NATA LIGHTNG CO.,LTD.
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Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,Ching

LumCAT: 2-1562-M
Luminaire: 92.70.278.00
Report No: 221220-B001
Test No: 221220-C001
LampCAT: CREE CXA 1830 LES12
Lamp flux(lm): 1970.8
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.7000
Current(A): 0.4320
Power (W): 14.9900
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1820.53
Efficiency(%): 92.38%
Lumens(lm)/Power(W): 121.45
Central intensity(cd): 11942.210
Maximum intensity(cd): 11942.210
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.0
[C90/270]Total=16.0
Field angle(10%Imax): [C0/180]Total=31.3
[C90/270]Total=31.3
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.27 C90_270=0.27
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 92.38%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.658%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	11942.215	0.000	0	.000%	.000%
1.0	11918.313	11.417	11.417	.579%	.627%
2.0	11703.576	33.904	45.321	1.720%	2.489%
3.0	11385.691	55.222	100.543	2.802%	5.523%
4.0	10829.242	74.360	174.904	3.773%	9.607%
5.0	9990.386	89.565	264.469	4.545%	14.527%
6.0	8707.641	98.263	362.732	4.986%	19.924%
7.0	7404.729	100.009	462.741	5.075%	25.418%
8.0	5991.573	95.875	558.616	4.865%	30.684%
9.0	4755.435	87.099	645.714	4.419%	35.468%
10.0	3671.965	76.265	721.979	3.870%	39.658%
11.0	2831.914	64.987	786.966	3.298%	43.227%
12.0	2329.093	56.417	843.384	2.863%	46.326%
13.0	1837.850	49.451	892.835	2.509%	49.042%
14.0	1534.574	43.167	936.001	2.190%	51.414%
15.0	1313.369	39.098	975.099	1.984%	53.561%
16.0	1134.177	35.863	1010.963	1.820%	55.531%
17.0	1018.914	33.529	1044.492	1.701%	57.373%
18.0	924.982	32.051	1076.543	1.626%	59.133%
19.0	862.847	31.105	1107.647	1.578%	60.842%
20.0	811.205	30.640	1138.287	1.555%	62.525%
21.0	768.497	30.333	1168.62	1.539%	64.191%
22.0	740.570	30.325	1198.946	1.539%	65.857%
23.0	716.900	30.582	1229.527	1.552%	67.537%
24.0	694.687	30.862	1260.39	1.566%	69.232%
25.0	679.107	31.237	1291.627	1.585%	70.948%
26.0	665.192	31.732	1323.359	1.610%	72.691%
27.0	652.532	32.238	1355.598	1.636%	74.462%
28.0	639.909	32.722	1388.319	1.660%	76.259%
29.0	628.309	33.180	1421.5	1.684%	78.082%
30.0	617.262	33.630	1455.13	1.706%	79.929%
31.0	605.872	34.038	1489.168	1.727%	81.798%
32.0	593.824	34.370	1523.538	1.744%	83.686%
33.0	577.594	34.510	1558.048	1.751%	85.582%
34.0	554.358	34.256	1592.304	1.738%	87.464%
35.0	514.906	33.207	1625.512	1.685%	89.288%
36.0	467.193	31.270	1656.782	1.587%	91.005%
37.0	413.498	28.723	1685.505	1.457%	92.583%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	354.462	25.633	1711.139	1.301%	93.991%
39.0	277.941	21.586	1732.724	1.095%	95.177%
40.0	217.403	17.276	1750	.877%	96.126%
41.0	158.502	13.386	1763.386	.679%	96.861%
42.0	99.967	9.391	1772.777	.476%	97.377%
43.0	58.715	5.878	1778.655	.298%	97.700%
44.0	32.423	3.440	1782.094	.175%	97.889%
45.0	18.247	1.947	1784.042	.099%	97.996%
46.0	12.033	1.184	1785.226	.060%	98.061%
47.0	10.830	0.909	1786.135	.046%	98.111%
48.0	10.009	0.842	1786.978	.043%	98.157%
49.0	9.351	0.795	1787.773	.040%	98.201%
50.0	9.023	0.766	1788.539	.039%	98.243%
51.0	8.821	0.755	1789.294	.038%	98.284%
52.0	8.702	0.752	1790.046	.038%	98.325%
53.0	8.589	0.752	1790.798	.038%	98.367%
54.0	8.500	0.753	1791.551	.038%	98.408%
55.0	8.410	0.755	1792.306	.038%	98.450%
56.0	8.321	0.756	1793.062	.038%	98.491%
57.0	8.246	0.757	1793.819	.038%	98.533%
58.0	8.186	0.760	1794.579	.039%	98.574%
59.0	8.111	0.762	1795.341	.039%	98.616%
60.0	8.067	0.764	1796.105	.039%	98.658%
61.0	8.022	0.768	1796.873	.039%	98.700%
62.0	7.984	0.771	1797.644	.039%	98.743%
63.0	7.955	0.775	1798.42	.039%	98.785%
64.0	7.910	0.778	1799.198	.039%	98.828%
65.0	7.895	0.782	1799.98	.040%	98.871%
66.0	7.865	0.786	1800.767	.040%	98.914%
67.0	7.858	0.791	1801.557	.040%	98.958%
68.0	7.843	0.795	1802.352	.040%	99.001%
69.0	7.820	0.799	1803.151	.041%	99.045%
70.0	7.798	0.802	1803.954	.041%	99.089%
71.0	7.790	0.806	1804.759	.041%	99.134%
72.0	7.775	0.809	1805.569	.041%	99.178%
73.0	7.768	0.813	1806.381	.041%	99.223%
74.0	7.753	0.816	1807.197	.041%	99.268%
75.0	7.745	0.819	1808.016	.042%	99.312%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.745	0.822	1808.839	.042%	99.358%
77.0	7.738	0.826	1809.664	.042%	99.403%
78.0	7.731	0.828	1810.492	.042%	99.448%
79.0	7.723	0.830	1811.322	.042%	99.494%
80.0	7.708	0.832	1812.154	.042%	99.540%
81.0	7.708	0.834	1812.988	.042%	99.586%
82.0	7.686	0.835	1813.823	.042%	99.631%
83.0	7.693	0.836	1814.659	.042%	99.677%
84.0	7.693	0.838	1815.497	.043%	99.723%
85.0	7.678	0.839	1816.336	.043%	99.769%
86.0	7.671	0.839	1817.175	.043%	99.816%
87.0	7.663	0.839	1818.014	.043%	99.862%
88.0	7.656	0.839	1818.853	.043%	99.908%
89.0	7.663	0.840	1819.693	.043%	99.954%
90.0	7.648	0.840	1820.533	.043%	100.000%

Zonal flux distribution table

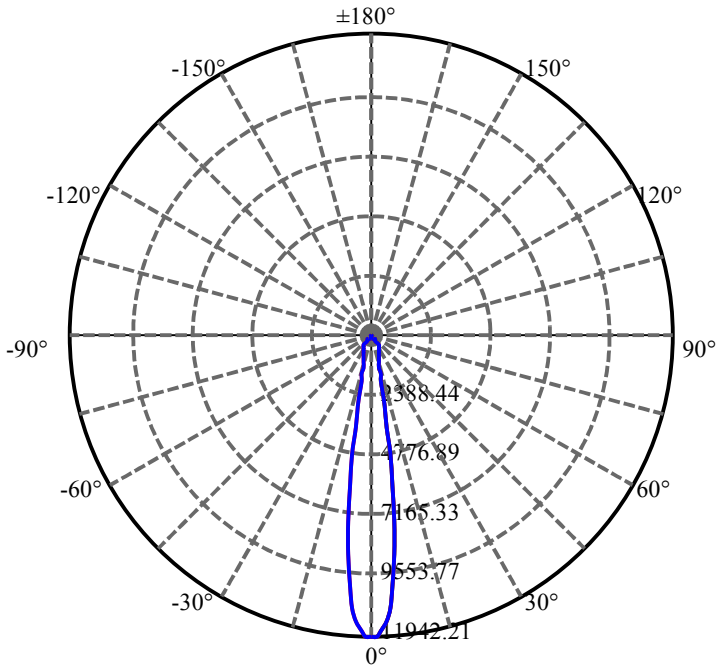
ZONAL LUMEN SUMMARY

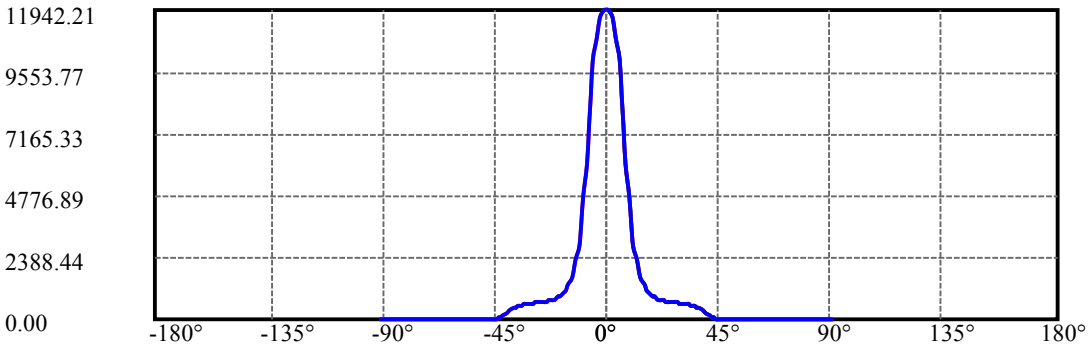
Zone	Lumens	%Lamp	%Fixt
0-30	1455.13	73.83%	79.93%
0-40	1750.00	88.80%	96.13%
0-60	1796.11	91.14%	98.66%
0-90	1819.69	92.33%	99.95%
0-120	1819.69	92.33%	99.95%
0-180	1820.53	92.38%	100.00%
60-90	24.35	1.24%	1.34%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-30.04	1456.43	73.90%	80.00%

ZONAL LUMEN SUMMARY

0-10	721.98
10-20	416.31
20-30	316.84
30-40	294.87
40-50	38.54
50-60	7.57
60-70	7.85
70-80	8.20
80-90	7.54
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

Light Distribution Curve [Unit:cd]





C0(Max):

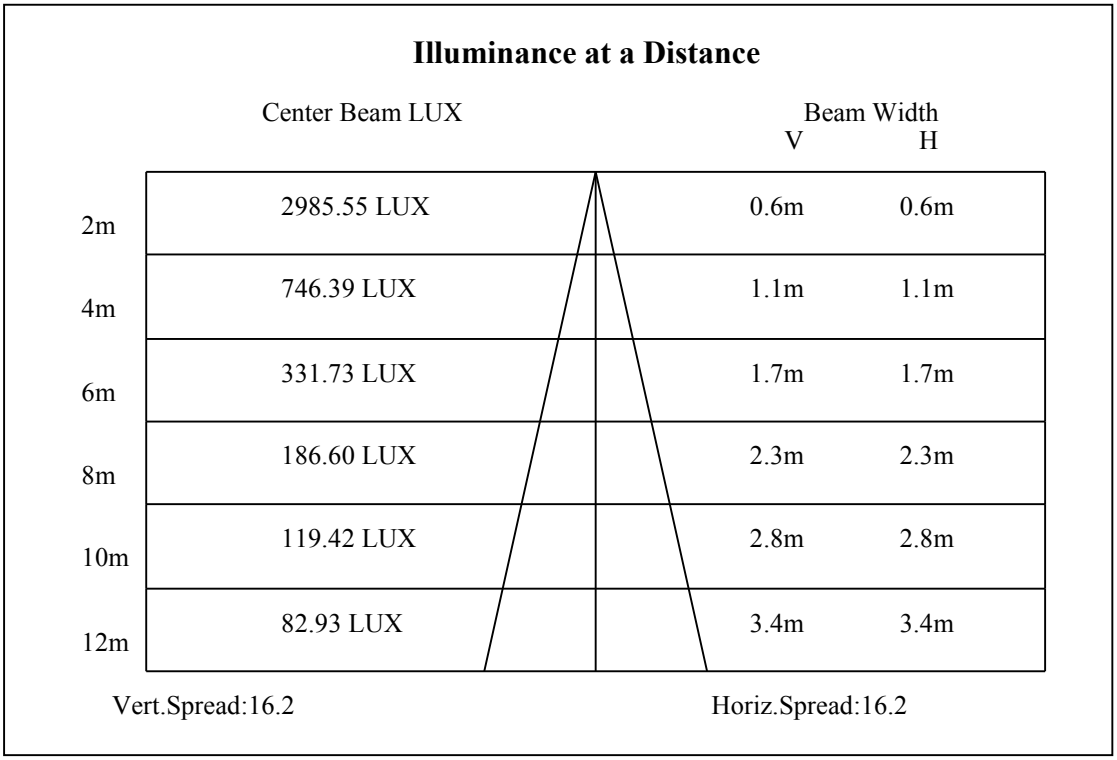
C0/C180:

C90/C270:

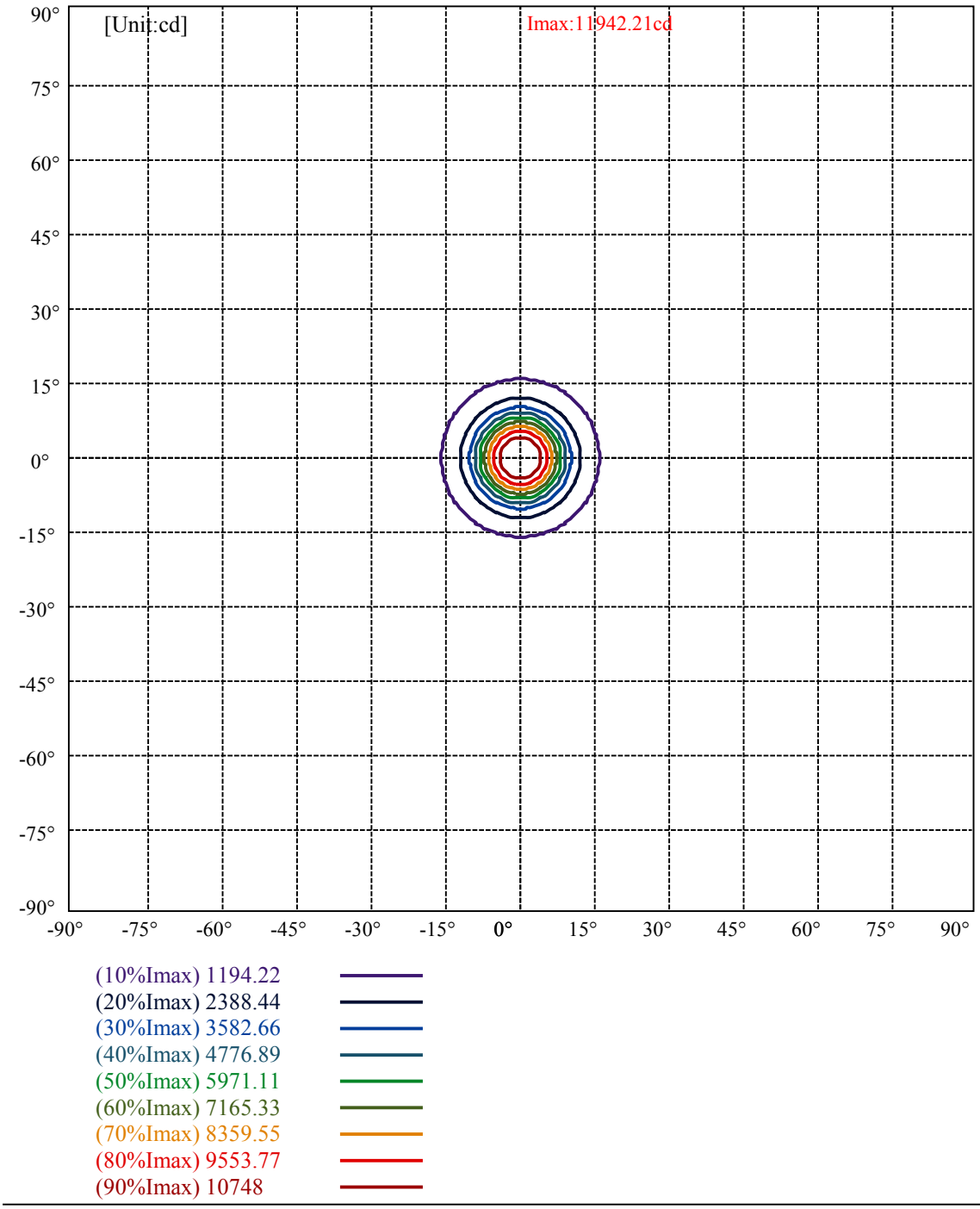
Field angle(10%Imax):C0/180Left:15.7 Right:15.7
:C90/270Left:15.7 Right:15.7

Beam Angle(50%Imax):C0/180Left:8.0 Right:8.0
:C90/270Left:8.0 Right:8.0

Lux distance Curve



ISO-Intensity(V-H)

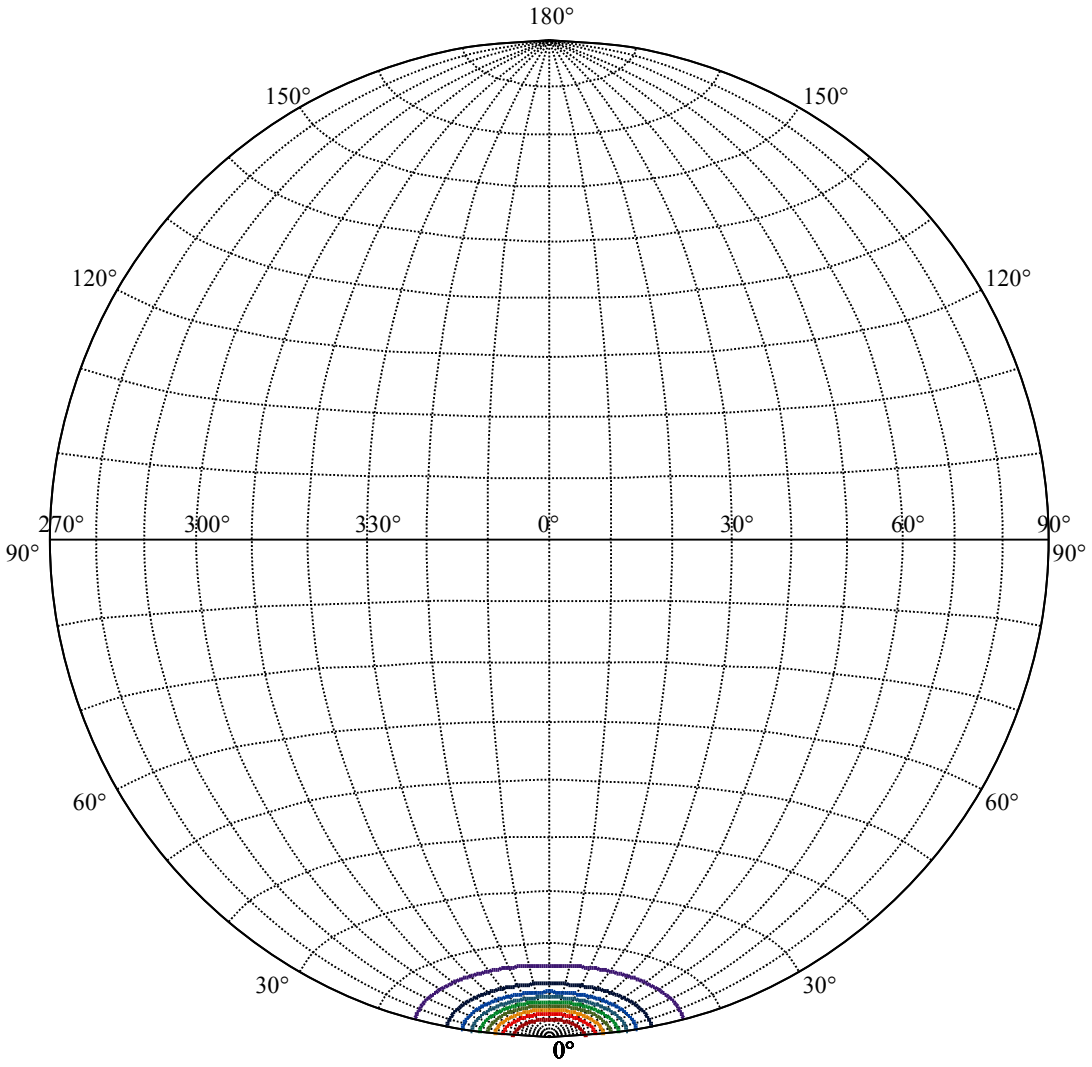


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



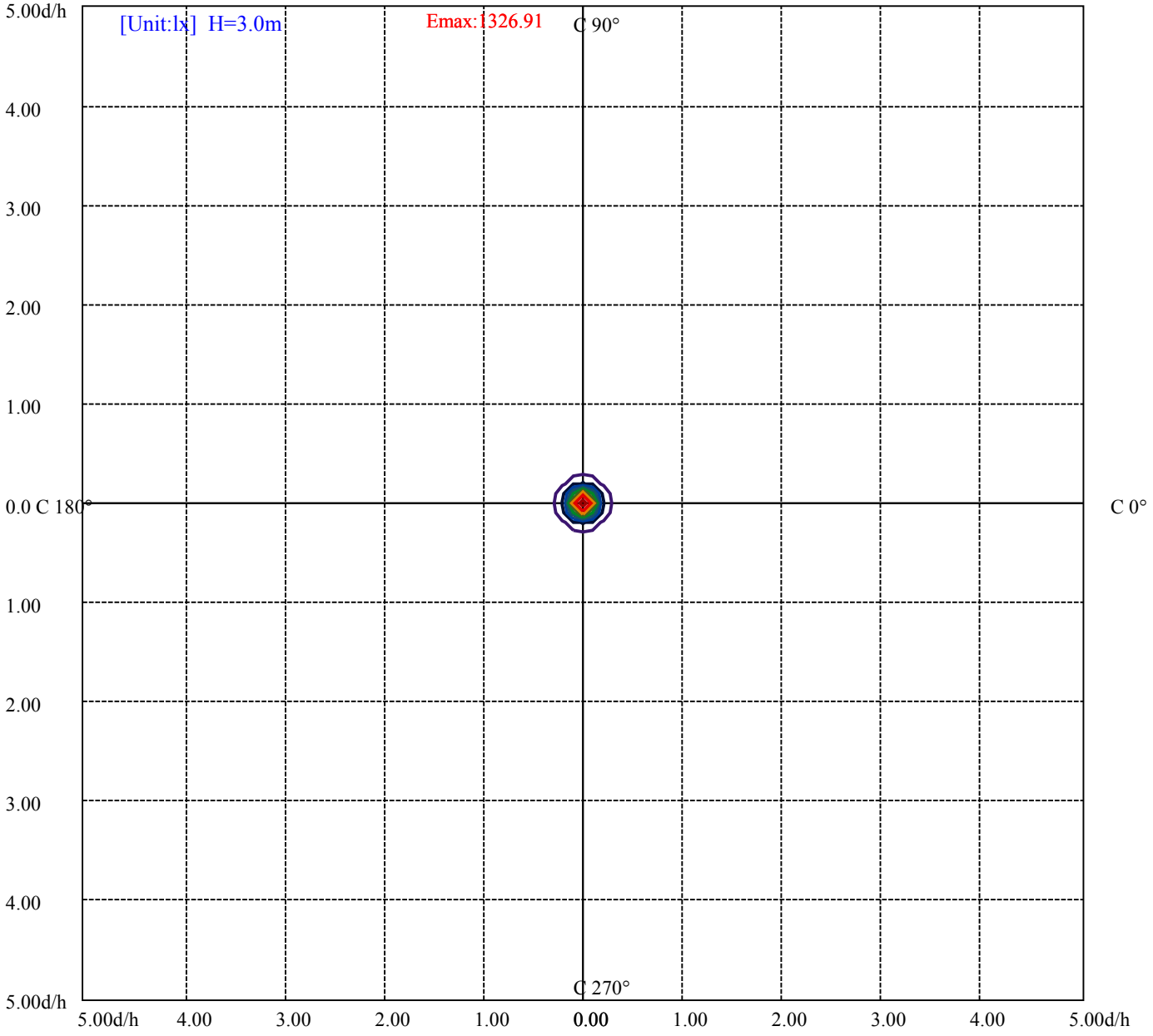
House [Unit:cd] Road

Imax:11942.21

(10%Imax) 1194.22
(20%Imax) 2388.44
(30%Imax) 3582.66
(40%Imax) 4776.89
(50%Imax) 5971.11
(60%Imax) 7165.33
(70%Imax) 8359.55
(80%Imax) 9553.77
(90%Imax) 10748

Equipment: GMS1980 Date: 2022/12/20 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

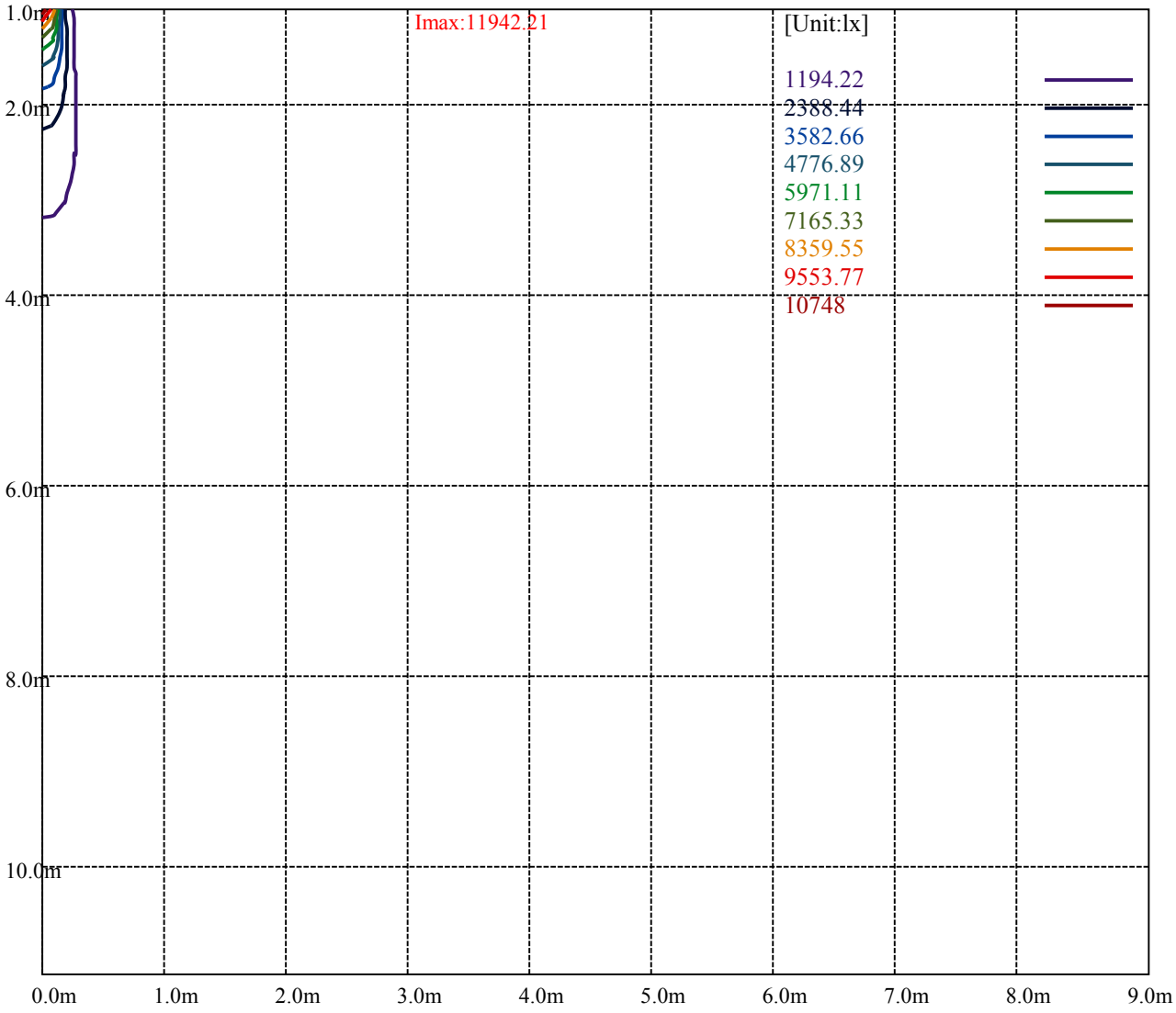
ISO illuminance diagram



(10%Emax) 132.6911
(20%Emax) 265.3822
(30%Emax) 398.0733
(40%Emax) 530.7644
(50%Emax) 663.4556
(60%Emax) 796.1478
(70%Emax) 928.8389
(80%Emax) 1061.53
(90%Emax) 1194.222

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2022/12/20
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

2-1562-M

Luminance Limitting Curve(no luminous side)

Luminance Table

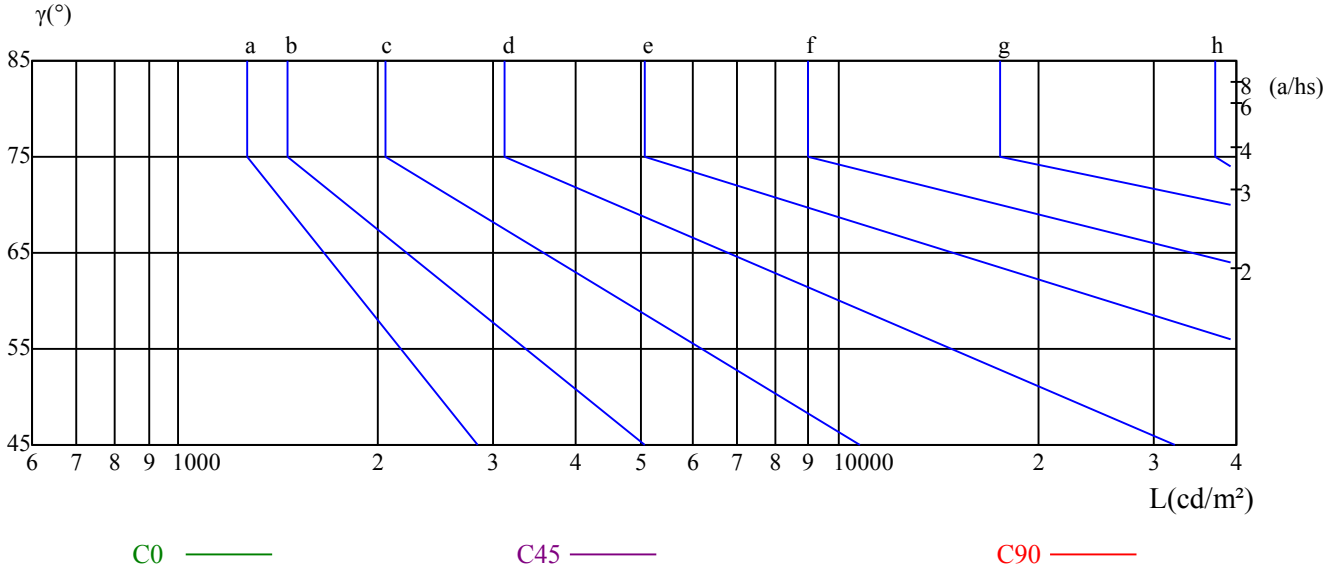
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

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

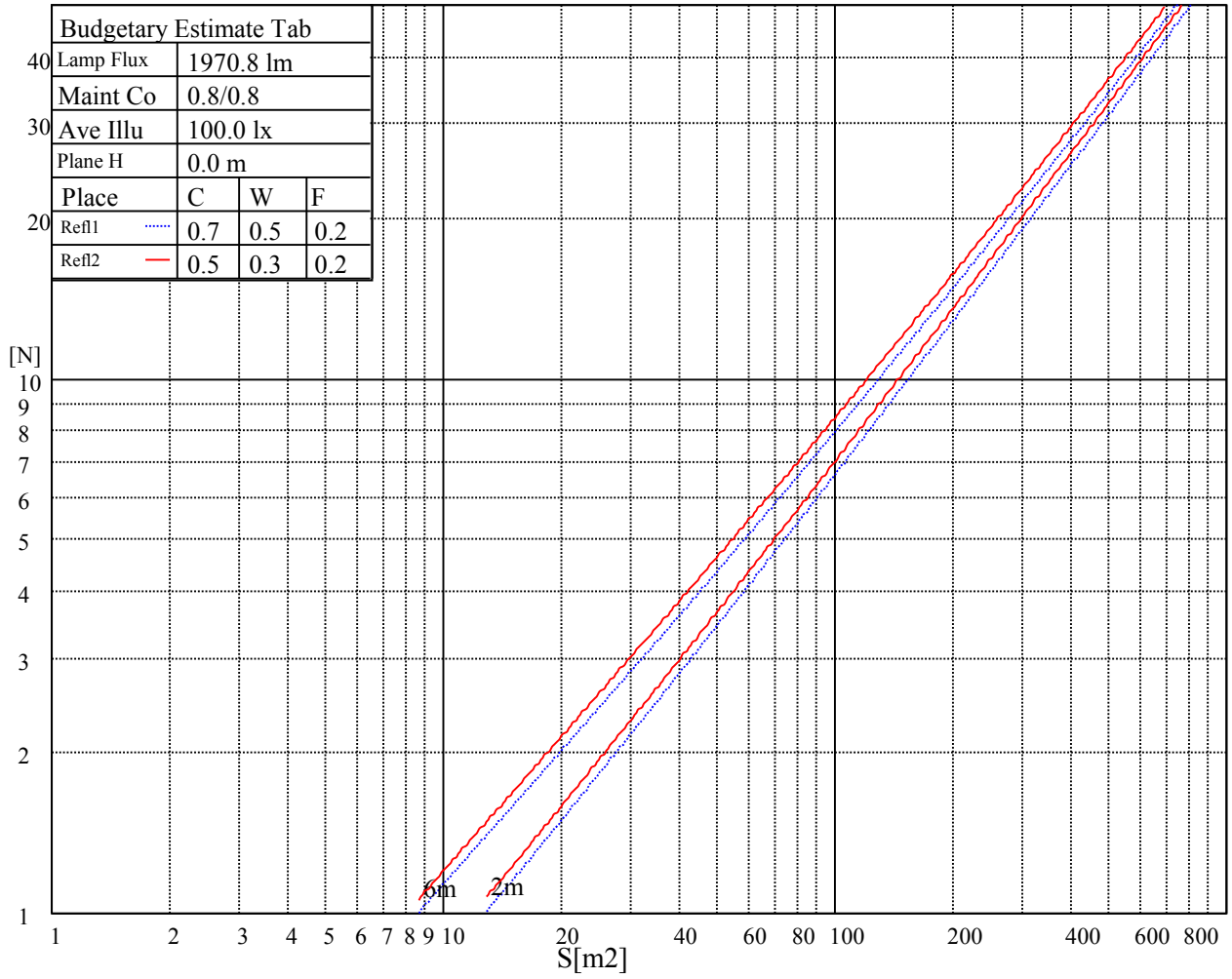


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Budgetary Estimate Table

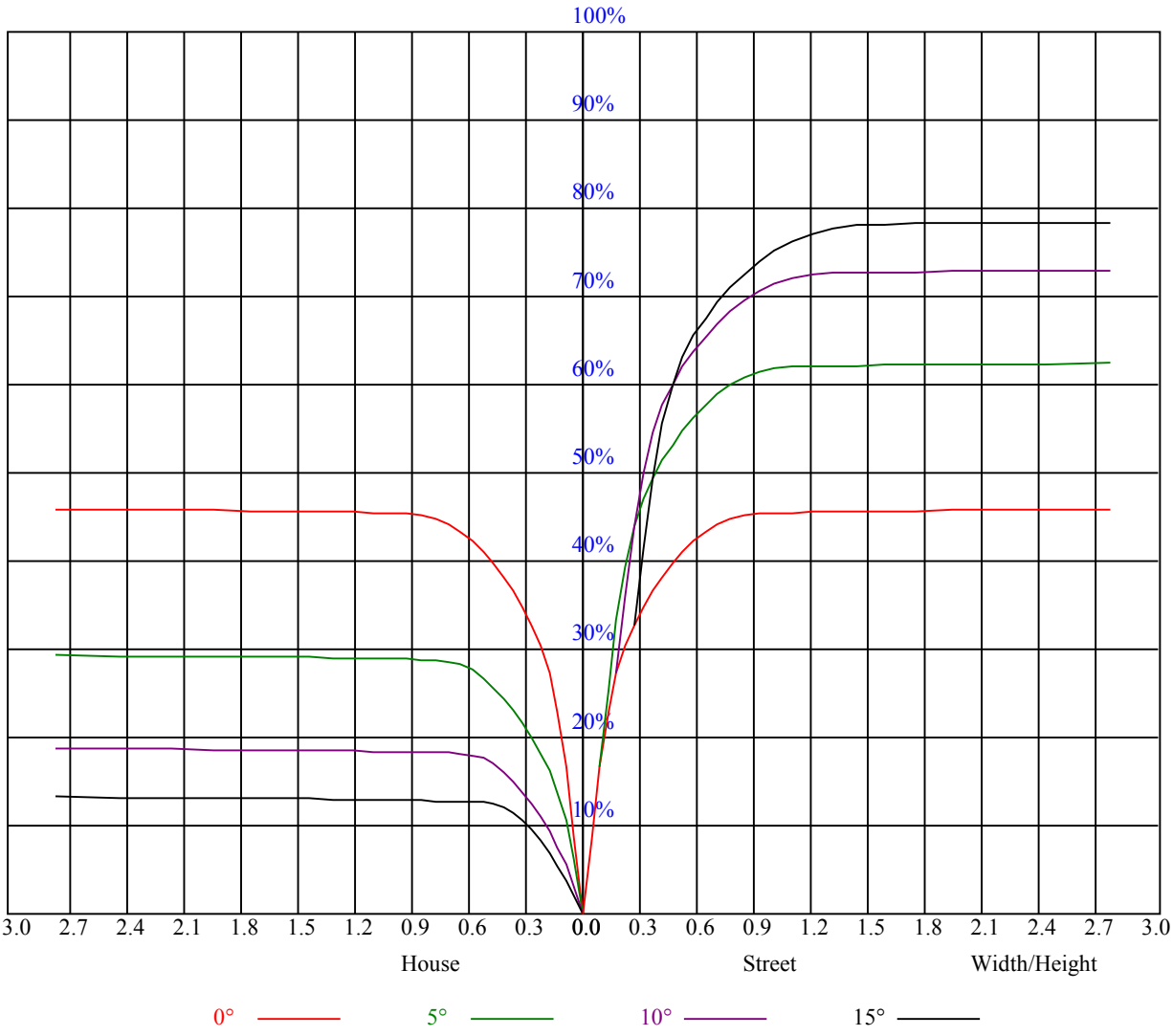


Equipment: GMS1980 Date: 2022/12/20 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

Utilization factor table for indoor luminaire

RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	1.10	1.10	1.10	1.07	1.07	1.07	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.92
1	1.03	1.01	1.00	1.01	1.00	0.98	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.90	0.88
2	0.98	0.95	0.92	0.96	0.93	0.91	0.93	0.91	0.89	0.91	0.89	0.87	0.88	0.87	0.85	0.84
3	0.93	0.89	0.86	0.92	0.88	0.86	0.89	0.87	0.84	0.87	0.85	0.83	0.85	0.83	0.82	0.80
4	0.89	0.85	0.81	0.88	0.84	0.81	0.86	0.83	0.80	0.84	0.81	0.79	0.82	0.80	0.78	0.77
5	0.85	0.81	0.77	0.84	0.80	0.77	0.83	0.79	0.76	0.81	0.78	0.76	0.80	0.77	0.75	0.74
6	0.81	0.77	0.74	0.81	0.77	0.74	0.80	0.76	0.73	0.78	0.75	0.73	0.77	0.75	0.72	0.71
7	0.78	0.74	0.71	0.78	0.74	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.69
8	0.76	0.71	0.68	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.73	0.70	0.68	0.67
9	0.73	0.69	0.66	0.73	0.69	0.66	0.72	0.68	0.66	0.71	0.68	0.66	0.71	0.68	0.65	0.64
10	0.71	0.67	0.64	0.70	0.67	0.64	0.70	0.66	0.64	0.69	0.66	0.64	0.69	0.66	0.63	0.63

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/20
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	11918.31	11967.91	11878.28	11716.95	11364.40	10820.65	9745.10	8609.80	7295.23
45.0	11944.01	11806.58	11424.16	10880.41	10085.69	8878.68	7402.79	6076.27	4731.83
90.0	11920.70	11781.48	11381.13	10843.36	10013.39	8710.18	7152.42	5755.40	4366.74
135.0	11985.83	11908.16	11716.95	11328.55	10742.97	9984.11	8245.30	6787.33	5556.42
180.0	11918.31	11811.36	11569.95	11117.03	10164.57	9161.31	7570.69	5910.76	4576.47
225.0	11944.01	12003.76	11911.74	11825.10	11562.19	10960.47	10132.90	8994.60	7263.56
270.0	11920.70	12159.12	11932.06	11794.62	11525.74	10993.94	10127.52	9045.99	7582.05
315.0	11985.83	11908.16	11814.34	11579.51	11174.99	10413.74	9284.41	8057.68	6560.27
360.0	11918.31	11967.91	11878.28	11716.95	11364.40	10820.65	9745.10	8609.80	7295.23

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	5849.21	4570.50	3644.33	3106.55	2311.84	1944.36	1627.07	1404.19	1212.98
45.0	3739.93	3058.75	2355.46	1913.29	1584.65	1361.77	1172.35	1046.27	937.52
90.0	3394.56	2604.03	2060.28	1710.73	1419.13	1169.01	1071.79	970.27	877.05
135.0	4014.80	3082.65	2344.70	1853.53	1517.13	1300.82	1126.94	1015.20	918.40
180.0	3520.04	2587.90	2086.57	1720.29	1309.78	1186.21	1042.27	936.75	846.46
225.0	6007.56	4556.16	3308.52	2673.94	2149.91	1665.91	1444.83	1188.43	1089.59
270.0	6231.63	4833.41	3692.13	3088.63	2284.95	1928.23	1549.39	1330.70	1169.36
315.0	5285.74	4082.32	3163.32	2565.79	2125.41	1720.29	1472.31	1181.61	1099.93
360.0	5849.21	4570.50	3644.33	3106.55	2311.84	1944.36	1627.07	1404.19	1212.98

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1071.97	977.56	905.26	837.74	795.91	763.04	730.18	709.27	691.94
45.0	858.05	809.05	764.24	730.78	708.07	687.76	670.43	656.09	644.14
90.0	823.22	782.76	745.06	722.65	704.43	687.28	672.40	660.75	648.44
135.0	846.70	802.48	764.24	731.38	711.66	694.93	677.00	664.45	653.70
180.0	797.82	763.46	732.33	712.91	696.36	679.93	665.17	653.10	640.73
225.0	978.39	905.02	848.91	796.57	765.02	739.62	714.82	698.99	685.60
270.0	1025.96	941.71	875.38	812.04	773.80	744.52	714.64	695.52	678.79
315.0	997.75	920.73	854.23	803.92	769.32	738.13	712.85	694.69	678.20
360.0	1071.97	977.56	905.26	837.74	795.91	763.04	730.18	709.27	691.94

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	675.81	662.06	651.31	639.95	629.20	617.25	605.89	595.14	580.20
45.0	633.38	621.43	608.88	600.52	589.16	578.41	562.87	530.61	472.05
90.0	637.68	625.67	612.59	601.41	588.63	574.76	548.59	509.99	448.09
135.0	641.15	628.60	618.44	606.49	595.14	584.38	566.46	532.40	479.22
180.0	630.33	619.04	607.39	596.69	584.86	571.78	547.58	508.44	446.41
225.0	672.28	659.43	647.96	635.53	623.82	611.09	598.31	587.43	563.11
270.0	663.85	650.11	639.36	628.00	617.84	607.69	596.93	587.37	571.84
315.0	665.77	652.92	640.55	629.50	618.32	605.24	594.12	583.49	558.33
360.0	675.81	662.06	651.31	639.95	629.20	617.25	605.89	595.14	580.20

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	549.13	504.91	451.13	372.86	307.13	266.62	185.53	108.81	62.26
45.0	417.08	359.71	313.11	216.96	157.57	102.36	47.92	22.89	13.44
90.0	391.02	329.72	261.00	192.70	134.68	79.23	38.78	18.64	12.67
135.0	418.27	359.11	306.53	219.11	159.12	106.00	51.03	24.92	13.62
180.0	388.99	328.40	259.15	191.81	134.44	78.81	37.58	18.88	12.43
225.0	516.92	465.18	407.87	331.63	267.75	208.66	137.73	85.98	44.93
270.0	537.18	492.36	439.78	364.49	308.32	232.98	165.28	105.52	60.89
315.0	518.95	468.58	397.12	333.96	270.20	193.36	135.88	84.07	39.14
360.0	549.13	504.91	451.13	372.86	307.13	266.62	185.53	108.81	62.26

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	33.16	14.22	12.67	11.47	10.16	9.44	9.08	8.90	8.72
45.0	11.89	10.52	9.56	9.20	9.02	8.90	8.72	8.66	8.54
90.0	11.41	10.10	9.32	9.14	8.78	8.66	8.60	8.48	8.43
135.0	11.95	10.52	9.56	9.14	8.84	8.72	8.60	8.48	8.43
180.0	11.35	10.16	9.32	9.02	8.84	8.66	8.60	8.48	8.43
225.0	20.08	13.27	12.01	10.70	9.86	9.56	9.08	8.96	8.84
270.0	27.01	14.16	12.55	10.93	9.80	9.20	8.96	8.84	8.72
315.0	19.12	13.32	11.65	10.46	9.50	9.02	8.90	8.78	8.60
360.0	33.16	14.22	12.67	11.47	10.16	9.44	9.08	8.90	8.72

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	8.66	8.54	8.43	8.37	8.25	8.13	8.13	8.07	8.01
45.0	8.48	8.43	8.37	8.25	8.19	8.13	8.07	8.07	8.01
90.0	8.31	8.25	8.19	8.13	8.07	8.01	8.01	7.95	7.89
135.0	8.37	8.25	8.19	8.13	8.13	8.07	8.01	7.95	7.95
180.0	8.37	8.25	8.19	8.13	8.07	8.01	7.95	7.95	7.89
225.0	8.72	8.60	8.48	8.43	8.37	8.25	8.19	8.13	8.13
270.0	8.60	8.54	8.43	8.31	8.25	8.19	8.13	8.07	8.07
315.0	8.48	8.43	8.31	8.25	8.19	8.13	8.07	8.01	7.95
360.0	8.66	8.54	8.43	8.37	8.25	8.13	8.13	8.07	8.01

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.95	7.95	7.89	7.83	7.89	7.83	7.83	7.77	7.77
45.0	7.95	7.95	7.95	7.89	7.83	7.89	7.83	7.83	7.83
90.0	7.89	7.89	7.89	7.83	7.89	7.83	7.83	7.77	7.77
135.0	7.95	7.83	7.83	7.83	7.83	7.83	7.77	7.77	7.71
180.0	7.89	7.83	7.83	7.83	7.83	7.83	7.83	7.77	7.77
225.0	8.07	8.01	7.95	8.01	7.95	7.95	7.89	7.89	7.89
270.0	8.01	7.95	7.95	7.89	7.83	7.83	7.83	7.83	7.83
315.0	7.95	7.89	7.89	7.83	7.83	7.77	7.77	7.77	7.77
360.0	7.95	7.95	7.89	7.83	7.89	7.83	7.83	7.77	7.77

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.77	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.65
45.0	7.83	7.83	7.77	7.77	7.77	7.77	7.77	7.77	7.77
90.0	7.77	7.77	7.77	7.77	7.77	7.77	7.71	7.71	7.71
135.0	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.65
180.0	7.77	7.77	7.77	7.71	7.71	7.71	7.65	7.71	7.65
225.0	7.83	7.83	7.83	7.83	7.83	7.83	7.83	7.77	7.77
270.0	7.77	7.77	7.77	7.77	7.77	7.71	7.77	7.71	7.77
315.0	7.77	7.77	7.71	7.71	7.71	7.71	7.71	7.71	7.71
360.0	7.77	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.65

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.65	7.65	7.65	7.65	7.65	7.65	7.65	7.65	7.59
45.0	7.77	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.71
90.0	7.71	7.71	7.71	7.71	7.65	7.65	7.65	7.65	7.65
135.0	7.71	7.65	7.71	7.65	7.59	7.65	7.65	7.65	7.65
180.0	7.65	7.65	7.65	7.65	7.65	7.65	7.59	7.59	7.65
225.0	7.77	7.77	7.77	7.77	7.77	7.71	7.71	7.71	7.71
270.0	7.71	7.71	7.71	7.71	7.71	7.71	7.71	7.65	7.71
315.0	7.71	7.65	7.65	7.71	7.71	7.65	7.65	7.65	7.65
360.0	7.65	7.65	7.65	7.65	7.65	7.65	7.65	7.65	7.59

Intensity data(cd)

C/γ(°)	90.0
0.0	7.59
45.0	7.71
90.0	7.65
135.0	7.65
180.0	7.59
225.0	7.71
270.0	7.65
315.0	7.65
360.0	7.59