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Nata

LumCAT: 1-0919-M
Luminaire: 99.02.73.179+92.76.853.00

Report No: 220606-B008	Voltage(V): 38.0200
Test No: 220606-C008	Current(A): 0.3610
LampCAT: CREE CXA1512	Power (W): 13.7250
Lamp flux(lm): 1404.6	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 43	Width(mm): 43
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1013.50
Efficiency(%): 72.15%
Lumens(lm)/Power(W): 73.84
Central intensity(cd): 6492.302
Maximum intensity(cd): 6492.302
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=20.6
[C90/270]Total=20.6
Field angle(10%Imax): [C0/180]Total=39.7
[C90/270]Total=39.7
Maximum s/h(1/2): C0_180=0.35 C90_270=0.35
Maximum s/h(1/4): C0_180=0.36 C90_270=0.36
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 72.15%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.541%

Equipment: GMS1980	Date: 2022/6/06	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.73

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	6492.302	0.000	0	.000%	.000%
1.0	6456.376	6.196	6.196	.441%	.611%
2.0	6334.330	18.358	24.554	1.307%	2.423%
3.0	6138.191	29.830	54.384	2.124%	5.366%
4.0	5889.694	40.261	94.645	2.866%	9.339%
5.0	5567.476	49.288	143.934	3.509%	14.202%
6.0	5195.365	56.562	200.495	4.027%	19.783%
7.0	4764.771	61.822	262.318	4.401%	25.882%
8.0	4334.102	65.119	327.437	4.636%	32.308%
9.0	3842.037	66.263	393.7	4.717%	38.846%
10.0	3368.271	65.251	458.95	4.645%	45.284%
11.0	2938.125	63.014	521.964	4.486%	51.501%
12.0	2527.025	59.742	581.706	4.253%	57.396%
13.0	2145.801	55.455	637.161	3.948%	62.868%
14.0	1829.858	50.888	688.049	3.623%	67.889%
15.0	1558.729	46.520	734.569	3.312%	72.479%
16.0	1301.157	41.905	776.474	2.983%	76.613%
17.0	1116.640	37.652	814.126	2.681%	80.328%
18.0	944.596	33.985	848.111	2.420%	83.682%
19.0	784.892	30.090	878.201	2.142%	86.651%
20.0	625.710	25.818	904.019	1.838%	89.198%
21.0	480.503	21.242	925.26	1.512%	91.294%
22.0	368.825	17.068	942.328	1.215%	92.978%
23.0	257.132	13.134	955.462	.935%	94.274%
24.0	172.723	9.398	964.86	.669%	95.201%
25.0	95.201	6.092	970.952	.434%	95.802%
26.0	57.296	3.600	974.552	.256%	96.157%
27.0	37.428	2.317	976.869	.165%	96.386%
28.0	27.725	1.650	978.519	.117%	96.549%
29.0	21.690	1.293	979.812	.092%	96.676%
30.0	18.643	1.089	980.901	.078%	96.784%
31.0	16.671	0.983	981.883	.070%	96.881%
32.0	15.110	0.910	982.794	.065%	96.971%
33.0	13.855	0.853	983.647	.061%	97.055%
34.0	12.712	0.804	984.451	.057%	97.134%
35.0	11.794	0.761	985.212	.054%	97.209%
36.0	10.905	0.723	985.935	.051%	97.281%
37.0	10.218	0.689	986.624	.049%	97.349%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	9.575	0.661	987.285	.047%	97.414%
39.0	9.000	0.634	987.919	.045%	97.476%
40.0	8.515	0.611	988.53	.043%	97.537%
41.0	8.111	0.592	989.122	.042%	97.595%
42.0	7.723	0.575	989.697	.041%	97.652%
43.0	7.379	0.559	990.256	.040%	97.707%
44.0	7.118	0.547	990.803	.039%	97.761%
45.0	6.842	0.536	991.34	.038%	97.814%
46.0	6.625	0.527	991.867	.037%	97.866%
47.0	6.416	0.519	992.385	.037%	97.917%
48.0	6.244	0.512	992.897	.036%	97.967%
49.0	6.057	0.505	993.402	.036%	98.017%
50.0	5.893	0.498	993.901	.035%	98.066%
51.0	5.774	0.494	994.394	.035%	98.115%
52.0	5.647	0.490	994.884	.035%	98.164%
53.0	5.520	0.486	995.37	.035%	98.211%
54.0	5.423	0.482	995.852	.034%	98.259%
55.0	5.333	0.480	996.332	.034%	98.306%
56.0	5.236	0.478	996.81	.034%	98.354%
57.0	5.184	0.476	997.286	.034%	98.401%
58.0	5.101	0.476	997.762	.034%	98.447%
59.0	5.049	0.475	998.236	.034%	98.494%
60.0	4.997	0.475	998.711	.034%	98.541%
61.0	4.945	0.474	999.185	.034%	98.588%
62.0	4.930	0.476	999.661	.034%	98.635%
63.0	4.877	0.477	1000.138	.034%	98.682%
64.0	4.855	0.478	1000.616	.034%	98.729%
65.0	4.810	0.478	1001.094	.034%	98.776%
66.0	4.788	0.479	1001.573	.034%	98.823%
67.0	4.773	0.481	1002.054	.034%	98.871%
68.0	4.743	0.482	1002.536	.034%	98.918%
69.0	4.720	0.483	1003.019	.034%	98.966%
70.0	4.706	0.484	1003.503	.034%	99.014%
71.0	4.698	0.486	1003.989	.035%	99.062%
72.0	4.691	0.488	1004.477	.035%	99.110%
73.0	4.683	0.490	1004.967	.035%	99.158%
74.0	4.683	0.492	1005.459	.035%	99.207%
75.0	4.676	0.494	1005.954	.035%	99.256%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.683	0.497	1006.451	.035%	99.305%
77.0	4.720	0.501	1006.952	.036%	99.354%
78.0	4.698	0.504	1007.456	.036%	99.404%
79.0	4.683	0.504	1007.96	.036%	99.454%
80.0	4.683	0.505	1008.465	.036%	99.504%
81.0	4.698	0.507	1008.973	.036%	99.554%
82.0	4.728	0.511	1009.484	.036%	99.604%
83.0	4.788	0.517	1010.001	.037%	99.655%
84.0	4.840	0.524	1010.526	.037%	99.707%
85.0	4.795	0.526	1011.051	.037%	99.759%
86.0	4.758	0.522	1011.574	.037%	99.810%
87.0	4.407	0.502	1012.075	.036%	99.860%
88.0	4.310	0.477	1012.553	.034%	99.907%
89.0	4.302	0.472	1013.025	.034%	99.953%
90.0	4.310	0.472	1013.497	.034%	100.000%

Zonal flux distribution table

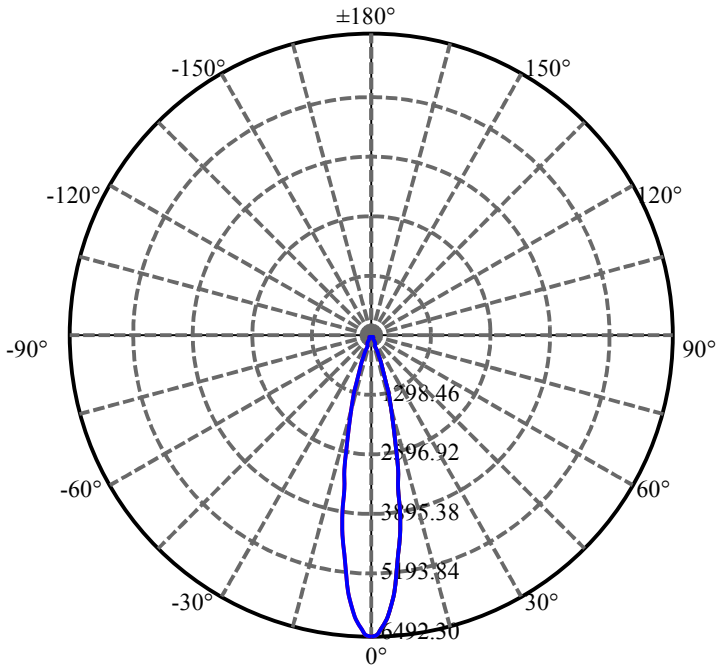
ZONAL LUMEN SUMMARY

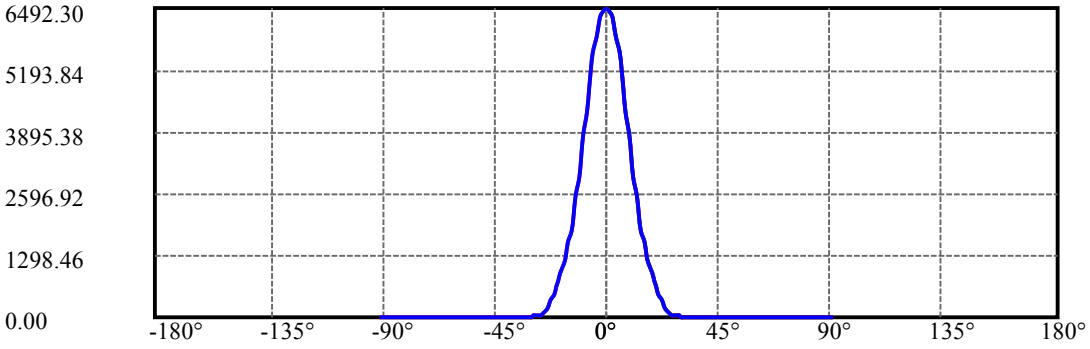
Zone	Lumens	%Lamp	%Fixt
0-30	980.90	69.83%	96.78%
0-40	988.53	70.38%	97.54%
0-60	998.71	71.10%	98.54%
0-90	1013.02	72.12%	99.95%
0-120	1013.02	72.12%	99.95%
0-180	1013.50	72.15%	100.00%
60-90	14.79	1.05%	1.46%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.91	810.80	57.72%	80.00%

ZONAL LUMEN SUMMARY

0-10	458.95
10-20	445.07
20-30	76.88
30-40	7.63
40-50	5.37
50-60	4.81
60-70	4.79
70-80	4.96
80-90	4.56
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

Light Distribution Curve [Unit:cd]





C0(Max):

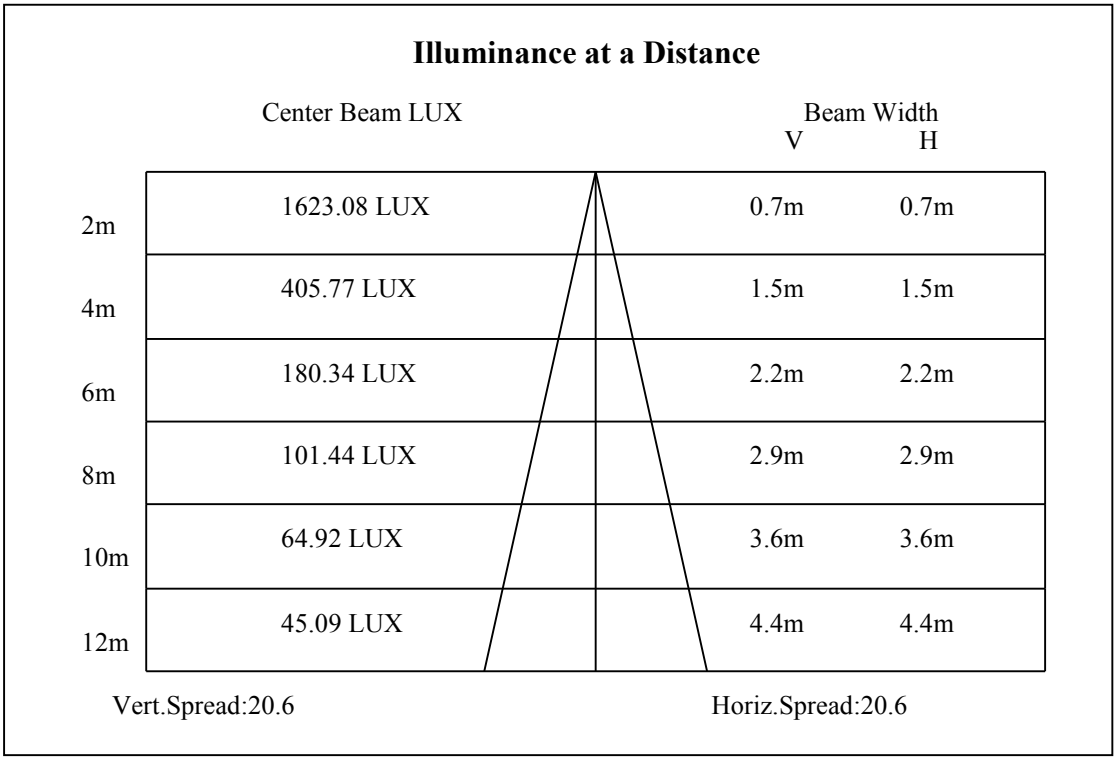
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:19.9 Right:19.9
:C90/270Left:19.9 Right:19.9

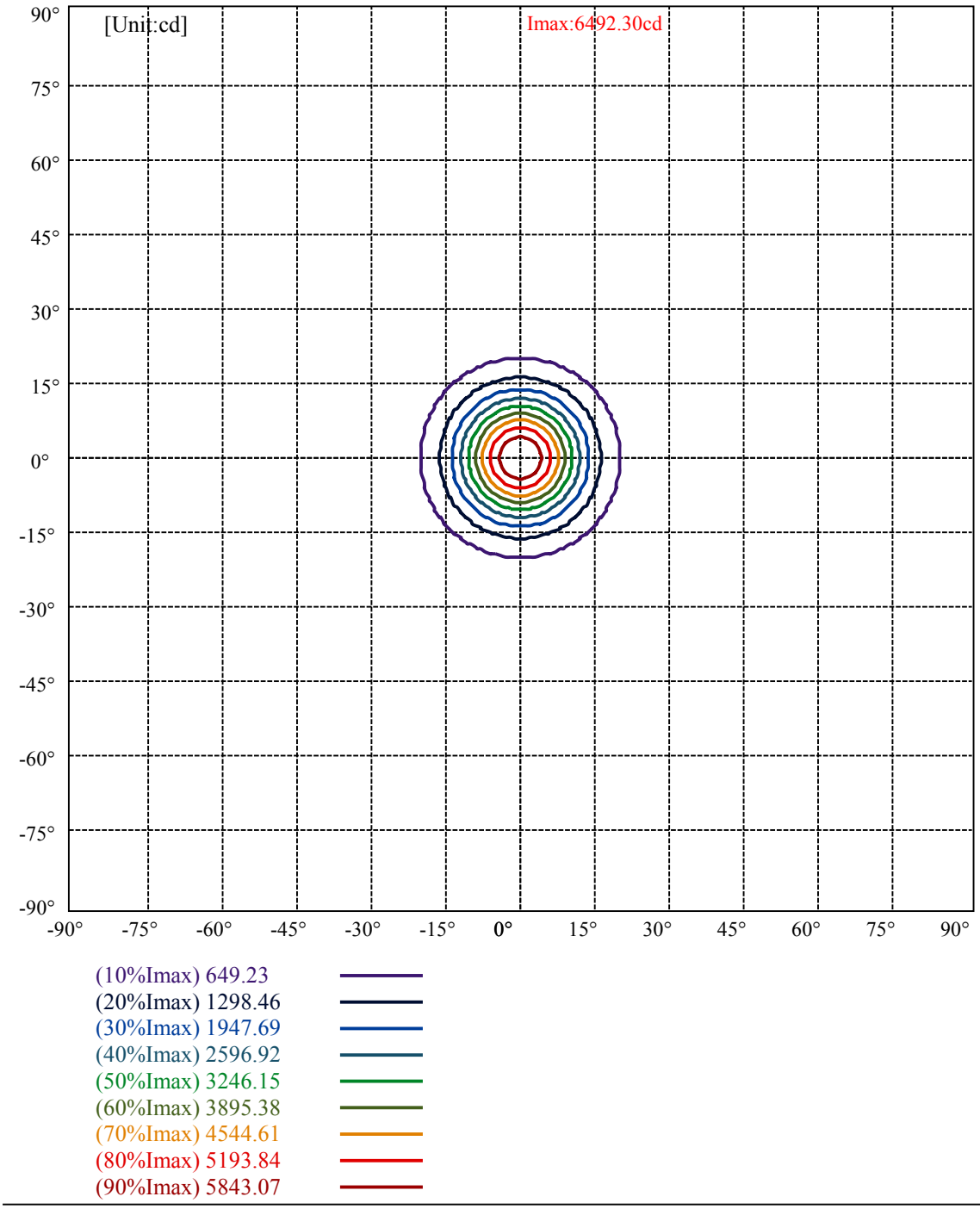
Beam Angle(50%Imax):C0/180Left:10.3 Right:10.3
:C90/270Left:10.3 Right:10.3

Lux distance Curve



Equipment: GMS1980 Date: 2022/6/06 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

ISO-Intensity(V-H)

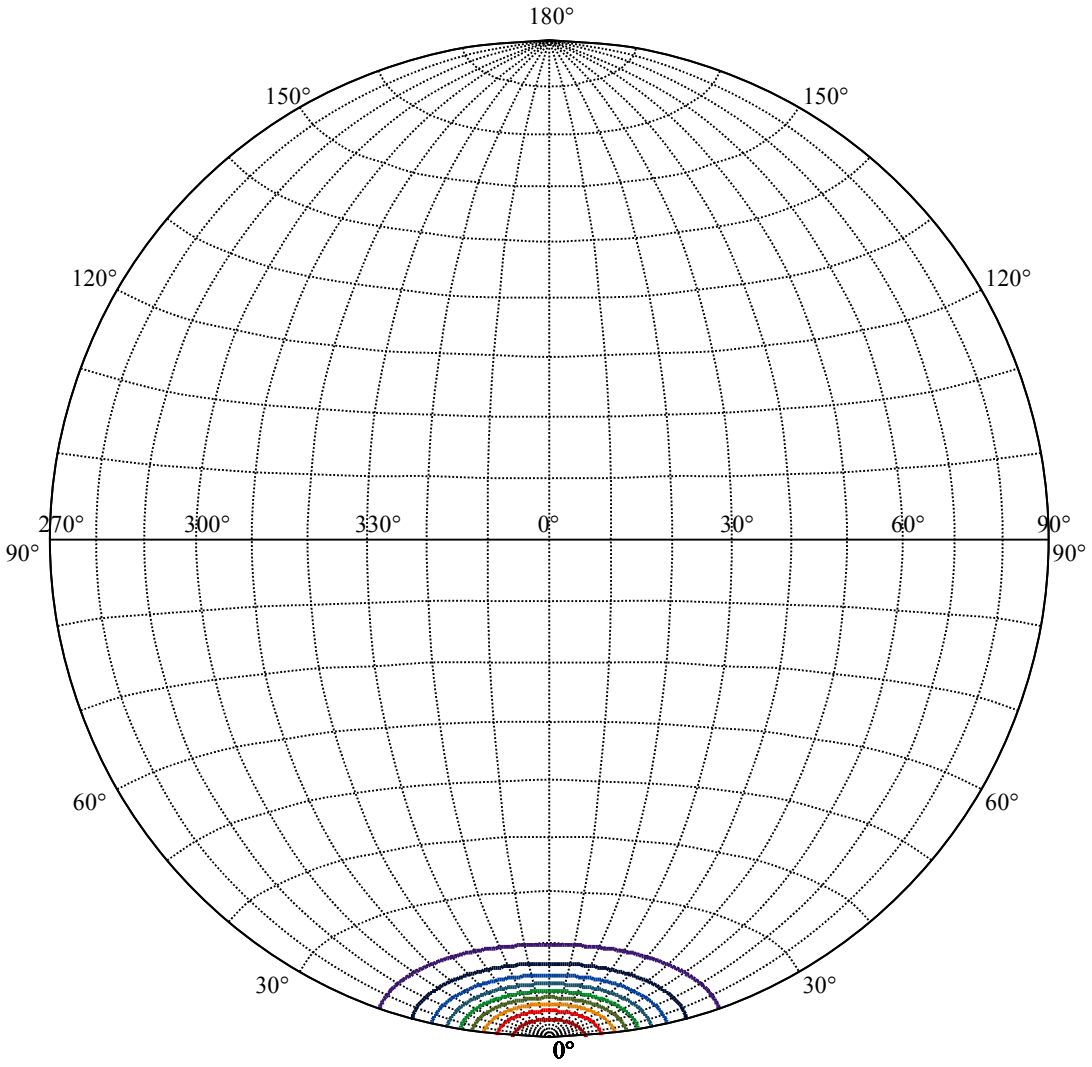


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/06
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:6492.30

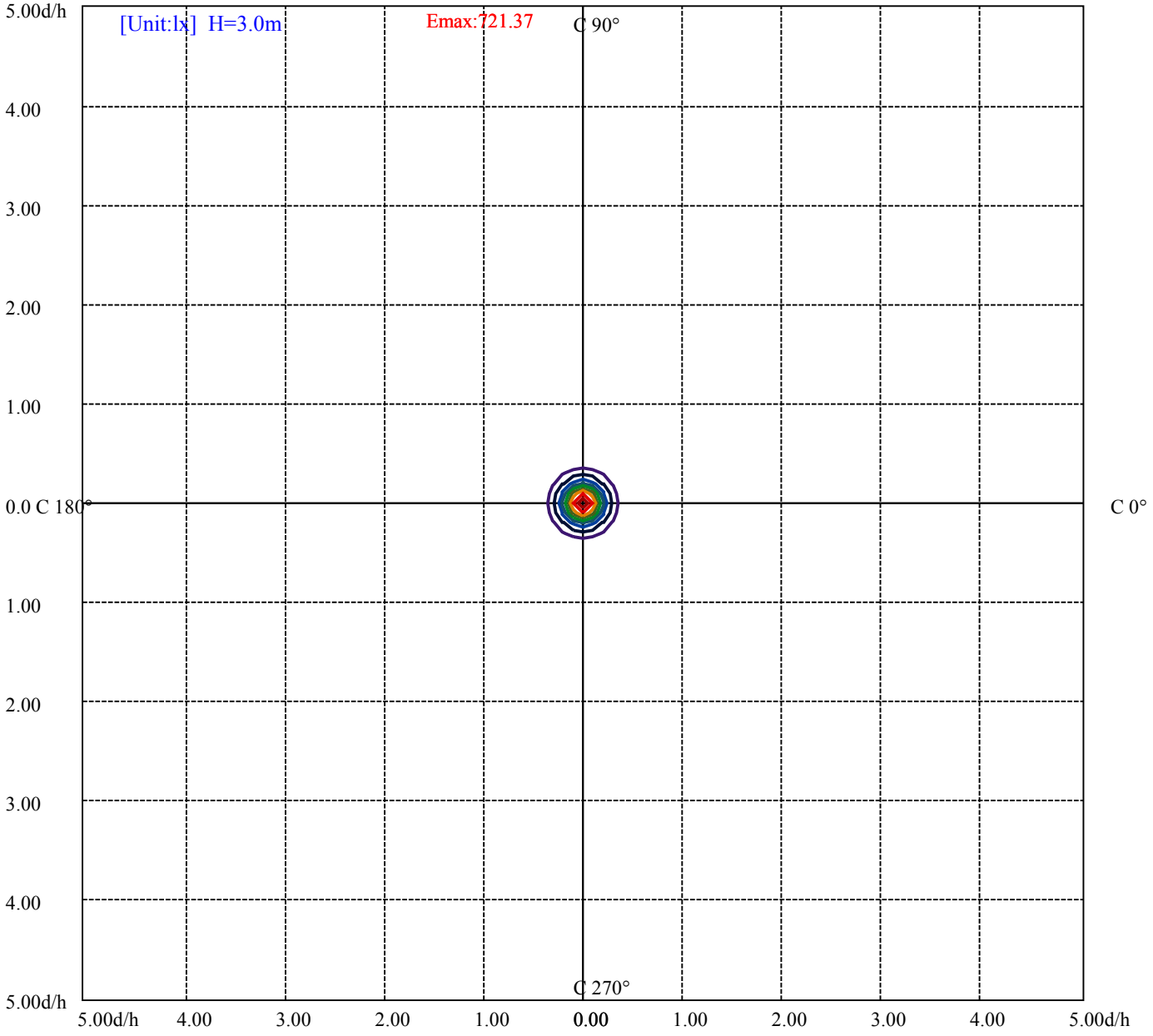
(10%Imax) 649.23
(20%Imax) 1298.46
(30%Imax) 1947.69
(40%Imax) 2596.92
(50%Imax) 3246.15
(60%Imax) 3895.38
(70%Imax) 4544.61
(80%Imax) 5193.84
(90%Imax) 5843.07

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/06
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

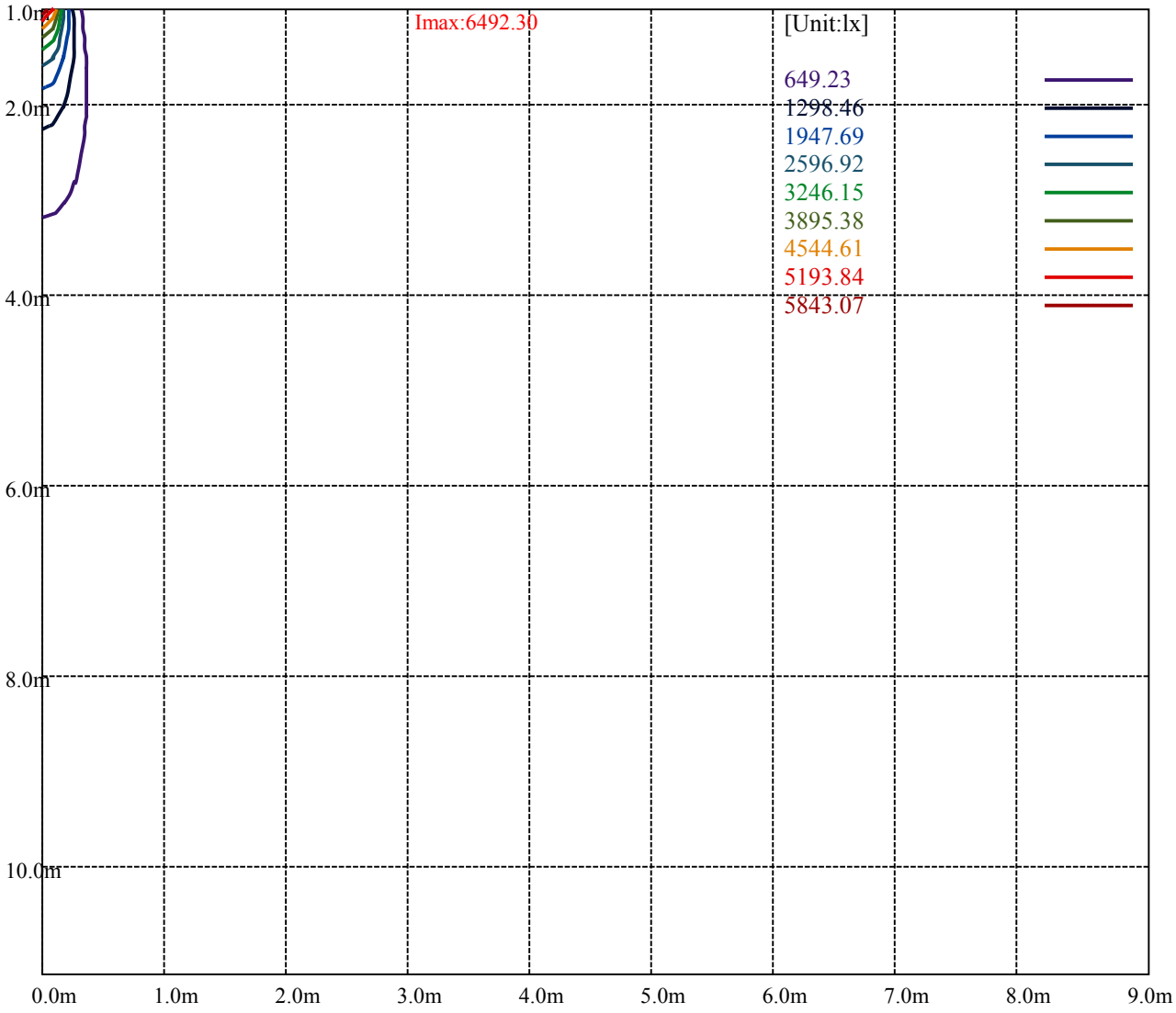
ISO illuminance diagram



(10%Emax) 72.13667
(20%Emax) 144.2733
(30%Emax) 216.41
(40%Emax) 288.5467
(50%Emax) 360.6833
(60%Emax) 432.82
(70%Emax) 504.9567
(80%Emax) 577.0933
(90%Emax) 649.23

Equipment: GMS1980
Temperature(°C): 25.0
Date: 2022/6/06
Humidity(%): 65.0%
Operator: NT07
Distance(m): 7.73

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2022/6/06
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.73

Luminance Limitting Curve(no luminous side)

Luminance Table

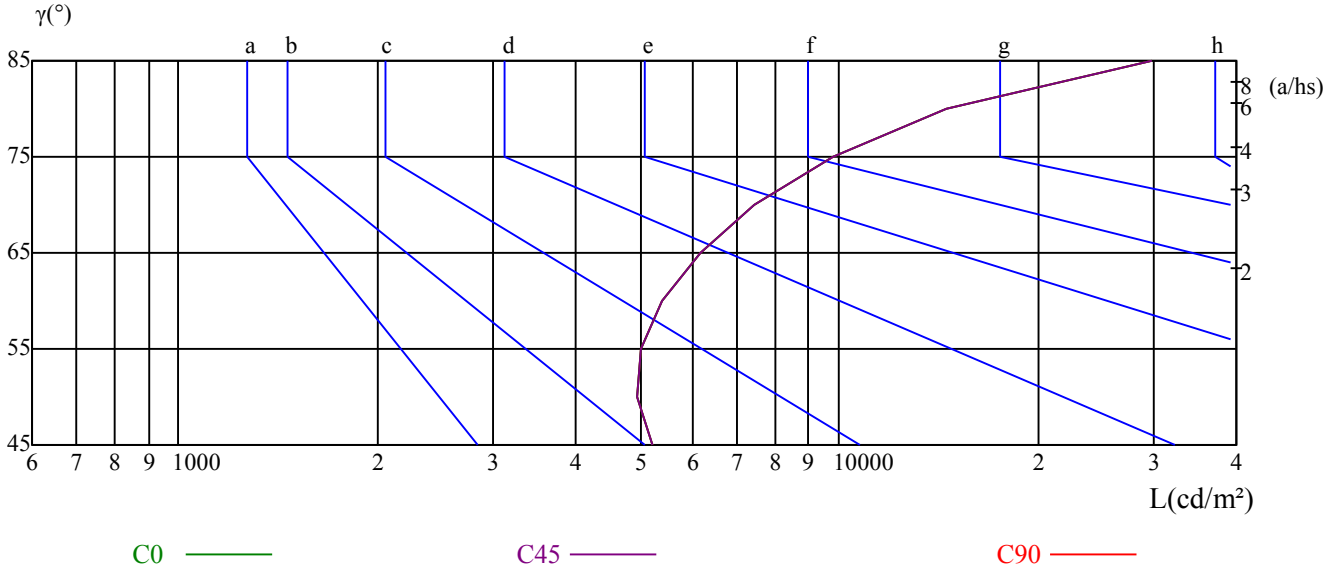
γ	45	50	55	60	65	70	75	80	85
C0	5233	4958	5029	5405	6156	7441	9770	14586	29756
C45	5233	4958	5029	5405	6156	7441	9770	14586	29756
C90	5233	4958	5029	5405	6156	7441	9770	14586	29756

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
6156	6156	6156	9770	9770	9770	29756	29756	29756

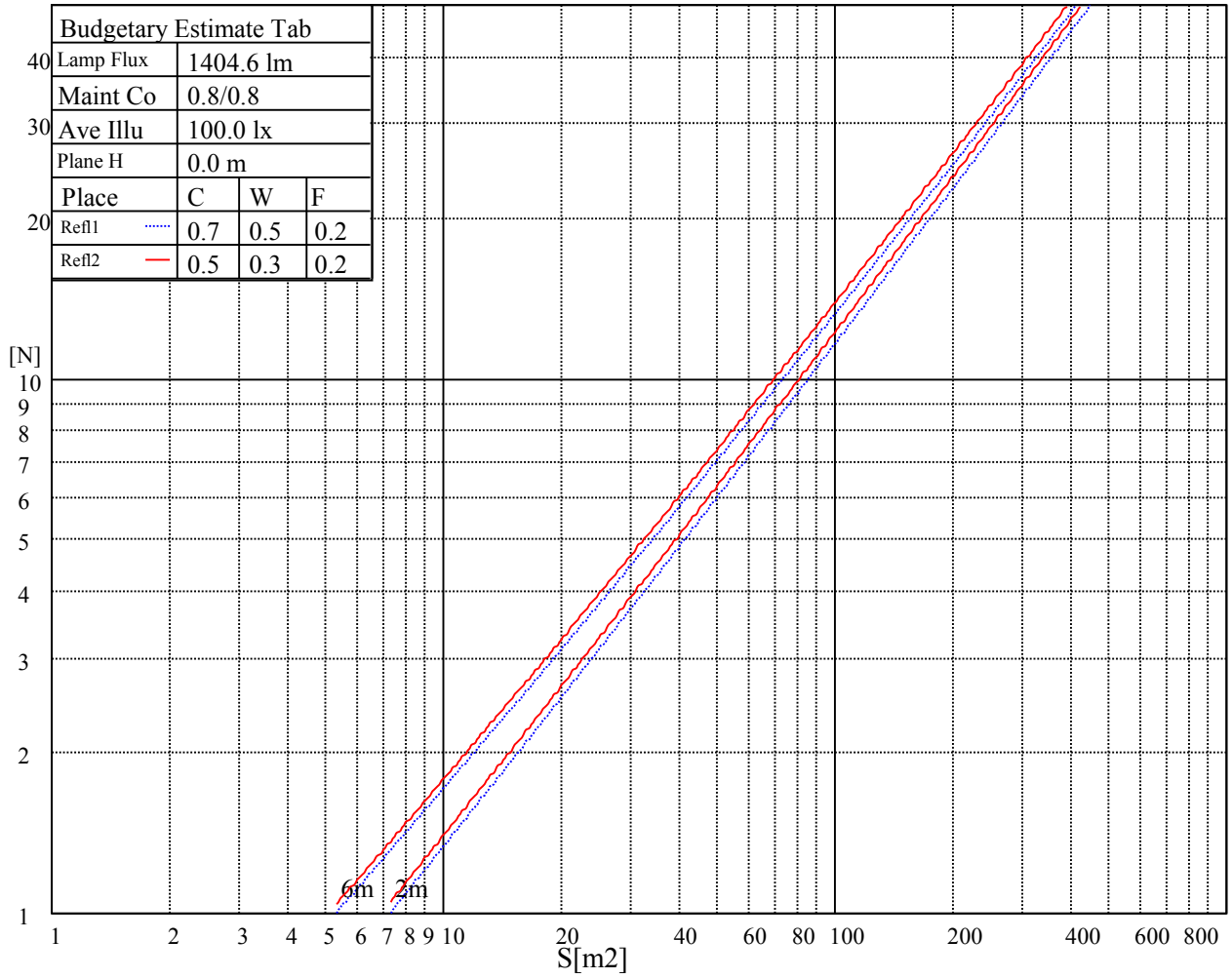
Glare Table

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



Budgetary Estimate Table

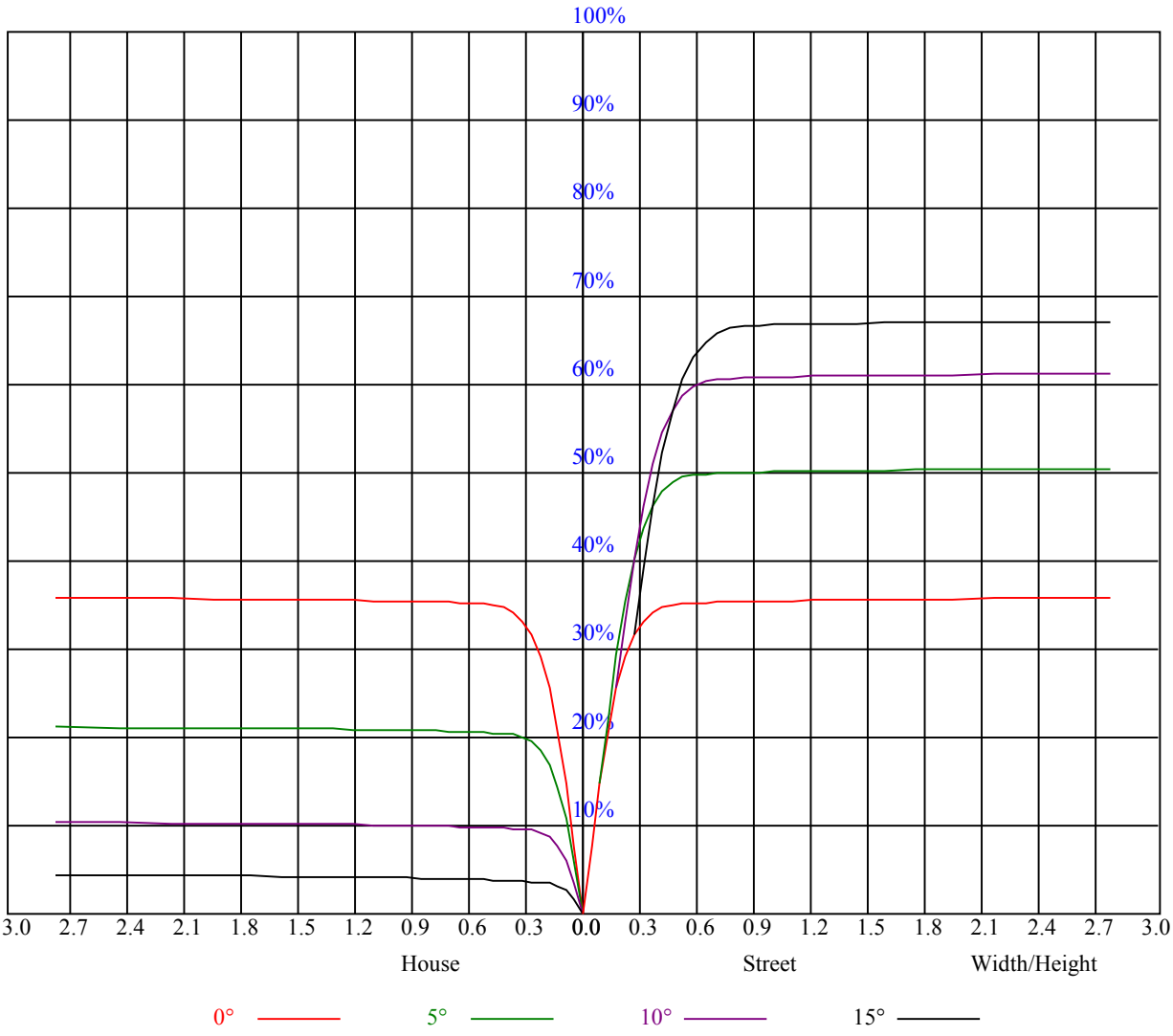


Equipment: GMS1980 Date: 2022/6/06 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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	0.86	0.86	0.86	0.84	0.84	0.84	0.80	0.80	0.80	0.77	0.77	0.77	0.74	0.74	0.74	0.72
1	0.82	0.80	0.79	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.74	0.73	0.72	0.71	0.71	0.70
2	0.78	0.76	0.74	0.77	0.75	0.73	0.75	0.73	0.72	0.73	0.71	0.70	0.71	0.70	0.69	0.68
3	0.75	0.73	0.71	0.74	0.72	0.70	0.72	0.71	0.69	0.71	0.69	0.68	0.69	0.68	0.67	0.66
4	0.73	0.70	0.68	0.72	0.69	0.67	0.70	0.68	0.67	0.69	0.67	0.66	0.68	0.66	0.65	0.64
5	0.70	0.68	0.66	0.70	0.67	0.65	0.69	0.66	0.65	0.68	0.66	0.64	0.67	0.65	0.64	0.63
6	0.68	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.63	0.65	0.64	0.62	0.62
7	0.67	0.64	0.62	0.66	0.64	0.62	0.65	0.63	0.62	0.65	0.63	0.61	0.64	0.62	0.61	0.60
8	0.65	0.62	0.60	0.65	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.60	0.63	0.61	0.60	0.59
9	0.63	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.59	0.62	0.60	0.59	0.62	0.60	0.59	0.58
10	0.62	0.60	0.58	0.62	0.59	0.58	0.61	0.59	0.58	0.61	0.59	0.58	0.61	0.59	0.57	0.57

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2022/6/06	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	6529.80	6511.87	6378.02	6208.33	5980.67	5609.60	5272.60	4891.37	4420.52
45.0	6461.68	6348.75	6149.77	5892.23	5610.80	5234.35	4782.62	4357.78	3920.39
90.0	6457.50	6360.70	6188.61	5952.58	5641.27	5307.85	4931.41	4399.61	3950.26
135.0	6520.24	6505.30	6401.33	6216.09	5996.80	5696.24	5323.98	4941.56	4578.27
180.0	6529.80	6468.85	6339.78	6119.29	5866.54	5514.00	5147.11	4688.21	4199.43
225.0	6461.68	6508.88	6473.03	6343.97	6130.05	5880.88	5531.92	5126.80	4726.45
270.0	6457.50	6496.34	6435.39	6288.40	6094.20	5804.99	5446.48	5085.57	4680.44
315.0	6520.24	6450.33	6308.71	6084.64	5797.23	5491.89	5126.80	4627.26	4197.04
360.0	6529.80	6511.87	6378.02	6208.33	5980.67	5609.60	5272.60	4891.37	4420.52

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	3932.94	3497.93	3020.51	2621.96	2217.43	1872.06	1616.32	1367.74	1149.05
45.0	3367.67	2943.43	2546.67	2151.70	1814.10	1567.92	1331.29	1120.96	956.64
90.0	3506.30	2973.90	2581.92	2225.80	1845.17	1594.80	1309.19	1155.68	983.23
135.0	3972.37	3524.82	3147.19	2640.48	2236.55	1963.48	1640.22	1391.65	1217.17
180.0	3742.32	3263.70	2803.61	2432.54	2102.70	1757.93	1527.28	1172.17	1102.02
225.0	4302.21	3752.48	3316.29	2900.41	2468.39	2090.75	1806.93	1536.84	1181.02
270.0	4154.62	3720.81	3285.21	2823.32	2403.26	2066.85	1748.37	1480.68	1273.33
315.0	3757.86	3269.08	2803.61	2419.99	2078.80	1725.07	1490.24	1183.53	1070.65
360.0	3932.94	3497.93	3020.51	2621.96	2217.43	1872.06	1616.32	1367.74	1149.05

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	979.35	824.59	643.54	512.68	390.78	307.73	167.79	102.83	60.83
45.0	779.78	627.41	483.40	348.36	307.13	152.13	95.37	49.24	33.88
90.0	806.90	643.60	511.31	374.89	270.98	174.54	107.85	55.81	36.69
135.0	996.08	832.36	675.81	510.89	384.81	302.35	169.82	105.34	62.08
180.0	918.76	764.66	583.73	453.23	338.32	216.37	147.23	82.64	44.81
225.0	1114.09	931.85	781.57	621.25	473.60	354.63	251.14	147.77	88.91
270.0	1069.58	911.23	741.53	583.79	455.91	326.85	301.75	138.93	83.71
315.0	892.23	743.45	584.80	438.94	329.06	222.46	140.84	79.05	47.44
360.0	979.35	824.59	643.54	512.68	390.78	307.73	167.79	102.83	60.83

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	36.75	28.56	23.12	19.42	17.45	15.95	14.52	13.27	12.31
45.0	27.07	21.09	18.52	16.91	15.18	13.98	12.91	11.83	11.05
90.0	28.92	22.17	18.94	17.15	15.66	14.16	13.09	12.19	11.29
135.0	37.41	29.28	22.41	19.06	17.09	15.60	14.10	13.03	12.07
180.0	34.18	25.16	19.24	17.33	15.77	13.98	13.03	12.07	11.17
225.0	53.84	34.90	25.63	20.55	17.63	15.95	14.64	13.15	12.31
270.0	45.89	34.36	24.98	20.32	17.87	16.25	14.76	13.44	12.43
315.0	35.37	26.29	20.67	18.40	16.73	15.00	13.80	12.73	11.71
360.0	36.75	28.56	23.12	19.42	17.45	15.95	14.52	13.27	12.31

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	11.29	10.58	9.86	9.20	8.72	8.31	7.83	7.47	7.23
45.0	10.34	9.74	9.14	8.72	8.25	7.89	7.53	7.23	6.99
90.0	10.52	9.92	9.32	8.78	8.37	7.95	7.59	7.29	6.99
135.0	11.11	10.52	9.80	9.20	8.72	8.25	7.83	7.47	7.23
180.0	10.40	9.74	9.14	8.60	8.19	7.77	7.41	7.11	6.81
225.0	11.29	10.40	9.86	9.20	8.60	8.25	7.89	7.41	7.17
270.0	11.47	10.70	9.98	9.32	8.84	8.43	8.01	7.65	7.41
315.0	10.82	10.16	9.50	8.96	8.43	8.07	7.71	7.41	7.11
360.0	11.29	10.58	9.86	9.20	8.72	8.31	7.83	7.47	7.23

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	6.87	6.63	6.45	6.27	6.09	5.86	5.74	5.62	5.50
45.0	6.75	6.51	6.33	6.21	5.98	5.86	5.74	5.62	5.50
90.0	6.75	6.57	6.33	6.15	5.98	5.86	5.74	5.62	5.44
135.0	6.87	6.69	6.45	6.27	6.09	5.92	5.80	5.62	5.50
180.0	6.63	6.39	6.15	5.98	5.80	5.68	5.56	5.44	5.32
225.0	6.93	6.69	6.45	6.27	6.09	5.92	5.80	5.68	5.56
270.0	7.05	6.87	6.69	6.51	6.33	6.15	6.04	5.92	5.80
315.0	6.87	6.63	6.45	6.27	6.09	5.92	5.80	5.68	5.56
360.0	6.87	6.63	6.45	6.27	6.09	5.86	5.74	5.62	5.50

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	5.38	5.32	5.20	5.08	5.02	4.96	4.90	4.84	4.84
45.0	5.38	5.26	5.20	5.14	5.08	5.02	4.96	4.90	4.84
90.0	5.32	5.26	5.20	5.14	5.02	4.96	4.90	4.84	4.84
135.0	5.44	5.32	5.20	5.14	5.08	5.02	4.96	4.90	4.90
180.0	5.20	5.14	5.02	4.96	4.90	4.90	4.84	4.78	4.78
225.0	5.44	5.32	5.20	5.20	5.08	5.02	4.96	4.90	4.90
270.0	5.74	5.62	5.56	5.50	5.44	5.38	5.38	5.32	5.26
315.0	5.50	5.44	5.32	5.32	5.20	5.14	5.08	5.08	5.08
360.0	5.38	5.32	5.20	5.08	5.02	4.96	4.90	4.84	4.84

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	4.72	4.72	4.72	4.66	4.60	4.60	4.60	4.54	4.54
45.0	4.84	4.84	4.78	4.78	4.72	4.66	4.66	4.66	4.66
90.0	4.78	4.78	4.72	4.66	4.66	4.66	4.60	4.60	4.60
135.0	4.84	4.78	4.72	4.72	4.72	4.66	4.60	4.60	4.60
180.0	4.72	4.66	4.60	4.60	4.60	4.54	4.54	4.54	4.54
225.0	4.84	4.84	4.72	4.72	4.72	4.66	4.66	4.66	4.60
270.0	5.26	5.20	5.26	5.20	5.20	5.20	5.14	5.14	5.14
315.0	5.02	5.02	4.96	4.96	4.96	4.96	4.96	4.90	4.90
360.0	4.72	4.72	4.72	4.66	4.60	4.60	4.60	4.54	4.54

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.54	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48
45.0	4.66	4.66	4.60	4.60	4.60	4.60	4.60	4.60	4.66
90.0	4.54	4.54	4.54	4.54	4.54	4.60	4.54	4.54	4.54
135.0	4.60	4.54	4.54	4.54	4.54	4.54	4.54	4.48	4.48
180.0	4.48	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42
225.0	4.60	4.60	4.54	4.54	4.54	4.54	4.48	4.48	4.48
270.0	5.20	5.32	5.44	5.38	5.44	5.62	5.56	5.50	5.44
315.0	4.90	4.90	4.90	4.90	4.90	4.96	4.96	4.96	4.96
360.0	4.54	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	4.48	4.48	4.54	4.60	4.66	4.72	4.72	4.24	4.24
45.0	4.66	4.66	4.72	4.72	4.66	4.36	4.36	4.36	4.36
90.0	4.54	4.54	4.54	4.60	4.36	4.36	4.36	4.30	4.30
135.0	4.54	4.54	4.54	4.54	4.48	4.30	4.30	4.30	4.30
180.0	4.42	4.42	4.48	4.48	4.24	4.18	4.24	4.24	4.24
225.0	4.48	4.48	4.48	4.48	4.48	4.48	4.36	4.36	4.36
270.0	5.50	5.68	5.86	5.98	5.92	5.86	4.60	4.36	4.36
315.0	4.96	5.02	5.14	5.32	5.56	5.80	4.30	4.30	4.24
360.0	4.48	4.48	4.54	4.60	4.66	4.72	4.72	4.24	4.24

Intensity data(cd)

C/γ(°)	90.0
0.0	4.24
45.0	4.36
90.0	4.36
135.0	4.30
180.0	4.24
225.0	4.36
270.0	4.30
315.0	4.30
360.0	4.24