

AM-89-418

Renierite crystal structure refined from Rietveld analysis of powder neutron-diffraction data

Lawrence R. Bernstein, Daniel G. Reichel, Stefano Merlino

For deposit: Observed and calculated neutron-diffraction data

American Mineralogist, 74, 9-10, 1177-1181.

See also erratum, American Mineralogist, 74, 11-12, 1412.

pp. (8)

RAW NEUTRON DIFFRACTION DATA FOR RENIERITE FROM KIPUSHI WITH TRACES OF
 QUARTZ AND DOLOMITE
 OBTAINED AT UNIVERSITY OF MISSOURI RESEARCH REACTOR FACILITY 20-AUG-1985
 WAVELENGTH = 1.2869(2) ANGSTROMS
 LAWRENCE R. BERNSTEIN, DANIEL G. REICHEL, STEPHANO MERLINO

2-THETA	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
					COUNTS					
5.0	3795	3760	3841	3682	3689	3549	3586	3497	3635	3580
6.0	3500	3537	3539	3463	3469	3409	3420	3403	3321	3394
7.0	3404	3252	3136	3142	3162	3090	3099	3034	3009	3044
8.0	2953	2954	2895	2909	2854	2991	2991	2852	2867	2897
9.0	2958	3111	3253	3399	3563	3598	3689	3654	3287	3103
10.0	2953	2863	2722	2644	2457	2575	2665	2570	2576	2633
11.0	2552	2514	2557	2652	2566	2501	2523	2635	2628	2648
12.0	2509	2562	2462	2501	2446	2388	2388	2449	2461	2351
13.0	2443	2444	2465	2649	2906	2970	3139	3208	3073	2875
14.0	2643	2530	2361	2404	2290	2318	2283	2342	2442	2644
15.0	2744	2946	3209	3349	3348	3022	2755	2503	2345	2263
16.0	2212	2169	2237	2362	2476	2755	3084	3302	3736	3897
17.0	3843	3621	3323	2970	2601	2277	2205	2109	2139	2054
18.0	1960	1992	2092	2024	2067	1977	1982	1926	1895	2046
19.0	2053	2230	2440	2761	2987	3126	3362	3255	3144	2880
20.0	2581	2319	2181	1951	1998	2072	1915	1946	1952	1922
21.0	1931	1919	1993	1971	2361	2883	3891	5368	7056	8383
22.0	8252	7152	5222	3658	2781	2251	2103	2043	2105	2039
23.0	2088	2200	2217	2473	3104	4743	8392	14724	24048	32906
24.0	38321	36180	28168	18632	10894	6617	4493	3591	3220	3030
25.0	3146	3151	3439	4018	4710	5387	5243	4789	4267	3926
26.0	3667	3360	2935	2448	2159	2052	1883	1860	1819	1797
27.0	1840	2025	2247	2663	3595	5377	7672	9850	11085	10785
28.0	9483	7447	5229	3851	2820	2421	2095	2031	2006	1934
29.0	1887	1943	1869	2018	2184	2277	2312	2417	2403	2585
30.0	2716	2813	2868	2785	2441	2299	2015	1948	2125	2093
31.0	2172	2220	2292	2276	2240	2028	1990	1920	1958	2100
32.0	2165	2221	2477	2714	2977	3273	3520	3507	3419	3169
33.0	3051	3317	3294	3134	3006	2698	2720	3112	3501	3966
34.0	3889	3532	2969	2415	2236	2129	2035	2007	1900	1936
35.0	1900	1829	1823	1797	1832	1936	2044	2350	2506	2511
36.0	2321	2159	2004	1914	1849	1748	1796	1835	1819	1801
37.0	1858	1865	1941	2142	2347	2564	3073	3439	3532	3215
38.0	2610	2192	2124	1965	2134	2109	2232	2117	2131	2122
39.0	2137	2329	2754	3607	5398	9036	14979	24103	34535	41226
40.0	40146	30620	18626	10220	5960	4388	3672	3382	3193	3166
41.0	3662	4178	4950	5237	4847	4327	3856	3451	2944	2605
42.0	2630	2475	2449	2409	2322	2270	2260	2164	1978	2015
43.0	2010	2053	1894	1844	1925	2125	2122	2208	2163	2058
44.0	1995	1973	1831	1777	1762	1791	1982	2161	2465	2876
45.0	3171	3257	3252	2993	2750	2654	2388	2183	2043	2097
46.0	1991	2127	2109	2190	2336	2536	3261	4742	7459	12073
47.0	17526	22417	25305	24388	20608	15515	10628	6867	4773	3775
48.0	3442	3461	3611	3692	3403	3062	2774	2479	2663	3106
49.0	3858	4632	5285	5964	6326	6325	5669	4371	3141	2476
50.0	2112	2056	2014	2059	2107	2243	2232	2229	2149	2078
51.0	1925	1869	1801	1766	1856	1940	2096	2287	2498	2484
52.0	2415	2456	2394	2459	2548	2579	2685	2694	2454	2425
53.0	2452	2467	2578	2556	2423	2324	2179	2319	2345	2489
54.0	2458	2321	2122	2041	1975	1887	2047	2306	2605	2945
55.0	3398	3727	3939	4032	4248	4456	4575	4618	4321	3641

OBSERVED AND CALCULATED NEUTRON DIFFRACTION DATA FOR RENIERITE FROM KIPUSHI FOLLOWING RIETVELD REFINEMENT. OBSERVED DATA ARE AFTER BACKGROUND SUBTRACTION AND SUBTRACTION OF PATTERNS FOR TRACES OF QUARTZ AND DOLOMITE, AS DESCRIBED IN TEXT. DATA ARRANGED IN THREE GROUPS OF FOUR COLUMNS, CONSISTING OF TWO-THETA VALUE (WAVELENGTH = 1.2869(2) ANGSTROMS), OBSERVED COUNTS, CALCULATED COUNTS FROM REFINEMENT, AND DIFFERENCE BETWEEN OBSERVED AND CALCULATED COUNTS.

LAWRENCE R. BERNSTEIN, DANIEL G. REICHEL, STEPHANO MERLINO MARCH, 1989

5.0	6	1	5	5.1	7	1	6	5.2	122	1	121
5.3	-6	1	-7	5.4	26	1	25	5.5	-93	1	-94
5.6	-34	1	-35	5.7	-82	1	-83	5.8	81	1	80
5.9	63	1	62	6.0	0	2	-2	6.1	69	3	66
6.2	91	4	87	6.3	42	6	36	6.4	75	9	66
6.5	37	11	26	6.6	71	13	58	6.7	85	13	72
6.8	37	12	25	6.9	132	8	124	7.0	165	4	161
7.1	44	2	42	7.2	-62	0	-62	7.3	-18	0	-18
7.4	16	0	16	7.5	-33	0	-33	7.6	10	0	10
7.7	-29	0	-29	7.8	-26	0	-26	7.9	32	0	32
8.0	-35	29	-64	8.1	-7	30	-37	8.2	-56	31	-87
8.3	-19	32	-51	8.4	-59	34	-93	8.5	119	36	83
8.6	130	40	90	8.7	12	46	-34	8.8	63	56	7
8.9	95	76	19	9.0	162	116	46	9.1	342	188	154
9.2	485	305	180	9.3	650	460	190	9.4	831	625	206
9.5	868	757	111	9.6	973	813	160	9.7	962	746	216
9.8	599	553	46	9.9	423	331	92	10.0	296	159	137
10.1	219	59	160	10.2	91	13	78	10.3	33	0	33
10.4	-144	0	-144	10.5	-38	0	-38	10.6	63	0	63
10.7	-39	0	-39	10.8	-18	0	-18	10.9	46	0	46
11.0	-14	0	-14	11.1	-27	0	-27	11.2	25	0	25
11.3	0	0	0	11.4	0	0	0	11.5	0	0	0
11.6	0	0	0	11.7	0	0	0	11.8	0	0	0
11.9	0	0	0	12.0	0	0	0	12.1	110	15	95
12.2	14	19	-5	12.3	64	20	44	12.4	15	21	-6
12.5	-38	23	-61	12.6	-20	25	-45	12.7	36	28	8
12.8	59	32	27	12.9	-43	41	-84	13.0	63	57	6
13.1	57	91	-34	13.2	68	156	-88	13.3	233	263	-30
13.4	466	410	56	13.5	536	566	-30	13.6	721	684	37
13.7	822	714	108	13.8	706	636	70	13.9	546	466	80
14.0	333	285	48	14.1	237	155	82	14.2	75	85	-10
14.3	137	54	83	14.4	24	45	-21	14.5	54	48	6
14.6	20	62	-42	14.7	86	91	-5	14.8	197	151	46
14.9	408	264	144	15.0	531	444	87	15.1	743	680	63
15.2	1008	915	93	15.3	1145	1068	77	15.4	1162	1077	85
15.5	848	881	-33	15.6	579	596	-17	15.7	329	344	-15
15.8	183	182	1	15.9	121	101	20	16.0	70	70	0
16.1	21	66	-45	16.2	95	83	12	16.3	222	132	90
16.4	346	231	115	16.5	628	406	222	16.6	922	661	261
16.7	1074	947	127	16.8	1369	1169	200	16.9	1340	1225	115
17.0	1096	1056	40	17.1	788	737	51	17.2	510	423	87
17.3	330	205	125	17.4	214	88	126	17.5	67	35	32
17.6	104	13	91	17.7	56	3	53	17.8	119	0	119
17.9	42	0	42	18.0	-34	18	-52	18.1	1	19	-18
18.2	107	21	86	18.3	41	22	19	18.4	97	24	73
18.5	29	27	2	18.6	40	32	8	18.7	1	40	-39
18.8	-33	56	-89	18.9	112	89	23	19.0	126	158	-32
19.1	290	286	4	19.2	493	481	12	19.3	784	708	76
19.4	953	888	65	19.5	957	934	23	19.6	980	799	181
19.7	664	551	113	19.8	462	312	150	19.9	279	151	128

20.0	175	67	108	20.1	125	31	94	20.2	144	17	127
20.3	-6	14	-20	20.4	80	22	58	20.5	161	35	126
20.6	-1	52	-53	20.7	31	63	-32	20.8	45	65	-20
20.9	16	56	-40	21.0	16	45	-29	21.1	10	37	-27
21.2	54	39	15	21.3	-36	58	-94	21.4	150	106	44
21.5	247	205	42	21.6	438	365	73	21.7	685	562	123
21.8	841	726	115	21.9	960	774	186	22.0	833	681	152
22.1	619	499	120	22.2	366	311	55	22.3	224	173	51
22.4	189	97	92	22.5	91	68	23	22.6	81	284	-203
22.7	89	346	-257	22.8	193	425	-232	22.9	139	507	-368
23.0	209	584	-375	23.1	336	670	-334	23.2	349	810	-461
23.3	613	1088	-475	23.4	1245	1693	-448	23.5	2889	3090	-201
23.6	6535	6185	350	23.7	12876	12094	782	23.8	22188	20970	1218
23.9	31048	30466	582	24.0	36474	36072	402	24.1	34326	34457	-131
24.2	26321	26624	-303	24.3	16791	16920	-129	24.4	9044	9193	-149
24.5	4777	4603	174	24.6	2651	2394	257	24.7	1761	1447	314
24.8	1379	1059	320	24.9	1162	892	270	25.0	1162	790	372
25.1	823	682	141	25.2	393	559	-166	25.3	223	448	-225
25.4	164	382	-218	25.5	241	193	48	25.6	401	339	62
25.7	699	623	76	25.8	1110	1013	97	25.9	1471	1369	102
26.0	1599	1498	101	26.1	1445	1318	127	26.2	1055	940	115
26.3	598	557	41	26.4	345	329	16	26.5	227	189	38
26.6	49	151	-102	26.7	33	136	-103	26.8	-8	143	-151
26.9	-32	164	-196	27.0	1	204	-203	27.1	122	279	-157
27.2	193	434	-241	27.3	355	783	-428	27.4	937	1545	-608
27.5	2484	2970	-486	27.6	4846	5082	-236	27.7	7319	7338	-19
27.8	8897	8784	113	27.9	8832	8723	109	28.0	7640	7252	388
28.1	5642	5116	526	28.2	3426	3122	304	28.3	2045	1710	335
28.4	1023	909	114	28.5	630	529	101	28.6	291	369	-78
28.7	227	294	-67	28.8	165	242	-77	28.9	64	195	-131
29.0	-6	162	-168	29.1	54	158	-104	29.2	2	158	-156
29.3	192	262	-70	29.4	372	402	-30	29.5	471	566	-95
29.6	499	653	-154	29.7	558	611	-53	29.8	353	467	-114
29.9	285	301	-16	30.0	174	179	-5	30.1	89	122	-33
30.2	87	120	-33	30.3	181	151	30	30.4	139	184	-45
30.5	223	190	33	30.6	-2	167	-169	30.7	-96	137	-233
30.8	36	135	-99	30.9	23	183	-160	31.0	175	286	-111
31.1	322	420	-98	31.2	471	531	-60	31.3	478	563	-85
31.4	452	497	-45	31.5	233	377	-144	31.6	195	261	-66
31.7	141	204	-63	31.8	165	218	-53	31.9	281	281	0
32.0	304	348	-44	32.1	267	374	-107	32.2	354	343	11
32.3	310	286	24	32.4	206	261	-55	32.5	171	327	-156
32.6	321	495	-174	32.7	545	707	-162	32.8	774	836	-62
32.9	750	790	-40	33.0	550	594	-44	33.1	547	367	180
33.2	277	195	82	33.3	134	100	34	33.4	296	56	240
33.5	267	38	229	33.6	271	31	240	33.7	273	31	242
33.8	164	37	127	33.9	425	54	371	34.0	634	97	537
34.1	860	190	670	34.2	792	341	451	34.3	513	521	-8
34.4	448	643	-195	34.5	362	624	-262	34.6	274	486	-212
34.7	237	325	-88	34.8	119	220	-101	34.9	152	184	-32
35.0	125	183	-58	35.1	50	183	-133	35.2	53	175	-122
35.3	40	177	-137	35.4	76	229	-153	35.5	187	361	-174
35.6	307	560	-253	35.7	590	744	-154	35.8	723	805	-82
35.9	705	710	-5	36.0	471	517	-46	36.1	287	325	-38
36.2	157	196	-39	36.3	105	133	-28	36.4	83	107	-24
36.5	10	90	-80	36.6	58	71	-13	36.7	80	49	31
36.8	23	33	-10	36.9	-28	24	-52	37.0	-4	21	-25
37.1	-7	19	-26	37.2	90	26	64	37.3	256	39	217
37.4	313	71	242	37.5	249	142	107	37.6	363	270	93
37.7	416	441	-25	37.8	500	584	-84	37.9	551	617	-66

38.0	399	525	-126	38.1	264	385	-121	38.2	321	297	24
38.3	205	306	-101	38.4	381	384	-3	38.5	366	542	-176
38.6	498	544	-46	38.7	396	669	-273	38.8	414	615	-201
38.9	402	611	-209	39.0	418	686	-268	39.1	622	861	-239
39.2	1047	1200	-153	39.3	1898	1900	-2	39.4	3697	3480	217
39.5	7334	6940	394	39.6	13272	13473	-201	39.7	22402	23160	-758
39.8	32828	33352	-524	39.9	39520	39121	399	40.0	38437	36891	1546
40.1	28917	27939	978	40.2	16900	17275	-375	40.3	8444	9151	-707
40.4	4144	4579	-435	40.5	2534	2468	66	40.6	1831	1536	295
40.7	1565	1084	481	40.8	1354	853	501	40.9	1178	776	402
41.0	1259	821	438	41.1	1007	926	81	41.2	866	904	-38
41.3	560	866	-306	41.4	392	589	-197	41.5	681	502	179
41.6	1024	491	533	41.7	1087	530	557	41.8	748	541	207
41.9	429	484	-55	42.0	536	393	143	42.1	520	336	184
42.2	612	356	256	42.3	656	440	216	42.4	593	515	78
42.5	556	514	42	42.6	555	420	135	42.7	445	287	158
42.8	219	179	40	42.9	227	118	109	43.0	202	91	111
43.1	279	83	196	43.2	157	98	59	43.3	133	148	-15
43.4	223	251	-28	43.5	428	404	24	43.6	436	564	-128
43.7	520	676	-156	43.8	480	692	-212	43.9	374	604	-230
44.0	310	449	-139	44.1	274	288	-14	44.2	142	172	-30
44.3	75	120	-45	44.4	56	130	-74	44.5	87	205	-118
44.6	257	335	-78	44.7	363	471	-108	44.8	486	533	-47
44.9	576	479	97	45.0	408	352	56	45.1	241	247	-6
45.2	312	208	104	45.3	247	228	19	45.4	174	260	-86
45.5	232	261	-29	45.6	157	225	-68	45.7	198	179	19
45.8	217	160	57	45.9	351	326	25	46.0	261	399	-138
46.1	392	536	-144	46.2	384	592	-208	46.3	472	652	-180
46.4	626	769	-143	46.5	822	1012	-190	46.6	1510	1507	3
46.7	2920	2593	327	46.8	5486	4956	530	46.9	9917	9318	599
47.0	15298	15415	-117	47.1	20233	21237	-1004	47.2	23334	24159	-825
47.3	22578	23108	-530	47.4	18878	19079	-201	47.5	13806	13830	-24
47.6	8929	8895	34	47.7	5175	5248	-73	47.8	3064	3075	-11
47.9	2038	1964	74	48.0	1577	1416	161	48.1	1367	1150	217
48.2	1244	1074	170	48.3	1189	1057	132	48.4	1007	1050	-43
48.5	915	995	-80	48.6	847	755	92	48.7	638	591	47
48.8	715	391	324	48.9	775	348	427	49.0	964	458	506
49.1	1191	824	367	49.2	1689	1574	115	49.3	2765	2693	72
49.4	3737	3787	-50	49.5	4202	4230	-28	49.6	3793	3724	69
49.7	2592	2625	-33	49.8	1402	1557	-155	49.9	736	856	-120
50.0	384	509	-125	50.1	320	368	-48	50.2	273	342	-69
50.3	298	391	-93	50.4	299	478	-179	50.5	405	556	-151
50.6	403	579	-176	50.7	442	544	-102	50.8	395	490	-95
50.9	350	421	-71	51.0	215	392	-177	51.1	174	353	-179
51.2	105	306	-201	51.3	66	283	-217	51.4	152	299	-147
51.5	203	349	-146	51.6	302	397	-95	51.7	387	422	-35
51.8	483	435	48	51.9	435	463	-28	52.0	471	512	-41
52.1	546	552	-6	52.2	536	573	-37	52.3	591	612	-21
52.4	670	721	-51	52.5	818	885	-67	52.6	939	1013	-74
52.7	943	1014	-71	52.8	777	877	-100	52.9	589	668	-79
53.0	597	458	139	53.1	215	291	-76	53.2	305	186	119
53.3	498	146	352	53.4	536	171	365	53.5	501	254	247
53.6	289	380	-91	53.7	251	490	-239	53.8	79	524	-445
53.9	101	471	-370	54.0	111	384	-273	54.1	152	306	-154
54.2	144	260	-116	54.3	204	226	-22	54.4	202	210	-8
54.5	124	228	-104	54.6	220	280	-60	54.7	223	338	-115
54.8	264	371	-107	54.9	237	371	-134	55.0	327	356	-29
55.1	343	342	1	55.2	341	326	15	55.3	263	303	-40
55.4	266	264	2	55.5	321	206	115	55.6	242	147	95
55.7	229	100	129	55.8	253	75	178	55.9	247	73	174

56.0	143	95	48	56.1	180	138	42	56.2	158	194	-36
56.3	100	299	-199	56.4	210	383	-173	56.5	241	498	-257
56.6	357	651	-294	56.7	460	806	-346	56.8	537	925	-388
56.9	504	933	-429	57.0	413	870	-457	57.1	517	818	-301
57.2	803	909	-106	57.3	1537	1332	205	57.4	2531	2269	262
57.5	3600	3718	-118	57.6	4648	5282	-634	57.7	5693	6283	-590
57.8	6178	6331	-153	57.9	5774	5702	72	58.0	5059	4981	78
58.1	4363	4400	-37	58.2	3643	3771	-128	58.3	2950	2956	-6
58.4	2229	2107	122	58.5	1418	1465	-47	58.6	960	1114	-154
58.7	830	950	-120	58.8	738	837	-99	58.9	690	717	-27
59.0	342	595	-253	59.1	268	487	-219	59.2	330	361	-31
59.3	369	297	72	59.4	422	270	152	59.5	535	290	245
59.6	640	352	288	59.7	497	407	90	59.8	441	463	-22
59.9	414	493	-79	60.0	344	506	-162	60.1	317	502	-185
60.2	279	465	-186	60.3	196	399	-203	60.4	123	329	-206
60.5	149	287	-138	60.6	191	292	-101	60.7	189	326	-137
60.8	243	354	-111	60.9	252	344	-92	61.0	312	288	24
61.1	271	213	58	61.2	245	147	98	61.3	343	111	232
61.4	289	108	181	61.5	221	124	97	61.6	121	144	-23
61.7	209	162	47	61.8	134	182	-48	61.9	249	205	44
62.0	225	253	-28	62.1	142	277	-135	62.2	205	377	-172
62.3	379	476	-97	62.4	456	633	-177	62.5	925	828	97
62.6	1227	1009	218	62.7	1465	1140	325	62.8	1512	1231	281
62.9	1600	1337	263	63.0	1679	1560	119	63.1	2204	2077	127
63.2	3037	3132	-95	63.3	4607	4920	-313	63.4	6818	7363	-545
63.5	9522	9945	-423	63.6	11872	11800	72	63.7	12960	12127	833
63.8	11766	10730	1036	63.9	8568	8177	391	64.0	5320	5439	-119
64.1	2927	3285	-358	64.2	1738	1955	-217	64.3	1311	1264	47
64.4	985	951	34	64.5	861	805	56	64.6	784	719	65
64.7	741	671	70	64.8	748	700	48	64.9	923	890	33
65.0	1290	1347	-57	65.1	1877	2104	-227	65.2	2931	3139	-208
65.3	3929	4111	-182	65.4	4852	4808	44	65.5	5194	4992	202
65.6	4986	4711	275	65.7	4396	4141	255	65.8	3521	3417	104
65.9	2539	2629	-90	66.0	1769	1876	-107	66.1	910	1264	-354
66.2	719	850	-131	66.3	594	623	-29	66.4	539	531	8
66.5	594	527	67	66.6	630	569	61	66.7	622	617	5
66.8	531	633	-102	66.9	486	603	-117	67.0	493	529	-36
67.1	582	450	132	67.2	518	400	118	67.3	559	374	185
67.4	582	358	224	67.5	502	364	138	67.6	673	367	306
67.7	417	364	53	67.8	341	369	-28	67.9	375	398	-23
68.0	495	455	40	68.1	638	521	117	68.2	670	561	109
68.3	737	547	190	68.4	649	480	169	68.5	525	379	146
68.6	368	285	83	68.7	293	227	66	68.8	259	216	43
68.9	165	242	-77	69.0	270	287	-17	69.1	246	331	-85
69.2	335	363	-28	69.3	314	385	-71	69.4	280	402	-122
69.5	277	414	-137	69.6	341	418	-77	69.7	282	421	-139
69.8	468	430	38	69.9	511	453	58	70.0	593	486	107
70.1	476	514	-38	70.2	566	523	43	70.3	391	498	-107
70.4	412	436	-24	70.5	411	350	61	70.6	333	259	74
70.7	264	183	81	70.8	212	134	78	70.9	237	184	53
71.0	250	201	49	71.1	296	243	53	71.2	366	345	21
71.3	496	441	55	71.4	575	565	10	71.5	608	715	-107
71.6	815	882	-67	71.7	1019	1051	-32	71.8	1160	1216	-56
71.9	1401	1412	-11	72.0	1872	1746	126	72.1	2576	2425	151
72.2	3914	3727	187	72.3	5822	5866	-44	72.4	8432	8791	-359
72.5	11620	12024	-404	72.6	14930	14748	182	72.7	16653	16172	481
72.8	16650	15931	719	72.9	15095	14205	890	73.0	11901	11549	352
73.1	8619	8617	2	73.2	5430	5950	-520	73.3	3496	3879	-383
73.4	2080	2490	-410	73.5	1477	1681	-204	73.6	1150	1278	-128
73.7	1162	1102	60	73.8	1242	1028	214	73.9	1217	981	236

74.0	1025	922	103	74.1	1023	842	181	74.2	838	751	87
74.3	808	672	136	74.4	717	624	93	74.5	639	556	83
74.6	570	596	-26	74.7	698	654	44	74.8	732	675	57
74.9	732	709	23	75.0	765	712	53	75.1	805	685	120
75.2	718	635	83	75.3	597	572	25	75.4	592	507	85
75.5	489	450	39	75.6	445	405	40	75.7	437	373	64
75.8	410	355	55	75.9	426	372	54	76.0	446	375	71
76.1	452	400	52	76.2	444	418	26	76.3	335	438	-103
76.4	519	454	65	76.5	556	475	81	76.6	543	474	69
76.7	584	472	112	76.8	502	480	22	76.9	603	511	92
77.0	783	587	196	77.1	984	749	235	77.2	1368	1067	301
77.3	1989	1621	368	77.4	2638	2480	158	77.5	3557	3641	-84
77.6	4504	4979	-475	77.7	5815	6242	-427	77.8	6708	7149	-441
77.9	7252	7509	-257	78.0	7248	7319	-71	78.1	6572	6738	-166
78.2	5814	5965	-151	78.3	5079	5145	-66	78.4	4232	4331	-99
78.5	3455	3539	-84	78.6	2599	2793	-194	78.7	2051	2138	-87
78.8	1598	1605	-7	78.9	1271	1209	62	79.0	1014	928	86
79.1	854	733	121	79.2	714	594	120	79.3	758	490	268
79.4	559	411	148	79.5	416	360	56	79.6	401	339	62
79.7	425	348	77	79.8	481	359	122	79.9	557	407	150
80.0	725	447	278	80.1	744	497	247	80.2	775	545	230
80.3	775	594	181	80.4	780	631	149	80.5	787	674	113
80.6	751	704	47	80.7	582	714	-132	80.8	552	709	-157
80.9	617	700	-83	81.0	483	694	-211	81.1	582	693	-111
81.2	497	694	-197	81.3	535	689	-154	81.4	476	673	-197
81.5	548	643	-95	81.6	430	607	-177	81.7	381	571	-190
81.8	303	538	-235	81.9	352	512	-160	82.0	304	489	-185
82.1	304	465	-161	82.2	435	440	-5	82.3	504	416	88
82.4	473	395	78	82.5	432	383	49	82.6	451	382	69
82.7	518	389	129	82.8	504	400	104	82.9	577	411	166
83.0	509	416	93	83.1	424	416	8	83.2	358	419	-61
83.3	395	433	-38	83.4	310	462	-152	83.5	343	505	-162
83.6	457	554	-97	83.7	675	597	78	83.8	690	624	66
83.9	665	626	39	84.0	650	602	48	84.1	619	566	53
84.2	551	508	43	84.3	518	449	69	84.4	423	413	10
84.5	442	380	62	84.6	422	368	54	84.7	425	384	41
84.8	453	424	29	84.9	554	485	69	85.0	592	555	37
85.1	667	622	45	85.2	677	683	-6	85.3	781	737	44
85.4	896	789	107	85.5	964	856	108	85.6	1133	962	171
85.7	1334	1138	196	85.8	1438	1413	25	85.9	1790	1803	-13
86.0	2128	2307	-179	86.1	2700	2902	-202	86.2	3301	3534	-233
86.3	4057	4128	-71	86.4	4808	4596	212	86.5	5259	4851	408
86.6	5440	4826	614	86.7	4969	4511	458	86.8	4409	3954	455
86.9	3615	3260	355	87.0	2595	2550	45	87.1	2014	1929	85
87.2	1337	1454	-117	87.3	876	1135	-259	87.4	719	944	-225
87.5	646	840	-194	87.6	641	783	-142	87.7	554	742	-188
87.8	635	705	-70	87.9	600	666	-66	88.0	744	625	119
88.1	710	588	122	88.2	616	562	54	88.3	633	552	81
88.4	671	566	105	88.5	720	602	118	88.6	788	648	140
88.7	834	708	126	88.8	837	761	76	88.9	934	789	145
89.0	936	800	136	89.1	903	801	102	89.2	865	772	93
89.3	841	732	109	89.4	801	701	100	89.5	747	656	91
89.6	737	613	124	89.7	636	576	60	89.8	758	548	210
89.9	710	532	178	90.0	743	532	211	90.1	685	550	135
90.2	780	590	190	90.3	929	657	272	90.4	948	762	186
90.5	1202	924	278	90.6	1482	1169	313	90.7	1898	1523	375
90.8	2403	2027	376	90.9	2955	2685	270	91.0	3551	3491	60
91.1	4351	4396	-45	91.2	5139	5313	-174	91.3	6096	6137	-41
91.4	6699	6761	-62	91.5	7166	7111	55	91.6	7226	7152	74
91.7	7191	6895	296	91.8	6583	6383	200	91.9	5726	5683	43

92.0	5142	4872	270	92.1	4143	4033	110	92.2	3294	3244	50
92.3	2717	2573	144	92.4	2061	2066	-5	92.5	1787	1746	41
92.6	1636	1611	25	92.7	1608	1638	-30	92.8	1696	1788	-92
92.9	1910	2010	-100	93.0	2323	2251	72	93.1	2552	2458	94
93.2	2652	2593	59	93.3	2704	2632	72	93.4	2676	2572	104
93.5	2506	2429	77	93.6	2236	2229	7	93.7	1896	2004	-108
93.8	1684	1781	-97	93.9	1382	1564	-182	94.0	1098	1386	-288
94.1	959	1221	-262	94.2	876	1089	-213	94.3	805	974	-169
94.4	835	858	-23	94.5	734	769	-35	94.6	684	696	-12
94.7	726	641	85	94.8	757	608	149	94.9	595	599	-4
95.0	714	613	101	95.1	701	645	56	95.2	697	689	8
95.3	643	734	-91	95.4	761	770	-9	95.5	661	791	-130
95.6	659	789	-130	95.7	647	764	-117	95.8	676	725	-49
95.9	666	673	-7	96.0	705	608	97	96.1	532	549	-17
96.2	572	493	79	96.3	503	442	61	96.4	459	396	63
96.5	446	358	88	96.6	421	328	93	96.7	465	308	157
96.8	523	298	225	96.9	443	306	137	97.0	445	324	121
97.1	513	341	172	97.2	474	364	110	97.3	445	391	54
97.4	449	419	30	97.5	369	445	-76	97.6	458	467	-9
97.7	399	494	-95	97.8	436	506	-70	97.9	518	511	7
98.0	432	514	-82	98.1	435	515	-80	98.2	458	519	-61
98.3	435	528	-93	98.4	585	551	34	98.5	556	591	-35
98.6	729	653	76	98.7	919	747	172	98.8	1030	883	147
98.9	1293	1073	220	99.0	1455	1332	123	99.1	1810	1671	139
99.2	2189	2094	95	99.3	2598	2592	6	99.4	2989	3138	-149
99.5	3448	3690	-242	99.6	4073	4196	-123	99.7	4528	4605	-77
99.8	4785	4879	-94	99.9	4896	5002	-106	100.0	4820	4987	-167
100.1	4554	4863	-309	100.2	4436	4671	-235	100.3	4223	4443	-220
100.4	3905	4199	-294	100.5	3687	3942	-255	100.6	3624	3664	-40
100.7	3319	3354	-35	100.8	2876	3010	-134	100.9	2678	2639	39
101.0	2315	2259	56	101.1	1934	1895	39	101.2	1732	1569	163
101.3	1346	1296	50	101.4	1209	1083	126	101.5	1009	928	81
101.6	943	824	119	101.7	926	757	169	101.8	882	717	165
101.9	866	692	174	102.0	767	675	92	102.1	764	660	104
102.2	929	643	286	102.3	725	622	103	102.4	737	595	142
102.5	657	560	97	102.6	587	520	67	102.7	573	476	97
102.8	414	422	-8	102.9	523	368	155	103.0	463	327	136