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Nata

LumCAT: 1-0922-M
Luminaire: 92.70.125.00

Report No: NATA0100	Voltage(V): 36.0500
Test No: GC2020021913	Current(A): 0.3000
LampCAT: NICHIA NTCWS024B-V3	Power (W): 10.8240
Lamp flux(lm): 988.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 30	Width(mm): 30
Phm Type: C	Height(mm): 28

Photometric Results

Lumens(lm): 744.79
Efficiency(%): 75.38%
Lumens(lm)/Power(W): 68.81
Central intensity(cd): 5036.344
Maximum intensity(cd): 5036.344
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.8
[C90/270]Total=17.8
Field angle(10%Imax): [C0/180]Total=41.1
[C90/270]Total=41.1
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.33 C90_270=0.33
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 75.38%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.683%

Equipment: GMS1980	Date: 2020/2/19	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5036.344	0.000	0	.000%	.000%
1.0	4999.570	4.802	4.802	.486%	.645%
2.0	4871.813	14.168	18.97	1.434%	2.547%
3.0	4671.563	22.825	41.795	2.310%	5.612%
4.0	4402.688	30.374	72.169	3.074%	9.690%
5.0	4065.820	36.431	108.6	3.687%	14.581%
6.0	3642.539	40.509	149.11	4.100%	20.020%
7.0	3243.094	42.739	191.849	4.326%	25.759%
8.0	2863.125	43.701	235.55	4.423%	31.626%
9.0	2481.188	43.313	278.863	4.384%	37.442%
10.0	2132.719	41.754	320.617	4.226%	43.048%
11.0	1856.531	39.861	360.478	4.034%	48.400%
12.0	1606.711	37.858	398.336	3.832%	53.483%
13.0	1370.897	35.337	433.673	3.577%	58.227%
14.0	1202.407	32.938	466.611	3.334%	62.650%
15.0	1056.916	31.017	497.628	3.139%	66.814%
16.0	937.547	29.224	526.852	2.958%	70.738%
17.0	822.382	27.407	554.259	2.774%	74.418%
18.0	720.134	25.433	579.692	2.574%	77.833%
19.0	631.181	23.510	603.202	2.380%	80.990%
20.0	547.692	21.577	624.778	2.184%	83.887%
21.0	466.924	19.483	644.261	1.972%	86.502%
22.0	397.427	17.370	661.631	1.758%	88.835%
23.0	334.167	15.351	676.981	1.554%	90.896%
24.0	267.581	13.156	690.138	1.332%	92.662%
25.0	209.602	10.850	700.988	1.098%	94.119%
26.0	151.903	8.533	709.521	.864%	95.265%
27.0	109.167	6.387	715.908	.646%	96.122%
28.0	70.467	4.548	720.456	.460%	96.733%
29.0	41.829	2.938	723.394	.297%	97.127%
30.0	22.345	1.733	725.127	.175%	97.360%
31.0	11.278	0.936	726.063	.095%	97.486%
32.0	6.778	0.517	726.58	.052%	97.555%
33.0	5.766	0.370	726.95	.037%	97.605%
34.0	5.414	0.338	727.288	.034%	97.650%
35.0	5.105	0.327	727.615	.033%	97.694%
36.0	4.880	0.318	727.933	.032%	97.737%
37.0	4.655	0.311	728.243	.031%	97.778%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	4.486	0.305	728.549	.031%	97.819%
39.0	4.282	0.299	728.848	.030%	97.860%
40.0	4.170	0.295	729.143	.030%	97.899%
41.0	4.064	0.293	729.436	.030%	97.938%
42.0	3.959	0.291	729.727	.030%	97.978%
43.0	3.846	0.289	730.016	.029%	98.016%
44.0	3.776	0.288	730.304	.029%	98.055%
45.0	3.698	0.287	730.591	.029%	98.094%
46.0	3.635	0.287	730.878	.029%	98.132%
47.0	3.572	0.287	731.165	.029%	98.171%
48.0	3.537	0.287	731.452	.029%	98.209%
49.0	3.473	0.288	731.74	.029%	98.248%
50.0	3.431	0.288	732.028	.029%	98.286%
51.0	3.396	0.289	732.317	.029%	98.325%
52.0	3.354	0.290	732.606	.029%	98.364%
53.0	3.347	0.291	732.898	.030%	98.403%
54.0	3.319	0.294	733.192	.030%	98.443%
55.0	3.298	0.295	733.487	.030%	98.482%
56.0	3.255	0.296	733.783	.030%	98.522%
57.0	3.248	0.297	734.081	.030%	98.562%
58.0	3.234	0.300	734.38	.030%	98.602%
59.0	3.206	0.301	734.681	.030%	98.643%
60.0	3.213	0.303	734.985	.031%	98.683%
61.0	3.185	0.305	735.29	.031%	98.724%
62.0	3.171	0.306	735.596	.031%	98.766%
63.0	3.150	0.307	735.904	.031%	98.807%
64.0	3.150	0.309	736.213	.031%	98.848%
65.0	3.150	0.312	736.525	.032%	98.890%
66.0	3.129	0.313	736.838	.032%	98.932%
67.0	3.129	0.315	737.153	.032%	98.975%
68.0	3.136	0.317	737.47	.032%	99.017%
69.0	3.129	0.320	737.79	.032%	99.060%
70.0	3.129	0.321	738.111	.033%	99.103%
71.0	3.122	0.323	738.434	.033%	99.147%
72.0	3.122	0.325	738.759	.033%	99.190%
73.0	3.115	0.326	739.085	.033%	99.234%
74.0	3.129	0.328	739.413	.033%	99.278%
75.0	3.122	0.330	739.743	.033%	99.322%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.115	0.331	740.074	.034%	99.367%
77.0	3.122	0.333	740.407	.034%	99.411%
78.0	3.108	0.333	740.74	.034%	99.456%
79.0	3.122	0.335	741.075	.034%	99.501%
80.0	3.122	0.337	741.412	.034%	99.546%
81.0	3.108	0.337	741.749	.034%	99.592%
82.0	3.129	0.338	742.087	.034%	99.637%
83.0	3.150	0.341	742.428	.035%	99.683%
84.0	3.164	0.344	742.772	.035%	99.729%
85.0	3.143	0.344	743.116	.035%	99.775%
86.0	3.122	0.342	743.459	.035%	99.821%
87.0	3.038	0.337	743.796	.034%	99.867%
88.0	3.030	0.332	744.128	.034%	99.911%
89.0	3.016	0.331	744.46	.034%	99.956%
90.0	3.009	0.330	744.79	.033%	100.000%

Zonal flux distribution table

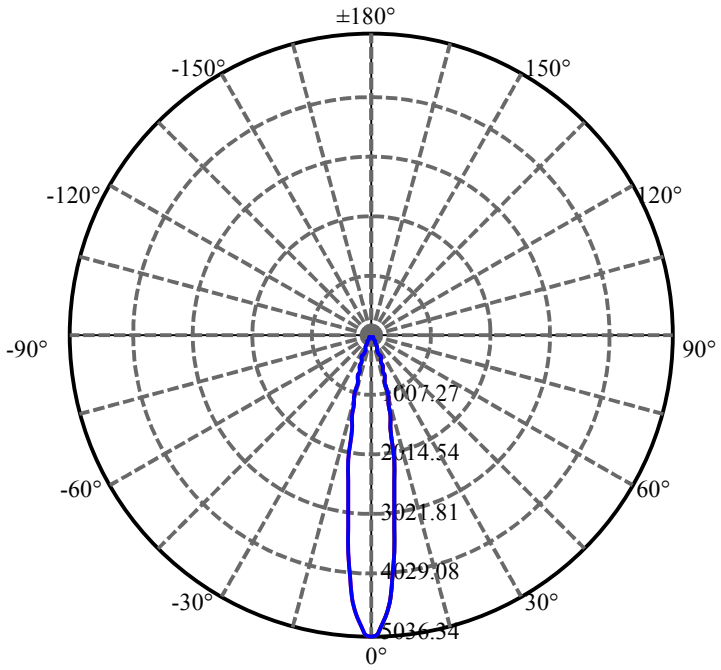
ZONAL LUMEN SUMMARY

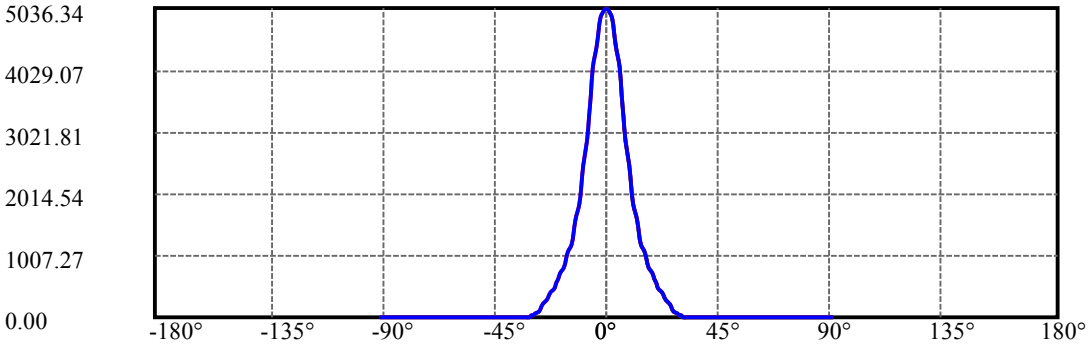
Zone	Lumens	%Lamp	%Fixt
0-30	725.13	73.39%	97.36%
0-40	729.14	73.80%	97.90%
0-60	734.98	74.39%	98.68%
0-90	744.46	75.35%	99.96%
0-120	744.46	75.35%	99.96%
0-180	744.79	75.38%	100.00%
60-90	9.78	0.99%	1.31%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-18.69	595.83	60.31%	80.00%

ZONAL LUMEN SUMMARY

0-10	320.62
10-20	304.16
20-30	100.35
30-40	4.02
40-50	2.89
50-60	2.96
60-70	3.13
70-80	3.30
80-90	3.05
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):

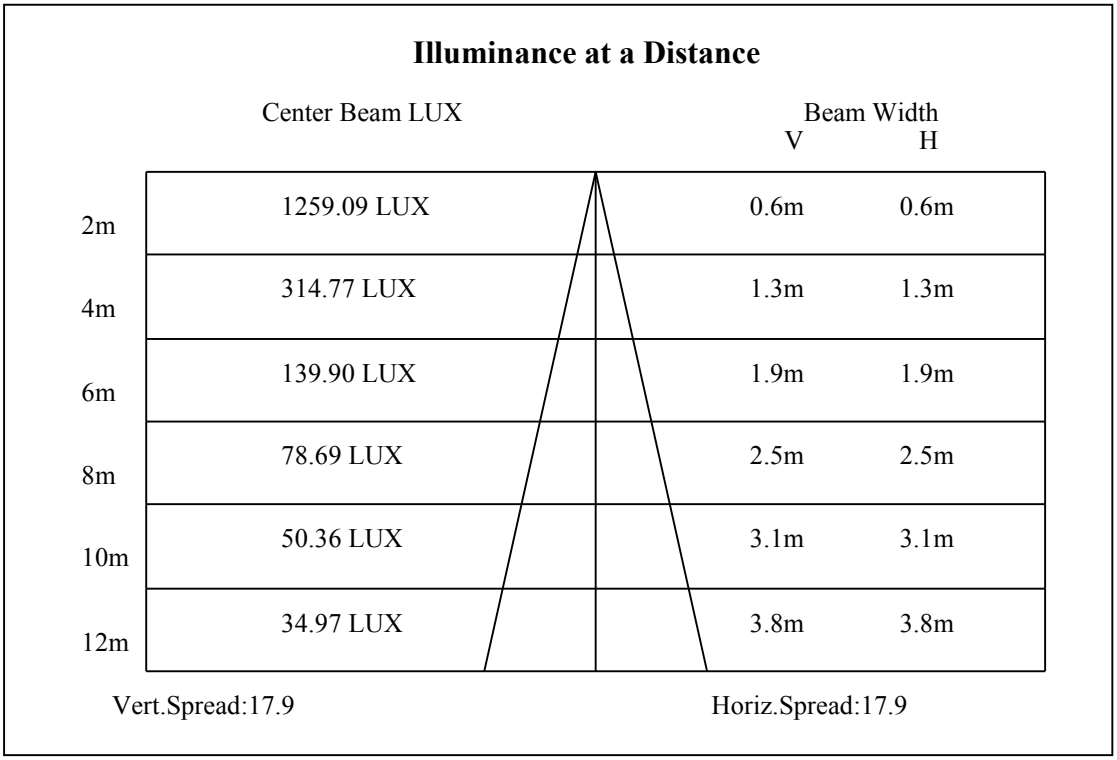
C0/C180:

C90/C270:

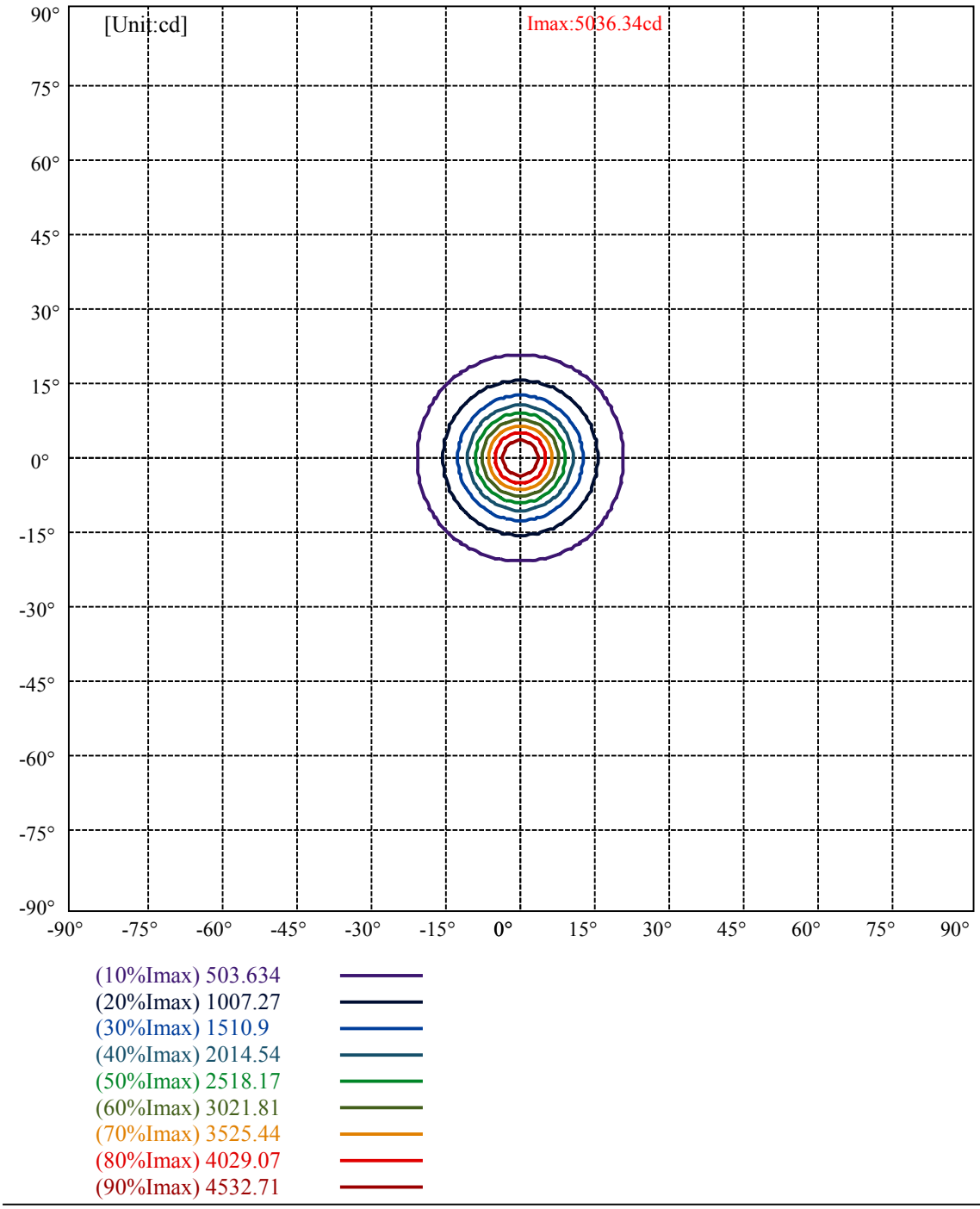
Field angle(10%Imax):C0/180Left:20.5 Right:20.5
:C90/270Left:20.5 Right:20.5

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)

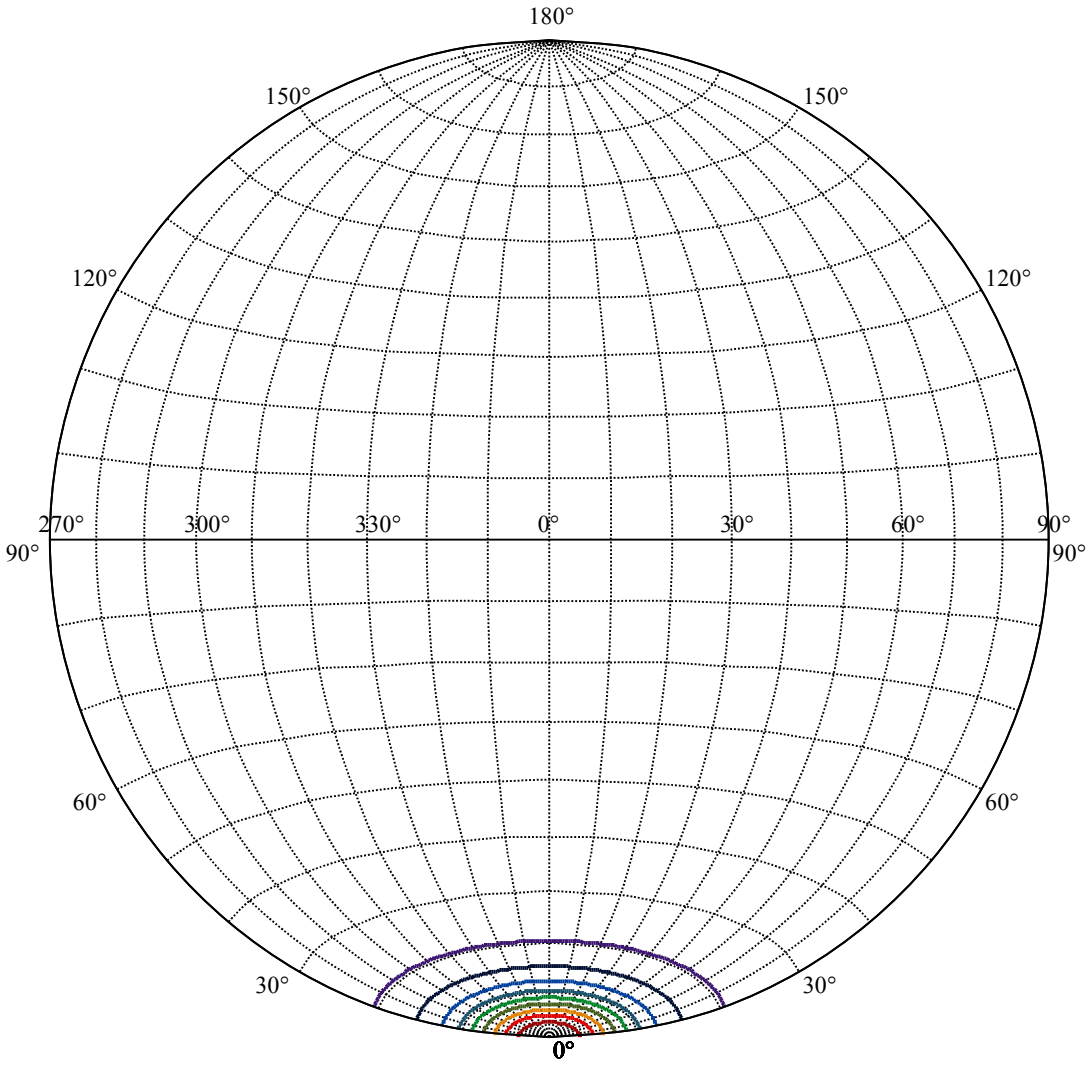


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/19
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:5036.34

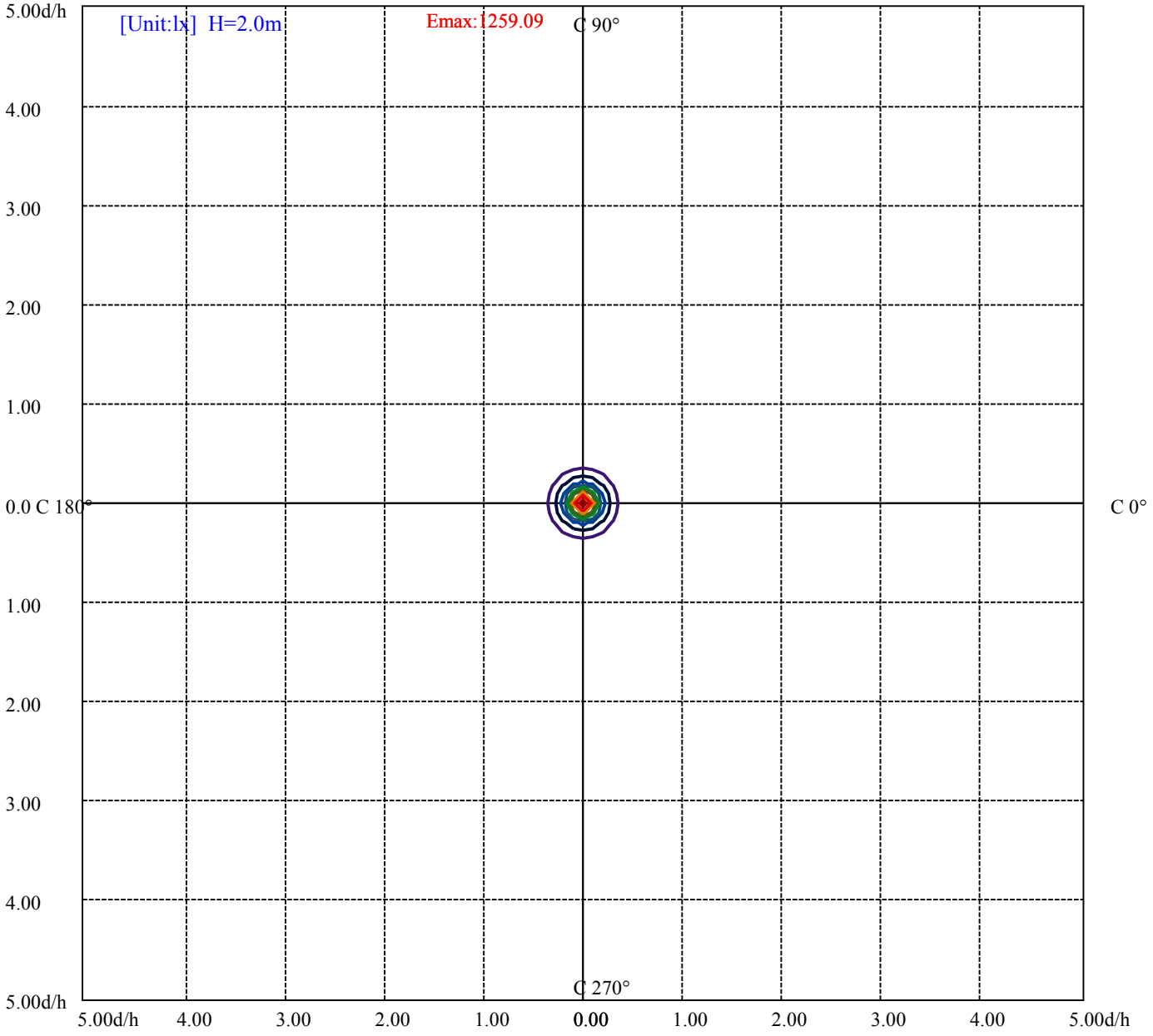
(10%Imax) 503.634
(20%Imax) 1007.27
(30%Imax) 1510.9
(40%Imax) 2014.54
(50%Imax) 2518.17
(60%Imax) 3021.81
(70%Imax) 3525.44
(80%Imax) 4029.07
(90%Imax) 4532.71

Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/19
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

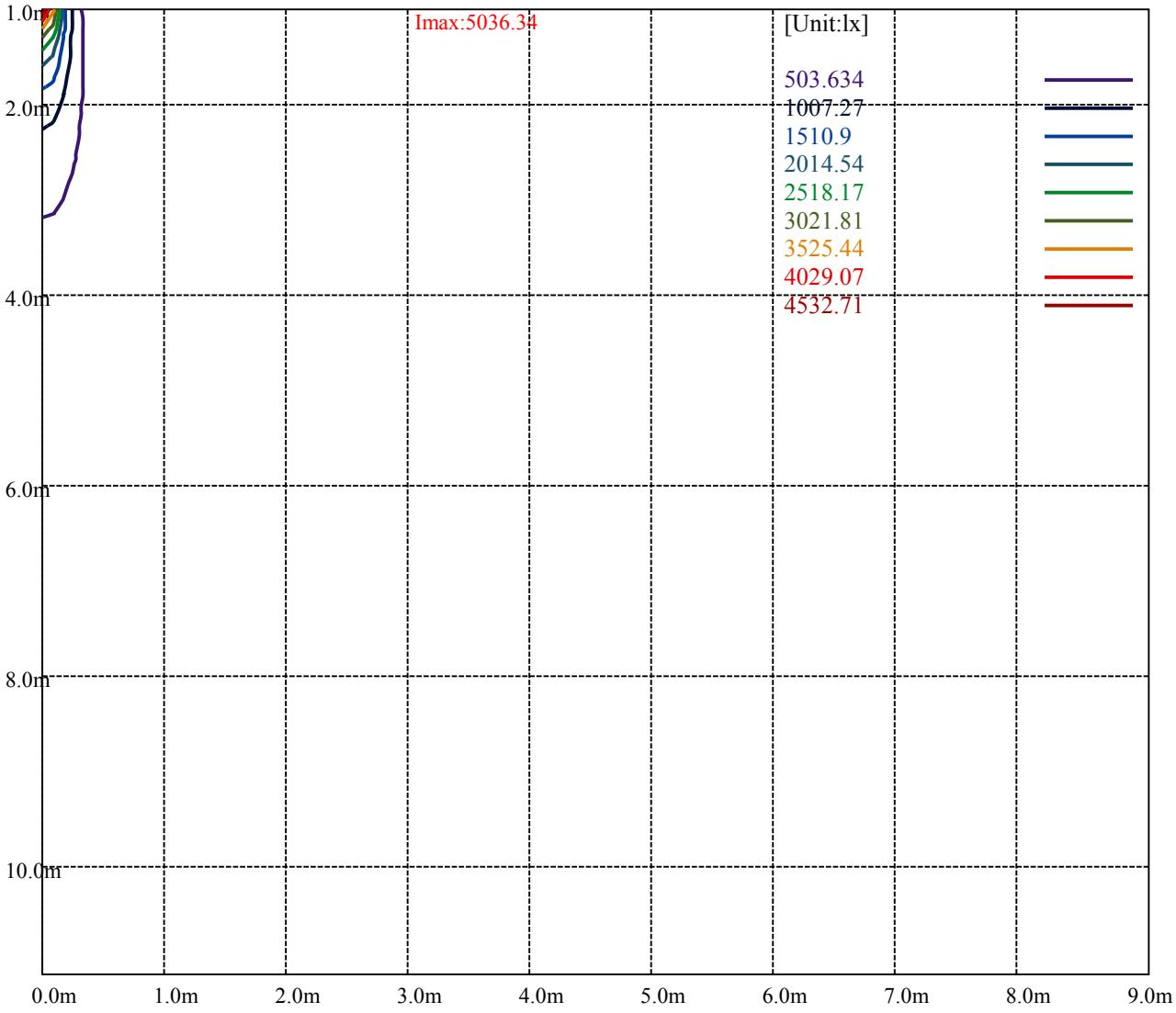
ISO illuminance diagram



(10%Emax) 125.9085
(20%Emax) 251.8175
(30%Emax) 377.725
(40%Emax) 503.635
(50%Emax) 629.5425
(60%Emax) 755.45
(70%Emax) 881.36
(80%Emax) 1007.268
(90%Emax) 1133.175

Equipment: GMS1980	Date: 2020/2/19	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/2/19
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Luminance Limitting Curve(no luminous side)

Luminance Table

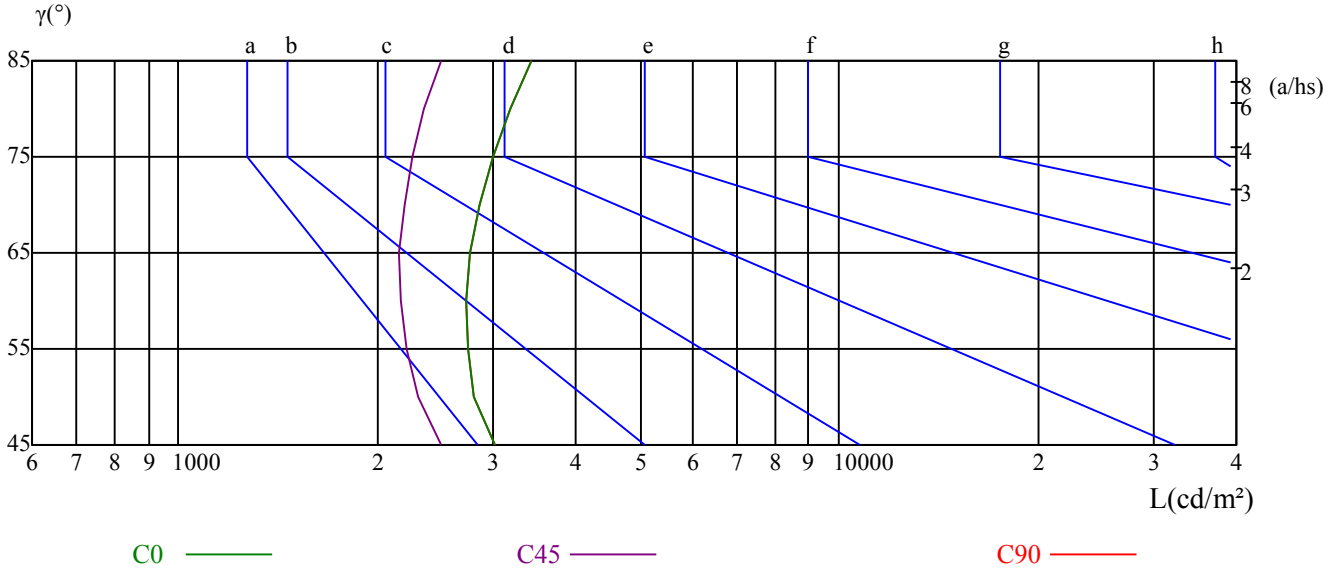
γ	45	50	55	60	65	70	75	80	85
C0	3006	2808	2738	2729	2759	2852	2989	3174	3434
C45	2505	2305	2214	2173	2162	2197	2262	2354	2491
C90	3006	2808	2738	2729	2759	2852	2989	3174	3434

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8282	8282	8282	13402	13402	13402	40068	40068	40068

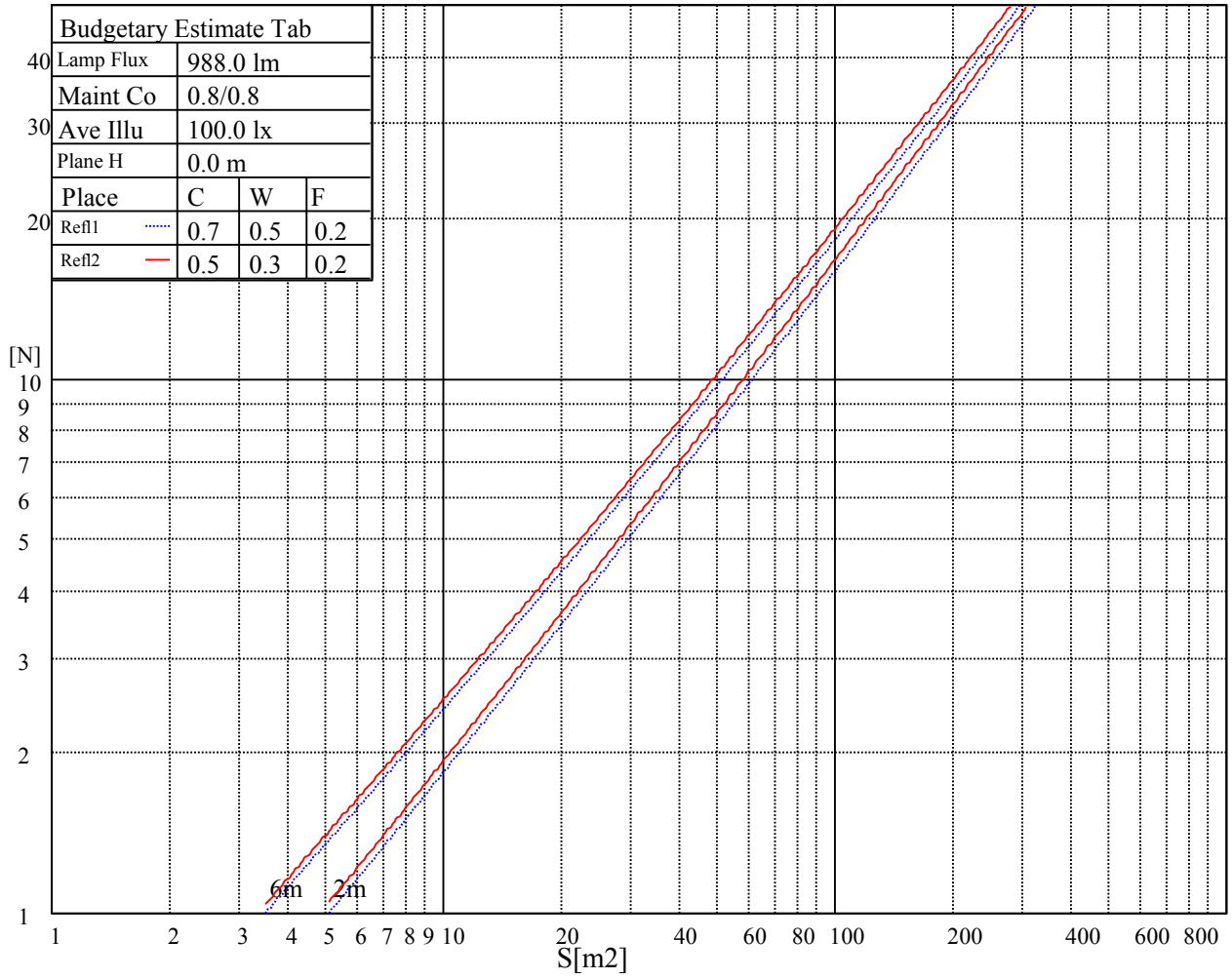
Glare Table

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

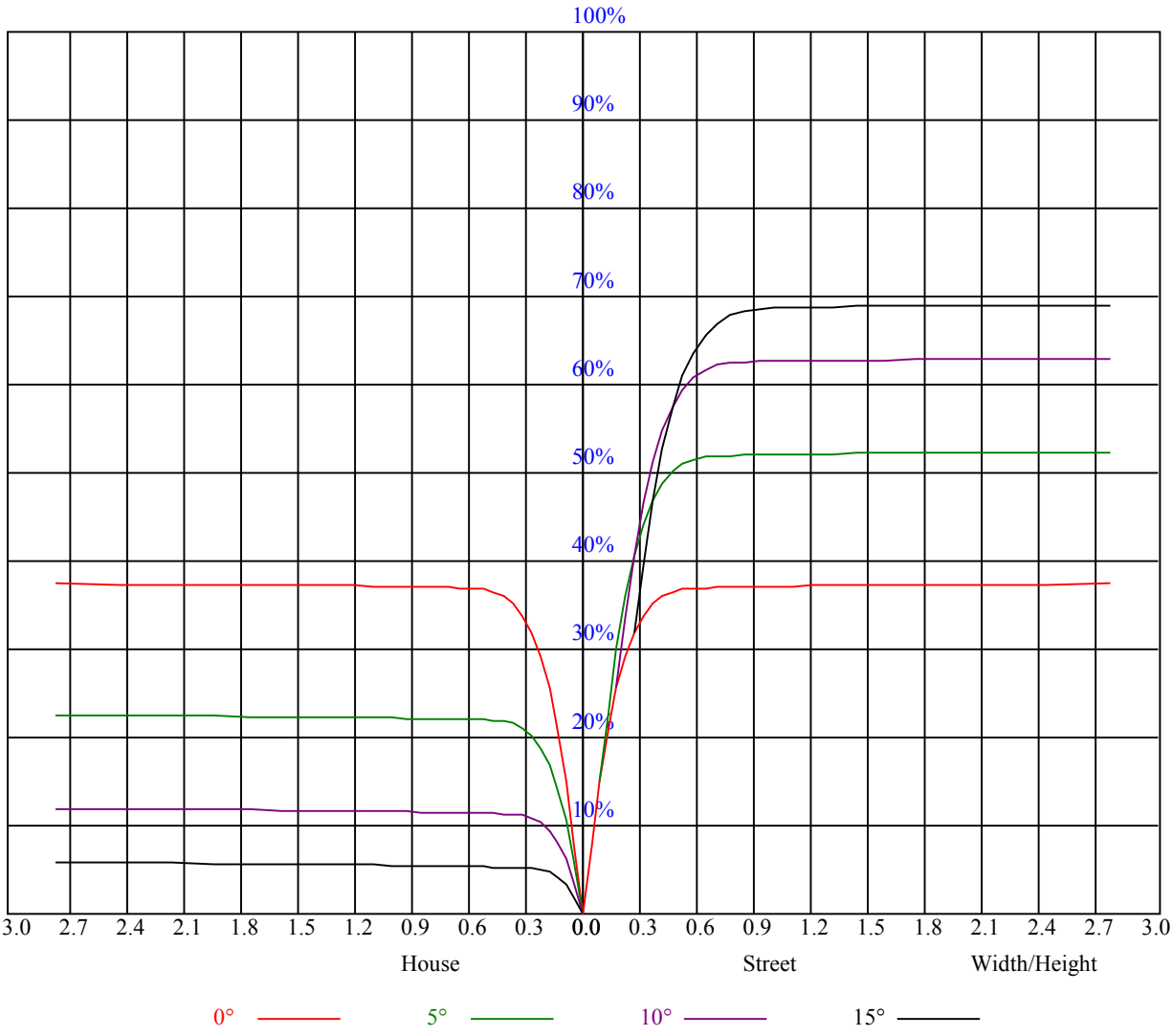


Equipment: GMS1980	Date: 2020/2/19	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	0.90	0.90	0.90	0.88	0.88	0.88	0.84	0.84	0.84	0.80	0.80	0.80	0.77	0.77	0.77	0.75
1	0.85	0.84	0.82	0.83	0.82	0.81	0.80	0.79	0.79	0.78	0.77	0.76	0.75	0.75	0.74	0.73
2	0.81	0.79	0.77	0.80	0.78	0.76	0.78	0.76	0.75	0.76	0.74	0.73	0.74	0.73	0.72	0.71
3	0.78	0.75	0.73	0.77	0.75	0.73	0.75	0.73	0.72	0.74	0.72	0.71	0.72	0.71	0.70	0.69
4	0.75	0.73	0.70	0.75	0.72	0.70	0.73	0.71	0.69	0.72	0.70	0.68	0.70	0.69	0.68	0.67
5	0.73	0.70	0.68	0.72	0.70	0.68	0.71	0.69	0.67	0.70	0.68	0.66	0.69	0.67	0.66	0.65
6	0.71	0.68	0.66	0.70	0.67	0.65	0.69	0.67	0.65	0.68	0.66	0.65	0.67	0.66	0.64	0.64
7	0.69	0.66	0.64	0.68	0.66	0.64	0.68	0.65	0.63	0.67	0.65	0.63	0.66	0.64	0.63	0.62
8	0.67	0.64	0.62	0.67	0.64	0.62	0.66	0.63	0.62	0.65	0.63	0.62	0.65	0.63	0.61	0.61
9	0.65	0.62	0.61	0.65	0.62	0.60	0.64	0.62	0.60	0.64	0.62	0.60	0.63	0.61	0.60	0.59
10	0.64	0.61	0.59	0.64	0.61	0.59	0.63	0.61	0.59	0.63	0.60	0.59	0.62	0.60	0.59	0.58

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/2/19	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 65.0%	Distance(m): 7.50

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	5027.63	5042.25	4965.75	4824.00	4637.25	4280.63	3893.06	3569.06	3103.88
45.0	5052.94	4995.00	4848.75	4667.63	4323.94	3992.06	3623.63	3136.50	2770.88
90.0	5020.88	4889.25	4663.69	4390.88	4012.31	3636.56	3194.44	2764.13	2416.50
135.0	5043.94	4973.06	4804.88	4543.31	4239.00	3841.31	3456.56	2958.75	2588.63
180.0	5027.63	4949.44	4741.31	4496.63	4190.06	3790.13	3348.56	2950.88	2532.94
225.0	5052.94	5034.38	4944.94	4704.75	4480.31	4160.81	3661.88	3329.44	2952.56
270.0	5020.88	5065.31	5040.56	4926.94	4741.31	4518.00	4082.63	3726.00	3402.56
315.0	5043.94	5047.88	4964.63	4818.38	4597.31	4307.06	3879.56	3510.00	3137.06
360.0	5027.63	5042.25	4965.75	4824.00	4637.25	4280.63	3893.06	3569.06	3103.88

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2706.75	2381.06	2054.81	1803.38	1586.81	1358.44	1203.19	1069.31	926.44
45.0	2400.75	2067.75	1806.19	1586.25	1357.31	1201.50	1067.06	938.81	826.31
90.0	2108.25	1775.25	1557.00	1374.19	1122.30	1041.30	925.99	812.42	709.93
135.0	2255.63	1882.13	1627.31	1414.69	1218.38	1054.69	933.19	817.88	726.75
180.0	2196.56	1861.88	1580.06	1375.88	1108.13	1040.29	905.79	805.33	704.31
225.0	2548.13	2177.44	1886.63	1606.50	1398.38	1111.67	1061.27	926.72	811.13
270.0	2941.88	2551.50	2271.38	1914.19	1640.81	1459.69	1238.63	1090.69	964.13
315.0	2691.56	2364.75	2068.88	1778.63	1535.06	1351.69	1120.22	1039.22	910.07
360.0	2706.75	2381.06	2054.81	1803.38	1586.81	1358.44	1203.19	1069.31	926.44

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	826.31	734.63	628.31	549.00	480.94	406.13	330.19	290.81	198.96
45.0	731.81	630.00	539.44	471.94	399.38	334.69	284.63	196.03	147.04
90.0	623.14	532.41	463.39	388.29	315.84	254.14	194.12	142.82	103.11
135.0	630.00	545.63	463.50	400.50	335.25	289.13	208.46	153.06	106.93
180.0	610.48	533.19	463.56	383.57	320.12	260.83	201.09	151.09	111.77
225.0	721.13	627.30	548.72	467.89	393.36	333.34	264.04	201.49	150.47
270.0	830.81	736.88	649.69	549.00	478.13	411.75	336.94	289.13	207.34
315.0	787.39	709.43	624.94	525.21	456.41	383.34	321.19	252.39	189.62
360.0	826.31	734.63	628.31	549.00	480.94	406.13	330.19	290.81	198.96

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	146.76	105.24	66.43	37.86	17.33	7.82	6.08	5.68	5.29
45.0	106.71	63.11	37.63	18.51	7.26	5.79	5.46	5.12	4.84
90.0	68.91	33.92	16.65	8.10	6.13	5.63	5.34	5.06	4.84
135.0	72.06	45.56	21.09	9.96	6.69	5.74	5.40	5.18	4.95
180.0	72.96	38.98	18.90	8.49	6.24	5.51	5.23	5.01	4.78
225.0	110.08	66.26	40.11	20.53	8.72	6.36	5.79	5.40	5.06
270.0	154.18	113.29	73.01	39.32	19.86	9.23	6.69	6.13	5.74
315.0	141.69	97.37	60.81	36.00	18.00	8.16	6.13	5.74	5.34
360.0	146.76	105.24	66.43	37.86	17.33	7.82	6.08	5.68	5.29

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	5.01	4.73	4.56	4.39	4.28	4.11	3.99	3.88	3.83
45.0	4.67	4.44	4.33	4.16	4.05	3.94	3.88	3.77	3.71
90.0	4.67	4.50	4.33	4.16	4.05	3.99	3.88	3.77	3.71
135.0	4.73	4.56	4.28	4.22	4.11	3.99	3.94	3.83	3.77
180.0	4.61	4.44	4.28	4.11	3.99	3.94	3.88	3.83	3.71
225.0	4.84	4.61	4.44	4.22	4.11	4.05	3.88	3.77	3.71
270.0	5.40	5.12	5.06	4.56	4.44	4.33	4.16	3.99	3.94
315.0	5.12	4.84	4.61	4.44	4.33	4.16	4.05	3.94	3.83
360.0	5.01	4.73	4.56	4.39	4.28	4.11	3.99	3.88	3.83

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	3.71	3.66	3.60	3.60	3.54	3.43	3.43	3.38	3.38
45.0	3.66	3.54	3.49	3.49	3.43	3.43	3.38	3.32	3.32
90.0	3.66	3.60	3.54	3.49	3.43	3.38	3.32	3.32	3.32
135.0	3.66	3.60	3.54	3.49	3.43	3.43	3.43	3.38	3.32
180.0	3.66	3.60	3.54	3.49	3.43	3.43	3.38	3.38	3.38
225.0	3.66	3.60	3.54	3.54	3.43	3.38	3.38	3.32	3.32
270.0	3.83	3.77	3.66	3.66	3.60	3.49	3.43	3.38	3.38
315.0	3.77	3.71	3.66	3.54	3.49	3.49	3.43	3.38	3.38
360.0	3.71	3.66	3.60	3.60	3.54	3.43	3.43	3.38	3.38

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.38	3.32	3.26	3.26	3.26	3.26	3.26	3.21	3.15
45.0	3.32	3.26	3.26	3.21	3.26	3.21	3.26	3.21	3.21
90.0	3.26	3.26	3.21	3.26	3.21	3.21	3.15	3.15	3.15
135.0	3.26	3.32	3.26	3.26	3.26	3.21	3.15	3.21	3.15
180.0	3.32	3.32	3.26	3.26	3.21	3.21	3.26	3.21	3.21
225.0	3.32	3.26	3.26	3.21	3.21	3.21	3.21	3.15	3.15
270.0	3.32	3.32	3.26	3.26	3.26	3.21	3.21	3.21	3.15
315.0	3.38	3.32	3.26	3.26	3.21	3.15	3.21	3.15	3.21
360.0	3.38	3.32	3.26	3.26	3.26	3.26	3.26	3.21	3.15

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.09	3.21	3.15	3.15	3.15	3.15	3.15	3.15	3.15
45.0	3.21	3.15	3.15	3.15	3.15	3.21	3.21	3.21	3.21
90.0	3.15	3.15	3.15	3.09	3.09	3.09	3.09	3.04	3.09
135.0	3.15	3.15	3.15	3.15	3.09	3.15	3.09	3.15	3.09
180.0	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.09
225.0	3.15	3.15	3.15	3.09	3.21	3.15	3.15	3.15	3.15
270.0	3.15	3.15	3.15	3.09	3.09	3.09	3.09	3.09	3.09
315.0	3.15	3.09	3.15	3.15	3.09	3.09	3.09	3.09	3.09
360.0	3.09	3.21	3.15	3.15	3.15	3.15	3.15	3.15	3.15

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.15	3.09	3.15	3.15	3.15	3.09	3.09	3.15	3.09
45.0	3.21	3.21	3.21	3.21	3.21	3.26	3.26	3.26	3.26
90.0	3.09	3.09	3.04	3.04	2.98	3.04	3.04	2.98	3.09
135.0	3.09	3.15	3.09	3.09	3.09	3.09	3.09	3.09	3.09
180.0	3.15	3.09	3.15	3.09	3.09	3.15	3.09	3.15	3.09
225.0	3.21	3.21	3.26	3.26	3.26	3.21	3.21	3.21	3.21
270.0	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04
315.0	3.04	3.04	3.09	3.09	3.09	3.09	3.04	3.09	3.09
360.0	3.15	3.09	3.15	3.15	3.15	3.09	3.09	3.15	3.09

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.09	3.09	3.09	3.15	3.09	3.09	3.15	3.09	3.04
45.0	3.32	3.38	3.54	3.60	3.66	3.66	2.98	2.98	2.98
90.0	3.04	3.04	3.04	3.04	3.04	3.04	2.98	2.98	2.98
135.0	3.09	3.09	3.09	3.09	3.09	3.04	3.04	3.04	2.98
180.0	3.09	3.09	3.09	3.15	3.04	3.04	3.09	3.09	3.04
225.0	3.15	3.26	3.26	3.21	3.09	2.98	2.98	2.98	2.98
270.0	3.04	3.04	3.04	3.04	3.09	3.04	3.04	3.04	3.04
315.0	3.04	3.04	3.04	3.04	3.04	3.09	3.04	3.04	3.09
360.0	3.09	3.09	3.09	3.15	3.09	3.09	3.15	3.09	3.04

Intensity data(cd)

C/γ(°)	90.0
0.0	3.09
45.0	2.93
90.0	2.98
135.0	2.98
180.0	3.09
225.0	2.98
270.0	2.98
315.0	3.04
360.0	3.09