
Nata

LumCAT: 3-1942-M	
Luminaire: BJB 47.319.2021	
Report No: GC2017070606	Voltage(V): 34.5600
Test No: NT-0010	Current(A): 0.5000
LampCAT: SEOUL SAWx15	Power (W): 17.2800
Lamp flux(lm): 2402.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 86	Width(mm): 86
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 2141.98
Efficiency(%): 89.18%
Lumens(lm)/Power(W): 123.96
Central intensity(cd): 8806.865
Maximum intensity(cd): 8806.865
Angle of maximum intensity: C=0.0 γ =0.0
Beam Angle(50%Imax): [C0/180]Total=15.7
[C90/270]Total=15.7
Field angle(10%Imax): [C0/180]Total=62.0
[C90/270]Total=62.0
Maximum s/h(1/2): C0_180=0.27 C90_270=0.27
Maximum s/h(1/4): C0_180=0.37 C90_270=0.37
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 89.18%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.699%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8806.866	0.000	0	.000%	.000%
1.0	8750.727	8.401	8.401	.350%	.392%
2.0	8553.442	24.837	33.238	1.034%	1.552%
3.0	8167.220	39.990	73.228	1.665%	3.419%
4.0	7576.687	52.700	125.928	2.194%	5.879%
5.0	6772.313	61.729	187.656	2.570%	8.761%
6.0	5848.774	66.327	253.984	2.761%	11.857%
7.0	5019.774	67.461	321.445	2.809%	15.007%
8.0	4308.756	66.763	388.207	2.779%	18.124%
9.0	3709.666	64.985	453.192	2.705%	21.158%
10.0	3316.557	63.585	516.777	2.647%	24.126%
11.0	3046.786	63.583	580.36	2.647%	27.094%
12.0	2846.788	64.425	644.785	2.682%	30.102%
13.0	2676.842	65.552	710.336	2.729%	33.163%
14.0	2541.400	66.793	777.129	2.781%	36.281%
15.0	2419.105	68.100	845.229	2.835%	39.460%
16.0	2306.620	69.245	914.475	2.883%	42.693%
17.0	2184.117	69.933	984.407	2.911%	45.958%
18.0	2067.596	70.102	1054.509	2.918%	49.230%
19.0	1962.832	70.121	1124.63	2.919%	52.504%
20.0	1844.433	69.684	1194.314	2.901%	55.757%
21.0	1729.026	68.618	1262.931	2.857%	58.961%
22.0	1629.966	67.500	1330.432	2.810%	62.112%
23.0	1522.628	66.150	1396.582	2.754%	65.200%
24.0	1412.925	64.182	1460.763	2.672%	68.197%
25.0	1324.856	62.251	1523.014	2.592%	71.103%
26.0	1231.660	60.347	1583.361	2.512%	73.920%
27.0	1140.211	58.028	1641.39	2.416%	76.629%
28.0	1080.782	56.231	1697.62	2.341%	79.255%
29.0	1010.890	54.724	1752.344	2.278%	81.809%
30.0	946.314	52.844	1805.189	2.200%	84.276%
31.0	882.544	50.894	1856.083	2.119%	86.652%
32.0	787.192	47.836	1903.919	1.992%	88.886%
33.0	679.791	43.218	1947.137	1.799%	90.903%
34.0	571.201	37.859	1984.996	1.576%	92.671%
35.0	455.230	31.877	2016.873	1.327%	94.159%
36.0	344.762	25.472	2042.345	1.060%	95.348%
37.0	271.051	20.084	2062.429	.836%	96.286%

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	163.268	14.497	2076.926	.604%	96.963%
39.0	83.095	8.409	2085.335	.350%	97.355%
40.0	44.438	4.448	2089.783	.185%	97.563%
41.0	31.102	2.690	2092.473	.112%	97.688%
42.0	25.885	2.070	2094.543	.086%	97.785%
43.0	22.295	1.785	2096.328	.074%	97.868%
44.0	19.304	1.570	2097.898	.065%	97.942%
45.0	17.015	1.396	2099.294	.058%	98.007%
46.0	15.402	1.268	2100.562	.053%	98.066%
47.0	14.059	1.172	2101.733	.049%	98.121%
48.0	13.022	1.095	2102.828	.046%	98.172%
49.0	12.355	1.042	2103.87	.043%	98.221%
50.0	11.763	1.006	2104.876	.042%	98.268%
51.0	11.353	0.978	2105.854	.041%	98.313%
52.0	11.047	0.961	2106.815	.040%	98.358%
53.0	10.720	0.947	2107.762	.039%	98.402%
54.0	10.449	0.933	2108.695	.039%	98.446%
55.0	10.191	0.921	2109.616	.038%	98.489%
56.0	9.976	0.911	2110.528	.038%	98.531%
57.0	9.767	0.903	2111.43	.038%	98.574%
58.0	9.614	0.896	2112.326	.037%	98.615%
59.0	9.523	0.895	2113.221	.037%	98.657%
60.0	9.363	0.892	2114.113	.037%	98.699%
61.0	9.287	0.890	2115.003	.037%	98.740%
62.0	9.217	0.892	2115.895	.037%	98.782%
63.0	9.169	0.894	2116.789	.037%	98.824%
64.0	9.134	0.898	2117.687	.037%	98.866%
65.0	9.120	0.903	2118.591	.038%	98.908%
66.0	9.064	0.907	2119.498	.038%	98.950%
67.0	9.029	0.910	2120.408	.038%	98.993%
68.0	8.960	0.911	2121.319	.038%	99.035%
69.0	8.925	0.912	2122.232	.038%	99.078%
70.0	8.904	0.916	2123.147	.038%	99.121%
71.0	8.863	0.918	2124.065	.038%	99.163%
72.0	8.883	0.923	2124.988	.038%	99.206%
73.0	8.842	0.927	2125.915	.039%	99.250%
74.0	8.856	0.930	2126.846	.039%	99.293%
75.0	8.828	0.934	2127.78	.039%	99.337%

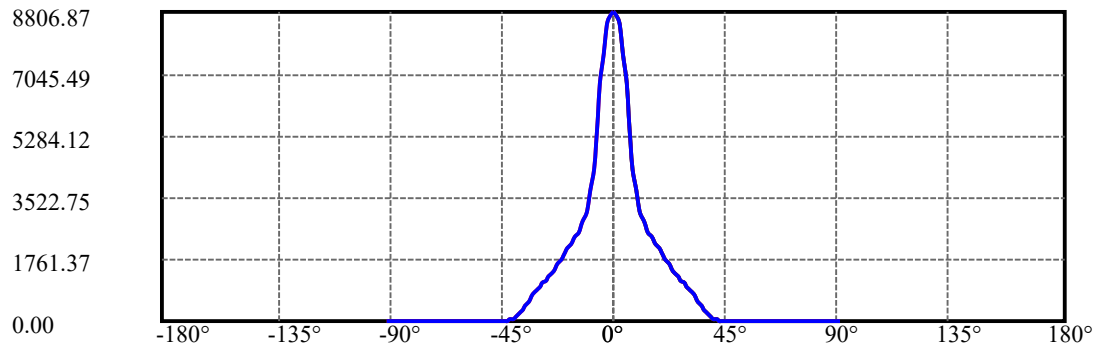
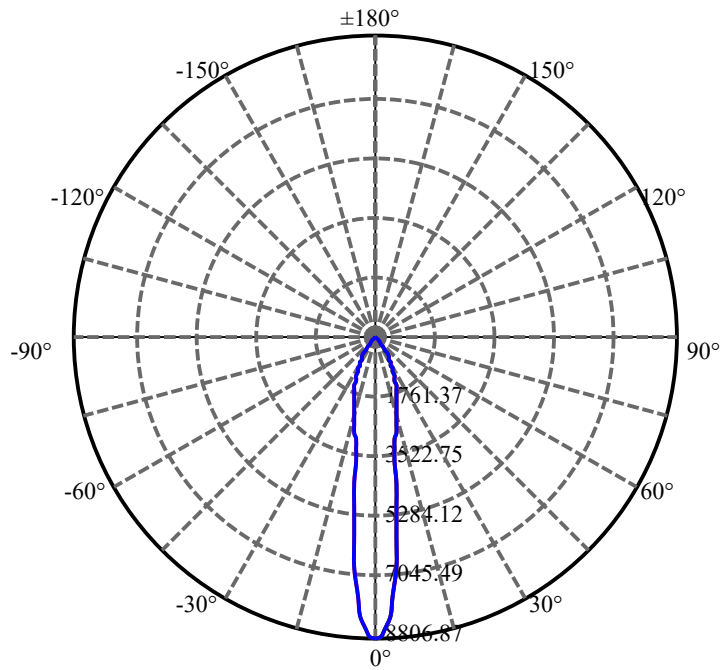
$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.807	0.936	2128.716	.039%	99.381%
77.0	8.765	0.937	2129.653	.039%	99.424%
78.0	8.751	0.938	2130.59	.039%	99.468%
79.0	8.737	0.940	2131.53	.039%	99.512%
80.0	8.730	0.942	2132.472	.039%	99.556%
81.0	8.744	0.945	2133.417	.039%	99.600%
82.0	8.765	0.950	2134.366	.040%	99.644%
83.0	8.703	0.950	2135.316	.040%	99.689%
84.0	8.709	0.949	2136.264	.039%	99.733%
85.0	8.744	0.953	2137.217	.040%	99.777%
86.0	8.723	0.955	2138.172	.040%	99.822%
87.0	8.716	0.954	2139.126	.040%	99.867%
88.0	8.716	0.955	2140.081	.040%	99.911%
89.0	8.682	0.954	2141.035	.040%	99.956%
90.0	8.647	0.950	2141.985	.040%	100.000%

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-30	1805.19	75.15%	84.28%
0-40	2089.78	87.00%	97.56%
0-60	2114.11	88.01%	98.70%
0-90	2141.03	89.14%	99.96%
0-120	2141.03	89.14%	99.96%
0-180	2141.98	89.18%	100.00%
60-90	27.81	1.16%	1.30%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.29	1713.59	71.34%	80.00%

ZONAL LUMEN SUMMARY

0-10	516.78
10-20	677.54
20-30	610.87
30-40	284.59
40-50	15.09
50-60	9.24
60-70	9.03
70-80	9.32
80-90	8.56
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00



C0(Max):

C0/C180:

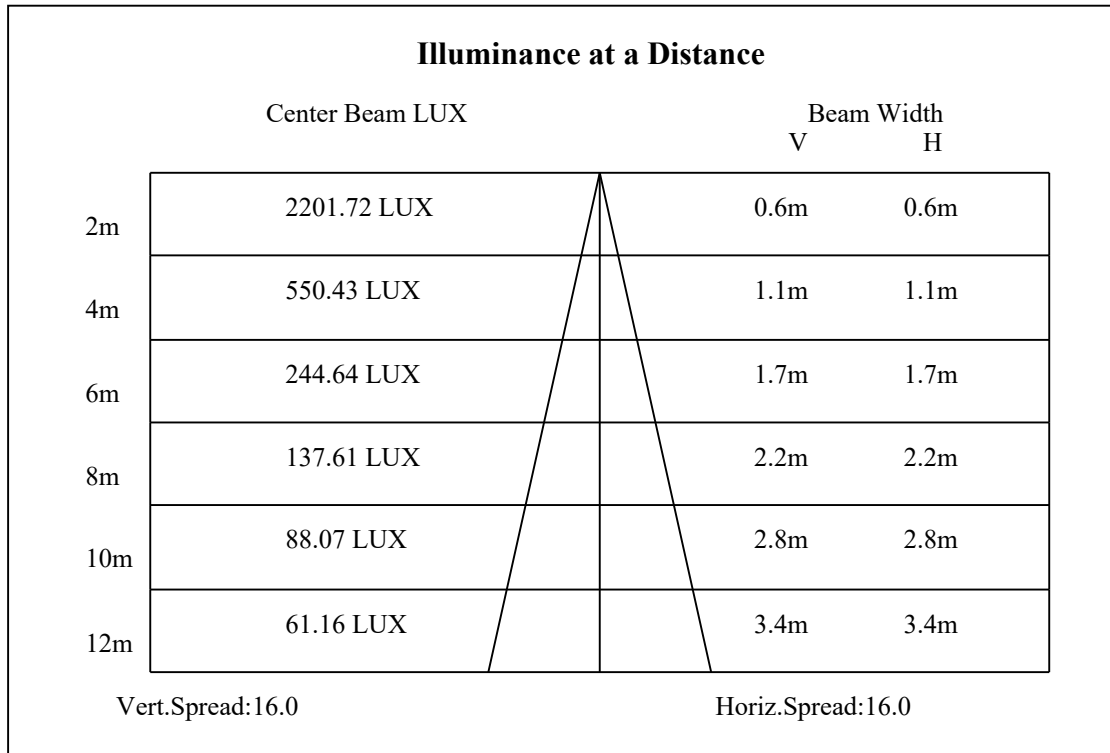
C90/C270:

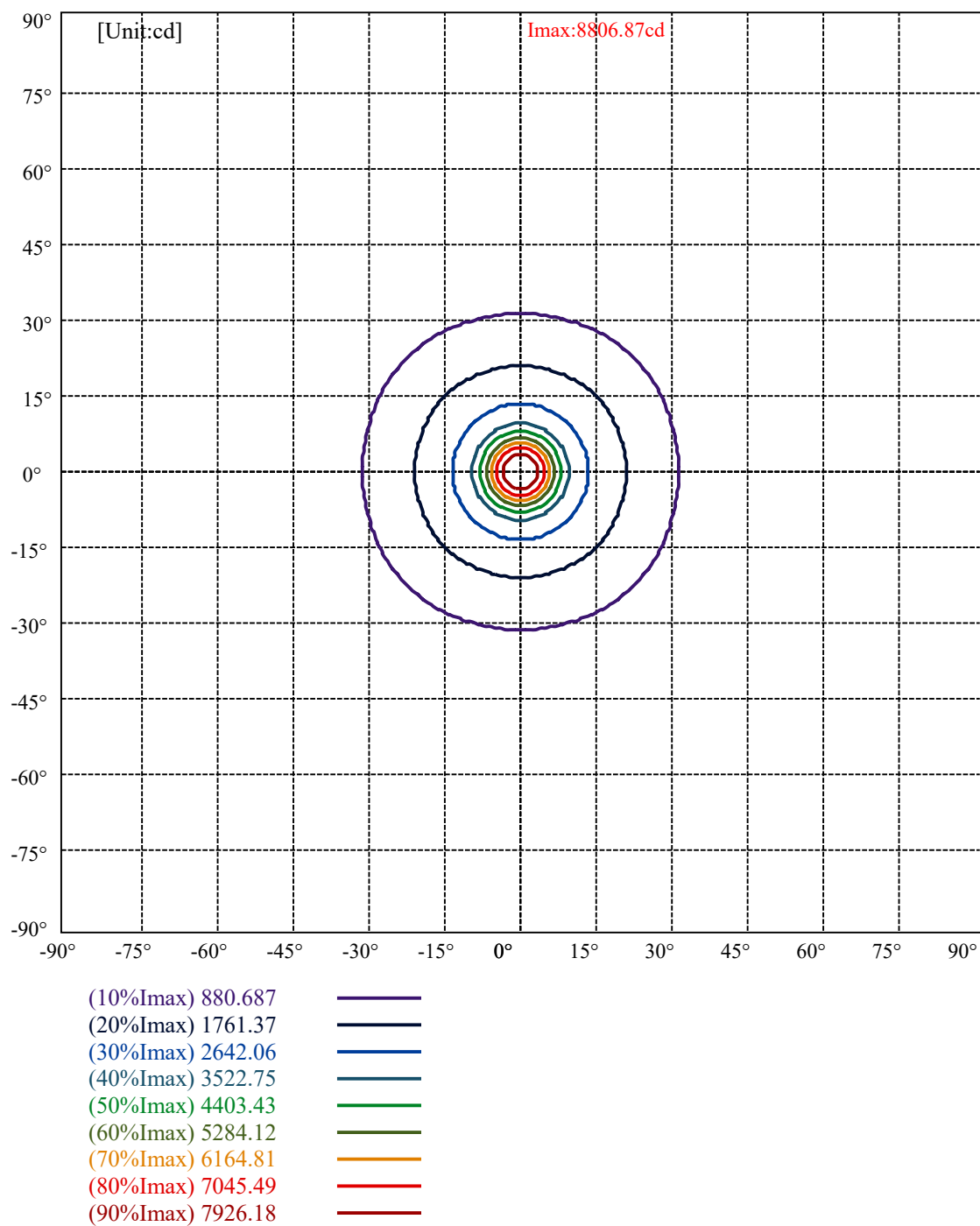
Field angle(10%Imax):C0/180Left:31.0 Right:31.0

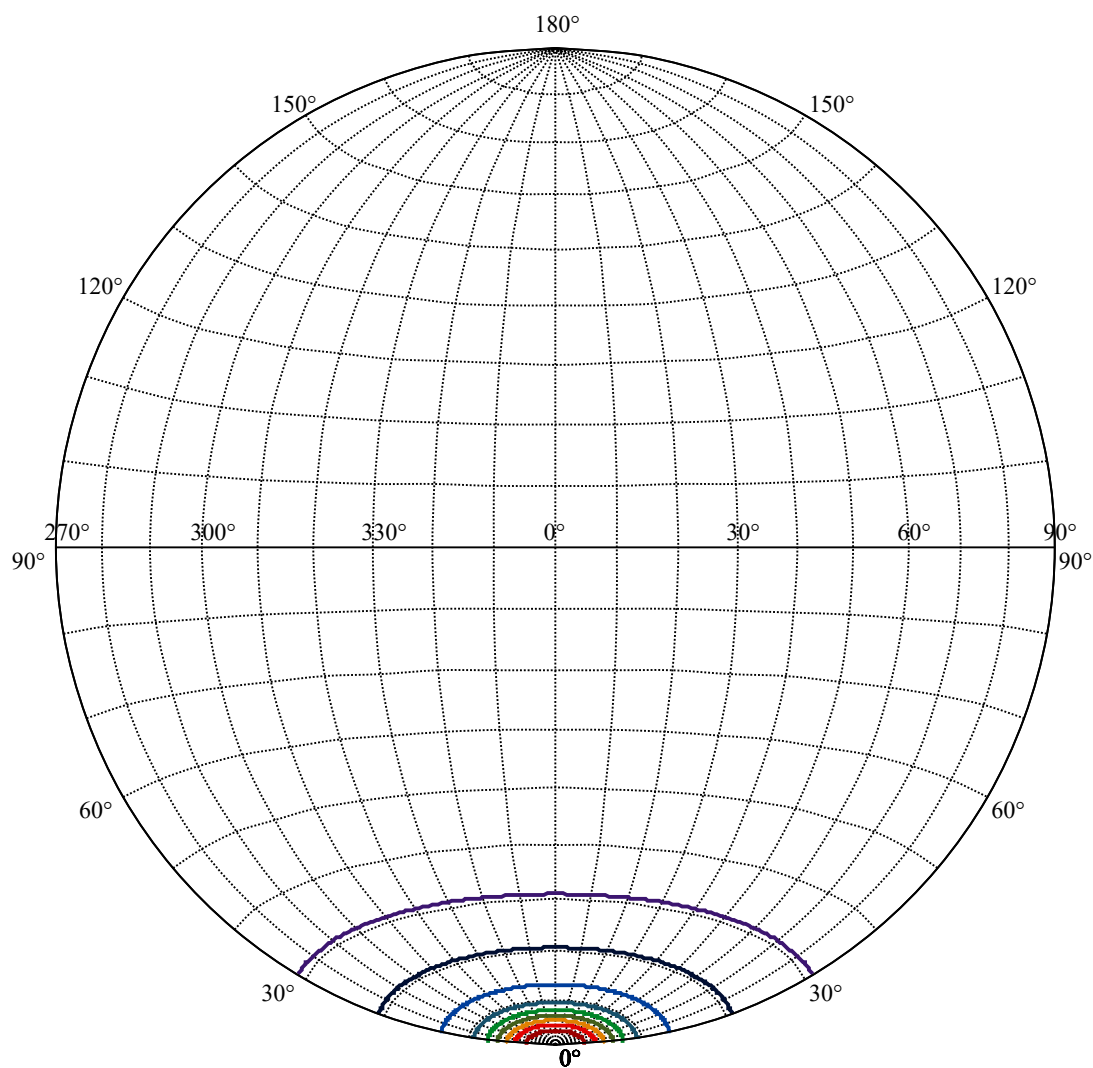
:C90/270Left:31.0 Right:31.0

Beam Angle(50%Imax):C0/180Left:7.9 Right:7.9

:C90/270Left:7.9 Right:7.9







House

[Unit:cd]

Road

Imax:8806.87

(10%Imax) 880.687

(20%Imax) 1761.37

(30%Imax) 2642.06

(40%Imax) 3522.75

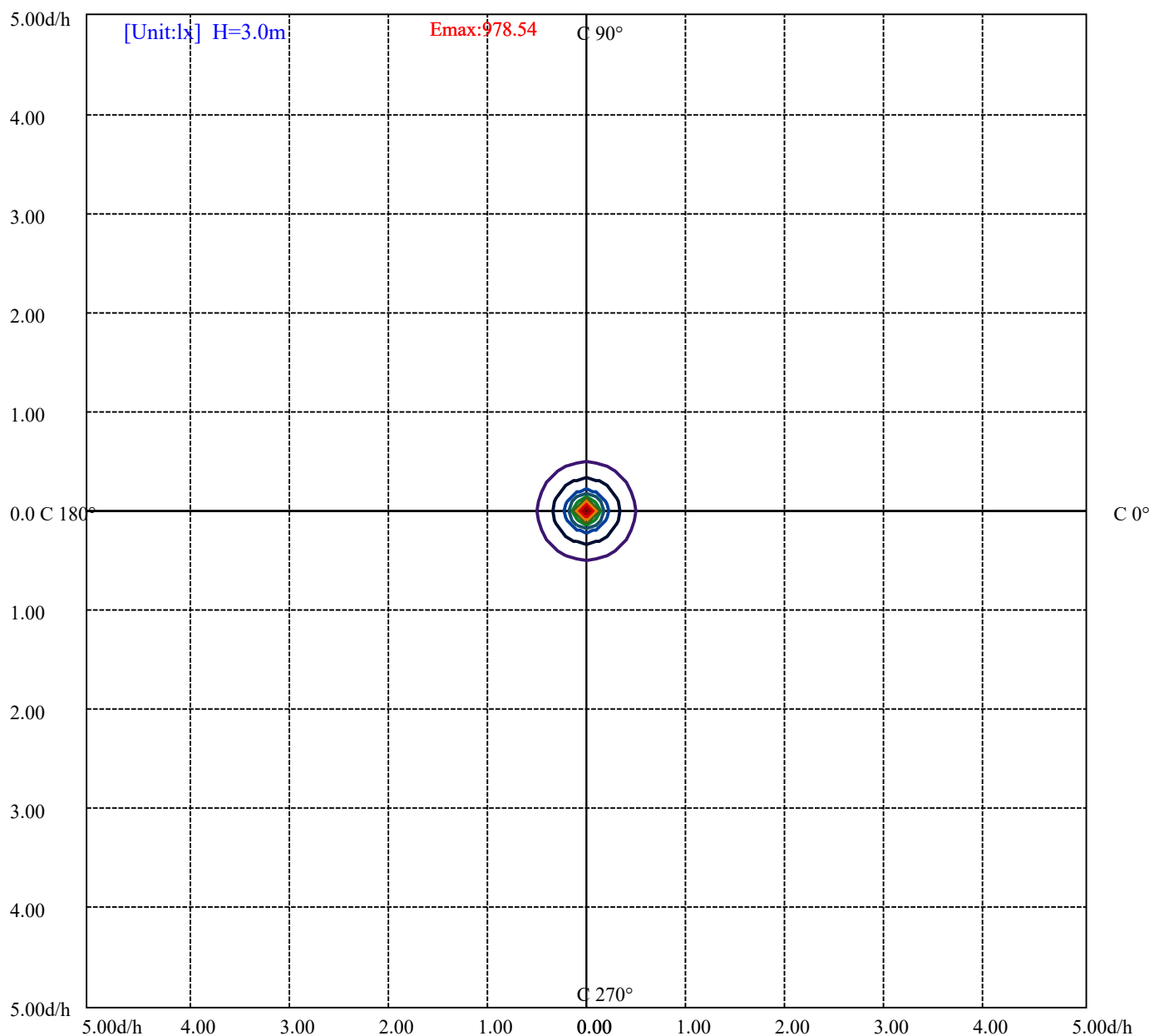
(50%Imax) 4403.43

(60%Imax) 5284.12

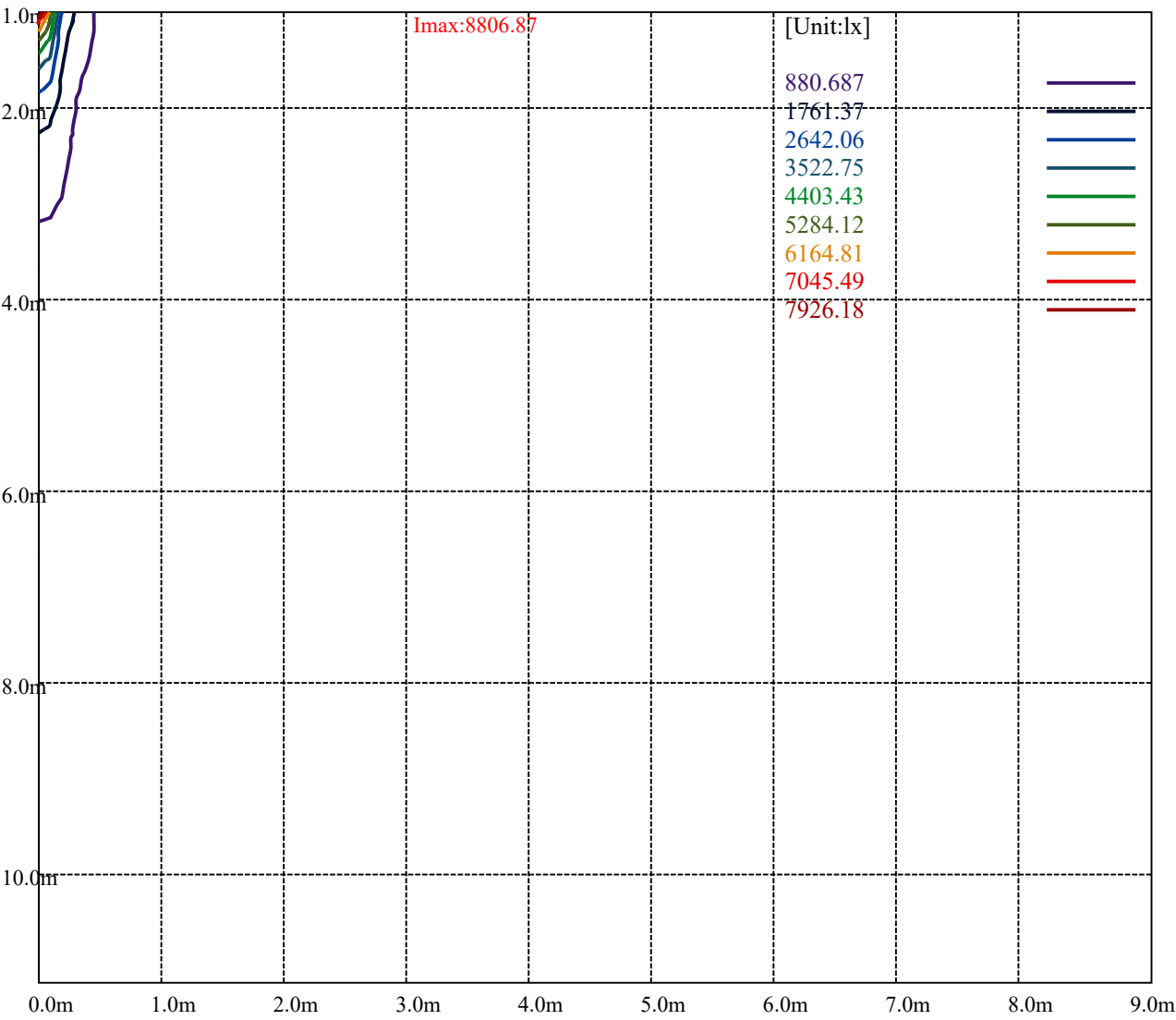
(70%Imax) 6164.81

(80%Imax) 7045.49

(90%Imax) 7926.18



(10%Emax)	97.854	—
(20%Emax)	195.7078	—
(30%Emax)	293.5622	—
(40%Emax)	391.4156	—
(50%Emax)	489.27	—
(60%Emax)	587.1233	—
(70%Emax)	684.9778	—
(80%Emax)	782.8323	—
(90%Emax)	880.6855	—



Luminance Table

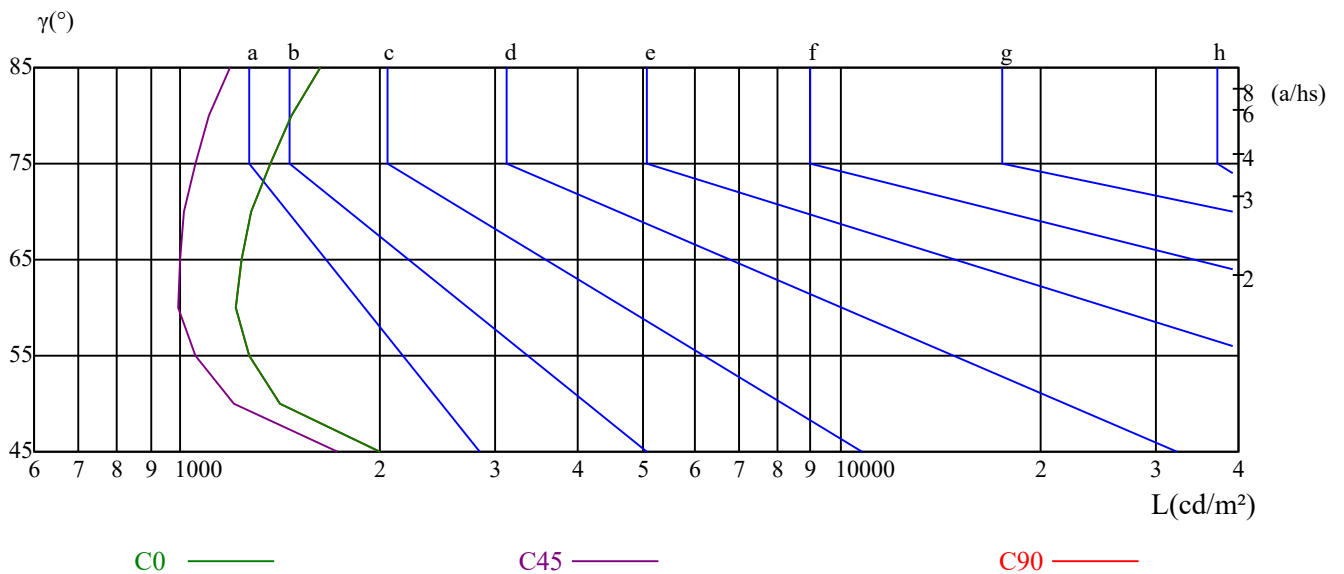
γ	45	50	55	60	65	70	75	80	85
C0	2008	1419	1267	1211	1238	1282	1365	1469	1628
C45	1724	1200	1055	992	996	1012	1054	1107	1192
C90	2008	1419	1267	1211	1238	1282	1365	1469	1628

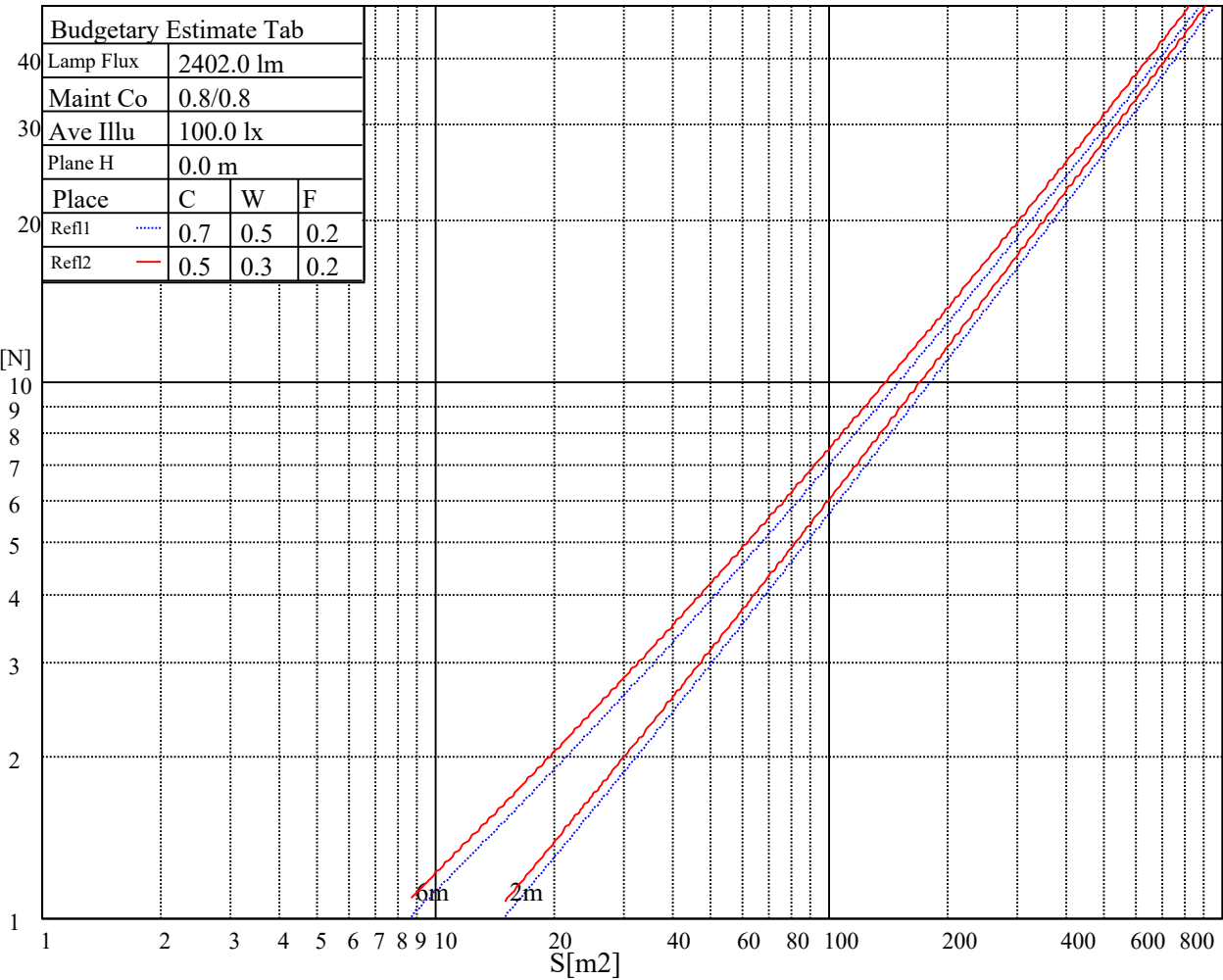
L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
2987	2987	2987	4721	4721	4721	13886	13886	13886

Glare Table

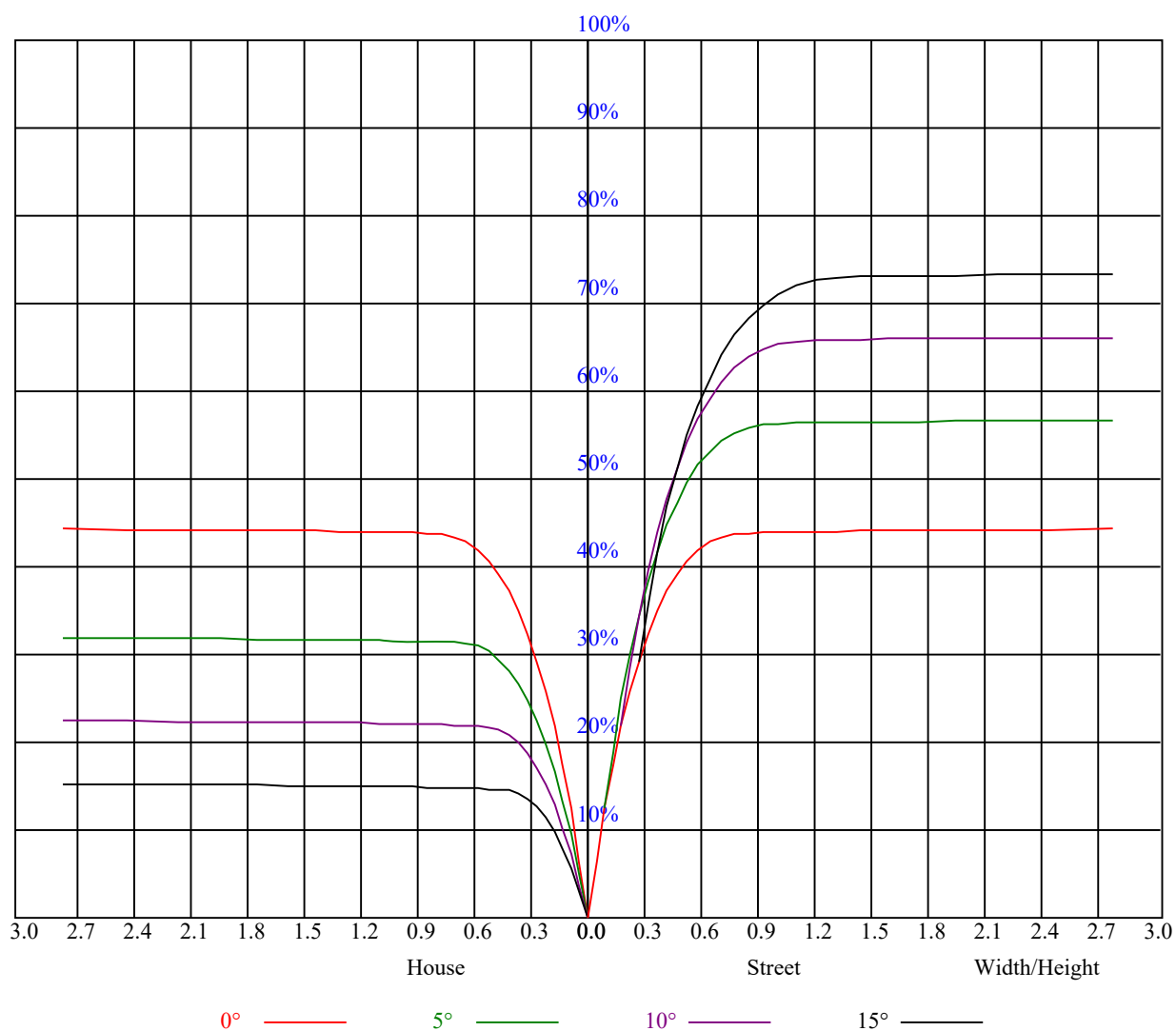
Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	≤ 300				
1.5	B		2000	1000	500	≤ 300			
1.85	C			2000	1000	500	≤ 300		
2.2	D				2000	1000	500	≤ 300	
2.55	E					2000	1000	500	≤ 300
		a	b	c	d	e	f	g	h

Luminance Limiting Curve





RHOC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFICIENTS OF UTILIZATION RHOC=20 CU															
0	1.06	1.06	1.06	1.04	1.04	1.04	0.99	0.99	0.99	0.95	0.95	0.95	0.91	0.91	0.91	0.89
1	0.99	0.97	0.96	0.98	0.96	0.94	0.94	0.93	0.91	0.91	0.90	0.89	0.88	0.87	0.86	0.84
2	0.94	0.90	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.87	0.85	0.83	0.84	0.83	0.81	0.80
3	0.89	0.85	0.82	0.87	0.84	0.81	0.85	0.82	0.80	0.83	0.81	0.78	0.81	0.79	0.77	0.76
4	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.75	0.79	0.77	0.74	0.78	0.76	0.74	0.72
5	0.80	0.75	0.72	0.79	0.75	0.72	0.78	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.70	0.69
6	0.76	0.72	0.68	0.76	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.67	0.72	0.69	0.67	0.66
7	0.73	0.68	0.65	0.72	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.63
8	0.70	0.65	0.62	0.69	0.65	0.62	0.68	0.64	0.62	0.67	0.64	0.61	0.67	0.64	0.61	0.60
9	0.67	0.62	0.59	0.66	0.62	0.59	0.66	0.62	0.59	0.65	0.61	0.59	0.64	0.61	0.59	0.58
10	0.64	0.60	0.57	0.64	0.60	0.57	0.63	0.59	0.57	0.63	0.59	0.57	0.62	0.59	0.56	0.55



Nata 3-1942-M

Intensity data(cd)									
Appendix Page: 16 Total:18									
C/ γ (°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	8793.51	8769.02	8513.03	8139.60	7386.08	6465.05	5641.40	4803.29	4164.41
45.0	8819.67	8810.20	8597.62	8247.01	7702.18	6845.70	5893.50	5083.22	4294.63
90.0	8815.77	8795.18	8647.70	8299.32	7754.49	6987.06	5928.01	5121.06	4365.31
135.0	8798.52	8768.47	8747.88	8567.56	8200.82	7563.61	6768.35	5811.14	5032.02
180.0	8793.51	8744.54	8599.84	8234.77	7742.25	7008.21	6071.59	5165.02	4449.90
225.0	8819.67	8711.14	8502.45	8057.24	7436.17	6645.36	5627.49	4861.72	4184.44
270.0	8815.77	8776.26	8509.13	8136.82	7497.94	6599.72	5674.24	4910.70	4149.38
315.0	8798.52	8631.01	8309.90	7655.43	6893.56	6063.80	5185.62	4402.04	3829.94
360.0	8793.51	8769.02	8513.03	8139.60	7386.08	6465.05	5641.40	4803.29	4164.41
C/ γ (°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3631.82	3266.19	3031.34	2847.69	2663.49	2531.59	2410.27	2261.68	2147.60
45.0	3700.83	3323.51	3025.22	2836.01	2668.49	2526.03	2416.95	2324.57	2180.43
90.0	3695.82	3266.75	3009.64	2798.72	2635.66	2517.12	2396.91	2297.30	2190.45
135.0	4230.63	3682.47	3266.19	3010.75	2784.25	2644.56	2524.91	2406.93	2291.73
180.0	3798.78	3360.80	3096.46	2879.41	2725.82	2582.79	2454.24	2345.16	2239.98
225.0	3624.59	3250.61	3019.66	2831.55	2675.17	2556.08	2428.64	2316.22	2191.00
270.0	3607.34	3282.89	3021.33	2843.24	2678.51	2533.82	2413.61	2309.54	2149.82
315.0	3387.51	3099.24	2904.46	2726.93	2583.35	2439.21	2307.32	2191.56	2081.93
360.0	3631.82	3266.19	3031.34	2847.69	2663.49	2531.59	2410.27	2261.68	2147.60
C/ γ (°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2036.29	1912.19	1795.88	1693.48	1579.95	1481.45	1376.82	1281.66	1205.41
45.0	2074.14	1981.20	1844.29	1741.34	1651.18	1521.51	1409.10	1333.41	1235.47
90.0	2080.26	1980.64	1877.68	1753.03	1656.19	1559.91	1443.05	1355.12	1270.53
135.0	2188.78	2084.15	1951.70	1845.96	1743.56	1629.48	1521.51	1433.59	1334.53
180.0	2110.31	2004.57	1899.95	1768.61	1667.32	1566.04	1455.29	1351.78	1266.63
225.0	2068.57	1960.61	1854.87	1722.42	1619.46	1517.62	1396.30	1307.81	1228.23
270.0	2034.62	1936.68	1789.76	1689.03	1603.32	1484.23	1382.39	1307.81	1209.31
315.0	1947.81	1842.62	1741.34	1618.35	1518.73	1420.79	1318.94	1227.67	1103.18
360.0	2036.29	1912.19	1795.88	1693.48	1579.95	1481.45	1376.82	1281.66	1205.41
C/ γ (°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	1128.61	1059.05	1000.62	943.85	857.59	760.20	656.13	523.68	415.72
45.0	1164.23	1098.01	1018.98	960.55	901.56	788.58	690.64	581.00	445.21
90.0	1163.12	1094.22	1024.16	953.59	897.49	813.79	696.87	588.63	469.42
135.0	1239.92	1159.78	1079.64	1012.30	948.30	885.42	799.16	691.19	581.00
180.0	1106.19	1087.65	1017.31	945.30	889.09	800.44	693.81	587.68	490.29
225.0	1104.63	1061.50	997.78	931.83	874.62	780.62	666.65	561.47	442.88
270.0	1136.41	1070.18	996.16	943.85	889.31	780.24	679.51	573.77	440.20
315.0	1078.58	1015.86	952.48	879.24	802.38	688.24	555.57	462.19	357.12
360.0	1128.61	1059.05	1000.62	943.85	857.59	760.20	656.13	523.68	415.72
C/ γ (°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	320.00	282.15	121.15	60.44	35.67	28.94	24.60	21.93	18.70
45.0	343.37	281.60	148.87	70.79	36.67	29.05	24.88	21.70	18.64
90.0	358.23	262.73	178.31	87.15	43.96	31.44	25.66	22.15	19.48
135.0	470.26	385.67	287.72	160.67	87.99	41.63	32.06	26.82	22.15
180.0	370.75	277.92	195.11	118.15	47.97	32.11	27.21	22.48	19.81
225.0	329.40	238.24	154.60	66.89	35.84	29.11	24.43	21.37	18.70
270.0	338.92	286.61	137.29	60.94	35.34	28.77	24.54	21.43	18.70
315.0	227.17	153.49	83.09	39.74	32.06	27.77	23.71	20.48	18.25
360.0	320.00	282.15	121.15	60.44	35.67	28.94	24.60	21.93	18.70

Nata 3-1942-M

Intensity data(cd)										Appendix Page: 17 Total:18	
C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0		
0.0	16.42	15.25	13.91	13.02	12.24	11.63	11.30	11.02	10.63		
45.0	16.47	14.80	13.63	12.74	12.02	11.52	11.24	11.02	10.63		
90.0	17.14	15.47	14.25	12.69	12.19	11.58	11.13	10.85	10.57		
135.0	18.98	16.81	15.19	13.97	13.02	12.30	11.80	11.35	10.85		
180.0	17.70	15.92	14.47	13.19	12.47	11.85	11.41	11.02	10.80		
225.0	16.14	14.75	13.52	12.69	12.19	11.74	11.24	11.02	10.80		
270.0	16.75	14.80	13.69	12.91	12.30	11.63	11.24	10.96	10.63		
315.0	16.53	15.42	13.80	12.97	12.41	11.85	11.46	11.13	10.85		
360.0	16.42	15.25	13.91	13.02	12.24	11.63	11.30	11.02	10.63		
C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0		
0.0	10.35	10.07	9.85	9.68	9.52	9.46	9.29	9.18	9.13		
45.0	10.41	10.18	9.96	9.85	9.63	9.57	9.41	9.35	9.24		
90.0	10.30	10.07	9.91	9.63	9.52	9.46	9.29	9.24	9.18		
135.0	10.63	10.35	10.18	9.91	9.74	9.57	9.41	9.35	9.24		
180.0	10.52	10.30	10.13	9.91	9.63	9.52	9.41	9.29	9.24		
225.0	10.46	10.24	9.96	9.68	9.68	9.57	9.41	9.35	9.29		
270.0	10.41	10.13	9.96	9.74	9.63	9.52	9.35	9.29	9.24		
315.0	10.52	10.18	9.85	9.74	9.57	9.52	9.35	9.24	9.18		
360.0	10.35	10.07	9.85	9.68	9.52	9.46	9.29	9.18	9.13		
C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0		
0.0	9.07	9.02	9.07	9.02	8.96	8.90	8.85	8.85	8.79		
45.0	9.18	9.18	9.18	9.13	9.07	9.02	9.02	9.02	8.96		
90.0	9.18	9.13	9.07	9.02	9.02	8.90	8.90	8.85	8.85		
135.0	9.18	9.13	9.13	9.07	9.07	8.96	8.96	8.96	8.85		
180.0	9.18	9.18	9.13	9.07	8.96	8.96	8.90	8.90	8.85		
225.0	9.24	9.18	9.18	9.13	9.13	9.02	8.96	8.96	8.90		
270.0	9.18	9.18	9.13	9.13	9.07	8.96	8.96	8.90	8.90		
315.0	9.13	9.07	9.07	8.96	8.96	8.96	8.85	8.79	8.79		
360.0	9.07	9.02	9.07	9.02	8.96	8.90	8.85	8.85	8.79		
C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0		
0.0	8.79	8.74	8.79	8.79	8.79	8.74	8.68	8.68	8.68		
45.0	8.90	8.90	8.90	8.90	8.90	8.85	8.85	8.79	8.79		
90.0	8.90	8.85	8.85	8.79	8.79	8.74	8.74	8.74	8.74		
135.0	8.85	8.79	8.85	8.85	8.79	8.79	8.74	8.74	8.68		
180.0	8.90	8.85	8.85	8.79	8.74	8.68	8.68	8.68	8.74		
225.0	8.96	8.96	8.90	8.85	8.85	8.79	8.79	8.85	8.79		
270.0	8.90	8.85	8.90	8.85	8.85	8.79	8.79	8.74	8.74		
315.0	8.85	8.79	8.79	8.79	8.74	8.74	8.74	8.68	8.68		
360.0	8.79	8.74	8.79	8.79	8.79	8.74	8.68	8.68	8.68		
C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0		
0.0	8.74	8.74	8.68	8.68	8.68	8.74	8.63	8.63	8.68		
45.0	8.79	8.85	8.74	8.74	8.79	8.79	8.74	8.74	8.74		
90.0	8.74	8.74	8.74	8.68	8.79	8.68	8.68	8.68	8.74		
135.0	8.74	8.79	8.68	8.74	8.74	8.74	8.74	8.63	8.63		
180.0	8.74	8.68	8.68	8.68	8.74	8.63	8.68	8.74	8.68		
225.0	8.79	8.79	8.79	8.74	8.85	8.79	8.85	8.96	8.74		
270.0	8.74	8.79	8.68	8.74	8.74	8.79	8.79	8.68	8.63		
315.0	8.68	8.74	8.63	8.68	8.63	8.63	8.63	8.68	8.63		
360.0	8.74	8.74	8.68	8.68	8.68	8.74	8.63	8.63	8.68		

Intensity data(cd)

Appendix Page: 18 Total:18

C/ $\gamma(^{\circ})$	90.0
0.0	8.63
45.0	8.68
90.0	8.63
135.0	8.63
180.0	8.57
225.0	8.68
270.0	8.68
315.0	8.68
360.0	8.63