



Calibration Laboratory Cert: 5518.01

ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994

Accredited Calibration Certificate

Customer Address: Rental Unit

Order / RMA #

Certificate #: A24021501DR

Product: Solid State Amplifier

Manufacturer: The EMC Shop

Model: 40AD1

Serial #: 22389

Notes: Frequency Range: 1kHz to 1MHz

Power: 40 Watts Nominal

Date of Report: 2/15/2024

Date of Calibration: 2/15/2024

Next Calibration: *

****The next calibration date is defined by the equipment user/owner.***

The results of the tests performed are held on file at The EMC Shop. The calibration was carried out in accordance with the general requirements of ISO/IEC 17025-2017, ANSI Z-540-1, IEC 61000-4-3, at the address shown above, using laboratory standards which are traceable to the SI International System of Quantities through the National Institute of Standards and Technology (NIST), and or other Accredited bodies except where none exist. Tests are carried out in environmental conditions controlled to the extent appropriate to the instrument's specification. This certificate shall not be reproduced except in full without the written approval of the laboratory. The uncertainty results meet the requirements of the ISO/IEC 17025-2017 standard and ILAC Doc.P14. Calibrations will be completed with the understanding that our Laboratories' estimate of uncertainty for the measurement is not included and not considered in the Pass/Fail/Tolerance decision. Results are accredited values unless annotated with an asterisk *. The Results presented below are only applicable to the Model/Serial number shown.

Ambient Conditions of Laboratory

Temperature (°C): 20

Relative Humidity (%): 38

Technician: Dan Raines

Technician Signature: _____



Calibration Equipment				
Model	Description	Serial Number	Certificate #	Due Date
ZNB 8	Rohde&Schwarz Vect. Netw. Ana.	102017	S220805-021	8/9/2024
ZV-Z21	Calibration Kit (50Ω)	100800	0001A300706445	7/27/2024

Calibration method used: IEC 61000-4-3

Condition as found:	IN tolerance
Condition as left:	IN tolerance

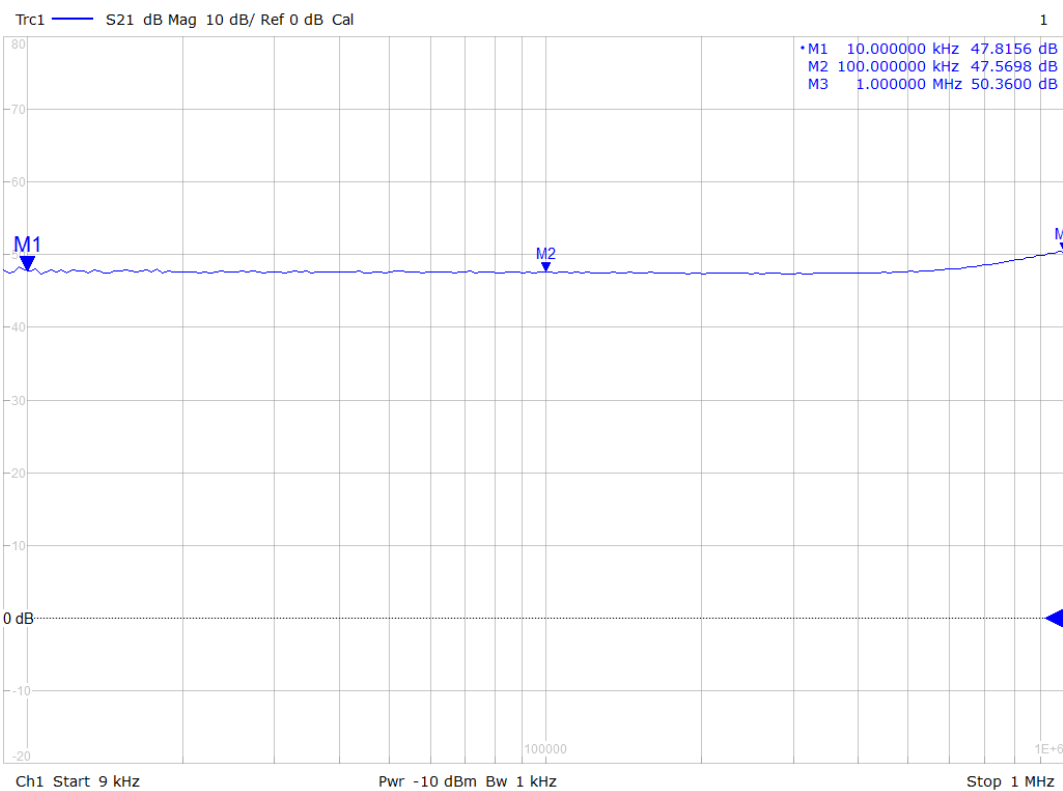
Measuring Uncertainties	
Insertion Loss	0.44 dB

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%



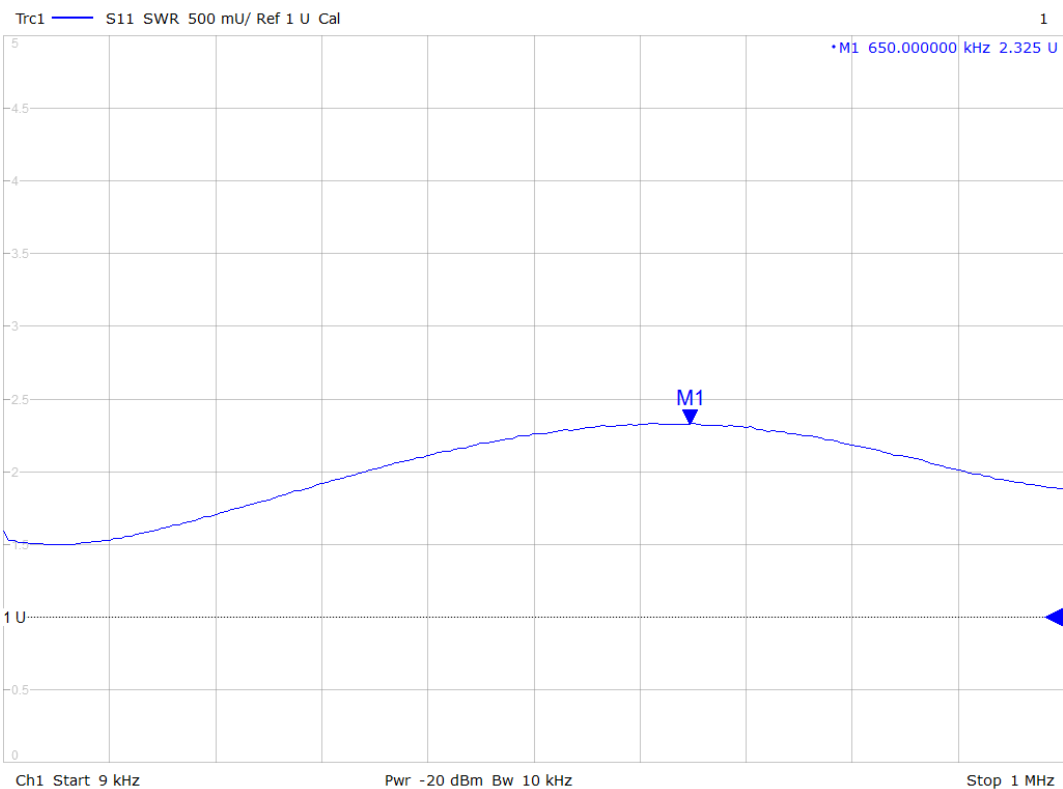
Gain Through Band

Tolerance: ≥ 44 dB



Input VSWR

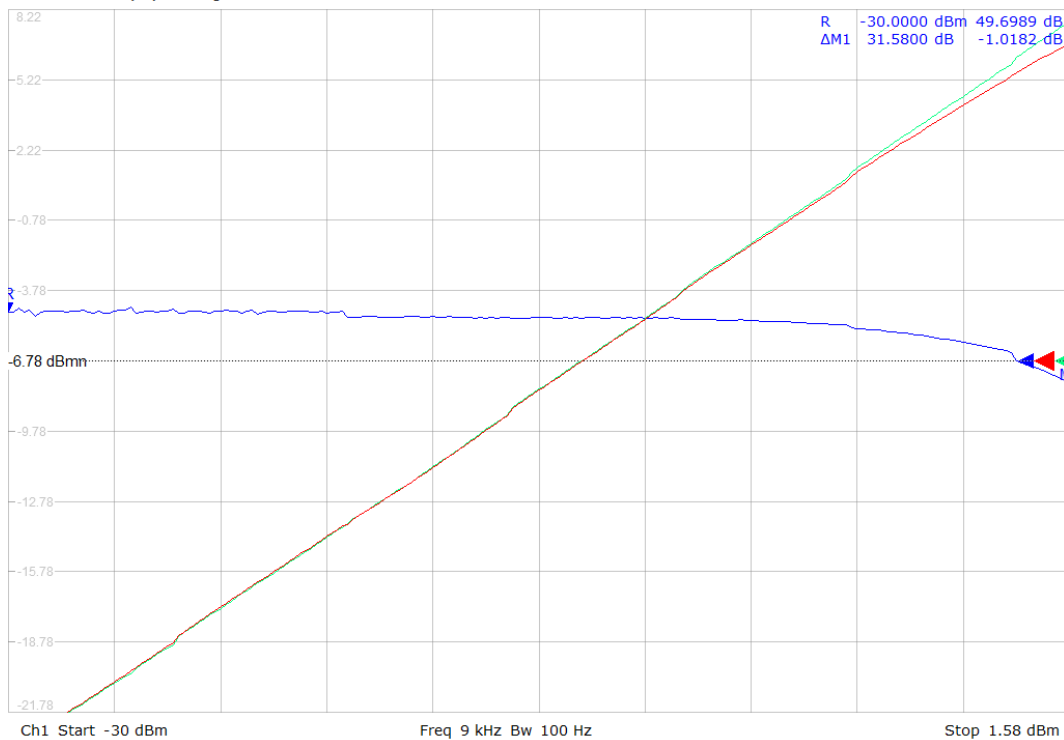
Tolerance: ≤ 2.5 U





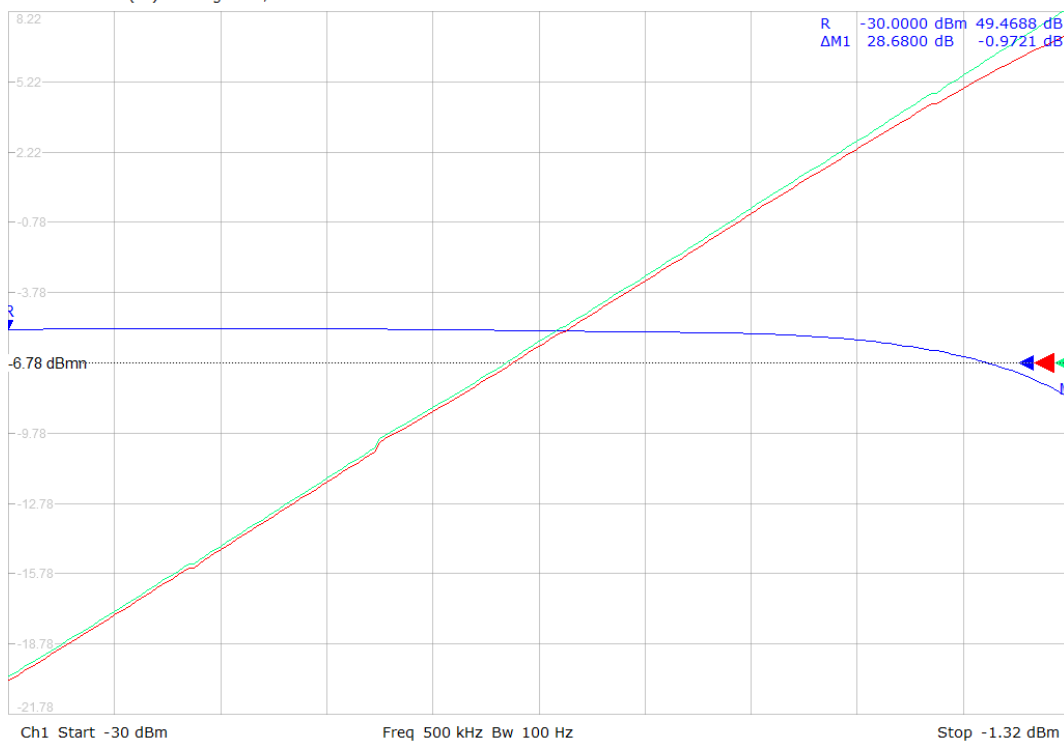
P1dB 9kHz

Trc1 — S21 dB Mag 1 dB/ Ref 49 dB Offs Trc2 — b2(P1) dB Mag 3 dB/ Ref -6.78 dBm Offs 1
 Trc3 — a1(P1) dB Mag 3 dB/ Ref -56.43 dBm Offs



P1dB 500kHz

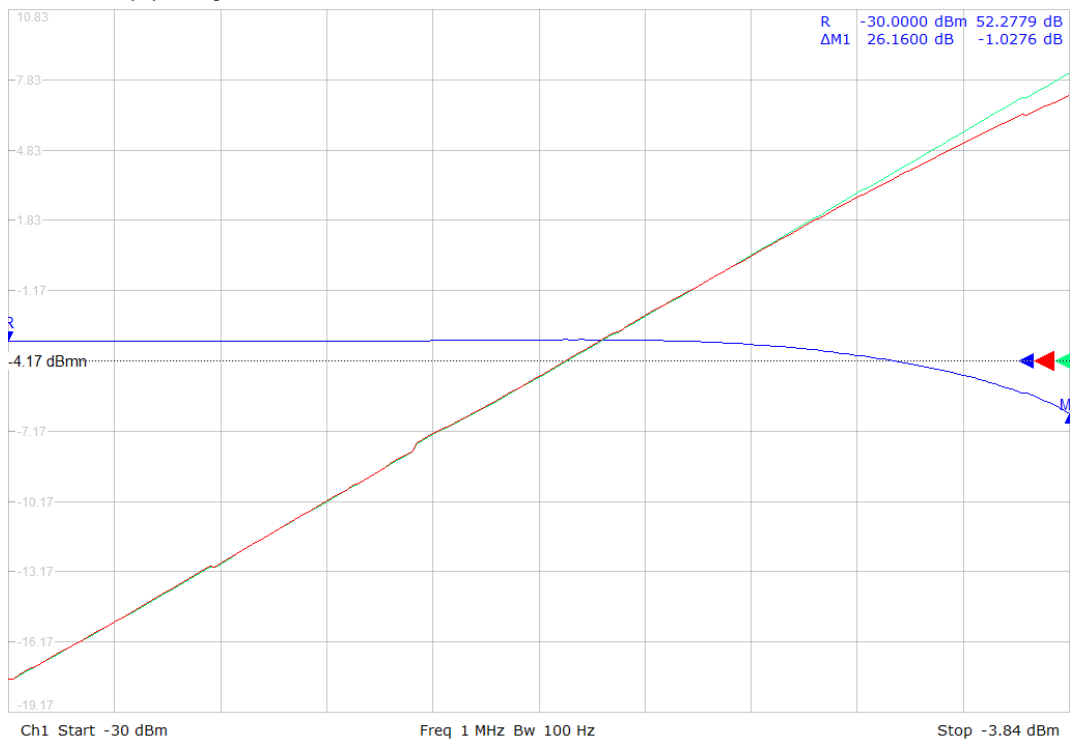
Trc1 — S21 dB Mag 1 dB/ Ref 49 dB Offs Trc2 — b2(P1) dB Mag 3 dB/ Ref -6.78 dBm Offs 1
 Trc3 — a1(P1) dB Mag 3 dB/ Ref -56.43 dBm Offs





P1dB 1MHz

Trc1 — S21 dB Mag 1 dB/ Ref 52 dB Offs Trc2 — b2(P1) dB Mag 3 dB/ Ref -4.17 dBm Offs 1
 Trc3 — a1(P1) dB Mag 3 dB/ Ref -56.43 dBm Offs



*CSV Files for Characterizations are available upon request.

Frequency (Hz)	Gain Through Band (dBm)	VSWR at Input (U)
9,000.0	47.86	1.59
9,214.5	47.45	1.53
9,434.1	47.66	1.53
9,658.9	48.28	1.52
9,889.1	47.86	1.51
10,124.8	47.77	1.51
10,366.1	48.11	1.50
10,613.1	47.31	1.50
10,866.1	47.67	1.49
11,125.0	47.87	1.50
11,390.2	47.63	1.50
11,661.6	47.85	1.50
11,939.6	47.44	1.50
12,224.1	47.85	1.50
12,515.4	47.77	1.50
12,813.7	47.78	1.51
13,119.1	47.51	1.51
13,431.7	47.86	1.52
13,751.8	47.77	1.52
14,079.6	47.51	1.53
14,415.1	47.52	1.53
14,758.7	47.72	1.54
15,110.4	47.69	1.54
15,470.5	47.90	1.55
15,839.2	47.75	1.56
16,216.7	47.63	1.57
16,603.2	47.73	1.58
16,998.9	47.92	1.59
17,404.0	47.57	1.59
17,818.8	48.00	1.60
18,243.4	47.52	1.61
18,678.2	47.73	1.62
19,123.3	47.67	1.63
19,579.1	47.57	1.64
20,045.7	47.59	1.65
20,523.4	47.58	1.66
21,012.6	47.57	1.66
21,513.3	47.42	1.68
22,026.0	47.59	1.69
22,551.0	47.43	1.69

23,088.4	47.63	1.70
23,638.7	47.78	1.72
24,202.0	47.65	1.73
24,778.8	47.68	1.74
25,369.3	47.66	1.75
25,974.0	47.74	1.76
26,593.0	47.64	1.77
27,226.7	47.75	1.78
27,875.6	47.64	1.79
28,539.9	47.49	1.79
29,220.1	47.62	1.81
29,916.5	47.55	1.82
30,629.5	47.55	1.83
31,359.4	47.54	1.84
32,106.8	47.56	1.85
32,872.0	47.71	1.87
33,655.4	47.56	1.87
34,457.5	47.82	1.88
35,278.7	47.53	1.89
36,119.4	47.59	1.91
36,980.2	47.62	1.92
37,861.6	47.61	1.93
38,763.9	47.61	1.94
39,687.7	47.60	1.95
40,633.6	47.64	1.95
41,602.0	47.58	1.97
42,593.4	47.62	1.98
43,608.5	47.71	1.99
44,647.8	47.51	2.00
45,711.9	47.52	2.01
46,801.3	47.67	2.02
47,916.7	47.60	2.02
49,058.6	47.45	2.04
50,227.8	47.60	2.05
51,424.8	47.73	2.06
52,650.4	47.74	2.07
53,905.2	47.57	2.07
55,189.8	47.66	2.08
56,505.1	47.67	2.10
57,851.8	47.47	2.10
59,230.5	47.58	2.11
60,642.1	47.59	2.12
62,087.3	47.58	2.13
63,567.0	47.67	2.14

65,082.0	47.56	2.14
66,633.0	47.48	2.15
68,221.0	47.63	2.16
69,846.9	47.60	2.16
71,511.5	47.71	2.18
73,215.8	47.52	2.19
74,960.7	47.62	2.19
76,747.1	47.63	2.20
78,576.2	47.56	2.21
80,448.8	47.53	2.21
82,366.1	47.48	2.22
84,329.1	47.65	2.23
86,338.8	47.57	2.23
88,396.5	47.59	2.24
90,503.2	47.50	2.25
92,660.0	47.59	2.25
94,868.3	47.54	2.26
97,129.3	47.64	2.26
99,444.1	47.56	2.26
101,814.0	47.60	2.27
104,240.5	47.48	2.28
106,724.8	47.56	2.28
109,268.3	47.63	2.29
111,872.4	47.50	2.28
114,538.5	47.56	2.29
117,268.2	47.50	2.29
120,063.0	47.57	2.31
122,924.4	47.44	2.30
125,853.9	47.47	2.31
128,853.3	47.54	2.32
131,924.1	47.48	2.31
135,068.2	47.55	2.31
138,287.2	47.51	2.32
141,582.9	47.51	2.32
144,957.1	47.55	2.32
148,411.7	47.47	2.32
151,948.7	47.53	2.33
155,570.0	47.46	2.32
159,277.6	47.55	2.33
163,073.5	47.49	2.33
166,959.9	47.50	2.32
170,938.9	47.53	2.33
175,012.8	47.49	2.33
179,183.7	47.46	2.32

183,454.1	47.46	2.32
187,826.2	47.33	2.32
192,302.5	47.50	2.33
196,885.5	47.46	2.33
201,577.7	47.39	2.32
206,381.7	47.43	2.32
211,300.3	47.41	2.32
216,336.0	47.40	2.32
221,491.8	47.42	2.31
226,770.4	47.46	2.31
232,174.9	47.44	2.31
237,708.1	47.47	2.31
243,373.2	47.46	2.31
249,173.3	47.36	2.31
255,111.7	47.46	2.29
261,191.6	47.34	2.29
267,416.3	47.41	2.28
273,789.4	47.44	2.28
280,314.4	47.48	2.27
286,995.0	47.35	2.28
293,834.7	47.39	2.26
300,837.4	47.36	2.26
308,007.0	47.46	2.25
315,347.5	47.39	2.24
322,862.9	47.40	2.25
330,557.5	47.45	2.24
338,435.4	47.43	2.23
346,501.1	47.44	2.22
354,758.9	47.43	2.22
363,213.6	47.42	2.21
371,869.8	47.41	2.20
380,732.3	47.49	2.19
389,806.0	47.47	2.18
399,095.9	47.42	2.18
408,607.3	47.48	2.17
418,345.3	47.53	2.16
428,315.4	47.54	2.15
438,523.1	47.45	2.15
448,974.0	47.57	2.13
459,674.1	47.52	2.13
470,629.1	47.59	2.11
481,845.3	47.56	2.11
493,328.7	47.60	2.11
505,085.8	47.71	2.10

517,123.1	47.61	2.09
529,447.3	47.72	2.08
542,065.2	47.75	2.07
554,983.8	47.76	2.05
568,210.3	47.85	2.05
581,752.0	47.92	2.04
595,616.4	48.03	2.03
609,811.3	48.01	2.02
624,344.4	48.06	2.01
639,224.0	48.23	2.01
654,458.1	48.29	1.99
670,055.3	48.29	1.98
686,024.1	48.45	1.98
702,373.6	48.62	1.97
719,112.7	48.62	1.97
736,250.8	48.75	1.95
753,797.3	48.94	1.94
771,761.9	49.03	1.94
790,154.7	49.19	1.94
808,985.8	49.31	1.92
828,265.7	49.39	1.92
848,005.2	49.61	1.91
868,215.0	49.68	1.91
888,906.5	49.85	1.91
910,091.1	49.97	1.90
931,780.5	50.15	1.89
953,986.9	50.15	1.89
976,722.6	50.41	1.89
1,000,000.0	50.36	1.88

End of Calibration Report: Amplifier cert. rev. 1