

Fluke Calibration, American Fork
Primary Temperature Lab
Report of Calibration

TE10413

Model: 5628	Description: Platinum Resistance Thermometer	Customer: MESA LABORATORIES INC LAKEWOOD, CO 80228 US	
Serial No.: 1885	Manufacturer: Fluke Calibration		
As Found Condition: Recalibration	As Left Condition: Calibrated	Calibration Model: 1713-4-7	Calibration Instruction: AFC414 Revision 1

The above referenced Platinum Resistance Thermometer (PRT) was calibrated by a combination of fixed point and comparison methods over the temperature range(s) specified. The calibration methods used are based on recent publications pertaining to the ITS-90 as it applies to secondary PRT calibrations.


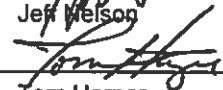
For temperatures above 0°C, this calibration was performed at the appropriate fixed points required for the ITS-90 temperature range identified in the "Calibration Model" location above. For temperatures below 0°C (if applicable), the calibration was performed by comparison against a calibrated SPRT. When the temperature range warrants and additional temperature points are available, measurements at supplementary temperatures are included to improve the quality of the calibration result. The calibration measurements were performed using a digital DC readout and DC reference resistors at one level of excitation current. The value of current used is shown in the calibration data section of this report.

During the course of calibration, the PRT resistance at the triple point of water (RTPW) is measured several times to provide the required calibration data and to verify the stability of the PRT. Additionally, the PRT is annealed after the first RTPW measurement to precondition it for calibration. The initial RTPW measurement shows the "As Found" condition of the PRT and the subsequent RTPW measurements (after annealing) indicate the stability of the PRT during calibration. The procedure places a limit on the amount of change permitted in the RTPW during calibration. Instruments that exceed this value will be given larger uncertainties commensurate with the observed performance and the "As Left" condition will be denoted as "Limited". The "As Found" RTPW, the dRTPW during calibration, the dRTPW limit, and the final RTPW are shown in the calibration data section of this report.

The following reference standards and measurement equipment were used in this calibration.

Instrument	Model	Serial No.	Recal Date
SPRT, Metal Sheath	5699	0444	08/15/2016
Precision Digital Thermometer	1595A	B0C034	10/11/2014
SPRT, Glass Sheath	5683	4356	12/20/2016
Precision Digital Thermometer	1595A	B08031	10/07/2014
Precision Digital Thermometer	1595A	B27094	08/20/2014

Environmental Conditions:
Temperature: 22.34°C
Humidity: 35.3% RH
Calibration Date: 06/02/2014
Calibration Due: Not Defined
PO Number: 0051871
Report Number: B4523081-1
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Performed by: 
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Approved by: 
Tom Harper
Senior Metrologist

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The PRT was calibrated at the following temperatures with the associated uncertainties. The uncertainty evaluation accounts for all known uncertainties present at the time of calibration including long-term behavior of the calibration system, measurement noise, and any short-term effects of the PRT. The uncertainties are reported at the calibration temperatures only. The uncertainties at intermediate temperatures can be computed from these values and the ITS-90 propagation of error curves. The uncertainties are reported at a coverage factor of 2 (k=2).

CALIBRATION POINT			TEMPERATURE	MEASURED	UNCERTAINTY
(point °C)	(type)	(SN)	t90(°C)	RESISTANCE	(mK)
-197.000	Comp	N/A	-197.000	4.64765	±6.0
-80.000	Comp	N/A	-80.000	17.22208	±6.0
-38.834	Comp	N/A	-38.834	21.48101	±6.0
0.010	Comp	N/A	0.010	25.44759	±4.0
In	FP	S9004	156.599	40.96573	±6.0
Sn	FP	S7005	231.928	48.16731	±7.0
Zn	FP	16057	419.527	65.37318	±9.0
Al	FP	17074	660.323	85.90948	±14.0

The following tables indicate the "As Found" RTPW nominal current, the dRTPW in mK, and dRTPW limit in mK. The dRTPW is the change in RTPW during the calibration, not the difference between the "As Found" and "As Left" RTPW. The value of current used in the calibration was 1.000 mA.

As Found Rtpw	dRtpw Observed	dRtpw Limit
1 mA 25.44815	0 mK	3 mK

The following values were determined for the RTPW and the coefficients of the pertinent deviation functions of the ITS-90. For best results, the RTPW value shown should be used as a baseline value for determining the stability of the PRT. The user should maintain a record of RTPW values measured as a routine operation and use these values when computing temperature.

Results for Nominal Current Calibration

RTPW = 25.44759 Ω
a4 = 8.552496 E-05
b4 = 1.585574 E-05
a7 = -3.350276 E-05
b7 = 7.869196 E-05
c7 = -3.245694 E-05

The attached interpolation table was generated from the coefficients listed above. The table is given in terms of resistance (Rt90) versus temperature (°C) at the nominal current. These tables can be used in cases where the readout instrument does not have the capability of computing temperature directly from the coefficients or as a check that the coefficients have been entered into the readout or computer program correctly. The following steps are used to compute temperature from measured resistances utilizing the table. (1) Determine the resistance at the temperature in question. (2) On the table, locate the two resistance values which surround the measured resistance. (3) Subtract the lower of the two from the measured resistance. (4) Divide the result by the sensitivity (dR/dt) from the adjacent column. (5) Add the product of this computation to the temperature which corresponds to the resistance value used in step (3). The additional uncertainty in the tabulated values is negligible (<=0.01mK) but when these tables are used, an additional uncertainty of approximately 0.1 mK should be assumed as a result of the required linear interpolation operation outlined above.

This calibration is traceable to NIST and radiometric techniques as shown in traceability diagram HCQ004. This document is available from Fluke Calibration, American Fork if required. This calibration is compliant to NCSL/ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994. This calibration report applies only to the item described. It shall not be used to claim product endorsement by NVLAP or any agency of the U.S. Government. Calibration reports without signatures are not valid.

Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)
-200.00	4.318564	0.10953	-143.00	10.55898	0.10760	-86.00	16.59588	0.10446
-199.00	4.428093	0.10970	-142.00	10.66658	0.10753	-85.00	16.70034	0.10442
-198.00	4.537797	0.10986	-141.00	10.77411	0.10745	-84.00	16.80476	0.10438
-197.00	4.647653	0.10999	-140.00	10.88156	0.10738	-83.00	16.90914	0.10434
-196.00	4.757642	0.11010	-139.00	10.98895	0.10731	-82.00	17.01348	0.10430
-195.00	4.867746	0.11020	-138.00	11.09626	0.10724	-81.00	17.11778	0.10426
-194.00	4.977947	0.11028	-137.00	11.20350	0.10718	-80.00	17.22203	0.10422
-193.00	5.088232	0.11035	-136.00	11.31068	0.10711	-79.00	17.32625	0.10418
-192.00	5.198584	0.11041	-135.00	11.41778	0.10704	-78.00	17.43042	0.10414
-191.00	5.308991	0.11045	-134.00	11.52482	0.10697	-77.00	17.53456	0.10410
-190.00	5.419439	0.11048	-133.00	11.63180	0.10691	-76.00	17.63865	0.10406
-189.00	5.529919	0.11050	-132.00	11.73870	0.10684	-75.00	17.74271	0.10402
-188.00	5.640418	0.11051	-131.00	11.84555	0.10678	-74.00	17.84672	0.10398
-187.00	5.750927	0.11051	-130.00	11.95232	0.10671	-73.00	17.95070	0.10394
-186.00	5.861437	0.11050	-129.00	12.05904	0.10665	-72.00	18.05464	0.10390
-185.00	5.971941	0.11049	-128.00	12.16569	0.10659	-71.00	18.15854	0.10386
-184.00	6.082429	0.11047	-127.00	12.27228	0.10653	-70.00	18.26240	0.10382
-183.00	6.192895	0.11044	-126.00	12.37880	0.10647	-69.00	18.36622	0.10379
-182.00	6.303334	0.11040	-125.00	12.48527	0.10640	-68.00	18.47001	0.10375
-181.00	6.413738	0.11036	-124.00	12.59167	0.10635	-67.00	18.57376	0.10371
-180.00	6.524103	0.11032	-123.00	12.69802	0.10629	-66.00	18.67747	0.10367
-179.00	6.634423	0.11027	-122.00	12.80430	0.10623	-65.00	18.78114	0.10364
-178.00	6.744695	0.11022	-121.00	12.91053	0.10617	-64.00	18.88477	0.10360
-177.00	6.854914	0.11016	-120.00	13.01670	0.10611	-63.00	18.98837	0.10356
-176.00	6.965076	0.11010	-119.00	13.12281	0.10606	-62.00	19.09193	0.10352
-175.00	7.075179	0.11004	-118.00	13.22887	0.10600	-61.00	19.19546	0.10349
-174.00	7.185220	0.10998	-117.00	13.33487	0.10594	-60.00	19.29895	0.10345
-173.00	7.295195	0.10991	-116.00	13.44082	0.10589	-59.00	19.40240	0.10342
-172.00	7.405103	0.10984	-115.00	13.54671	0.10584	-58.00	19.50581	0.10338
-171.00	7.514940	0.10977	-114.00	13.65254	0.10578	-57.00	19.60919	0.10334
-170.00	7.624707	0.10969	-113.00	13.75832	0.10573	-56.00	19.71254	0.10331
-169.00	7.734400	0.10962	-112.00	13.86405	0.10568	-55.00	19.81584	0.10327
-168.00	7.844019	0.10954	-111.00	13.96973	0.10562	-54.00	19.91912	0.10324
-167.00	7.953562	0.10947	-110.00	14.07535	0.10557	-53.00	20.02235	0.10320
-166.00	8.063028	0.10939	-109.00	14.18092	0.10552	-52.00	20.12555	0.10317
-165.00	8.172416	0.10931	-108.00	14.28645	0.10547	-51.00	20.22872	0.10313
-164.00	8.281727	0.10923	-107.00	14.39192	0.10542	-50.00	20.33185	0.10310
-163.00	8.390958	0.10915	-106.00	14.49734	0.10537	-49.00	20.43495	0.10306
-162.00	8.500110	0.10907	-105.00	14.60271	0.10532	-48.00	20.53801	0.10303
-161.00	8.609182	0.10899	-104.00	14.70803	0.10527	-47.00	20.64104	0.10299
-160.00	8.718174	0.10891	-103.00	14.81330	0.10522	-46.00	20.74403	0.10296
-159.00	8.827087	0.10883	-102.00	14.91853	0.10518	-45.00	20.84699	0.10293
-158.00	8.935919	0.10875	-101.00	15.02370	0.10513	-44.00	20.94992	0.10289
-157.00	9.044671	0.10867	-100.00	15.12883	0.10508	-43.00	21.05281	0.10286
-156.00	9.153344	0.10859	-99.00	15.23392	0.10504	-42.00	21.15567	0.10282
-155.00	9.261936	0.10851	-98.00	15.33895	0.10499	-41.00	21.25849	0.10279
-154.00	9.370450	0.10843	-97.00	15.44394	0.10494	-40.00	21.36128	0.10276
-153.00	9.478884	0.10836	-96.00	15.54889	0.10490	-39.00	21.46404	0.10272
-152.00	9.587240	0.10828	-95.00	15.65378	0.10485	-38.00	21.56676	0.10269
-151.00	9.695517	0.10820	-94.00	15.75864	0.10481	-37.00	21.66945	0.10266
-150.00	9.803717	0.10812	-93.00	15.86345	0.10476	-36.00	21.77211	0.10262
-149.00	9.911839	0.10805	-92.00	15.96821	0.10472	-35.00	21.87474	0.10259
-148.00	10.01989	0.10797	-91.00	16.07293	0.10468	-34.00	21.97733	0.10256
-147.00	10.12785	0.10789	-90.00	16.17761	0.10463	-33.00	22.07989	0.10253
-146.00	10.23575	0.10782	-89.00	16.28224	0.10459	-32.00	22.18242	0.10249
-145.00	10.34357	0.10774	-88.00	16.38683	0.10455	-31.00	22.28491	0.10246
-144.00	10.45131	0.10767	-87.00	16.49138	0.10450	-30.00	22.38737	0.10243

Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)
-29.00	22.48980	0.10240	28.00	28.27634	0.10062	85.00	33.96267	0.098877
-28.00	22.59220	0.10237	29.00	28.37696	0.10059	86.00	34.06155	0.098846
-27.00	22.69457	0.10233	30.00	28.47754	0.10056	87.00	34.16040	0.098816
-26.00	22.79690	0.10230	31.00	28.57810	0.10052	88.00	34.25921	0.098785
-25.00	22.89920	0.10227	32.00	28.67862	0.10049	89.00	34.35800	0.098755
-24.00	23.00147	0.10224	33.00	28.77911	0.10046	90.00	34.45675	0.098725
-23.00	23.10371	0.10221	34.00	28.87958	0.10043	91.00	34.55548	0.098694
-22.00	23.20592	0.10218	35.00	28.98001	0.10040	92.00	34.65417	0.098664
-21.00	23.30809	0.10214	36.00	29.08041	0.10037	93.00	34.75284	0.098634
-20.00	23.41023	0.10211	37.00	29.18078	0.10034	94.00	34.85147	0.098603
-19.00	23.51235	0.10208	38.00	29.28112	0.10031	95.00	34.95007	0.098573
-18.00	23.61443	0.10205	39.00	29.38143	0.10028	96.00	35.04865	0.098543
-17.00	23.71648	0.10202	40.00	29.48171	0.10025	97.00	35.14719	0.098512
-16.00	23.81850	0.10199	41.00	29.58196	0.10022	98.00	35.24570	0.098482
-15.00	23.92048	0.10196	42.00	29.68218	0.10019	99.00	35.34418	0.098452
-14.00	24.02244	0.10193	43.00	29.78237	0.10016	100.00	35.44264	0.098422
-13.00	24.12436	0.10189	44.00	29.88252	0.10013	101.00	35.54106	0.098391
-12.00	24.22626	0.10186	45.00	29.98265	0.10010	102.00	35.63945	0.098361
-11.00	24.32812	0.10183	46.00	30.08275	0.10007	103.00	35.73781	0.098331
-10.00	24.42995	0.10180	47.00	30.18281	0.10003	104.00	35.83614	0.098300
-9.00	24.53175	0.10177	48.00	30.28284	0.10000	105.00	35.93444	0.098270
-8.00	24.63352	0.10174	49.00	30.38285	0.099973	106.00	36.03271	0.098240
-7.00	24.73526	0.10171	50.00	30.48282	0.099943	107.00	36.13095	0.098210
-6.00	24.83697	0.10168	51.00	30.58276	0.099912	108.00	36.22916	0.098179
-5.00	24.93865	0.10165	52.00	30.68268	0.099882	109.00	36.32734	0.098149
-4.00	25.04030	0.10162	53.00	30.78256	0.099851	110.00	36.42549	0.098119
-3.00	25.14191	0.10158	54.00	30.88241	0.099821	111.00	36.52361	0.098089
-2.00	25.24350	0.10155	55.00	30.98223	0.099790	112.00	36.62170	0.098058
-1.00	25.34505	0.10152	56.00	31.08202	0.099759	113.00	36.71975	0.098028
0.00	25.44657	0.10148	57.00	31.18178	0.099729	114.00	36.81778	0.097998
1.00	25.54805	0.10145	58.00	31.28151	0.099698	115.00	36.91578	0.097968
2.00	25.64950	0.10142	59.00	31.38121	0.099668	116.00	37.01375	0.097937
3.00	25.75092	0.10139	60.00	31.48087	0.099637	117.00	37.11168	0.097907
4.00	25.85231	0.10136	61.00	31.58051	0.099607	118.00	37.20959	0.097877
5.00	25.95366	0.10133	62.00	31.68012	0.099576	119.00	37.30747	0.097847
6.00	26.05499	0.10129	63.00	31.77970	0.099546	120.00	37.40531	0.097816
7.00	26.15628	0.10126	64.00	31.87924	0.099515	121.00	37.50313	0.097786
8.00	26.25755	0.10123	65.00	31.97876	0.099485	122.00	37.60092	0.097756
9.00	26.35878	0.10120	66.00	32.07824	0.099455	123.00	37.69867	0.097726
10.00	26.45998	0.10117	67.00	32.17770	0.099424	124.00	37.79640	0.097696
11.00	26.56115	0.10114	68.00	32.27712	0.099394	125.00	37.89410	0.097666
12.00	26.66229	0.10111	69.00	32.37651	0.099363	126.00	37.99176	0.097635
13.00	26.76340	0.10108	70.00	32.47588	0.099333	127.00	38.08940	0.097605
14.00	26.86448	0.10105	71.00	32.57521	0.099302	128.00	38.18700	0.097575
15.00	26.96553	0.10102	72.00	32.67451	0.099272	129.00	38.28458	0.097545
16.00	27.06654	0.10099	73.00	32.77378	0.099241	130.00	38.38212	0.097515
17.00	27.16753	0.10095	74.00	32.87303	0.099211	131.00	38.47964	0.097485
18.00	27.26848	0.10092	75.00	32.97224	0.099181	132.00	38.57712	0.097454
19.00	27.36941	0.10089	76.00	33.07142	0.099150	133.00	38.67457	0.097424
20.00	27.47030	0.10086	77.00	33.17057	0.099120	134.00	38.77200	0.097394
21.00	27.57116	0.10083	78.00	33.26969	0.099089	135.00	38.86939	0.097364
22.00	27.67199	0.10080	79.00	33.36878	0.099059	136.00	38.96676	0.097334
23.00	27.77280	0.10077	80.00	33.46784	0.099028	137.00	39.06409	0.097304
24.00	27.87357	0.10074	81.00	33.56686	0.098998	138.00	39.16139	0.097274
25.00	27.97430	0.10071	82.00	33.66586	0.098968	139.00	39.25867	0.097244
26.00	28.07501	0.10068	83.00	33.76483	0.098937	140.00	39.35591	0.097213
27.00	28.17569	0.10065	84.00	33.86377	0.098907	141.00	39.45313	0.097183

Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)
142.00	39.55031	0.097153	199.00	45.04017	0.095446	256.00	50.43319	0.093755
143.00	39.64746	0.097123	200.00	45.13561	0.095416	257.00	50.52695	0.093726
144.00	39.74458	0.097093	201.00	45.23103	0.095387	258.00	50.62067	0.093696
145.00	39.84168	0.097063	202.00	45.32642	0.095357	259.00	50.71437	0.093667
146.00	39.93874	0.097033	203.00	45.42177	0.095327	260.00	50.80804	0.093637
147.00	40.03577	0.097003	204.00	45.51710	0.095297	261.00	50.90168	0.093608
148.00	40.13278	0.096973	205.00	45.61240	0.095268	262.00	50.99528	0.093578
149.00	40.22975	0.096943	206.00	45.70767	0.095238	263.00	51.08886	0.093549
150.00	40.32669	0.096913	207.00	45.80290	0.095208	264.00	51.18241	0.093519
151.00	40.42360	0.096883	208.00	45.89811	0.095178	265.00	51.27593	0.093490
152.00	40.52049	0.096853	209.00	45.99329	0.095149	266.00	51.36942	0.093460
153.00	40.61734	0.096822	210.00	46.08844	0.095119	267.00	51.46288	0.093431
154.00	40.71416	0.096792	211.00	46.18356	0.095089	268.00	51.55631	0.093401
155.00	40.81095	0.096762	212.00	46.27865	0.095059	269.00	51.64971	0.093372
156.00	40.90772	0.096732	213.00	46.37371	0.095030	270.00	51.74308	0.093342
157.00	41.00445	0.096702	214.00	46.46873	0.095000	271.00	51.83643	0.093313
158.00	41.10115	0.096672	215.00	46.56373	0.094970	272.00	51.92974	0.093283
159.00	41.19782	0.096642	216.00	46.65870	0.094940	273.00	52.02302	0.093254
160.00	41.29447	0.096612	217.00	46.75365	0.094911	274.00	52.11627	0.093224
161.00	41.39108	0.096582	218.00	46.84856	0.094881	275.00	52.20950	0.093195
162.00	41.48766	0.096552	219.00	46.94344	0.094851	276.00	52.30269	0.093165
163.00	41.58421	0.096522	220.00	47.03829	0.094822	277.00	52.39586	0.093136
164.00	41.68074	0.096492	221.00	47.13311	0.094792	278.00	52.48899	0.093106
165.00	41.77723	0.096462	222.00	47.22790	0.094762	279.00	52.58210	0.093077
166.00	41.87369	0.096432	223.00	47.32266	0.094733	280.00	52.67518	0.093047
167.00	41.97012	0.096402	224.00	47.41740	0.094703	281.00	52.76823	0.093018
168.00	42.06653	0.096373	225.00	47.51210	0.094673	282.00	52.86124	0.092988
169.00	42.16290	0.096343	226.00	47.60677	0.094644	283.00	52.95423	0.092959
170.00	42.25924	0.096313	227.00	47.70142	0.094614	284.00	53.04719	0.092930
171.00	42.35555	0.096283	228.00	47.79603	0.094584	285.00	53.14012	0.092900
172.00	42.45184	0.096253	229.00	47.89061	0.094555	286.00	53.23302	0.092871
173.00	42.54809	0.096223	230.00	47.98517	0.094525	287.00	53.32589	0.092841
174.00	42.64431	0.096193	231.00	48.07969	0.094495	288.00	53.41873	0.092812
175.00	42.74050	0.096163	232.00	48.17419	0.094466	289.00	53.51154	0.092782
176.00	42.83667	0.096133	233.00	48.26865	0.094436	290.00	53.60433	0.092753
177.00	42.93280	0.096103	234.00	48.36309	0.094406	291.00	53.69708	0.092723
178.00	43.02890	0.096073	235.00	48.45750	0.094377	292.00	53.78980	0.092694
179.00	43.12498	0.096043	236.00	48.55187	0.094347	293.00	53.88250	0.092664
180.00	43.22102	0.096013	237.00	48.64622	0.094317	294.00	53.97516	0.092635
181.00	43.31703	0.095983	238.00	48.74054	0.094288	295.00	54.06780	0.092606
182.00	43.41302	0.095954	239.00	48.83483	0.094258	296.00	54.16040	0.092576
183.00	43.50897	0.095924	240.00	48.92908	0.094229	297.00	54.25298	0.092547
184.00	43.60489	0.095894	241.00	49.02331	0.094199	298.00	54.34552	0.092517
185.00	43.70079	0.095864	242.00	49.11751	0.094169	299.00	54.43804	0.092488
186.00	43.79665	0.095834	243.00	49.21168	0.094140	300.00	54.53053	0.092458
187.00	43.89249	0.095804	244.00	49.30582	0.094110	301.00	54.62299	0.092429
188.00	43.98829	0.095774	245.00	49.39993	0.094081	302.00	54.71542	0.092400
189.00	44.08406	0.095745	246.00	49.49401	0.094051	303.00	54.80782	0.092370
190.00	44.17981	0.095715	247.00	49.58806	0.094022	304.00	54.90019	0.092341
191.00	44.27552	0.095685	248.00	49.68209	0.093992	305.00	54.99253	0.092311
192.00	44.37121	0.095655	249.00	49.77608	0.093962	306.00	55.08484	0.092282
193.00	44.46686	0.095625	250.00	49.87004	0.093933	307.00	55.17712	0.092252
194.00	44.56249	0.095595	251.00	49.96397	0.093903	308.00	55.26937	0.092223
195.00	44.65808	0.095566	252.00	50.05788	0.093874	309.00	55.36160	0.092194
196.00	44.75365	0.095536	253.00	50.15175	0.093844	310.00	55.45379	0.092164
197.00	44.84918	0.095506	254.00	50.24559	0.093815	311.00	55.54595	0.092135
198.00	44.94469	0.095476	255.00	50.33941	0.093785	312.00	55.63809	0.092105

Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)
313.00	55.73019	0.092076	370.00	60.93155	0.090398	427.00	66.03702	0.088709
314.00	55.82227	0.092046	371.00	61.02195	0.090368	428.00	66.12573	0.088679
315.00	55.91432	0.092017	372.00	61.11232	0.090339	429.00	66.21441	0.088649
316.00	56.00633	0.091988	373.00	61.20266	0.090309	430.00	66.30306	0.088620
317.00	56.09832	0.091958	374.00	61.29297	0.090280	431.00	66.39168	0.088590
318.00	56.19028	0.091929	375.00	61.38325	0.090250	432.00	66.48027	0.088560
319.00	56.28221	0.091899	376.00	61.47350	0.090221	433.00	66.56883	0.088530
320.00	56.37411	0.091870	377.00	61.56372	0.090191	434.00	66.65736	0.088500
321.00	56.46598	0.091841	378.00	61.65391	0.090162	435.00	66.74586	0.088470
322.00	56.55782	0.091811	379.00	61.74407	0.090132	436.00	66.83433	0.088441
323.00	56.64963	0.091782	380.00	61.83420	0.090103	437.00	66.92277	0.088411
324.00	56.74141	0.091752	381.00	61.92431	0.090073	438.00	67.01118	0.088381
325.00	56.83316	0.091723	382.00	62.01438	0.090044	439.00	67.09956	0.088351
326.00	56.92489	0.091693	383.00	62.10442	0.090014	440.00	67.18791	0.088321
327.00	57.01658	0.091664	384.00	62.19444	0.089984	441.00	67.27623	0.088291
328.00	57.10824	0.091635	385.00	62.28442	0.089955	442.00	67.36452	0.088261
329.00	57.19988	0.091605	386.00	62.37438	0.089925	443.00	67.45279	0.088231
330.00	57.29148	0.091576	387.00	62.46430	0.089896	444.00	67.54102	0.088202
331.00	57.38306	0.091546	388.00	62.55420	0.089866	445.00	67.62922	0.088172
332.00	57.47460	0.091517	389.00	62.64406	0.089837	446.00	67.71739	0.088142
333.00	57.56612	0.091488	390.00	62.73390	0.089807	447.00	67.80553	0.088112
334.00	57.65761	0.091458	391.00	62.82371	0.089777	448.00	67.89364	0.088082
335.00	57.74907	0.091429	392.00	62.91348	0.089748	449.00	67.98173	0.088052
336.00	57.84050	0.091399	393.00	63.00323	0.089718	450.00	68.06978	0.088022
337.00	57.93190	0.091370	394.00	63.09295	0.089689	451.00	68.15780	0.087992
338.00	58.02327	0.091340	395.00	63.18264	0.089659	452.00	68.24579	0.087962
339.00	58.11461	0.091311	396.00	63.27230	0.089630	453.00	68.33375	0.087932
340.00	58.20592	0.091282	397.00	63.36193	0.089600	454.00	68.42169	0.087902
341.00	58.29720	0.091252	398.00	63.45153	0.089570	455.00	68.50959	0.087872
342.00	58.38845	0.091223	399.00	63.54110	0.089541	456.00	68.59746	0.087842
343.00	58.47967	0.091193	400.00	63.63064	0.089511	457.00	68.68530	0.087812
344.00	58.57087	0.091164	401.00	63.72015	0.089481	458.00	68.77311	0.087782
345.00	58.66203	0.091134	402.00	63.80963	0.089452	459.00	68.86089	0.087752
346.00	58.75316	0.091105	403.00	63.89908	0.089422	460.00	68.94865	0.087722
347.00	58.84427	0.091075	404.00	63.98851	0.089393	461.00	69.03637	0.087692
348.00	58.93534	0.091046	405.00	64.07790	0.089363	462.00	69.12406	0.087662
349.00	59.02639	0.091017	406.00	64.16726	0.089333	463.00	69.21172	0.087632
350.00	59.11741	0.090987	407.00	64.25659	0.089304	464.00	69.29935	0.087602
351.00	59.20839	0.090958	408.00	64.34590	0.089274	465.00	69.38696	0.087572
352.00	59.29935	0.090928	409.00	64.43517	0.089244	466.00	69.47453	0.087541
353.00	59.39028	0.090899	410.00	64.52442	0.089215	467.00	69.56207	0.087511
354.00	59.48118	0.090869	411.00	64.61363	0.089185	468.00	69.64958	0.087481
355.00	59.57205	0.090840	412.00	64.70282	0.089155	469.00	69.73706	0.087451
356.00	59.66289	0.090810	413.00	64.79197	0.089125	470.00	69.82451	0.087421
357.00	59.75370	0.090781	414.00	64.88110	0.089096	471.00	69.91193	0.087391
358.00	59.84448	0.090752	415.00	64.97019	0.089066	472.00	69.99932	0.087361
359.00	59.93523	0.090722	416.00	65.05926	0.089036	473.00	70.08668	0.087331
360.00	60.02595	0.090693	417.00	65.14829	0.089007	474.00	70.17402	0.087300
361.00	60.11665	0.090663	418.00	65.23730	0.088977	475.00	70.26132	0.087270
362.00	60.20731	0.090634	419.00	65.32628	0.088947	476.00	70.34859	0.087240
363.00	60.29794	0.090604	420.00	65.41522	0.088917	477.00	70.43583	0.087210
364.00	60.38855	0.090575	421.00	65.50414	0.088888	478.00	70.52304	0.087180
365.00	60.47912	0.090545	422.00	65.59303	0.088858	479.00	70.61022	0.087149
366.00	60.56967	0.090516	423.00	65.68189	0.088828	480.00	70.69736	0.087119
367.00	60.66018	0.090486	424.00	65.77072	0.088798	481.00	70.78448	0.087089
368.00	60.75067	0.090457	425.00	65.85951	0.088769	482.00	70.87157	0.087059
369.00	60.84113	0.090427	426.00	65.94828	0.088739	483.00	70.95863	0.087029

Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)	Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)
484.00	71.04566	0.086998	541.00	75.95599	0.085258	598.00	80.76630	0.083488
485.00	71.13266	0.086968	542.00	76.04125	0.085228	599.00	80.84978	0.083457
486.00	71.21963	0.086938	543.00	76.12648	0.085197	600.00	80.93324	0.083426
487.00	71.30656	0.086907	544.00	76.21168	0.085166	601.00	81.01667	0.083394
488.00	71.39347	0.086877	545.00	76.29684	0.085135	602.00	81.10006	0.083363
489.00	71.48035	0.086847	546.00	76.38198	0.085104	603.00	81.18342	0.083332
490.00	71.56720	0.086817	547.00	76.46708	0.085073	604.00	81.26676	0.083300
491.00	71.65401	0.086786	548.00	76.55215	0.085043	605.00	81.35006	0.083269
492.00	71.74080	0.086756	549.00	76.63720	0.085012	606.00	81.43333	0.083238
493.00	71.82755	0.086726	550.00	76.72221	0.084981	607.00	81.51656	0.083206
494.00	71.91428	0.086695	551.00	76.80719	0.084950	608.00	81.59977	0.083175
495.00	72.00098	0.086665	552.00	76.89214	0.084919	609.00	81.68295	0.083144
496.00	72.08764	0.086635	553.00	76.97706	0.084888	610.00	81.76609	0.083112
497.00	72.17428	0.086604	554.00	77.06195	0.084857	611.00	81.84920	0.083081
498.00	72.26088	0.086574	555.00	77.14680	0.084826	612.00	81.93228	0.083050
499.00	72.34745	0.086543	556.00	77.23163	0.084795	613.00	82.01533	0.083018
500.00	72.43400	0.086513	557.00	77.31643	0.084764	614.00	82.09835	0.082987
501.00	72.52051	0.086483	558.00	77.40119	0.084734	615.00	82.18134	0.082955
502.00	72.60699	0.086452	559.00	77.48592	0.084703	616.00	82.26429	0.082924
503.00	72.69344	0.086422	560.00	77.57063	0.084672	617.00	82.34722	0.082893
504.00	72.77987	0.086391	561.00	77.65530	0.084641	618.00	82.43011	0.082861
505.00	72.86626	0.086361	562.00	77.73994	0.084610	619.00	82.51297	0.082830
506.00	72.95262	0.086330	563.00	77.82455	0.084579	620.00	82.59580	0.082798
507.00	73.03895	0.086300	564.00	77.90913	0.084548	621.00	82.67860	0.082767
508.00	73.12525	0.086269	565.00	77.99367	0.084517	622.00	82.76136	0.082735
509.00	73.21152	0.086239	566.00	78.07819	0.084486	623.00	82.84410	0.082704
510.00	73.29776	0.086208	567.00	78.16268	0.084455	624.00	82.92680	0.082672
511.00	73.38397	0.086178	568.00	78.24713	0.084424	625.00	83.00948	0.082641
512.00	73.47014	0.086147	569.00	78.33155	0.084392	626.00	83.09212	0.082609
513.00	73.55629	0.086117	570.00	78.41595	0.084361	627.00	83.17473	0.082578
514.00	73.64241	0.086086	571.00	78.50031	0.084330	628.00	83.25730	0.082546
515.00	73.72849	0.086056	572.00	78.58464	0.084299	629.00	83.33985	0.082515
516.00	73.81455	0.086025	573.00	78.66894	0.084268	630.00	83.42237	0.082483
517.00	73.90058	0.085995	574.00	78.75321	0.084237	631.00	83.50485	0.082452
518.00	73.98657	0.085964	575.00	78.83744	0.084206	632.00	83.58730	0.082420
519.00	74.07253	0.085934	576.00	78.92165	0.084175	633.00	83.66972	0.082389
520.00	74.15847	0.085903	577.00	79.00582	0.084144	634.00	83.75211	0.082357
521.00	74.24437	0.085872	578.00	79.08997	0.084113	635.00	83.83447	0.082326
522.00	74.33024	0.085842	579.00	79.17408	0.084082	636.00	83.91679	0.082294
523.00	74.41609	0.085811	580.00	79.25816	0.084050	637.00	83.99909	0.082263
524.00	74.50190	0.085781	581.00	79.34221	0.084019	638.00	84.08135	0.082231
525.00	74.58768	0.085750	582.00	79.42623	0.083988	639.00	84.16358	0.082200
526.00	74.67343	0.085719	583.00	79.51022	0.083957	640.00	84.24578	0.082168
527.00	74.75915	0.085689	584.00	79.59418	0.083926	641.00	84.32795	0.082137
528.00	74.84484	0.085658	585.00	79.67810	0.083895	642.00	84.41009	0.082105
529.00	74.93049	0.085627	586.00	79.76200	0.083863	643.00	84.49219	0.082073
530.00	75.01612	0.085597	587.00	79.84586	0.083832	644.00	84.57427	0.082042
531.00	75.10172	0.085566	588.00	79.92969	0.083801	645.00	84.65631	0.082010
532.00	75.18728	0.085535	589.00	80.01349	0.083770	646.00	84.73832	0.081979
533.00	75.27282	0.085504	590.00	80.09726	0.083738	647.00	84.82030	0.081947
534.00	75.35832	0.085474	591.00	80.18100	0.083707	648.00	84.90224	0.081916
535.00	75.44380	0.085443	592.00	80.26471	0.083676	649.00	84.98416	0.081884
536.00	75.52924	0.085412	593.00	80.34838	0.083645	650.00	85.06604	0.081852
537.00	75.61465	0.085382	594.00	80.43203	0.083613	651.00	85.14790	0.081821
538.00	75.70003	0.085351	595.00	80.51564	0.083582	652.00	85.22972	0.081789
539.00	75.78538	0.085320	596.00	80.59923	0.083551	653.00	85.31151	0.081758
540.00	75.87070	0.085289	597.00	80.68278	0.083520	654.00	85.39326	0.081726

Temp (°C)	Resistance (ohms)	dR/dT (ohms/°C)
655.00	85.47499	0.081694
656.00	85.55668	0.081663
657.00	85.63835	0.081631
658.00	85.71998	0.081599
659.00	85.80158	0.081568
660.00	85.88314	0.081536