



Calibration Laboratory Cert: 5518.01

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

Customer Address: Rental Unit

Certificate #: A23053101DR

Product: Solid State Amplifier

Manufacturer: Amplifier Research
Model: 50S1G4A
Serial #: 330239

Notes: Amplifier Range 800MHz to 4.2GHz
Power: 50 Watts
CSV Files available upon request

Date of Report: 5/31/2023
Date of Calibration: 5/31/2023
Next Calibration: *

*The next calibration date is defined by the equipment user/owner. We recommend recalibration annually.

The above instrument was tested and found to be within the manufacturer's specification. 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, IEC 61000-4-6 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.

Ambient Conditions of Laboratory

Temperature (°C): **23.8**
Relative Humidity (%): **37**

Technician: **Dan Raines**

Technician Signature: _____



Calibration Equipment				
Model	Description	Serial Number	Certificate #	Due Date
ZNB 8	Network Analyzer	103153	5000-309120570	11/12/2023
ZV-Z21	Cal Kit	100800	584251 D-K-15195-01-00	1/26/2024

Calibration method used: IEC 61000-4-6

VSWR measurements made are not accredited

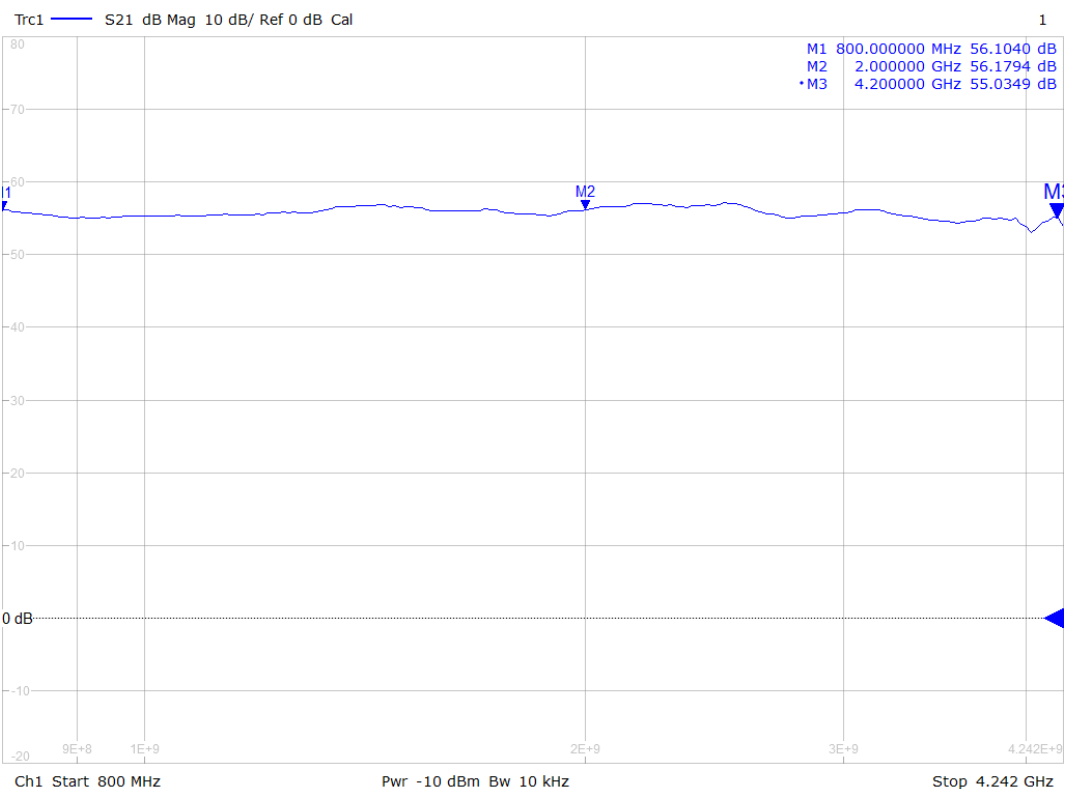
Condition as found:	IN tolerance
Condition as left:	IN tolerance

Measuring Uncertainties	
Insertion Loss	± 0.2 dB
RF Power Level	± 0.3 dB
Power Amplifier Gain Linearity	± 0.44 dB

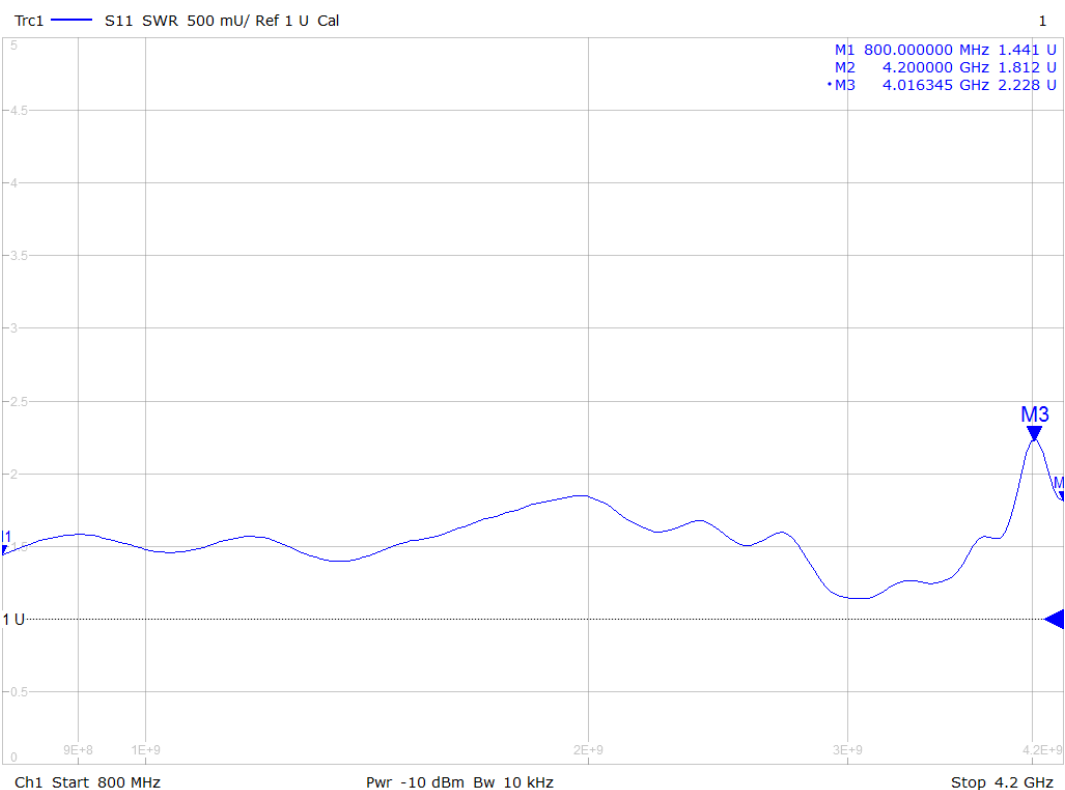
The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95%



Gain Through Band 800MHz to 4.2GHz



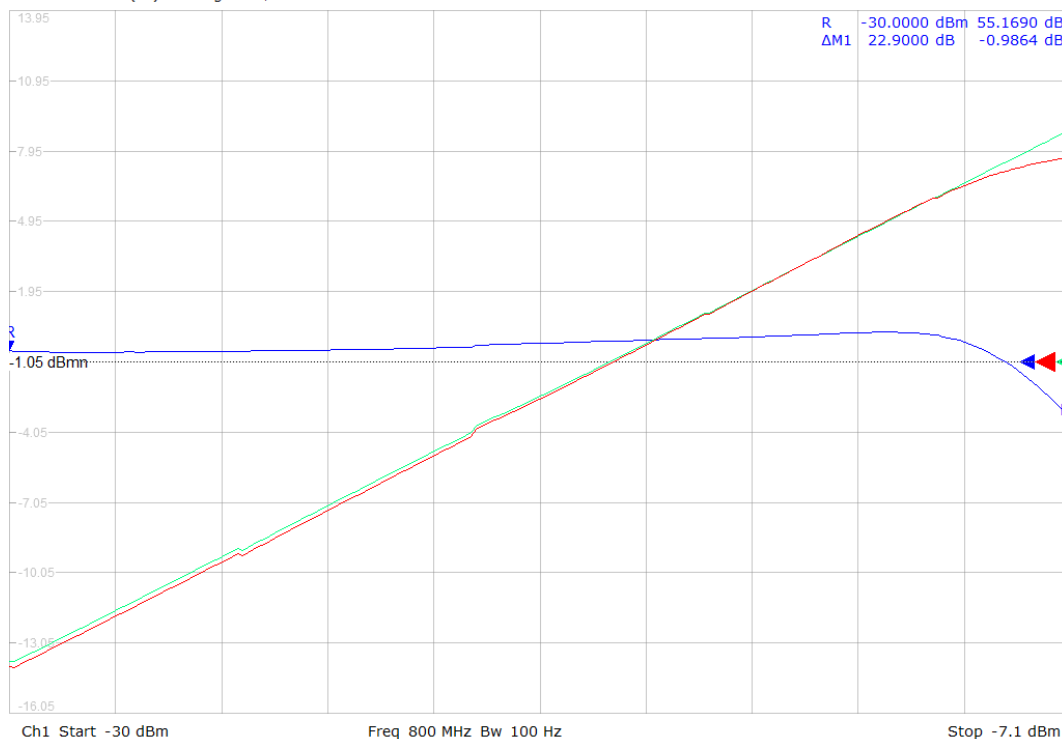
VSWR on Amplifier Input





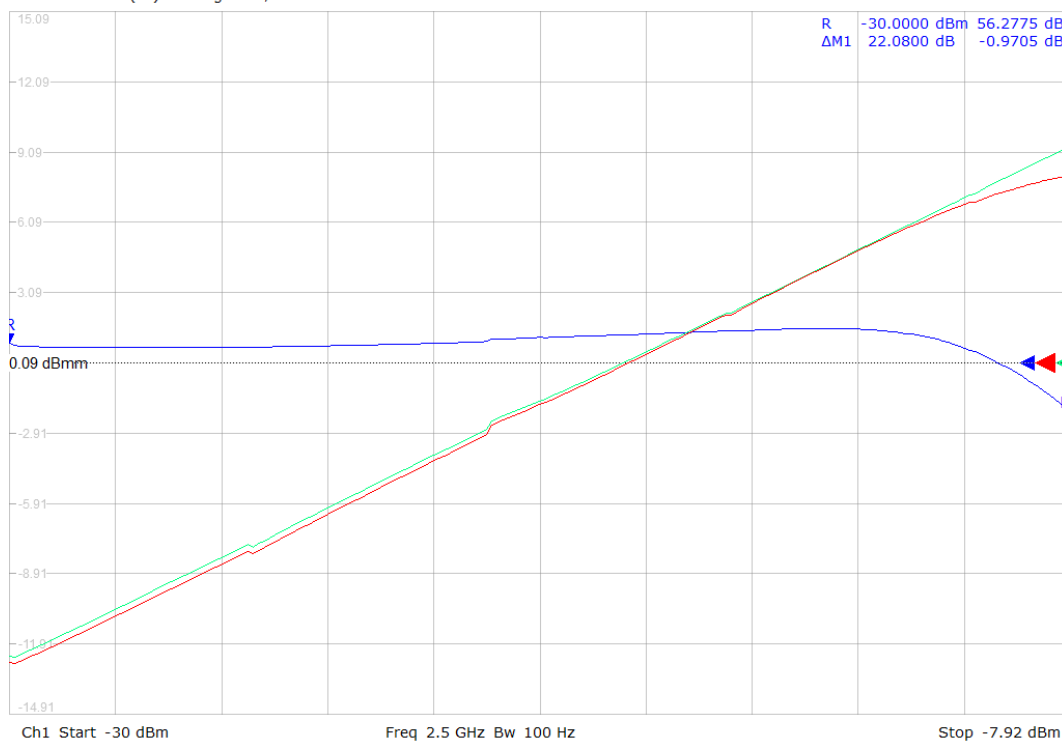
P1dB at 800MHz

Trc1 — S21 dB Mag 1 dB/ Ref 55 dB Offs Trc2 — b2(P1) dB Mag 3 dB/ Ref -1.05 dBm Offs 1
 Trc3 — a1(P1) dB Mag 3 dB/ Ref -56.43 dBm Offs



P1dB at 2.5GHz

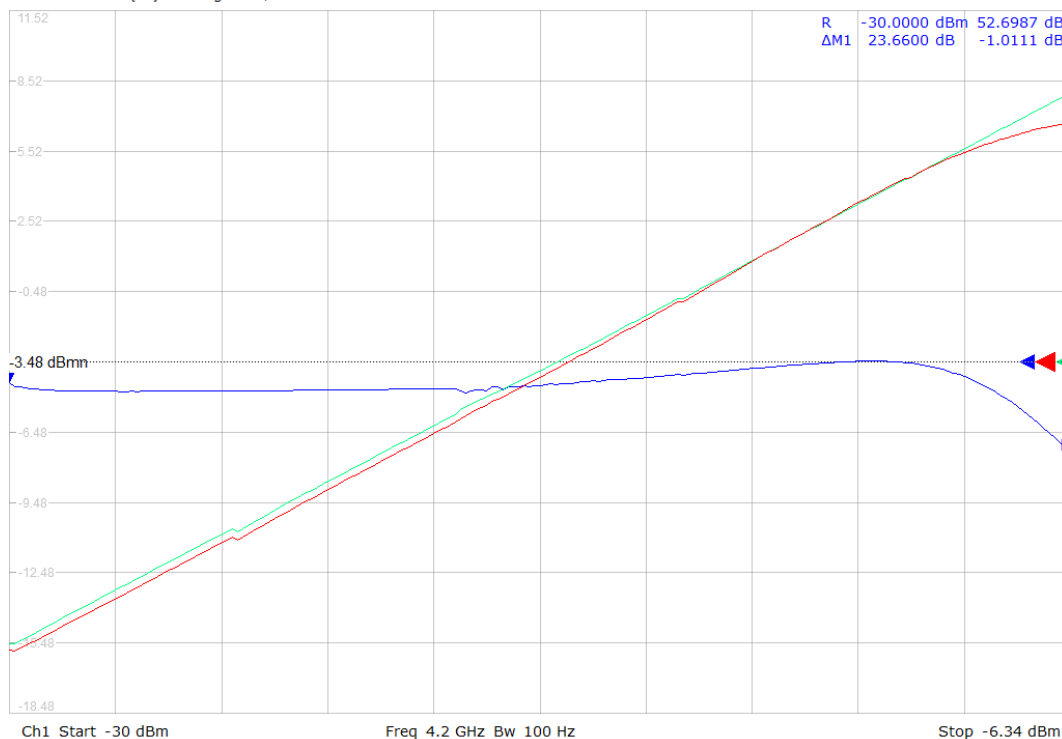
Trc1 — S21 dB Mag 1 dB/ Ref 56 dB Offs Trc2 — b2(P1) dB Mag 3 dB/ Ref 0.09 dBm Offs 1
 Trc3 — a1(P1) dB Mag 3 dB/ Ref -56.43 dBm Offs





P1dB at 4.2GHz

Trc1 — S21 dB Mag 1 dB/ Ref 53 dB Offs Trc2 — b2(P1) dB Mag 3 dB/ Ref -3.48 dBm Offs 1
 Trc3 — a1(P1) dB Mag 3 dB/ Ref -56.43 dBm Offs



Frequency (Hz)	GAIN (dBm)	VSWR (U)
800000000.0	56.10	1.44
806660485.7	56.13	1.46
813376423.9	55.92	1.47
820148276.4	55.88	1.48
826976508.7	55.79	1.50
833861590.2	55.75	1.51
840803994.2	55.66	1.53
847804197.8	55.54	1.54
854862682.5	55.43	1.55
861979933.3	55.41	1.56
869156439.5	55.32	1.56
876392694.5	55.23	1.57
883689195.7	55.24	1.58
891046444.7	55.10	1.58
898464947.3	55.03	1.58
905945213.5	55.12	1.58
913487757.3	55.10	1.58
921093097.5	54.97	1.57
928761756.7	55.04	1.57
936494262.1	55.12	1.56
944291145.4	55.06	1.55
952152942.4	55.17	1.54
960080193.7	55.17	1.53
968073444.2	55.28	1.52
976133243.3	55.30	1.51
984260145.1	55.28	1.50
992454708.4	55.36	1.49
1000717496.3	55.38	1.48
1009049077.0	55.33	1.47
1017450023.1	55.35	1.46
1025920912.2	55.35	1.46
1034462326.6	55.37	1.46
1043074853.5	55.27	1.46
1051759084.9	55.42	1.46
1060515617.8	55.38	1.46
1069345054.1	55.36	1.47
1078248000.9	55.37	1.48
1087225070.0	55.39	1.48

1096276878.8	55.39	1.49
1105404049.3	55.40	1.50
1114607209.1	55.45	1.52
1123886990.8	55.46	1.53
1133244032.3	55.54	1.54
1142678976.8	55.46	1.55
1152192473.0	55.41	1.56
1161785174.8	55.51	1.56
1171457741.6	55.53	1.57
1181210838.5	55.50	1.57
1191045135.8	55.58	1.57
1200961309.6	55.49	1.56
1210960041.6	55.69	1.55
1221042019.1	55.71	1.54
1231207935.2	55.72	1.53
1241458488.7	55.92	1.51
1251794384.3	55.76	1.50
1262216332.5	55.82	1.48
1272725049.7	55.78	1.47
1283321258.4	55.79	1.45
1294005686.9	55.81	1.44
1304779069.8	55.95	1.42
1315642147.7	55.99	1.41
1326595667.3	56.21	1.40
1337640381.5	56.37	1.40
1348777049.8	56.56	1.39
1360006437.5	56.60	1.40
1371329316.7	56.64	1.40
1382746465.8	56.66	1.40
1394258669.6	56.72	1.41
1405866719.4	56.72	1.42
1417571413.3	56.81	1.44
1429373555.9	56.80	1.45
1441273958.5	56.82	1.46
1453273439.2	56.83	1.48
1465372822.8	56.63	1.49
1477572941.2	56.79	1.51
1489874632.9	56.49	1.52
1502278743.7	56.64	1.53
1514786126.2	56.65	1.54
1527397640.3	56.53	1.54
1540114152.9	56.39	1.55
1552936538.2	56.18	1.55
1565865677.6	56.00	1.56

1578902460.0	56.04	1.57
1592047781.5	56.02	1.58
1605302545.8	56.05	1.59
1618667664.0	56.00	1.61
1632144055.0	55.97	1.62
1645732645.1	55.99	1.64
1659434368.4	56.00	1.65
1673250167.0	56.04	1.66
1687180990.4	56.07	1.68
1701227796.4	56.33	1.69
1715391550.6	56.12	1.70
1729673226.6	56.13	1.71
1744073806.3	55.92	1.72
1758594279.5	55.78	1.73
1773235644.5	55.68	1.74
1787998907.7	55.55	1.75
1802885084.1	55.61	1.76
1817895196.9	55.61	1.78
1833030278.0	55.58	1.79
1848291367.8	55.48	1.80
1863679515.5	55.45	1.80
1879195778.9	55.29	1.81
1894841224.6	55.45	1.82
1910616928.1	55.62	1.82
1926523973.9	55.87	1.83
1942563455.5	56.04	1.84
1958736475.6	56.06	1.84
1975044145.9	55.97	1.85
1991487587.4	56.22	1.84
2008067930.5	56.31	1.83
2024786315.1	56.47	1.82
2041643890.4	56.61	1.81
2058641815.2	56.58	1.79
2075781258.1	56.64	1.76
2093063397.2	56.62	1.73
2110489420.6	56.64	1.71
2128060526.3	56.75	1.68
2145777922.1	57.03	1.66
2163642825.9	57.08	1.64
2181656466.0	57.01	1.62
2199820080.5	57.10	1.61
2218134918.1	56.95	1.60
2236602237.9	56.86	1.60
2255223309.3	56.81	1.60

2273999412.4	56.86	1.61
2292931838.0	56.57	1.62
2312021887.6	56.59	1.64
2331270873.4	56.53	1.65
2350680118.7	56.72	1.67
2370250957.7	56.81	1.67
2389984735.8	56.81	1.67
2409882809.7	56.94	1.66
2429946547.1	56.80	1.64
2450177327.2	56.94	1.61
2470576540.9	57.12	1.59
2491145590.5	57.06	1.56
2511885889.8	56.97	1.53
2532798864.8	56.88	1.51
2553885952.9	56.64	1.50
2575148603.9	56.42	1.50
2596588279.3	56.02	1.52
2618206453.1	55.86	1.54
2640004611.2	55.63	1.56
2661984252.3	55.56	1.58
2684146887.3	55.41	1.59
2706494039.6	55.16	1.60
2729027245.5	55.09	1.59
2751748054.1	55.08	1.56
2774658027.1	55.23	1.51
2797758739.6	55.26	1.46
2821051779.6	55.30	1.40
2844538748.3	55.39	1.33
2868221260.2	55.42	1.28
2892100943.4	55.52	1.23
2916179439.5	55.54	1.19
2940458403.7	55.56	1.17
2964939505.0	55.68	1.15
2989624426.3	55.78	1.15
3014514864.6	55.90	1.14
3039612530.9	56.11	1.14
3064919150.5	56.20	1.14
3090436463.1	56.22	1.14
3116166222.8	56.14	1.15
3142110198.3	56.14	1.17
3168270173.2	56.07	1.19
3194647945.8	55.76	1.21
3221245329.4	55.55	1.23
3248064152.3	55.49	1.25

3275106258.2	55.28	1.26
3302373506.0	55.25	1.26
3329867770.2	55.24	1.26
3357590940.9	55.07	1.26
3385544923.8	54.96	1.25
3413731640.6	54.74	1.24
3442153028.9	54.71	1.25
3470811042.5	54.60	1.26
3499707651.5	54.54	1.27
3528844842.3	54.41	1.29
3558224617.9	54.28	1.32
3587848998.0	54.51	1.38
3617720019.0	54.58	1.44
3647839734.4	54.59	1.50
3678210214.7	54.73	1.55
3708833547.7	55.02	1.57
3739711838.5	55.03	1.56
3770847209.9	54.94	1.55
3802241802.1	54.98	1.56
3833897773.3	54.91	1.60
3865817299.8	54.73	1.69
3898002575.6	54.98	1.83
3930455813.5	54.14	1.98
3963179244.2	53.88	2.14
3996175117.4	53.08	2.22
4029445701.2	53.64	2.23
4062993282.9	54.48	2.15
4096820168.5	54.61	2.03
4130928683.5	55.17	1.91
4165321172.6	55.00	1.83
4200000000.0	53.83	1.81