# **ROHDE&SCHWARZ** Calibration Certificate

## Certificate Number 4180-12361/2014

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 the PTB/DKD 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. The metrological confirmation system for the measuring equipment used is in compliance with DIN ISO 10012-1.

The applied quality system is certified to DIN EN ISO 9001.

This calibration certificate may not be reproduced other than in full. Calibration certificates without signatures are not valid. The user is obliged to have the object recalibrated at appropriate intervals.

Performance

Place and date of calibration **1.RSHU, 2014-09-22**

Scope of calibration **Standard Calibration**

Statement of Compliance (Incoming)

### All measured values are within the data sheet specifications

Statement of Compliance (Outgoing)

### All measured values are within the data sheet specifications

Extent ofCalibration Documents

### 3 pages test report

ROHDE & SCHWARZ Hungaria Szolgaltatb Kft. H-1138 Budapest, Madarasz Viktor utca 47-49.

|  |  |  |
| --- | --- | --- |
| Unit Data  Item | Spectrum Analyser |  |
| Manufacturer | ANRITSU |  |
| Type | S331A |  |
| Material No. | 0001.0001.00 Serial No. | 708019 |
| Asset No. |  |  |
| Order Data  Customer | Metalcom Kozep-Europai Technologiai es Szolgaltato Holding Zrt.  Nagynyomas 16.  Szentes  6600  Hungary | |
| Order No. |  |  |
| Date of Receipt | 2014-09-15 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Rohde & Schwarz Hungaria Szolgaltato Kft. | |  |  |
| Date of issue | Head of laboratory | Person Responsible |  |
| (YYYY-MM-DD) |  |  |  |
| 2014-09-22 | Biro Zsolt | Torok Attila | Page 1 / 3  PT 3583.9833.00 |

Page 2 / 3

Material Number 0001.0001.00

Serial No 708019

## Certificate Number 4180-12361/2014

Ambient temperature

### 23 +/- 3° C

Relative humidity **20%-60%**

Calibration instruction

### According to Performance Test

Notes

Installed options are included in calibration. Depending on installed options, number of pages of the record are not consecutive.

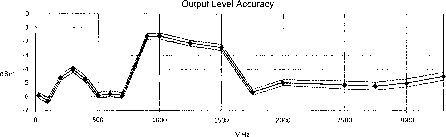
This Calibration fulfils the requirements of the standard / guidelines

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Working Standards used | | | | |
| Item | Type | Serial No. | Certificate No. | Cal. due |
| Spectrum analyzer | FSP7 | 100133 | -11738/2014 | 2016-06-15 |
| Cal.kit N, 50Ohm | ZV-Z21 | 100642 | 10-300319959 | 2016-01-23 |
| RF step attenuator 50 Ohm, 1 | RSG | 843247/0012 | 10-300312774 | 2016-05-12 |
| W, DC-5.2 GHz, 139 dB |  |  |  |  |
| Average power sensor 10 MHz - | NRP-Z21 | 102142 | -9999/2013 | 2015-07-16 |
| 18 GHz, 200 pW - 200 mW,N(m) |  |  |  |  |

UGB1 A compliance statement may be possible where a confidence level of less than 95 % is acceptable. UGB2 A non-compliance statement may be possible where a confidence level of less than 95 % is acceptable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Object  Type | Anritsu Site Master S331A | Serial No. | 708019 | ROHDE & SCHWARZ  Hungaria Szolgaltato Kft. |
| Date | 2014-09-22 | Material No. | — |  |
| Page | 3 of 3 | Certificate No. | 4180-12361/2014 |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Description | Lower Limit | Result Measured | Upper Limit | Uncertainty |
| 1 Frequency Accuracy |  |  |  |  |
| 1000 MHz | -75000.00 Hz | -8001.83 Hz | 75000.00 Hz | 0.06 Hz |
| 2 Output Level Accuracy  Center: |  |  |  |  |
| 25 MHz | — | -5.90 dBm | \_\_ | 0.21 dB |
| 100 MHz | -- | -6.30 dBm | — | 0.21 dB |
| 200 MHz | - | -4.63 dBm | — | 0.21 dB |
| 300 MHz | ~ | -4.01 dBm | \_\_ | 0.21 dB |
| 400 MHz | — | -4.73 dBm | — | 0.21 dB |
| 500 MHz | — | -5.90 dBm | - | 0.21 dB |
| 600 MHz | — | -5.79 dBm | -- | 0.21 dB |
| 700 MHz | — | -5.89 dBm | — | 0.21 dB |
| 800 MHz | — | -3.80 dBm |  | 0.21 dB |
| 900 MHz | — | -1.62 dBm |  | 0.21 dB |
| 1000 MHz | \_\_ | -1.59 dBm | — | 0.21 dB |
| 1250 MHz | — | -2.10 dBm | — | 0.21 dB |
| 1500 MHz | — | -2.40 dBm | — | 0.21 dB |
| 1750 MHz |  | -5.65 dBm | \_\_ | 0.21 dB |
| 2000 MHz | -- | -4.94 dBm | -- | 0.21 dB |
| 2500 MHz | — | -5.14 dBm | \_\_ | 0.29 dB |
| 2500 MHz | ~ | -5.14 dBm | - | 0.29 dB |
| 2750 MHz | — | -5.22 dBm | - | 0.29 dB |
| 3000 MHz | -- | -4.99 dBm | ~ | 0.29 dB |
| 3300 MHz | - | -4.49 dBm | - | 0.29 dB |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3 Return Loss Accuracy  6 dB (Worst Case) 20 dB (Worst Case) | -1.00 dB -1.50 dB | -0.58 dB -0.75 dB | 1.00 dB 1.50 dB | 0.20 dB 0.20 dB |
| 4 Dynamic Range  25MHz-3.3GHz (Worst Case) | -- | 50.46 dB | — | 1.7 dB |