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Nata

LumCAT: 2-1747-N
Luminaire: 92.70.124.00

Report No: 200406-B032	Voltage(V): 220.4000
Test No: 200406-C032	Current(A): 0.0410
LampCAT: SAMSUNG LC013D	Power (W): 8.2600
Lamp flux(lm): 931.0	PF: 0.8960
Number of Lamps: 1	Ballast type: AC
Length(mm): 0	Width(mm): 0
Phm Type: C	Height(mm): 0

Photometric Results

Lumens(lm): 769.21
Efficiency(%): 82.62%
Lumens(lm)/Power(W): 93.12
Central intensity(cd): 1458.155
Maximum intensity(cd): 1458.155
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=40.8
[C90/270]Total=40.8
Field angle(10%Imax): [C0/180]Total=68.5
[C90/270]Total=68.5
Maximum s/h(1/2): C0_180=0.66 C90_270=0.66
Maximum s/h(1/4): C0_180=0.66 C90_270=0.66
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 82.62%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.157%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	1458.155	0.000	0	.000%	.000%
1.0	1456.473	1.395	1.395	.150%	.181%
2.0	1451.427	4.174	5.568	.448%	.724%
3.0	1445.627	6.929	12.497	.744%	1.625%
4.0	1435.592	9.644	22.141	1.036%	2.878%
5.0	1421.845	12.293	34.434	1.320%	4.477%
6.0	1405.140	14.857	49.291	1.596%	6.408%
7.0	1381.358	17.296	66.586	1.858%	8.656%
8.0	1352.646	19.567	86.153	2.102%	11.200%
9.0	1321.498	21.672	107.826	2.328%	14.018%
10.0	1283.157	23.571	131.397	2.532%	17.082%
11.0	1240.408	25.216	156.612	2.708%	20.360%
12.0	1192.380	26.594	183.206	2.856%	23.817%
13.0	1137.236	27.647	210.853	2.970%	27.412%
14.0	1079.974	28.380	239.233	3.048%	31.101%
15.0	1030.067	28.968	268.2	3.111%	34.867%
16.0	985.450	29.533	297.733	3.172%	38.706%
17.0	921.338	29.694	327.427	3.189%	42.567%
18.0	862.354	29.409	356.837	3.159%	46.390%
19.0	810.527	29.105	385.941	3.126%	50.174%
20.0	752.326	28.605	414.546	3.072%	53.892%
21.0	694.235	27.777	442.323	2.984%	57.503%
22.0	639.212	26.796	469.119	2.878%	60.987%
23.0	587.490	25.740	494.858	2.765%	64.333%
24.0	537.699	24.601	519.459	2.642%	67.531%
25.0	495.356	23.489	542.948	2.523%	70.585%
26.0	455.518	22.445	565.394	2.411%	73.503%
27.0	415.385	21.307	586.701	2.289%	76.273%
28.0	381.853	20.184	606.885	2.168%	78.897%
29.0	342.346	18.947	625.832	2.035%	81.360%
30.0	303.820	17.446	643.279	1.874%	83.628%
31.0	273.925	16.078	659.356	1.727%	85.718%
32.0	234.198	14.557	673.914	1.564%	87.611%
33.0	190.022	12.498	686.411	1.342%	89.236%
34.0	153.926	10.409	696.82	1.118%	90.589%
35.0	122.528	8.586	705.406	.922%	91.705%
36.0	97.145	6.994	712.4	.751%	92.614%
37.0	70.243	5.459	717.859	.586%	93.324%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	53.648	4.135	721.995	.444%	93.862%
39.0	41.896	3.261	725.256	.350%	94.285%
40.0	34.541	2.666	727.922	.286%	94.632%
41.0	29.861	2.293	730.215	.246%	94.930%
42.0	26.601	2.051	732.266	.220%	95.197%
43.0	24.391	1.889	734.155	.203%	95.442%
44.0	22.308	1.763	735.918	.189%	95.672%
45.0	20.522	1.646	737.564	.177%	95.886%
46.0	19.165	1.552	739.116	.167%	96.087%
47.0	17.906	1.474	740.59	.158%	96.279%
48.0	16.850	1.405	741.995	.151%	96.462%
49.0	15.841	1.342	743.338	.144%	96.636%
50.0	15.023	1.287	744.625	.138%	96.803%
51.0	14.153	1.234	745.859	.133%	96.964%
52.0	13.457	1.185	747.044	.127%	97.118%
53.0	12.778	1.141	748.185	.123%	97.266%
54.0	12.094	1.096	749.281	.118%	97.409%
55.0	11.450	1.051	750.332	.113%	97.545%
56.0	10.951	1.012	751.345	.109%	97.677%
57.0	10.429	0.978	752.322	.105%	97.804%
58.0	9.878	0.939	753.261	.101%	97.926%
59.0	9.431	0.903	754.164	.097%	98.044%
60.0	9.020	0.872	755.036	.094%	98.157%
61.0	8.614	0.841	755.877	.090%	98.266%
62.0	8.225	0.811	756.688	.087%	98.372%
63.0	7.854	0.782	757.47	.084%	98.473%
64.0	7.506	0.754	758.224	.081%	98.571%
65.0	7.169	0.726	758.95	.078%	98.666%
66.0	6.827	0.698	759.649	.075%	98.757%
67.0	6.549	0.673	760.321	.072%	98.844%
68.0	6.270	0.649	760.971	.070%	98.929%
69.0	5.969	0.624	761.595	.067%	99.010%
70.0	5.696	0.599	762.194	.064%	99.088%
71.0	5.441	0.576	762.77	.062%	99.162%
72.0	5.157	0.551	763.321	.059%	99.234%
73.0	4.913	0.527	763.847	.057%	99.302%
74.0	4.658	0.503	764.35	.054%	99.368%
75.0	4.397	0.478	764.829	.051%	99.430%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	4.118	0.452	765.281	.049%	99.489%
77.0	3.886	0.427	765.708	.046%	99.544%
78.0	3.648	0.403	766.111	.043%	99.597%
79.0	3.405	0.379	766.49	.041%	99.646%
80.0	3.179	0.355	766.845	.038%	99.692%
81.0	2.941	0.331	767.176	.036%	99.735%
82.0	2.726	0.307	767.483	.033%	99.775%
83.0	2.529	0.286	767.769	.031%	99.812%
84.0	2.314	0.264	768.033	.028%	99.847%
85.0	2.088	0.240	768.273	.026%	99.878%
86.0	1.914	0.219	768.492	.023%	99.906%
87.0	1.775	0.202	768.694	.022%	99.933%
88.0	1.624	0.186	768.88	.020%	99.957%
89.0	1.508	0.172	769.052	.018%	99.979%
90.0	1.433	0.161	769.213	.017%	100.000%

Zonal flux distribution table

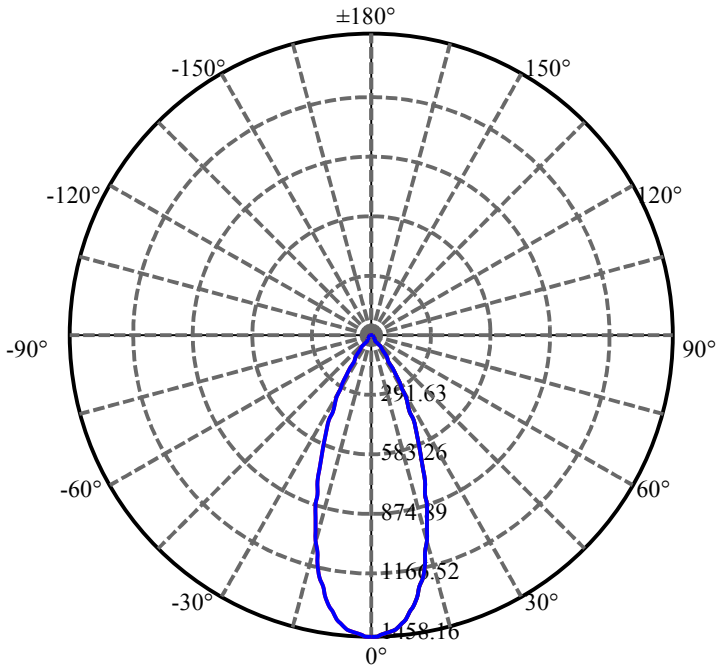
ZONAL LUMEN SUMMARY

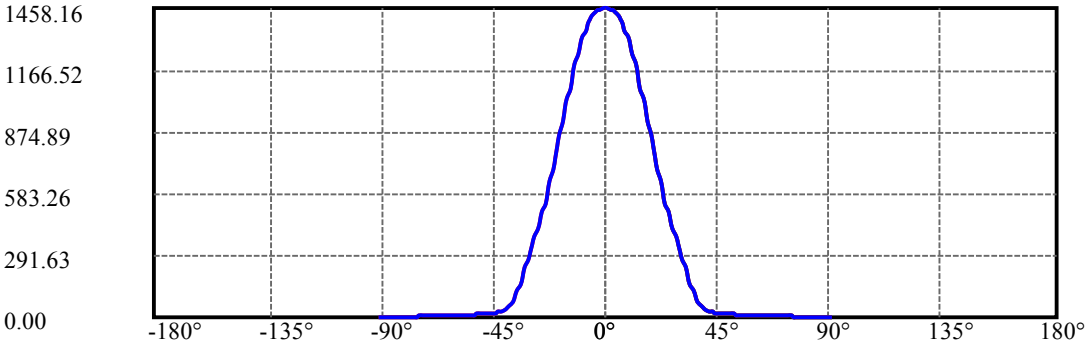
Zone	Lumens	%Lamp	%Fixt
0-30	643.28	69.10%	83.63%
0-40	727.92	78.19%	94.63%
0-60	755.04	81.10%	98.16%
0-90	769.05	82.60%	99.98%
0-120	769.05	82.60%	99.98%
0-180	769.21	82.62%	100.00%
60-90	14.89	1.60%	1.94%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-28.45	615.37	66.10%	80.00%

ZONAL LUMEN SUMMARY

0-10	131.40
10-20	283.15
20-30	228.73
30-40	84.64
40-50	16.70
50-60	10.41
60-70	7.16
70-80	4.65
80-90	2.21
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):

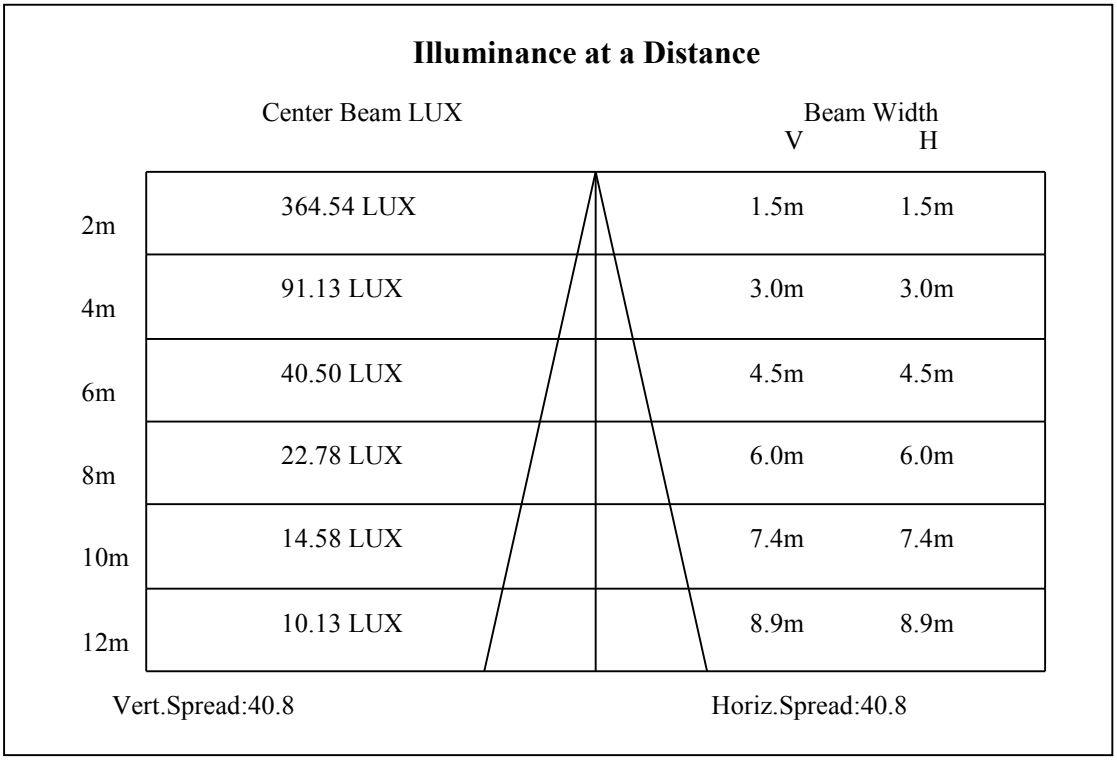
C0/C180:

C90/C270:

Field angle(10%Imax):C0/180Left:34.3 Right:34.3
:C90/270Left:34.3 Right:34.3

Beam Angle(50%Imax):C0/180Left:20.4 Right:20.4
:C90/270Left:20.4 Right:20.4

Lux distance Curve

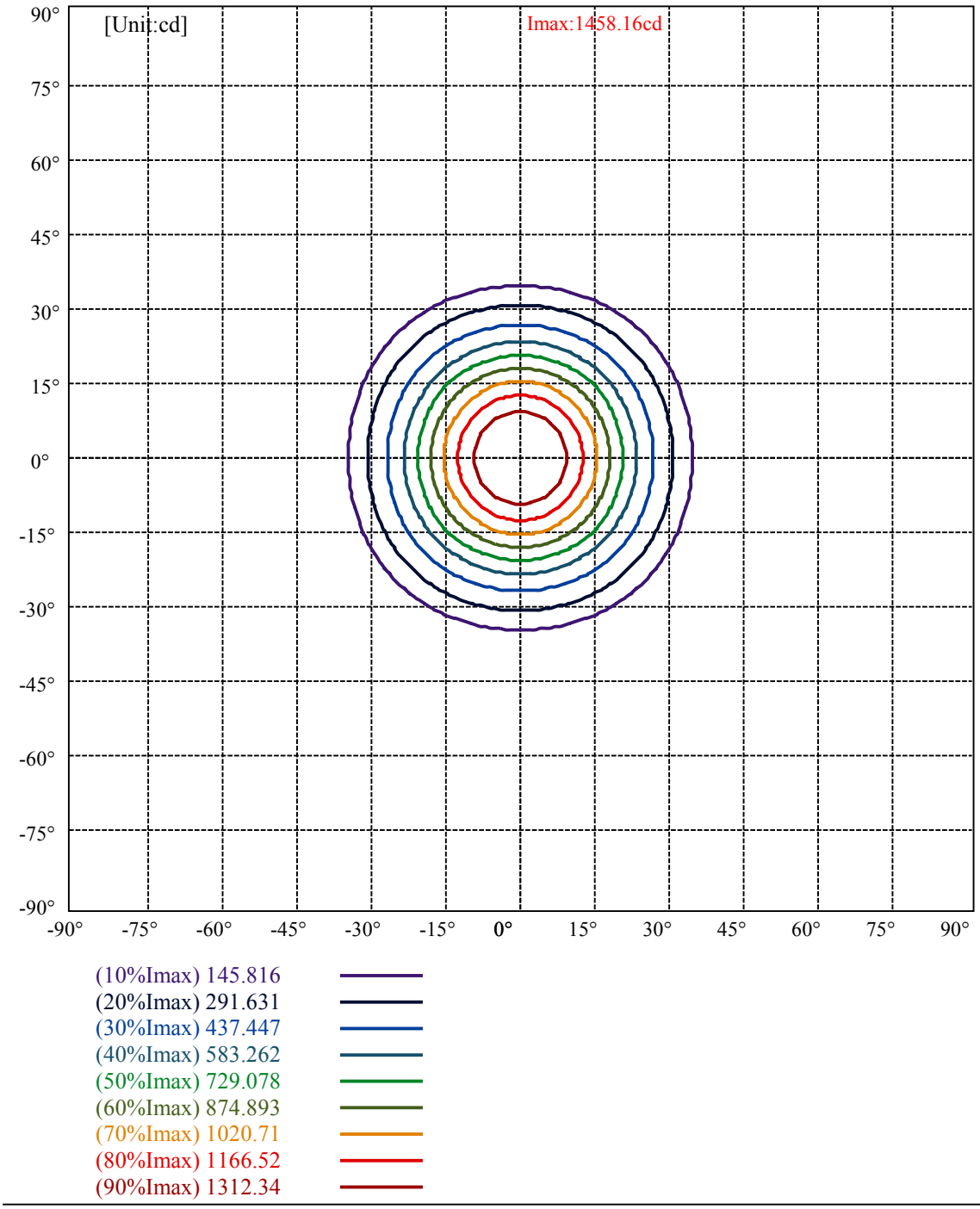


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO-Intensity(V-H)

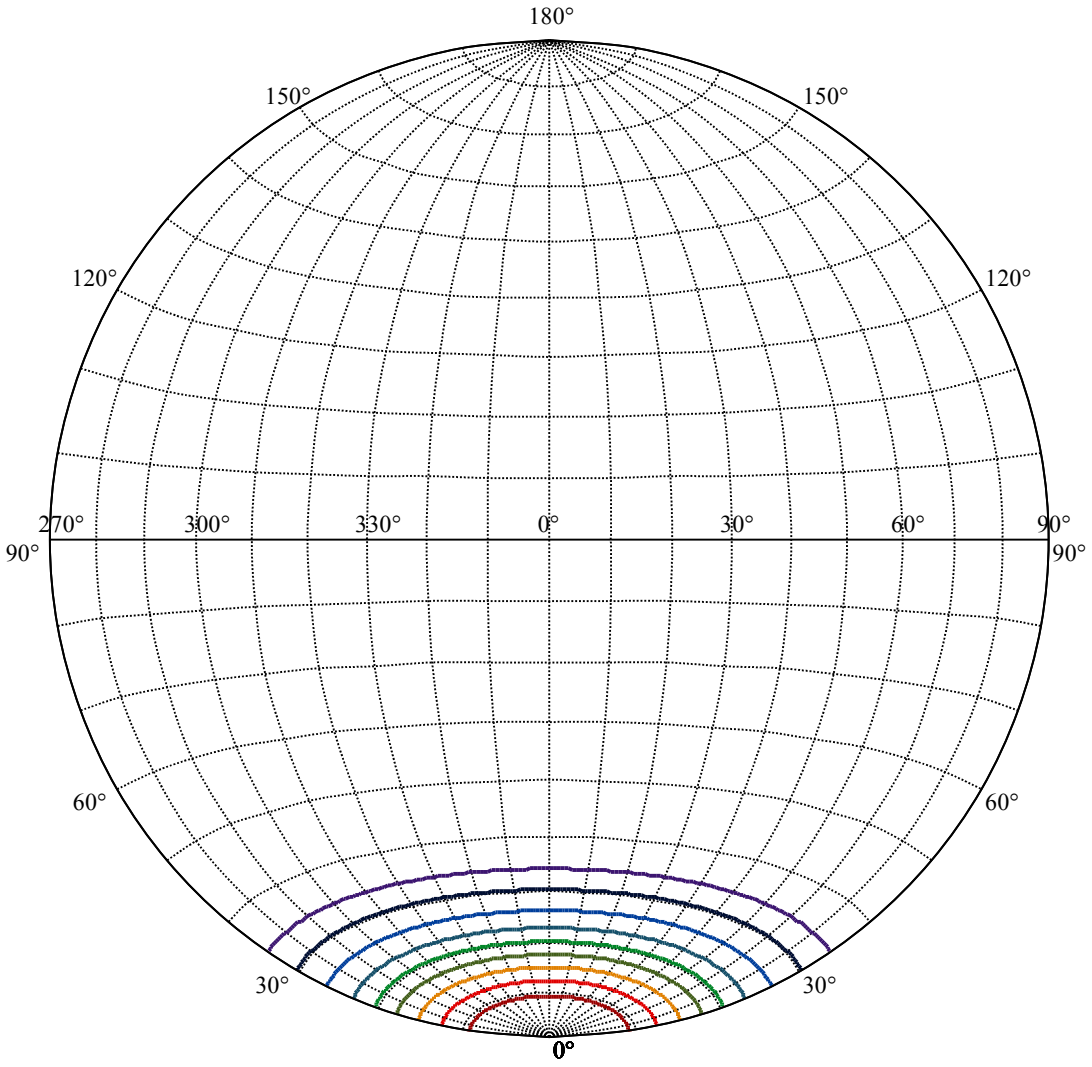


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO candela diagram on circular web



House [Unit:cd] Road

Imax:1458.16

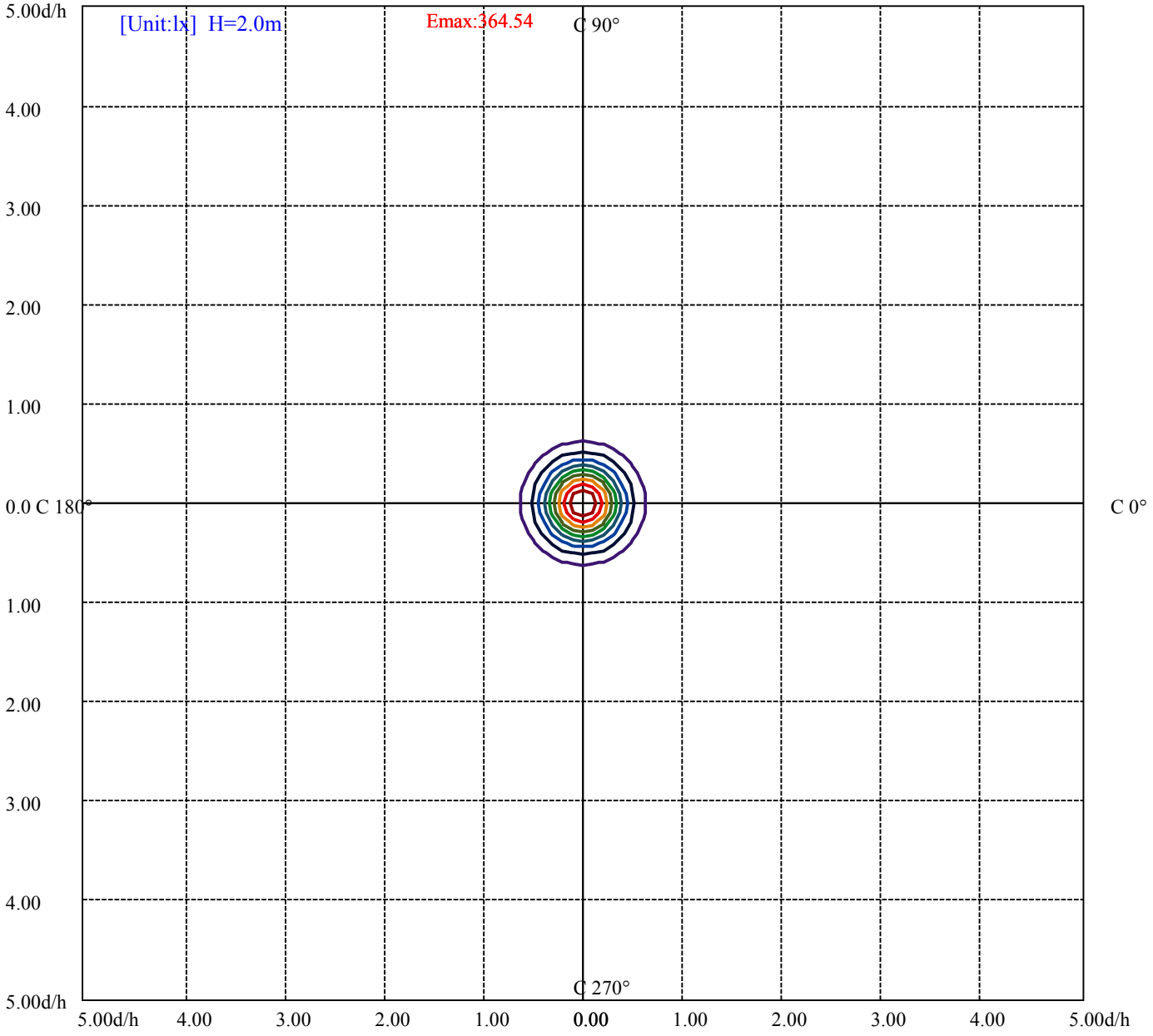
(10%Imax) 145.816
(20%Imax) 291.631
(30%Imax) 437.447
(40%Imax) 583.262
(50%Imax) 729.078
(60%Imax) 874.893
(70%Imax) 1020.71
(80%Imax) 1166.52
(90%Imax) 1312.34

Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

ISO illuminance diagram

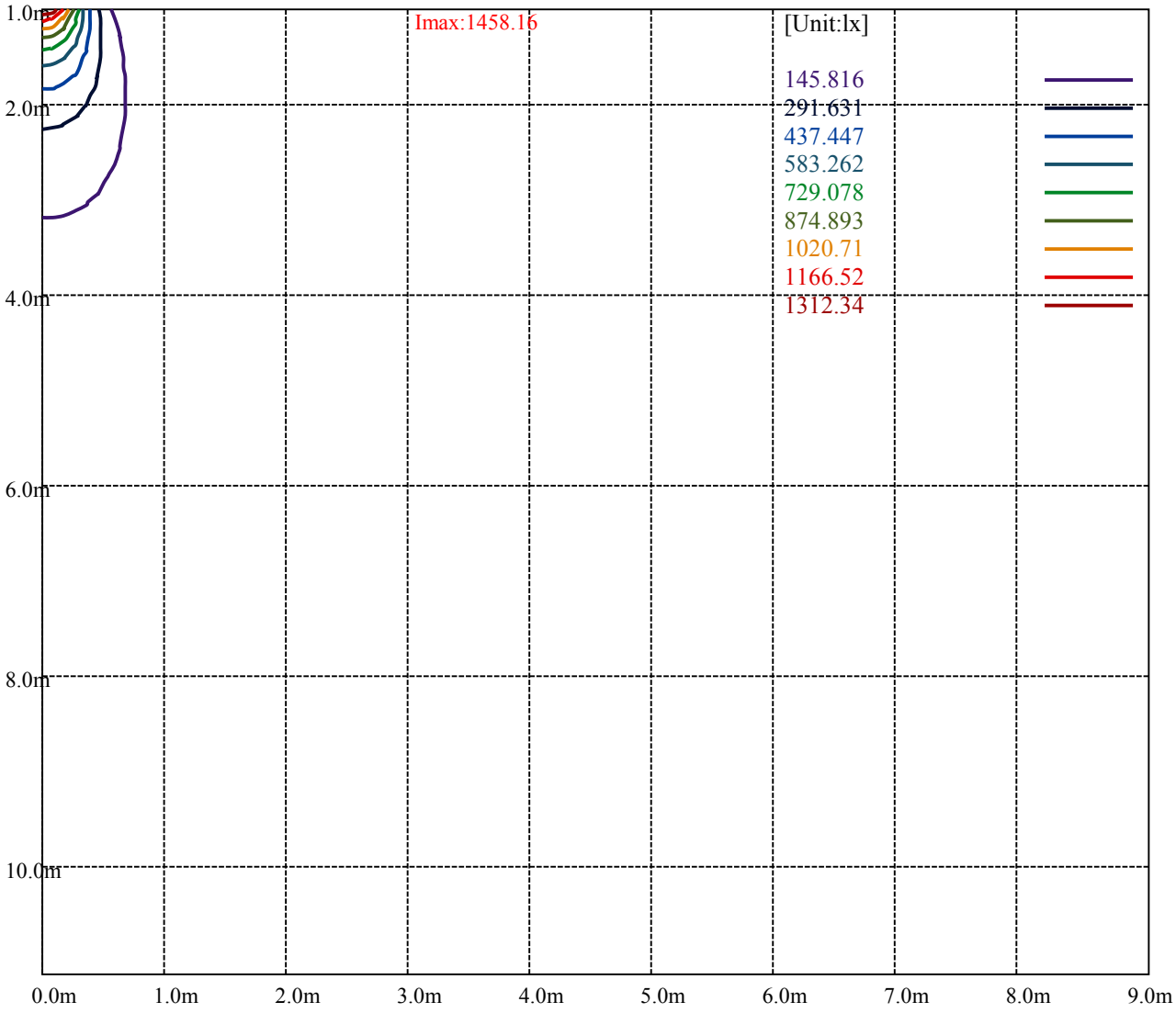


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Space ISO Lux diagram



Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Nata 2-1747-N

Luminance Limitting Curve(no luminous side)

Luminance Table

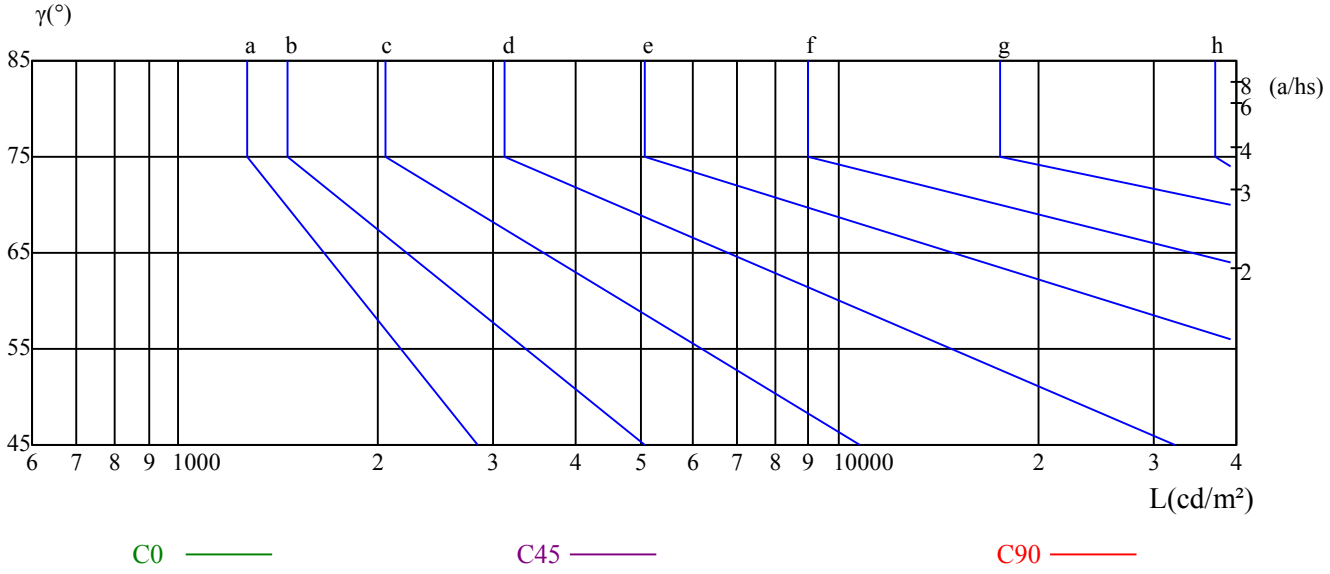
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

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

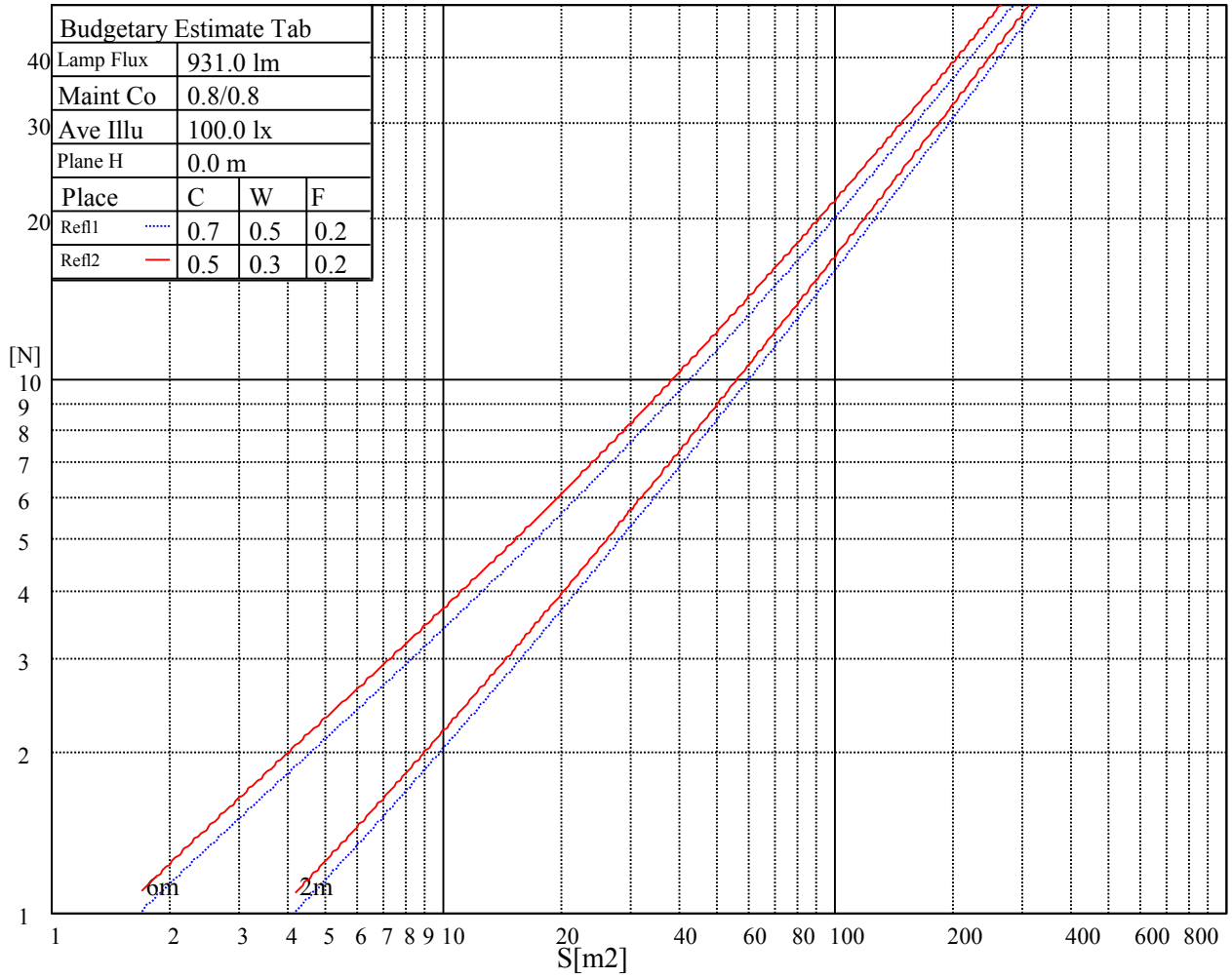


Equipment: GMS 1800
Temperature(°C): 25.0

Date: 2020/4/6
Humidity(%): 60.0%

Operator: NT07
Distance(m): 6.81

Budgetary Estimate Table

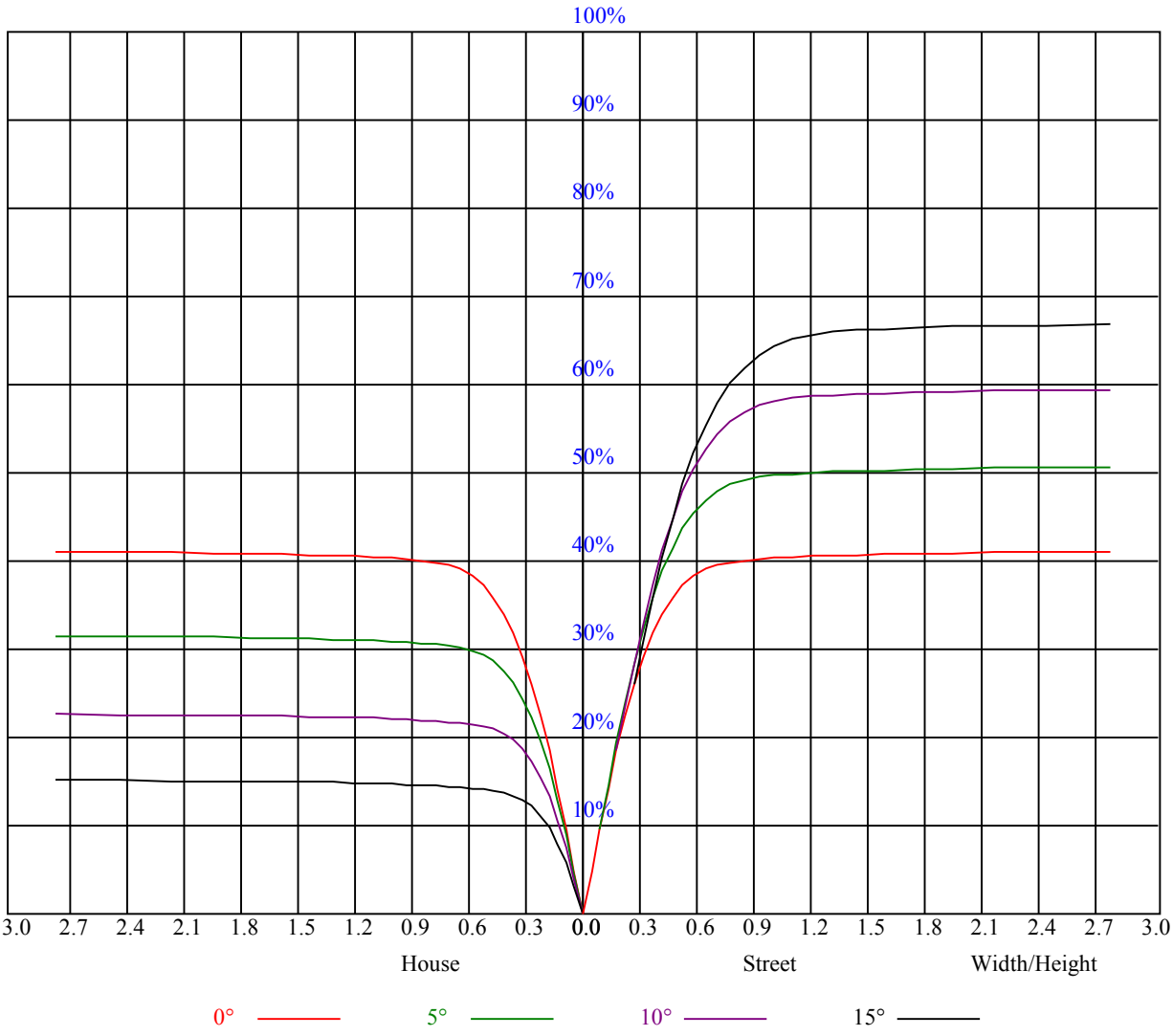


Equipment: GMS 1800	Date: 2020/4/6	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 6.81

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	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92	0.88	0.88	0.88	0.84	0.84	0.84	0.83
1	0.92	0.90	0.88	0.90	0.88	0.87	0.87	0.85	0.84	0.84	0.83	0.82	0.81	0.80	0.79	0.78
2	0.86	0.83	0.80	0.85	0.82	0.80	0.82	0.80	0.78	0.80	0.78	0.76	0.77	0.76	0.75	0.73
3	0.81	0.77	0.74	0.80	0.76	0.74	0.78	0.75	0.73	0.76	0.73	0.71	0.74	0.72	0.70	0.69
4	0.77	0.72	0.69	0.76	0.72	0.69	0.74	0.71	0.68	0.72	0.70	0.67	0.71	0.68	0.67	0.65
5	0.73	0.68	0.65	0.72	0.68	0.65	0.70	0.67	0.64	0.69	0.66	0.64	0.68	0.65	0.63	0.62
6	0.69	0.64	0.61	0.68	0.64	0.61	0.67	0.63	0.61	0.66	0.63	0.60	0.65	0.62	0.60	0.59
7	0.66	0.61	0.58	0.65	0.61	0.58	0.64	0.60	0.58	0.63	0.60	0.57	0.62	0.59	0.57	0.56
8	0.62	0.58	0.55	0.62	0.58	0.55	0.61	0.57	0.55	0.60	0.57	0.54	0.60	0.57	0.54	0.53
9	0.60	0.55	0.52	0.59	0.55	0.52	0.59	0.55	0.52	0.58	0.54	0.52	0.57	0.54	0.52	0.51
10	0.57	0.53	0.50	0.57	0.53	0.50	0.56	0.52	0.50	0.56	0.52	0.50	0.55	0.52	0.50	0.49

Coefficient Utilization Curve



Equipment: GMS 1800	Date: 2020/4/6	Operator: NT07
Temperature(°C): 25.0	Humidity(%): 60.0%	Distance(m): 6.81

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	1452.01	1445.05	1432.98	1420.45	1403.75	1372.66	1346.67	1317.44	1283.56
45.0	1462.68	1455.26	1440.87	1432.52	1411.17	1394.00	1381.47	1338.78	1300.73
90.0	1452.01	1441.80	1425.56	1403.28	1381.94	1353.63	1320.22	1278.92	1233.91
135.0	1465.93	1456.65	1447.37	1439.94	1428.34	1411.17	1391.22	1366.16	1336.00
180.0	1452.01	1453.40	1457.11	1451.54	1448.76	1445.05	1437.62	1429.27	1404.68
225.0	1462.68	1470.57	1477.99	1484.03	1483.10	1481.24	1469.64	1452.94	1425.09
270.0	1452.01	1464.54	1469.18	1479.39	1482.17	1481.71	1471.96	1462.68	1450.61
315.0	1465.93	1464.54	1460.36	1453.86	1445.51	1435.30	1422.31	1404.68	1386.58
360.0	1452.01	1445.05	1432.98	1420.45	1403.75	1372.66	1346.67	1317.44	1283.56

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	1242.73	1198.18	1149.92	1100.73	1047.83	917.81	905.75	905.75	844.08
45.0	1275.67	1222.31	1158.27	1086.35	1017.21	949.46	892.38	836.23	786.12
90.0	1188.90	1132.75	1078.00	1021.85	918.51	918.51	874.24	820.78	761.71
135.0	1305.84	1268.25	1227.88	1196.79	1146.67	1089.60	1028.81	968.48	907.70
180.0	1380.08	1349.92	1313.73	1277.07	1232.06	1182.40	1129.50	1072.43	1014.89
225.0	1393.07	1355.49	1331.36	1272.43	1239.02	1184.26	1111.41	1084.49	1027.42
270.0	1429.73	1409.78	1378.69	1350.38	1305.37	1262.68	1219.06	1171.27	1117.44
315.0	1355.95	1328.57	1285.42	1233.45	1191.22	1135.07	1079.39	1024.17	911.36
360.0	1242.73	1198.18	1149.92	1100.73	1047.83	917.81	905.75	905.75	844.08

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	786.91	730.95	674.15	616.75	562.59	515.82	473.82	433.59	396.61
45.0	729.51	670.11	614.43	562.45	516.52	475.22	433.92	395.40	358.28
90.0	708.30	651.04	598.23	550.76	505.94	464.87	422.46	387.05	353.22
135.0	848.30	785.19	725.33	666.40	612.11	560.60	512.34	471.50	432.06
180.0	954.56	895.63	836.23	777.30	720.69	662.69	607.00	557.35	530.90
225.0	894.42	894.42	832.66	766.82	706.72	649.97	591.36	541.25	494.43
270.0	1065.47	1008.39	950.39	885.42	821.39	758.74	698.88	642.27	600.04
315.0	911.36	848.49	787.19	727.98	667.74	612.01	561.81	534.43	478.60
360.0	786.91	730.95	674.15	616.75	562.59	515.82	473.82	433.59	396.61

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	362.83	329.09	287.61	244.08	201.02	157.77	126.73	85.20	63.80
45.0	327.65	298.88	263.62	231.60	231.60	150.11	114.38	83.15	59.16
90.0	312.29	265.84	220.32	175.36	133.50	96.15	76.57	46.96	41.21
135.0	392.62	359.21	323.48	282.18	254.80	254.80	157.49	117.96	82.64
180.0	473.82	450.62	412.11	373.13	337.86	298.42	253.41	235.78	195.64
225.0	455.50	433.55	381.85	343.66	325.84	287.84	245.33	204.87	167.33
270.0	542.50	499.35	468.26	432.06	395.87	361.06	324.87	280.79	235.78
315.0	455.87	418.28	381.53	348.49	310.90	267.42	221.39	176.70	134.66
360.0	362.83	329.09	287.61	244.08	201.02	157.77	126.73	85.20	63.80

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	48.12	38.93	34.11	30.07	27.15	24.73	22.64	20.93	19.44
45.0	46.22	38.70	33.04	29.51	26.64	24.27	22.41	20.79	19.30
90.0	34.52	29.65	26.68	24.32	22.32	20.60	19.21	18.00	16.84
135.0	57.49	43.48	36.43	31.09	27.70	25.20	23.11	21.35	19.86
180.0	125.89	92.34	64.69	47.93	39.40	33.50	29.37	27.05	24.64
225.0	131.09	99.54	72.02	52.62	42.83	36.29	31.60	28.45	25.75
270.0	235.78	150.86	112.71	79.40	56.29	44.78	37.82	34.25	30.25
315.0	98.05	68.44	49.51	40.23	34.01	29.51	26.64	24.32	22.37
360.0	48.12	38.93	34.11	30.07	27.15	24.73	22.64	20.93	19.44

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	18.24	17.08	16.06	15.17	14.34	13.64	12.90	12.25	11.60
45.0	18.56	16.94	16.29	15.41	14.25	13.78	13.09	12.44	11.69
90.0	15.87	15.08	14.29	13.60	12.90	12.30	11.74	11.00	10.72
135.0	18.51	17.35	16.38	15.82	14.62	14.20	13.46	12.81	12.25
180.0	22.55	20.79	19.35	18.10	16.98	15.92	15.03	14.25	13.50
225.0	23.57	21.81	20.19	18.75	17.96	16.89	15.59	15.08	14.25
270.0	26.22	24.78	22.74	21.02	19.54	18.24	17.03	16.10	15.13
315.0	20.65	19.49	17.96	16.94	16.15	15.22	14.39	13.74	13.09
360.0	18.24	17.08	16.06	15.17	14.34	13.64	12.90	12.25	11.60

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	11.14	10.44	10.16	9.65	9.10	8.77	8.45	8.03	7.66
45.0	11.00	10.44	10.02	9.51	9.00	8.68	8.31	7.89	7.56
90.0	10.02	9.56	9.28	8.82	8.45	8.07	7.70	7.33	7.01
135.0	11.65	11.00	10.44	10.02	9.51	9.05	8.63	8.31	7.93
180.0	12.81	12.16	11.55	10.95	10.35	9.93	9.47	9.05	8.58
225.0	13.46	12.71	12.11	11.55	10.90	10.35	9.93	9.51	9.10
270.0	14.29	13.55	12.90	12.30	11.60	11.00	10.49	9.98	9.51
315.0	12.39	11.74	11.14	10.63	10.12	9.61	9.19	8.82	8.45
360.0	11.14	10.44	10.16	9.65	9.10	8.77	8.45	8.03	7.66

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	7.29	7.01	6.68	6.36	6.03	5.80	5.52	5.24	4.97
45.0	7.24	6.91	6.54	6.26	6.03	5.71	5.48	5.20	4.92
90.0	6.77	6.45	6.13	5.85	5.61	5.34	5.01	4.78	4.55
135.0	7.56	7.24	6.91	6.59	6.31	6.08	5.85	5.48	5.34
180.0	8.21	7.93	7.61	7.15	6.96	6.64	6.36	6.08	5.80
225.0	8.68	8.21	7.89	7.52	7.15	6.82	6.59	6.26	6.03
270.0	9.10	8.68	8.31	7.89	7.56	7.24	6.87	6.64	6.31
315.0	7.98	7.61	7.29	7.01	6.73	6.54	6.08	5.89	5.61
360.0	7.29	7.01	6.68	6.36	6.03	5.80	5.52	5.24	4.97

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	4.73	4.45	4.22	3.99	3.67	3.48	3.29	2.97	2.92
45.0	4.69	4.36	4.08	3.90	3.67	3.34	3.11	2.92	2.69
90.0	4.27	3.99	3.81	3.57	3.25	3.06	2.83	2.64	2.46
135.0	5.06	4.83	4.59	4.32	4.04	3.85	3.62	3.39	3.06
180.0	5.52	5.29	5.01	4.69	4.45	4.22	3.94	3.67	3.48
225.0	5.66	5.43	5.20	4.97	4.64	4.36	4.08	3.85	3.57
270.0	6.03	5.75	5.48	5.15	4.87	4.64	4.41	4.13	3.85
315.0	5.29	5.20	4.87	4.59	4.36	4.13	3.90	3.67	3.39
360.0	4.73	4.45	4.22	3.99	3.67	3.48	3.29	2.97	2.92

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	2.55	2.41	2.23	2.04	1.86	1.62	1.53	1.44	1.25
45.0	2.46	2.23	2.04	1.86	1.62	1.44	1.39	1.25	1.25
90.0	2.18	2.04	1.90	1.72	1.48	1.39	1.30	1.21	1.21
135.0	2.92	2.69	2.46	2.23	2.09	1.86	1.72	1.62	1.58
180.0	3.25	2.97	2.78	2.55	2.27	2.13	1.95	1.72	1.58
225.0	3.34	3.06	2.92	2.60	2.32	2.23	2.00	1.81	1.67
270.0	3.62	3.39	3.11	2.97	2.64	2.46	2.27	2.04	1.76
315.0	3.20	3.02	2.78	2.55	2.41	2.18	2.04	1.90	1.76
360.0	2.55	2.41	2.23	2.04	1.86	1.62	1.53	1.44	1.25

Intensity data(cd)

C/γ(°)	90.0
0.0	1.30
45.0	1.21
90.0	1.21
135.0	1.35
180.0	1.48
225.0	1.53
270.0	1.67
315.0	1.72
360.0	1.30