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Nata

LumCAT: 1653-S
Luminaire: 92.70.044.00

Report No: NT2017110711	Voltage(V): 20.1000
Test No: GC2017110711	Current(A): 0.3000
LampCAT: NICHIA NVNWS007Z-V1	Power (W): 6.0300
Lamp flux(lm): 824.0	PF: 0.0000
Number of Lamps: 1	Ballast type: DC
Length(mm): 32	Width(mm): 32
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 715.61
Efficiency(%): 86.85%
Lumens(lm)/Power(W): 118.67
Central intensity(cd): 5719.396
Maximum intensity(cd): 5719.396
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=14.8
[C90/270]Total=14.8
Field angle(10%Imax): [C0/180]Total=31.5
[C90/270]Total=31.5
Maximum s/h(1/2): C0_180=0.26 C90_270=0.26
Maximum s/h(1/4): C0_180=0.26 C90_270=0.26
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 87.01%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.317%

Equipment: GMS1980	Date: 2017/11/4	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 7.42

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	5719.396	1.368	1.368	.166%	.191%
1.0	5648.305	10.810	12.178	1.312%	1.702%
2.0	5454.988	20.877	33.055	2.534%	4.619%
3.0	5133.459	29.462	62.517	3.575%	8.736%
4.0	4704.225	35.985	98.502	4.367%	13.765%
5.0	4226.267	40.393	138.895	4.902%	19.409%
6.0	3642.944	41.758	180.653	5.068%	25.245%
7.0	3070.977	41.041	221.695	4.981%	30.980%
8.0	2570.927	39.237	260.932	4.762%	36.463%
9.0	2061.587	35.366	296.298	4.292%	41.405%
10.0	1616.449	30.781	327.079	3.736%	45.706%
11.0	1332.626	27.884	354.963	3.384%	49.603%
12.0	1065.328	24.289	379.252	2.948%	52.997%
13.0	873.332	21.544	400.796	2.615%	56.008%
14.0	737.887	19.576	420.372	2.376%	58.743%
15.0	635.248	18.030	438.401	2.188%	61.263%
16.0	549.848	16.620	455.021	2.017%	63.585%
17.0	488.736	15.670	470.691	1.902%	65.775%
18.0	440.011	14.911	485.602	1.810%	67.859%
19.0	403.288	14.398	500	1.747%	69.871%
20.0	373.152	13.996	513.996	1.698%	71.826%
21.0	349.140	13.721	527.716	1.665%	73.744%
22.0	329.843	13.550	541.266	1.644%	75.637%
23.0	314.998	13.497	554.763	1.638%	77.523%
24.0	300.925	13.422	568.185	1.629%	79.399%
25.0	289.115	13.399	581.584	1.626%	81.271%
26.0	281.593	13.537	595.121	1.643%	83.163%
27.0	271.779	13.531	608.652	1.642%	85.054%
28.0	260.665	13.420	622.071	1.629%	86.929%
29.0	246.102	13.084	635.155	1.588%	88.757%
30.0	227.713	12.486	647.641	1.515%	90.502%
31.0	200.798	11.341	658.982	1.376%	92.087%
32.0	171.583	9.971	668.953	1.210%	93.480%
33.0	142.871	8.533	677.486	1.036%	94.673%
34.0	109.906	6.740	684.226	.818%	95.615%
35.0	81.015	5.096	689.321	.618%	96.327%
36.0	54.643	3.522	692.843	.427%	96.819%
37.0	34.224	2.259	695.102	.274%	97.135%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	21.045	1.421	696.523	.172%	97.333%
39.0	12.773	0.881	697.404	.107%	97.456%
40.0	8.871	0.625	698.03	.076%	97.544%
41.0	7.763	0.558	698.588	.068%	97.622%
42.0	6.855	0.503	699.091	.061%	97.692%
43.0	5.891	0.441	699.532	.053%	97.754%
44.0	5.134	0.391	699.923	.047%	97.808%
45.0	4.466	0.346	700.269	.042%	97.857%
46.0	3.943	0.311	700.58	.038%	97.900%
47.0	3.668	0.294	700.875	.036%	97.941%
48.0	3.530	0.288	701.162	.035%	97.981%
49.0	3.510	0.290	701.453	.035%	98.022%
50.0	3.496	0.294	701.746	.036%	98.063%
51.0	3.489	0.297	702.044	.036%	98.105%
52.0	3.489	0.302	702.345	.037%	98.147%
53.0	3.469	0.304	702.649	.037%	98.189%
54.0	3.469	0.308	702.957	.037%	98.232%
55.0	3.469	0.312	703.268	.038%	98.276%
56.0	3.469	0.315	703.584	.038%	98.320%
57.0	3.469	0.319	703.903	.039%	98.364%
58.0	3.469	0.323	704.225	.039%	98.409%
59.0	3.469	0.326	704.551	.040%	98.455%
60.0	3.475	0.330	704.881	.040%	98.501%
61.0	3.469	0.333	705.214	.040%	98.548%
62.0	3.489	0.338	705.552	.041%	98.595%
63.0	3.489	0.341	705.893	.041%	98.642%
64.0	3.482	0.343	706.236	.042%	98.690%
65.0	3.482	0.346	706.582	.042%	98.739%
66.0	3.482	0.349	706.931	.042%	98.788%
67.0	3.524	0.356	707.287	.043%	98.837%
68.0	3.510	0.357	707.644	.043%	98.887%
69.0	3.510	0.359	708.003	.044%	98.937%
70.0	3.530	0.364	708.367	.044%	98.988%
71.0	3.517	0.365	708.731	.044%	99.039%
72.0	3.517	0.367	709.098	.045%	99.090%
73.0	3.517	0.369	709.467	.045%	99.142%
74.0	3.503	0.369	709.836	.045%	99.193%
75.0	3.496	0.370	710.206	.045%	99.245%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	3.489	0.371	710.578	.045%	99.297%
77.0	3.489	0.373	710.951	.045%	99.349%
78.0	3.469	0.372	711.323	.045%	99.401%
79.0	3.503	0.377	711.7	.046%	99.454%
80.0	3.503	0.378	712.078	.046%	99.507%
81.0	3.496	0.379	712.457	.046%	99.560%
82.0	3.496	0.380	712.836	.046%	99.613%
83.0	3.503	0.381	713.218	.046%	99.666%
84.0	3.510	0.383	713.6	.046%	99.719%
85.0	3.510	0.383	713.984	.047%	99.773%
86.0	3.448	0.377	714.361	.046%	99.826%
87.0	3.345	0.366	714.727	.044%	99.877%
88.0	3.290	0.361	715.088	.044%	99.927%
89.0	3.166	0.347	715.435	.042%	99.976%
90.0	3.152	0.173	715.608	.021%	100.000%

Zonal flux distribution table

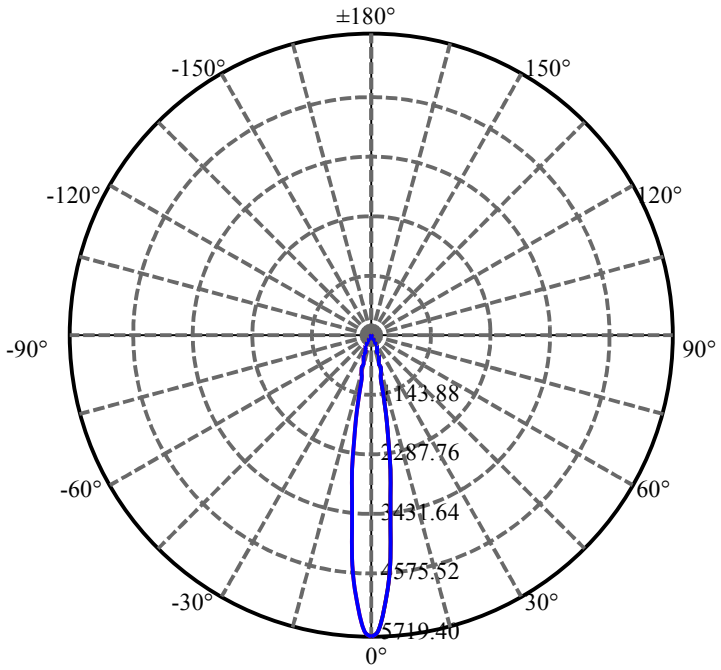
ZONAL LUMEN SUMMARY

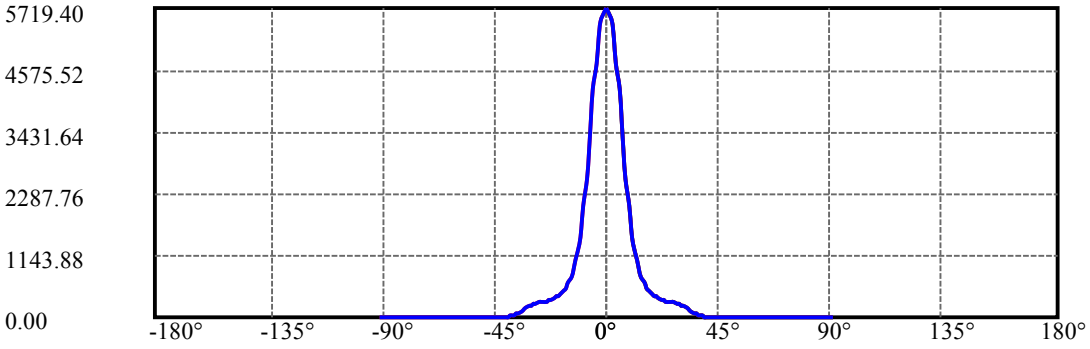
Zone	Lumens	%Lamp	%Fixt
0-30	647.64	78.60%	90.50%
0-40	698.03	84.71%	97.54%
0-60	704.88	85.54%	98.50%
0-90	715.43	86.82%	99.98%
0-120	715.43	86.82%	99.98%
0-180	715.61	86.85%	100.00%
60-90	10.88	1.32%	1.52%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-24.32	572.49	69.48%	80.00%

ZONAL LUMEN SUMMARY

0-10	327.08
10-20	186.92
20-30	133.65
30-40	50.39
40-50	3.72
50-60	3.13
60-70	3.49
70-80	3.71
80-90	3.36
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):

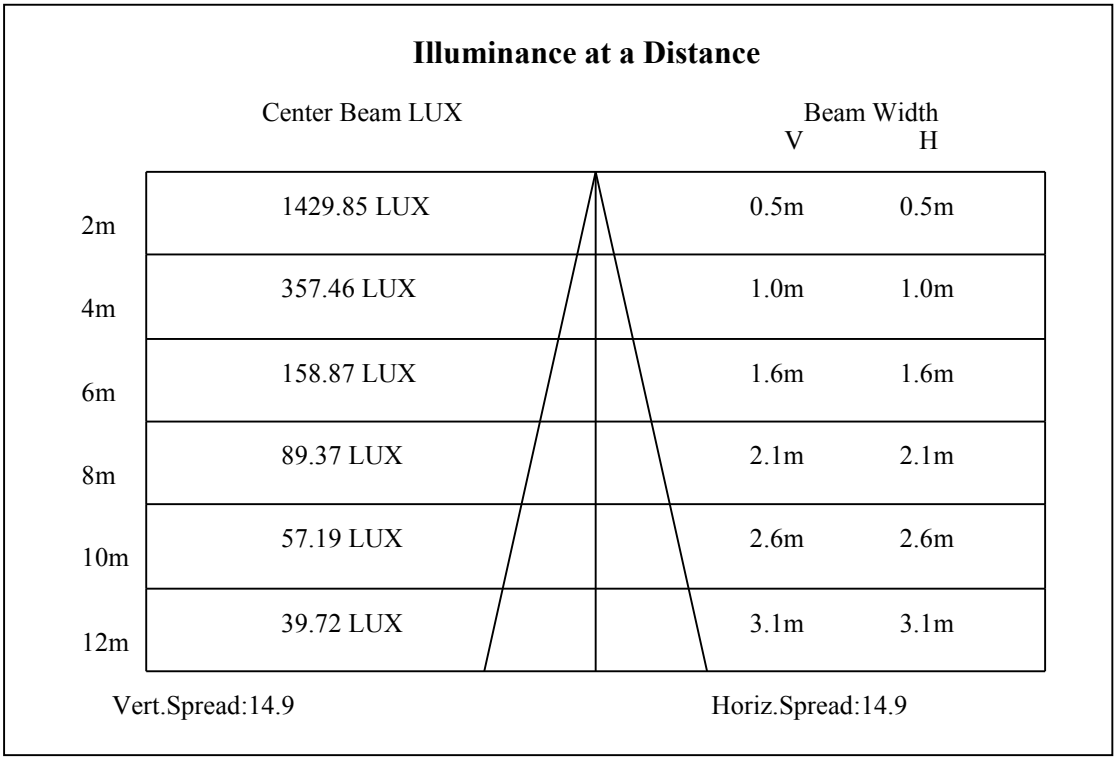
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:15.7 Right:15.7
:C90/270Left:15.7 Right:15.7

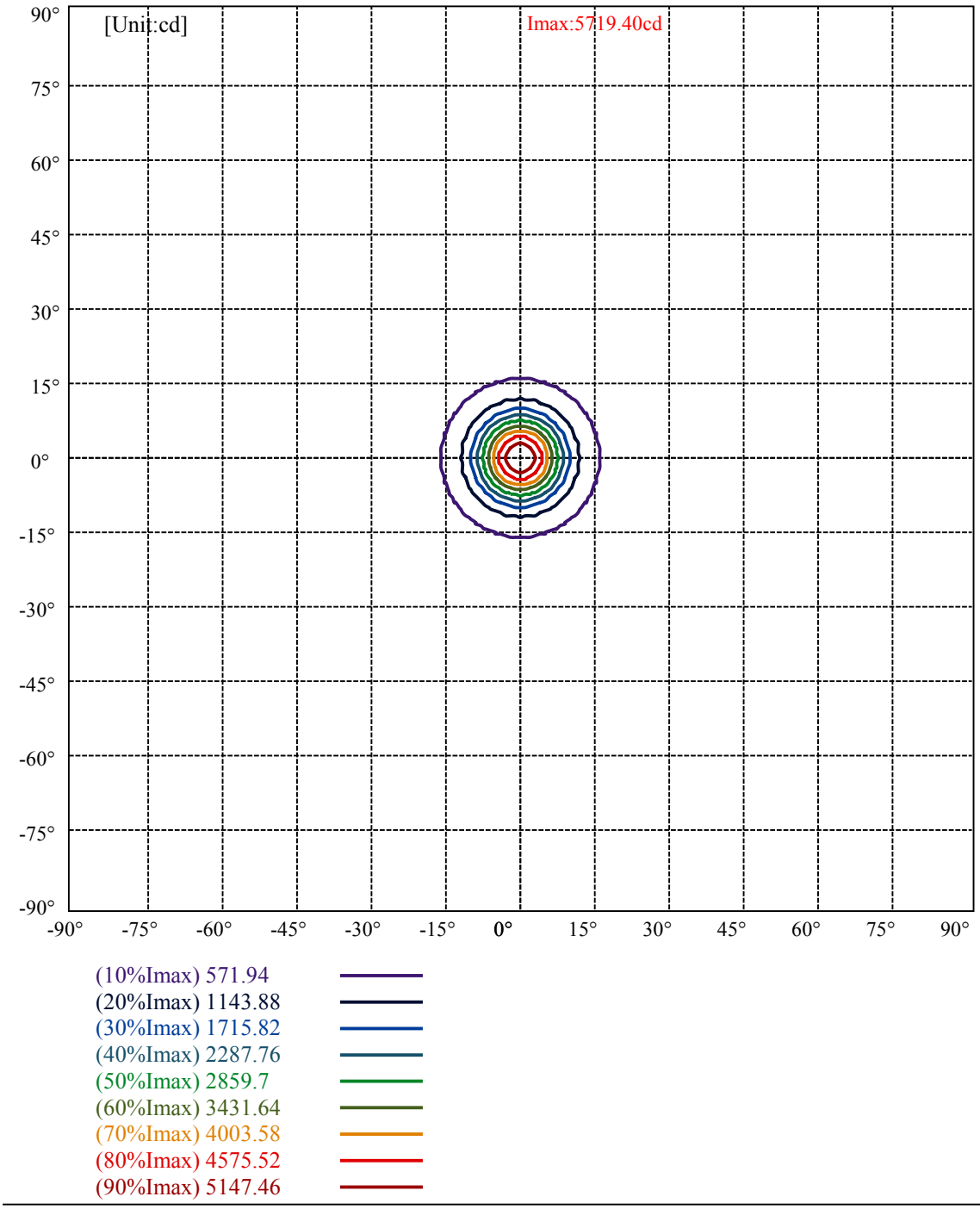
Beam Angle(50%Imax):C0/180Left:7.4 Right:7.4
:C90/270Left:7.4 Right:7.4

Lux distance Curve



Equipment: GMS1980 Date: 2017/11/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

ISO-Intensity(V-H)

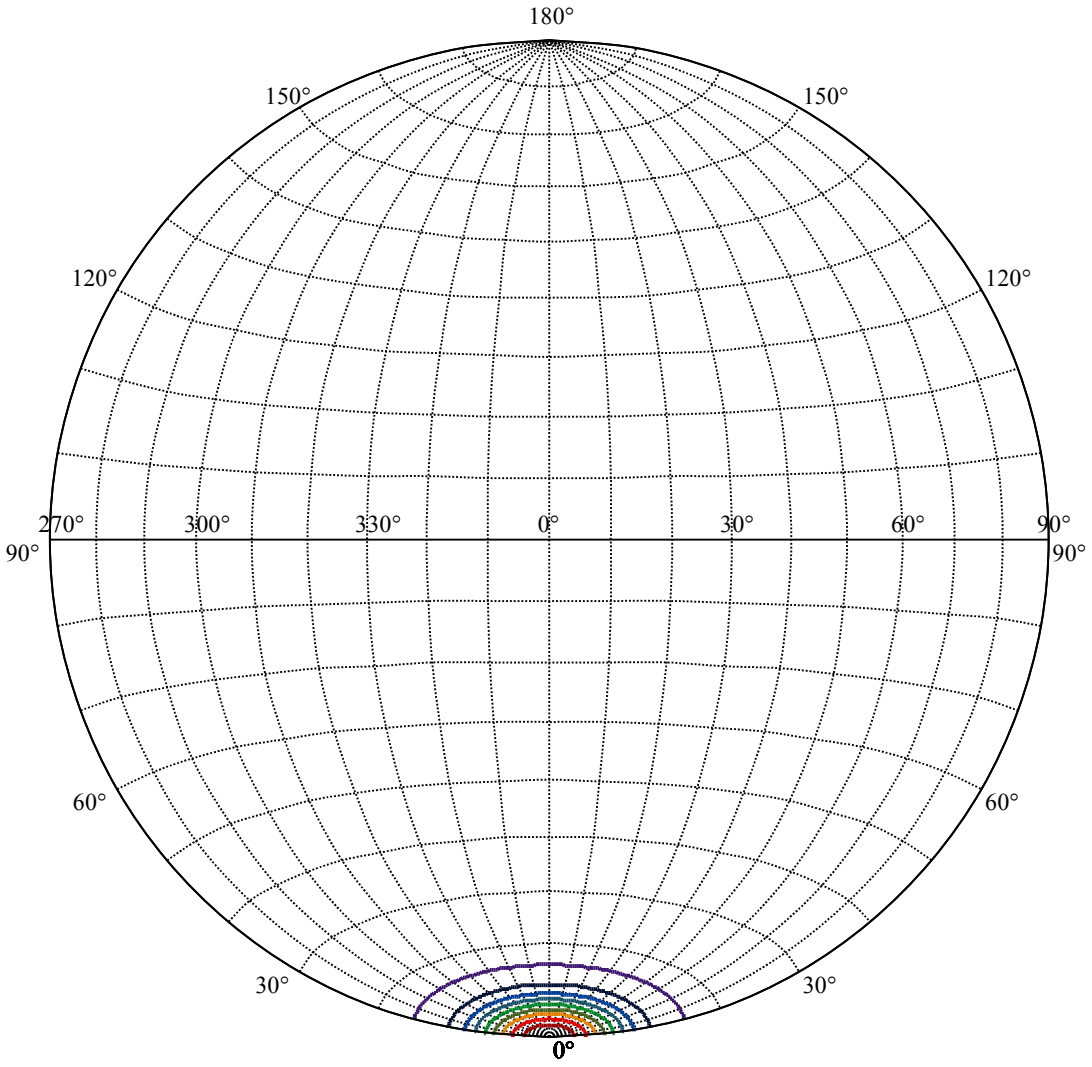


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/11/4
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

ISO candela diagram on circular web



House [Unit:cd] Road

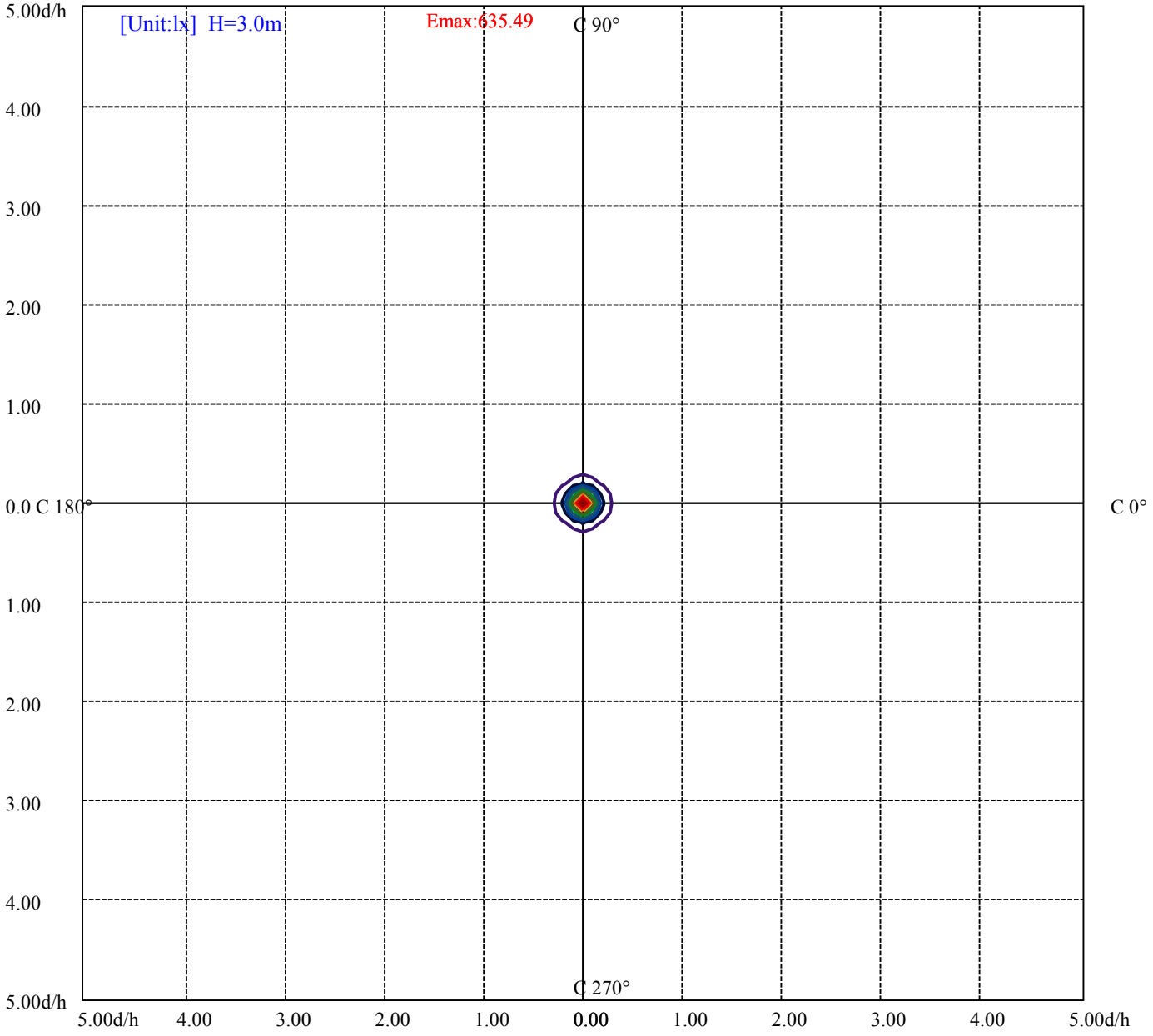
Imax:5719.40

(10%Imax) 571.94
(20%Imax) 1143.88
(30%Imax) 1715.82
(40%Imax) 2287.76
(50%Imax) 2859.7
(60%Imax) 3431.64
(70%Imax) 4003.58
(80%Imax) 4575.52
(90%Imax) 5147.46

Equipment: GMS1980 Date: 2017/11/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

Nata 1653-S

ISO illuminance diagram

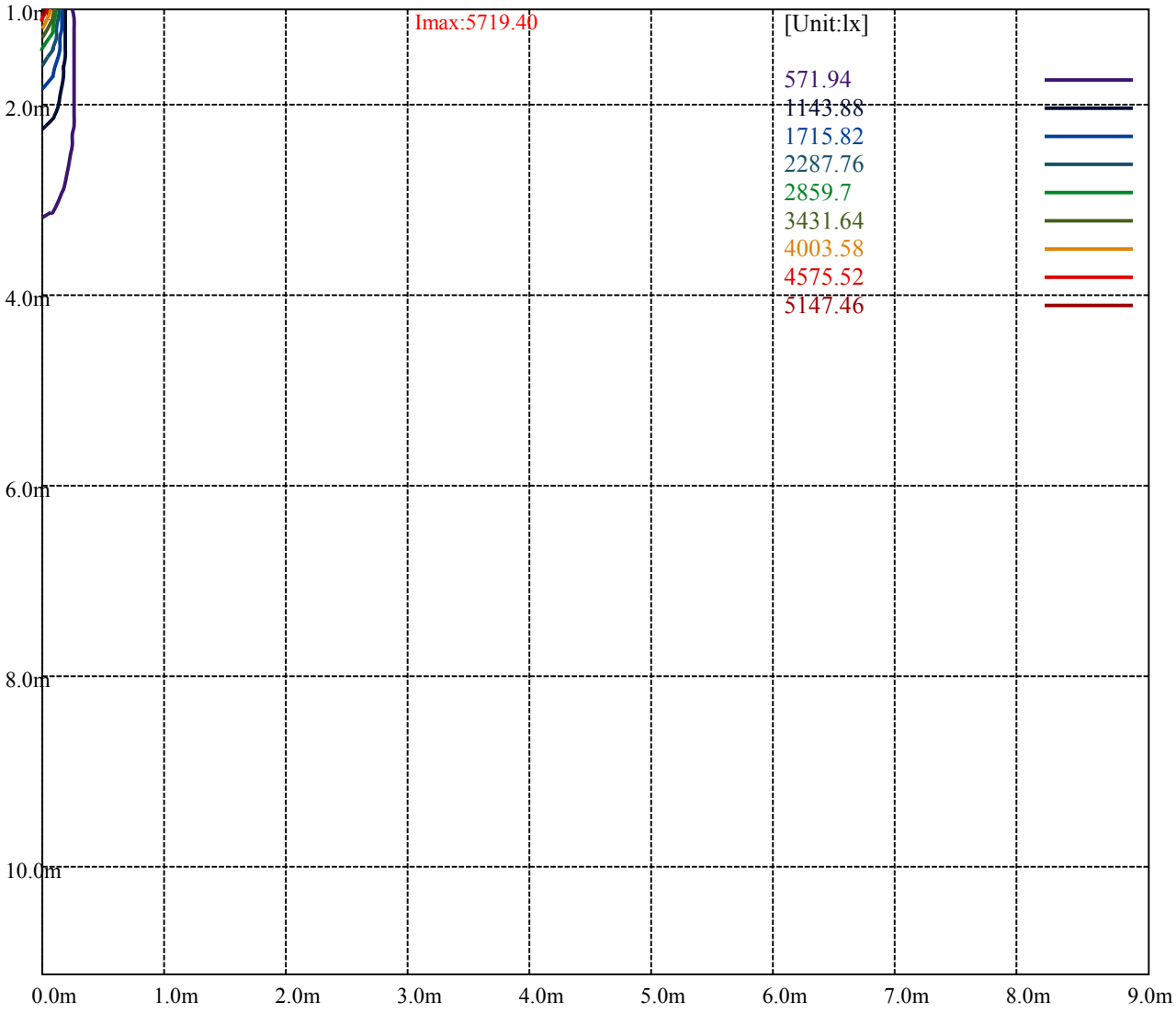


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/11/4
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Space ISO Lux diagram



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/11/4
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Nata 1653-S

Luminance Limitting Curve(no luminous side)

Luminance Table

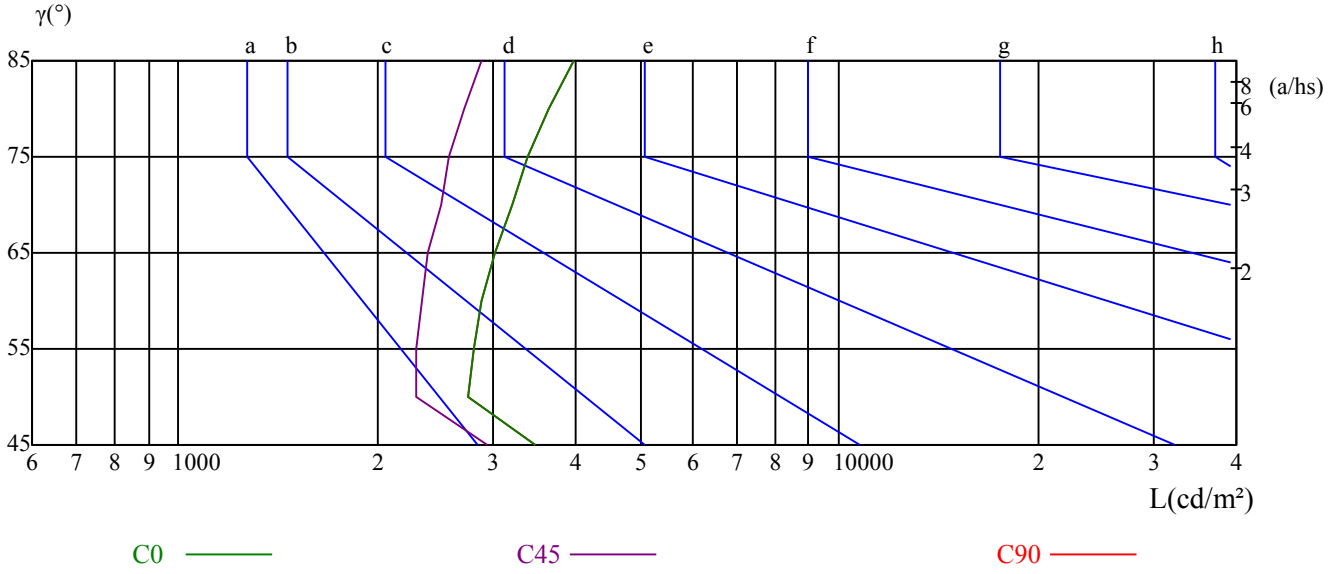
γ	45	50	55	60	65	70	75	80	85
C0	3463	2751	2791	2885	3008	3204	3369	3628	3961
C45	2931	2293	2291	2330	2388	2498	2575	2711	2886
C90	3463	2751	2791	2885	3008	3204	3369	3628	3961

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
8047	8047	8047	13191	13191	13191	39327	39327	39327

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

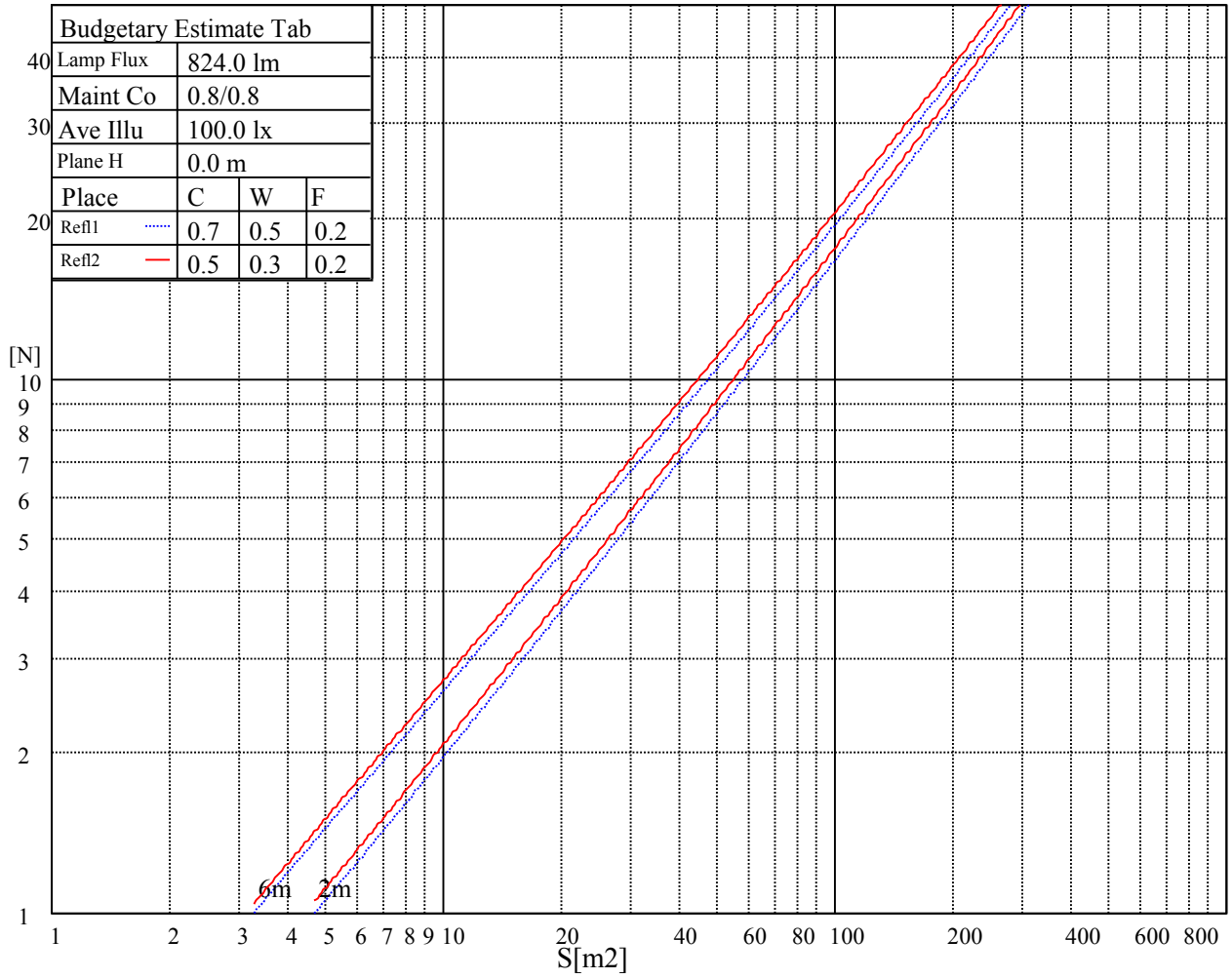


Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/11/4
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

Budgetary Estimate Table

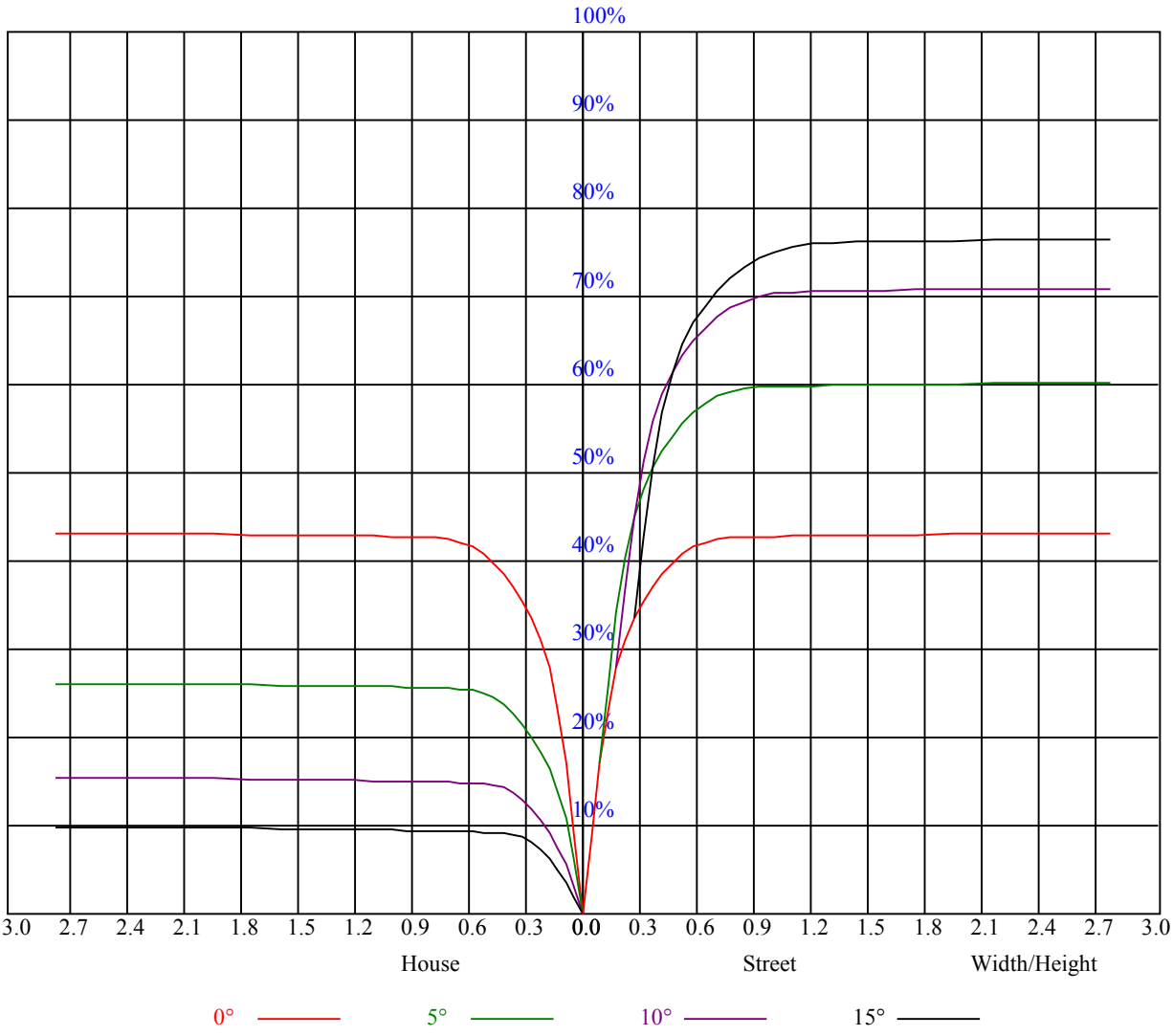


Equipment: GMS1980 Date: 2017/11/4 Operator: NT07
Temperature(°C): 25.0 Humidity(%): 60.0% Distance(m): 7.42

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	1.04	1.04	1.04	1.01	1.01	1.01	0.97	0.97	0.97	0.93	0.93	0.93	0.89	0.89	0.89	0.87
1	0.98	0.96	0.94	0.96	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.85	0.83
2	0.93	0.90	0.88	0.92	0.89	0.87	0.89	0.87	0.85	0.86	0.85	0.83	0.84	0.83	0.82	0.80
3	0.89	0.86	0.83	0.88	0.85	0.82	0.86	0.83	0.81	0.84	0.82	0.80	0.82	0.80	0.79	0.78
4	0.85	0.82	0.79	0.85	0.81	0.79	0.83	0.80	0.78	0.81	0.79	0.77	0.80	0.78	0.76	0.75
5	0.82	0.79	0.76	0.82	0.78	0.76	0.80	0.77	0.75	0.79	0.76	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	0.73	0.77	0.74	0.72	0.76	0.74	0.72	0.71
7	0.77	0.74	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	0.69	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	0.67	0.71	0.68	0.66	0.71	0.68	0.66	0.65
10	0.71	0.68	0.65	0.71	0.67	0.65	0.70	0.67	0.65	0.70	0.67	0.65	0.69	0.67	0.65	0.64

Coefficient Utilization Curve



Equipment: GMS1980
Temperature(°C): 25.0

Date: 2017/11/4
Humidity(%): 60.0%

Operator: NT07
Distance(m): 7.42

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	5699.99	5789.18	5754.49	5577.76	5297.53	4909.93	4314.22	3786.78	3247.23
45.0	5761.10	5660.90	5414.25	5080.05	4599.96	4035.08	3484.52	2869.54	2365.77
90.0	5680.72	5441.22	5059.68	4626.94	3982.78	3503.79	2879.45	2301.91	1852.65
135.0	5735.78	5554.09	5206.68	4742.56	4255.86	3657.95	3031.96	2506.17	2042.59
180.0	5699.99	5462.15	5138.96	4665.48	4104.45	3563.25	2949.92	2376.23	1929.18
225.0	5761.10	5709.90	5575.56	5240.82	4860.93	4395.70	3743.84	3215.84	2694.46
270.0	5680.72	5771.56	5745.69	5582.17	5310.74	4927.55	4406.71	3828.62	3294.02
315.0	5735.78	5797.44	5744.58	5551.89	5221.55	4816.88	4332.94	3682.72	3141.52
360.0	5699.99	5789.18	5754.49	5577.76	5297.53	4909.93	4314.22	3786.78	3247.23

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	2597.01	2132.33	1733.18	1368.15	1091.77	907.33	750.42	646.36	557.72
45.0	1870.27	1463.95	1180.41	966.24	771.34	660.13	577.54	498.81	450.36
90.0	1484.87	1076.46	927.92	774.42	637.99	560.09	497.43	442.98	400.54
135.0	1562.50	1260.79	1030.66	836.86	700.32	611.13	543.41	476.79	435.50
180.0	1556.99	1089.95	992.34	833.72	688.15	603.58	535.70	474.86	427.24
225.0	2107.56	1712.80	1392.93	1085.66	927.26	774.15	661.83	582.39	518.63
270.0	2701.62	2166.47	1760.70	1427.06	1109.94	921.64	778.50	657.37	565.98
315.0	2611.88	2028.83	1642.88	1230.51	1059.89	865.05	737.15	619.22	553.92
360.0	2597.01	2132.33	1733.18	1368.15	1091.77	907.33	750.42	646.36	557.72

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	491.65	446.51	405.22	373.28	351.26	332.54	314.37	302.26	291.25
45.0	411.82	377.69	350.71	331.44	314.37	301.71	289.05	279.14	278.03
90.0	371.58	346.69	329.07	313.05	299.73	289.71	279.91	271.81	266.20
135.0	398.61	373.28	349.06	330.34	315.47	303.36	290.15	281.34	278.59
180.0	393.93	367.28	343.44	324.89	311.23	298.13	286.51	277.10	270.11
225.0	464.90	422.56	392.33	365.02	342.51	326.26	311.84	296.37	285.69
270.0	498.81	452.56	410.72	381.54	355.66	337.50	320.43	306.11	295.10
315.0	488.79	439.74	404.66	373.56	348.51	330.78	315.14	298.79	287.78
360.0	491.65	446.51	405.22	373.28	351.26	332.54	314.37	302.26	291.25

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	280.79	278.03	264.44	252.49	233.88	210.32	178.60	150.08	118.70
45.0	263.94	253.20	239.17	215.27	180.53	151.02	123.44	86.71	62.05
90.0	257.55	239.00	215.44	189.17	155.70	118.54	88.20	59.57	33.91
135.0	265.70	250.56	231.40	204.53	166.77	134.67	104.50	67.33	45.15
180.0	263.50	247.64	228.32	202.11	172.11	135.88	108.19	79.50	47.07
225.0	277.48	269.34	259.81	245.33	221.05	191.38	162.86	128.94	99.27
270.0	286.29	278.03	266.91	259.15	242.25	220.23	194.07	162.36	125.64
315.0	278.97	269.50	263.33	253.64	234.10	210.65	183.12	144.74	116.33
360.0	280.79	278.03	264.44	252.49	233.88	210.32	178.60	150.08	118.70

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	86.16	57.92	35.51	17.07	10.19	8.97	7.98	7.05	6.17
45.0	38.15	20.32	10.68	8.64	7.82	6.99	6.11	5.29	4.57
90.0	18.77	10.35	8.42	7.54	6.72	5.95	5.29	4.51	3.96
135.0	25.44	13.98	8.92	8.04	7.21	6.44	5.62	4.84	4.29
180.0	28.63	16.68	9.91	8.75	7.87	6.88	6.00	5.12	4.40
225.0	64.20	40.63	23.51	13.65	9.63	8.70	7.65	6.44	5.56
270.0	94.04	64.20	40.30	20.81	11.62	9.36	8.31	7.21	6.28
315.0	81.76	49.72	31.11	17.67	9.91	8.81	7.87	6.66	5.84
360.0	86.16	57.92	35.51	17.07	10.19	8.97	7.98	7.05	6.17

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	5.34	4.51	3.96	3.52	3.52	3.47	3.47	3.47	3.41
45.0	3.96	3.47	3.41	3.41	3.36	3.36	3.36	3.36	3.36
90.0	3.52	3.47	3.41	3.41	3.41	3.41	3.41	3.41	3.41
135.0	3.74	3.52	3.52	3.52	3.47	3.47	3.52	3.47	3.47
180.0	3.91	3.58	3.58	3.52	3.52	3.52	3.52	3.52	3.52
225.0	4.79	4.07	3.63	3.58	3.58	3.58	3.52	3.52	3.52
270.0	5.40	4.57	4.02	3.69	3.63	3.63	3.58	3.63	3.58
315.0	5.07	4.35	3.80	3.58	3.58	3.52	3.52	3.52	3.47
360.0	5.34	4.51	3.96	3.52	3.52	3.47	3.47	3.47	3.41

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	3.41	3.41	3.41	3.36	3.41	3.41	3.41	3.41	3.41
45.0	3.36	3.36	3.36	3.36	3.36	3.36	3.36	3.30	3.36
90.0	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41
135.0	3.47	3.47	3.47	3.52	3.47	3.47	3.52	3.47	3.52
180.0	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52
225.0	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.52	3.58
270.0	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
315.0	3.47	3.47	3.47	3.47	3.47	3.47	3.47	3.52	3.52
360.0	3.41	3.41	3.41	3.36	3.41	3.41	3.41	3.41	3.41

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41
45.0	3.36	3.36	3.30	3.30	3.36	3.30	3.30	3.30	3.30
90.0	3.41	3.41	3.41	3.41	3.47	3.47	3.47	3.47	3.47
135.0	3.52	3.52	3.52	3.52	3.58	3.58	3.52	3.58	3.52
180.0	3.58	3.52	3.52	3.52	3.58	3.52	3.58	3.58	3.58
225.0	3.58	3.58	3.58	3.58	3.63	3.63	3.63	3.69	3.63
270.0	3.58	3.58	3.58	3.63	3.63	3.63	3.63	3.69	3.63
315.0	3.47	3.47	3.52	3.47	3.52	3.52	3.52	3.52	3.58
360.0	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	3.41	3.41	3.41	3.36	3.41	3.36	3.41	3.41	3.41
45.0	3.30	3.30	3.36	3.36	3.30	3.36	3.36	3.36	3.41
90.0	3.52	3.52	3.52	3.52	3.52	3.58	3.52	3.58	3.52
135.0	3.41	3.36	3.36	3.36	3.30	3.30	3.30	3.30	3.36
180.0	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
225.0	3.69	3.69	3.69	3.69	3.69	3.69	3.63	3.74	3.63
270.0	3.69	3.69	3.58	3.52	3.52	3.47	3.41	3.47	3.47
315.0	3.52	3.58	3.52	3.58	3.58	3.58	3.52	3.58	3.63
360.0	3.41	3.41	3.41	3.36	3.41	3.36	3.41	3.41	3.41

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	3.41	3.41	3.41	3.36	3.41	3.41	3.41	3.41	3.19
45.0	3.41	3.41	3.41	3.41	3.41	3.41	3.14	3.14	3.14
90.0	3.52	3.58	3.52	3.52	3.52	3.19	3.14	3.14	3.19
135.0	3.36	3.36	3.41	3.41	3.41	3.41	3.19	3.14	3.14
180.0	3.58	3.58	3.58	3.58	3.58	3.41	3.19	3.19	3.19
225.0	3.63	3.58	3.58	3.63	3.58	3.58	3.52	3.14	3.14
270.0	3.47	3.47	3.52	3.58	3.58	3.58	3.58	3.58	3.19
315.0	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.14
360.0	3.41	3.41	3.41	3.36	3.41	3.41	3.41	3.41	3.19

Intensity data(cd)

C/γ(°)	90.0
0.0	3.19
45.0	3.14
90.0	3.14
135.0	3.14
180.0	3.19
225.0	3.14
270.0	3.14
315.0	3.14
360.0	3.19