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

LumCAT: 2-2183-M
Luminaire: 92.70.278.00
Report No: 221221-B009
Test No: 221221-C009
LampCAT: CREE CXA 1830 LES12
Lamp flux(lm): 1965.3
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V): 34.6400
Current(A): 0.4310
Power (W): 14.9290
PF: 0.0000
Ballast type: DC
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1629.95
Efficiency(%): 82.94%
Lumens(lm)/Power(W): 109.18
Central intensity(cd): 13195.830
Maximum intensity(cd): 13195.830
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=16.4
[C90/270]Total=16.4
Field angle(10%Imax): [C0/180]Total=37.0
[C90/270]Total=37.0
Maximum s/h(1/2): C0_180=0.28 C90_270=0.28
Maximum s/h(1/4): C0_180=0.31 C90_270=0.31
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.94%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.391%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	13195.830	0.000	0	.000%	.000%
1.0	13068.109	12.567	12.567	.639%	.771%
2.0	12632.585	36.888	49.455	1.877%	3.034%
3.0	11936.837	58.762	108.217	2.990%	6.639%
4.0	11104.180	77.126	185.343	3.924%	11.371%
5.0	10127.146	91.336	276.679	4.647%	16.975%
6.0	8869.870	99.834	376.513	5.080%	23.100%
7.0	7774.375	103.311	479.823	5.257%	29.438%
8.0	6788.228	104.222	584.045	5.303%	35.832%
9.0	5844.655	102.383	686.428	5.209%	42.113%
10.0	4957.175	97.753	784.181	4.974%	48.111%
11.0	4279.801	92.296	876.477	4.696%	53.773%
12.0	3674.430	86.951	963.428	4.424%	59.108%
13.0	3170.638	81.234	1044.662	4.133%	64.091%
14.0	2684.399	74.944	1119.606	3.813%	68.689%
15.0	2371.443	69.409	1189.015	3.532%	72.948%
16.0	1993.581	63.960	1252.974	3.254%	76.872%
17.0	1693.098	57.412	1310.386	2.921%	80.394%
18.0	1436.818	51.606	1361.991	2.626%	83.560%
19.0	1212.125	46.086	1408.078	2.345%	86.388%
20.0	1008.241	40.639	1448.716	2.068%	88.881%
21.0	804.162	34.802	1483.518	1.771%	91.016%
22.0	617.464	28.568	1512.086	1.454%	92.769%
23.0	451.239	22.424	1534.511	1.141%	94.144%
24.0	310.162	16.647	1551.158	.847%	95.166%
25.0	182.067	11.192	1562.35	.569%	95.852%
26.0	94.186	6.521	1568.871	.332%	96.252%
27.0	50.349	3.536	1572.407	.180%	96.469%
28.0	29.421	2.020	1574.427	.103%	96.593%
29.0	24.939	1.422	1575.849	.072%	96.681%
30.0	22.863	1.291	1577.139	.066%	96.760%
31.0	20.779	1.214	1578.354	.062%	96.834%
32.0	19.196	1.145	1579.499	.058%	96.904%
33.0	17.918	1.093	1580.593	.056%	96.972%
34.0	16.641	1.046	1581.638	.053%	97.036%
35.0	15.431	0.996	1582.634	.051%	97.097%
36.0	14.483	0.952	1583.587	.048%	97.155%
37.0	13.616	0.916	1584.503	.047%	97.211%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	12.937	0.886	1585.39	.045%	97.266%
39.0	12.324	0.862	1586.252	.044%	97.319%
40.0	11.816	0.842	1587.094	.043%	97.370%
41.0	11.428	0.828	1587.922	.042%	97.421%
42.0	11.136	0.820	1588.741	.042%	97.471%
43.0	10.853	0.815	1589.556	.041%	97.521%
44.0	10.636	0.811	1590.367	.041%	97.571%
45.0	10.457	0.811	1591.178	.041%	97.621%
46.0	10.255	0.810	1591.988	.041%	97.671%
47.0	10.128	0.811	1592.798	.041%	97.720%
48.0	10.001	0.814	1593.612	.041%	97.770%
49.0	9.874	0.816	1594.428	.042%	97.820%
50.0	9.762	0.819	1595.247	.042%	97.871%
51.0	9.673	0.822	1596.069	.042%	97.921%
52.0	9.583	0.826	1596.895	.042%	97.972%
53.0	9.531	0.831	1597.727	.042%	98.023%
54.0	9.463	0.837	1598.564	.043%	98.074%
55.0	9.426	0.843	1599.407	.043%	98.126%
56.0	9.396	0.851	1600.258	.043%	98.178%
57.0	9.344	0.857	1601.114	.044%	98.231%
58.0	9.336	0.864	1601.978	.044%	98.284%
59.0	9.284	0.871	1602.849	.044%	98.337%
60.0	9.254	0.876	1603.725	.045%	98.391%
61.0	9.165	0.879	1604.604	.045%	98.445%
62.0	9.112	0.881	1605.484	.045%	98.499%
63.0	9.090	0.885	1606.37	.045%	98.553%
64.0	9.023	0.889	1607.258	.045%	98.608%
65.0	8.985	0.891	1608.15	.045%	98.662%
66.0	8.955	0.895	1609.045	.046%	98.717%
67.0	8.911	0.898	1609.943	.046%	98.772%
68.0	8.858	0.900	1610.843	.046%	98.827%
69.0	8.784	0.900	1611.743	.046%	98.883%
70.0	8.739	0.900	1612.643	.046%	98.938%
71.0	8.642	0.898	1613.541	.046%	98.993%
72.0	8.552	0.894	1614.435	.045%	99.048%
73.0	8.485	0.891	1615.326	.045%	99.103%
74.0	8.433	0.889	1616.216	.045%	99.157%
75.0	8.365	0.888	1617.103	.045%	99.212%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.306	0.885	1617.988	.045%	99.266%
77.0	8.231	0.882	1618.87	.045%	99.320%
78.0	8.201	0.880	1619.75	.045%	99.374%
79.0	8.141	0.878	1620.628	.045%	99.428%
80.0	8.067	0.874	1621.501	.044%	99.481%
81.0	8.014	0.870	1622.371	.044%	99.535%
82.0	7.962	0.866	1623.237	.044%	99.588%
83.0	7.895	0.862	1624.099	.044%	99.641%
84.0	7.850	0.858	1624.957	.044%	99.693%
85.0	7.760	0.852	1625.809	.043%	99.746%
86.0	7.708	0.846	1626.655	.043%	99.798%
87.0	7.604	0.838	1627.493	.043%	99.849%
88.0	7.492	0.827	1628.32	.042%	99.900%
89.0	7.462	0.820	1629.139	.042%	99.950%
90.0	7.417	0.816	1629.955	.042%	100.000%

Zonal flux distribution table

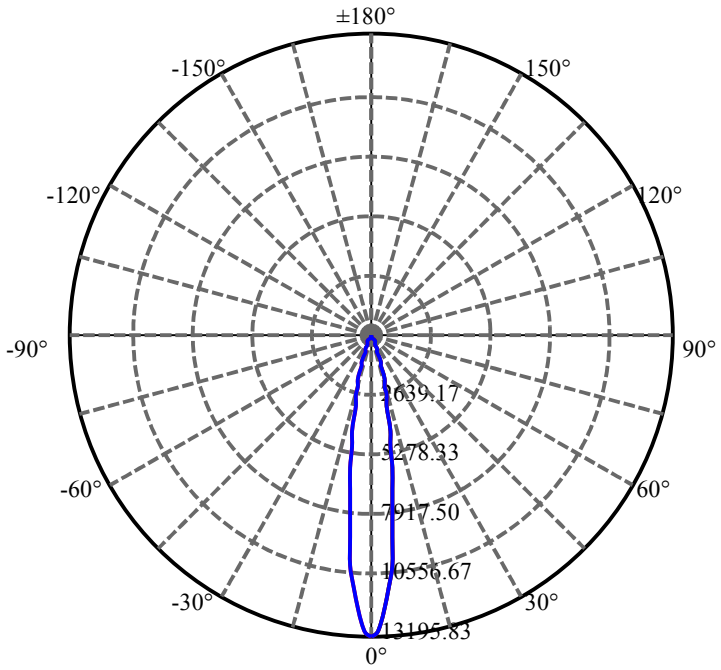
ZONAL LUMEN SUMMARY

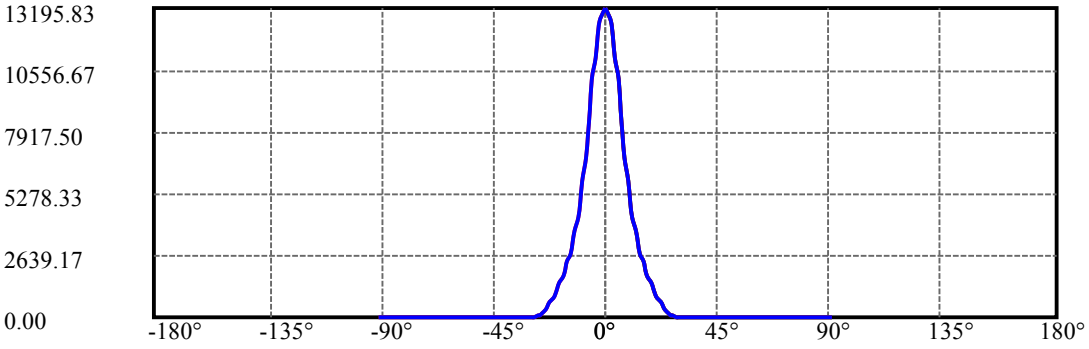
Zone	Lumens	%Lamp	%Fixt
0-30	1577.14	80.25%	96.76%
0-40	1587.09	80.76%	97.37%
0-60	1603.72	81.60%	98.39%
0-90	1629.14	82.89%	99.95%
0-120	1629.14	82.89%	99.95%
0-180	1629.95	82.94%	100.00%
60-90	26.29	1.34%	1.61%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.89	1303.96	66.35%	80.00%

ZONAL LUMEN SUMMARY

0-10	784.18
10-20	664.54
20-30	128.42
30-40	9.95
40-50	8.15
50-60	8.48
60-70	8.92
70-80	8.86
80-90	7.64
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):

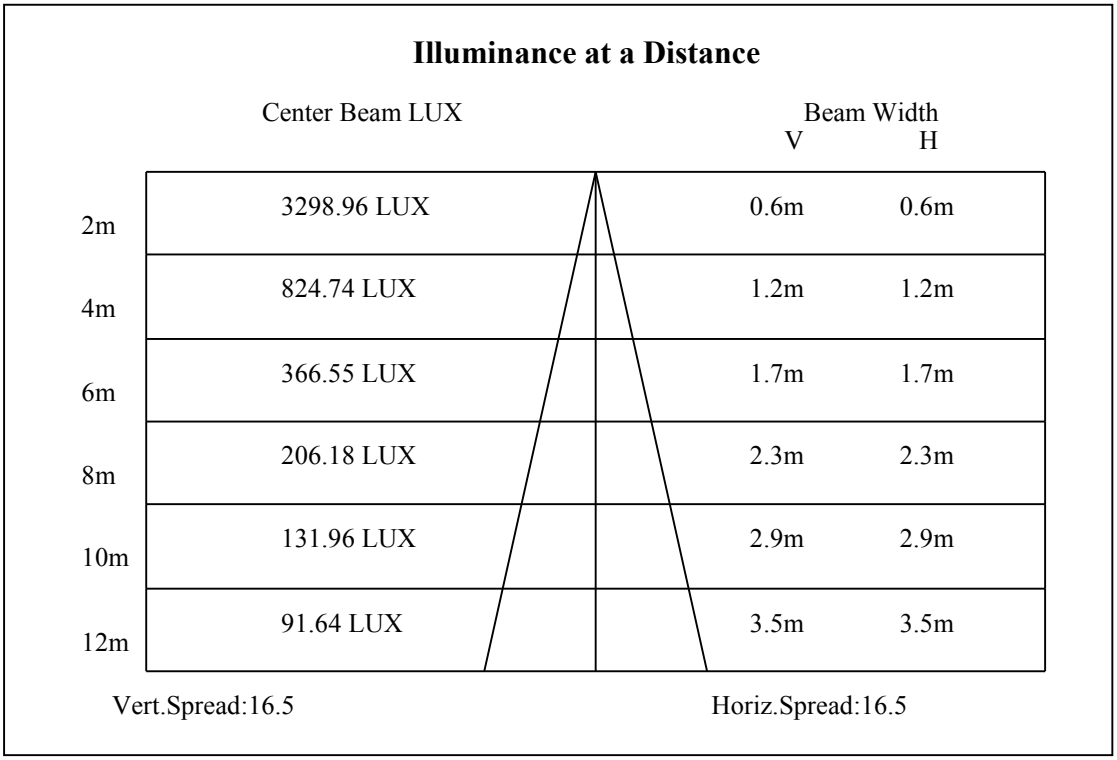
C0/C180:

C90/C270:

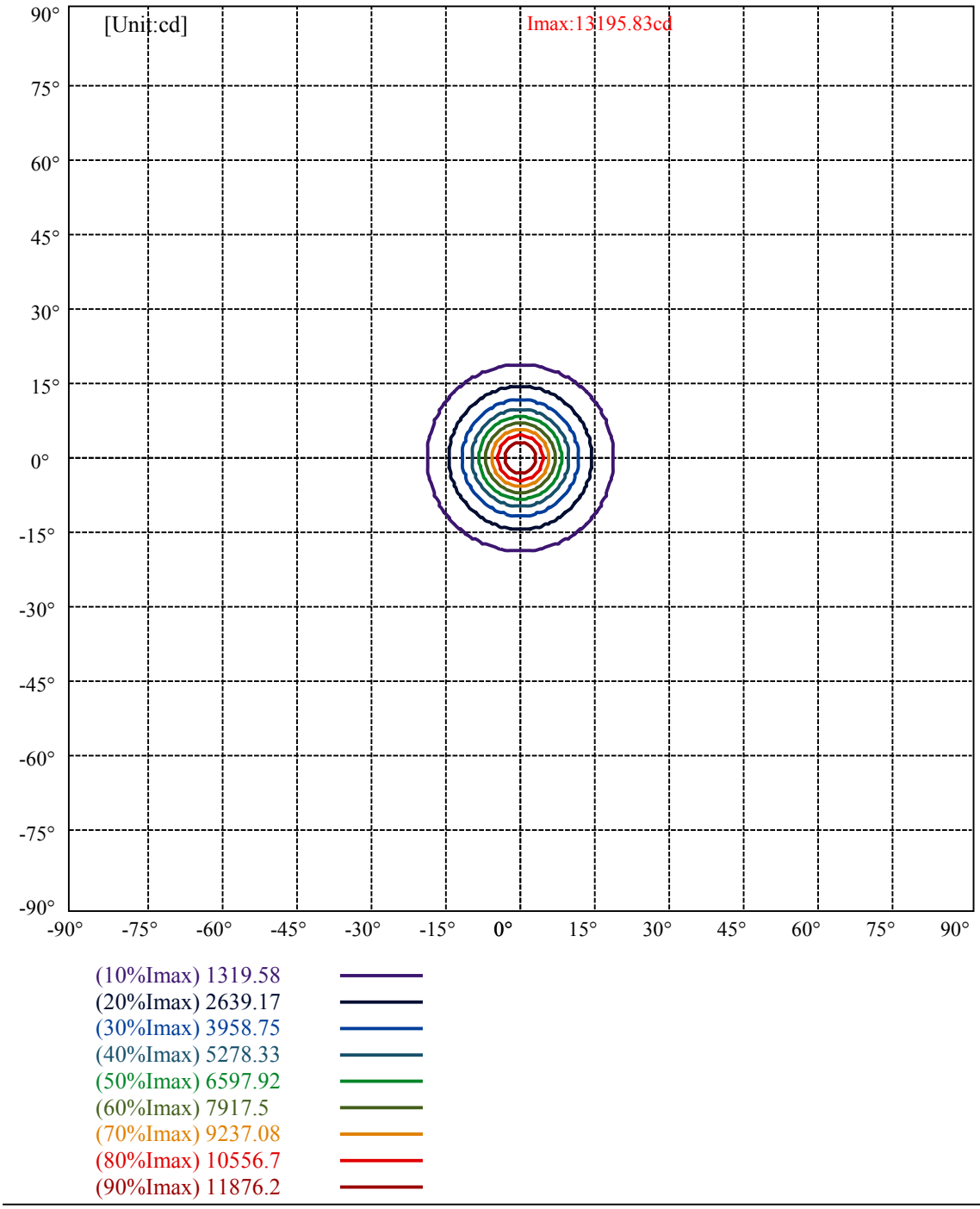
Field angle(10%Imax):C0/180Left:18.5 Right:18.5
:C90/270Left:18.5 Right:18.5

Beam Angle(50%Imax):C0/180Left:8.2 Right:8.2
:C90/270Left:8.2 Right:8.2

Lux distance Curve



ISO-Intensity(V-H)

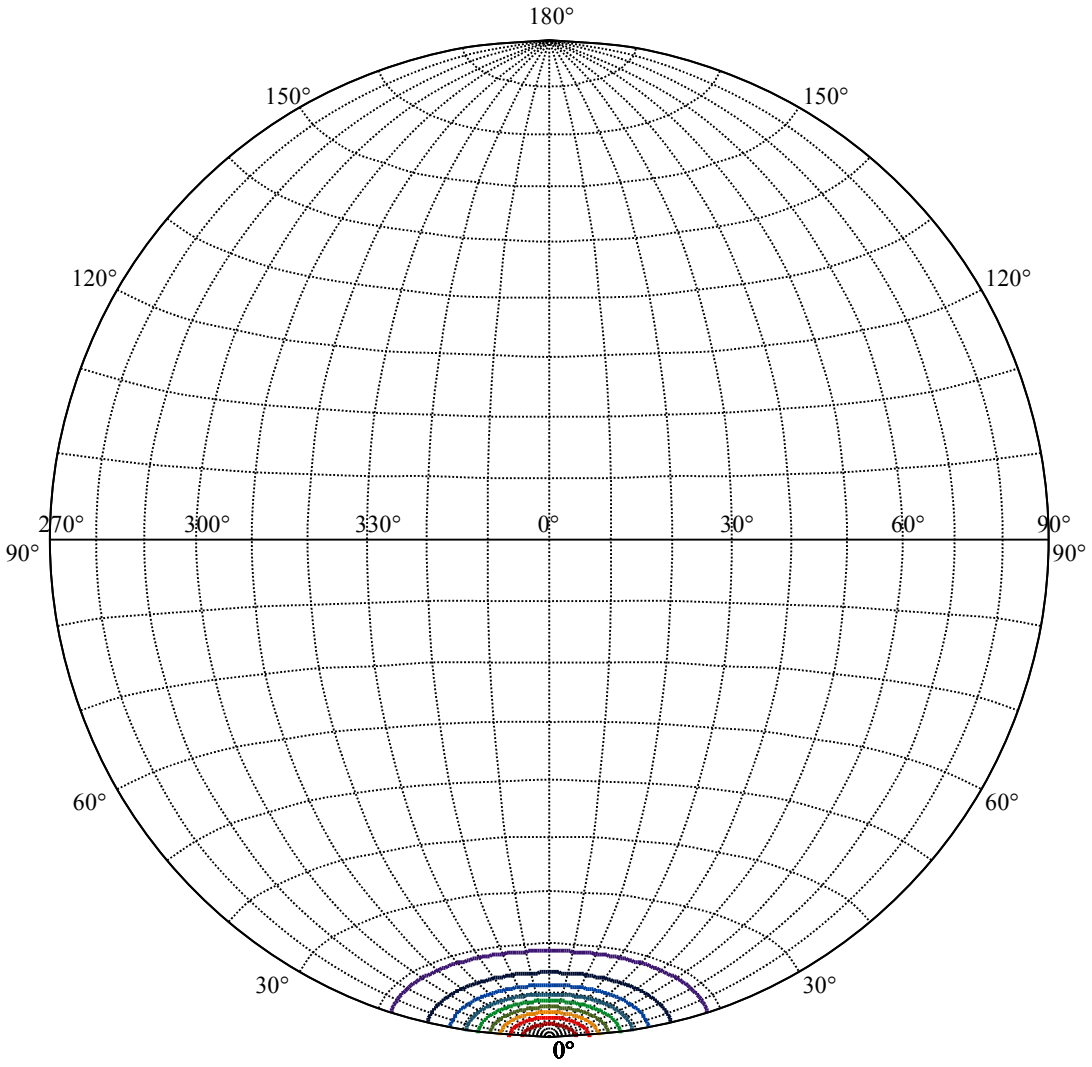


Equipment: GMS1980
Temperature(°C): 25.0

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

Operator: NT07
Distance(m): 7.73

ISO candela diagram on circular web



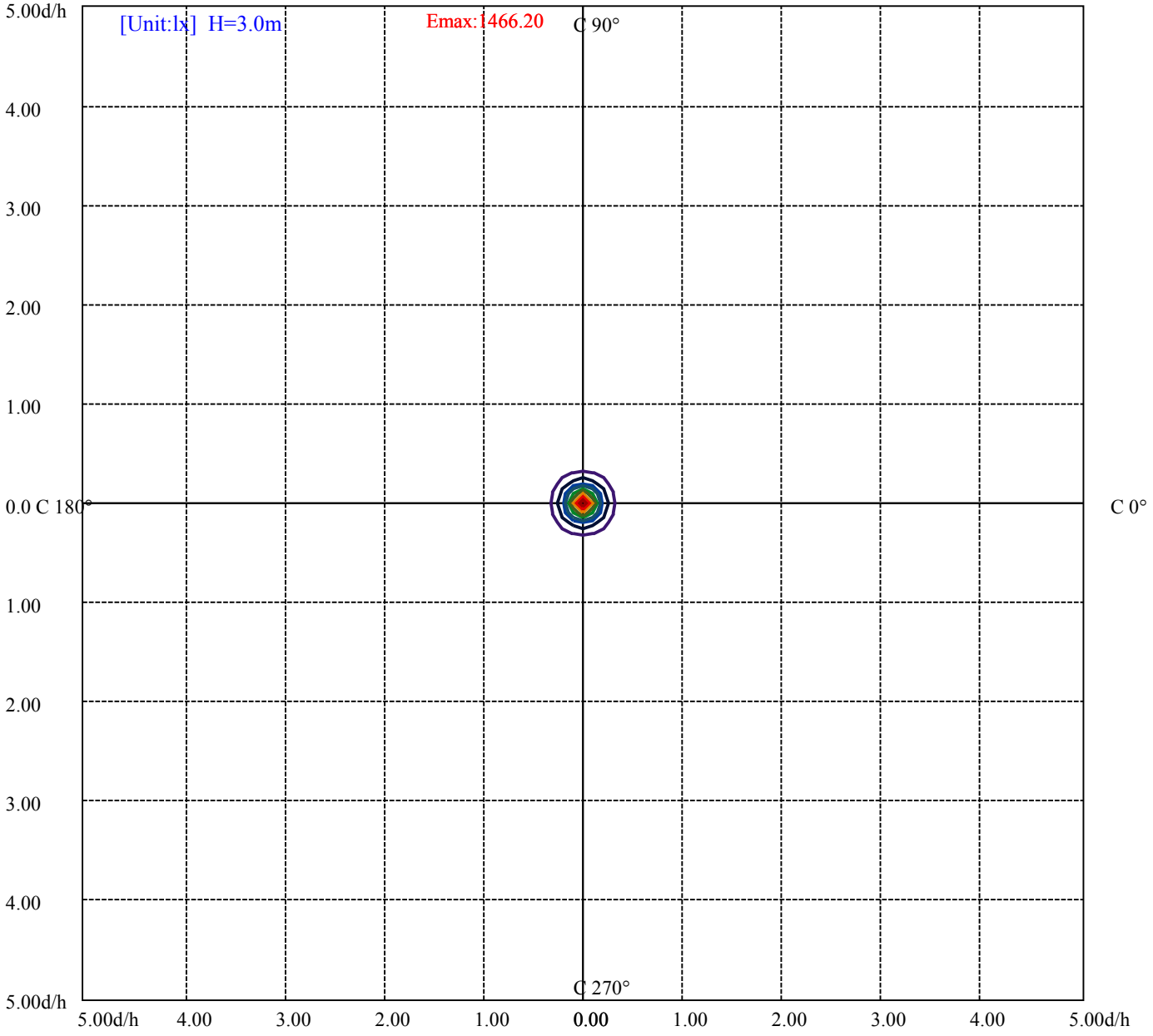
House [Unit:cd] Road

Imax:13195.83

(10%Imax) 1319.58
(20%Imax) 2639.17
(30%Imax) 3958.75
(40%Imax) 5278.33
(50%Imax) 6597.92
(60%Imax) 7917.5
(70%Imax) 9237.08
(80%Imax) 10556.7
(90%Imax) 11876.2

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

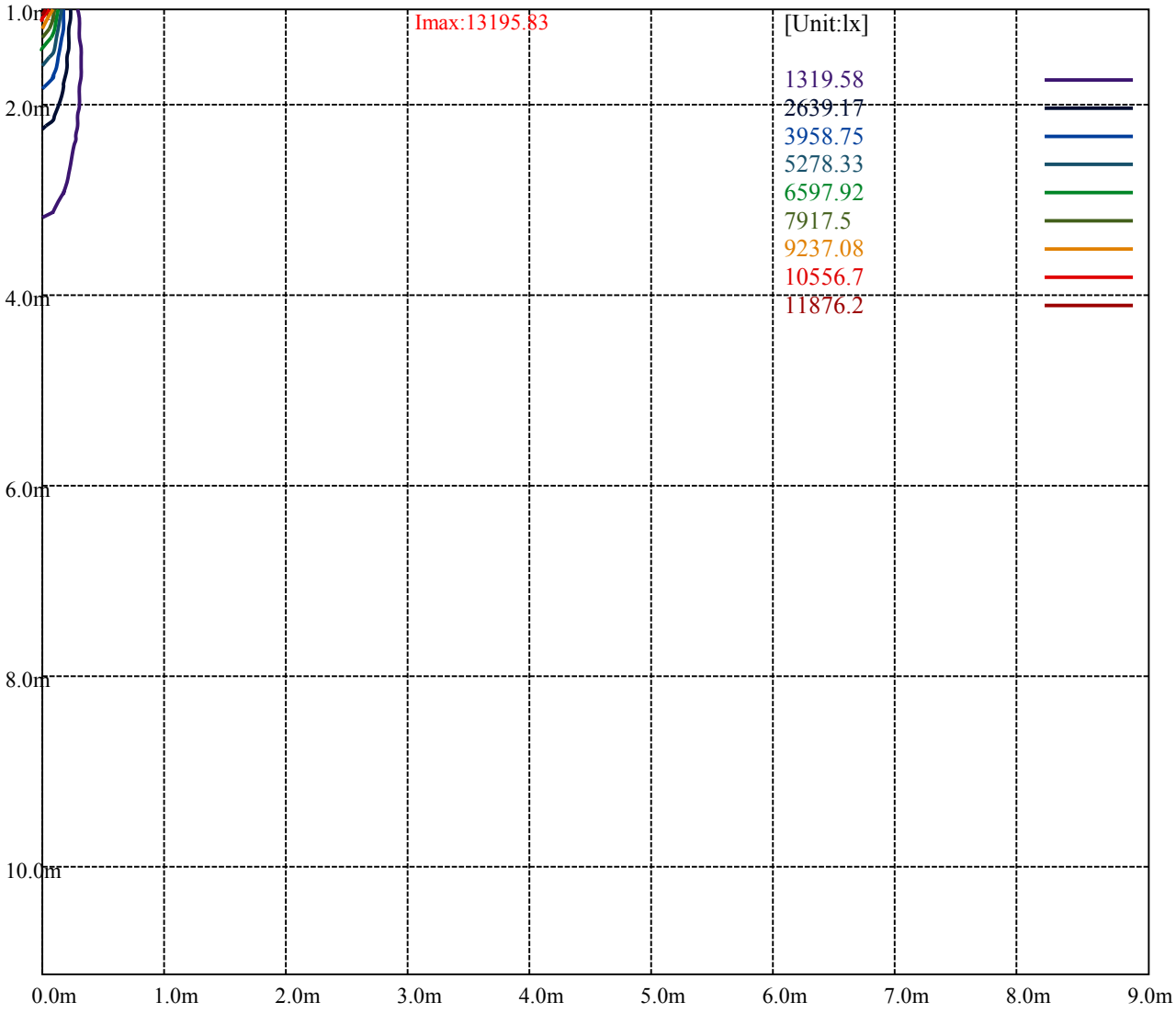
ISO illuminance diagram



(10%Emax) 146.62
(20%Emax) 293.24
(30%Emax) 439.86
(40%Emax) 586.48
(50%Emax) 733.1011
(60%Emax) 879.7211
(70%Emax) 1026.341
(80%Emax) 1172.956
(90%Emax) 1319.578

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

2-2135-M

Luminance Limitting Curve(no luminous side)

Luminance Table

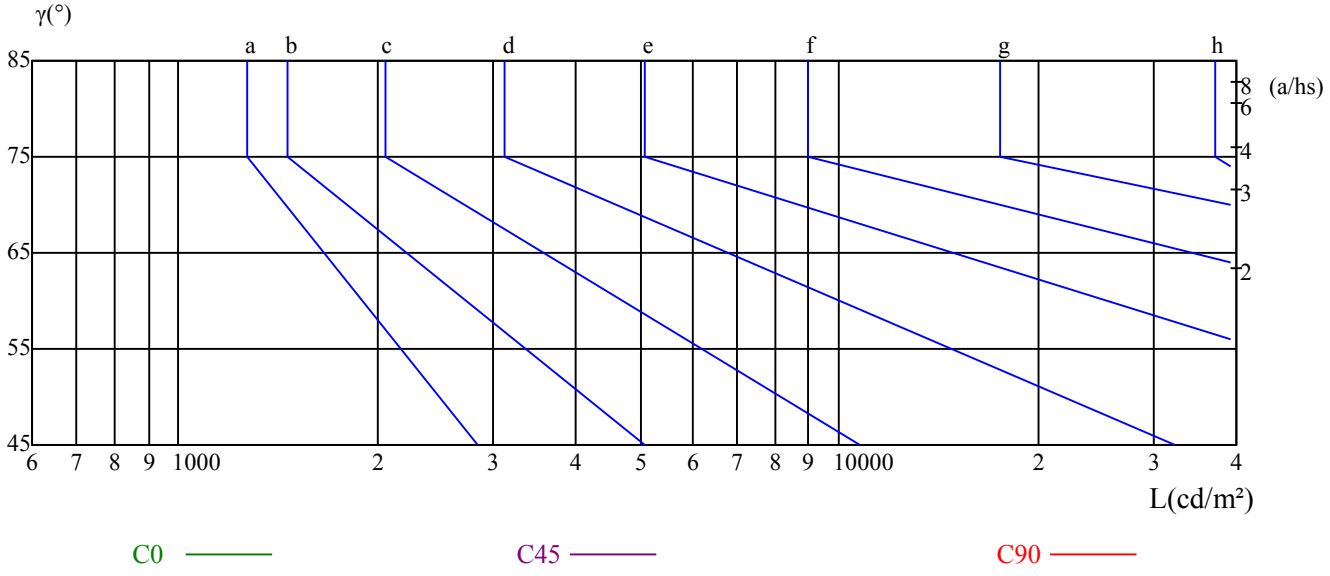
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

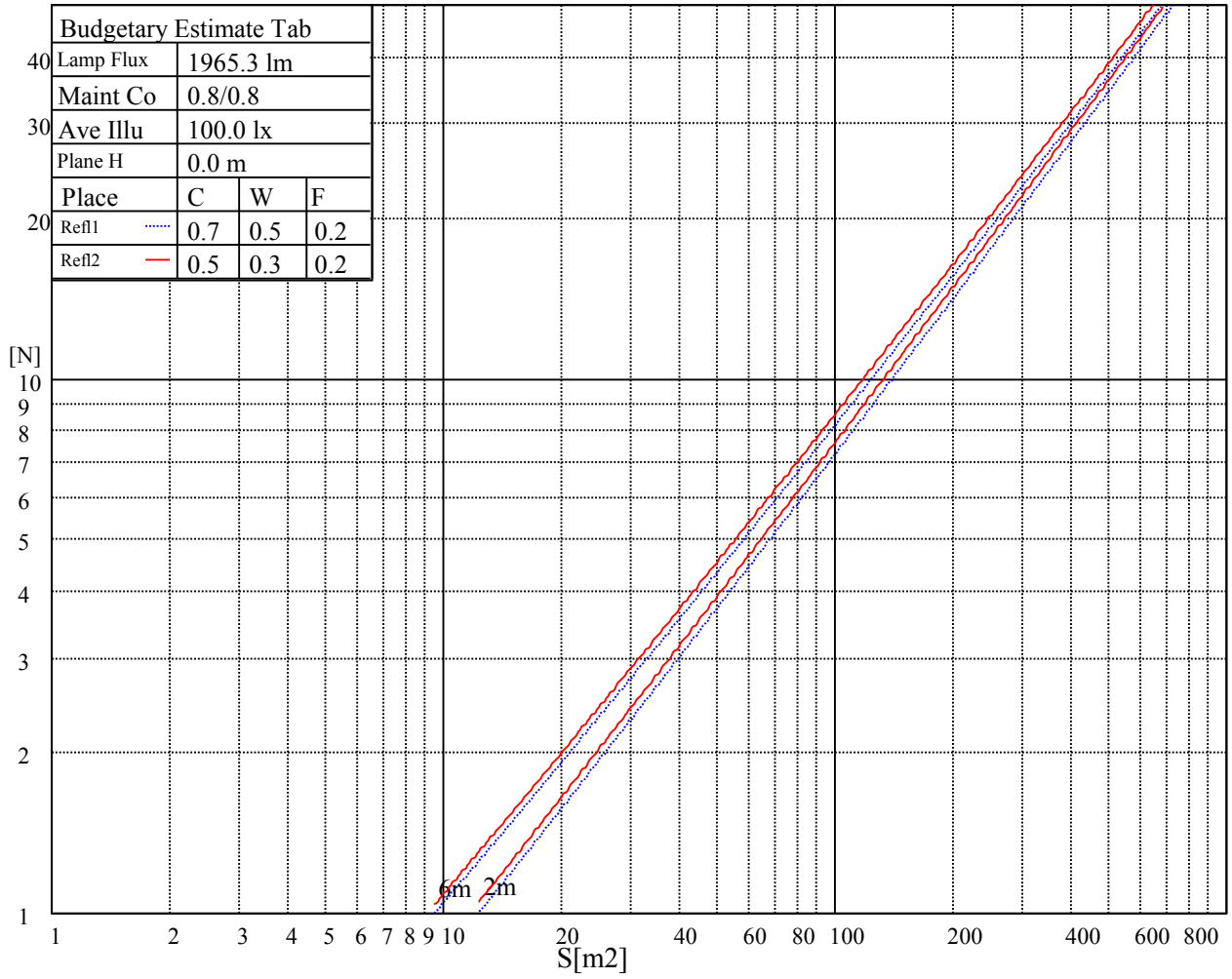
Glare Table

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



Budgetary Estimate Table

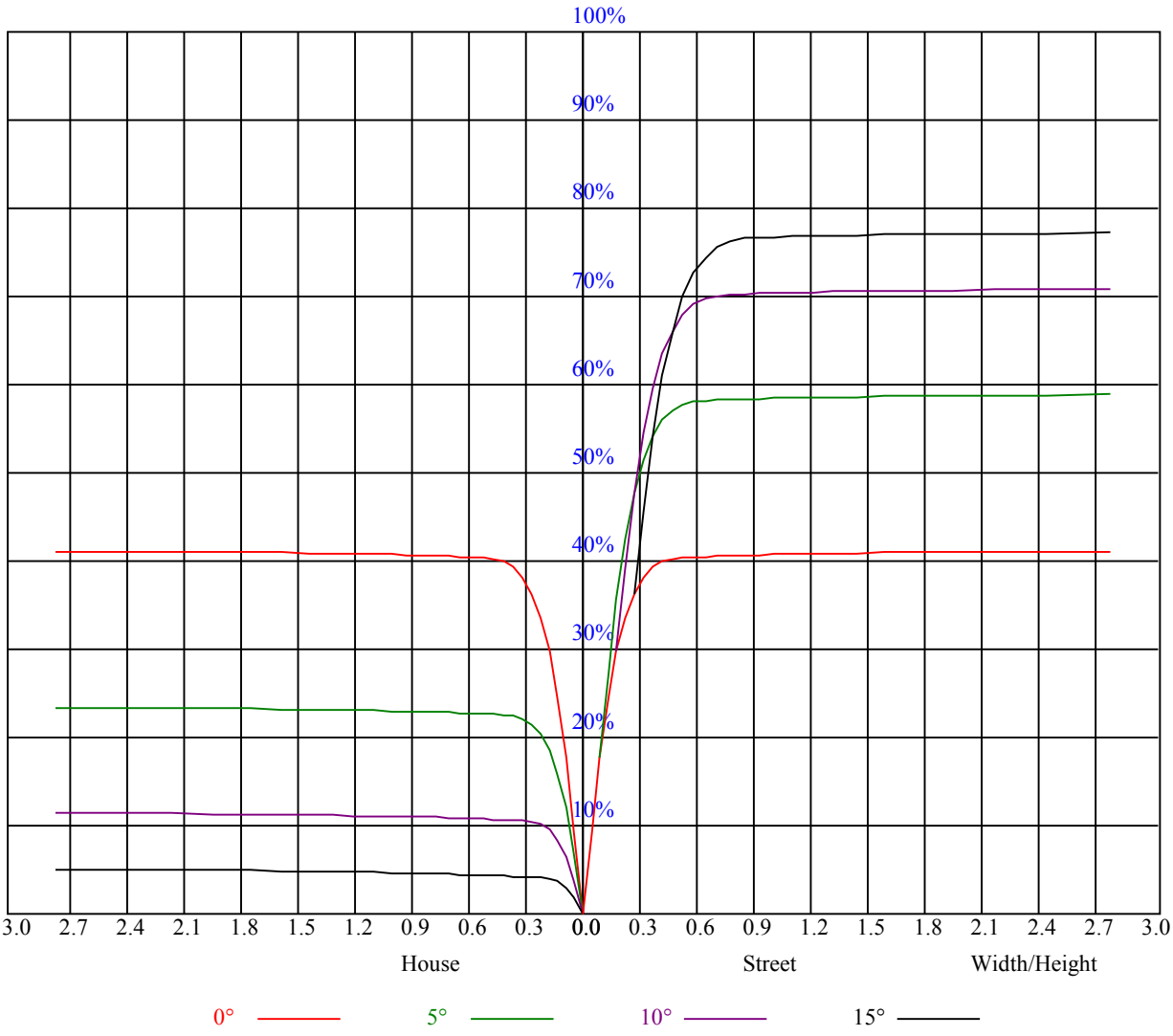


Equipment: GMS1980 Date: 2022/12/21 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.73

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

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	13145.04	13258.57	13180.89	12828.35	12194.97	11286.73	9984.11	8896.61	7821.06
45.0	13210.77	12912.00	12284.60	11322.58	10306.78	9231.23	7850.93	6829.16	5950.79
90.0	13168.94	12768.60	11866.93	11180.37	9892.09	8789.05	7683.03	6569.83	5694.45
135.0	13258.57	13043.46	12523.61	11705.00	10760.90	9715.22	8352.86	7301.21	6363.09
180.0	13145.04	12780.55	11900.99	11231.75	10082.70	8992.81	7778.03	6685.75	5827.10
225.0	13210.77	13258.57	13091.26	12684.94	11756.98	11052.49	9871.78	8792.04	7602.96
270.0	13168.94	13276.50	13198.82	12786.52	12194.97	11304.65	10008.01	8902.58	7850.93
315.0	13258.57	13246.62	13013.58	11755.19	11644.05	10644.98	9430.20	8217.82	7195.44
360.0	13145.04	13258.57	13180.89	12828.35	12194.97	11286.73	9984.11	8896.61	7821.06

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6817.21	5735.68	4976.82	4229.91	3602.50	3124.48	3070.70	2314.23	1970.65
45.0	5048.52	4277.71	3698.11	3148.38	3034.85	2342.91	2022.64	1767.49	1486.65
90.0	4833.41	4099.05	3546.93	3075.48	2579.53	2253.88	1970.05	1645.59	1408.97
135.0	5442.89	4624.28	4002.85	3465.07	3064.73	2536.51	2228.78	1925.84	1637.23
180.0	4977.42	4249.63	3695.72	3217.10	2708.60	2363.82	2065.06	1759.13	1478.88
225.0	6639.74	5675.93	4828.63	4173.74	3542.75	3025.89	2634.51	2261.65	1937.79
270.0	6745.50	5783.48	5000.72	4229.91	3638.35	3070.70	2589.09	2235.95	1889.98
315.0	6252.54	5211.65	4488.64	3855.85	3193.79	2757.00	2390.71	2038.77	1734.63
360.0	6817.21	5735.68	4976.82	4229.91	3602.50	3124.48	3070.70	2314.23	1970.65

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1701.17	1429.29	1223.74	1005.64	793.52	616.65	433.21	307.73	161.15
45.0	1257.80	1057.63	855.06	624.42	462.49	325.06	224.79	86.76	43.08
90.0	1173.13	989.45	775.00	604.58	444.20	287.17	161.99	82.82	40.33
135.0	1407.78	1188.49	957.84	786.95	567.06	411.10	314.90	129.66	64.06
180.0	1188.19	1038.80	843.59	636.25	446.83	300.98	182.19	83.42	41.77
225.0	1677.26	1443.03	1186.87	991.30	799.14	596.21	412.30	271.70	150.40
270.0	1597.20	1369.54	1162.79	932.15	751.69	584.98	430.22	306.53	151.59
315.0	1492.03	1180.78	1061.03	852.02	674.79	487.76	321.71	187.92	101.10
360.0	1701.17	1429.29	1223.74	1005.64	793.52	616.65	433.21	307.73	161.15

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	85.45	39.91	32.98	30.35	27.61	25.57	23.72	21.75	19.96
45.0	28.38	24.14	21.87	20.32	18.52	17.21	16.31	15.12	14.16
90.0	23.96	21.39	19.36	17.93	16.49	15.24	14.28	13.50	12.61
135.0	30.00	23.18	21.03	19.24	17.51	16.31	15.36	14.40	13.44
180.0	28.26	25.34	23.42	21.75	19.84	18.28	16.85	15.36	14.34
225.0	75.89	34.96	26.35	23.96	21.57	19.60	18.16	16.97	15.54
270.0	80.97	35.13	26.83	24.14	21.87	19.96	18.52	17.09	15.95
315.0	49.89	31.31	27.67	25.22	22.83	21.39	20.14	18.94	17.45
360.0	85.45	39.91	32.98	30.35	27.61	25.57	23.72	21.75	19.96

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	18.46	17.09	16.13	15.30	14.64	14.16	13.80	13.44	13.21
45.0	13.38	12.79	12.31	11.89	11.41	11.11	10.93	10.70	10.52
90.0	11.95	11.29	10.70	10.34	10.04	9.74	9.50	9.38	9.20
135.0	12.73	12.01	11.47	10.93	10.52	10.16	9.92	9.62	9.50
180.0	13.56	12.73	12.25	11.77	11.35	11.05	10.88	10.64	10.52
225.0	14.58	13.74	12.85	12.13	11.53	11.05	10.70	10.34	9.98
270.0	14.88	13.86	13.09	12.31	11.65	11.23	10.88	10.52	10.28
315.0	16.31	15.42	14.70	13.92	13.38	12.91	12.49	12.19	11.89
360.0	18.46	17.09	16.13	15.30	14.64	14.16	13.80	13.44	13.21

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	12.97	12.73	12.55	12.37	12.19	12.01	11.95	11.83	11.71
45.0	10.40	10.22	10.16	10.04	9.98	9.86	9.80	9.80	9.74
90.0	9.08	8.96	8.90	8.78	8.72	8.66	8.60	8.48	8.48
135.0	9.32	9.14	9.08	8.96	8.84	8.78	8.72	8.66	8.66
180.0	10.40	10.22	10.10	9.98	9.80	9.62	9.50	9.32	9.26
225.0	9.80	9.50	9.32	9.14	9.02	8.90	8.78	8.72	8.66
270.0	10.04	9.86	9.68	9.62	9.50	9.38	9.26	9.20	9.14
315.0	11.65	11.41	11.23	11.11	10.93	10.88	10.76	10.64	10.58
360.0	12.97	12.73	12.55	12.37	12.19	12.01	11.95	11.83	11.71

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.65	11.59	11.59	11.53	11.53	11.53	11.47	11.23	11.05
45.0	9.68	9.68	9.62	9.62	9.56	9.50	9.44	9.38	9.38
90.0	8.48	8.43	8.43	8.43	8.48	8.43	8.48	8.43	8.43
135.0	8.60	8.60	8.60	8.54	8.48	8.43	8.37	8.31	8.25
180.0	9.14	9.08	9.02	8.84	8.84	8.72	8.66	8.54	8.54
225.0	8.54	8.54	8.48	8.43	8.48	8.43	8.37	8.31	8.25
270.0	9.08	9.02	9.02	8.96	8.96	8.96	8.96	8.90	8.84
315.0	10.52	10.46	10.40	10.40	10.34	10.28	10.28	10.22	10.16
360.0	11.65	11.59	11.59	11.53	11.53	11.53	11.47	11.23	11.05

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.99	10.88	10.82	10.76	10.64	10.52	10.40	10.22	9.86
45.0	9.32	9.26	9.20	9.20	9.14	9.08	9.02	8.96	8.90
90.0	8.48	8.43	8.43	8.37	8.31	8.31	8.25	8.25	8.19
135.0	8.19	8.19	8.13	8.13	8.07	8.07	8.01	8.01	8.01
180.0	8.48	8.37	8.37	8.31	8.31	8.31	8.25	8.25	8.25
225.0	8.25	8.19	8.19	8.19	8.19	8.13	8.13	8.19	8.13
270.0	8.90	8.84	8.84	8.84	8.84	8.78	8.72	8.66	8.60
315.0	10.10	10.04	9.92	9.86	9.80	9.68	9.50	9.38	9.20
360.0	10.99	10.88	10.82	10.76	10.64	10.52	10.40	10.22	9.86

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	9.68	9.50	9.32	9.14	9.02	8.84	8.78	8.66	8.54
45.0	8.78	8.72	8.66	8.60	8.48	8.43	8.31	8.19	8.13
90.0	8.13	8.13	8.13	8.07	8.07	8.01	8.01	7.95	7.89
135.0	7.95	7.89	7.89	7.89	7.83	7.83	7.77	7.83	7.77
180.0	8.25	8.19	8.19	8.13	8.07	7.95	8.01	8.01	7.89
225.0	8.07	8.07	8.01	8.01	7.95	7.95	7.95	7.95	7.83
270.0	8.54	8.54	8.48	8.43	8.43	8.37	8.37	8.25	8.25
315.0	9.02	8.84	8.78	8.66	8.60	8.48	8.43	8.31	8.25
360.0	9.68	9.50	9.32	9.14	9.02	8.84	8.78	8.66	8.54

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.43	8.37	8.19	8.13	8.07	8.07	7.83	7.59	7.53
45.0	8.07	8.01	7.89	7.89	7.77	7.53	7.59	7.53	7.41
90.0	7.89	7.83	7.77	7.65	7.53	7.53	7.47	7.47	7.41
135.0	7.71	7.65	7.71	7.59	7.53	7.47	7.47	7.41	7.41
180.0	7.83	7.77	7.71	7.77	7.59	7.53	7.47	7.41	7.35
225.0	7.83	7.83	7.77	7.77	7.71	7.65	7.65	7.53	7.53
270.0	8.25	8.19	8.13	8.07	7.95	7.89	7.71	7.53	7.59
315.0	8.13	8.07	8.01	7.95	7.95	8.01	7.65	7.47	7.47
360.0	8.43	8.37	8.19	8.13	8.07	8.07	7.83	7.59	7.53

Intensity data(cd)

C/γ(°)	90.0
0.0	7.53
45.0	7.47
90.0	7.41
135.0	7.35
180.0	7.29
225.0	7.47
270.0	7.41
315.0	7.41
360.0	7.53