz	49.78 %	±2.5 %	9%	pass	1.2 %
AM = 50%; AF = 10kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	50.000 %	1 GHz	49.78 %	±2.5 %	9%	pass	1.2 %
AM = 50%; AF = 50kHz; Demod BW = 2MHz; IF-BW = 10MHz							
	50.000 %	1 GHz	50.21 %	±2.5 %	8%	pass	1.2 %

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)
Distortion @ Demod BW = 5kHz; IF-BW = 30kHz							
	0.000 %		0.01 %	-0/ +0.2 %	5%	pass	2.5 %
Distortion @ Demod BW = 200kHz; IF-BW = 1MHz							
	0.000 %		0.10 %	-0/ +0.28 %	36%	pass	2.5 %
Distortion @ Demod BW = 2MHz; IF-BW = 10MHz							
	0.000 %		0.23 %	-0/ +0.89 %	26%	pass	2.5 %
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Analog Demodulation (FM Real Time off)							
-							
Dev = 40kHz; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	40.000 kHz	1 GHz	39.97 kHz	±2 kHz	2%	pass	260 Hz
Dev = 200kHz; AF = 100kHz; Demod BW = 2MHz; IF-BW = 10MHz							
	200.000 kHz	1 GHz	201.68 kHz	±10 kHz	17%	pass	1.2 kHz
Distortion @ Demod BW = 200kHz; IF-BW = 1MHz							
	0.000 Hz		8.40 Hz	-0/ +20 Hz	42%	pass	2.0 Hz
<hr/>							
Analog Demodulation (PM Real Time off)							
-							
Dev = 10rad; AF = 1kHz; Demod BW = 500kHz; IF-BW = 3MHz							
	10.000 rad	1 GHz	9.92 rad	±0.5 rad	16%	pass	0.10 rad
Distortion @ Demod BW = 5kHz; IF-BW = 30kHz							
	0.000 rad		0.00 rad	-0/ +0.06 rad	2%	pass	0.026 rad
Distortion @ Demod BW = 200kHz; IF-BW = 1kHz							
	0.000 rad		0.00 rad	-0/ +0.06 rad	2%	pass	0.026 rad
<hr/>							
Analog Demodulation (Audio Real Time off)							
-							
AF = 100Hz; Demod BW = 5kHz; IF-BW = 30kHz							
	100.0000 Hz	1 GHz	100.001 Hz	±0.07 Hz	1%	pass	2.5 mHz
AF = 100kHz; Demod BW = 2MHz; IF-BW = 1MHz							
	100.00000 kHz	1 GHz	100.0001 kHz	±0.003 kHz	3%	pass	1.0 Hz
<hr/>							
Analog Demodulation (Carrier Power Real Time off)							
-							
Lev = -10 dBm; Demod BW = 200kHz; IF-BW = 1MHz							

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)
	-10.000 dBm	1 GHz	-10.46 dBm	±1.5 dBm		pass	0.087 dB
Lev = -40 dBm; Demod BW = 200kHz; IF-BW = 1MHz							
	-40.000 dBm	1 GHz	-39.36 dBm	±1.5 dBm		pass	0.15 dB
<hr/>							
Analog Demodulation (AM Real Time on)							
-							
AM = 50%; AF = 30Hz; Demod BW = 200kHz; IF-BW = 1MHz							
	50.000 %	1 GHz	49.88 %	±2.5 %	5%	pass	1.2 %
AM = 50%; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	50.000 %	1 GHz	49.92 %	±2.5 %	3%	pass	1.2 %
AM = 50%; AF = 20kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	50.000 %	1 GHz	49.97 %	±2.5 %	1%	pass	1.2 %
Distortion @ Demod BW = 5kHz; IF-BW = 30kHz							
	0.000 %		0.01 %	-0/ +0.2 %	5%	pass	2.5 %
Distortion @ Demod BW = 200kHz; IF-BW = 1MHz							
	0.000 %		0.04 %	-0/ +0.28 %	14%	pass	2.5 %
<hr/>							
Analog Demodulation (FM Real Time on)							
-							
Dev = 40kHz; AF = 30Hz; Demod BW = 200kHz; IF-BW = 1MHz							
	40.000 kHz	1 GHz	39.63 kHz	±2 kHz	19%	pass	260 Hz
Dev = 40kHz; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	40.000 kHz	1 GHz	39.52 kHz	±2 kHz	24%	pass	260 Hz
Dev = 40kHz; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	40.000 kHz	1 GHz	39.97 kHz	±2 kHz	1%	pass	260 Hz
Distortion @ Demod BW = 200kHz; IF-BW = 1MHz							
	0.000 Hz		1.97 Hz	-0/ +20 Hz	10%	pass	2.0 Hz
<hr/>							
Analog Demodulation (PM Real Time on)							
-							
Dev = 10rad; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	10.000 rad	1 GHz	10.00 rad	±0.5 rad	0%	pass	0.10 rad
Distortion @ Demod BW = 200kHz; IF-BW = 1MHz							
	0.000 rad		0.00 rad	-0/ +0.06 rad	3%	pass	0.026 rad



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)
Analog Demodulation (Audio Real Time on)							
-							
AF = 30Hz; Demod BW = 10kHz; IF-BW = 50kHz							
	30.00000 Hz	1 GHz	30.0003 Hz	±0.012 Hz	2%	pass	2.5 mHz
AF = 20kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	20.00000 kHz	1 GHz	20.0000 kHz	±0.003 kHz	0%	pass	1.0 Hz
Analog Demodulation (Carrier Power Real Time on)							
-							
Lev = -10 dBm; Demod BW = 200kHz; IF-BW = 1MHz							
	-10.000 dBm	1 GHz	-10.55 dBm	±1.5 dBm		pass	0.087 dB
Lev = -40 dBm; Demod BW = 200kHz; IF-BW = 1MHz							
	-40.000 dBm	1 GHz	-39.47 dBm	±1.5 dBm		pass	0.15 dB
Analog Demodulation SINAD at AM (Real Time on)							
-							
AM = 50%; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	100.00 dB	>46dB	60.1 dB	-54/ +0 dB		pass	2.0 dB
Analog Demodulation SINAD at FM (Real Time on)							
-							
FM = 10kHz; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	100.00 dB	>50dB	70.0 dB	-50/ +0 dB		pass	2.0 dB
Analog Demodulation SINAD at PM (Real Time on)							
-							
PM = 10rad; AF = 1kHz; Demod BW = 200kHz; IF-BW = 1MHz							
	100.00 dB	>50dB	74.5 dB	-50/ +0 dB		pass	2.0 dB
Audio Output							
-							
Volume 50% with AF 1kHz						pass	
Volume 50% with AF 1kHz tone test has passed.							
-							
Volume 0% with AF 1kHz						pass	



Kalibrier-Zertifikat

Calibration Certificate

MUSTER

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Volume 0% with AF 1kHz tone test has passed.						

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 ($U = e \cdot MW$).

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