

[Quartz Certification Sheet]

1. Reflectance

- 장비명 : Spectrophotometer
- 제품명 : Varian사 제품
- 모델명 : Cary5000



Collection Time: 2011-06-14 오후 3:50:00

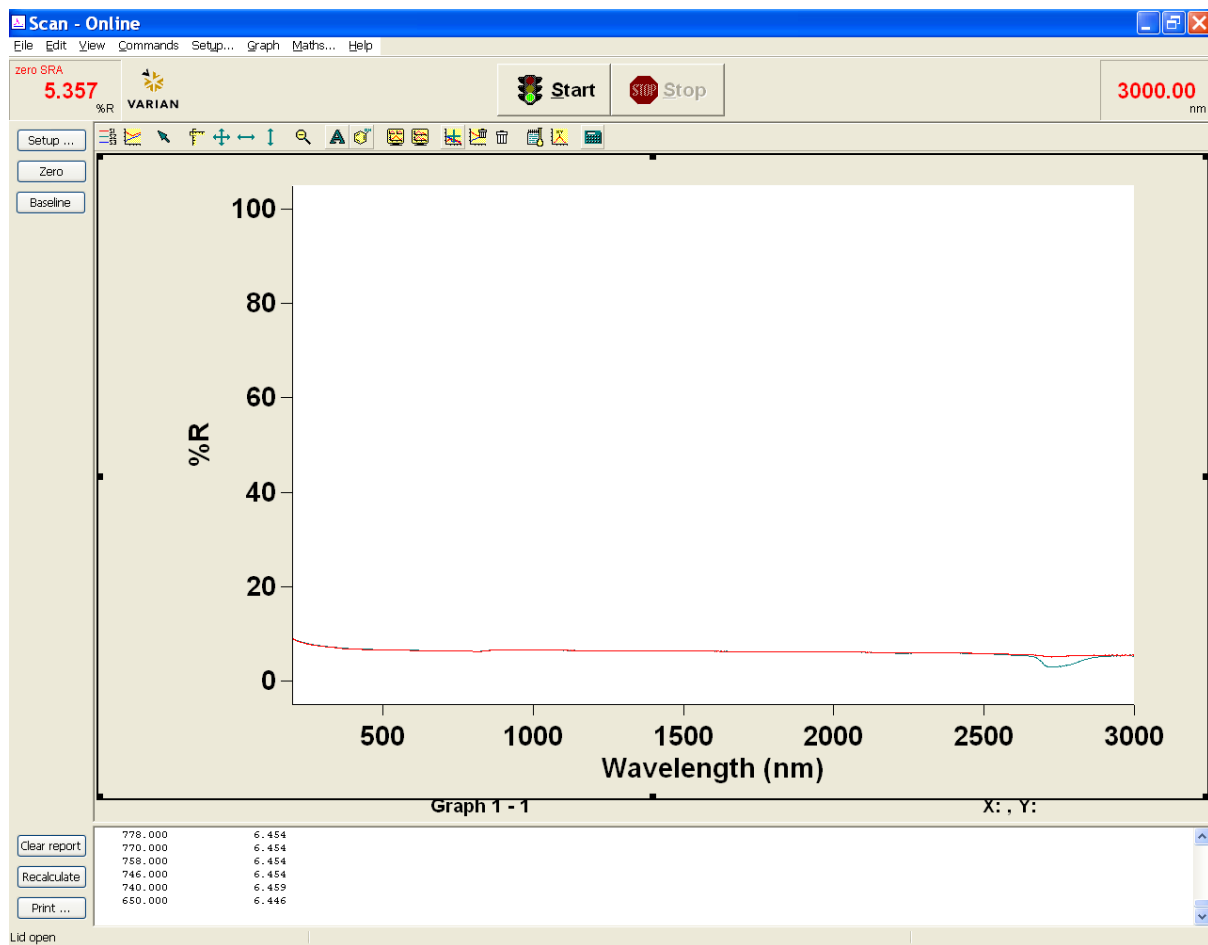
Operator Name :

Scan Software Version: 3.00(182)

Parameter List :

Instrument	Cary 5000
Instrument Version	1.12
Start (nm)	3000.00
Stop (nm)	200.00
X Mode	Nanometers
Y Mode	%R
UV-Vis Data Interval (nm)	2.000
UV-Vis Ave. Time (sec)	0.100
UV-Vis SBW (nm)	2.000
Slit Height	Full
Beam Mode	Double

Signal-to-noise Mode	Off		
UV Source	On		
Vis Source	On		
Third Source	Off		
Source Changeover (nm)	350.00		
Detector Changeover (nm)	800.00		
Grating Changeover (nm)	800.00		
Baseline Correction	On		
Baseline Type	Zero SRA correction		
Baseline File Name			
Baseline Std Ref File Name			
Cycle Mode	Off		
Comments			
Method Log	:		
Method Name	: Default		
Date/Time stamp:	2011-06-14 오전 9:27:53		
Method Modifications:			
Y mode Changed: 2011-06-14 오후 3:14:22	Old:Abs	New:%T	
Baseline Correction Changed: 2011-06-14 오후 3:14:22	Old:0	New:1	
Sipper Type Changed: 2011-06-14 오후 3:14:22	Old:Internal RSA	New:External sipper	
Y mode Changed: 2011-06-14 오후 3:30:36	Old:%T	New:%R	
Baseline Correction Changed: 2011-06-14 오후 3:30:36	Old:1	New:3	
End Method Modifications			
<SBW (nm)>		2	
<Energy>		3	
<Slit height>	Full		
<Current Wavelength>		800	
<SBW (nm)>		2	
<Energy>		75.86	
<Slit height>	Full		
<Current Wavelength>		200	



korea sample		Japan sample	
Wavelength (nm)	%R	Wavelength (nm)	%R
3000	5.458242893	3000	5.316446304
2998	5.343895435	2998	5.255135059
2996	5.48367548	2996	5.323506355
2994	5.558994293	2994	5.279757977
2992	5.440792561	2992	5.392640114
2990	5.359410286	2990	5.378473759
2988	5.399514675	2988	5.489864349
2986	5.368424416	2986	5.328452587
2984	5.509932041	2984	5.408980846
2982	5.311888218	2982	5.304983616
2980	5.408926487	2980	5.373760223
2978	5.384796143	2978	5.342581272
2976	5.44136095	2976	5.425292015

2974	5.343066692	2974	5.385699749
2972	5.526284218	2972	5.530118942
2970	5.442866325	2970	5.45455265
2968	5.485746861	2968	5.451280594
2966	5.346264362	2966	5.340955257
2964	5.44622612	2964	5.293914795
2962	5.422181129	2962	5.343218327
2960	5.519224167	2960	5.344979286
2958	5.404424191	2958	5.338464737
2956	5.372053623	2956	5.28260231
2954	5.461352348	2954	5.26863718
2952	5.405179501	2952	5.354923248
2950	5.394022942	2950	5.312394142
2948	5.428493977	2948	5.292961597
2946	5.360180855	2946	5.327801228
2944	5.484703541	2944	5.380185127
2942	5.50761795	2942	5.364818573
2940	5.437963963	2940	5.277035236
2938	5.478951454	2938	5.315969944
2936	5.456017494	2936	5.316767216
2934	5.426319122	2934	5.288079262
2932	5.42543745	2932	5.332409382
2930	5.452448845	2930	5.244886875
2928	5.489185333	2928	5.316923141
2926	5.492884636	2926	5.336167812
2924	5.516655445	2924	5.292816162
2922	5.397640228	2922	5.272644043
2920	5.421863556	2920	5.240075588
2918	5.427875042	2918	5.286900043
2916	5.492366314	2916	5.269068241
2914	5.476514339	2914	5.268712044
2912	5.432630539	2912	5.280371189
2910	5.434714794	2910	5.229692459
2908	5.400115013	2908	5.255274296

2906	5.438621998	2906	5.173990726
2904	5.488632202	2904	5.268630505
2902	5.443572998	2902	5.271582603
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2898	5.462835312	2898	5.16996479
2896	5.457977772	2896	5.208122253
2894	5.413442135	2894	5.152951717
2892	5.472447872	2892	5.190948963
2890	5.45163393	2890	5.179500103
2888	5.416612625	2888	5.13190937
2886	5.446315765	2886	5.119265556
2884	5.395730972	2884	5.119668484
2882	5.426815987	2882	5.146223068
2880	5.461977482	2880	5.101798058
2878	5.459774494	2878	5.053080082
2876	5.450049877	2876	5.060829639
2874	5.434127808	2874	5.049872875
2872	5.446381092	2872	5.031069279
2870	5.423852444	2870	4.997876644
2868	5.464585304	2868	5.034403801
2866	5.477545738	2866	5.027321815
2864	5.490925312	2864	5.019492626
2862	5.459622383	2862	4.955193996
2860	5.427727699	2860	4.913113594
2858	5.433163643	2858	4.892845631
2856	5.45694685	2856	4.855985165
2854	5.411755085	2854	4.827859402
2852	5.419381142	2852	4.811638832
2850	5.447563648	2850	4.790043354
2848	5.414096355	2848	4.769387245
2846	5.434347153	2846	4.709764957
2844	5.422681808	2844	4.639452934
2842	5.435615063	2842	4.649906158
2840	5.420353413	2840	4.579052925

2838	5.4157691	2838	4.563295841
2836	5.416533947	2836	4.5417943
2834	5.422020435	2834	4.496822357
2832	5.394933701	2832	4.474905968
2830	5.407013893	2830	4.379962921
2828	5.394030571	2828	4.360651493
2826	5.410137653	2826	4.32813406
2824	5.422770023	2824	4.287315369
2822	5.375784874	2822	4.212668896
2820	5.396350384	2820	4.178937435
2818	5.367360115	2818	4.09926796
2816	5.359985828	2816	4.094454288
2814	5.381631851	2814	3.996415377
2812	5.363320827	2812	3.983635902
2810	5.385953426	2810	3.985806942
2808	5.386151791	2808	3.902861834
2806	5.359353542	2806	3.872073889
2804	5.337593555	2804	3.78158021
2802	5.349631786	2802	3.767906904
2800	5.36466217	2800	3.75813961
2798	5.305040836	2798	3.660296202
2796	5.32727766	2796	3.637480021
2794	5.31499052	2794	3.615120888
2792	5.293806553	2792	3.524785042
2790	5.303128719	2790	3.53827095
2788	5.29289484	2788	3.464884281
2786	5.307078838	2786	3.468081713
2784	5.285840988	2784	3.418239117
2782	5.283358097	2782	3.435193062
2780	5.275662422	2780	3.345189571
2778	5.287214756	2778	3.346711397
2776	5.28151226	2776	3.319908381
2774	5.218592644	2774	3.220489264
2772	5.247771263	2772	3.310897589

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2760	5.239489079	2760	3.134210825
2758	5.213739872	2758	3.111509085
2756	5.208723545	2756	3.072703123
2754	5.219355106	2754	3.150298357
2752	5.174211502	2752	3.058364868
2750	5.182343483	2750	3.105285168
2748	5.183801651	2748	3.066221237
2746	5.156450748	2746	3.040780544
2744	5.147043705	2744	3.00709033
2742	5.17538023	2742	3.033662558
2740	5.133562088	2740	3.022414207
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2736	5.116339684	2736	3.045661688
2734	5.128159523	2734	2.98861146
2732	5.132809162	2732	3.039595366
2730	5.093449116	2730	2.92489028
2728	5.087085247	2728	2.981191158
2726	5.092890263	2726	2.948525429
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2722	5.121041298	2722	2.95058322
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2672	5.4858284	2672	4.97195816
2670	5.479840755	2670	5.009769917
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2660	5.533015251	2660	5.184762478
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2656	5.561312675	2656	5.247224808
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2642	5.569048405	2642	5.309119701
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2626	5.580565929	2626	5.352137089
2624	5.579565525	2624	5.363185406
2622	5.583659649	2622	5.375515461
2620	5.58430481	2620	5.372730732
2618	5.607848644	2618	5.387756348
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2552	5.765037537	2552	5.631875992
2550	5.767910004	2550	5.640608311
2548	5.770040512	2548	5.642221928
2546	5.775285721	2546	5.643963814
2544	5.778963566	2544	5.654400349
2542	5.79797411	2542	5.672985077
2540	5.780460835	2540	5.666611671
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2536	5.783841133	2536	5.6727705
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2532	5.802269459	2532	5.706354618
2530	5.789768219	2530	5.699074268
2528	5.81515789	2528	5.714936733
2526	5.794799328	2526	5.697271824
2524	5.806223869	2524	5.71729517
2522	5.819410801	2522	5.729259968
2520	5.810325146	2520	5.720389366
2518	5.819854736	2518	5.733720779
2516	5.815649509	2516	5.734075546
2514	5.826640129	2514	5.7371521
2512	5.820703506	2512	5.750455856
2510	5.832042694	2510	5.755596161
2508	5.853573322	2508	5.769382954
2506	5.836742878	2506	5.767130852
2504	5.826343536	2504	5.754007816
2502	5.838137627	2502	5.769849777
2500	5.836165905	2500	5.767363548

2498	5.852516651	2498	5.780046463
2496	5.832421303	2496	5.777760029
2494	5.858621597	2494	5.789945126
2492	5.849503517	2492	5.793615341
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2488	5.857776165	2488	5.799168587
2486	5.853313446	2486	5.795948029
2484	5.845270157	2484	5.796180725
2482	5.868442059	2482	5.811096191
2480	5.856061935	2480	5.810023308
2478	5.870451927	2478	5.813933849
2476	5.860446453	2476	5.812476158
2474	5.857047081	2474	5.806225777
2472	5.87010622	2472	5.820583344
2470	5.87069416	2470	5.82882452
2468	5.877585888	2468	5.834817886
2466	5.868794918	2466	5.826028824
2464	5.875089169	2464	5.833459854
2462	5.875257969	2462	5.836476803
2460	5.87379694	2460	5.82612133
2458	5.882246494	2458	5.850459099
2456	5.891839981	2456	5.845816135
2454	5.898900986	2454	5.84453392
2452	5.877326488	2452	5.841402054
2450	5.875483513	2450	5.845707893
2448	5.881810188	2448	5.860942841
2446	5.898646832	2446	5.85000515
2444	5.898112297	2444	5.861620426
2442	5.906355381	2442	5.870758057
2440	5.889883995	2440	5.851716518
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2436	5.892579079	2436	5.854089737
2434	5.902650356	2434	5.865697861
2432	5.903726101	2432	5.859514713

2430	5.899734497	2430	5.871658802
2428	5.908033371	2428	5.875150681
2426	5.902032375	2426	5.86524725
2424	5.912359715	2424	5.886232853
2422	5.908475399	2422	5.885427475
2420	5.912812233	2420	5.875858307
2418	5.903588295	2418	5.886058331
2416	5.91286993	2416	5.882399559
2414	5.915713787	2414	5.885159969
2412	5.911446095	2412	5.88914299
2410	5.912949562	2410	5.885233879
2408	5.924860001	2408	5.909039974
2406	5.909917355	2406	5.893795013
2404	5.929969788	2404	5.902647018
2402	5.935405254	2402	5.907789707
2400	5.935145855	2400	5.907718658
2398	5.929244041	2398	5.898821354
2396	5.9173913	2396	5.894996643
2394	5.930969715	2394	5.911225796
2392	5.9288764	2392	5.916250229
2390	5.930374622	2390	5.899812222
2388	5.930218697	2388	5.912242413
2386	5.936561584	2386	5.916534424
2384	5.932509899	2384	5.905399799
2382	5.92160511	2382	5.905191898
2380	5.926259041	2380	5.919848442
2378	5.925264359	2378	5.910524368
2376	5.933418274	2376	5.915733814
2374	5.93629694	2374	5.918299675
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2370	5.922056198	2370	5.920814037
2368	5.944623947	2368	5.921648502
2366	5.938710213	2366	5.919519424
2364	5.938735962	2364	5.921916008

2362	5.954021454	2362	5.926315308
2360	5.955348015	2360	5.935116291
2358	5.945484161	2358	5.938362122
2356	5.944158554	2356	5.927978516
2354	5.929689407	2354	5.914430141
2352	5.94777298	2352	5.917415619
2350	5.946881294	2350	5.927065849
2348	5.942592144	2348	5.922687531
2346	5.944602966	2346	5.919026375
2344	5.939262867	2344	5.912098885
2342	5.948956013	2342	5.924624443
2340	5.95155859	2340	5.933701038
2338	5.952055931	2338	5.926517487
2336	5.946689606	2336	5.922626495
2334	5.963246822	2334	5.922562122
2332	5.945201397	2332	5.934989452
2330	5.949668407	2330	5.929977894
2328	5.956851482	2328	5.935697556
2326	5.970921516	2326	5.933001041
2324	5.957403183	2324	5.933830738
2322	5.958149433	2322	5.926733971
2320	5.954596996	2320	5.923593998
2318	5.95207119	2318	5.922515869
2316	5.952968121	2316	5.919260025
2314	5.957958221	2314	5.926976204
2312	5.949097633	2312	5.917926788
2310	5.960821629	2310	5.92704916
2308	5.964631081	2308	5.934799194
2306	5.960706711	2306	5.934780121
2304	5.956468105	2304	5.928709507
2302	5.971789837	2302	5.928618908
2300	5.966790199	2300	5.919505119
2298	5.956175804	2298	5.910428524
2296	5.962872028	2296	5.918022633

2294	5.972404957	2294	5.924884796
2292	5.975036621	2292	5.936262608
2290	5.96954298	2290	5.922660828
2288	5.978901863	2288	5.918864727
2286	5.977722645	2286	5.923241615
2284	5.977715015	2284	5.91267252
2282	5.966915131	2282	5.905440331
2280	5.979334354	2280	5.904159546
2278	5.963202953	2278	5.905447483
2276	5.979675293	2276	5.919738293
2274	5.986689091	2274	5.904299259
2272	5.978084564	2272	5.902441025
2270	5.984910011	2270	5.897087097
2268	5.978797913	2268	5.884304047
2266	5.981170177	2266	5.898028374
2264	6.001652718	2264	5.907197952
2262	5.993488789	2262	5.900754929
2260	5.983903885	2260	5.887457371
2258	5.990851402	2258	5.879072666
2256	5.990070343	2256	5.873774052
2254	5.994986534	2254	5.888318539
2252	6.005825043	2252	5.884618759
2250	6.00549078	2250	5.88066721
2248	6.002932072	2248	5.86974287
2246	5.997503757	2246	5.867587566
2244	6.002253532	2244	5.871753216
2242	6.003521919	2242	5.864451885
2240	6.006495953	2240	5.876924992
2238	6.00470686	2238	5.877028465
2236	6.007815361	2236	5.87759304
2234	6.00240469	2234	5.871715546
2232	6.004009247	2232	5.868512154
2230	5.998065472	2230	5.855524063
2228	6.020306587	2228	5.869041443

2226	6.010831356	2226	5.859164715
2224	6.019318581	2224	5.859336853
2222	5.999852657	2222	5.849524498
2220	6.009850025	2220	5.847177029
2218	6.021009922	2218	5.849710941
2216	6.017520428	2216	5.842578888
2214	6.005862236	2214	5.840200424
2212	6.014620304	2212	5.835436821
2210	6.009737492	2210	5.839319706
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2206	6.012615681	2206	5.853179455
2204	6.021368504	2204	5.852122784
2202	6.021280289	2202	5.885920525
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2196	6.021568775	2196	5.914001942
2194	6.039520264	2194	5.945586205
2192	6.023598671	2192	5.95348978
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2188	6.021557331	2188	5.969811916
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2172	6.046209335	2172	6.031518936
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2164	6.050843716	2164	6.04293108
2162	6.058226109	2162	6.033828735
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2152	6.060747623	2152	6.042443275
2150	6.070326805	2150	6.053573608
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2146	6.056726456	2146	6.045391083
2144	6.063575268	2144	6.056708336
2142	6.067107201	2142	6.060419083
2140	6.075136185	2140	6.060818195
2138	6.079250336	2138	6.063216686
2136	6.075323582	2136	6.062167168
2134	6.076435566	2134	6.069945335
2132	6.074491024	2132	6.074128628
2130	6.071128368	2130	6.059855938
2128	6.07283926	2128	6.063652039
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2102	6.09429121	2102	6.087394714
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2030	6.11442709	2030	6.11871767
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2026	6.12856102	2026	6.134553432
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2018	6.134548664	2018	6.135762215
2016	6.117344856	2016	6.121751785
2014	6.123940468	2014	6.122210026
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2008	6.130765438	2008	6.139750957
2006	6.132843494	2006	6.138408661
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2002	6.133451462	2002	6.129218102
2000	6.142887592	2000	6.146027088
1998	6.129925728	1998	6.12501812
1996	6.140403271	1996	6.148753643
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1988	6.149172306	1988	6.151123524
1986	6.14879179	1986	6.140964508
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1980	6.132622242	1980	6.136983871
1978	6.142703056	1978	6.149860382
1976	6.132463932	1976	6.13134861
1974	6.160462856	1974	6.15256691
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1970	6.149786472	1970	6.145202637
1968	6.136799335	1968	6.149452209
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1964	6.145052433	1964	6.151549339
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1958	6.144841194	1958	6.149214268
1956	6.152857304	1956	6.151604176

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1950	6.145414352	1950	6.1580863
1948	6.172516346	1948	6.155687332
1946	6.155652523	1946	6.156785488
1944	6.159150124	1944	6.155052185
1942	6.164127827	1942	6.156978607
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1934	6.16344738	1934	6.169164181
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1928	6.168049812	1928	6.173717499
1926	6.163739204	1926	6.166488171
1924	6.155883789	1924	6.156009674
1922	6.17821455	1922	6.179167747
1920	6.162442207	1920	6.165311337
1918	6.176972389	1918	6.164958477
1916	6.171721458	1916	6.164794922
1914	6.172764301	1914	6.175370216
1912	6.174869537	1912	6.187541962
1910	6.158866882	1910	6.169419765
1908	6.176288128	1908	6.162188053
1906	6.174511909	1906	6.180093288
1904	6.17330122	1904	6.170346737
1902	6.175596714	1902	6.181637287
1900	6.184662819	1900	6.185108185
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1896	6.1793437	1896	6.180136204
1894	6.180246353	1894	6.183333874
1892	6.182226658	1892	6.173714161
1890	6.176164627	1890	6.178232193
1888	6.16970253	1888	6.183554649

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1878	6.174572945	1878	6.18952322
1876	6.176663876	1876	6.185135841
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1870	6.18793869	1870	6.182355404
1868	6.19277668	1868	6.193419456
1866	6.184606075	1866	6.195610046
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1862	6.188047886	1862	6.190584183
1860	6.190047741	1860	6.186748505
1858	6.176760197	1858	6.189937592
1856	6.187567711	1856	6.192122936
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1850	6.188569069	1850	6.193002224
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1846	6.192518711	1846	6.204562664
1844	6.199457645	1844	6.202442169
1842	6.204651833	1842	6.208676815
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1838	6.203996181	1838	6.205550194
1836	6.188520432	1836	6.193714142
1834	6.202638626	1834	6.201773643
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1830	6.199941635	1830	6.206734657
1828	6.207698345	1828	6.20502615
1826	6.191588402	1826	6.203948498
1824	6.218348026	1824	6.223066807
1822	6.208189011	1822	6.21467495
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1806	6.214045048	1806	6.22159338
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1798	6.207832336	1798	6.218129635
1796	6.22175312	1796	6.216526031
1794	6.218855858	1794	6.235742092
1792	6.216986656	1792	6.217048168
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1782	6.228778362	1782	6.232462883
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206	8.791261673	206	8.868260384
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202	8.927816391	202	9.007172585
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2011.06.14 Accepted by ____Hong Kim____

