

Calibration Certificate
Certificado de CalibraciónCertificate No.
Número**1250-307130799****Unit Data**

Item
Instrumento **FSH8 SPECTRUM ANALYZER 8GHZ**

Manufacturer
Fabricante **ROHDE & SCHWARZ**

Type
Tipo **FSH8**

Material No.
Nº del Material **1309.6000K28** Serial No.
Nº de Serie **115896**

This calibration certificate documents that the named item is tested and measured against defined specifications.

Measurement results are located usually in the corresponding interval with a probability of approx. 95% (coverage factor $k = 2$).

Calibration is performed with test equipment and standards directly or indirectly traceable by means of approved calibration techniques to ENAC or other national/international standards, which realize the physical units of measurement according to the International System of Units (SI). In all cases where no national standards are available, measurements are referenced to standards of the R&S laboratories.

Principles and methods of calibration correspond with ISO /IEC 17025.

This calibration certificate may not be reproduced other than in full. Calibration certificates without signatures are not valid. The contents of the present certificate are not covered under ENAC accreditation nor under its international recognition agreements.

The user is obliged to have the object recalibrated at appropriate intervals.

Este certificado de calibración muestra que el equipo mencionado ha sido comprobado y calibrado de acuerdo con especificaciones definidas.

Los resultados de las medidas están dentro del correspondiente intervalo con una probabilidad del 95% (factor de cobertura $k = 2$).

La calibración se ha realizado con equipos y patrones directa o indirectamente trazables, mediante técnicas aprobadas, a ENAC u otros patrones nacionales / internacionales que materializan las unidades físicas de medida de acuerdo con el Sistema Internacional de Unidades SI. En todos los casos en los que no sean posibles patrones nacionales, las medidas están referidas a patrones de los laboratorios de R&S. Los principios y métodos de calibración están de acuerdo con la norma EN ISO/IEC 17025. El sistema de calidad utilizado está certificado por la EN ISO 9001. Este certificado de calibración no puede ser reproducido más que en su totalidad.

Certificados de calibración sin firmas, no son válidos. El contenido del presente certificado no está cubierto por la acreditación ENAC ni por sus acuerdos internacionales de reconocimiento. El usuario está obligado a mantener el equipo recalibrado dentro de los intervalos apropiados.

Order Data

Customer
Cliente **OMB Sistemas Electronicos S.A.**
Paraguay 6
50196 La Muela

Order No.
Número de Pedido

Date of Receipt
Fecha de Rec. **2022-10-04**

Performance

Place and Date of Calibration
Lugar y Fecha(s) de Calibración

R & S MADRID, RSES , 2022-10-07

Scope of Calibration
Tipo de Calibración

Standard Calibration

Statement of Compliance (Incoming)
Estado en la Recepción

All measured values are within the data sheet specifications.

Statement of Compliance (Outgoing)
Resultado de la Calibración

All measured values are within the data sheet specifications.

Extent of Calibration
Páginas del Certificado

2 Pages Calibration Certificate
9 Pages Outgoing Results
9 Pages Incoming Results**Rohde & Schwarz España, S.A. (Office Madrid)**

Date of Issue (YYYY-MM-DD)
Fecha de Emisión

Head of Laboratory
Director del Laboratorio

Person Responsible
Técnico

**2022-10-07****Carlos Salazar****Javier Otero**

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PT 3583.9833.00

Calibration Method
Procedimiento de Calibración

See first page of outgoing results

Relative Humidity
Humedad Relativa

< 70 %

Ambient Temperature
Temperatura

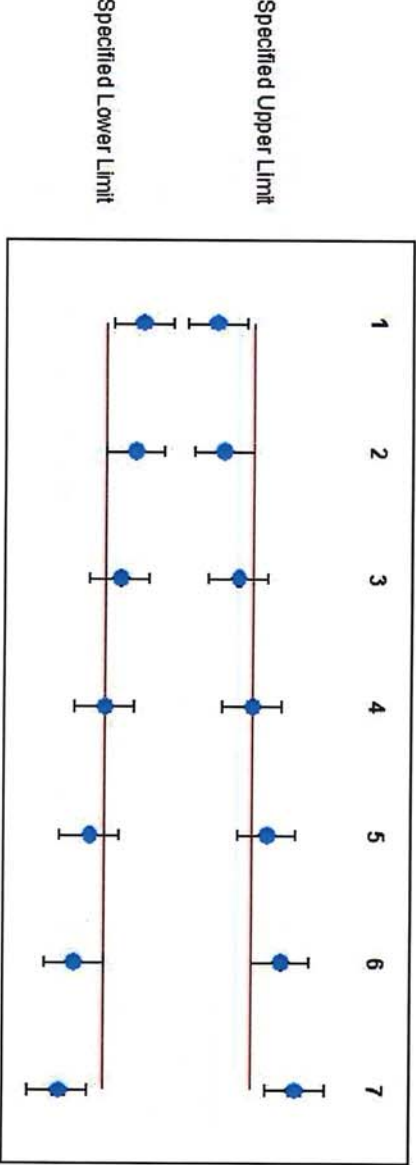
(23 ± 2) °C

Working standards used (having a significant effect on the accuracy)				
Patrones de trabajo utilizados (con un efecto significativo en la incertidumbre)				
Item	Type	Serial No.	Calibration Certificate No.	Cal. Due
Denominación	Modelo	N. Serie	N. certificado calibración	Fecha vencim.
SMF 100A SIGNAL GENERATOR	SMF 100A	100151	0001-300648254	2023-05-13
NRP POWER METER	NRP	100161	1250-307128434	2023-05-05
NRP-Z21 AVERAGE POWER SENSOR	NRP-Z21	102565	1250-307125428	2023-02-07

Notes

Notas

Serial numbers with xxxxxx/xxx format are shown with a leading zero after the slash: xxxxxx/0xxx.



- Pass (1 - 2) Measurement result within the specified limit (Probability ≥ 95 %)
- UGB 1 (3 - 4) Measurement result probably within the specified limit (Probability < 95 %)
- UGB 2 (5 - 6) Measurement result probably without the specified limit (Probability < 95 %)
- F all (7) Measurement result without the specified limit (Probability > 95 %)

Model FSH8
Item Spectrum Analyzer

Serial no. 115896
Material no. 1309.6000K28
Cal. date 2022-10-07



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Calibration certificate no. 1250-307130799

All measured values are within the data sheet specifications.

ROHDE & SCHWARZ		Spectrum Analyzer
Model:	FSH8	
Material number:	1309.6000K28	
Serial number:	115896 (Asset Nr.:)	
Firmware version:	V2.80	
Test software version:	3.42 (S/N: 100942)	
Reference:	Service Manual R&S®FSH4/8/13/20; 1309.6275.82 – 17 Data Sheet R&S®FSH4/8/13/20; 5214.0482.22 V 29.00	
Environmental conditions:		
Responsible:	Javier Otero	

Installed Options:

Model FSH8
Item Spectrum Analyzer

Serial no. 115896
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Summary

Read FSH instrument data	PASS
Read Temperature	PASS
Verify reference oscillator	PASS
Absolute accuracy at 100 MHz	PASS
Frequency Response	PASS
Attenuator accuracy	PASS
Display Linearity	PASS
Phase noise	PASS
Noise Floor	PASS
Tracking generator	PASS
Read Temperature	PASS

Model FSH8
Item Spectrum Analyzer

Serial no. 115896
Material no. 1309.6000K28
Cal. date 2022-10-07



Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
Frequency accuracy (reference oscillator)						
Base unit	0.99999800	1.00000014	1.00000200	GHz	0.00000001	
Level accuracy at 100 MHz with Ref_Lev = 0 dBm	-0.30	-0.08	0.30	dB	0.10	
Frequency response (f_{resp}) with RF Att = 5 dB Ref_Lev = -20 dBm						
10 MHz	-1.00	-0.05	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.06	1.00	dB	0.12	
1000 MHz	-1.00	-0.08	1.00	dB	0.12	
1500 MHz	-1.00	-0.06	1.00	dB	0.12	
2000 MHz	-1.00	-0.05	1.00	dB	0.12	
2500 MHz	-1.00	-0.06	1.00	dB	0.12	
3000 MHz	-1.00	-0.09	1.00	dB	0.12	
3500 MHz	-1.00	-0.12	1.00	dB	0.12	
4000 MHz	-1.50	-0.19	1.50	dB	0.20	
4500 MHz	-1.50	-0.26	1.50	dB	0.20	
5000 MHz	-1.50	-0.19	1.50	dB	0.20	
5500 MHz	-1.50	0.06	1.50	dB	0.20	
6000 MHz	-1.50	-0.23	1.50	dB	0.20	
6500 MHz	-1.50	-0.09	1.50	dB	0.20	
7000 MHz	-1.50	0.23	1.50	dB	0.20	
7500 MHz	-1.50	-0.17	1.50	dB	0.20	
7990 MHz	-1.50	-0.31	1.50	dB	0.20	
Frequency response (f_{resp}) with RF Att = 10 dB Ref_Lev = -10 dBm						
10 MHz	-1.00	-0.04	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.05	1.00	dB	0.12	

Model FSH8
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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
1000 MHz	-1.00	-0.08	1.00	dB	0.12	
1500 MHz	-1.00	-0.06	1.00	dB	0.12	
2000 MHz	-1.00	-0.02	1.00	dB	0.12	
2500 MHz	-1.00	-0.06	1.00	dB	0.12	
3000 MHz	-1.00	-0.07	1.00	dB	0.12	
3500 MHz	-1.00	-0.07	1.00	dB	0.12	
4000 MHz	-1.50	-0.16	1.50	dB	0.20	
4500 MHz	-1.50	-0.25	1.50	dB	0.20	
5000 MHz	-1.50	-0.16	1.50	dB	0.20	
5500 MHz	-1.50	0.14	1.50	dB	0.20	
6000 MHz	-1.50	-0.17	1.50	dB	0.20	
6500 MHz	-1.50	-0.06	1.50	dB	0.20	
7000 MHz	-1.50	0.23	1.50	dB	0.20	
7500 MHz	-1.50	-0.07	1.50	dB	0.20	
7990 MHz	-1.50	-0.43	1.50	dB	0.20	
Frequency response (f_{resp}) with RF Att = 20 dB Ref_Lev = 0 dBm						
10 MHz	-1.00	-0.03	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.04	1.00	dB	0.12	
1000 MHz	-1.00	-0.08	1.00	dB	0.12	
1500 MHz	-1.00	-0.06	1.00	dB	0.12	
2000 MHz	-1.00	-0.03	1.00	dB	0.12	
2500 MHz	-1.00	-0.06	1.00	dB	0.12	
3000 MHz	-1.00	-0.06	1.00	dB	0.12	
3500 MHz	-1.00	-0.08	1.00	dB	0.12	
4000 MHz	-1.50	-0.16	1.50	dB	0.20	
4500 MHz	-1.50	-0.27	1.50	dB	0.20	
5000 MHz	-1.50	-0.15	1.50	dB	0.20	
5500 MHz	-1.50	0.13	1.50	dB	0.20	
6000 MHz	-1.50	-0.18	1.50	dB	0.20	
6500 MHz	-1.50	-0.09	1.50	dB	0.20	
7000 MHz	-1.50	0.21	1.50	dB	0.20	
7500 MHz	-1.50	-0.09	1.50	dB	0.20	

Model FSH8
Item Spectrum Analyzer

Serial no. 115896
Material no. 1309.6000K28
Cal. date 2022-10-07



Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
7990 MHz	-1.50	-0.44	1.50	dB	0.20	
Frequency response (f_{resp}) with RF Att = 30 dB Ref_Lev = +5 dBm						
10 MHz	-1.00	-0.04	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.05	1.00	dB	0.12	
1000 MHz	-1.00	-0.08	1.00	dB	0.12	
1500 MHz	-1.00	-0.07	1.00	dB	0.12	
2000 MHz	-1.00	-0.03	1.00	dB	0.12	
2500 MHz	-1.00	-0.07	1.00	dB	0.12	
3000 MHz	-1.00	-0.07	1.00	dB	0.12	
3500 MHz	-1.00	-0.07	1.00	dB	0.12	
4000 MHz	-1.50	-0.15	1.50	dB	0.20	
4500 MHz	-1.50	-0.26	1.50	dB	0.20	
5000 MHz	-1.50	-0.11	1.50	dB	0.20	
5500 MHz	-1.50	0.15	1.50	dB	0.20	
6000 MHz	-1.50	-0.17	1.50	dB	0.20	
6500 MHz	-1.50	-0.08	1.50	dB	0.20	
7000 MHz	-1.50	0.19	1.50	dB	0.20	
7500 MHz	-1.50	-0.06	1.50	dB	0.20	
7990 MHz	-1.50	-0.46	1.50	dB	0.20	
Frequency response (f_{resp}) with PreAmp = ON RF Att = 0 dB Ref_Lev = -30 dBm						
10 MHz	-1.00	-0.04	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.05	1.00	dB	0.12	
1000 MHz	-1.00	-0.08	1.00	dB	0.12	
1500 MHz	-1.00	-0.06	1.00	dB	0.12	
2000 MHz	-1.00	-0.06	1.00	dB	0.12	
2500 MHz	-1.00	-0.05	1.00	dB	0.12	
3000 MHz	-1.00	-0.06	1.00	dB	0.12	
3500 MHz	-1.00	-0.06	1.00	dB	0.12	
4000 MHz	-1.50	-0.11	1.50	dB	0.20	

Model FSH8
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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
4500 MHz	-1.50	-0.19	1.50	dB	0.20	
5000 MHz	-1.50	-0.08	1.50	dB	0.20	
5500 MHz	-1.50	0.18	1.50	dB	0.20	
6000 MHz	-1.50	-0.14	1.50	dB	0.20	
6500 MHz	-1.50	-0.05	1.50	dB	0.20	
7000 MHz	-1.50	0.25	1.50	dB	0.20	
7500 MHz	-1.50	-0.10	1.50	dB	0.20	
7990 MHz	-1.50	-0.27	1.50	dB	0.20	
Attenuator accuracy						
RF_Att / Ref_Lev						
0 dB / -10 dBm		Reference				
5 dB / -5 dBm	-0.30	0.00	0.30	dB	0.10	
10 dB / 0 dBm	-0.30	0.03	0.30	dB	0.10	
20 dB / 10 dBm	-0.30	0.08	0.30	dB	0.10	
30 dB / 15 dBm	-0.30	0.12	0.30	dB	0.10	
Displayed average noise floor (f _{noise}) in 1 Hz bandwidth						
100 kHz		-124.01	-115.00	dBm/Hz	0.01	
1 MHz		-145.64	-136.00	dBm/Hz	0.01	
10.1 MHz		-151.42	-141.00	dBm/Hz	0.01	
499 MHz		-153.53	-141.00	dBm/Hz	0.01	
999 MHz		-152.59	-141.00	dBm/Hz	0.01	
1499 MHz		-151.17	-141.00	dBm/Hz	0.01	
1999 MHz		-151.49	-141.00	dBm/Hz	0.01	
2499 MHz		-148.76	-138.00	dBm/Hz	0.01	
2999 MHz		-149.24	-138.00	dBm/Hz	0.01	
3599 MHz		-145.31	-138.00	dBm/Hz	0.01	
3601 MHz		-147.23	-142.00	dBm/Hz	0.01	
3999 MHz		-152.63	-142.00	dBm/Hz	0.01	
4499 MHz		-153.33	-142.00	dBm/Hz	0.01	
4999 MHz		-150.98	-142.00	dBm/Hz	0.01	
5499 MHz		-151.53	-140.00	dBm/Hz	0.01	
5999 MHz		-150.64	-140.00	dBm/Hz	0.01	

Model FSH8
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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
6499 MHz		-149.19	-140.00	dBm/Hz	0.01	
6999 MHz		-147.77	-136.00	dBm/Hz	0.01	
7499 MHz		-148.03	-136.00	dBm/Hz	0.01	
7999 MHz		-145.42	-136.00	dBm/Hz	0.01	
Displayed average noise floor (f_{noise}) in 1 Hz bandwidth PreAmp = ON						
100 kHz		-142.85	-133.00	dBm/Hz	0.01	
1 MHz		-163.39	-157.00	dBm/Hz	0.01	
10.1 MHz		-166.95	-161.00	dBm/Hz	0.01	
499 MHz		-169.14	-161.00	dBm/Hz	0.01	
999 MHz		-169.01	-161.00	dBm/Hz	0.01	
1499 MHz		-168.28	-159.00	dBm/Hz	0.01	
1999 MHz		-167.93	-159.00	dBm/Hz	0.01	
2499 MHz		-166.29	-155.00	dBm/Hz	0.01	
2999 MHz		-166.36	-155.00	dBm/Hz	0.01	
3599 MHz		-162.09	-155.00	dBm/Hz	0.01	
3601 MHz		-163.46	-155.00	dBm/Hz	0.01	
3999 MHz		-166.51	-155.00	dBm/Hz	0.01	
4499 MHz		-165.96	-155.00	dBm/Hz	0.01	
4999 MHz		-162.99	-155.00	dBm/Hz	0.01	
5499 MHz		-161.91	-151.00	dBm/Hz	0.01	
5999 MHz		-160.41	-151.00	dBm/Hz	0.01	
6499 MHz		-158.52	-151.00	dBm/Hz	0.01	
6999 MHz		-155.68	-147.00	dBm/Hz	0.01	
7499 MHz		-155.24	-147.00	dBm/Hz	0.01	
7999 MHz		-152.15	-147.00	dBm/Hz	0.01	
Phase noise at 500 MHz						
Offset frequency						
30 kHz		-101.90	-95.00	dBc/Hz	0.01	
100 kHz		-105.46	-100.00	dBc/Hz	0.01	
1 MHz		-130.92	-120.00	dBc/Hz	0.01	

Model FSH8
Item Spectrum Analyzer

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
Display linearity 0 to -30 dB						
Reference level: 0 dBm						
Sig_Lev		Reference				
0 dBm		-0.00	0.20	dB	0.04	
-5 dBm	-0.20	-0.00	0.20	dB	0.04	
-10 dBm	-0.20	-0.00	0.20	dB	0.04	
-15 dBm	-0.20	-0.00	0.20	dB	0.04	
-20 dBm	-0.20	0.01	0.20	dB	0.04	
-25 dBm	-0.20	0.01	0.20	dB	0.04	
-30 dBm	-0.20	0.01	0.20	dB	0.04	
Display linearity -30 to -50 dB						
Reference level: 20 dBm						
Sig_Lev		Reference				
-10 dBm	-0.20	-0.00	0.20	dB	0.04	
-15 dBm	-0.20	0.01	0.20	dB	0.04	
-20 dBm	-0.20	0.00	0.20	dB	0.04	
-25 dBm	-0.20	0.00	0.20	dB	0.04	
-30 dBm	-0.20	0.00	0.20	dB	0.04	
Functional check						
Tracking generator						
S ₂₁						
att(TG)						
10 dB		PASS				
11 dB		PASS				
12 dB		PASS				
16 dB		PASS				
18 dB		PASS				
Functional check						
Tracking generator						
S ₂₁						
att(TG)						
10 dB		PASS				
11 dB		PASS				
12 dB		PASS				

Model FSH8
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ROHDE & SCHWARZ

Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
16 dB		PASS				
18 dB		PASS				

All measured values are within the data sheet specifications.

ROHDE & SCHWARZ		Spectrum Analyzer
Model:	FSH8	
Material number:	1309.6000K28	
Serial number:	115896 (Asset Nr.:)	
Firmware version:	V2.80	
Test software version:	3.42 (S/N: 100942)	
Reference:	Service Manual R&S®FSH4/8/13/20; 1309.6275.82 – 17	
Environmental conditions:	Data Sheet R&S®FSH4/8/13/20; 5214.0482.22 V 29.00	
Responsible:	Javier Otero	

Installed Options:

Model FSH8
Item Spectrum Analyzer

Serial no. 115896
Material no. 1309.6000K28
Cal. date 2022-10-04

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Summary

Read FSH instrument data	PASS
Read Temperature	PASS
Verify reference oscillator	PASS
Absolute accuracy at 100 MHz	PASS
Frequency Response	PASS
Attenuator accuracy	PASS
Display Linearity	PASS
Phase noise	PASS
Noise Floor	PASS
Tracking generator	PASS
Read Temperature	PASS

Model FSH8
Item Spectrum Analyzer

Serial no. 115896
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Calibration certificate no. 1250-307130799



Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
Frequency accuracy (reference oscillator)						
Base unit	0.99999800	1.00000009	1.00000200	GHz	0.000000 01	
Level accuracy at 100 MHz with Ref_Lev = 0 dBm	-0.30	-0.06	0.30	dB	0.10	
Frequency response (f_{resp}) with RF Att = 5 dB Ref_Lev = -20 dBm						
10 MHz	-1.00	-0.10	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.06	1.00	dB	0.12	
1000 MHz	-1.00	-0.11	1.00	dB	0.12	
1500 MHz	-1.00	-0.09	1.00	dB	0.12	
2000 MHz	-1.00	-0.05	1.00	dB	0.12	
2500 MHz	-1.00	-0.05	1.00	dB	0.12	
3000 MHz	-1.00	-0.07	1.00	dB	0.12	
3500 MHz	-1.00	-0.16	1.00	dB	0.12	
4000 MHz	-1.50	-0.69	1.50	dB	0.20	
4500 MHz	-1.50	-0.74	1.50	dB	0.20	
5000 MHz	-1.50	-0.64	1.50	dB	0.20	
5500 MHz	-1.50	-0.57	1.50	dB	0.20	
6000 MHz	-1.50	-0.63	1.50	dB	0.20	
6500 MHz	-1.50	-0.65	1.50	dB	0.20	
7000 MHz	-1.50	-0.61	1.50	dB	0.20	
7500 MHz	-1.50	-0.74	1.50	dB	0.20	
7990 MHz	-1.50	-0.76	1.50	dB	0.20	
Frequency response (f_{resp}) with RF Att = 10 dB Ref_Lev = -10 dBm						
10 MHz	-1.00	-0.09	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.06	1.00	dB	0.12	

Model FSH8
Item Spectrum Analyzer

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
1000 MHz	-1.00	-0.11	1.00	dB	0.12	
1500 MHz	-1.00	-0.10	1.00	dB	0.12	
2000 MHz	-1.00	-0.04	1.00	dB	0.12	
2500 MHz	-1.00	-0.05	1.00	dB	0.12	
3000 MHz	-1.00	-0.08	1.00	dB	0.12	
3500 MHz	-1.00	-0.13	1.00	dB	0.12	
4000 MHz	-1.50	-0.62	1.50	dB	0.20	
4500 MHz	-1.50	-0.69	1.50	dB	0.20	
5000 MHz	-1.50	-0.58	1.50	dB	0.20	
5500 MHz	-1.50	-0.55	1.50	dB	0.20	
6000 MHz	-1.50	-0.57	1.50	dB	0.20	
6500 MHz	-1.50	-0.60	1.50	dB	0.20	
7000 MHz	-1.50	-0.58	1.50	dB	0.20	
7500 MHz	-1.50	-0.71	1.50	dB	0.20	
7990 MHz	-1.50	-0.75	1.50	dB	0.20	
Frequency response (f_{resp}) with RF Att = 20 dB Ref_Lev = 0 dBm						
10 MHz	-1.00	-0.05	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00		1.00	dB	0.12	
1000 MHz	-1.00		1.00	dB	0.12	
1500 MHz	-1.00		1.00	dB	0.12	
2000 MHz	-1.00		1.00	dB	0.12	
2500 MHz	-1.00		1.00	dB	0.12	
3000 MHz	-1.00		1.00	dB	0.12	
3500 MHz	-1.00		1.00	dB	0.12	
4000 MHz	-1.50		1.50	dB	0.20	
4500 MHz	-1.50		1.50	dB	0.20	
5000 MHz	-1.50		1.50	dB	0.20	
5500 MHz	-1.50		1.50	dB	0.20	
6000 MHz	-1.50		1.50	dB	0.20	
6500 MHz	-1.50		1.50	dB	0.20	
7000 MHz	-1.50		1.50	dB	0.20	
7500 MHz	-1.50		1.50	dB	0.20	

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
7990 MHz	-1.50	-0.72	1.50	dB	0.20	
Frequency response (f_{resp}) with RF Att = 30 dB Ref_Lev = +5 dBm						
10 MHz	-1.00	-0.08	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.06	1.00	dB	0.12	
1000 MHz	-1.00	-0.11	1.00	dB	0.12	
1500 MHz	-1.00	-0.11	1.00	dB	0.12	
2000 MHz	-1.00	-0.05	1.00	dB	0.12	
2500 MHz	-1.00	-0.06	1.00	dB	0.12	
3000 MHz	-1.00	-0.07	1.00	dB	0.12	
3500 MHz	-1.00	-0.14	1.00	dB	0.12	
4000 MHz	-1.50	-0.57	1.50	dB	0.20	
4500 MHz	-1.50	-0.63	1.50	dB	0.20	
5000 MHz	-1.50	-0.53	1.50	dB	0.20	
5500 MHz	-1.50	-0.48	1.50	dB	0.20	
6000 MHz	-1.50	-0.52	1.50	dB	0.20	
6500 MHz	-1.50	-0.53	1.50	dB	0.20	
7000 MHz	-1.50	-0.56	1.50	dB	0.20	
7500 MHz	-1.50	-0.66	1.50	dB	0.20	
7990 MHz	-1.50	-0.72	1.50	dB	0.20	
Frequency response (f_{resp}) with PreAmp = ON RF Att = 0 dB Ref_Lev = -30 dBm						
10 MHz	-1.00	-0.04	1.00	dB	0.12	
100 MHz		Reference				
500 MHz	-1.00	-0.04	1.00	dB	0.12	
1000 MHz	-1.00	-0.09	1.00	dB	0.12	
1500 MHz	-1.00	-0.05	1.00	dB	0.12	
2000 MHz	-1.00	-0.02	1.00	dB	0.12	
2500 MHz	-1.00	0.00	1.00	dB	0.12	
3000 MHz	-1.00	-0.02	1.00	dB	0.12	
3500 MHz	-1.00	-0.09	1.00	dB	0.12	
4000 MHz	-1.50	-0.50	1.50	dB	0.20	

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
4500 MHz	-1.50	-0.56	1.50	dB	0.20	
5000 MHz	-1.50	-0.52	1.50	dB	0.20	
5500 MHz	-1.50	-0.43	1.50	dB	0.20	
6000 MHz	-1.50	-0.44	1.50	dB	0.20	
6500 MHz	-1.50	-0.49	1.50	dB	0.20	
7000 MHz	-1.50	-0.46	1.50	dB	0.20	
7500 MHz	-1.50	-0.56	1.50	dB	0.20	
7990 MHz	-1.50	-0.64	1.50	dB	0.20	
Attenuator accuracy						
RF_Alt / Ref_Lev						
0 dB / -10 dBm		Reference				
5 dB / -5 dBm	-0.30	0.02	0.30	dB	0.10	
10 dB / 0 dBm	-0.30	0.04	0.30	dB	0.10	
20 dB / 10 dBm	-0.30	0.06	0.30	dB	0.10	
30 dB / 15 dBm	-0.30	0.10	0.30	dB	0.10	
Displayed average noise floor (f_{noise}) in 1 Hz bandwidth						
100 kHz		-123.28	-115.00	dBm/Hz	0.01	
1 MHz		-144.69	-136.00	dBm/Hz	0.01	
10.1 MHz		-150.18	-141.00	dBm/Hz	0.01	
499 MHz		-152.14	-141.00	dBm/Hz	0.01	
999 MHz		-151.19	-141.00	dBm/Hz	0.01	
1499 MHz		-149.78	-141.00	dBm/Hz	0.01	
1999 MHz		-150.29	-141.00	dBm/Hz	0.01	
2499 MHz		-147.61	-138.00	dBm/Hz	0.01	
2999 MHz		-147.84	-138.00	dBm/Hz	0.01	
3599 MHz		-145.53	-138.00	dBm/Hz	0.01	
3601 MHz		-154.43	-142.00	dBm/Hz	0.01	
3999 MHz		-156.64	-142.00	dBm/Hz	0.01	
4499 MHz		-157.41	-142.00	dBm/Hz	0.01	
4999 MHz		-155.28	-142.00	dBm/Hz	0.01	
5499 MHz		-155.63	-140.00	dBm/Hz	0.01	
5999 MHz		-155.01	-140.00	dBm/Hz	0.01	

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
6499 MHz		-152.70	-140.00	dBm/Hz	0.01	
6999 MHz		-152.31	-136.00	dBm/Hz	0.01	
7499 MHz		-150.65	-136.00	dBm/Hz	0.01	
7999 MHz		-150.14	-136.00	dBm/Hz	0.01	
Displayed average noise floor (f_{noise}) In 1 Hz bandwidth PreAmp = ON						
100 kHz		-142.23	-133.00	dBm/Hz	0.01	
1 MHz		-162.54	-157.00	dBm/Hz	0.01	
10.1 MHz		-166.63	-161.00	dBm/Hz	0.01	
499 MHz		-168.82	-161.00	dBm/Hz	0.01	
999 MHz		-168.45	-161.00	dBm/Hz	0.01	
1499 MHz		-167.54	-159.00	dBm/Hz	0.01	
1999 MHz		-167.35	-159.00	dBm/Hz	0.01	
2499 MHz		-165.61	-155.00	dBm/Hz	0.01	
2999 MHz		-165.87	-155.00	dBm/Hz	0.01	
3599 MHz		-162.99	-155.00	dBm/Hz	0.01	
3601 MHz		-167.94	-155.00	dBm/Hz	0.01	
3999 MHz		-168.35	-155.00	dBm/Hz	0.01	
4499 MHz		-167.84	-155.00	dBm/Hz	0.01	
4999 MHz		-165.83	-155.00	dBm/Hz	0.01	
5499 MHz		-164.58	-151.00	dBm/Hz	0.01	
5999 MHz		-163.36	-151.00	dBm/Hz	0.01	
6499 MHz		-161.16	-151.00	dBm/Hz	0.01	
6999 MHz		-159.75	-147.00	dBm/Hz	0.01	
7499 MHz		-157.19	-147.00	dBm/Hz	0.01	
7999 MHz		-156.14	-147.00	dBm/Hz	0.01	
Phase noise at 500 MHz						
Offset frequency						
30 kHz		-101.53	-95.00	dBc/Hz	0.01	
100 kHz		-105.88	-100.00	dBc/Hz	0.01	
1 MHz		-129.66	-120.00	dBc/Hz	0.01	

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.	
Display linearity 0 to -30 dB Reference level: 0 dBm						
Sig_Lev		Reference				
0 dBm		0.00	0.20	dB	0.04	
-5 dBm	-0.20	0.00	0.20	dB	0.04	
-10 dBm	-0.20	0.00	0.20	dB	0.04	
-15 dBm	-0.20	0.00	0.20	dB	0.04	
-20 dBm	-0.20	0.00	0.20	dB	0.04	
-25 dBm	-0.20	0.01	0.20	dB	0.04	
-30 dBm	-0.20	0.01	0.20	dB	0.04	
Display linearity -30 to -50 dB Reference level: 20 dBm						
Sig_Lev		Reference				
-10 dBm	-0.20	-0.01	0.20	dB	0.04	
-15 dBm	-0.20	0.00	0.20	dB	0.04	
-20 dBm	-0.20	-0.01	0.20	dB	0.04	
-25 dBm	-0.20	-0.00	0.20	dB	0.04	
-30 dBm	-0.20	-0.00	0.20	dB	0.04	
Functional check Tracking generator S ₁₂						
att(TG)						
10 dB		PASS				
11 dB		PASS				
12 dB		PASS				
16 dB		PASS				
18 dB		PASS				
Functional check Tracking generator S ₂₁						
att(TG)						
10 dB		PASS				
11 dB		PASS				
12 dB		PASS				

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Characteristics	Specified min. value	Measured value	Specified max. value	Unit	Uncert.
16 dB		PASS			
18 dB		PASS			