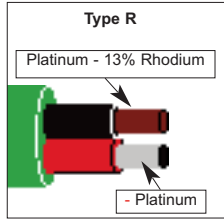




Technical Information Data Bulletin

Type R/S Thermocouple Platinum-Rhodium

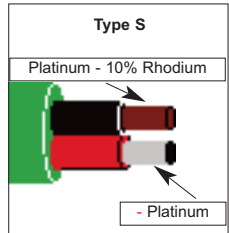
TEMPERATURE & PROCESS INSTRUMENTS - INC



Temperature vs Millivolt Table Reference Junction 0°C

Temperature Range
Maximum Useful Temperature Range:
Thermocouple Grade: 32 to 2642°F
-0 to 1400°C
Extension Grade: 32 to 392°F
0 to 200°C

Maximum Thermocouple Grade
Temperature Range
-58 to 3214°F
-50 to 1768°C
Accuracy: Standard: 1.7°C or 0.5%
Special: 1.0°C or 0.4%



Recommended Applications:

Oxidizing or Inert Environments Beware of Contamination. High Temperature Applications

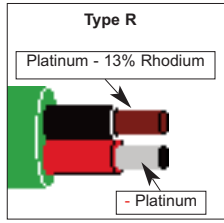
Temp	0	-1	-2	-3	-4	-5	-6	-7	-8	-9
-50	-0.2265									
-40	-0.1877	-0.1917	-0.1957	-0.1997	-0.2036	-0.2075	-0.2114	-0.2152	-0.2190	-0.2228
-30	-0.1455	-0.1499	-0.1542	-0.1585	-0.1628	-0.1670	-0.1712	-0.1754	-0.1795	-0.1836
-20	-0.1000	-0.1047	-0.1094	-0.1140	-0.1186	-0.1232	-0.1277	-0.1322	-0.1367	-0.1411
-10	-0.0515	-0.0565	-0.0614	-0.0664	-0.0713	-0.0761	-0.0810	-0.0858	-0.0906	-0.0953
0	0.0000	-0.0053	-0.0105	-0.0157	-0.0209	-0.0261	-0.0312	-0.0363	-0.0414	-0.0465
Temp	0	1	2	3	4	5	6	7	8	9
0	0.0000	0.0053	0.0106	0.0160	0.0214	0.0268	0.0322	0.0377	0.0432	0.0487
10	0.0543	0.0598	0.0654	0.0711	0.0767	0.0824	0.0881	0.0938	0.0996	0.1054
20	0.1112	0.1170	0.1229	0.1287	0.1347	0.1406	0.1465	0.1525	0.1585	0.1645
30	0.1706	0.1767	0.1828	0.1889	0.1950	0.2012	0.2074	0.2136	0.2199	0.2261
40	0.2324	0.2387	0.2451	0.2514	0.2578	0.2642	0.2706	0.2770	0.2835	0.2900
50	0.2965	0.3030	0.3096	0.3162	0.3227	0.3294	0.3360	0.3427	0.3493	0.3560
60	0.3628	0.3695	0.3763	0.3830	0.3898	0.3967	0.4035	0.4104	0.4172	0.4241
70	0.4311	0.4380	0.4450	0.4519	0.4589	0.4660	0.4730	0.4801	0.4871	0.4942
80	0.5013	0.5085	0.5156	0.5228	0.5300	0.5372	0.5444	0.5516	0.5589	0.5662
90	0.5735	0.5808	0.5881	0.5955	0.6028	0.6102	0.6176	0.6250	0.6325	0.6399
100	0.6474	0.6549	0.6624	0.6699	0.6775	0.6850	0.6926	0.7002	0.7078	0.7154
110	0.7230	0.7307	0.7383	0.7460	0.7537	0.7615	0.7692	0.7769	0.7847	0.7925
120	0.8003	0.8081	0.8159	0.8238	0.8316	0.8395	0.8474	0.8553	0.8632	0.8711
130	0.8791	0.8870	0.8950	0.9030	0.9110	0.9190	0.9271	0.9351	0.9432	0.9512
140	0.9593	0.9674	0.9756	0.9837	0.9918	1.0000	1.0082	1.0164	1.0246	1.0328
150	1.0410	1.0493	1.0575	1.0658	1.0741	1.0824	1.0907	1.0990	1.1074	1.1157
160	1.1241	1.1324	1.1408	1.1492	1.1576	1.1661	1.1745	1.1830	1.1914	1.1999
170	1.2084	1.2169	1.2254	1.2339	1.2425	1.2510	1.2596	1.2682	1.2767	1.2853
180	1.2940	1.3026	1.3112	1.3199	1.3285	1.3372	1.3459	1.3546	1.3633	1.3720
190	1.3807	1.3894	1.3982	1.4070	1.4157	1.4245	1.4333	1.4421	1.4509	1.4598
200	1.4686	1.4774	1.4863	1.4952	1.5040	1.5129	1.5218	1.5308	1.5397	1.5486
210	1.5576	1.5665	1.5755	1.5845	1.5934	1.6024	1.6114	1.6205	1.6295	1.6385
220	1.6476	1.6566	1.6657	1.6748	1.6839	1.6929	1.7021	1.7112	1.7203	1.7294
230	1.7386	1.7477	1.7569	1.7661	1.7753	1.7844	1.7936	1.8029	1.8121	1.8213
240	1.8305	1.8398	1.8491	1.8583	1.8676	1.8769	1.8862	1.8955	1.9048	1.9141
250	1.9234	1.9328	1.9421	1.9515	1.9608	1.9702	1.9796	1.9890	1.9984	2.0078
260	2.0172	2.0266	2.0361	2.0455	2.0550	2.0644	2.0739	2.0834	2.0929	2.1023
270	2.1118	2.1214	2.1309	2.1404	2.1499	2.1595	2.1690	2.1786	2.1881	2.1977
280	2.2073	2.2169	2.2265	2.2361	2.2457	2.2553	2.2650	2.2746	2.2842	2.2939
290	2.3035	2.3132	2.3229	2.3326	2.3423	2.3520	2.3617	2.3714	2.3811	2.3908
300	2.4006	2.4103	2.4200	2.4298	2.4396	2.4493	2.4591	2.4689	2.4787	2.4885
310	2.4983	2.5081	2.5179	2.5278	2.5376	2.5474	2.5573	2.5672	2.5770	2.5869
320	2.5968	2.6067	2.6165	2.6264	2.6363	2.6463	2.6562	2.6661	2.6760	2.6860
330	2.6959	2.7059	2.7158	2.7258	2.7358	2.7457	2.7557	2.7657	2.7757	2.7857
340	2.7957	2.8058	2.8158	2.8258	2.8359	2.8459	2.8559	2.8660	2.8761	2.8861
350	2.8962	2.9063	2.9164	2.9265	2.9366	2.9467	2.9568	2.9669	2.9770	2.9872
360	2.9973	3.0075	3.0176	3.0278	3.0379	3.0481	3.0583	3.0684	3.0786	3.0888
370	3.0990	3.1092	3.1194	3.1297	3.1399	3.1501	3.1603	3.1706	3.1808	3.1911
380	3.2013	3.2116	3.2219	3.2321	3.2424	3.2527	3.2630	3.2733	3.2836	3.2939
390	3.3042	3.3146	3.3249	3.3352	3.3455	3.3559	3.3662	3.3766	3.3870	3.3973
400	3.4077	3.4181	3.4284	3.4388	3.4492	3.4596	3.4700	3.4804	3.4909	3.5013



Technical Information Data Bulletin

Type R/S Thermocouple Platinum-Rhodium

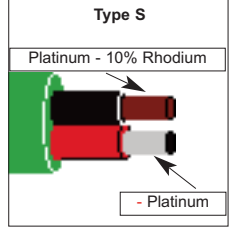
TEMPERATURE & PROCESS INSTRUMENTS - CON-



Temperature vs Millivolt Table Reference Junction 0°C

Temperature Range
Maximum Useful Temperature Range:
Thermocouple Grade: 32 to 2642°F
 -0 to 1400°C
Extension Grade: 32 to 392°F
 0 to 200°C

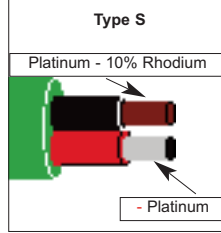
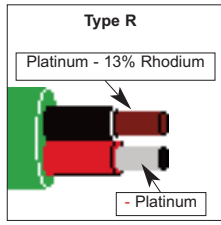
Maximum Thermocouple Grade
Temperature Range
 -58 to 3214°F
 -50 to 1768°C
Accuracy: Standard: 1.7°C or 0.5%
 Special: 1.0°C or 0.4%



Recommended Applications:
 Oxidizing or Inert Environments Beware of Contamination. High Temperature Applications

Temp	0	1	2	3	4	5	6	7	8	9
410	3.5117	3.5221	3.5326	3.5430	3.5535	3.5639	3.5744	3.5848	3.5953	3.6058
420	3.6163	3.6268	3.6372	3.6477	3.6582	3.6687	3.6793	3.6898	3.7003	3.7108
430	3.7214	3.7319	3.7424	3.7530	3.7635	3.7741	3.7847	3.7952	3.8058	3.8164
440	3.8270	3.8376	3.8482	3.8588	3.8694	3.8800	3.8906	3.9012	3.9118	3.9225
450	3.9331	3.9438	3.9544	3.9650	3.9757	3.9864	3.9970	4.0077	4.0184	4.0291
460	4.0398	4.0504	4.0611	4.0718	4.0825	4.0933	4.1040	4.1147	4.1254	4.1362
470	4.1469	4.1576	4.1684	4.1791	4.1899	4.2006	4.2114	4.2222	4.2330	4.2437
480	4.2545	4.2653	4.2761	4.2869	4.2977	4.3085	4.3193	4.3302	4.3410	4.3518
490	4.3627	4.3735	4.3843	4.3952	4.4060	4.4169	4.4278	4.4386	4.4495	4.4604
500	4.4713	4.4822	4.4930	4.5039	4.5148	4.5258	4.5367	4.5476	4.5585	4.5694
510	4.5804	4.5913	4.6022	4.6132	4.6241	4.6351	4.6460	4.6570	4.6680	4.6789
520	4.6899	4.7009	4.7119	4.7229	4.7339	4.7449	4.7559	4.7669	4.7779	4.7889
530	4.8000	4.8110	4.8220	4.8331	4.8441	4.8552	4.8662	4.8773	4.8883	4.8994
540	4.9105	4.9216	4.9326	4.9437	4.9548	4.9659	4.9770	4.9881	4.9992	5.0104
550	5.0215	5.0326	5.0437	5.0549	5.0660	5.0771	5.0883	5.0994	5.1106	5.1218
560	5.1329	5.1441	5.1553	5.1665	5.1776	5.1888	5.2000	5.2112	5.2224	5.2336
570	5.2449	5.2561	5.2673	5.2785	5.2898	5.3010	5.3122	5.3235	5.3347	5.3460
580	5.3573	5.3685	5.3798	5.3911	5.4023	5.4136	5.4249	5.4362	5.4475	5.4588
590	5.4701	5.4814	5.4928	5.5041	5.5154	5.5267	5.5381	5.5494	5.5608	5.5721
600	5.5835	5.5948	5.6062	5.6175	5.6289	5.6403	5.6517	5.6631	5.6745	5.6859
610	5.6973	5.7087	5.7201	5.7315	5.7429	5.7543	5.7658	5.7772	5.7886	5.8001
620	5.8115	5.8230	5.8344	5.8459	5.8574	5.8688	5.8803	5.8918	5.9033	5.9148
630	5.9263	5.9378	5.9493	5.9608	5.9723	5.9838	5.9953	6.0069	6.0184	6.0299
640	6.0415	6.0530	6.0646	6.0761	6.0877	6.0993	6.1108	6.1224	6.1340	6.1456
650	6.1572	6.1688	6.1804	6.1920	6.2036	6.2152	6.2268	6.2384	6.2501	6.2617
660	6.2733	6.2850	6.2966	6.3083	6.3199	6.3316	6.3433	6.3549	6.3666	6.3783
670	6.3900	6.4017	6.4134	6.4250	6.4368	6.4485	6.4602	6.4719	6.4836	6.4953
680	6.5071	6.5188	6.5306	6.5423	6.5541	6.5658	6.5776	6.5893	6.6011	6.6129
690	6.6247	6.6364	6.6482	6.6600	6.6718	6.6836	6.6954	6.7073	6.7191	6.7309
700	6.7427	6.7546	6.7664	6.7782	6.7901	6.8019	6.8138	6.8257	6.8375	6.8494
710	6.8613	6.8732	6.8850	6.8969	6.9088	6.9207	6.9326	6.9445	6.9565	6.9684
720	6.9803	6.9922	7.0042	7.0161	7.0280	7.0400	7.0519	7.0639	7.0759	7.0878
730	7.0998	7.1118	7.1238	7.1358	7.1477	7.1597	7.1717	7.1837	7.1958	7.2078
740	7.2198	7.2318	7.2438	7.2559	7.2679	7.2800	7.2920	7.3041	7.3161	7.3282
750	7.3403	7.3523	7.3644	7.3765	7.3886	7.4007	7.4128	7.4249	7.4370	7.4491
760	7.4612	7.4733	7.4855	7.4976	7.5097	7.5219	7.5340	7.5462	7.5583	7.5705
770	7.5826	7.5948	7.6070	7.6192	7.6314	7.6435	7.6557	7.6679	7.6801	7.6924
780	7.7046	7.7168	7.7290	7.7412	7.7535	7.7657	7.7779	7.7902	7.8024	7.8147
790	7.8270	7.8392	7.8515	7.8638	7.8761	7.8883	7.9006	7.9129	7.9252	7.9375
800	7.9498	7.9622	7.9745	7.9868	7.9991	8.0115	8.0238	8.0361	8.0485	8.0608
810	8.0732	8.0856	8.0979	8.1103	8.1227	8.1351	8.1475	8.1598	8.1722	8.1846
820	8.1970	8.2095	8.2219	8.2343	8.2467	8.2591	8.2716	8.2840	8.2965	8.3089
830	8.3214	8.3338	8.3463	8.3588	8.3712	8.3837	8.3962	8.4087	8.4212	8.4337
840	8.4462	8.4587	8.4712	8.4837	8.4962	8.5087	8.5213	8.5338	8.5463	8.5589
850	8.5714	8.5840	8.5965	8.6091	8.6217	8.6343	8.6468	8.6594	8.6720	8.6846
860	8.6972	8.7098	8.7224	8.7350	8.7476	8.7602	8.7729	8.7855	8.7981	8.8108
870	8.8234	8.8361	8.8487	8.8614	8.8740	8.8867	8.8994	8.9120	8.9247	8.9374
880	8.9501	8.9628	8.9755	8.9882	9.0009	9.0136	9.0263	9.0391	9.0518	9.0645
890	9.0772	9.0900	9.1027	9.1155	9.1282	9.1410	9.1538	9.1665	9.1793	9.1921

Temperature vs Millivolt Table Reference Junction 0°C



Temperature Range
Maximum Useful Temperature Range:
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-0 to 1400°C
Extension Grade: 32 to 392°F
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Maximum Thermocouple Grade
Temperature Range
-58 to 3214°F
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Accuracy: Standard: 1.7°C or 0.5%
Special: 1.0°C or 0.4%

Recommended Applications:

Oxidizing or Inert Environments Beware of Contamination. High Temperature Applications

Temp	0	1	2	3	4	5	6	7	8	9
900	9.2049	9.2177	9.2304	9.2432	9.2560	9.2689	9.2817	9.2945	9.3073	9.3201
910	9.3330	9.3458	9.3586	9.3715	9.3843	9.3972	9.4100	9.4229	9.4357	9.4486
920	9.4615	9.4744	9.4873	9.5001	9.5130	9.5259	9.5388	9.5517	9.5647	9.5776
930	9.5905	9.6034	9.6163	9.6293	9.6422	9.6552	9.6681	9.6811	9.6940	9.7070
940	9.7199	9.7329	9.7459	9.7589	9.7719	9.7848	9.7978	9.8108	9.8238	9.8368
950	9.8498	9.8629	9.8759	9.8889	9.9019	9.9150	9.9280	9.9410	9.9541	9.9671
960	9.9802	9.9932	10.0063	10.0194	10.0324	10.0455	10.0586	10.0717	10.0848	10.0979
970	10.1110	10.1241	10.1372	10.1503	10.1634	10.1765	10.1897	10.2028	10.2159	10.2291
980	10.2422	10.2553	10.2685	10.2817	10.2948	10.3080	10.3211	10.3343	10.3475	10.3607
990	10.3739	10.3871	10.4002	10.4134	10.4266	10.4399	10.4531	10.4663	10.4795	10.4927
1000	10.5060	10.5192	10.5324	10.5457	10.5589	10.5722	10.5854	10.5987	10.6119	10.6252
1010	10.6385	10.6518	10.6650	10.6783	10.6916	10.7049	10.7182	10.7315	10.7448	10.7581
1020	10.7714	10.7847	10.7981	10.8114	10.8247	10.8381	10.8514	10.8647	10.8781	10.8914
1030	10.9048	10.9181	10.9315	10.9449	10.9583	10.9716	10.9850	10.9984	11.0118	11.0252
1040	11.0386	11.0520	11.0654	11.0788	11.0922	11.1056	11.1190	11.1325	11.1459	11.1593
1050	11.1728	11.1862	11.1997	11.2131	11.2266	11.2400	11.2535	11.2669	11.2804	11.2939
1060	11.3074	11.3208	11.3343	11.3478	11.3613	11.3748	11.3883	11.4018	11.4153	11.4288
1070	11.4424	11.4559	11.4694	11.4829	11.4965	11.5100	11.5236	11.5371	11.5506	11.5642
1080	11.5778	11.5913	11.6049	11.6184	11.6320	11.6456	11.6592	11.6727	11.6863	11.6999
1090	11.7135	11.7271	11.7407	11.7543	11.7679	11.7815	11.7951	11.8088	11.8224	11.8360
1100	11.8496	11.8633	11.8769	11.8905	11.9042	11.9178	11.9315	11.9451	11.9588	11.9725
1110	11.9861	11.9998	12.0135	12.0271	12.0408	12.0545	12.0682	12.0818	12.0955	12.1092
1120	12.1229	12.1366	12.1503	12.1640	12.1777	12.1915	12.2052	12.2189	12.2326	12.2463
1130	12.2601	12.2738	12.2875	12.3013	12.3150	12.3287	12.3425	12.3562	12.3700	12.3837
1140	12.3975	12.4113	12.4250	12.4388	12.4526	12.4663	12.4801	12.4939	12.5077	12.5215
1150	12.5352	12.5490	12.5628	12.5766	12.5904	12.6042	12.6180	12.6318	12.6456	12.6594
1160	12.6733	12.6871	12.7009	12.7147	12.7286	12.7424	12.7562	12.7700	12.7839	12.7977
1170	12.8116	12.8254	12.8393	12.8531	12.8670	12.8808	12.8947	12.9085	12.9224	12.9363
1180	12.9501	12.9640	12.9779	12.9917	13.0056	13.0195	13.0334	13.0473	13.0611	13.0750
1190	13.0889	13.1028	13.1167	13.1306	13.1445	13.1584	13.1723	13.1862	13.2001	13.2141
1200	13.2280	13.2419	13.2558	13.2697	13.2836	13.2976	13.3115	13.3254	13.3394	13.3533
1210	13.3672	13.3812	13.3951	13.4091	13.4230	13.4369	13.4509	13.4648	13.4788	13.4927
1220	13.5067	13.5207	13.5346	13.5486	13.5626	13.5765	13.5905	13.6045	13.6184	13.6324
1230	13.6464	13.6604	13.6743	13.6883	13.7023	13.7163	13.7303	13.7443	13.7583	13.7723
1240	13.7862	13.8002	13.8142	13.8282	13.8422	13.8562	13.8703	13.8843	13.8983	13.9123
1250	13.9263	13.9403	13.9543	13.9683	13.9823	13.9964	14.0104	14.0244	14.0384	14.0525
1260	14.0665	14.0805	14.0946	14.1086	14.1226	14.1367	14.1507	14.1647	14.1788	14.1928
1270	14.2068	14.2209	14.2349	14.2490	14.2630	14.2771	14.2911	14.3052	14.3192	14.3333
1280	14.3473	14.3614	14.3755	14.3895	14.4036	14.4176	14.4317	14.4458	14.4598	14.4739
1290	14.4880	14.5020	14.5161	14.5302	14.5443	14.5583	14.5724	14.5865	14.6006	14.6146
1300	14.6287	14.6428	14.6569	14.6710	14.6850	14.6991	14.7132	14.7273	14.7414	14.7555
1310	14.7696	14.7837	14.7977	14.8118	14.8259	14.8400	14.8541	14.8682	14.8823	14.8964
1320	14.9105	14.9246	14.9387	14.9528	14.9669	14.9810	14.9951	15.0092	15.0233	15.0374
1330	15.0515	15.0656	15.0798	15.0939	15.1080	15.1221	15.1362	15.1503	15.1644	15.1785
1340	15.1926	15.2068	15.2209	15.2350	15.2491	15.2632	15.2773	15.2914	15.3056	15.3197
1350	15.3338	15.3479	15.3620	15.3762	15.3903	15.4044	15.4185	15.4326	15.4468	15.4609
1360	15.4750	15.4891	15.5033	15.5174	15.5315	15.5456	15.5597	15.5739	15.5880	15.6021
1370	15.6162	15.6304	15.6445	15.6586	15.6728	15.6869	15.7010	15.7151	15.7293	15.7434

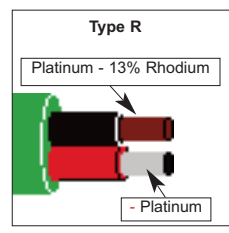


Technical Information Data Bulletin

Type R/S Thermocouple Platinum-Rhodium

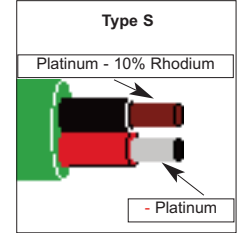
TEMPERATURE & PROCESS INSTRUMENTS - CON

Temperature vs Millivolt Table Reference Junction 0°C



Temperature Range
Maximum Useful Temperature Range:
Thermocouple Grade: 32 to 2642°F
 -0 to 1400°C
Extension Grade: 32 to 392°F
 0 to 200°C

Maximum Thermocouple Grade
Temperature Range
 -58 to 3214°F
 -50 to 1768°C
Accuracy: Standard: 1.7°C or 0.5%
 Special: 1.0°C or 0.4%



Recommended Applications:
 Oxidizing or Inert Environments Beware of Contamination. High Temperature Applications

Temp	0	1	2	3	4	5	6	7	8	9
1380	15.7575	15.7716	15.7858	15.7999	15.8140	15.8282	15.8423	15.8564	15.8705	15.8847
1390	15.8988	15.9129	15.9271	15.9412	15.9553	15.9695	15.9836	15.9977	16.0118	16.0260
1400	16.0401	16.0542	16.0684	16.0825	16.0966	16.1107	16.1249	16.1390	16.1531	16.1672
1410	16.1814	16.1955	16.2096	16.2238	16.2379	16.2520	16.2661	16.2803	16.2944	16.3085
1420	16.3226	16.3368	16.3509	16.3650	16.3791	16.3933	16.4074	16.4215	16.4356	16.4497
1430	16.4639	16.4780	16.4921	16.5062	16.5203	16.5345	16.5486	16.5627	16.5768	16.5909
1440	16.6051	16.6192	16.6333	16.6474	16.6615	16.6756	16.6897	16.7039	16.7180	16.7321
1450	16.7462	16.7603	16.7744	16.7885	16.8026	16.8167	16.8308	16.8449	16.8590	16.8732
1460	16.8873	16.9014	16.9155	16.9296	16.9437	16.9578	16.9719	16.9860	17.0001	17.0142
1470	17.0282	17.0423	17.0564	17.0705	17.0846	17.0987	17.1128	17.1269	17.1410	17.1551
1480	17.1692	17.1832	17.1973	17.2114	17.2255	17.2396	17.2536	17.2677	17.2818	17.2959
1490	17.3100	17.3240	17.3381	17.3522	17.3663	17.3803	17.3944	17.4085	17.4225	17.4366
1500	17.4507	17.4647	17.4788	17.4928	17.5069	17.5210	17.5350	17.5491	17.5631	17.5772
1510	17.5912	17.6053	17.6193	17.6334	17.6474	17.6615	17.6755	17.6895	17.7036	17.7176
1520	17.7317	17.7457	17.7597	17.7738	17.7878	17.8018	17.8159	17.8299	17.8439	17.8579
1530	17.8720	17.8860	17.9000	17.9140	17.9280	17.9420	17.9561	17.9701	17.9841	17.9981
1540	18.0121	18.0261	18.0401	18.0541	18.0681	18.0821	18.0961	18.1101	18.1241	18.1381
1550	18.1521	18.1660	18.1800	18.1940	18.2080	18.2220	18.2359	18.2499	18.2639	18.2779
1560	18.2918	18.3058	18.3198	18.3337	18.3477	18.3617	18.3756	18.3896	18.4035	18.4175
1570	18.4314	18.4454	18.4593	18.4733	18.4872	18.5012	18.5151	18.5290	18.5430	18.5569
1580	18.5708	18.5847	18.5987	18.6126	18.6265	18.6404	18.6544	18.6683	18.6822	18.6961
1590	18.7100	18.7239	18.7378	18.7517	18.7656	18.7795	18.7934	18.8073	18.8212	18.8351
1600	18.8489	18.8628	18.8767	18.8906	18.9045	18.9183	18.9322	18.9461	18.9599	18.9738
1610	18.9876	19.0015	19.0154	19.0292	19.0431	19.0569	19.0707	19.0846	19.0984	19.1123
1620	19.1261	19.1399	19.1538	19.1676	19.1814	19.1952	19.2090	19.2229	19.2367	19.2505
1630	19.2643	19.2781	19.2919	19.3057	19.3195	19.3333	19.3471	19.3609	19.3746	19.3884
1640	19.4022	19.4160	19.4297	19.4435	19.4573	19.4710	19.4848	19.4986	19.5123	19.5261
1650	19.5398	19.5536	19.5673	19.5810	19.5948	19.6085	19.6222	19.6360	19.6497	19.6634
1660	19.6771	19.6909	19.7046	19.7183	19.7320	19.7457	19.7594	19.7731	19.7868	19.8005
1670	19.8141	19.8278	19.8415	19.8552	19.8688	19.8825	19.8961	19.9098	19.9234	19.9371
1680	19.9507	19.9643	19.9779	19.9916	20.0052	20.0188	20.0323	20.0459	20.0595	20.0731
1690	20.0866	20.1002	20.1137	20.1272	20.1408	20.1543	20.1678	20.1813	20.1948	20.2082
1700	20.2217	20.2351	20.2486	20.2620	20.2754	20.2888	20.3022	20.3156	20.3290	20.3424
1710	20.3557	20.3690	20.3824	20.3957	20.4090	20.4223	20.4355	20.4488	20.4620	20.4752
1720	20.4885	20.5017	20.5148	20.5280	20.5412	20.5543	20.5674	20.5805	20.5936	20.6067
1730	20.6197	20.6328	20.6458	20.6588	20.6718	20.6848	20.6977	20.7106	20.7236	20.7365
1740	20.7493	20.7622	20.7750	20.7878	20.8006	20.8134	20.8262	20.8389	20.8517	20.8644
1750	20.8770	20.8897	20.9023	20.9149	20.9275	20.9401	20.9527	20.9652	20.9777	20.9902
1760	21.0026	21.0151	21.0275	21.0399	21.0522	21.0646	21.0769	21.0892	21.1015	