

1550 nm Vertical-Cavity Surface-Emitting Laser

RC34xxx1-Ft

Description

The RayCan 1550 nm single-mode VCSEL is designed for high-speed, high-performance communication applications.

Features

- Low dependence of electrical and optical characteristics over temperature
- Data rates up to 10 Gbps
- Cylindrical TO package with SM fiber pigtail

Applications

- Access network for long distance
- Metro area network
- Gigabit Ethernet

Electrical and optical characteristics

(T = 25°C unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Threshold current	I_{th}		2	4	mA	
Forward voltage	V_f			3	V	
Series resistance	R_s		100	200	Ω	
Output power	P_o	0.4	0.5		mW	
Wavelength	λ	1530	1550	1570	nm	
Side mode suppression	SSMR	30	35		dB	
Rise and fall time	t_r t_f		-60 -60		ps	(20%-80%)

Absolute maximum ratings

(T = 25°C unless otherwise stated)

Parameter	Symbol	Rating	Unit	Notes
Forward current	I_f	15	mA	
Reverse voltage	V_r	5	V	
Operating temperature	T_{op}	-70	°C	
Storage Temperature	T_{stg}	0 - 100	°C	
Reflow Temperature	T_{ref}	260	°C	10 sec. 2 mm from case
TEC maximum current	I_{TEC}	0.7	A	

Notes



Inspection table

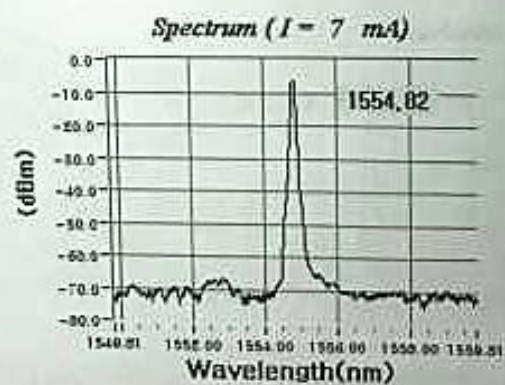
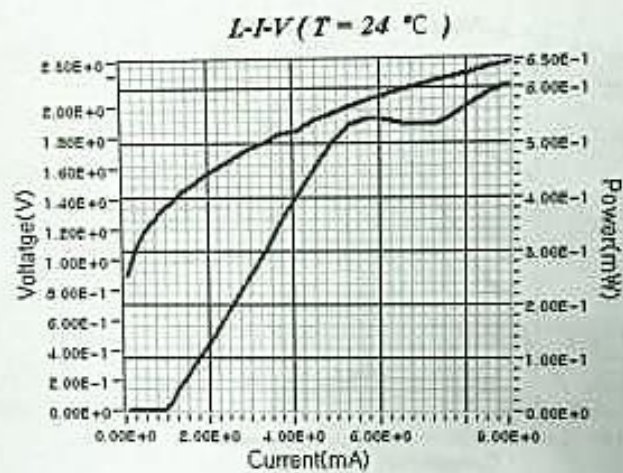
P/N : RC34xxx1-FFA1

Description : 1550nm SM 10G VCSEL Pigtailed with TEC

Serial no : RC340631-FFA-06341515

Customer :

Test results



Date : 2017.06.07

Confirmed by : Y-S Jeon

Inspection table

P/N : RC34xxx1-FFA1

Description : 1550nm SM 10G VCSEL Pigtailed with TEC

Serial no : RC340611-FFA1-06341507

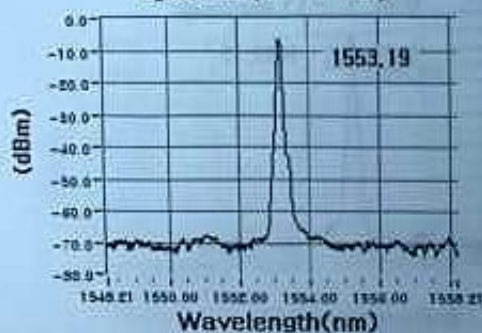
Customer :

Test results

L-I-V (T = 24 °C)



Spectrum (I = 7 mA)



Date : 2017.06.07

Confirmed by : Y-J Jeon

Inspection table

P/N : RC34xxx1-FFAt

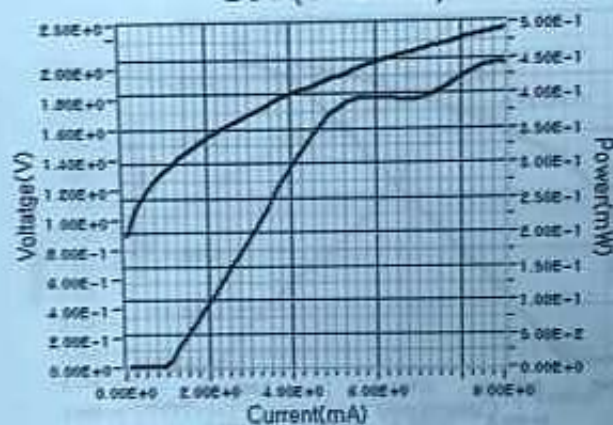
Description : 1550nm SM 10G VCSEL Pigtailed with TEC

Serial no : RC340611-FFAt-06341502

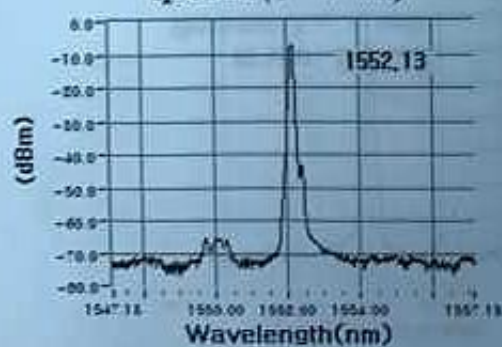
Customer :

Test results

L-I-V (T = 24 °C)



Spectrum (I = 7 mA)



Date : 2017.06.07

Confirmed by : Y.S. Jeon

Inspection table

P/N : RC34xxx1-FFA1

Description : 1550nm SM 10G VCSEL Pigtailed with TEC

Serial no : RC340611-FFA-06341501

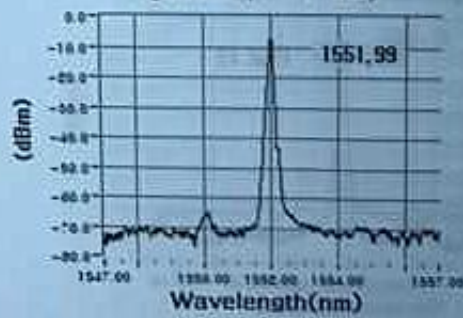
Customer :

Test results

L-I-V (T = 24 °C)



Spectrum (I = 7 mA)



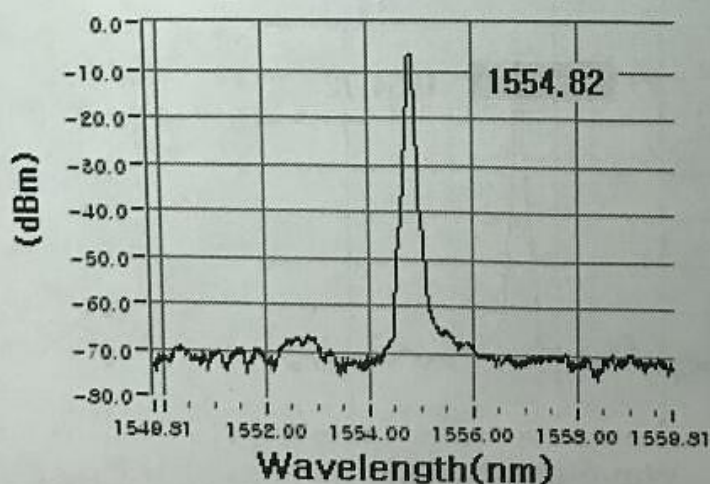
Date : 2017.06.07

Confirmed by : Y.S. Jeon

L-I-V (T = 24 °C)



Spectrum (I = 7 mA)



Inspection table

P/N : RC34xxx1-FFAt

Description : 1550nm SM 10G VCSEL Pigtailed with TEC

Serial no : RC340611-FFAt-06341514

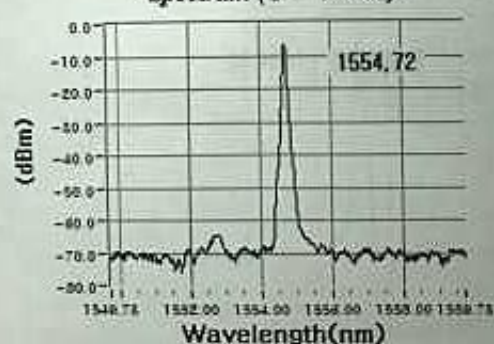
Customer :

Test results

L-I-V (T = 24 °C)



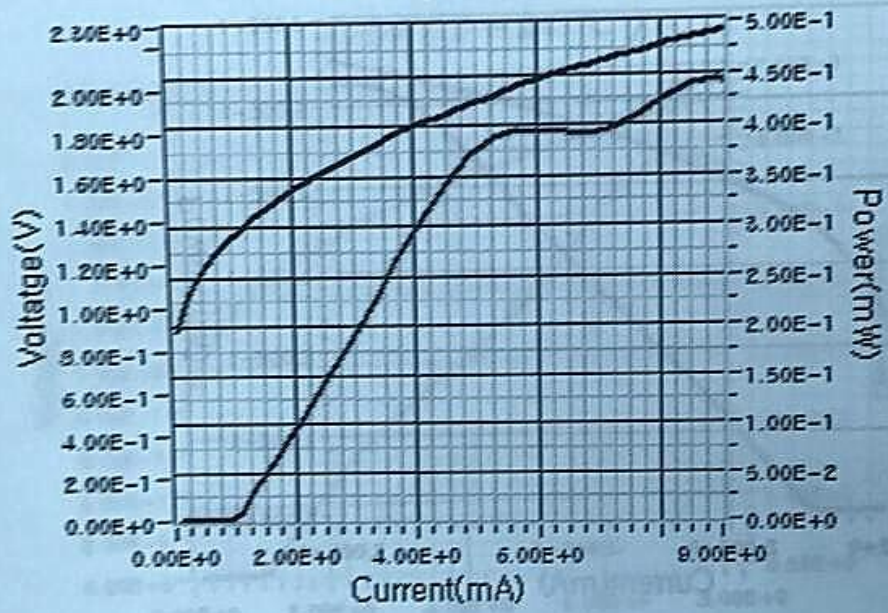
Spectrum (I = 7 mA)



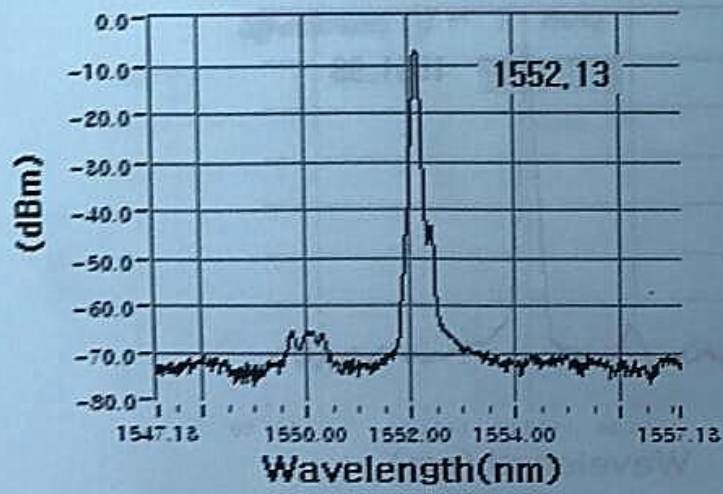
Date : 2017.06.07

Confirmed by : Y.S. Jeon

L-I-V (T = 24 °C)



Spectrum (I = 7 mA)



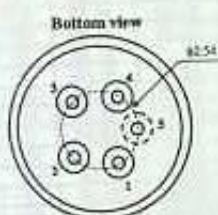
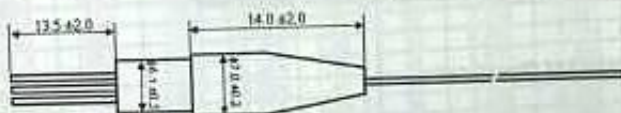
1550 nm Vertical-Cavity Surface-Emitting Laser

RC34xxx1-Ft

Conditions exceeding those listed may cause permanent damage to the device. Devices subjected to conditions beyond the limits specified for extended periods of time may adversely affect reliability.

TO Pigtail VCSEL

Dimensions unit : mm



Pin out

Number	Function
1	VCSEL cathode
2	TEC(-)
3	TEC(+)/thermistor
4	VCSEL anode
5	Case/thermistor



Warning

The VCSEL is a class IIb laser. Laser beams emitted from this product are hazardous to the naked eye. Avoid eye or skin exposure to direct or scattered radiation. Due to the size of the component, the applicable warning logotype, aperture label, and identification label can not be placed on the component.

Caution

This product is sensitive to the electrostatic discharge(ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.

LNDG103HB						B25/85 = 3976K ± 2%		Est Date	2005.07.01		
						R25 = 10.00kΩ ± 3%		Rev No.	0		
								Rev Date	-		
T(℃)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(℃)	T(℃)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(℃)
-40	231.4	254.5	279.7	9.89%	1.55	21	11.52	11.91	12.31	3.36%	0.76
-39	219.2	240.8	264.3	9.77%	1.54	22	11.03	11.40	11.77	3.27%	0.74
-38	207.7	227.9	249.9	9.65%	1.53	23	10.56	10.91	11.26	3.18%	0.73
-37	196.8	215.7	236.3	9.53%	1.52	24	10.12	10.44	10.77	3.09%	0.71
-36	186.5	204.2	223.4	9.41%	1.51	25	9.700	10.00	10.30	3.00%	0.69
-35	176.8	193.3	211.3	9.29%	1.50	26	9.281	9.577	9.873	3.09%	0.72
-34	167.6	183.1	199.9	9.17%	1.49	27	8.883	9.173	9.465	3.18%	0.74
-33	158.9	173.4	189.1	9.05%	1.48	28	8.503	8.789	9.076	3.27%	0.77
-32	150.6	164.2	178.9	8.93%	1.47	29	8.142	8.422	8.705	3.35%	0.79
-31	142.8	155.6	169.3	8.81%	1.46	30	7.797	8.073	8.351	3.44%	0.82
-30	135.5	147.4	160.2	8.69%	1.45	31	7.469	7.739	8.012	3.53%	0.84
-29	128.5	139.7	151.6	8.58%	1.44	32	7.156	7.421	7.690	3.62%	0.87
-28	121.9	132.4	143.6	8.46%	1.43	33	6.857	7.118	7.381	3.70%	0.89
-27	115.7	125.5	135.9	8.34%	1.42	34	6.573	6.828	7.087	3.79%	0.92
-26	109.8	118.9	128.7	8.23%	1.41	35	6.302	6.552	6.805	3.87%	0.95
-25	104.2	112.8	121.9	8.11%	1.39	36	6.043	6.288	6.537	3.96%	0.97
-24	98.93	106.9	115.5	8.00%	1.38	37	5.796	6.036	6.280	4.05%	1.00
-23	93.94	101.4	109.4	7.88%	1.37	38	5.560	5.795	6.034	4.13%	1.03
-22	89.20	96.22	103.7	7.77%	1.36	39	5.335	5.565	5.799	4.21%	1.05
-21	84.73	91.30	98.29	7.66%	1.35	40	5.120	5.345	5.575	4.30%	1.08
-20	80.48	86.64	93.17	7.55%	1.34	41	4.915	5.135	5.360	4.38%	1.11
-19	76.47	82.23	88.34	7.43%	1.32	42	4.719	4.934	5.155	4.47%	1.14
-18	72.67	78.06	83.77	7.32%	1.31	43	4.532	4.743	4.958	4.55%	1.16
-17	69.06	74.11	79.45	7.21%	1.30	44	4.353	4.559	4.770	4.63%	1.19
-16	65.65	70.38	75.37	7.10%	1.29	45	4.183	4.384	4.590	4.71%	1.22
-15	62.42	66.84	71.51	6.99%	1.27	46	4.019	4.216	4.418	4.79%	1.25
-14	59.36	63.50	67.86	6.88%	1.26	47	3.863	4.055	4.253	4.88%	1.28
-13	56.45	60.33	64.41	6.77%	1.25	48	3.714	3.901	4.095	4.96%	1.30
-12	53.70	57.33	61.15	6.66%	1.24	49	3.571	3.754	3.944	5.04%	1.33
-11	51.10	54.49	58.06	6.55%	1.22	50	3.435	3.614	3.799	5.12%	1.36
-10	48.62	51.80	55.14	6.44%	1.21	51	3.304	3.479	3.660	5.20%	1.39
-9	46.28	49.26	52.38	6.34%	1.20	52	3.179	3.350	3.526	5.28%	1.42
-8	44.06	46.84	49.76	6.23%	1.18	53	3.059	3.226	3.399	5.36%	1.45
-7	41.95	44.56	47.29	6.12%	1.17	54	2.945	3.108	3.276	5.44%	1.48
-6	39.95	42.39	44.94	6.02%	1.16	55	2.835	2.994	3.159	5.51%	1.51
-5	38.05	40.34	42.72	5.91%	1.14	56	2.730	2.885	3.047	5.59%	1.54
-4	36.25	38.39	40.62	5.81%	1.13	57	2.629	2.781	2.939	5.67%	1.57
-3	34.54	36.55	38.63	5.70%	1.12	58	2.533	2.681	2.835	5.75%	1.60
-2	32.92	34.80	36.75	5.60%	1.10	59	2.441	2.585	2.736	5.82%	1.63
-1	31.38	33.14	34.96	5.50%	1.09	60	2.352	2.493	2.640	5.90%	1.66
0	29.92	31.56	33.27	5.40%	1.08	61	2.267	2.405	2.549	5.98%	1.69
1	28.53	30.07	31.66	5.29%	1.06	62	2.186	2.320	2.461	6.05%	1.72
2	27.22	28.65	30.14	5.19%	1.05	63	2.108	2.239	2.376	6.13%	1.75
3	25.96	27.31	28.70	5.09%	1.03	64	2.033	2.161	2.295	6.20%	1.79
4	24.77	26.03	27.33	4.99%	1.02	65	1.961	2.086	2.217	6.28%	1.82
5	23.64	24.82	26.04	4.89%	1.00	66	1.892	2.014	2.142	6.35%	1.85
6	22.57	23.67	24.81	4.79%	0.99	67	1.826	1.945	2.070	6.43%	1.88
7	21.55	22.58	23.64	4.69%	0.97	68	1.762	1.879	2.001	6.50%	1.91
8	20.58	21.54	22.53	4.59%	0.96	69	1.701	1.815	1.934	6.58%	1.95
9	19.66	20.56	21.48	4.50%	0.94	70	1.643	1.754	1.870	6.65%	1.98
10	18.78	19.62	20.48	4.40%	0.93	71	1.587	1.695	1.809	6.72%	2.01
11	17.94	18.73	19.54	4.30%	0.91	72	1.533	1.638	1.750	6.79%	2.04
12	17.15	17.89	18.64	4.20%	0.90	73	1.481	1.584	1.693	6.87%	2.08
13	16.39	17.08	17.78	4.11%	0.88	74	1.431	1.532	1.638	6.94%	2.11
14	15.67	16.32	16.97	4.01%	0.87	75	1.383	1.481	1.585	7.01%	2.14
15	14.99	15.59	16.20	3.92%	0.85	76	1.337	1.433	1.534	7.08%	2.18
16	14.34	14.90	15.47	3.82%	0.84	77	1.293	1.386	1.485	7.15%	2.21
17	13.72	14.24	14.77	3.73%	0.82	78	1.250	1.341	1.438	7.22%	2.24
18	13.13	13.62	14.11	3.64%	0.81	79	1.209	1.298	1.393	7.29%	2.28
19	12.56	13.02	13.48	3.55%	0.79	80	1.170	1.257	1.349	7.36%	2.31
20	12.03	12.45	12.88	3.45%	0.77						

LNDG103HB

B25/85 = 3976K ± 2%

R25 = 10.00kΩ ± 3%

Est Date	2005.07.01
Rev No.	0
Rev Date	-

T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(°C)	T(°C)	Rmin(kΩ)	Rcent(kΩ)	Rmax(kΩ)	DR(%)	DT(°C)
81	1.132	1.217	1.307	7.43%	2.35	141	0.2063	0.2294	0.2548	11.1%	4.73
82	1.095	1.178	1.267	7.50%	2.38	142	0.2013	0.2239	0.2489	11.1%	4.77
83	1.060	1.141	1.227	7.57%	2.42	143	0.1965	0.2186	0.2431	11.2%	4.82
84	1.026	1.105	1.190	7.64%	2.45	144	0.1918	0.2135	0.2375	11.2%	4.86
85	0.9934	1.071	1.153	7.71%	2.49	145	0.1872	0.2085	0.2320	11.3%	4.91
86	0.9620	1.038	1.118	7.77%	2.52	146	0.1827	0.2036	0.2267	11.3%	4.95
87	0.9317	1.006	1.085	7.84%	2.56	147	0.1784	0.1989	0.2216	11.4%	5.00
88	0.9026	0.9748	1.052	7.91%	2.59	148	0.1742	0.1943	0.2165	11.4%	5.05
89	0.8745	0.9451	1.020	7.98%	2.63	149	0.1701	0.1998	0.2116	11.5%	5.09
90	0.8474	0.9164	0.9901	8.04%	2.66	150	0.1661	0.1855	0.2069	11.6%	5.14
91	0.8213	0.8887	0.9606	8.11%	2.70	151	0.1622	0.1812	0.2022	11.6%	5.19
92	0.7961	0.8620	0.9325	8.18%	2.74	152	0.1585	0.1771	0.1977	11.7%	5.23
93	0.7719	0.8362	0.9051	8.24%	2.77	153	0.1548	0.1731	0.1933	11.7%	5.28
94	0.7485	0.8114	0.8787	8.31%	2.81	154	0.1512	0.1692	0.1891	11.8%	5.33
95	0.7259	0.7873	0.8533	8.37%	2.85	155	0.1478	0.1654	0.1849	11.8%	5.37
96	0.7041	0.7642	0.8286	8.44%	2.88	156	0.1444	0.1617	0.1808	11.9%	5.42
97	0.6830	0.7418	0.8048	8.50%	2.92	157	0.1411	0.1581	0.1769	11.9%	5.47
98	0.6628	0.7202	0.7818	8.56%	2.96	158	0.1379	0.1545	0.1730	12.0%	5.52
99	0.6432	0.6993	0.7596	8.63%	3.00	159	0.1348	0.1511	0.1693	12.0%	5.56
100	0.6242	0.6791	0.7381	8.69%	3.03	160	0.1318	0.1478	0.1656	12.1%	5.61
101	0.6060	0.6596	0.7174	8.76%	3.07	161	0.1288	0.1446	0.1621	12.1%	5.66
102	0.5883	0.6408	0.6973	8.82%	3.11	162	0.1260	0.1414	0.1586	12.2%	5.71
103	0.5713	0.6226	0.6779	8.88%	3.15	163	0.1232	0.1383	0.1552	12.2%	5.76
104	0.5548	0.6050	0.6591	8.94%	3.19	164	0.1204	0.1353	0.1519	12.3%	5.81
105	0.5389	0.5879	0.6409	9.01%	3.22	165	0.1178	0.1324	0.1487	12.3%	5.85
106	0.5235	0.5715	0.6233	9.07%	3.26	166	0.1152	0.1295	0.1455	12.4%	5.90
107	0.5086	0.5556	0.6063	9.13%	3.30	167	0.1127	0.1268	0.1425	12.4%	5.95
108	0.4942	0.5402	0.5898	9.19%	3.34	168	0.1102	0.1241	0.1395	12.5%	6.00
109	0.4803	0.5263	0.5739	9.25%	3.38	169	0.1078	0.1214	0.1366	12.5%	6.05
110	0.4669	0.5108	0.5584	9.31%	3.42	170	0.1055	0.1189	0.1336	12.5%	6.10
111	0.4539	0.4969	0.5435	9.37%	3.46	171	0.1032	0.1164	0.1310	12.6%	6.15
112	0.4413	0.4834	0.5290	9.43%	3.50	172	0.1010	0.1139	0.1283	12.6%	6.20
113	0.4291	0.4703	0.5150	9.49%	3.54	173	0.0989	0.1115	0.1257	12.7%	6.25
114	0.4174	0.4576	0.5014	9.55%	3.58	174	0.0968	0.1092	0.1231	12.7%	6.30
115	0.4060	0.4454	0.4882	9.61%	3.62	175	0.0947	0.1069	0.1206	12.8%	6.35
116	0.3949	0.4335	0.4754	9.67%	3.66	176	0.0927	0.1047	0.1182	12.8%	6.40
117	0.3842	0.4220	0.4631	9.73%	3.70	177	0.0908	0.1026	0.1158	12.9%	6.45
118	0.3739	0.4109	0.4511	9.79%	3.74	178	0.0889	0.1005	0.1135	12.9%	6.51
119	0.3638	0.4000	0.4394	9.85%	3.78	179	0.0871	0.0984	0.1112	13.0%	6.56
120	0.3541	0.3896	0.4282	9.91%	3.82	180	0.0852	0.0964	0.1090	13.0%	6.61
121	0.3447	0.3794	0.4172	9.97%	3.87	181	0.0835	0.0945	0.1068	13.1%	6.66
122	0.3356	0.3696	0.4066	10.02%	3.91	182	0.0818	0.0926	0.1047	13.1%	6.71
123	0.3268	0.3600	0.3963	10.08%	3.95	183	0.0801	0.0907	0.1027	13.2%	6.76
124	0.3182	0.3508	0.3864	10.14%	3.99	184	0.0785	0.0890	0.1007	13.2%	6.82
125	0.3099	0.3418	0.3767	10.19%	4.03	185	0.0769	0.0872	0.0987	13.2%	6.87
126	0.3019	0.3331	0.3673	10.25%	4.07	186	0.0753	0.0854	0.0968	13.3%	6.92
127	0.2941	0.3247	0.3582	10.31%	4.12	187	0.0738	0.0837	0.0949	13.3%	6.97
128	0.2865	0.3165	0.3493	10.36%	4.16	188	0.0723	0.0821	0.0931	13.4%	7.03
129	0.2792	0.3085	0.3407	10.42%	4.20	189	0.0709	0.0805	0.0913	13.4%	7.08
130	0.2721	0.3008	0.3323	10.48%	4.25	190	0.0695	0.0789	0.0896	13.5%	7.13
131	0.2652	0.2933	0.3242	10.53%	4.29	191	0.0681	0.0774	0.0879	13.5%	7.19
132	0.2585	0.2861	0.3164	10.59%	4.33	192	0.0668	0.0759	0.0862	13.6%	7.24
133	0.2519	0.2790	0.3087	10.64%	4.37	193	0.0655	0.0745	0.0846	13.6%	7.29
134	0.2456	0.2722	0.3013	10.70%	4.42	194	0.0642	0.0730	0.0830	13.6%	7.35
135	0.2395	0.2655	0.2941	10.75%	4.46	195	0.0630	0.0717	0.0815	13.7%	7.40
136	0.2336	0.2590	0.2870	10.81%	4.51	196	0.0618	0.0703	0.0800	13.7%	7.46
137	0.2278	0.2528	0.2802	10.86%	4.55	197	0.0606	0.0690	0.0785	13.8%	7.51
138	0.2222	0.2467	0.2736	10.92%	4.59	198	0.0594	0.0677	0.0771	13.8%	7.56
139	0.2167	0.2407	0.2671	10.97%	4.64	199	0.0583	0.0664	0.0757	13.9%	7.62
140	0.2114	0.2350	0.2609	11.03%	4.68	200	0.0572	0.0652	0.0743	13.9%	7.67