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

LumCAT: 2-2162-M
Luminaire: 92.70.278.00
Report No: 221221-B004
Test No: 221221-C004
LampCAT: CREE CXA 1830 LES12
Lamp flux(lm): 1965.3
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.7600
Current(A): 0.4310
Power (W): 14.9810
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1623.65
Efficiency(%): 82.62%
Lumens(lm)/Power(W): 108.38
Central intensity(cd): 10861.580
Maximum intensity(cd): 10861.580
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.7
[C90/270]Total=17.7
Field angle(10%Imax): [C0/180]Total=41.3
[C90/270]Total=41.3
Maximum s/h(1/2): C0_180=0.30 C90_270=0.30
Maximum s/h(1/4): C0_180=0.34 C90_270=0.34
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.62%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.502%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	10861.583	0.000	0	.000%	.000%
1.0	10765.456	10.348	10.348	.527%	.637%
2.0	10371.684	30.338	40.686	1.544%	2.506%
3.0	9881.188	48.438	89.124	2.465%	5.489%
4.0	9258.712	64.067	153.192	3.260%	9.435%
5.0	8445.923	76.164	229.356	3.875%	14.126%
6.0	7572.186	84.179	313.536	4.283%	19.311%
7.0	6812.428	89.285	402.821	4.543%	24.810%
8.0	6007.855	91.752	494.573	4.669%	30.461%
9.0	5345.196	92.010	586.583	4.682%	36.127%
10.0	4683.507	90.756	677.339	4.618%	41.717%
11.0	4101.364	87.779	765.118	4.466%	47.123%
12.0	3640.595	84.631	849.749	4.306%	52.336%
13.0	3185.278	81.006	930.755	4.122%	57.325%
14.0	2788.145	76.459	1007.214	3.890%	62.034%
15.0	2475.264	72.258	1079.473	3.677%	66.484%
16.0	2194.873	68.431	1147.903	3.482%	70.699%
17.0	1878.407	63.432	1211.335	3.228%	74.606%
18.0	1632.755	57.891	1269.227	2.946%	78.171%
19.0	1446.894	53.580	1322.806	2.726%	81.471%
20.0	1216.793	48.753	1371.559	2.481%	84.474%
21.0	1023.112	43.011	1414.57	2.188%	87.123%
22.0	873.274	38.109	1452.678	1.939%	89.470%
23.0	706.078	33.139	1485.817	1.686%	91.511%
24.0	539.307	27.229	1513.046	1.385%	93.188%
25.0	420.563	21.825	1534.871	1.111%	94.532%
26.0	288.106	16.728	1551.6	.851%	95.562%
27.0	185.376	11.584	1563.183	.589%	96.276%
28.0	125.541	7.872	1571.055	.401%	96.761%
29.0	57.460	4.788	1575.843	.244%	97.055%
30.0	29.242	2.341	1578.184	.119%	97.200%
31.0	15.304	1.240	1579.424	.063%	97.276%
32.0	12.040	0.783	1580.207	.040%	97.324%
33.0	11.353	0.689	1580.896	.035%	97.367%
34.0	10.853	0.672	1581.568	.034%	97.408%
35.0	10.360	0.659	1582.227	.034%	97.449%
36.0	9.994	0.648	1582.875	.033%	97.489%
37.0	9.710	0.643	1583.518	.033%	97.528%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.456	0.640	1584.157	.033%	97.568%
39.0	9.217	0.637	1584.795	.032%	97.607%
40.0	9.060	0.637	1585.432	.032%	97.646%
41.0	8.911	0.640	1586.072	.033%	97.685%
42.0	8.791	0.643	1586.715	.033%	97.725%
43.0	8.687	0.647	1587.363	.033%	97.765%
44.0	8.589	0.652	1588.015	.033%	97.805%
45.0	8.515	0.657	1588.672	.033%	97.846%
46.0	8.448	0.663	1589.335	.034%	97.886%
47.0	8.395	0.670	1590.005	.034%	97.928%
48.0	8.343	0.677	1590.682	.034%	97.969%
49.0	8.298	0.683	1591.365	.035%	98.011%
50.0	8.276	0.691	1592.056	.035%	98.054%
51.0	8.209	0.697	1592.754	.035%	98.097%
52.0	8.194	0.704	1593.458	.036%	98.140%
53.0	8.149	0.711	1594.168	.036%	98.184%
54.0	8.126	0.717	1594.886	.037%	98.228%
55.0	8.119	0.725	1595.611	.037%	98.273%
56.0	8.089	0.732	1596.343	.037%	98.318%
57.0	8.074	0.739	1597.082	.038%	98.364%
58.0	8.037	0.745	1597.827	.038%	98.409%
59.0	8.037	0.751	1598.579	.038%	98.456%
60.0	7.999	0.758	1599.336	.039%	98.502%
61.0	7.999	0.763	1600.1	.039%	98.549%
62.0	7.970	0.769	1600.869	.039%	98.597%
63.0	7.970	0.775	1601.645	.039%	98.645%
64.0	7.955	0.781	1602.426	.040%	98.693%
65.0	7.917	0.785	1603.211	.040%	98.741%
66.0	7.932	0.791	1604.002	.040%	98.790%
67.0	7.902	0.796	1604.798	.041%	98.839%
68.0	7.902	0.801	1605.599	.041%	98.888%
69.0	7.895	0.806	1606.405	.041%	98.938%
70.0	7.865	0.809	1607.214	.041%	98.988%
71.0	7.872	0.813	1608.028	.041%	99.038%
72.0	7.858	0.818	1608.846	.042%	99.088%
73.0	7.850	0.821	1609.667	.042%	99.139%
74.0	7.843	0.825	1610.492	.042%	99.189%
75.0	7.820	0.828	1611.32	.042%	99.240%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	7.798	0.829	1612.149	.042%	99.291%
77.0	7.783	0.831	1612.979	.042%	99.343%
78.0	7.798	0.834	1613.813	.042%	99.394%
79.0	7.775	0.837	1614.65	.043%	99.446%
80.0	7.723	0.836	1615.486	.043%	99.497%
81.0	7.686	0.833	1616.319	.042%	99.548%
82.0	7.626	0.830	1617.149	.042%	99.599%
83.0	7.574	0.826	1617.976	.042%	99.650%
84.0	7.514	0.822	1618.798	.042%	99.701%
85.0	7.417	0.815	1619.612	.041%	99.751%
86.0	7.409	0.810	1620.423	.041%	99.801%
87.0	7.387	0.810	1621.233	.041%	99.851%
88.0	7.387	0.809	1622.042	.041%	99.901%
89.0	7.327	0.807	1622.848	.041%	99.950%
90.0	7.335	0.804	1623.652	.041%	100.000%

Zonal flux distribution table

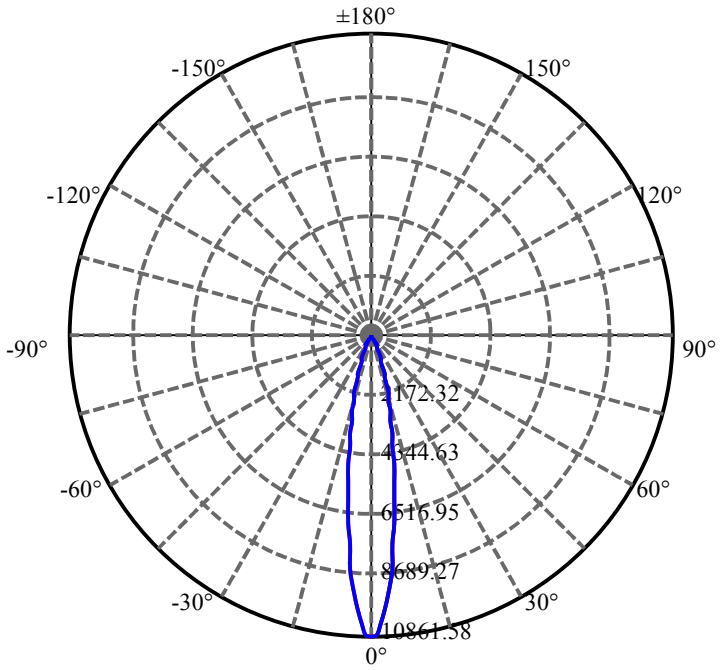
ZONAL LUMEN SUMMARY

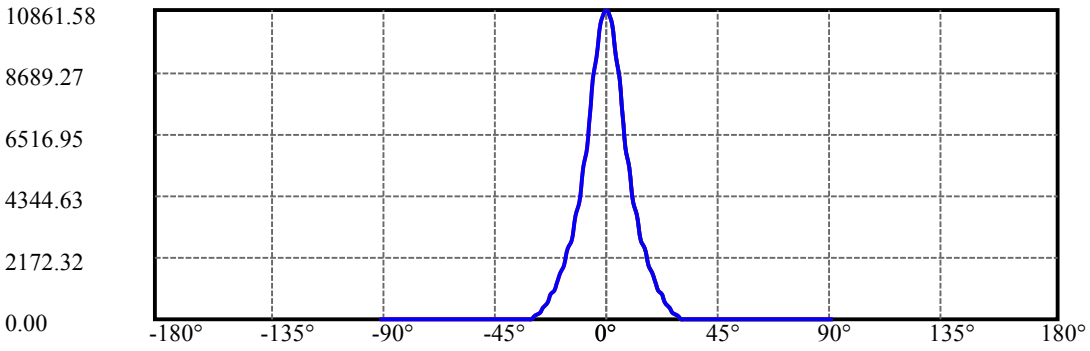
Zone	Lumens	%Lamp	%Fixt
0-30	1578.18	80.30%	97.20%
0-40	1585.43	80.67%	97.65%
0-60	1599.34	81.38%	98.50%
0-90	1622.85	82.57%	99.95%
0-120	1622.85	82.57%	99.95%
0-180	1623.65	82.62%	100.00%
60-90	24.27	1.23%	1.49%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-18.55	1298.92	66.09%	80.00%

ZONAL LUMEN SUMMARY

0-10	677.34
10-20	694.22
20-30	206.62
30-40	7.25
40-50	6.62
50-60	7.28
60-70	7.88
70-80	8.27
80-90	7.36
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):

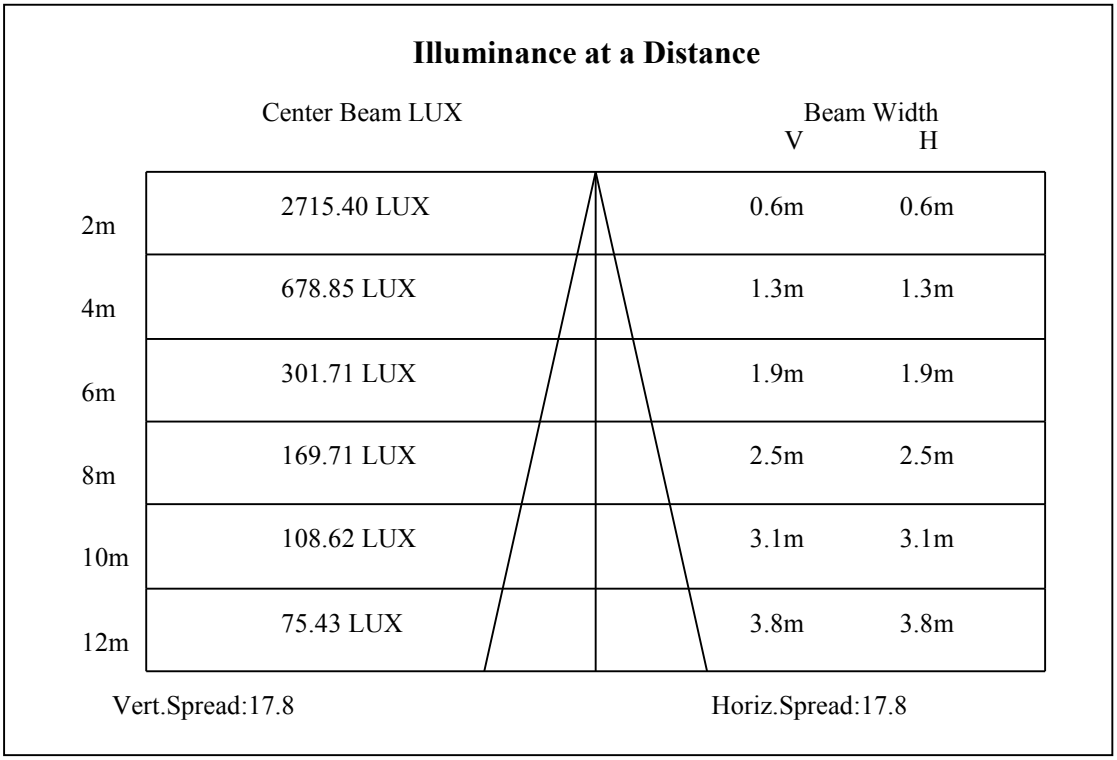
C0/C180:

C90/C270:

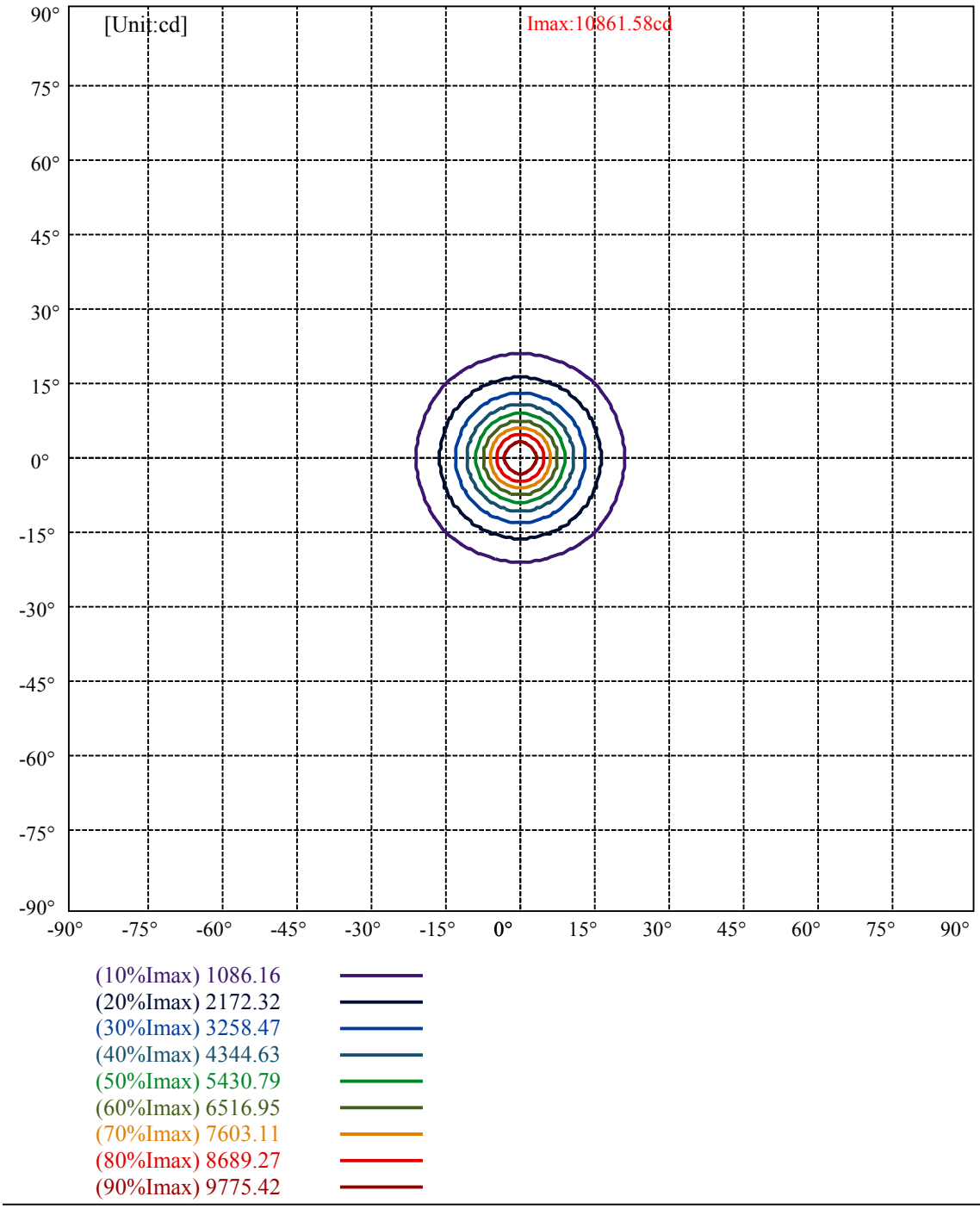
Field angle(10%Imax):C0/180Left:20.7 Right:20.7
:C90/270Left:20.7 Right:20.7

Beam Angle(50%Imax):C0/180Left:8.9 Right:8.9
:C90/270Left:8.9 Right:8.9

Lux distance Curve



ISO-Intensity(V-H)

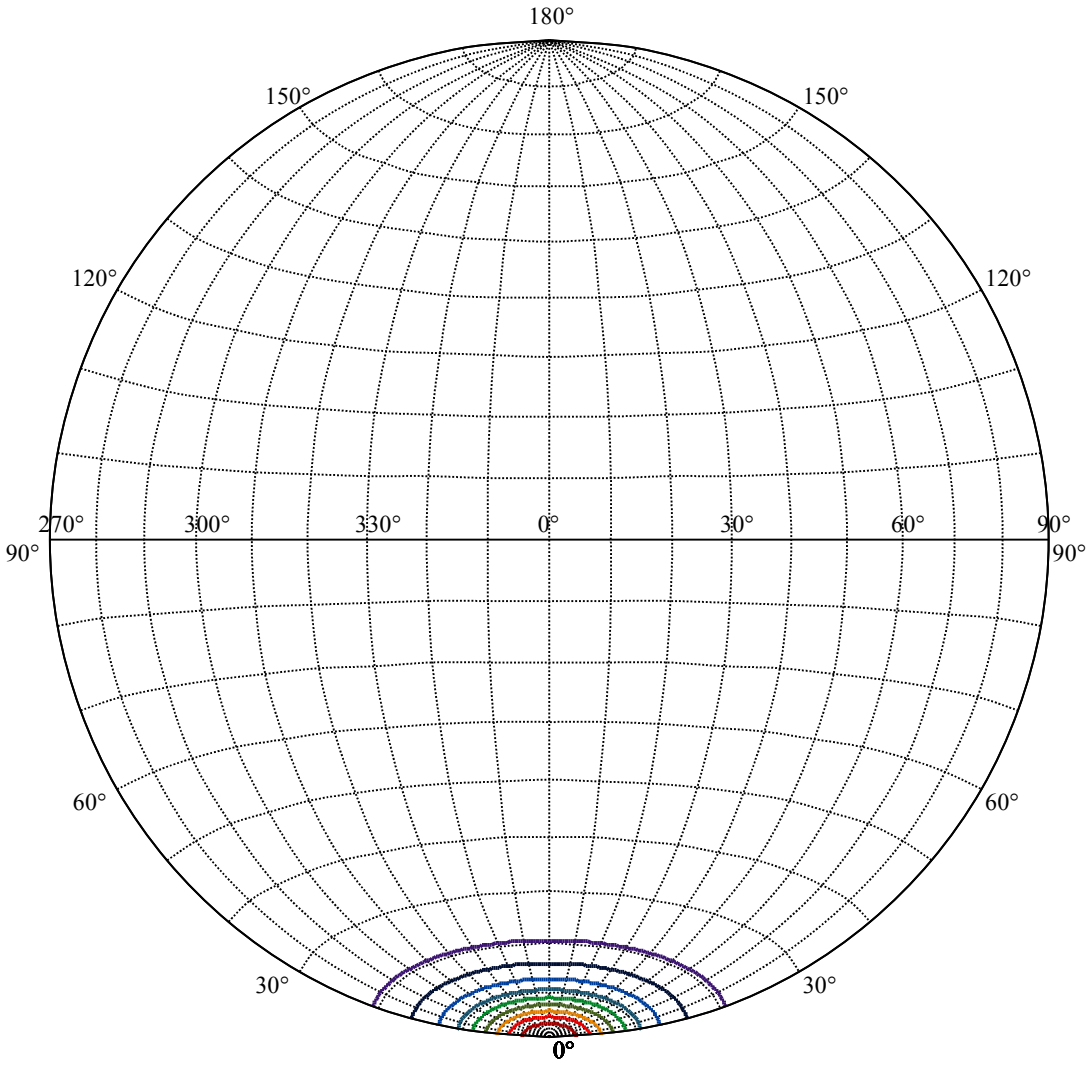


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web

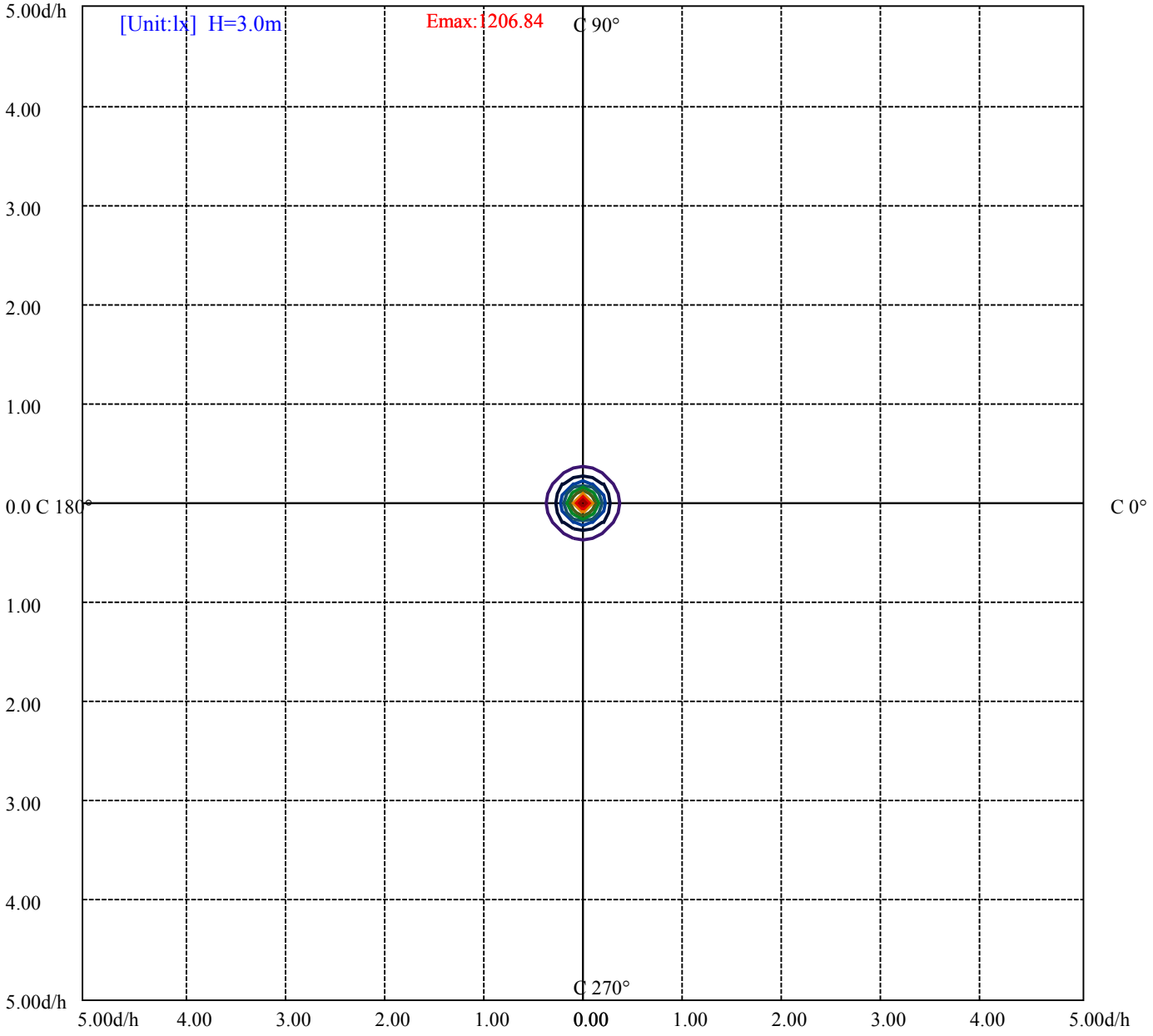


House [Unit:cd] Road

Imax:10861.58

(10%Imax) 1086.16
(20%Imax) 2172.32
(30%Imax) 3258.47
(40%Imax) 4344.63
(50%Imax) 5430.79
(60%Imax) 6516.95
(70%Imax) 7603.11
(80%Imax) 8689.27
(90%Imax) 9775.42

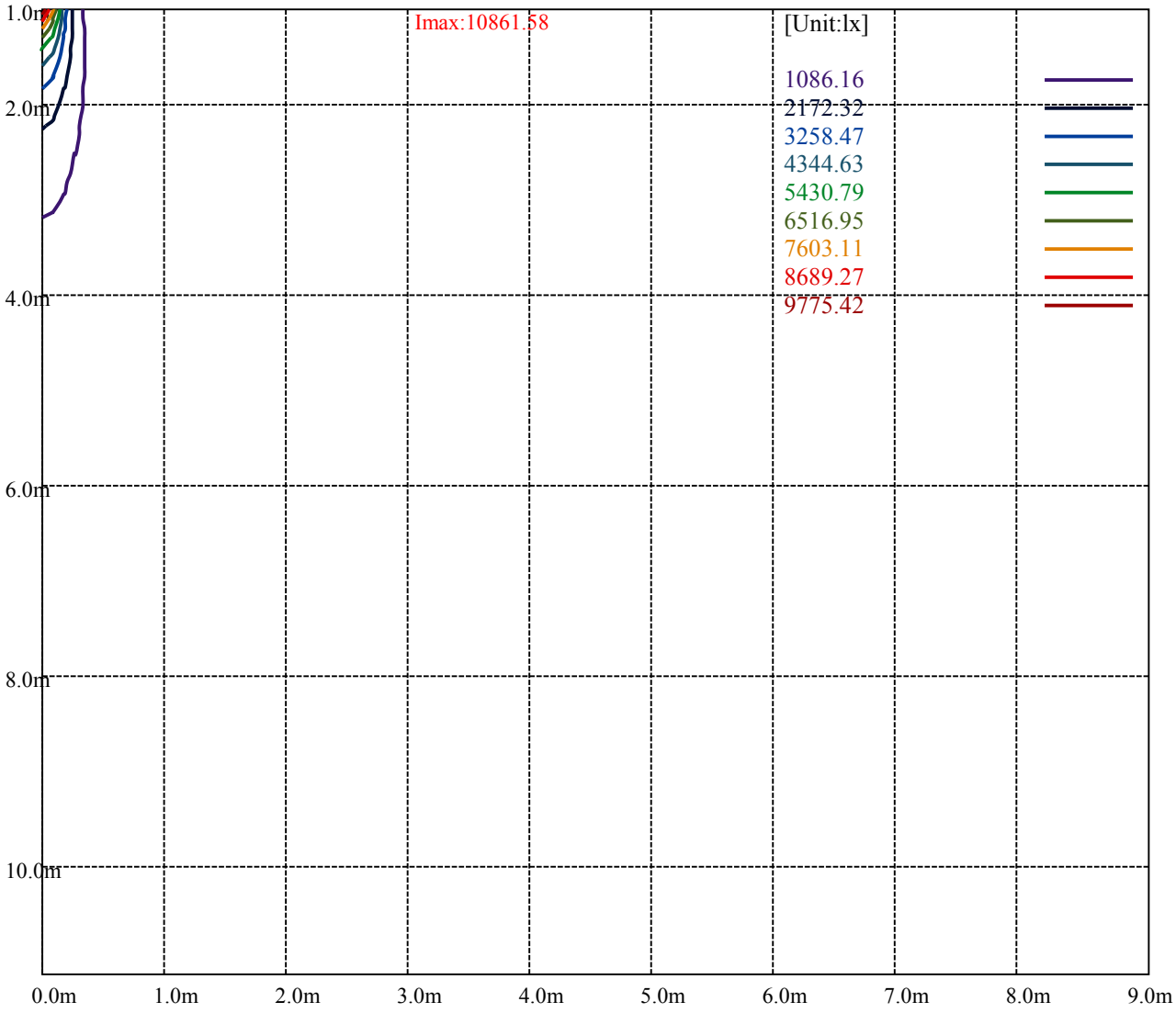
ISO illuminance diagram



(10%Emax) 120.6844
(20%Emax) 241.3678
(30%Emax) 362.0522
(40%Emax) 482.7367
(50%Emax) 603.42
(60%Emax) 724.1044
(70%Emax) 844.7889
(80%Emax) 965.4722
(90%Emax) 1086.157

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2022/12/21
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

2-2162-M

Luminance Limitting Curve(no luminous side)

Luminance Table

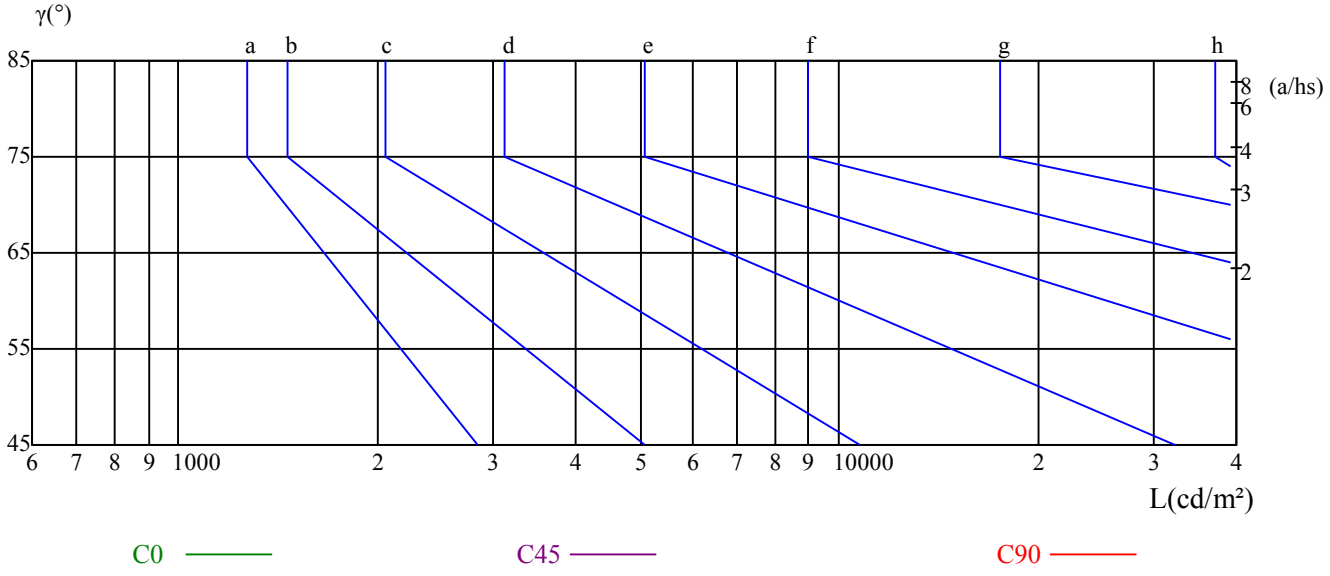
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

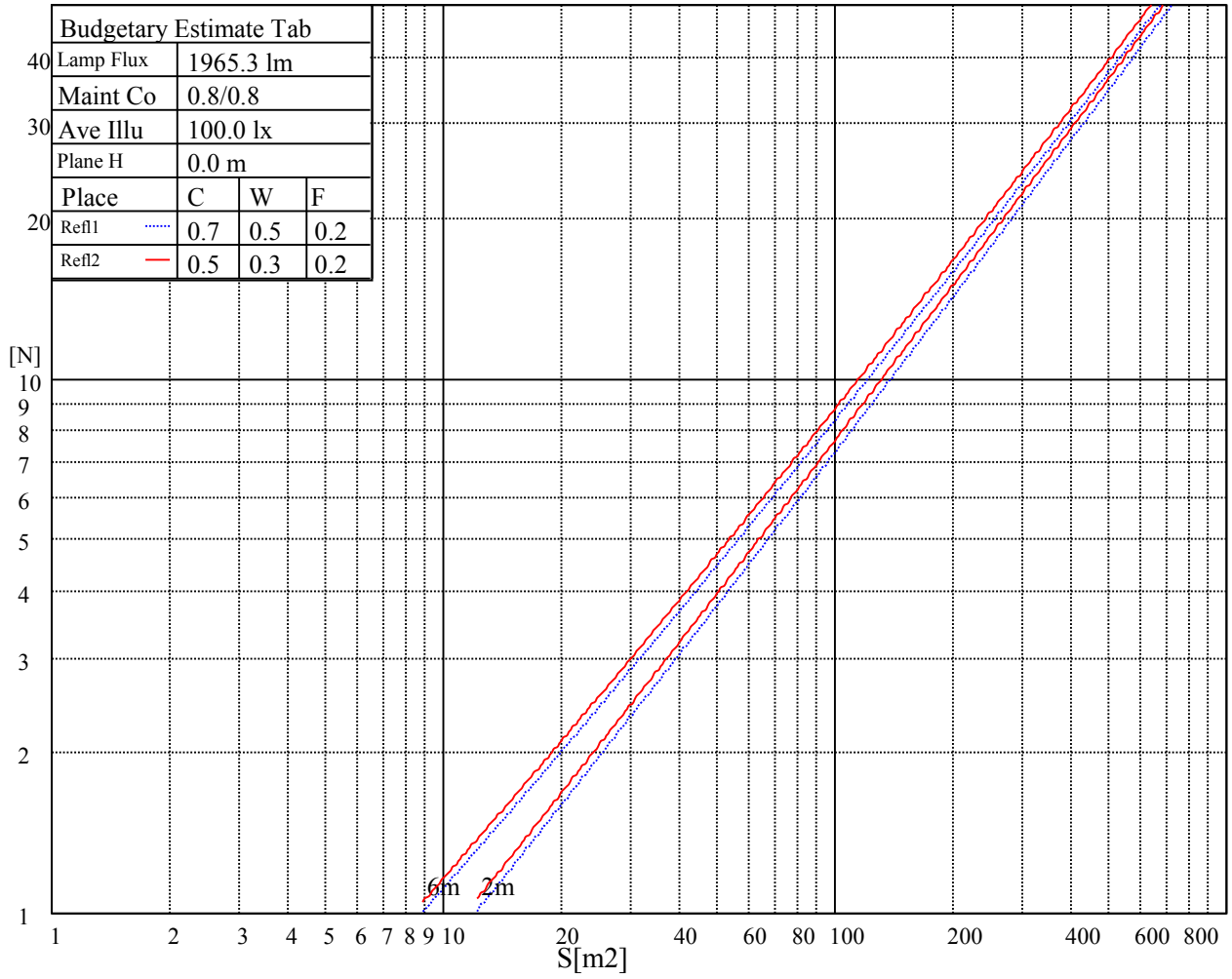


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/12/21
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Budgetary Estimate Table

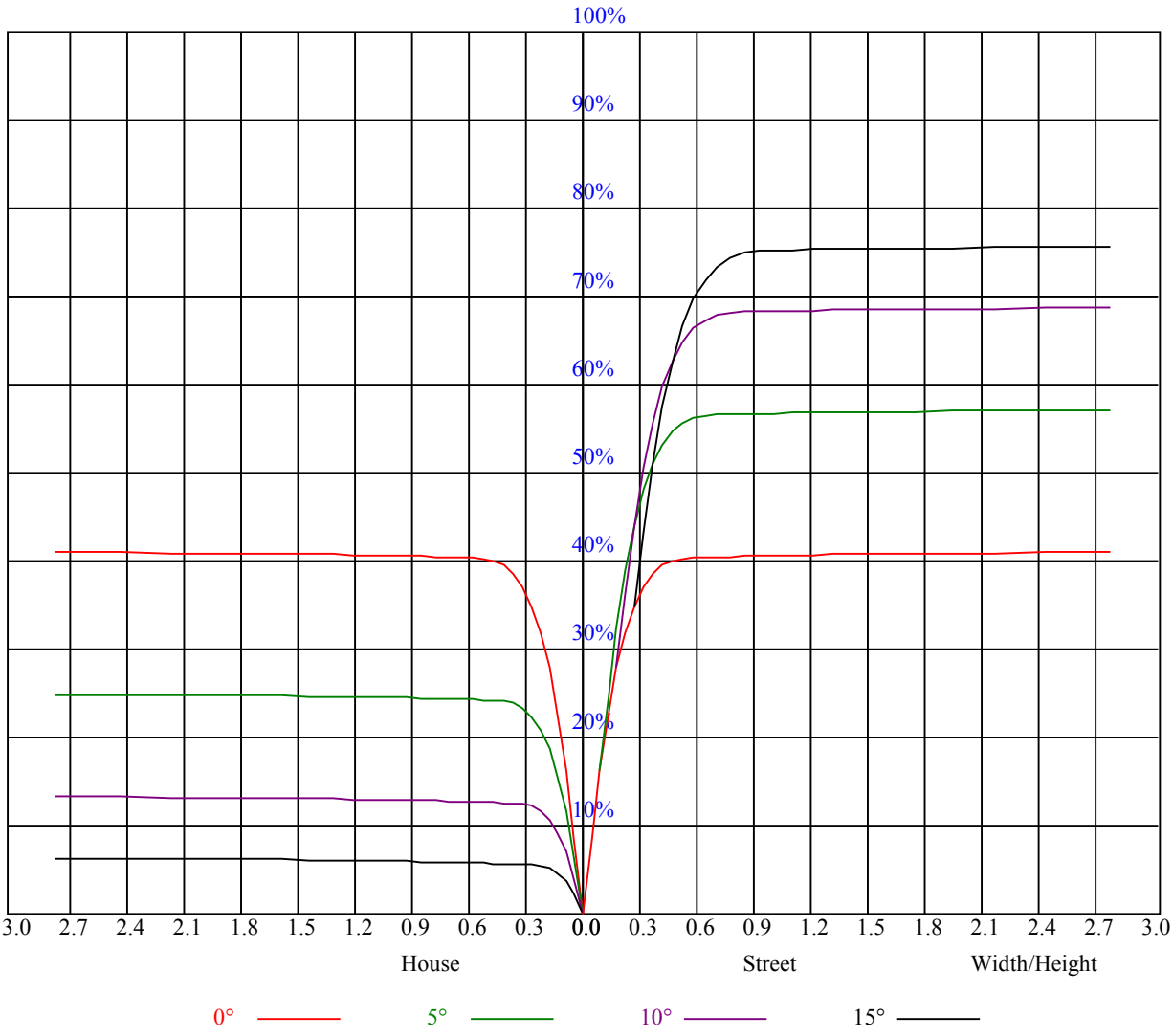


Equipment: GMS1980 Date: 2022/12/21 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.83
1	0.93	0.92	0.90	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.82	0.81	0.80
2	0.89	0.87	0.84	0.88	0.85	0.84	0.85	0.83	0.82	0.83	0.81	0.80	0.81	0.79	0.78	0.77
3	0.85	0.83	0.80	0.84	0.82	0.80	0.82	0.80	0.78	0.80	0.79	0.77	0.79	0.77	0.76	0.75
4	0.82	0.79	0.77	0.82	0.79	0.76	0.80	0.78	0.76	0.78	0.76	0.75	0.77	0.75	0.74	0.73
5	0.80	0.76	0.74	0.79	0.76	0.74	0.78	0.75	0.73	0.77	0.74	0.73	0.75	0.73	0.72	0.71
6	0.77	0.74	0.72	0.77	0.74	0.71	0.76	0.73	0.71	0.75	0.72	0.71	0.74	0.72	0.70	0.69
7	0.75	0.72	0.70	0.75	0.72	0.69	0.74	0.71	0.69	0.73	0.71	0.69	0.72	0.70	0.68	0.68
8	0.73	0.70	0.68	0.73	0.70	0.68	0.72	0.69	0.67	0.71	0.69	0.67	0.71	0.69	0.67	0.66
9	0.71	0.68	0.66	0.71	0.68	0.66	0.70	0.68	0.66	0.70	0.67	0.66	0.69	0.67	0.65	0.65
10	0.70	0.67	0.65	0.69	0.66	0.64	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.66	0.64	0.63

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/12/21	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	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	10607.33	10987.36	11169.01	11105.08	10832.60	10254.79	9446.93	8639.67	7693.78
45.0	11149.29	10970.63	10431.66	9804.26	9056.15	8122.81	7156.01	6352.33	5629.92
90.0	10822.45	10356.97	9551.50	8792.04	7968.65	7031.12	6149.17	5448.27	4754.54
135.0	10867.26	10405.97	9590.34	8814.75	7990.16	7068.77	6189.21	5496.07	4818.47
180.0	10607.33	10040.28	9128.45	8319.40	7485.25	6590.74	5770.34	5129.19	4429.48
225.0	11149.29	11155.87	10836.19	10358.17	9716.42	8860.16	7929.81	7126.13	6280.03
270.0	10822.45	11076.99	11109.26	10898.93	10474.09	9786.93	8940.83	8127.59	7218.75
315.0	10867.26	11129.58	11157.06	10956.89	10546.39	9852.06	8995.20	8180.17	7237.87
360.0	10607.33	10987.36	11169.01	11105.08	10832.60	10254.79	9446.93	8639.67	7693.78

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6864.41	6006.96	5239.13	4637.42	4037.50	3518.85	3111.33	2751.62	2360.24
45.0	4908.10	4278.31	3787.74	3307.32	2890.25	2564.59	2246.11	1992.76	1729.85
90.0	4216.76	3691.53	3238.61	2881.28	2527.55	2215.64	1967.66	1743.59	1484.26
135.0	4283.09	3748.90	3288.80	2926.70	2566.39	2250.89	2004.71	1780.04	1509.96
180.0	3998.66	3512.28	3050.98	2761.18	2427.76	2102.70	1898.95	1682.04	1401.21
225.0	5598.25	4923.04	4322.52	3849.28	3379.62	2963.15	2636.90	2343.51	2016.06
270.0	6450.33	5675.33	4972.04	4422.91	3870.20	3388.59	3008.56	2669.16	2293.32
315.0	6441.96	5631.71	4911.09	4338.66	3782.96	3300.75	2927.89	2596.26	2232.37
360.0	6864.41	6006.96	5239.13	4637.42	4037.50	3518.85	3111.33	2751.62	2360.24

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	2088.36	1847.56	1604.37	1383.28	1199.84	1014.60	836.54	685.37	521.64
45.0	1498.60	1298.43	1137.10	915.41	761.25	631.59	435.60	313.11	245.17
90.0	1173.49	1110.03	908.42	752.29	601.83	427.23	300.98	194.97	95.60
135.0	1321.73	1134.71	953.66	770.81	620.24	464.88	323.86	307.73	119.57
180.0	1185.62	1064.20	900.54	703.23	553.97	414.03	260.04	161.27	85.86
225.0	1786.61	1573.29	1182.87	1140.68	977.26	770.81	613.18	466.49	306.17
270.0	2029.21	1796.77	1557.16	1336.07	1153.83	968.00	788.14	633.38	468.46
315.0	1978.42	1750.16	1490.24	1183.11	1117.98	957.48	756.11	602.19	462.37
360.0	2088.36	1847.56	1604.37	1383.28	1199.84	1014.60	836.54	685.37	521.64

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	384.21	304.74	137.73	70.15	26.53	14.04	12.85	12.07	11.35
45.0	105.05	40.87	16.73	12.19	11.47	10.82	10.28	9.92	9.56
90.0	48.22	16.91	12.07	11.47	10.88	10.28	9.92	9.62	9.32
135.0	49.36	17.75	12.73	11.89	11.29	10.76	10.34	10.04	9.68
180.0	32.27	14.04	12.79	12.01	11.41	10.93	10.58	10.28	9.98
225.0	210.27	111.92	40.45	19.54	13.62	12.55	11.95	11.41	10.76
270.0	334.02	301.75	115.80	50.91	19.12	13.50	12.49	11.77	11.17
315.0	319.62	196.35	111.38	45.77	18.11	13.44	12.43	11.71	11.05
360.0	384.21	304.74	137.73	70.15	26.53	14.04	12.85	12.07	11.35

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	10.76	10.34	9.92	9.56	9.32	9.08	8.90	8.72	8.60
45.0	9.32	9.08	8.90	8.72	8.60	8.48	8.37	8.31	8.19
90.0	9.14	8.96	8.78	8.66	8.54	8.48	8.43	8.37	8.25
135.0	9.44	9.26	9.14	8.96	8.90	8.78	8.72	8.60	8.54
180.0	9.74	9.56	9.38	9.26	9.14	9.08	8.96	8.90	8.84
225.0	10.46	10.16	9.86	9.56	9.38	9.20	9.14	9.02	8.90
270.0	10.64	10.22	9.92	9.56	9.38	9.20	8.96	8.84	8.78
315.0	10.46	10.10	9.74	9.44	9.20	8.96	8.84	8.72	8.60
360.0	10.76	10.34	9.92	9.56	9.32	9.08	8.90	8.72	8.60

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	8.48	8.37	8.31	8.25	8.19	8.19	8.07	8.07	8.01
45.0	8.19	8.13	8.07	8.01	7.95	7.95	7.89	7.89	7.83
90.0	8.19	8.19	8.07	8.07	8.01	8.01	7.95	7.95	7.89
135.0	8.48	8.43	8.43	8.37	8.31	8.31	8.25	8.25	8.19
180.0	8.78	8.72	8.66	8.66	8.60	8.60	8.54	8.48	8.48
225.0	8.84	8.78	8.72	8.66	8.66	8.60	8.54	8.54	8.48
270.0	8.66	8.60	8.54	8.48	8.43	8.37	8.31	8.31	8.25
315.0	8.48	8.37	8.37	8.25	8.25	8.19	8.13	8.07	8.07
360.0	8.48	8.37	8.31	8.25	8.19	8.19	8.07	8.07	8.01

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	7.95	7.95	7.95	7.89	7.83	7.89	7.83	7.89	7.83
45.0	7.83	7.83	7.77	7.77	7.77	7.77	7.71	7.71	7.71
90.0	7.89	7.89	7.83	7.83	7.77	7.77	7.77	7.71	7.71
135.0	8.13	8.13	8.13	8.13	8.07	8.07	8.01	8.01	7.95
180.0	8.48	8.48	8.48	8.43	8.43	8.37	8.37	8.43	8.37
225.0	8.48	8.48	8.43	8.43	8.43	8.43	8.37	8.37	8.37
270.0	8.25	8.25	8.19	8.19	8.13	8.13	8.07	8.07	8.01
315.0	8.01	7.95	7.95	7.95	7.89	7.89	7.89	7.83	7.83
360.0	7.95	7.95	7.95	7.89	7.83	7.89	7.83	7.89	7.83

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.83	7.77	7.77	7.77	7.71	7.71	7.77	7.71	7.71
45.0	7.65	7.65	7.65	7.71	7.65	7.65	7.65	7.59	7.59
90.0	7.71	7.71	7.65	7.71	7.65	7.65	7.65	7.65	7.65
135.0	7.95	8.01	7.95	7.95	7.95	7.89	7.89	7.89	7.89
180.0	8.43	8.37	8.31	8.37	8.31	8.37	8.31	8.31	8.31
225.0	8.37	8.37	8.31	8.31	8.31	8.31	8.25	8.25	8.25
270.0	8.07	8.01	8.01	7.95	7.95	7.95	7.95	7.89	7.89
315.0	7.77	7.77	7.71	7.71	7.71	7.71	7.71	7.65	7.71
360.0	7.83	7.77	7.77	7.77	7.71	7.71	7.77	7.71	7.71

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	7.71	7.71	7.71	7.71	7.65	7.65	7.71	7.65	7.65
45.0	7.65	7.65	7.59	7.59	7.59	7.59	7.59	7.59	7.53
90.0	7.65	7.59	7.65	7.59	7.53	7.53	7.53	7.59	7.53
135.0	7.83	7.89	7.83	7.83	7.77	7.77	7.77	7.71	7.71
180.0	8.25	8.25	8.25	8.13	8.13	8.07	8.07	8.01	7.89
225.0	8.25	8.25	8.25	8.25	8.25	8.25	8.31	8.25	8.19
270.0	7.89	7.89	7.83	7.83	7.83	7.83	7.83	7.83	7.77
315.0	7.65	7.59	7.65	7.65	7.65	7.59	7.59	7.59	7.53
360.0	7.71	7.71	7.71	7.71	7.65	7.65	7.71	7.65	7.65

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	7.59	7.53	7.53	7.53	7.47	7.53	7.47	7.41	7.35
45.0	7.47	7.41	7.35	7.35	7.35	7.35	7.29	7.29	7.29
90.0	7.53	7.47	7.47	7.29	7.29	7.29	7.35	7.29	7.29
135.0	7.71	7.59	7.65	7.65	7.35	7.35	7.35	7.35	7.29
180.0	7.71	7.77	7.71	7.59	7.47	7.41	7.53	7.65	7.41
225.0	8.13	7.95	7.71	7.59	7.53	7.53	7.41	7.35	7.35
270.0	7.83	7.77	7.71	7.65	7.47	7.41	7.35	7.35	7.29
315.0	7.53	7.53	7.47	7.47	7.41	7.41	7.35	7.41	7.35
360.0	7.59	7.53	7.53	7.53	7.47	7.53	7.47	7.41	7.35

Intensity data(cd)

C/γ(°)	90.0
0.0	7.41
45.0	7.29
90.0	7.23
135.0	7.35
180.0	7.47
225.0	7.29
270.0	7.29
315.0	7.35
360.0	7.41