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Nata

LumCAT: LN01D05015DA-N
Luminaire: 97.70.234.00

Report No: 210107-B001	Voltage(V): 35.5700
Test No: 210107-C001	Current(A): 0.3810
LampCAT: SEOUL SAWX10 LES9.8	Power (W): 13.5520
Lamp flux(lm): 1759.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 92	Width(mm): 92
Phm Type: C	Height(mm): 50

Photometric Results

Lumens(lm): 1558.90
Efficiency(%): 88.62%
Lumens(lm)/Power(W): 115.03
Central intensity(cd): 8914.501
Maximum intensity(cd): 8914.501
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=20.1
[C90/270]Total=20.1
Field angle(10%Imax): [C0/180]Total=39.4
[C90/270]Total=39.4
Maximum s/h(1/2): C0_180=0.34 C90_270=0.34
Maximum s/h(1/4): C0_180=0.35 C90_270=0.35
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 88.62%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 96.702%

KY Nata LN01D05015DA-N

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	8914.500	0.000	0	.000%	.000%
1.0	8861.484	8.505	8.505	.484%	.546%
2.0	8691.117	25.193	33.699	1.432%	2.162%
3.0	8383.641	40.837	74.536	2.322%	4.781%
4.0	7983.352	54.786	129.321	3.115%	8.296%
5.0	7523.016	66.708	196.029	3.792%	12.575%
6.0	6897.094	75.782	271.81	4.308%	17.436%
7.0	6307.172	81.959	353.769	4.659%	22.693%
8.0	5747.203	86.271	440.04	4.905%	28.228%
9.0	5117.273	88.051	528.091	5.006%	33.876%
10.0	4495.078	86.988	615.079	4.945%	39.456%
11.0	3962.531	84.509	699.588	4.804%	44.877%
12.0	3429.000	80.800	780.388	4.594%	50.060%
13.0	2882.039	74.896	855.284	4.258%	54.865%
14.0	2472.469	68.537	923.821	3.896%	59.261%
15.0	2089.758	62.632	986.454	3.561%	63.279%
16.0	1751.836	56.290	1042.744	3.200%	66.890%
17.0	1438.622	49.684	1092.428	2.825%	70.077%
18.0	1158.673	42.824	1135.251	2.435%	72.824%
19.0	1010.588	37.741	1172.992	2.146%	75.245%
20.0	842.477	33.916	1206.908	1.928%	77.420%
21.0	697.542	29.571	1236.48	1.681%	79.317%
22.0	586.216	25.798	1262.277	1.467%	80.972%
23.0	498.220	22.754	1285.032	1.294%	82.432%
24.0	413.283	19.929	1304.961	1.133%	83.710%
25.0	351.900	17.399	1322.359	.989%	84.826%
26.0	303.785	15.478	1337.837	.880%	85.819%
27.0	260.367	13.802	1351.639	.785%	86.705%
28.0	224.409	12.274	1363.912	.698%	87.492%
29.0	193.345	10.930	1374.842	.621%	88.193%
30.0	171.267	9.844	1384.686	.560%	88.825%
31.0	150.138	8.944	1393.631	.508%	89.398%
32.0	133.664	8.131	1401.761	.462%	89.920%
33.0	121.388	7.514	1409.275	.427%	90.402%
34.0	109.575	6.990	1416.265	.397%	90.850%
35.0	99.070	6.480	1422.745	.368%	91.266%
36.0	91.252	6.060	1428.804	.345%	91.655%
37.0	83.391	5.696	1434.5	.324%	92.020%

KY Nata LN01D05015DA-N

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	76.999	5.354	1439.854	.304%	92.363%
39.0	70.875	5.047	1444.901	.287%	92.687%
40.0	65.313	4.750	1449.651	.270%	92.992%
41.0	60.539	4.482	1454.133	.255%	93.279%
42.0	56.145	4.239	1458.372	.241%	93.551%
43.0	51.673	3.994	1462.366	.227%	93.807%
44.0	47.988	3.761	1466.127	.214%	94.049%
45.0	44.733	3.563	1469.691	.203%	94.277%
46.0	41.105	3.357	1473.048	.191%	94.493%
47.0	38.377	3.161	1476.209	.180%	94.695%
48.0	36.028	3.008	1479.217	.171%	94.888%
49.0	33.813	2.868	1482.085	.163%	95.072%
50.0	31.704	2.732	1484.816	.155%	95.248%
51.0	30.157	2.617	1487.433	.149%	95.415%
52.0	28.652	2.524	1489.957	.143%	95.577%
53.0	27.281	2.433	1492.39	.138%	95.733%
54.0	26.114	2.353	1494.744	.134%	95.884%
55.0	24.982	2.281	1497.024	.130%	96.031%
56.0	24.012	2.214	1499.238	.126%	96.173%
57.0	23.048	2.152	1501.39	.122%	96.311%
58.0	22.134	2.089	1503.479	.119%	96.445%
59.0	21.354	2.033	1505.513	.116%	96.575%
60.0	20.602	1.982	1507.495	.113%	96.702%
61.0	19.821	1.929	1509.424	.110%	96.826%
62.0	19.153	1.878	1511.302	.107%	96.947%
63.0	18.570	1.835	1513.136	.104%	97.064%
64.0	17.916	1.790	1514.927	.102%	97.179%
65.0	17.388	1.747	1516.674	.099%	97.291%
66.0	16.973	1.714	1518.388	.097%	97.401%
67.0	16.664	1.691	1520.08	.096%	97.510%
68.0	16.657	1.688	1521.768	.096%	97.618%
69.0	16.952	1.715	1523.482	.097%	97.728%
70.0	17.430	1.766	1525.248	.100%	97.841%
71.0	18.049	1.834	1527.082	.104%	97.959%
72.0	18.703	1.911	1528.993	.109%	98.081%
73.0	19.343	1.990	1530.982	.113%	98.209%
74.0	20.025	2.070	1533.052	.118%	98.342%
75.0	20.686	2.151	1535.203	.122%	98.480%

KY Nata LN01D05015DA-N

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	21.255	2.226	1537.429	.127%	98.623%
77.0	21.649	2.287	1539.717	.130%	98.769%
78.0	21.769	2.324	1542.041	.132%	98.918%
79.0	21.199	2.309	1544.35	.131%	99.067%
80.0	19.955	2.219	1546.568	.126%	99.209%
81.0	18.267	2.067	1548.635	.118%	99.341%
82.0	16.010	1.859	1550.494	.106%	99.461%
83.0	13.373	1.597	1552.092	.091%	99.563%
84.0	11.243	1.341	1553.433	.076%	99.649%
85.0	9.703	1.143	1554.576	.065%	99.723%
86.0	8.360	0.987	1555.563	.056%	99.786%
87.0	7.826	0.886	1556.449	.050%	99.843%
88.0	7.509	0.840	1557.289	.048%	99.897%
89.0	7.313	0.812	1558.101	.046%	99.949%
90.0	7.277	0.800	1558.901	.045%	100.000%

Zonal flux distribution table

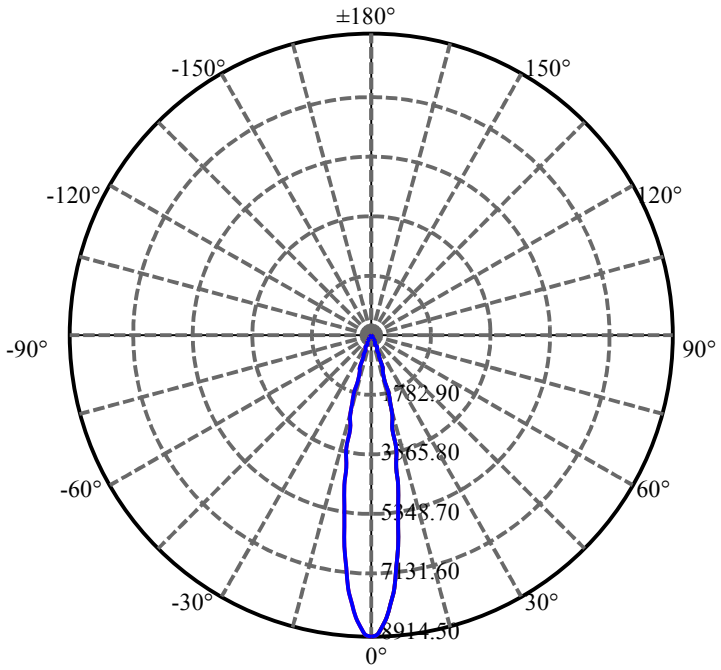
ZONAL LUMEN SUMMARY

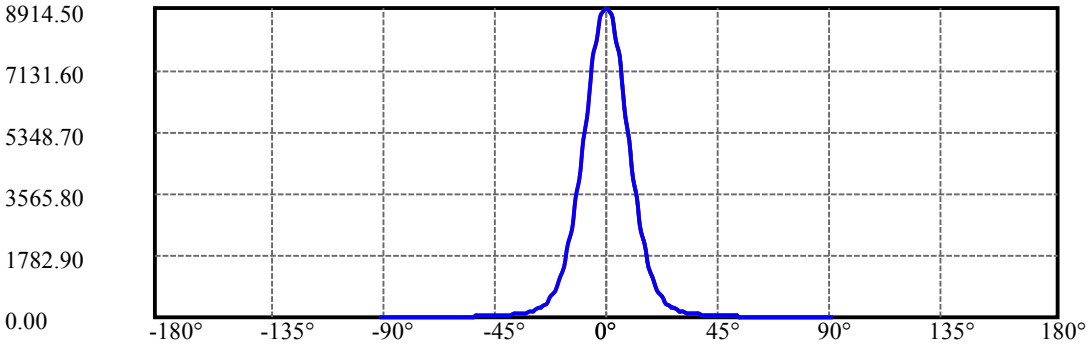
Zone	Lumens	%Lamp	%Fixt
0-30	1384.69	78.72%	88.82%
0-40	1449.65	82.41%	92.99%
0-60	1507.49	85.70%	96.70%
0-90	1558.10	88.58%	99.95%
0-120	1558.10	88.58%	99.95%
0-180	1558.90	88.62%	100.00%
60-90	52.59	2.99%	3.37%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-21.41	1247.12	70.90%	80.00%

ZONAL LUMEN SUMMARY

0-10	615.08
10-20	591.83
20-30	177.78
30-40	64.96
40-50	35.17
50-60	22.68
60-70	17.75
70-80	21.32
80-90	11.53
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):

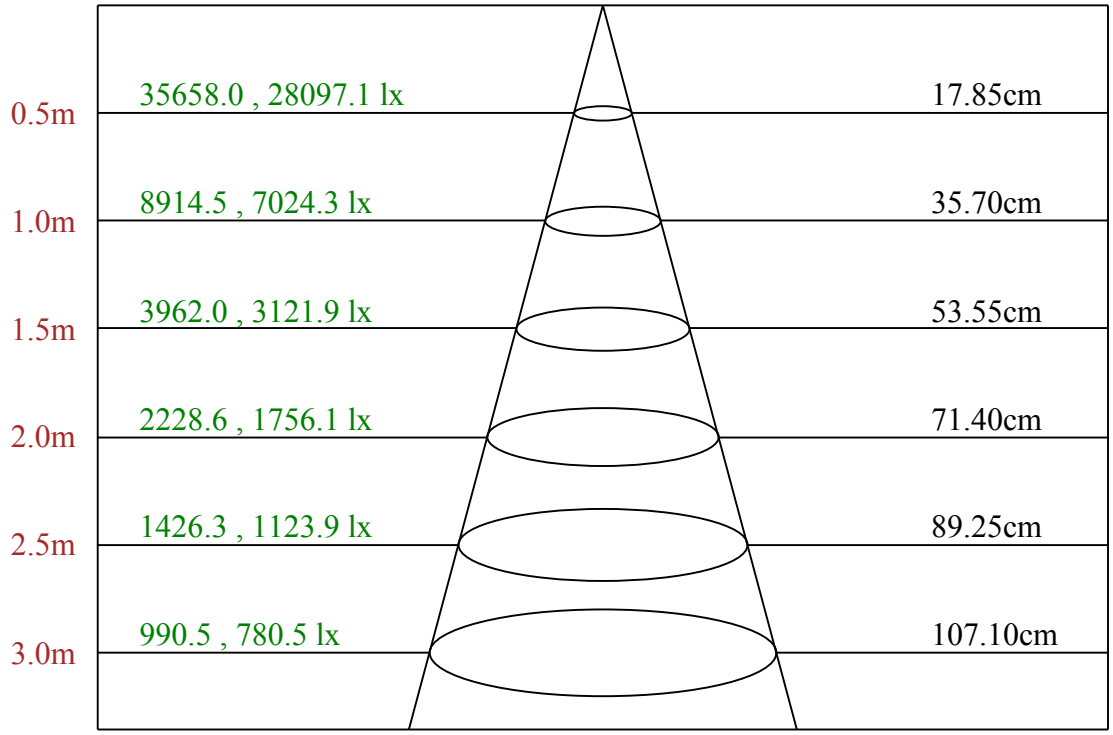
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:19.7 Right:19.7
:C90/270Left:19.7 Right:19.7

Beam Angle(50%Imax):C0/180Left:10.1 Right:10.1
:C90/270Left:10.1 Right:10.1

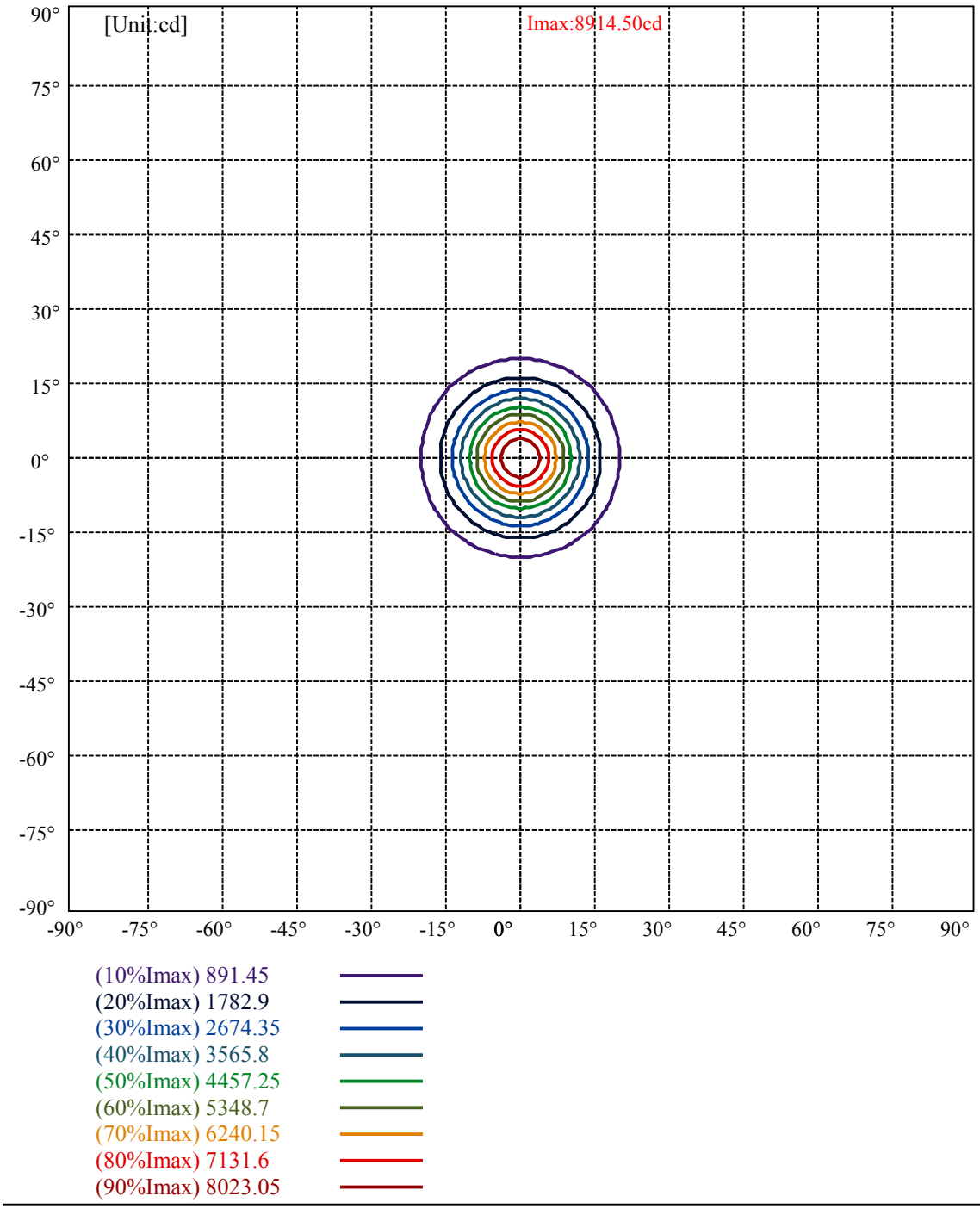
Lux distance Curve



Max , Ave

Beam angle of C0 plane 20.24

ISO-Intensity(V-H)

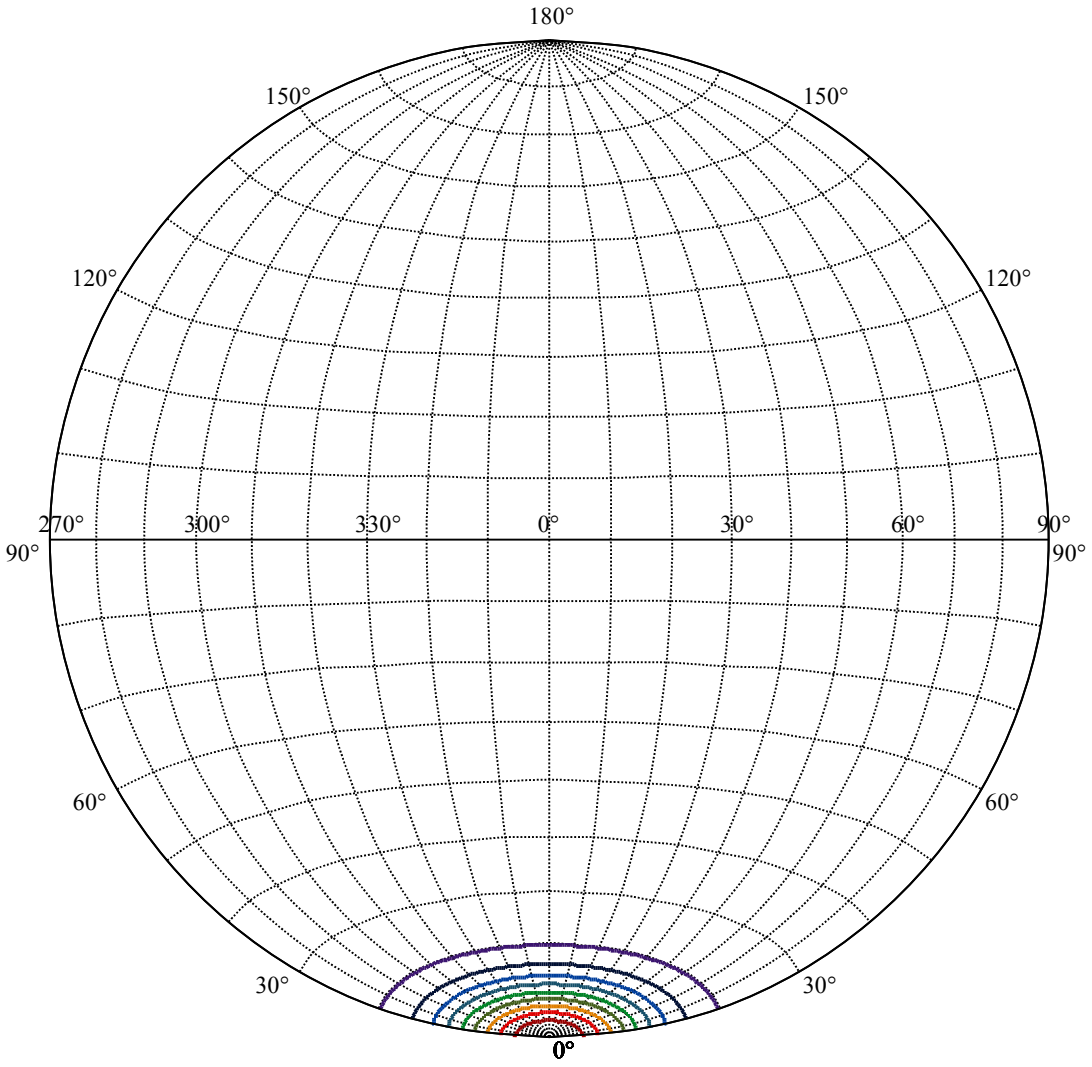


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/01/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



House [Unit:cd] Road

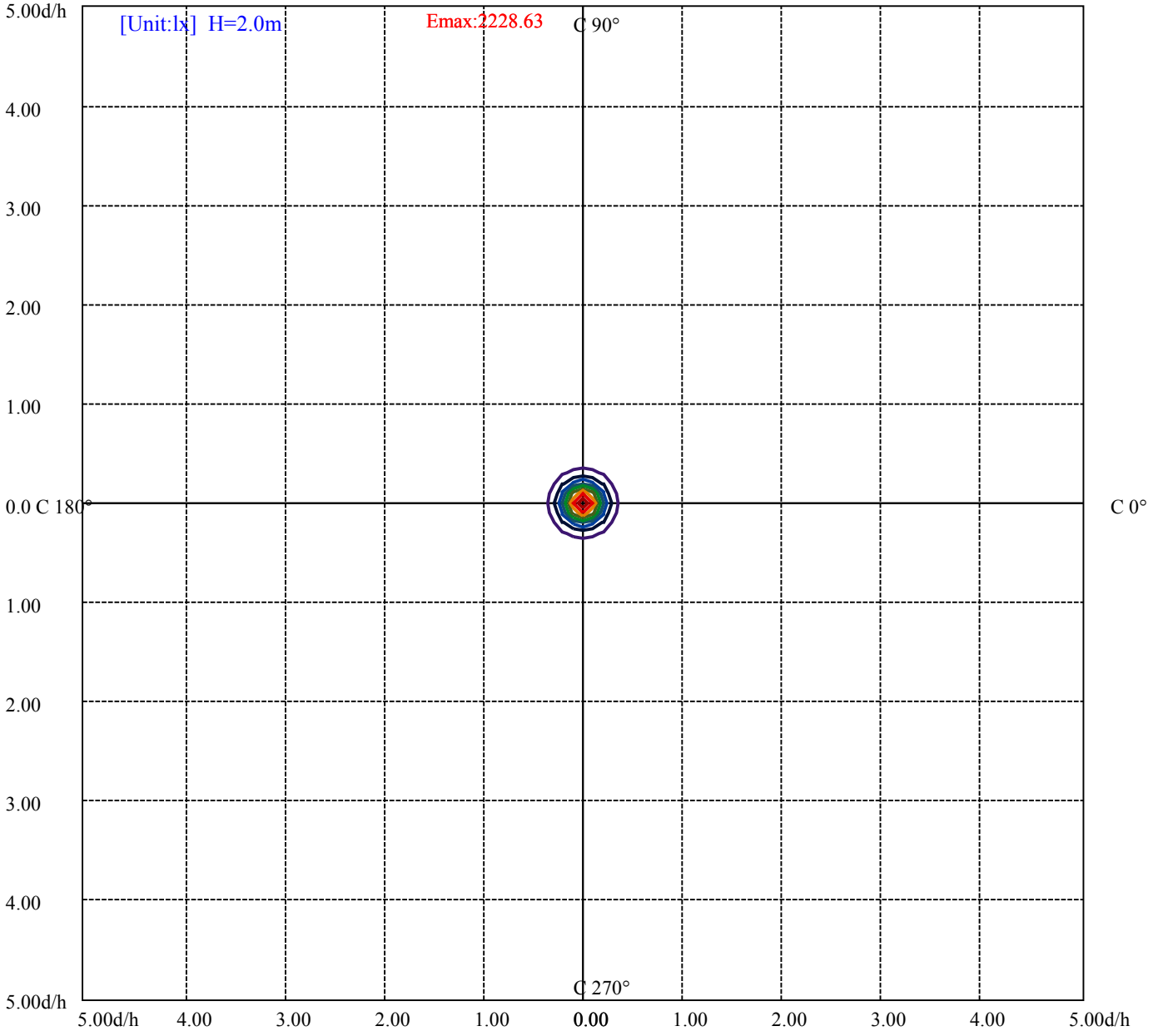
Imax:8914.50

(10%Imax) 891.45
(20%Imax) 1782.9
(30%Imax) 2674.35
(40%Imax) 3565.8
(50%Imax) 4457.25
(60%Imax) 5348.7
(70%Imax) 6240.15
(80%Imax) 7131.6
(90%Imax) 8023.05

Equipment: GMS1980 Date: 2021/01/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

KY Nata LN01D05015DA-N

ISO illuminance diagram

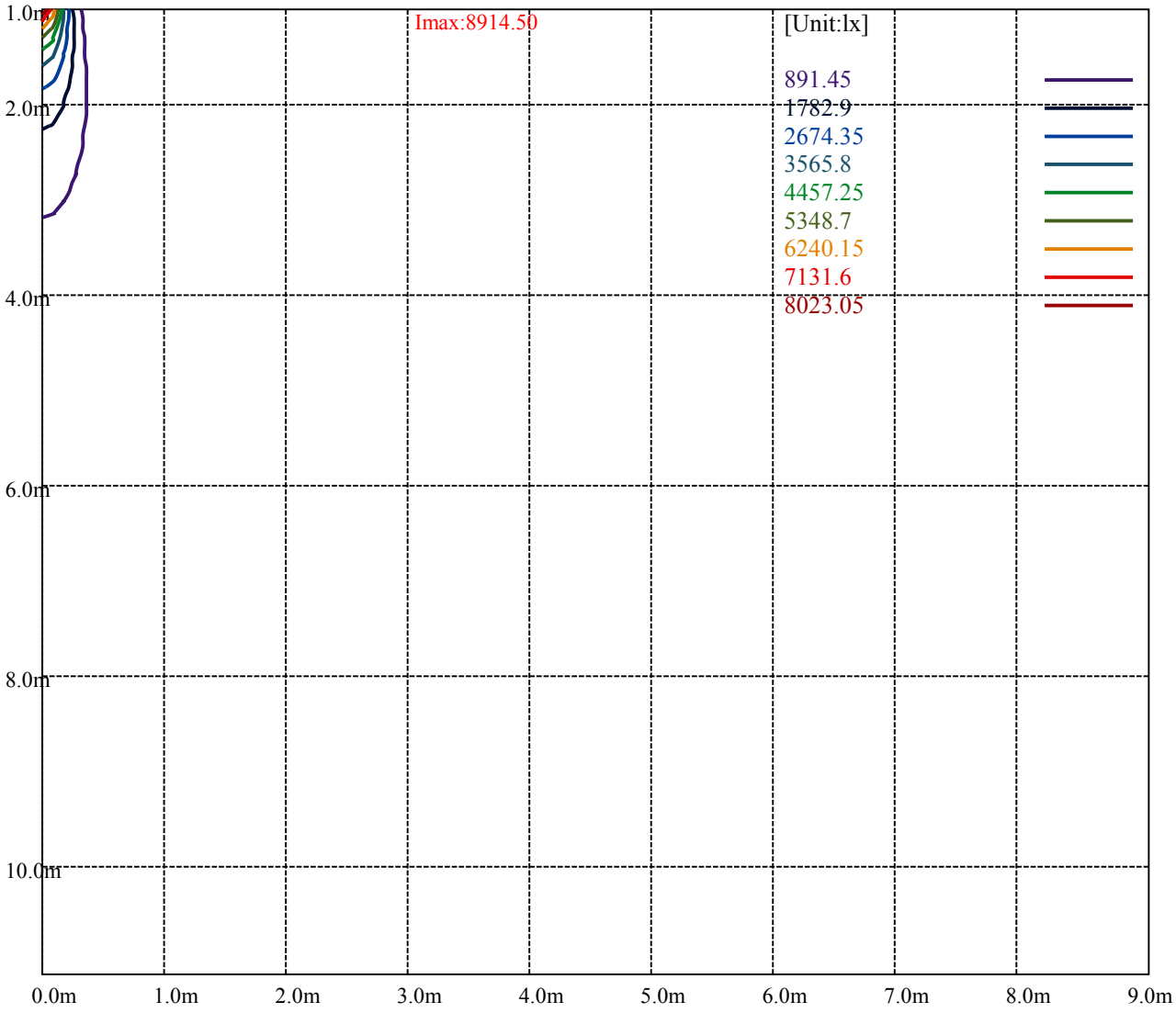


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/01/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/01/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

KY Nata LN01D05015DA-N

Luminance Limitting Curve(no luminous side)

Luminance Table

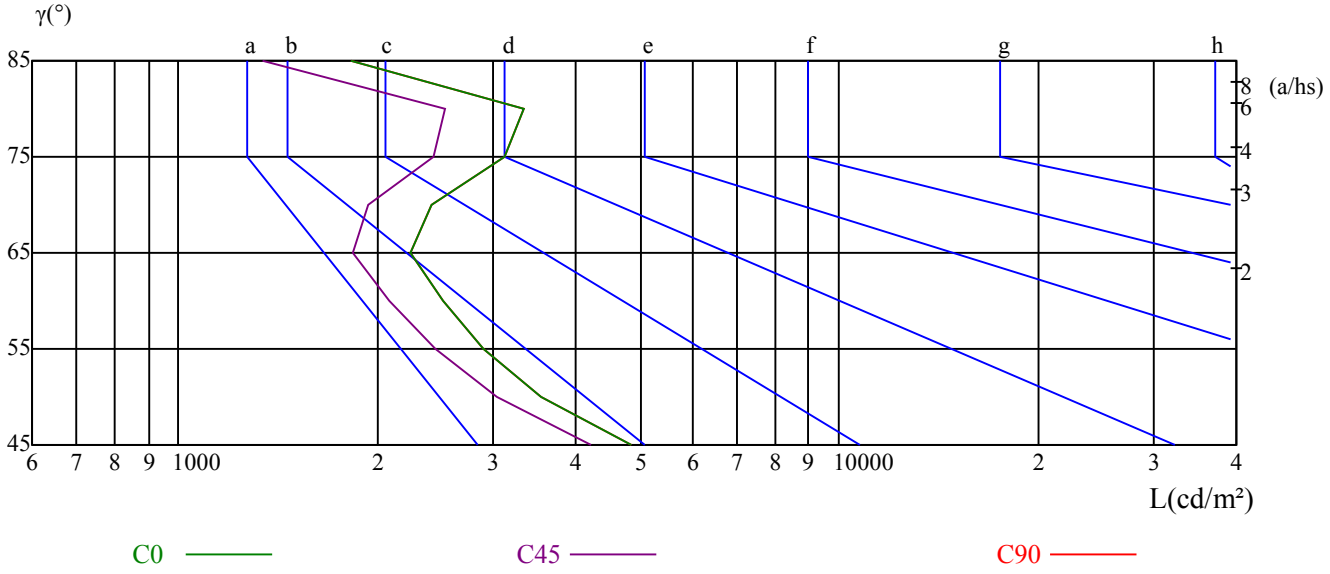
γ	45	50	55	60	65	70	75	80	85
C0	4842	3537	2897	2508	2245	2415	3118	3326	1824
C45	4226	3041	2453	2088	1836	1935	2441	2534	1344
C90	4842	3537	2897	2508	2245	2415	3118	3326	1824

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
4861	4861	4861	9443	9443	9443	13153	13153	13153

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

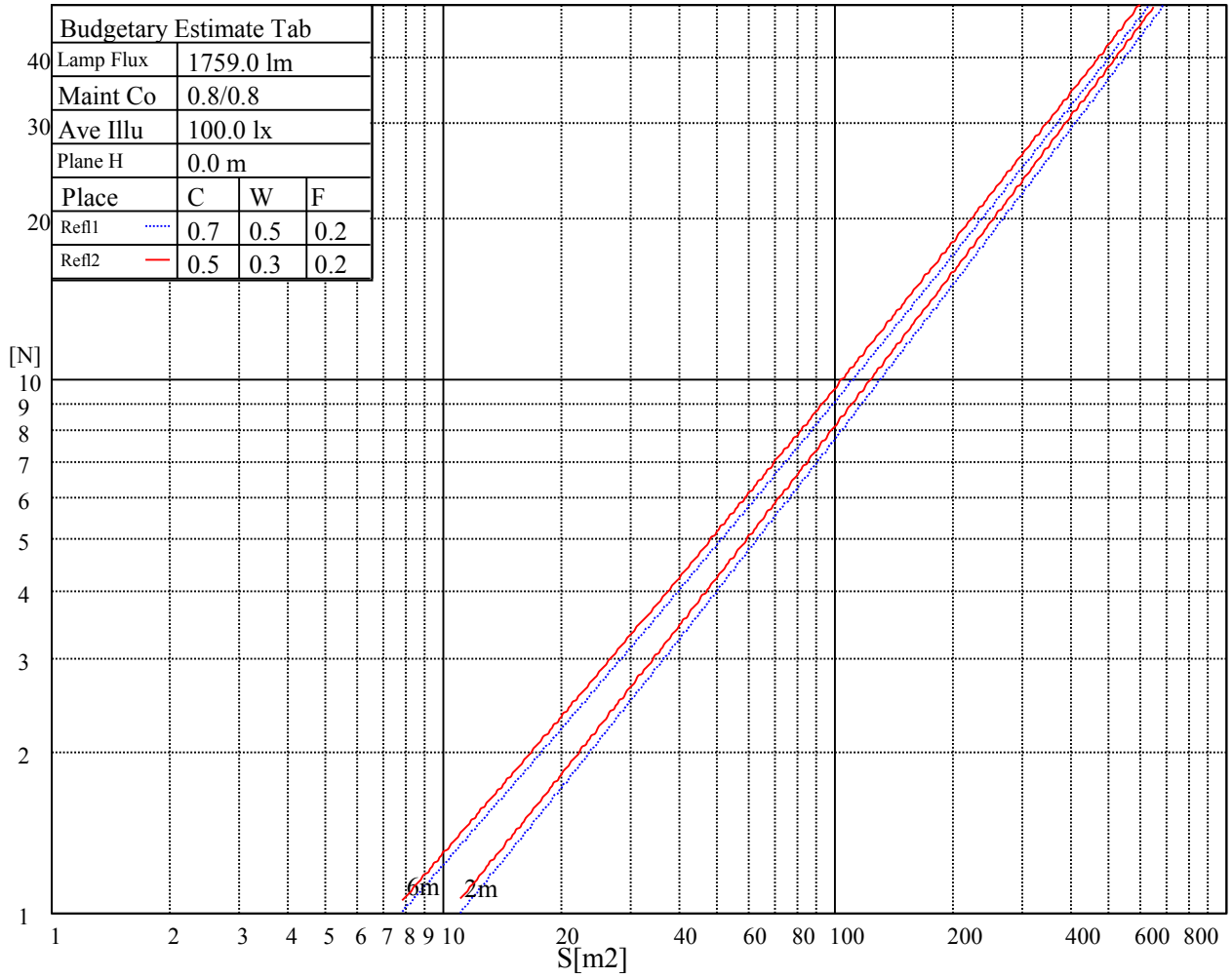


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2021/01/07
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table

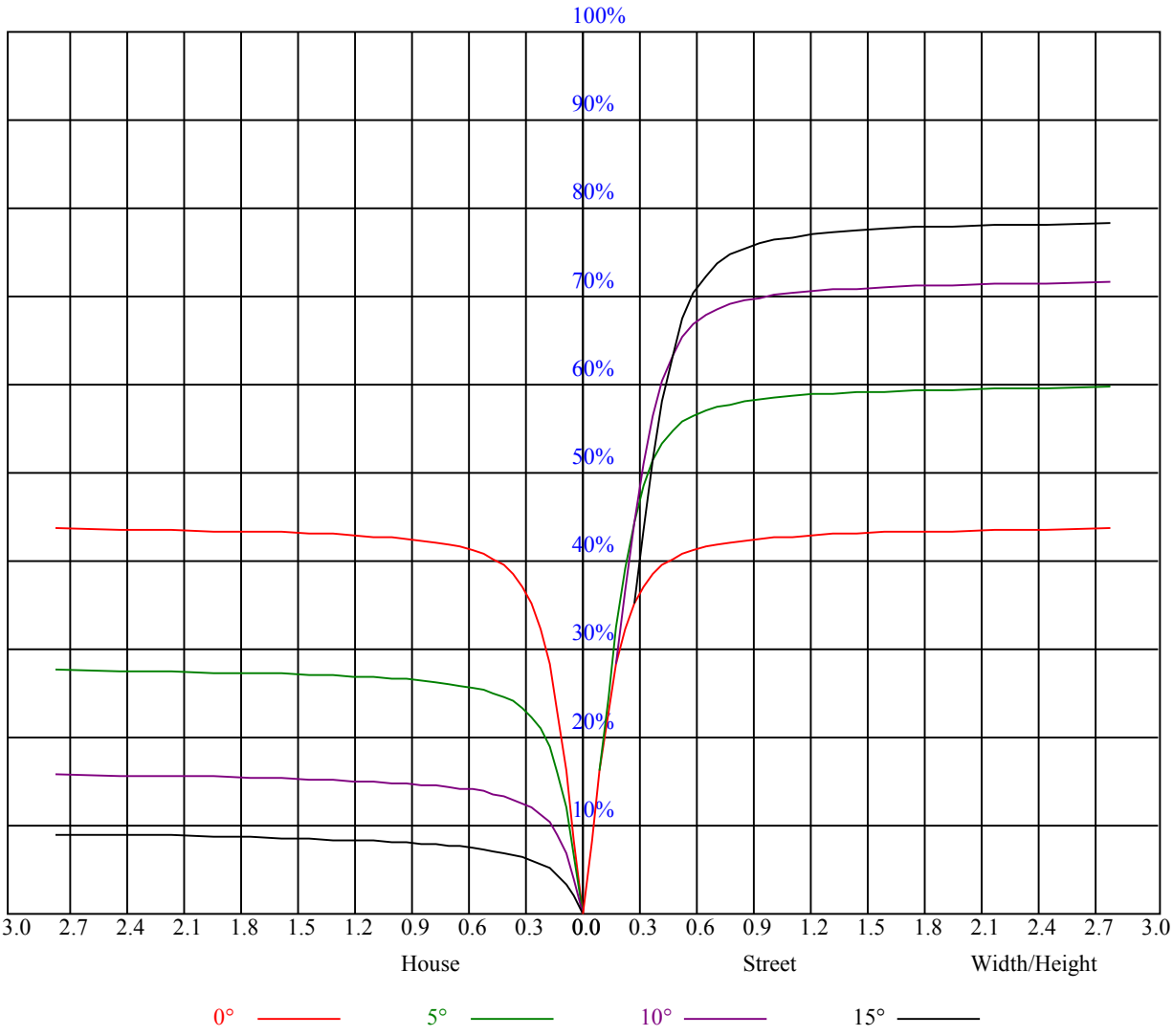


Equipment: GMS1980 Date: 2021/01/07 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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	1.06	1.06	1.06	1.03	1.03	1.03	0.98	0.98	0.98	0.94	0.94	0.94	0.90	0.90	0.90	0.89
1	0.99	0.97	0.95	0.97	0.96	0.94	0.94	0.92	0.91	0.90	0.89	0.88	0.87	0.87	0.86	0.84
2	0.94	0.91	0.89	0.92	0.90	0.88	0.90	0.88	0.86	0.87	0.85	0.84	0.85	0.83	0.82	0.81
3	0.90	0.86	0.83	0.88	0.85	0.83	0.86	0.84	0.81	0.84	0.82	0.80	0.82	0.81	0.79	0.78
4	0.86	0.82	0.79	0.85	0.82	0.79	0.83	0.80	0.78	0.82	0.79	0.77	0.80	0.78	0.76	0.75
5	0.83	0.79	0.76	0.82	0.78	0.76	0.81	0.77	0.75	0.79	0.77	0.74	0.78	0.76	0.74	0.73
6	0.80	0.76	0.73	0.79	0.76	0.73	0.78	0.75	0.72	0.77	0.74	0.72	0.76	0.73	0.72	0.71
7	0.77	0.73	0.71	0.77	0.73	0.71	0.76	0.73	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.69
8	0.75	0.71	0.69	0.75	0.71	0.68	0.74	0.71	0.68	0.73	0.70	0.68	0.72	0.70	0.68	0.67
9	0.73	0.69	0.67	0.73	0.69	0.67	0.72	0.69	0.66	0.71	0.68	0.66	0.71	0.68	0.66	0.65
10	0.71	0.67	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.66	0.64	0.64

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2021/01/07	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	8940.38	8847.00	8617.50	8238.38	7820.44	7328.81	6644.81	6091.31	5531.63
45.0	8904.38	8800.88	8553.94	8176.50	7761.38	7277.63	6588.56	6022.69	5472.56
90.0	8907.75	8835.75	8668.69	8361.00	7929.56	7461.56	6863.06	6228.56	5662.69
135.0	8905.50	8954.44	8898.75	8711.44	8427.94	8051.63	7463.25	6926.63	6370.31
180.0	8940.38	8937.00	8806.50	8574.19	8182.13	7738.88	7158.94	6524.44	5956.31
225.0	8904.38	8905.50	8798.06	8546.63	8173.13	7738.88	7162.31	6551.44	5994.56
270.0	8907.75	8875.13	8719.88	8418.94	8042.06	7581.38	6919.31	6355.69	5797.13
315.0	8905.50	8736.19	8465.63	8042.06	7530.19	7005.38	6376.50	5756.63	5192.44
360.0	8940.38	8847.00	8617.50	8238.38	7820.44	7328.81	6644.81	6091.31	5531.63

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	4831.88	4290.19	3769.88	3221.44	2720.81	2325.94	1938.38	1639.13	1351.69
45.0	4779.56	4227.75	3702.38	3151.69	2652.75	2261.25	1879.88	1587.38	1304.44
90.0	5095.69	4406.63	3886.88	3399.19	2839.50	2444.63	2097.00	1756.13	1462.50
135.0	5671.13	5100.19	4536.00	3927.94	3359.25	2898.56	2441.81	2085.75	1738.13
180.0	5387.06	4680.00	4134.94	3615.19	3009.38	2580.75	2203.31	1794.94	1515.94
225.0	5430.94	4722.19	4167.00	3638.25	3028.50	2590.88	2206.69	1825.31	1500.75
270.0	5109.75	4565.81	4037.63	3480.75	2966.06	2554.31	2139.75	1821.38	1516.50
315.0	4632.19	3967.88	3465.56	2997.56	2480.06	2123.44	1811.25	1504.69	1119.04
360.0	4831.88	4290.19	3769.88	3221.44	2720.81	2325.94	1938.38	1639.13	1351.69

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1113.19	936.00	770.06	636.19	538.88	457.31	374.63	321.19	287.44
45.0	1063.13	879.19	712.69	580.50	489.94	407.25	332.44	287.44	237.38
90.0	1114.88	1026.00	868.50	723.15	605.31	519.08	437.34	370.24	320.79
135.0	1442.25	1216.13	1008.56	839.81	713.81	606.94	500.06	429.19	370.69
180.0	1119.54	1072.74	885.49	733.61	623.64	522.68	439.43	377.83	320.34
225.0	1103.29	1009.07	862.14	704.19	564.19	484.20	399.09	325.18	283.67
270.0	1262.25	1073.25	893.25	746.44	637.88	547.88	453.38	391.50	338.63
315.0	1050.86	872.33	739.13	616.44	516.09	440.44	369.90	312.64	271.35
360.0	1113.19	936.00	770.06	636.19	538.88	457.31	374.63	321.19	287.44

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	236.48	199.18	175.56	153.51	135.73	122.12	110.93	100.13	90.96
45.0	205.43	173.31	152.89	136.01	119.53	108.96	100.41	92.19	85.11
90.0	279.45	235.91	207.39	183.04	160.37	141.81	128.03	114.98	103.78
135.0	314.44	288.00	232.48	204.41	175.95	156.94	140.96	126.00	113.29
180.0	278.27	238.39	206.16	182.14	162.11	141.30	127.58	115.88	103.44
225.0	243.96	200.93	179.49	159.36	140.63	125.44	114.41	103.95	95.12
270.0	288.56	259.99	216.62	194.91	166.22	149.01	136.29	120.66	108.68
315.0	236.36	199.58	176.18	156.77	140.57	123.75	112.50	102.83	92.19
360.0	236.48	199.18	175.56	153.51	135.73	122.12	110.93	100.13	90.96

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	83.87	76.67	71.27	65.76	60.64	56.70	52.20	48.71	45.73
45.0	79.54	73.91	69.41	64.74	60.19	56.53	52.71	48.94	45.79
90.0	95.01	86.23	79.43	72.79	67.22	61.65	57.21	52.20	48.38
135.0	103.33	93.43	85.78	78.24	71.38	65.87	60.47	55.41	51.30
180.0	94.84	87.24	79.71	73.13	67.73	62.21	57.83	53.38	49.33
225.0	88.31	82.24	76.16	70.65	65.64	61.65	57.83	53.38	49.95
270.0	100.24	89.83	82.46	75.94	68.79	63.79	59.06	53.78	49.84
315.0	84.88	77.57	71.78	65.76	60.92	55.91	51.86	47.59	43.59
360.0	83.87	76.67	71.27	65.76	60.64	56.70	52.20	48.71	45.73

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	42.69	39.54	37.18	35.04	32.96	31.11	29.70	28.18	27.00
45.0	42.86	39.77	37.41	35.27	33.19	31.39	29.87	28.35	27.06
90.0	44.94	41.23	38.53	36.11	34.09	31.95	30.38	28.91	27.56
135.0	47.93	43.14	40.22	37.69	34.76	32.46	30.94	29.03	27.45
180.0	45.96	42.58	39.54	37.18	35.04	32.79	31.16	29.81	28.29
225.0	46.69	42.98	40.33	37.80	35.61	33.24	31.61	30.15	28.63
270.0	46.24	42.24	39.26	36.68	34.20	32.06	30.38	28.74	27.45
315.0	40.56	37.35	34.54	32.46	30.66	28.63	27.23	26.04	24.81
360.0	42.69	39.54	37.18	35.04	32.96	31.11	29.70	28.18	27.00

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	25.93	24.75	23.85	22.89	21.94	21.15	20.25	19.46	18.73
45.0	25.99	24.81	23.91	22.89	21.94	21.26	20.53	19.69	19.13
90.0	26.27	25.20	24.19	23.12	22.33	21.54	20.81	20.08	19.35
135.0	26.44	25.09	24.30	23.46	22.39	21.66	20.81	20.03	19.35
180.0	27.00	25.88	24.69	23.68	22.78	21.88	21.09	20.19	19.46
225.0	27.34	26.21	25.03	24.02	23.06	22.16	21.38	20.53	19.80
270.0	26.27	25.20	24.30	23.34	22.39	21.60	20.93	20.08	19.41
315.0	23.68	22.73	21.83	20.98	20.25	19.58	19.01	18.51	18.00
360.0	25.93	24.75	23.85	22.89	21.94	21.15	20.25	19.46	18.73

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	18.23	17.49	16.99	16.65	16.09	15.58	15.24	14.74	14.18
45.0	18.45	17.78	17.27	16.71	16.14	15.69	15.24	14.74	14.29
90.0	18.73	18.11	17.55	17.10	16.59	16.03	15.58	15.19	14.74
135.0	18.84	18.11	17.66	17.27	16.93	17.21	18.73	21.38	24.98
180.0	18.79	18.11	17.49	16.99	16.59	16.03	15.58	15.13	14.63
225.0	19.13	18.45	17.78	17.27	16.76	16.20	15.75	15.30	14.79
270.0	18.79	18.06	17.55	17.10	16.59	16.03	15.64	15.24	14.91
315.0	17.61	17.21	16.82	16.71	17.61	20.48	23.85	27.73	31.89
360.0	18.23	17.49	16.99	16.65	16.09	15.58	15.24	14.74	14.18

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	13.78	13.28	12.88	12.54	12.04	11.76	11.48	11.03	10.63
45.0	13.89	13.39	13.05	12.66	12.26	11.98	11.64	11.25	10.97
90.0	14.40	14.40	14.51	14.68	14.96	15.24	15.19	14.68	13.84
135.0	28.41	32.12	35.27	38.48	41.57	43.82	45.68	46.74	46.18
180.0	14.01	13.56	13.11	12.66	12.32	11.93	11.64	11.25	10.86
225.0	14.34	13.84	13.44	13.05	12.71	12.32	12.04	11.70	11.36
270.0	14.91	15.08	15.41	16.09	16.82	17.33	17.61	16.99	15.92
315.0	35.89	39.09	42.53	45.34	47.36	48.83	48.88	45.96	39.88
360.0	13.78	13.28	12.88	12.54	12.04	11.76	11.48	11.03	10.63

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	10.35	9.90	9.51	9.06	8.61	7.76	7.43	7.14	6.98
45.0	10.63	10.24	9.96	9.79	9.00	8.44	7.93	7.71	7.54
90.0	12.66	11.36	10.24	9.90	8.94	8.27	7.71	7.37	7.26
135.0	42.69	37.13	28.91	19.63	13.50	8.55	7.99	7.65	7.31
180.0	10.52	10.18	9.73	9.39	9.06	7.99	7.59	7.31	7.14
225.0	11.03	10.69	10.29	10.01	9.79	9.28	8.49	8.04	7.82
270.0	14.46	12.32	10.74	10.18	9.62	8.72	8.04	7.65	7.43
315.0	33.81	26.27	17.61	11.98	9.11	7.88	7.43	7.20	7.03
360.0	10.35	9.90	9.51	9.06	8.61	7.76	7.43	7.14	6.98

Intensity data(cd)

C/γ(°)	90.0
0.0	6.92
45.0	7.59
90.0	7.14
135.0	7.14
180.0	6.92
225.0	8.10
270.0	7.26
315.0	7.14
360.0	6.92