

# Certificate of Calibration



Standards Laboratory Calibration  
Certificate Number 1-14109769762-1



<b>Model Number</b>	8485A	<b>Customer</b>	Keysight Technologies Inc
<b>Manufacturer</b>	Agilent Technologies Inc		10090 Foothills Blvd
<b>Description</b>	Power Sensor, 50 MHz to 26.5 GHz, -30 to +20 dBm		ROSEVILLE CA 95747
<b>Serial Number</b>	3318A19647		United States
<b>Customer Asset No.</b>	8485A19647		
<b>Date of Calibration</b>	4 Mar 2021	<b>Location of Calibration</b>	Keysight Technologies Inc.
<b>Procedure</b>	8485A_TP, 19 DEC 2000		10090 Foothills Blvd.
<b>Temperature</b>	(23 ± 1) °C		Roseville CA 95747-7102
<b>Humidity</b>	(45 ± 10) %RH		UNITED STATES

This certifies that the equipment has been calibrated using applicable Keysight Technologies procedures and accredited to ISO/IEC 17025:2017 and ANSI/NCSL Z540.3-2006. The quality management system is registered to ISO 9001:2015.

#### As Received Conditions

The measured values of the equipment was for the purpose of characterization. No compliance statement is made relating to specification.

#### Action Taken

- Calibration Factors were updated.

#### As Completed Conditions

The measured values of the equipment was for the purpose of characterization. No compliance statement is made relating to specification.

The uncertainty evaluation has been performed in accordance with ISO/IEC Guide 98-3:2008 (GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95%. This probability corresponds to a coverage factor of k=2 for a normal distribution.

#### Remarks or Special Requirements

This calibration report shall not be reproduced, except in full. The documented results relate to the equipment calibrated only.

The test limits stated in the report correspond to the published specifications of the equipment, at the points tested.  
This calibration report may refer to equipment manufactured by HP, Agilent and Keysight as being manufactured by Keysight Technologies.

Based on the customer's request, the next calibration is due on 4 Mar 2022.

Keysight Technologies Inc  
10090 Foothills Blvd.  
Roseville CA 95747-7102  
UNITED STATES

Wes Fischbach Roseville Serv. Cntr. Mgr.

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## Traceability Information

Technician ID 00222433

Measurements are traceable to the International System of Units (SI) via national metrology institutes ([www.keysight.com/find/NMI](http://www.keysight.com/find/NMI)) that are signatories to the CIPM Mutual Recognition Arrangement.

## Calibration Equipment Used

Model Number	Model Description	Equipment ID	Cal Due Date	Certificate Number
11667C	DC - 50 GHz power splitter, 50 ohm	SP12788	9 Apr 2021	1-11753825189-1
3577A	Network Analyzer	3577A10456	3 Aug 2021	1-12955112626-1
432A	Power Meter, Thermistor	SP7099	1 May 2021	1-12347959812-1
437B	Power Meter	SP11346	20 Feb 2022	1-14020341380-1
478A	Coaxial Thermistor Mount, 10 MHz to 10 GHz	SP1517	17 Jun 2021	1-10193639039-1
8487A	Power Sensor, 50 MHz to 50 GHz, -30 to +20 dBm	SP7771	3 May 2023	1-11007470196-1
85052B	Standard mechanical calibration kit, DC to 26.5 GHz, 3.5 mm	SP7276	16 Dec 2021	1-13439611493-1
85056A	Standard mechanical calibration kit, DC to 50 GHz, 2.4 mm	SP6923	11 Feb 2022	1-13944716152-1
8510C	Vector network analyzer	SP14391	27 Apr 2021	1-12676373645-1

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\* KEYSIGHT TECHNOLOGIES \*  
\* ROSEVILLE STANDARDS LAB \*  
\* MEASUREMENT REPORT \*  
\*\*\*\*\*

DATE: 4 Mar 2021  
CAL NO: SP15135  
SO NO: 1-14109769762-1  
ITEM: Power Sensor, Model 8485A H84  
IDENTIFICATION: 3318A19647  
TEMPERATURE: 23 +/- 1 Deg. C  
REL. HUMIDITY: 45 +/-10%  
TECHNICIAN: 00222433

This Power Sensor was calibrated using standards traceable to a National Metrology Institute (NMI). The uncertainty of the frequency output of the source used was +/- 0.01%. The calibration was performed at a nominal incident power level of one milliwatt.

The calibration factor is referenced to 100 % at 50 MHz at the plane of the connector of the Power Sensor.

Note: When using this Sensor to measure absolute power, the user must include the uncertainty of the 50 MHz Power Reference and the uncertainty of setting the 50 MHz CAL or CAL ADJ along with the calibration factor uncertainty at the frequency of interest.

Standards Used	Reference No.	Last Calibrated
SP7771	217-02891	05-19
SP1517	2017090440-1	08-18

Test Procedure Number: 8485A\_TP, 19 Dec 2000

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 \* KEYSIGHT TECHNOLOGIES \*  
 \* ROSEVILLE STANDARDS LAB \*  
 \* MEASUREMENT REPORT \*  
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MODEL: 8485A H84  
 IDENTIFICATION: 3318A19647  
 CAL. NO: SP15135  
 DATE: 4 Mar 2021

Measurement uncertainty for reflection coefficient is +/- 0.007.

The uncertainty analysis for this calibration was done in accordance with the ISO/TAG4 Guide. The uncertainty reported is the expanded uncertainty with a 95% confidence level and a coverage factor of 2.

NOTE: The uncertainties may differ from those previously reported. In most cases this results from the change in the method of expressing the uncertainty and does not necessarily imply new uncertainties in the measurement results.

FREQUENCY -MHz-	CALIBRATION FACTOR-%	UNCERTAINTY %	REFLECTION COEFFICIENT	
			Magnitude	Degrees
10.00	96.86	+/- 0.91	0.157	-73.7
30.00	99.72	+/- 0.75	0.055	-72.3
50.00	100.00	(Reference)	0.035	-66.1
100.00	99.95	+/- 0.66	0.021	-51.1
300.00	96.99	+/- 0.73	0.029	-26.5
500.00	99.72	+/- 0.75	0.016	-58.1
800.00	99.73	+/- 0.79	0.015	-69.1
1000.00	99.68	+/- 0.75	0.015	-80.4
1200.00	99.64	+/- 0.79	0.015	-92.7
1500.00	99.53	+/- 0.75	0.015	-111.9
2000.00	99.35	+/- 0.76	0.015	-143.9
3000.00	98.87	+/- 0.78	0.017	160.7
4000.00	98.45	+/- 0.85	0.020	119.3
5000.00	98.32	+/- 0.88	0.018	77.8
6000.00	98.11	+/- 0.95	0.013	48.4
7000.00	97.77	+/- 0.97	0.006	62.9
8000.00	97.54	+/- 1.05	0.013	101.5
9000.00	97.17	+/- 1.17	0.026	77.9
10000.00	96.82	+/- 1.17	0.036	43.2
11000.00	96.63	+/- 1.17	0.041	4.1
12000.00	96.46	+/- 1.17	0.039	-40.2
12400.00	96.31	+/- 1.17	0.037	-60.2
13000.00	96.05	+/- 1.17	0.033	-94.6
14000.00	95.72	+/- 1.26	0.029	-164.4
15000.00	95.18	+/- 1.27	0.036	122.6
16000.00	94.78	+/- 1.37	0.048	60.6
17000.00	94.62	+/- 1.38	0.058	4.5
18000.00	94.46	+/- 1.38	0.063	-51.6

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*           KEYSIGHT TECHNOLOGIES           *
*           ROSEVILLE STANDARDS LAB       *
*           MEASUREMENT REPORT             *
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IDENTIFICATION: 3318A19647  
CAL. NO: SP15135  
DATE: 4 Mar 2021

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NOTE: The uncertainties may differ from those previously reported. In most cases this results from the change in the method of expressing the uncertainty and does not necessarily imply new uncertainties in the measurement results.

FREQUENCY -MHz-	CALIBRATION FACTOR-%	UNCERTAINTY %	REFLECTION COEFFICIENT Magnitude	Degrees
18500.00	94.46	+/- 1.61	0.064	-80.5
19000.00	94.33	+/- 1.61	0.065	-109.7
19500.00	94.21	+/- 1.61	0.065	-139.1
20000.00	94.18	+/- 1.61	0.066	-168.6
20500.00	94.16	+/- 1.61	0.067	162.2
21000.00	94.10	+/- 1.61	0.068	133.8
21500.00	94.09	+/- 1.61	0.069	105.8
22000.00	93.96	+/- 1.62	0.068	77.8
22500.00	93.85	+/- 1.62	0.066	49.6
23000.00	93.84	+/- 1.62	0.063	20.3
23500.00	93.79	+/- 1.62	0.059	-10.1
24000.00	93.69	+/- 1.62	0.055	-42.2
24500.00	93.81	+/- 1.62	0.052	-75.9
25000.00	93.86	+/- 1.62	0.052	-110.5
25500.00	93.52	+/- 1.62	0.054	-144.0
26000.00	93.16	+/- 1.64	0.058	-176.9
26500.00	93.20	+/- 1.63	0.060	152.6