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NATA

LumCAT: 2-2135-A
Luminaire: BJB 47.360.1010

Report No: NATA0100	Voltage(V): 34.2800
Test No: GC2020011319	Current(A): 0.6020
LampCAT: LUMINUS CXM-14-AC40	Power (W): 20.6000
Lamp flux(lm): 2552.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 1926.46
Efficiency(%): 75.49%
Lumens(lm)/Power(W): 93.52
Central intensity(cd): 14322.660
Maximum intensity(cd): 14322.660
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=17.6
[C90/270]Total=17.6
Field angle(10%Imax): [C0/180]Total=38.1
[C90/270]Total=38.1
Maximum s/h(1/2): C0_180=0.30 C90_270=0.30
Maximum s/h(1/4): C0_180=0.32 C90_270=0.32
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 75.49%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.094%

Equipment: GMS1980	Date: 2020/1/13	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	14322.656	0.000	0	.000%	.000%
1.0	14280.469	13.686	13.686	.536%	.710%
2.0	14066.719	40.687	54.373	1.594%	2.822%
3.0	13605.469	66.183	120.555	2.593%	6.258%
4.0	12787.313	88.345	208.9	3.462%	10.844%
5.0	11572.523	104.795	313.695	4.106%	16.284%
6.0	10550.109	116.260	429.956	4.556%	22.318%
7.0	9311.273	123.279	553.235	4.831%	28.718%
8.0	8047.195	124.231	677.466	4.868%	35.166%
9.0	6943.641	121.493	798.959	4.761%	41.473%
10.0	6005.813	117.188	916.146	4.592%	47.556%
11.0	5142.023	111.390	1027.536	4.365%	53.338%
12.0	4419.352	104.520	1132.056	4.096%	58.764%
13.0	3794.906	97.483	1229.538	3.820%	63.824%
14.0	3225.797	89.864	1319.403	3.521%	68.488%
15.0	2840.484	83.281	1402.683	3.263%	72.811%
16.0	2436.750	77.326	1480.01	3.030%	76.825%
17.0	2055.375	69.954	1549.964	2.741%	80.457%
18.0	1730.953	62.428	1612.392	2.446%	83.697%
19.0	1449.148	55.327	1667.72	2.168%	86.569%
20.0	1131.898	47.240	1714.96	1.851%	89.021%
21.0	915.103	39.307	1754.266	1.540%	91.062%
22.0	702.612	32.509	1786.775	1.274%	92.749%
23.0	499.591	25.225	1812.001	.988%	94.059%
24.0	326.573	18.063	1830.064	.708%	94.996%
25.0	213.117	12.271	1842.335	.481%	95.633%
26.0	115.530	7.758	1850.093	.304%	96.036%
27.0	37.920	3.754	1853.847	.147%	96.231%
28.0	21.185	1.496	1855.343	.059%	96.308%
29.0	18.387	1.035	1856.379	.041%	96.362%
30.0	17.325	0.964	1857.343	.038%	96.412%
31.0	16.530	0.942	1858.285	.037%	96.461%
32.0	15.877	0.928	1859.213	.036%	96.509%
33.0	15.272	0.918	1860.131	.036%	96.557%
34.0	14.822	0.911	1861.042	.036%	96.604%
35.0	14.442	0.909	1861.951	.036%	96.651%
36.0	14.112	0.909	1862.86	.036%	96.699%
37.0	13.852	0.912	1863.772	.036%	96.746%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	13.641	0.918	1864.689	.036%	96.794%
39.0	13.451	0.925	1865.614	.036%	96.842%
40.0	13.324	0.934	1866.548	.037%	96.890%
41.0	13.198	0.944	1867.492	.037%	96.939%
42.0	13.085	0.955	1868.447	.037%	96.989%
43.0	13.064	0.969	1869.416	.038%	97.039%
44.0	13.043	0.985	1870.401	.039%	97.090%
45.0	13.078	1.004	1871.405	.039%	97.142%
46.0	13.085	1.023	1872.428	.040%	97.195%
47.0	13.141	1.043	1873.471	.041%	97.249%
48.0	13.219	1.066	1874.537	.042%	97.305%
49.0	13.324	1.090	1875.627	.043%	97.361%
50.0	13.437	1.116	1876.743	.044%	97.419%
51.0	13.634	1.145	1877.888	.045%	97.479%
52.0	13.823	1.178	1879.066	.046%	97.540%
53.0	14.041	1.212	1880.278	.047%	97.603%
54.0	14.295	1.249	1881.527	.049%	97.668%
55.0	14.505	1.286	1882.813	.050%	97.734%
56.0	14.738	1.321	1884.134	.052%	97.803%
57.0	14.934	1.357	1885.491	.053%	97.873%
58.0	15.103	1.389	1886.88	.054%	97.945%
59.0	15.195	1.416	1888.296	.056%	98.019%
60.0	15.307	1.441	1889.737	.056%	98.094%
61.0	15.321	1.462	1891.199	.057%	98.170%
62.0	15.307	1.476	1892.675	.058%	98.246%
63.0	15.216	1.484	1894.159	.058%	98.323%
64.0	15.110	1.488	1895.647	.058%	98.401%
65.0	14.906	1.485	1897.133	.058%	98.478%
66.0	14.611	1.473	1898.606	.058%	98.554%
67.0	14.358	1.457	1900.062	.057%	98.630%
68.0	14.091	1.441	1901.503	.056%	98.705%
69.0	13.648	1.415	1902.918	.055%	98.778%
70.0	13.380	1.388	1904.307	.054%	98.850%
71.0	13.022	1.365	1905.671	.053%	98.921%
72.0	12.509	1.328	1906.999	.052%	98.990%
73.0	12.157	1.290	1908.289	.051%	99.057%
74.0	11.784	1.259	1909.547	.049%	99.122%
75.0	11.299	1.220	1910.767	.048%	99.185%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	10.898	1.178	1911.945	.046%	99.247%
77.0	10.645	1.149	1913.094	.045%	99.306%
78.0	10.329	1.123	1914.217	.044%	99.365%
79.0	10.055	1.095	1915.312	.043%	99.421%
80.0	9.872	1.074	1916.386	.042%	99.477%
81.0	9.675	1.057	1917.443	.041%	99.532%
82.0	9.541	1.042	1918.485	.041%	99.586%
83.0	9.408	1.030	1919.515	.040%	99.640%
84.0	9.288	1.019	1920.534	.040%	99.692%
85.0	9.232	1.011	1921.545	.040%	99.745%
86.0	9.155	1.005	1922.55	.039%	99.797%
87.0	9.077	0.998	1923.548	.039%	99.849%
88.0	8.859	0.983	1924.53	.039%	99.900%
89.0	8.782	0.967	1925.497	.038%	99.950%
90.0	8.768	0.962	1926.459	.038%	100.000%

Zonal flux distribution table

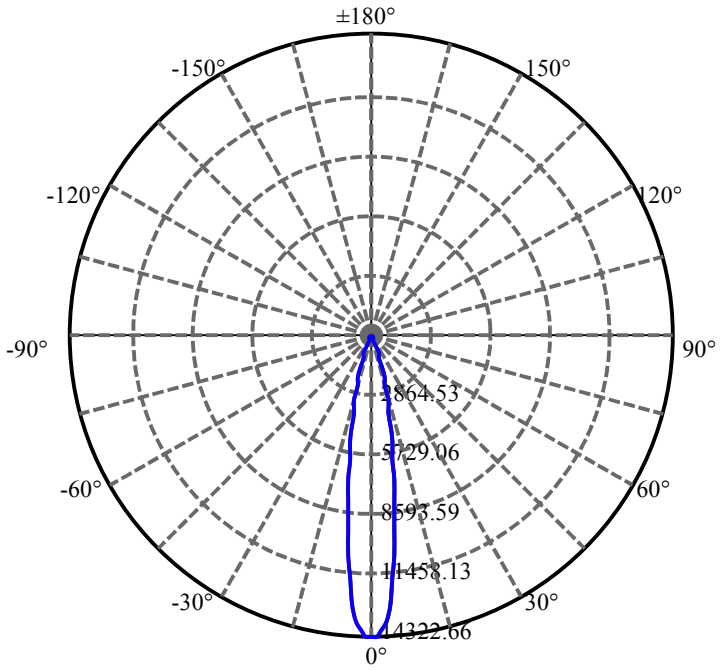
ZONAL LUMEN SUMMARY

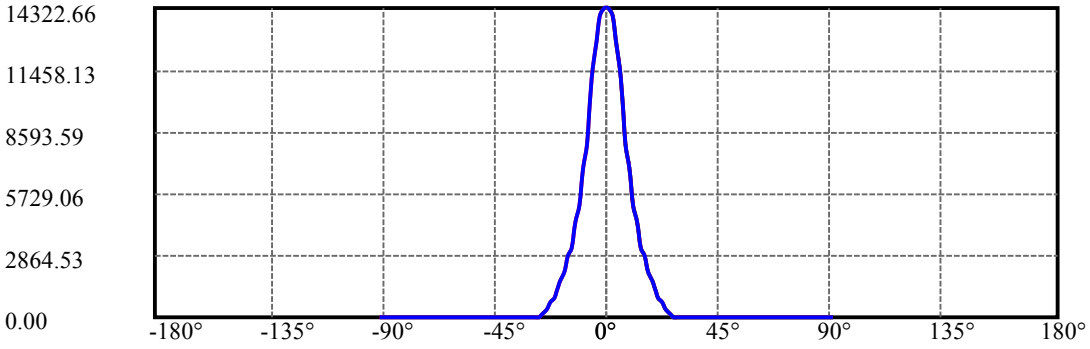
Zone	Lumens	%Lamp	%Fixt
0-30	1857.34	72.78%	96.41%
0-40	1866.55	73.14%	96.89%
0-60	1889.74	74.05%	98.09%
0-90	1925.50	75.45%	99.95%
0-120	1925.50	75.45%	99.95%
0-180	1926.46	75.49%	100.00%
60-90	37.20	1.46%	1.93%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.87	1541.17	60.39%	80.00%

ZONAL LUMEN SUMMARY

0-10	916.15
10-20	798.81
20-30	142.38
30-40	9.21
40-50	10.19
50-60	12.99
60-70	14.57
70-80	12.08
80-90	9.11
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:19.1 Right:19.1
:C90/270Left:19.1 Right:19.1

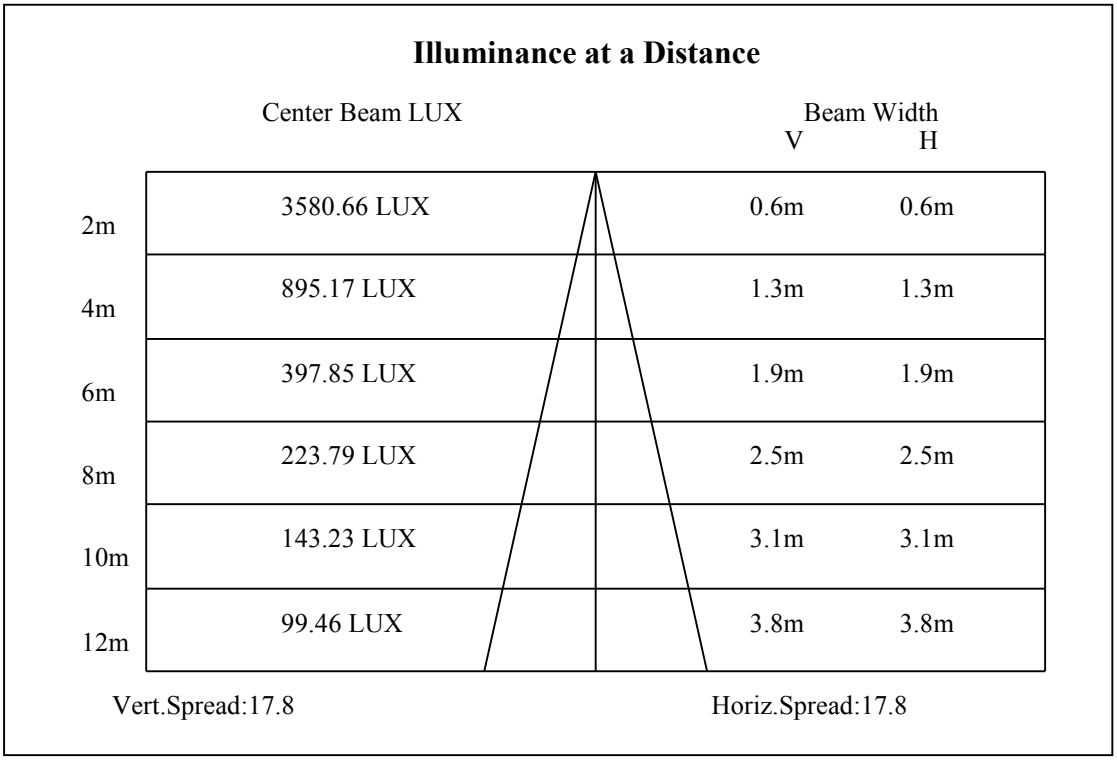
Beam Angle(50%Imax):C0/180Left:8.8 Right:8.8
:C90/270Left:8.8 Right:8.8

Equipment: GMS1980
Temperature(°C): 25.0

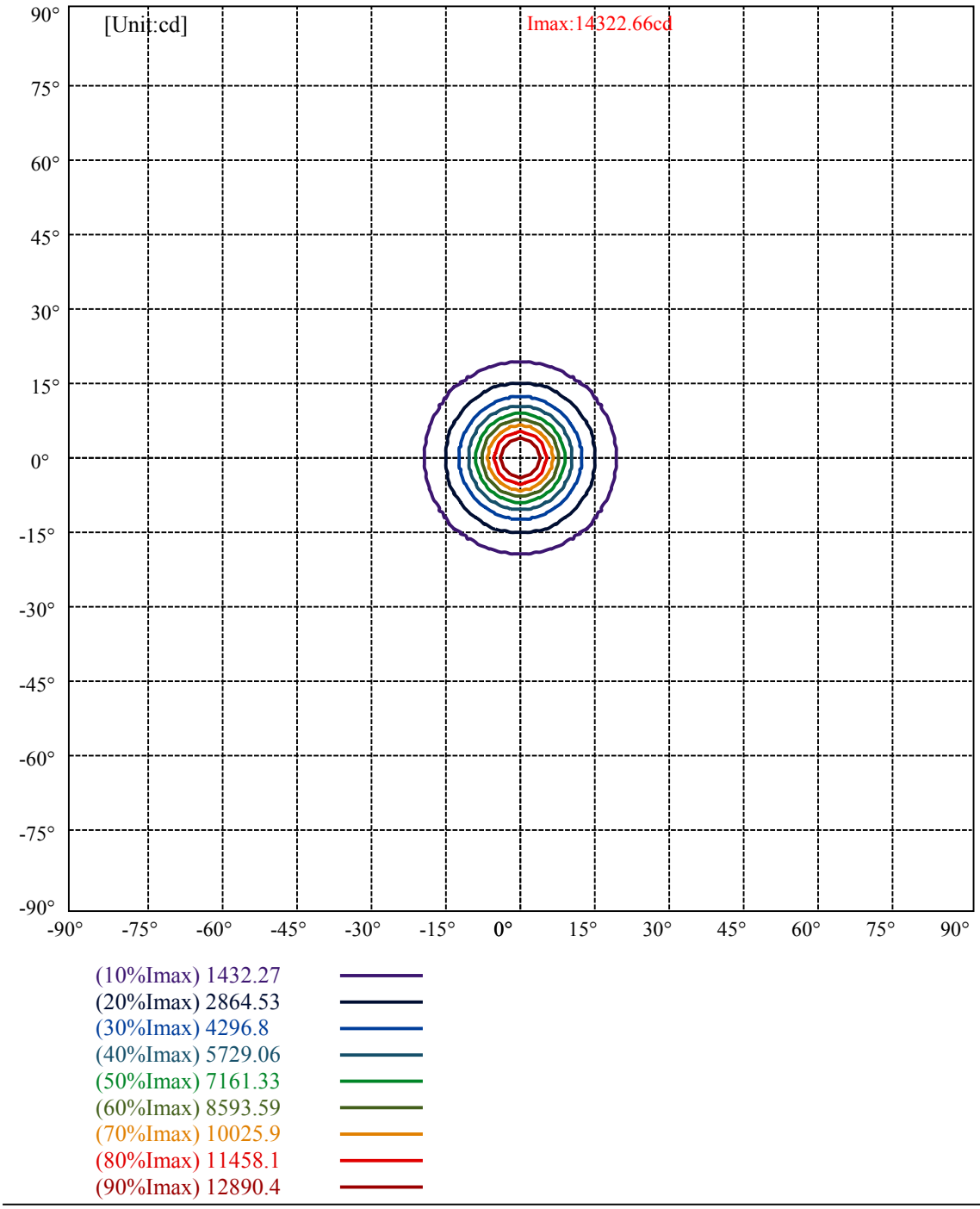
Date: 2020/1/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Lux distance Curve



ISO-Intensity(V-H)

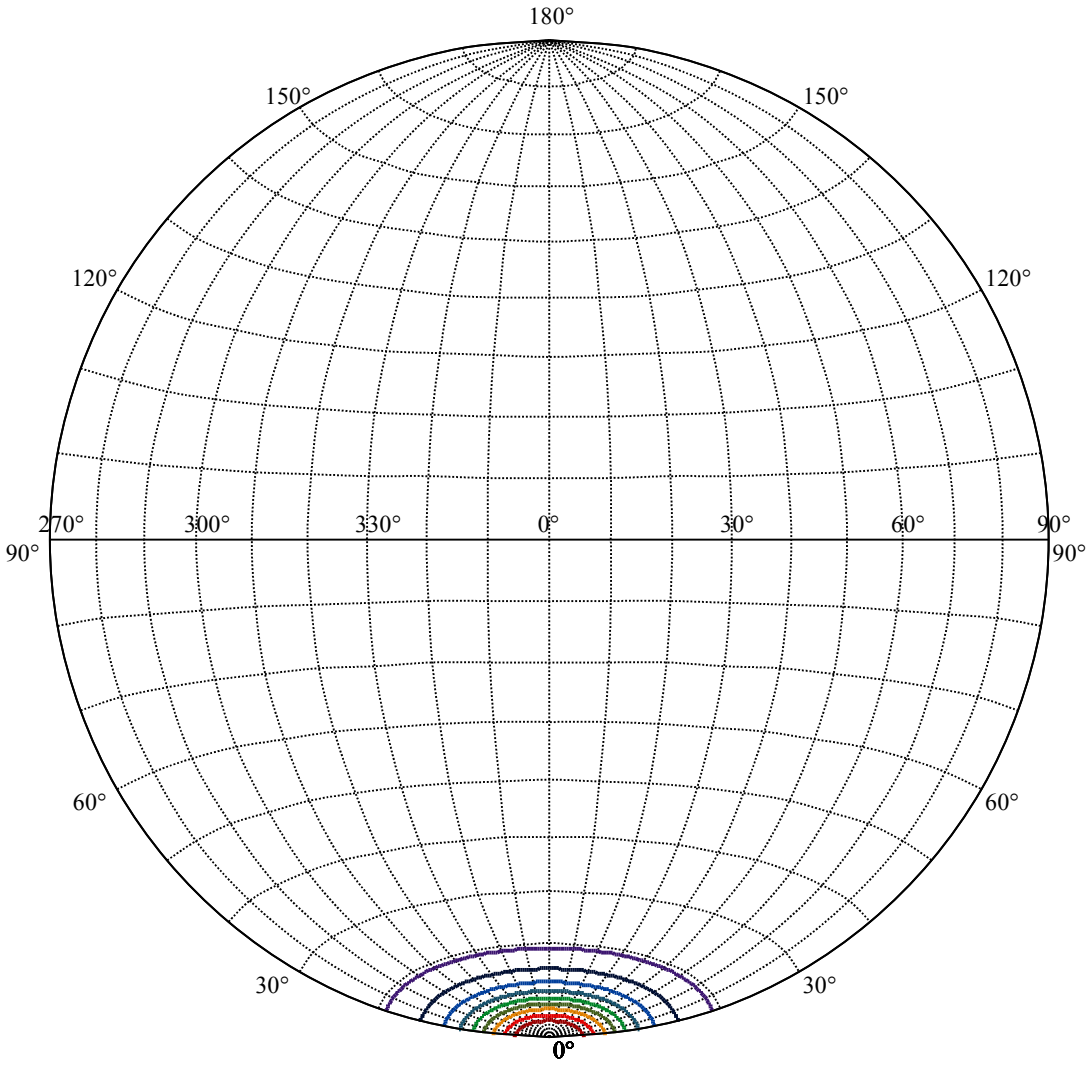


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/1/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

ISO candela diagram on circular web



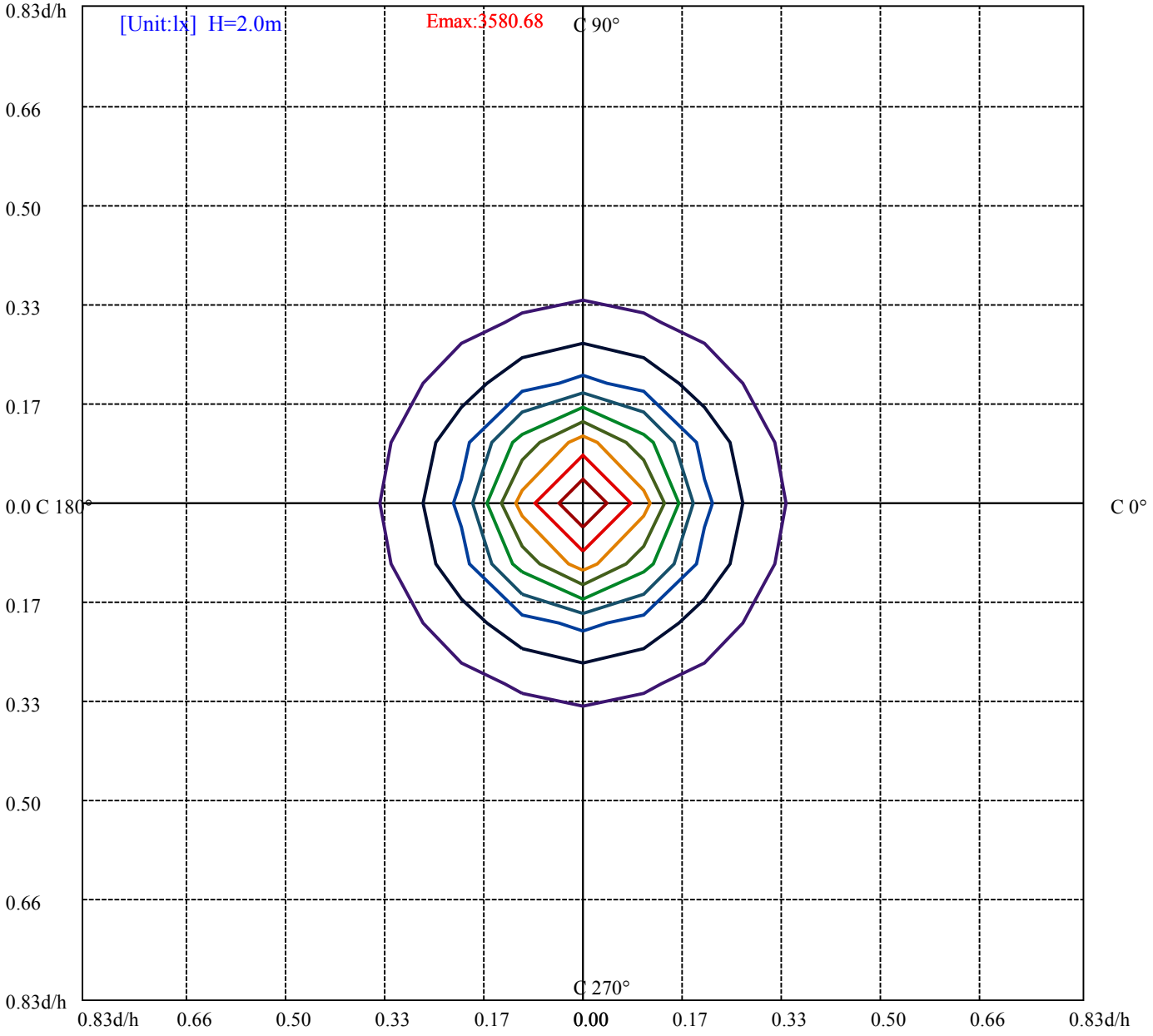
House [Unit:cd] Road

Imax:14322.66

(10%Imax) 1432.27
(20%Imax) 2864.53
(30%Imax) 4296.8
(40%Imax) 5729.06
(50%Imax) 7161.33
(60%Imax) 8593.59
(70%Imax) 10025.9
(80%Imax) 11458.1
(90%Imax) 12890.4

Equipment: GMS1980 Date: 2020/1/13 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

ISO illuminance diagram

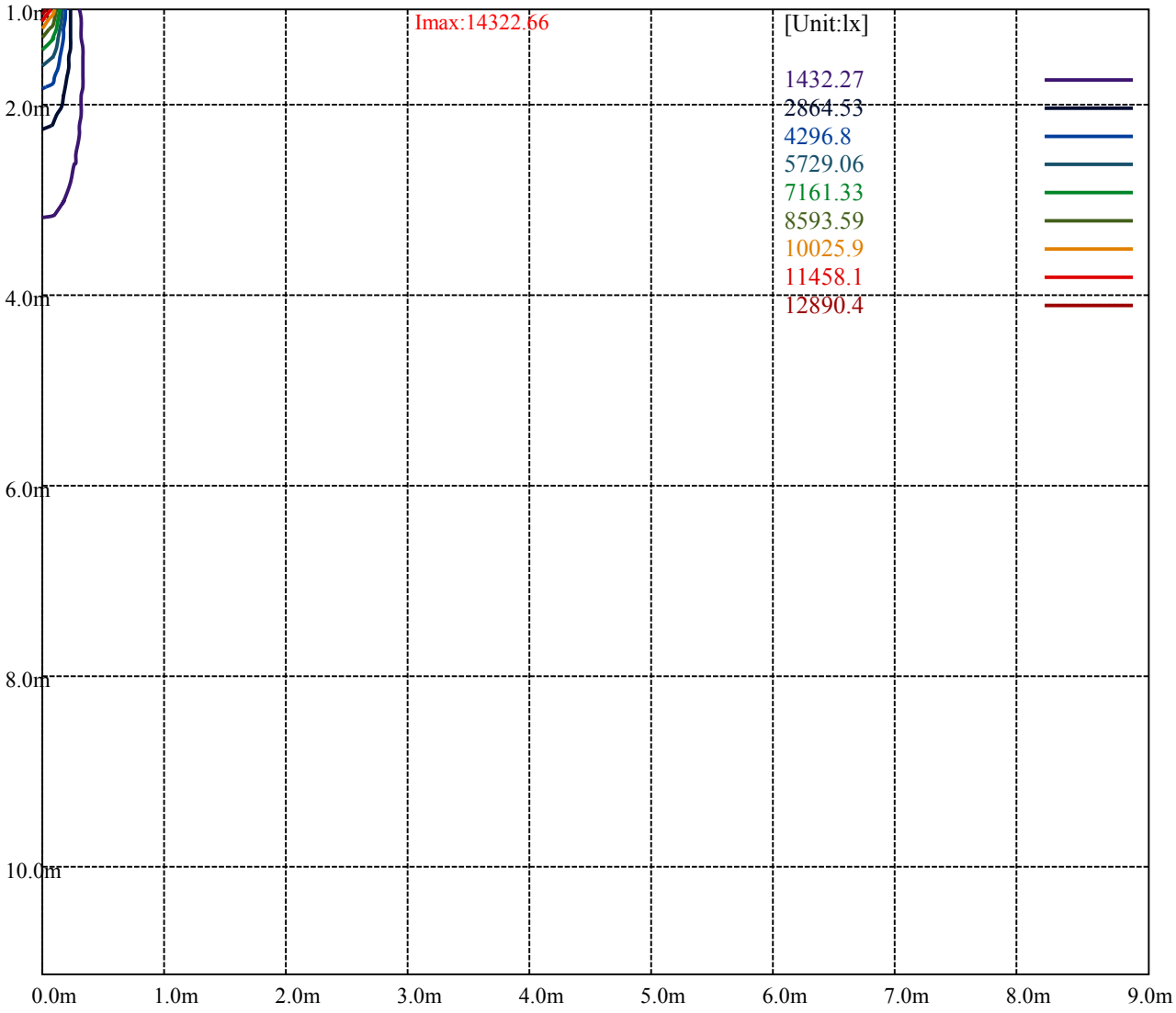


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/1/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/1/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

NATA 2-2135-A

Luminance Limitting Curve(no luminous side)

Luminance Table

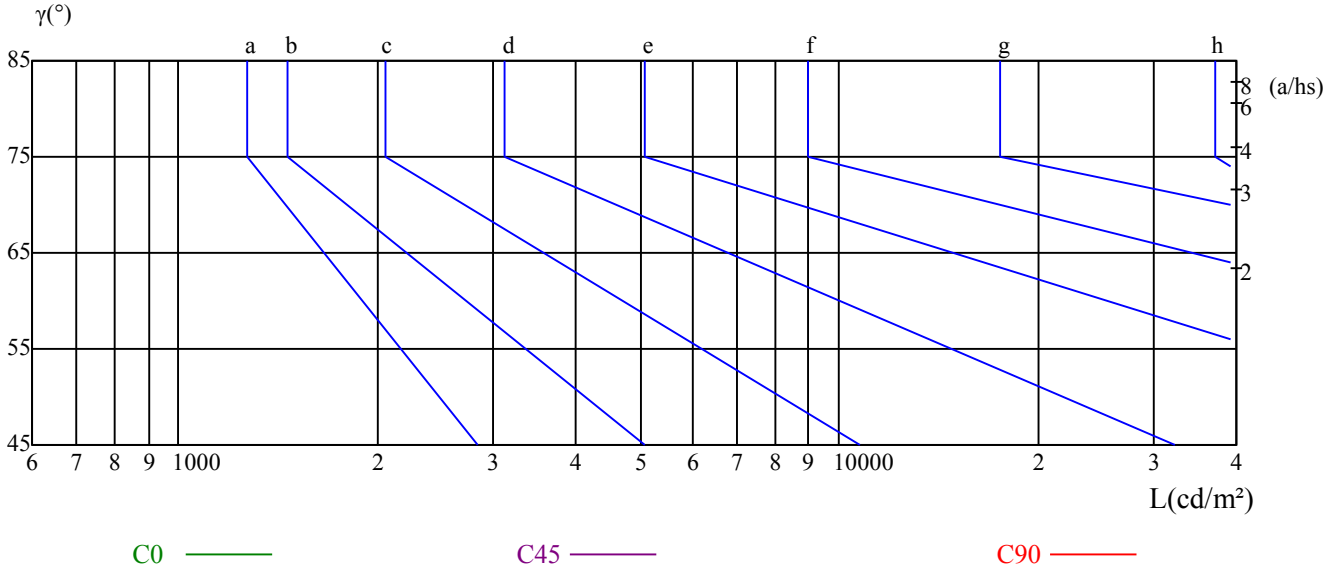
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

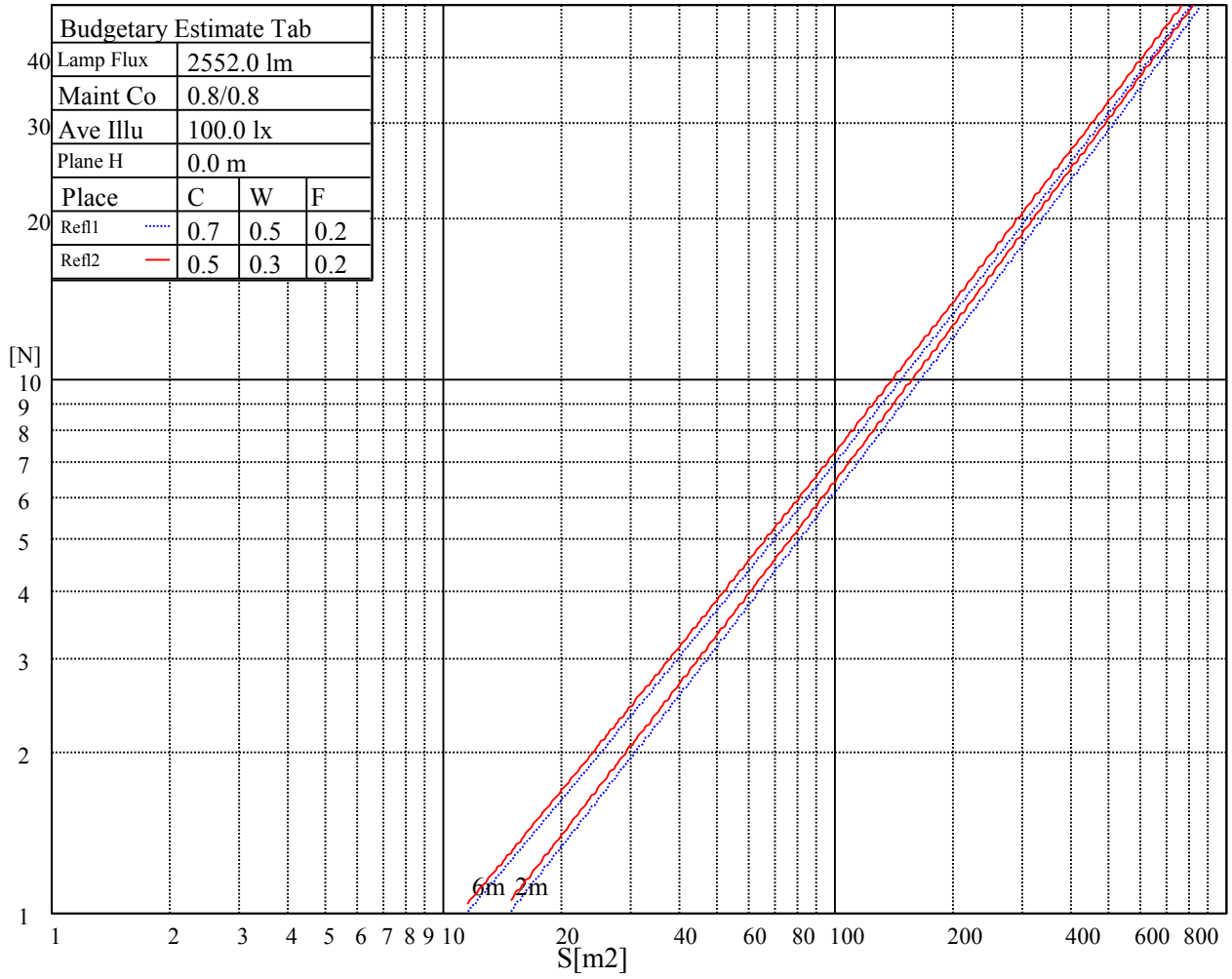


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2020/1/13
Humidity(%): 65.0%

Operator: NT07
Distance(m): 7.50

Budgetary Estimate Table

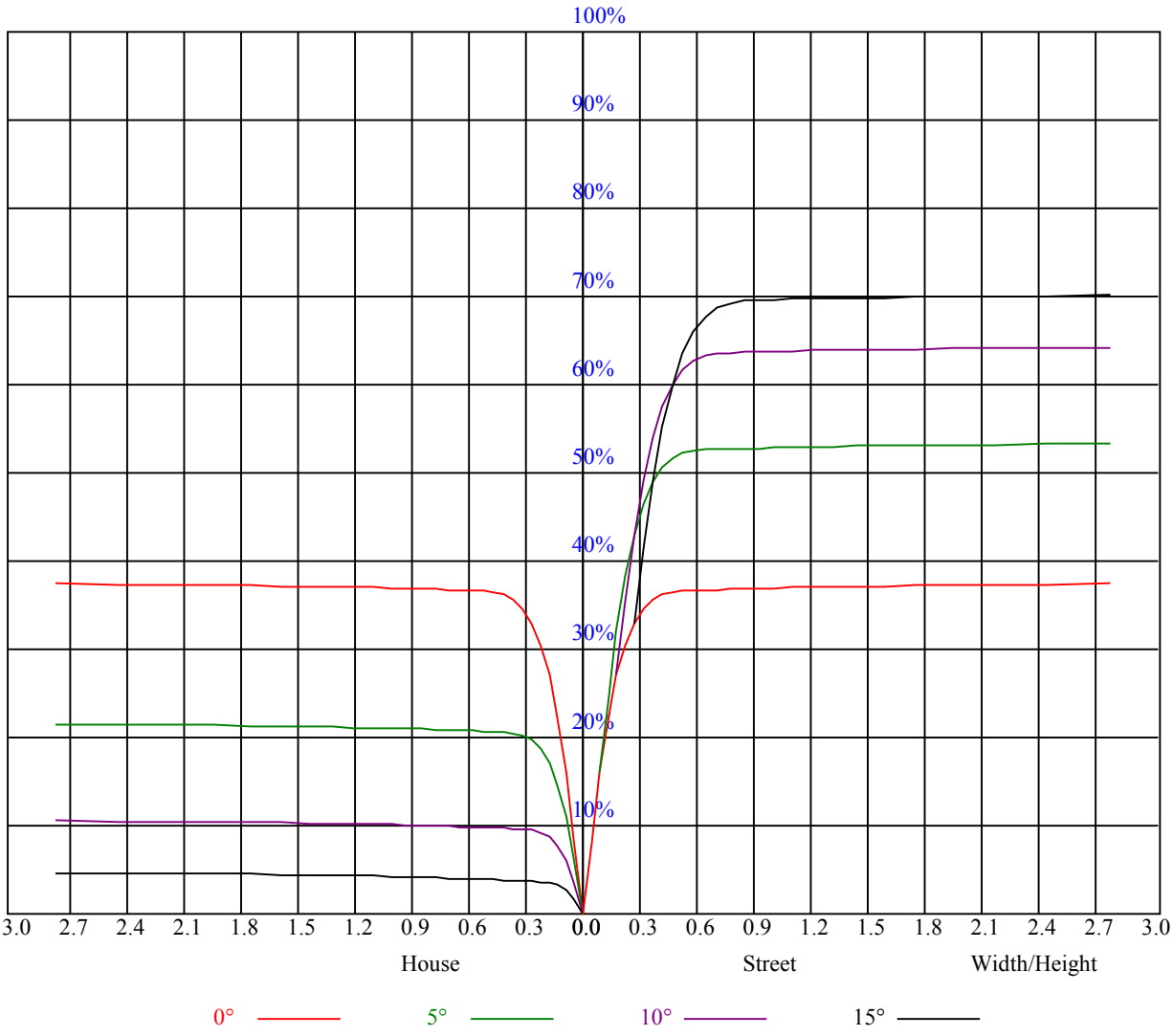


Equipment: GMS1980 Date: 2020/1/13 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 65.0% Distance(m): 7.50

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

Coefficient Utilization Curve



Equipment: GMS1980	Date: 2020/1/13	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	14293.13	14270.63	14107.50	13674.38	12943.13	11818.13	10535.63	9360.00	8100.00
45.0	14366.25	14321.25	14040.00	13505.63	12796.88	11401.88	10215.00	9135.00	7723.13
90.0	14310.00	14180.63	13680.00	12954.38	11173.50	10880.44	9501.75	8155.69	7104.38
135.0	14321.25	14265.00	14023.13	13545.00	12785.63	11548.13	10389.38	9146.25	7858.13
180.0	14293.13	14242.50	14040.00	13522.50	12768.75	11095.88	10353.94	9110.25	7804.69
225.0	14366.25	14338.13	14214.38	13826.25	13162.50	11975.63	11009.25	9668.81	8487.56
270.0	14310.00	14338.13	14293.13	14113.13	13674.38	12684.38	11649.38	10501.88	9168.75
315.0	14321.25	14287.50	14135.63	13702.50	12993.75	11175.75	10746.56	9412.31	8130.94
360.0	14293.13	14270.63	14107.50	13674.38	12943.13	11818.13	10535.63	9360.00	8100.00

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	6975.00	6086.25	5214.38	4516.88	3841.88	3268.13	2891.25	2469.94	2049.19
45.0	6637.50	5883.75	4910.63	4235.63	3667.50	3076.88	2868.75	2280.94	1926.00
90.0	6080.06	5171.63	4473.56	3808.69	3315.38	2841.19	2429.44	2097.56	1798.31
135.0	6761.25	5889.38	5017.50	4336.88	3695.63	3166.88	2857.50	2378.25	2022.19
180.0	6804.00	5813.44	4951.69	4290.19	3669.19	3147.75	2749.50	2397.94	1996.31
225.0	7283.25	6226.88	5396.63	4578.75	3959.44	3378.38	2896.31	2523.38	2178.56
270.0	7897.50	6890.63	5895.00	5113.13	4336.88	3678.75	3195.00	2874.38	2341.13
315.0	7110.56	6084.56	5276.81	4474.69	3873.38	3248.44	2836.13	2471.63	2131.31
360.0	6975.00	6086.25	5214.38	4516.88	3841.88	3268.13	2891.25	2469.94	2049.19

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1753.31	1486.69	1172.25	938.81	725.63	511.31	329.06	295.88	114.86
45.0	1630.13	1352.25	1043.44	819.00	615.38	421.31	288.56	145.18	58.44
90.0	1459.69	1108.74	961.09	695.03	504.73	343.07	203.34	100.63	38.64
135.0	1722.94	1449.56	1141.31	904.50	689.06	477.00	296.44	224.94	90.23
180.0	1703.25	1437.75	1121.29	892.58	682.88	494.10	304.20	187.82	98.16
225.0	1799.44	1533.94	1097.66	977.57	756.84	560.81	370.80	223.93	123.24
270.0	2022.19	1732.50	1405.69	1154.81	925.31	663.75	480.38	324.56	290.81
315.0	1756.69	1491.75	1112.46	938.53	721.07	525.38	339.81	201.99	109.86
360.0	1753.31	1486.69	1172.25	938.81	725.63	511.31	329.06	295.88	114.86

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	34.26	19.46	18.06	16.59	15.53	14.85	14.01	13.50	12.99
45.0	20.87	17.83	16.76	16.03	15.41	14.85	14.46	14.12	13.84
90.0	20.14	18.96	17.94	17.16	16.65	16.26	15.86	15.58	15.36
135.0	27.28	19.35	18.39	17.49	16.82	16.31	15.75	15.30	14.96
180.0	31.44	18.28	17.10	15.98	15.19	14.46	13.84	13.39	12.99
225.0	47.93	22.11	18.51	17.38	16.54	15.81	15.19	14.68	14.29
270.0	82.01	31.95	20.93	19.69	18.62	17.78	17.04	16.48	16.03
315.0	39.43	21.54	19.41	18.28	17.49	16.71	16.03	15.53	15.08
360.0	34.26	19.46	18.06	16.59	15.53	14.85	14.01	13.50	12.99

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	12.54	12.21	11.98	11.70	11.53	11.42	11.25	11.14	11.08
45.0	13.61	13.39	13.22	13.05	12.88	12.77	12.66	12.54	12.43
90.0	15.19	15.02	14.91	14.85	14.79	14.74	14.91	15.36	15.86
135.0	14.74	14.51	14.34	14.18	14.12	14.01	13.84	13.78	13.73
180.0	12.66	12.38	12.15	11.93	11.81	11.59	11.48	11.36	11.25
225.0	13.89	13.61	13.33	13.11	12.94	12.83	12.60	12.54	12.43
270.0	15.58	15.30	14.96	14.79	14.63	14.51	14.34	14.29	14.18
315.0	14.68	14.40	14.23	14.01	13.89	13.73	13.61	13.50	13.39
360.0	12.54	12.21	11.98	11.70	11.53	11.42	11.25	11.14	11.08

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	10.97	10.86	10.80	10.74	10.74	10.63	10.58	10.58	10.58
45.0	12.43	12.32	12.32	12.26	12.21	12.15	12.09	12.04	11.98
90.0	16.59	17.27	18.00	18.73	19.52	20.42	21.43	22.39	23.40
135.0	13.61	13.56	13.50	13.44	13.50	13.56	13.84	14.18	14.51
180.0	11.19	11.08	11.03	10.97	10.91	10.86	10.86	10.80	10.74
225.0	12.32	12.21	12.15	12.09	11.98	11.93	11.87	11.76	11.70
270.0	14.18	14.18	14.23	14.46	14.74	15.08	15.58	16.03	16.65
315.0	13.33	13.22	13.11	13.05	12.99	12.88	12.83	12.83	12.77
360.0	10.97	10.86	10.80	10.74	10.74	10.63	10.58	10.58	10.58

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	10.58	10.58	10.58	10.46	10.52	10.46	10.46	10.41	10.41
45.0	11.93	11.87	11.87	11.81	11.81	11.76	11.70	11.70	11.70
90.0	24.53	25.31	26.04	26.78	27.11	27.23	27.06	26.55	25.88
135.0	14.85	15.08	15.30	15.53	15.64	15.69	15.92	15.98	16.03
180.0	10.69	10.69	10.69	10.63	10.63	10.63	10.69	10.63	10.63
225.0	11.64	11.59	11.53	11.48	11.42	11.36	11.31	11.31	11.25
270.0	17.38	18.06	18.90	19.69	20.42	21.04	21.83	22.39	22.84
315.0	12.77	12.88	12.99	13.11	13.28	13.39	13.50	13.61	13.73
360.0	10.58	10.58	10.58	10.46	10.52	10.46	10.46	10.41	10.41

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	10.41	10.35	10.29	10.29	10.29	10.35	10.41	10.58	10.69
45.0	11.64	11.64	11.59	11.53	11.48	11.42	11.36	11.31	11.19
90.0	24.64	23.63	22.28	20.70	19.63	18.34	16.43	15.36	14.18
135.0	15.92	15.75	15.53	15.24	15.13	15.08	14.96	14.85	14.51
180.0	10.58	10.63	10.63	10.74	10.97	11.31	11.48	11.76	11.87
225.0	11.25	11.19	11.14	11.14	11.08	11.03	10.91	10.86	10.80
270.0	23.51	23.91	24.02	23.57	22.73	21.77	20.25	18.96	17.61
315.0	13.78	13.78	13.78	13.67	13.56	13.44	13.39	13.39	13.33
360.0	10.41	10.35	10.29	10.29	10.29	10.35	10.41	10.58	10.69

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	10.86	11.03	11.19	11.25	10.74	10.58	10.24	9.73	9.45
45.0	11.08	11.08	10.91	10.74	10.58	10.52	10.24	10.07	9.96
90.0	12.66	11.76	11.03	10.74	10.52	10.29	10.07	9.90	9.79
135.0	13.95	13.61	13.16	12.43	12.32	11.81	11.03	10.52	10.24
180.0	11.98	12.04	12.09	11.64	10.46	9.96	9.79	9.56	9.45
225.0	10.69	10.69	10.58	10.46	10.29	10.18	10.18	10.01	9.90
270.0	15.86	14.51	13.16	11.42	10.86	10.63	10.35	10.13	9.96
315.0	12.99	12.54	12.15	11.70	11.42	11.19	10.74	10.52	10.24
360.0	10.86	11.03	11.19	11.25	10.74	10.58	10.24	9.73	9.45

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	9.34	9.23	9.23	9.11	9.11	9.06	9.00	8.89	8.83
45.0	9.73	9.56	9.45	9.28	9.17	9.11	9.00	8.83	8.78
90.0	9.62	9.56	9.39	9.28	9.23	9.11	9.11	8.83	8.72
135.0	9.96	9.68	9.51	9.39	9.34	9.34	9.39	9.06	8.83
180.0	9.34	9.34	9.23	9.17	9.11	9.06	8.94	8.89	8.83
225.0	9.79	9.68	9.51	9.34	9.28	9.17	9.06	8.78	8.78
270.0	9.79	9.68	9.51	9.45	9.34	9.23	9.17	8.78	8.72
315.0	9.84	9.62	9.45	9.28	9.28	9.17	8.94	8.83	8.78
360.0	9.34	9.23	9.23	9.11	9.11	9.06	9.00	8.89	8.83

Intensity data(cd)

C/γ(°)	90.0
0.0	8.83
45.0	8.78
90.0	8.72
135.0	8.72
180.0	8.83
225.0	8.78
270.0	8.72
315.0	8.78
360.0	8.83