Shenzhen Belling Efficiency Testing Laboratory Co.,Ltd.
www.bellingeel.com

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Address:Rm. 108, No.1 Building, Meibaohe industrial park, No.14 Shilongzi Road, Dalang street, Longhua district, Shenzhen, China

Client:
LumCAT:
Luminaire:
Report No:
Ballast type:
Test No:
LampCAT:
Lamp flux(lm): -1.0
Number of Lamps: 1
Length(mm): 1130
Phm Type: C

Voltage(V): 120.13
Current(A): 0.3330
Power (W): 39.70
PF: 0.9932
Width(mm): 520
Height(mm): 0

Photometric Results

Lumens(lm): 4969.80, Efficiency(%): 0.00% , Luminous Efficacy(lm/W): 125.17
Central intensity(cd): 1699.483, Maximum intensity(cd): 1740.046
Angle of maximum intensity: C=112.5 γ=5.0
Beam Angle(50%Imax): [C0/180]Total=111.7
[C90/270]Total=113.0
Field angle(10%Imax): [C0/180]Total=162.9
[C90/270]Total=163.5
Maximum s/h(1/2): C0_180=1.27 C90_270=1.29
Maximum s/h(1/4): C0_180=1.40 C90_270=1.40
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 0.00%
Up flux rate of LUM(%): 0.17%
Down flux rate of LUM(%): 99.83%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 77.749%

Zonal flux distribution table

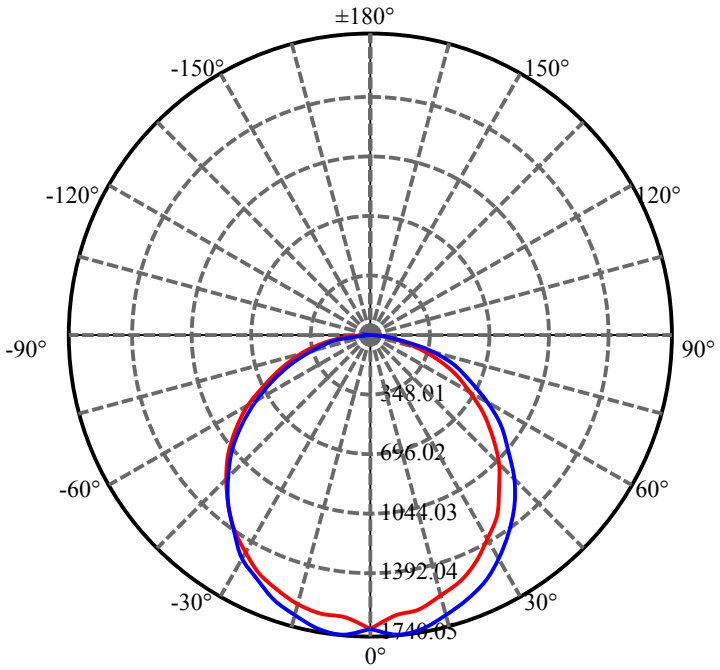
γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1699.483	0.000	0	0.00%	0.00%
5.0	1696.974	40.604	40.604	0.00%	0.82%
10.0	1677.275	120.707	161.311	0.00%	3.25%
15.0	1641.384	196.861	358.172	0.00%	7.21%
20.0	1591.309	266.419	624.591	0.00%	12.57%
25.0	1526.975	327.051	951.642	0.00%	19.15%
30.0	1449.513	376.677	1328.319	0.00%	26.73%
35.0	1359.214	413.605	1741.923	0.00%	35.05%
40.0	1258.048	436.670	2178.594	0.00%	43.84%
45.0	1146.232	445.172	2623.766	0.00%	52.79%
50.0	1025.012	438.732	3062.497	0.00%	61.62%
55.0	897.081	417.927	3480.424	0.00%	70.03%
60.0	762.147	383.526	3863.95	0.00%	77.75%
65.0	624.112	337.002	4200.952	0.00%	84.53%
70.0	484.171	280.624	4481.576	0.00%	90.18%
75.0	345.602	216.889	4698.465	0.00%	94.54%
80.0	213.769	149.672	4848.138	0.00%	97.55%
85.0	93.997	83.628	4931.765	0.00%	99.23%
90.0	14.501	29.708	4961.473	0.00%	99.83%
95.0	0.292	4.051	4965.524	0.00%	99.91%
100.0	0.267	0.152	4965.676	0.00%	99.92%
105.0	0.356	0.167	4965.842	0.00%	99.92%
110.0	0.432	0.206	4966.048	0.00%	99.92%
115.0	0.483	0.232	4966.28	0.00%	99.93%
120.0	0.610	0.266	4966.545	0.00%	99.93%
125.0	0.801	0.326	4966.872	0.00%	99.94%
130.0	0.864	0.362	4967.234	0.00%	99.95%
135.0	1.004	0.377	4967.611	0.00%	99.96%
140.0	1.067	0.384	4967.995	0.00%	99.96%
145.0	1.182	0.375	4968.37	0.00%	99.97%
150.0	1.245	0.357	4968.727	0.00%	99.98%
155.0	1.284	0.320	4969.047	0.00%	99.98%
160.0	1.296	0.271	4969.318	0.00%	99.99%
165.0	1.271	0.212	4969.529	0.00%	99.99%
170.0	1.233	0.149	4969.678	0.00%	100.00%
175.0	1.322	0.091	4969.769	0.00%	100.00%
180.0	1.435	0.033	4969.802	0.00%	100.00%

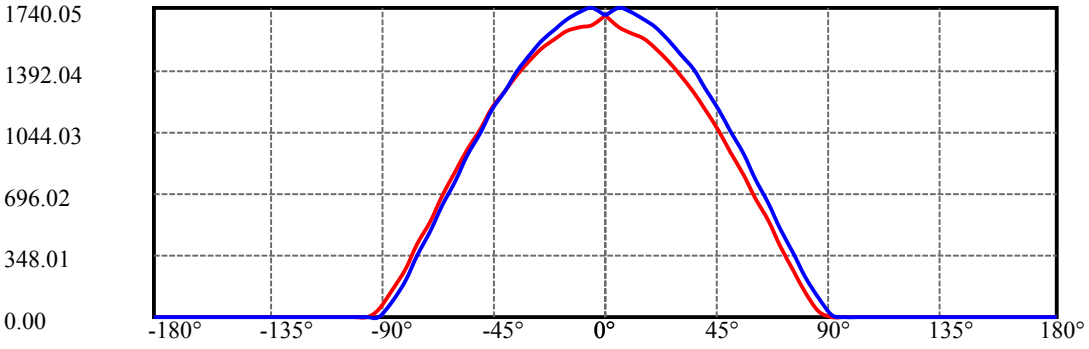
ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1328.32	N.A.	26.73%
0-40	2178.59	N.A.	43.84%
0-60	3863.95	N.A.	77.75%
0-90	4961.47	N.A.	99.83%
0-120	4966.55	N.A.	99.93%
0-180	4969.80	N.A.	100.00%
60-90	1097.52	N.A.	22.08%
90-120	5.07	N.A.	0.10%
90-130	5.76	N.A.	0.12%
90-150	7.25	N.A.	0.15%
90-180	8.30	N.A.	0.17%
0-61.66	3975.84	N.A.	80.00%

ZONAL LUMEN SUMMARY

0-10	161.31
10-20	463.28
20-30	703.73
30-40	850.27
40-50	883.90
50-60	801.45
60-70	617.63
70-80	366.56
80-90	113.34
90-100	4.20
100-110	0.37
110-120	0.50
120-130	0.69
130-140	0.76
140-150	0.73
150-160	0.59
160-170	0.36
170-180	0.09



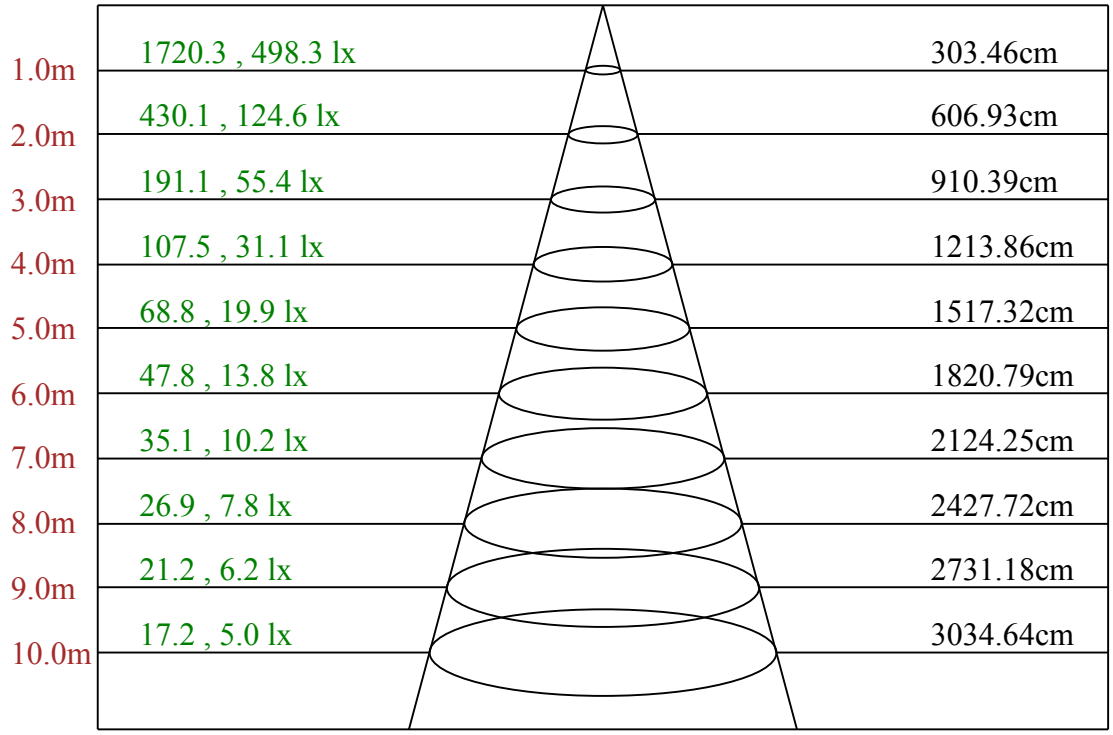


C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:84.1 Right:78.8
:C90/270Left:81.4 Right:82.1

Beam Angle(50%Imax):C0/180Left:58.7 Right:53.0
:C90/270Left:56.3 Right:56.7



Max , Ave

Beam angle of C112.5 plane 113.23

Luminance Limitting Curve(no luminous side)

Luminance Table

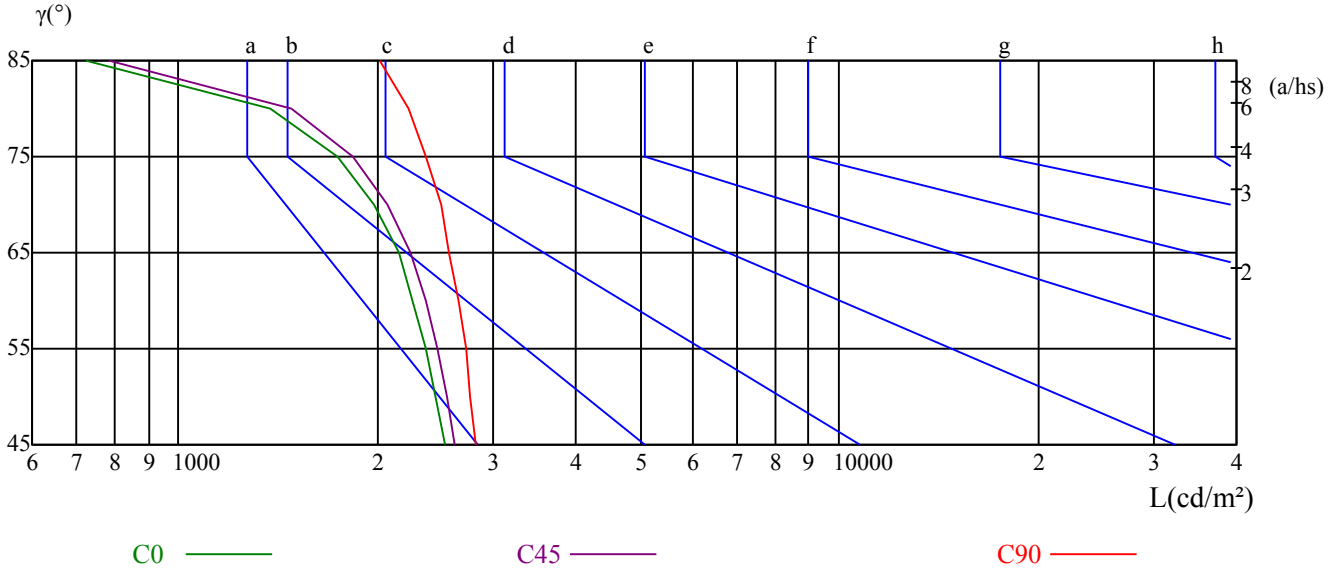
γ	45	50	55	60	65	70	75	80	85
C0	2529	2452	2372	2263	2156	1976	1736	1377	723
C45	2614	2543	2463	2373	2238	2065	1839	1487	786
C90	2819	2769	2721	2652	2570	2496	2376	2224	2013

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2442	2547	2532	2204	2316	2280	1799	1860	1838

Glare Table

Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Illumination assessment according UGR											
Rf of Ceiling		70	70	50	50	30	70	70	50	50	30
Rf of Wall		50	30	50	30	30	50	30	50	30	30
Rf of Floor		20	20	20	20	20	20	20	20	20	20
Room dimensions		Viewed crosswise					Viewed endwise				
X	Y										
2H	2H	14.82	16.46	15.18	16.78	17.10	15.27	16.92	15.63	17.24	17.55
	3H	16.46	17.96	16.84	18.30	18.64	17.14	18.64	17.52	18.98	19.32
	4H	17.04	18.45	17.43	18.80	19.17	17.89	19.30	18.28	19.65	20.01
	6H	17.42	18.73	17.82	19.10	19.49	18.48	19.80	18.89	20.16	20.56
	8H	17.48	18.75	17.90	19.13	19.53	18.68	19.95	19.09	20.32	20.72
	12H	17.49	18.71	17.90	19.09	19.50	18.80	20.02	19.22	20.40	20.82
4H	2H	15.44	16.85	15.83	17.20	17.57	15.80	17.21	16.19	17.56	17.93
	3H	17.27	18.48	17.69	18.87	19.28	17.83	19.04	18.25	19.43	19.84
	4H	18.02	19.09	18.45	19.51	19.94	18.72	19.80	19.16	20.21	20.65
	6H	18.45	19.41	18.91	19.85	20.30	19.38	20.34	19.84	20.78	21.22
	8H	18.58	19.48	19.05	19.92	20.38	19.64	20.54	20.11	20.99	21.45
	12H	18.62	19.46	19.10	19.90	20.40	19.83	20.67	20.31	21.10	21.61
8H	4H	18.28	19.18	18.75	19.63	20.09	18.92	19.82	19.39	20.26	20.73
	6H	18.82	19.57	19.31	20.04	20.54	19.66	20.41	20.15	20.88	21.38
	8H	19.04	19.70	19.55	20.21	20.69	20.02	20.68	20.53	21.19	21.68
	12H	19.10	19.67	19.62	20.17	20.68	20.25	20.81	20.77	21.32	21.82
12H	4H	18.31	19.15	18.79	19.59	20.09	18.93	19.77	19.41	20.21	20.71
	6H	18.91	19.57	19.42	20.08	20.57	19.73	20.39	20.24	20.90	21.39
	8H	19.11	19.67	19.63	20.18	20.69	20.07	20.63	20.59	21.14	21.65

Variation with the observer position at spacings:		
S = 1.0H	0.3/-0.6	0.3/-0.5
S = 1.5H	0.6/-0.5	0.6/-0.7
S = 2.0H	0.8/-0.7	0.9/-0.9
Standard tables:	BK3	BK3
Uncorrected UGR	1.4	0.6

UGR calculation is based on CIE Publ. 117 ,S/H = 1

Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	1699.48	1628.00	1604.62	1562.73	1508.84	1439.70	1356.94	1266.04	1163.15
22.5	1699.48	1661.55	1634.51	1591.81	1533.85	1462.48	1376.87	1285.16	1179.42
45.0	1699.48	1695.72	1667.04	1621.29	1565.17	1492.17	1407.17	1309.76	1201.78
67.5	1699.48	1719.10	1689.82	1647.52	1588.76	1517.38	1434.41	1336.40	1227.20
90.0	1699.48	1739.03	1716.25	1678.02	1627.19	1560.69	1480.37	1390.29	1289.22
112.5	1699.48	1740.05	1720.12	1684.94	1634.31	1568.62	1493.18	1402.08	1299.19
135.0	1699.48	1714.83	1697.14	1664.20	1620.48	1561.71	1483.22	1395.98	1300.21
157.5	1699.48	1674.36	1663.38	1633.09	1592.21	1536.29	1465.53	1381.34	1288.00
180.0	1699.48	1639.59	1634.31	1606.24	1565.57	1515.55	1447.84	1366.50	1278.24
202.5	1699.48	1670.91	1664.20	1639.80	1597.91	1544.22	1476.30	1397.20	1301.83
225.0	1699.48	1705.27	1693.68	1667.25	1624.14	1567.00	1498.06	1413.27	1316.07
247.5	1699.48	1731.91	1714.83	1684.33	1638.37	1577.37	1505.79	1417.94	1319.32
270.0	1699.48	1739.44	1716.25	1677.62	1624.75	1559.07	1478.34	1380.73	1278.45
292.5	1699.48	1734.15	1709.75	1670.09	1614.78	1545.85	1465.53	1370.36	1263.60
315.0	1699.48	1701.00	1676.40	1636.75	1582.65	1512.70	1431.36	1338.03	1231.47
337.5	1699.48	1656.67	1634.10	1596.48	1541.99	1470.81	1391.30	1296.34	1191.62
360.0	1699.48	1628.00	1604.62	1562.73	1508.84	1439.70	1356.94	1266.04	1163.15

C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	1050.90	926.25	799.56	664.74	535.41	397.14	263.95	140.51	37.01
22.5	1062.70	936.82	812.98	678.98	539.28	403.85	269.64	143.77	31.93
45.0	1086.28	960.41	830.07	697.08	555.75	415.03	279.60	151.70	40.26
67.5	1108.04	984.81	851.01	711.51	574.46	433.74	297.29	167.97	49.01
90.0	1171.28	1045.82	917.10	779.23	638.11	501.66	361.35	226.94	103.10
112.5	1185.31	1065.54	933.77	796.31	659.25	521.18	375.79	244.83	118.76
135.0	1191.21	1070.63	947.60	812.37	673.08	531.14	393.48	257.44	131.36
157.5	1182.67	1070.02	946.38	814.61	680.60	541.31	399.78	265.57	147.22
180.0	1177.99	1064.12	945.36	816.24	677.55	541.31	406.49	272.69	147.22
202.5	1197.51	1082.42	962.24	831.69	691.99	556.36	414.22	278.18	154.14
225.0	1212.97	1096.45	969.56	836.17	705.01	557.78	415.03	280.82	151.09
247.5	1208.70	1092.38	963.26	826.81	687.72	544.57	406.49	268.83	139.50
270.0	1165.18	1039.92	905.30	766.21	626.72	483.15	343.05	208.64	87.44
292.5	1146.07	1019.99	889.65	748.52	604.35	466.07	326.17	188.10	69.75
315.0	1115.77	989.90	855.69	722.90	580.76	438.01	298.72	171.42	53.89
337.5	1077.13	954.72	823.76	690.98	555.75	414.42	278.59	152.92	42.30
360.0	1050.90	926.25	799.56	664.74	535.41	397.14	263.95	140.51	37.01

C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	0.61	0.41	0.41	0.20	0.61	0.61	0.61	1.02	0.81
22.5	0.61	0.41	0.41	0.61	0.61	0.61	1.02	1.22	1.02
45.0	0.61	0.41	0.41	0.61	0.61	0.81	1.02	1.02	1.22
67.5	0.61	0.41	0.61	0.61	0.61	0.61	1.02	1.22	1.22
90.0	6.91	0.61	0.41	0.41	0.81	0.81	1.02	1.22	1.02
112.5	13.83	0.20	0.41	0.41	0.41	0.61	0.41	1.02	1.02
135.0	24.00	0.00	0.00	0.00	0.20	0.20	0.61	0.41	0.81
157.5	33.96	0.20	0.00	0.20	0.00	0.20	0.20	0.41	0.41
180.0	38.43	0.00	0.00	0.00	0.00	0.00	0.20	0.41	0.61
202.5	41.89	0.20	0.00	0.00	0.00	0.00	0.20	0.20	0.41
225.0	36.81	0.20	0.00	0.00	0.00	0.00	0.41	0.41	0.61
247.5	29.08	0.00	0.00	0.20	0.20	0.20	0.20	0.61	0.61
270.0	2.64	0.81	0.81	1.22	1.02	1.02	1.02	1.22	1.42
292.5	1.02	0.20	0.41	0.61	0.81	0.81	0.81	0.81	1.22
315.0	0.61	0.20	0.20	0.20	0.61	0.61	0.61	0.81	0.81
337.5	0.41	0.41	0.20	0.41	0.41	0.61	0.41	0.81	0.61
360.0	0.61	0.41	0.41	0.20	0.61	0.61	0.61	1.02	0.81

Intensity data(cd)

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	0.81	0.81	1.02	1.02	1.22	1.02	0.81	1.02	1.02
22.5	0.81	1.02	1.22	1.42	1.22	1.42	1.42	1.22	1.22
45.0	1.22	1.22	1.42	1.42	1.42	1.63	1.63	1.42	1.42
67.5	1.42	1.63	1.63	1.42	1.63	1.63	1.63	1.42	1.42
90.0	1.42	1.63	1.42	1.63	1.42	1.63	1.63	1.42	1.63
112.5	1.22	1.42	1.42	1.63	1.42	1.63	1.42	1.22	1.42
135.0	1.02	0.81	1.02	1.02	1.22	1.22	1.22	1.22	1.22
157.5	0.61	0.81	0.81	1.02	1.02	0.81	0.81	1.02	1.22
180.0	0.61	0.61	1.02	0.61	0.81	0.81	1.22	1.22	1.22
202.5	0.61	0.41	0.81	0.81	1.02	0.81	1.02	0.81	1.22
225.0	0.61	0.81	0.81	1.22	1.22	1.22	1.22	1.22	1.22
247.5	0.81	1.02	1.02	1.22	1.22	1.02	1.02	1.22	1.42
270.0	1.63	1.42	1.63	1.83	1.83	1.83	1.83	1.83	1.83
292.5	1.22	1.22	1.42	1.42	1.42	1.63	1.42	1.42	1.42
315.0	1.22	1.42	1.22	1.22	1.22	1.42	1.22	1.22	1.02
337.5	0.81	0.81	1.02	1.02	1.22	1.02	0.81	0.81	1.22
360.0	0.81	0.81	1.02	1.02	1.22	1.02	0.81	1.02	1.02

C/γ(°)	180.0
0.0	1.44
22.5	1.44
45.0	1.44
67.5	1.44
90.0	1.44
112.5	1.44
135.0	1.44
157.5	1.44
180.0	1.44
202.5	1.44
225.0	1.44
247.5	1.44
270.0	1.44
292.5	1.44
315.0	1.44
337.5	1.44
360.0	1.44