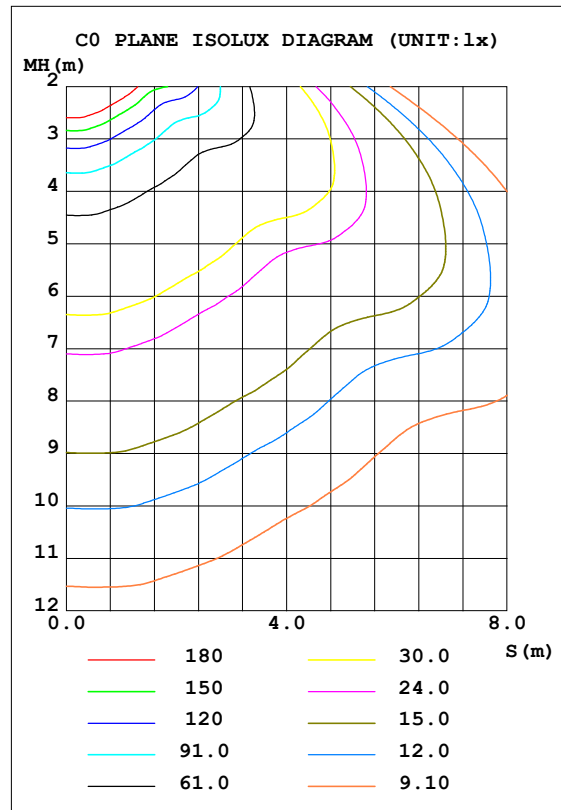
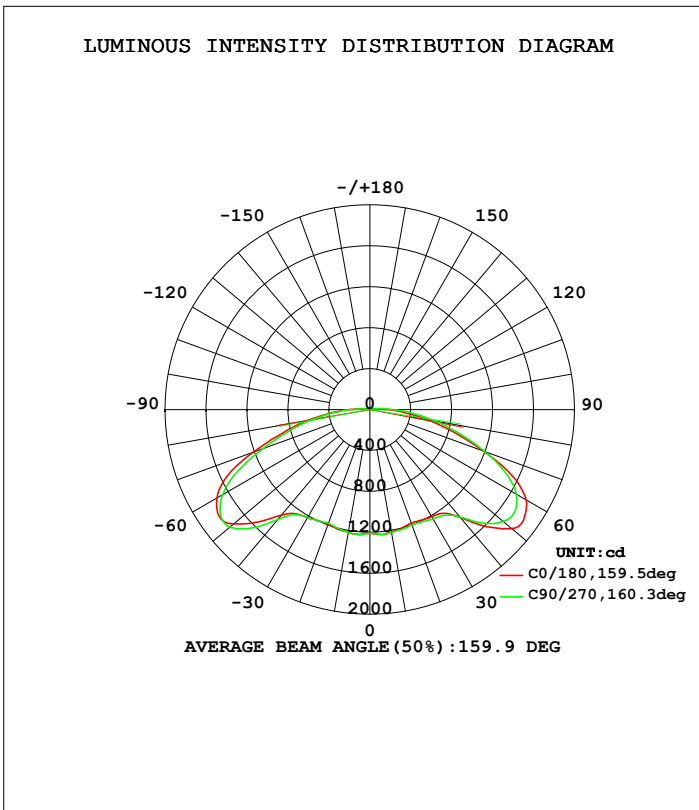


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	SMD3030 (757G)	Imax (cd)	1853	S/MH (C0/180)	1.68
NOMINAL POWER (W)	60	LOR (%)	100.0	S/MH (C90/270)	1.88
RATED VOLTAGE (V)	277	TOTAL FLUX (lm)	7617.0	η UP, DN (C0-180)	1.3, 48.9
NOMINAL FLUX (lm)	7616.98	CIE CLASS	DIRECT	η UP, DN (C180-360)	1.2, 48.6
LAMPS INSIDE	1	η up (%)	2.5	CIBSE SHR NOM	2.00
TEST VOLTAGE (V)	277	η down (%)	97.5	CIBSE SHR MAX	0.00



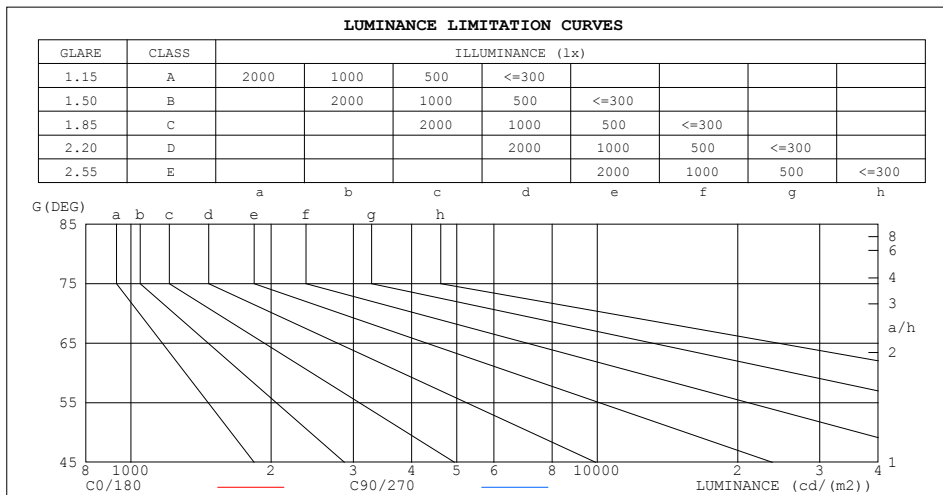
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	1215	1221	1218	1216					0- 10	116.7	116.7	1.53,1.53
20	1181	1201	1195	1183					10- 20	341.0	457.7	6.01,6.01
30	1209	1236	1221	1217					20- 30	556.6	1014	13.3,13.3
40	1376	1372	1348	1400					30- 40	797.2	1811	23.8,23.8
50	1810	1700	1739	1784					40- 50	1231	3042	39.9,39.9
60	1763	1653	1727	1663					50- 60	1588	4630	60.8,60.8
70	1174	1194	1205	1109					60- 70	1457	6087	79.9,79.9
80	565.5	650.8	619.8	575.7					70- 80	920.3	7008	92,92
90	184.4	231.4	207.2	193.4					80- 90	416.6	7424	97.5,97.5
100	59.54	60.42	66.88	45.08					90-100	127.6	7552	99.1,99.1
110	23.66	6.206	25.31	6.014					100-110	31.55	7583	99.6,99.6
120	7.458	7.161	7.901	6.902					110-120	10.69	7594	99.7,99.7
130	7.246	7.516	7.320	7.319					120-130	6.488	7601	99.8,99.8
140	7.375	7.558	7.497	7.473					130-140	5.752	7606	99.9,99.9
150	7.314	7.411	7.380	7.393					140-150	4.685	7611	99.9,99.9
160	7.026	7.031	6.976	7.050					150-160	3.334	7614	100,100
170	6.983	6.940	6.952	6.928					160-170	1.976	7616	100,100
180	7.026	7.019	7.044	7.001					170-180	0.6654	7617	100,100
DEG	LUMINOUS INTENSITY:cd MAX (Ii - Iavg)/Iavg (0-135) = 125.0 %									UNIT:lm		



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	72865	90008
80	61371	70627
75	61480	65735
70	64682	65764
65	68637	65274
60	66432	62306
55	60534	56868
50	53068	49826
45	43176	41884

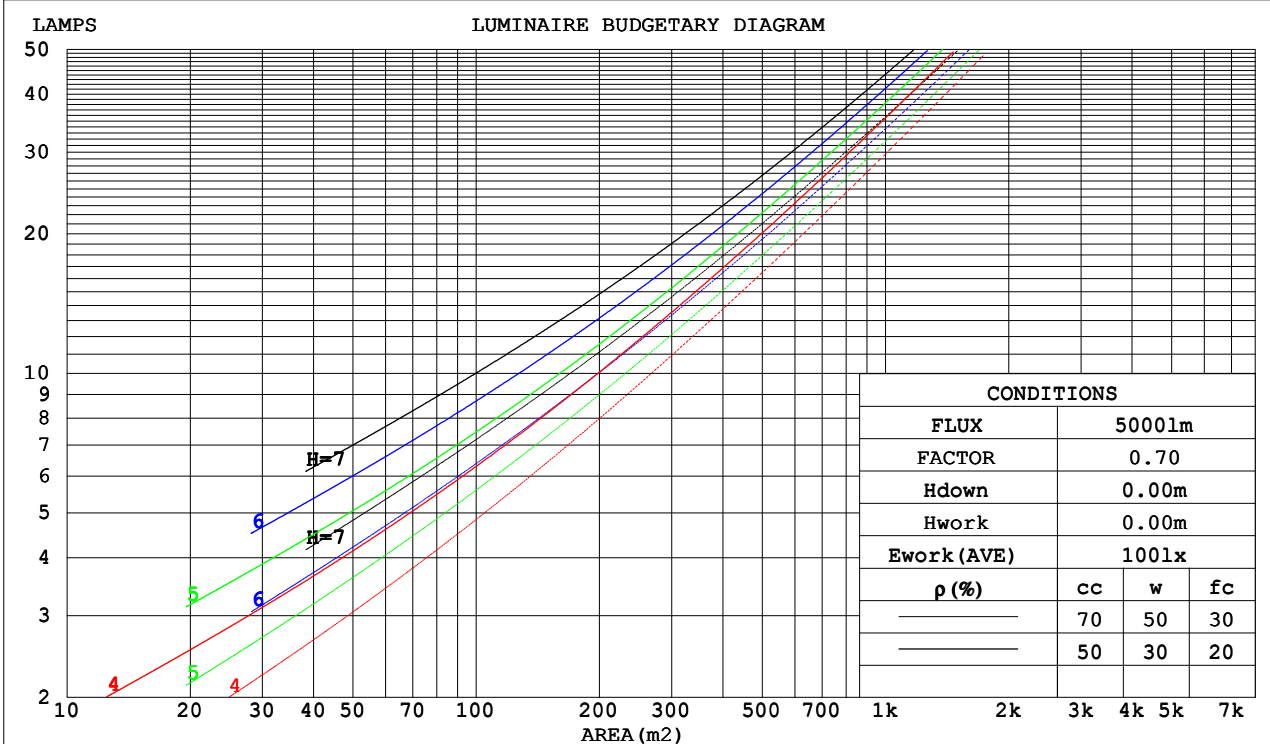
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization (CU)									
0.0	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.04	1.04	1.04	.00	.00	.00	.97
1.0	.98	.93	.88	.96	.91	.86	.91	.87	.83	.87	.83	.80	.82	.80	.77	.74
2.0	.83	.74	.67	.80	.72	.66	.76	.70	.64	.72	.67	.62	.69	.64	.60	.57
3.0	.70	.60	.52	.68	.59	.52	.65	.57	.50	.61	.55	.49	.58	.53	.48	.45
4.0	.60	.50	.42	.59	.49	.41	.56	.47	.41	.53	.46	.40	.50	.44	.39	.36
5.0	.53	.42	.34	.51	.41	.34	.49	.40	.33	.46	.39	.33	.44	.37	.32	.30
6.0	.46	.36	.29	.45	.36	.29	.43	.34	.28	.41	.33	.28	.39	.32	.27	.25
7.0	.41	.32	.25	.40	.31	.24	.39	.30	.24	.37	.29	.24	.35	.28	.23	.21
8.0	.37	.28	.21	.36	.27	.21	.35	.27	.21	.33	.26	.20	.32	.25	.20	.18
9.0	.34	.25	.19	.33	.24	.18	.32	.24	.18	.30	.23	.18	.29	.22	.18	.16
10.0	.31	.22	.16	.30	.22	.16	.29	.21	.16	.28	.21	.16	.27	.20	.16	.14



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.402	.229	.072	.394	.225	.071	.379	.217	.069	.365	.210	.068	.352	.204	.066	
2.0	.362	.198	.061	.355	.195	.060	.341	.190	.059	.328	.184	.058	.317	.179	.056	
3.0	.326	.173	.052	.319	.171	.051	.307	.166	.051	.295	.162	.050	.285	.158	.049	
4.0	.294	.153	.045	.288	.151	.045	.277	.147	.044	.267	.143	.043	.257	.140	.043	
5.0	.267	.136	.039	.262	.134	.039	.252	.131	.039	.243	.128	.038	.234	.125	.038	
6.0	.244	.122	.035	.239	.121	.035	.230	.118	.034	.222	.115	.034	.214	.113	.034	
7.0	.224	.111	.031	.220	.110	.031	.212	.107	.031	.205	.105	.031	.198	.103	.030	
8.0	.207	.101	.028	.203	.100	.028	.196	.098	.028	.189	.096	.028	.183	.094	.027	
9.0	.192	.093	.026	.189	.092	.026	.182	.090	.026	.176	.088	.025	.171	.087	.025	
10.0	.179	.086	.024	.176	.085	.024	.170	.083	.023	.165	.082	.023	.160	.080	.023	

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.210	.210	.210	.179	.179	.179	.122	.122	.122	.070	.070	.070	.022	.022	.022	
1.0	.206	.175	.147	.176	.150	.126	.121	.103	.087	.069	.060	.051	.022	.019	.016	
2.0	.201	.151	.109	.172	.130	.094	.118	.090	.066	.068	.052	.039	.022	.017	.013	
3.0	.195	.134	.086	.167	.116	.075	.115	.081	.052	.066	.047	.031	.021	.015	.010	
4.0	.188	.122	.071	.161	.105	.062	.111	.073	.044	.064	.043	.026	.021	.014	.008	
5.0	.180	.112	.062	.155	.097	.054	.106	.068	.038	.062	.040	.022	.020	.013	.007	
6.0	.172	.104	.055	.148	.090	.048	.102	.063	.034	.059	.037	.020	.019	.012	.007	
7.0	.165	.097	.050	.142	.084	.043	.098	.059	.031	.057	.035	.018	.018	.011	.006	
8.0	.158	.091	.046	.136	.079	.040	.094	.056	.028	.055	.033	.017	.018	.011	.006	
9.0	.151	.087	.043	.130	.075	.038	.090	.053	.027	.052	.031	.016	.017	.010	.005	
10.0	.144	.082	.041	.125	.071	.036	.086	.050	.025	.050	.030	.015	.016	.010	.005	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm										
NAME: 4431-60-4K					TYPE:Frosted pc			WEIGHT:2.68KG		
SPEC.:4000K-RA80-126L					DIM.: D290*H110mm			SERIAL No.:		
MFR.:					SUR.:260*260mm			PROTECTION ANGLE:		
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	28.0	29.7	28.3	30.0	30.3	27.7	29.5	28.1	29.7	30.0
3H	30.1	31.7	30.4	32.0	32.3	29.9	31.6	30.3	31.9	32.2
4H	30.9	32.4	31.2	32.7	33.1	30.8	32.4	31.2	32.7	33.0
6H	31.5	32.9	31.9	33.3	33.6	31.6	33.1	32.0	33.4	33.8
8H	31.7	33.2	32.1	33.5	33.9	31.9	33.4	32.3	33.7	34.1
12H	32.0	33.3	32.4	33.7	34.1	32.3	33.6	32.7	34.0	34.4
4H 2H	28.8	30.4	29.2	30.7	31.0	28.6	30.2	29.0	30.5	30.8
3H	31.0	32.4	31.4	32.7	33.1	30.9	32.3	31.3	32.7	33.0
4H	31.9	33.2	32.3	33.6	34.0	31.9	33.2	32.4	33.6	34.0
6H	32.7	33.8	33.1	34.2	34.7	32.8	34.0	33.3	34.4	34.8
8H	33.0	34.1	33.5	34.5	34.9	33.3	34.3	33.7	34.7	35.2
12H	33.3	34.3	33.8	34.7	35.2	33.7	34.6	34.1	35.1	35.6
8H 4H	32.3	33.3	32.7	33.8	34.2	32.3	33.3	32.8	33.8	34.2
6H	33.3	34.1	33.7	34.6	35.1	33.4	34.3	33.9	34.8	35.2
8H	33.7	34.5	34.2	35.0	35.5	34.0	34.8	34.5	35.2	35.7
12H	34.2	34.9	34.7	35.4	35.9	34.5	35.2	35.1	35.7	36.3
12H 4H	32.3	33.3	32.8	33.7	34.2	32.3	33.3	32.8	33.7	34.2
6H	33.4	34.2	33.9	34.6	35.2	33.5	34.3	34.0	34.8	35.3
8H	33.9	34.6	34.4	35.1	35.6	34.1	34.8	34.7	35.3	35.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.3 / - 0.6					+ 0.3 / - 0.6				

CIE Pub.117 Corrected 7617 lm Total Lamp Luminous Flux. (8log(F/F0) = 7.1)

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:

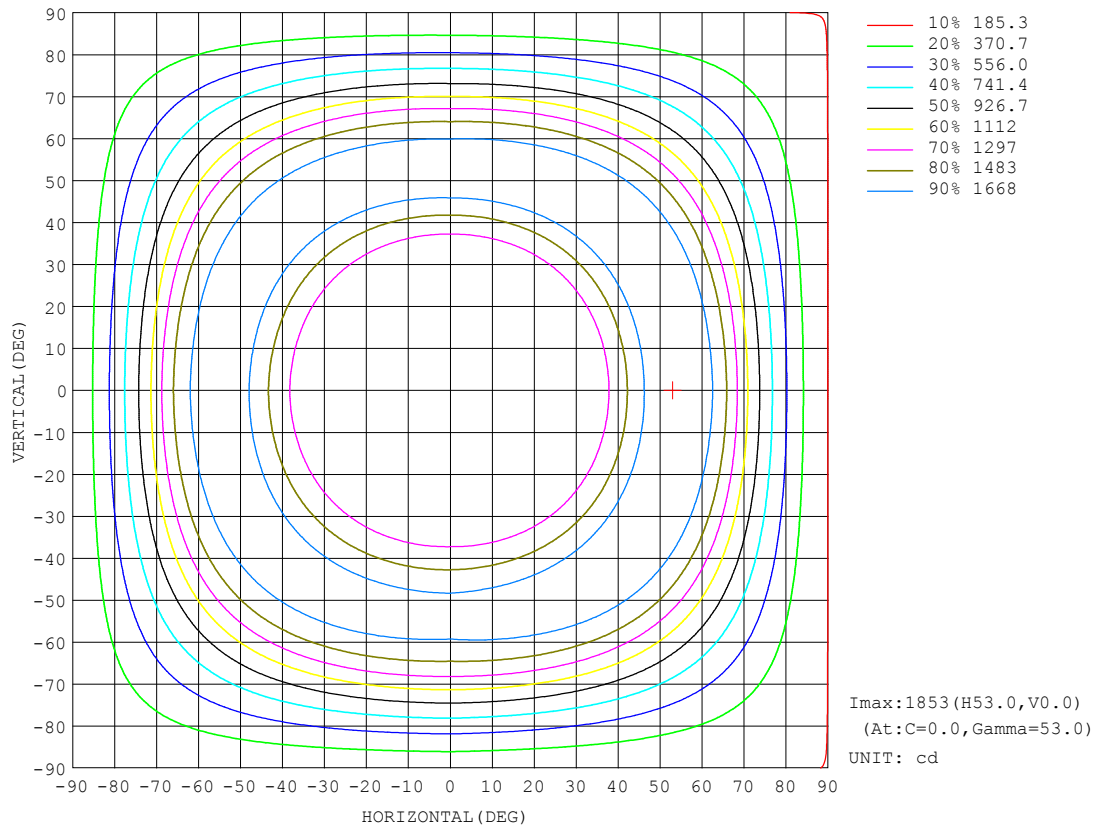
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	45	32	24	45	31	23	43	31	23	16
0.80	55	41	32	54	41	32	52	40	32	23
1.00	64	50	41	63	50	41	60	52	40	32
1.25	72	59	50	70	58	49	67	56	48	39
1.50	78	65	56	76	64	55	72	62	54	45
2.00	86	75	66	84	74	66	80	71	64	54
2.50	91	81	73	89	79	72	84	76	70	60
3.00	96	86	79	93	85	78	88	81	75	65
4.00	101	93	87	98	91	85	93	87	82	72
5.00	104	97	92	101	95	90	96	91	87	76
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:

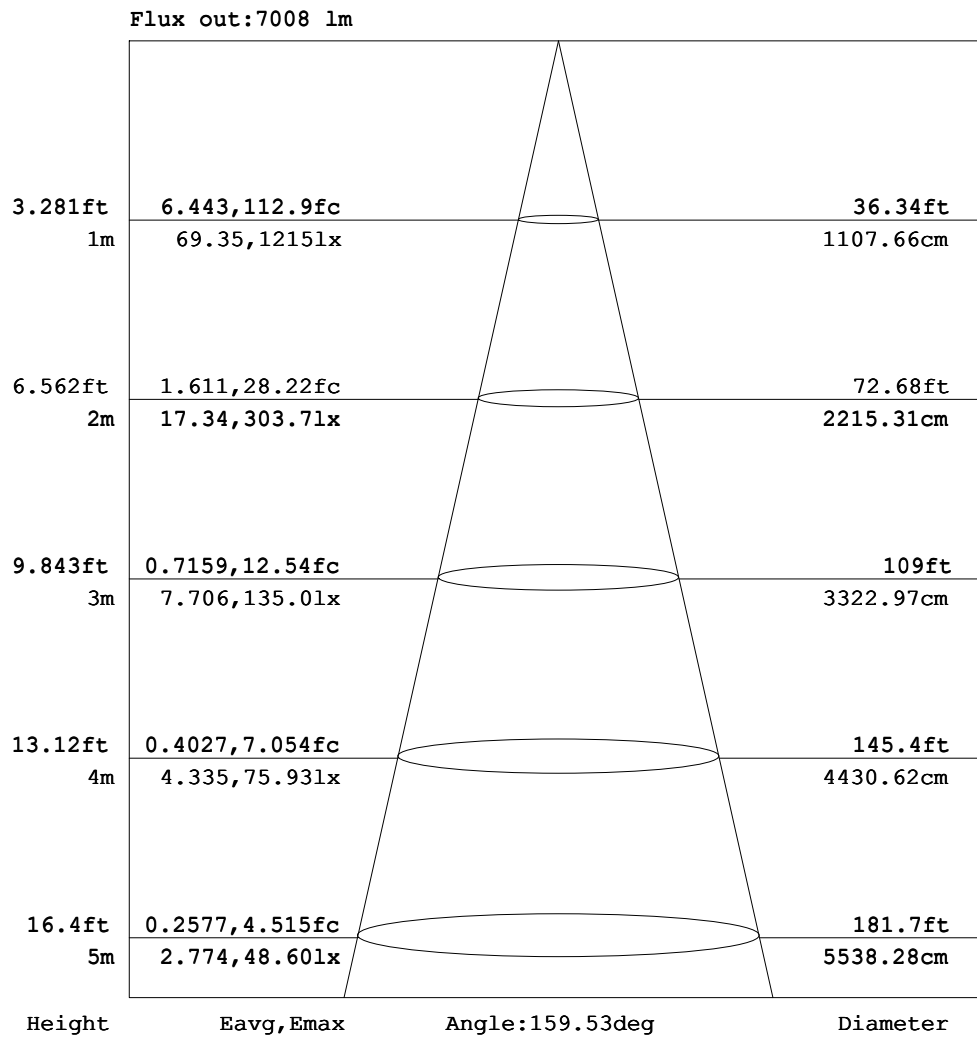


C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

AAI Figure

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:



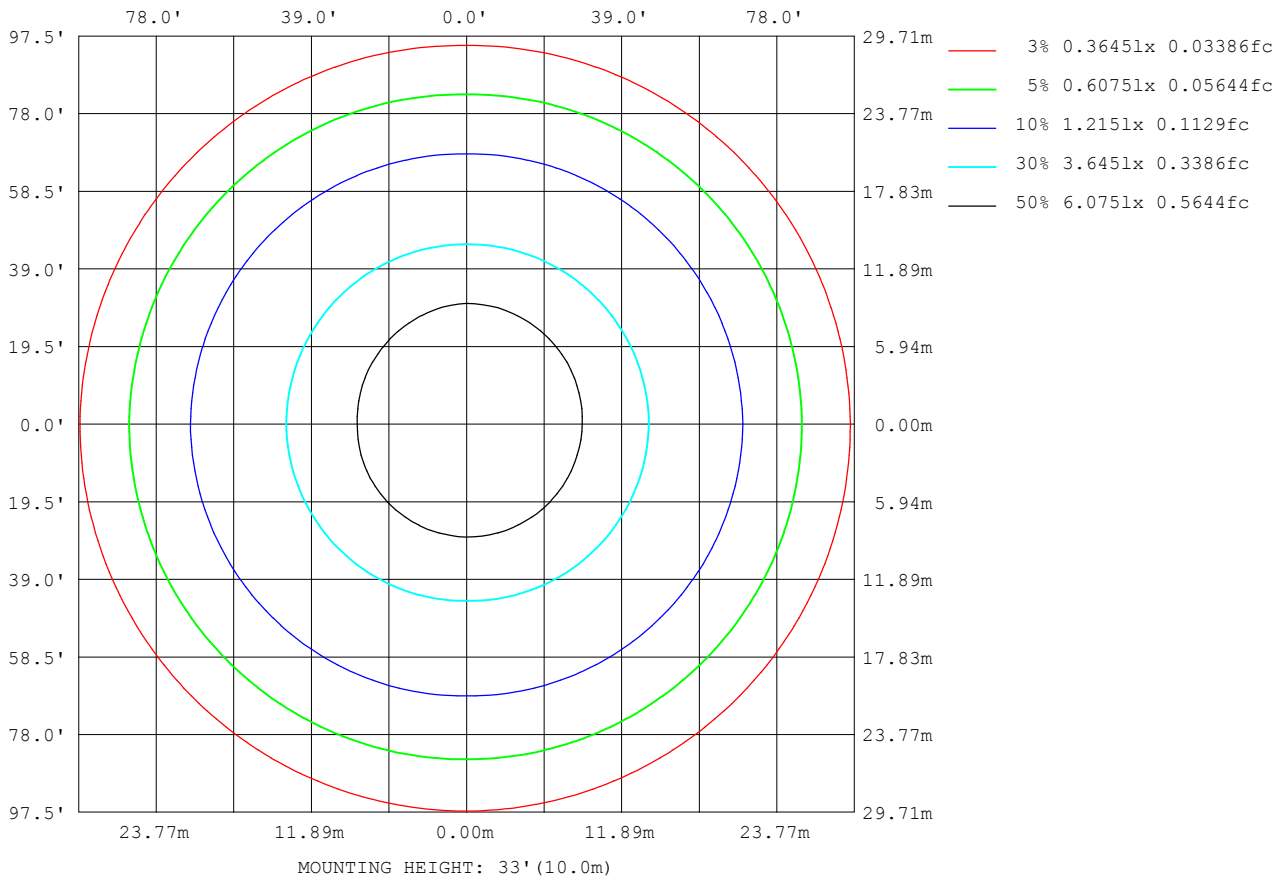
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

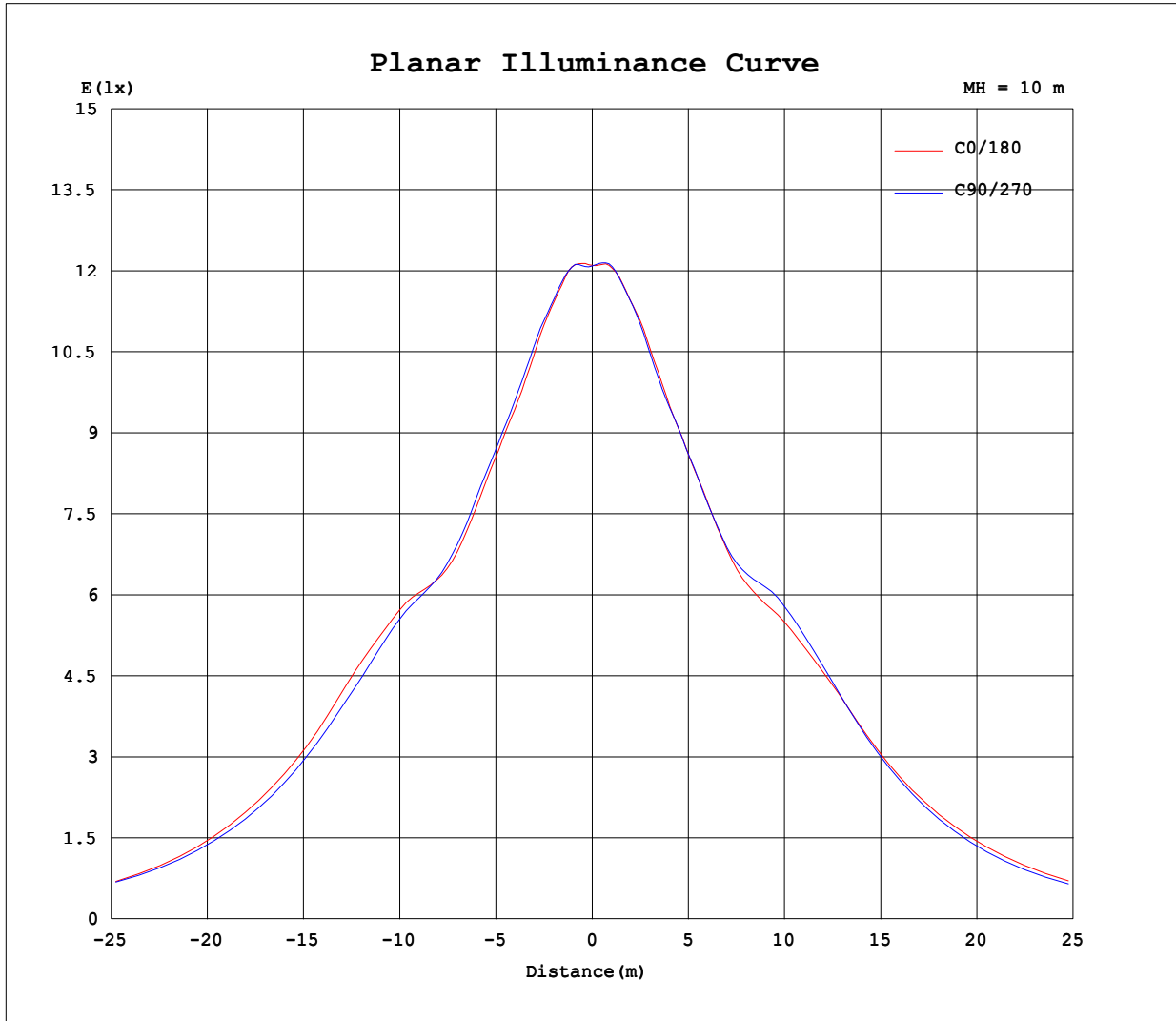
Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:279.0V I:0.2153A P:57.31W PF:0.9541 Lamp Flux:7616.98x1 lm		
NAME: 4431-60-4K	TYPE:Frosted pc	WEIGHT:2.68KG
SPEC.:4000K-RA80-126L	DIM.: D290*H110mm	SERIAL No.:
MFR.:	SUR.:260*260mm	PROTECTION ANGLE:

Table--1

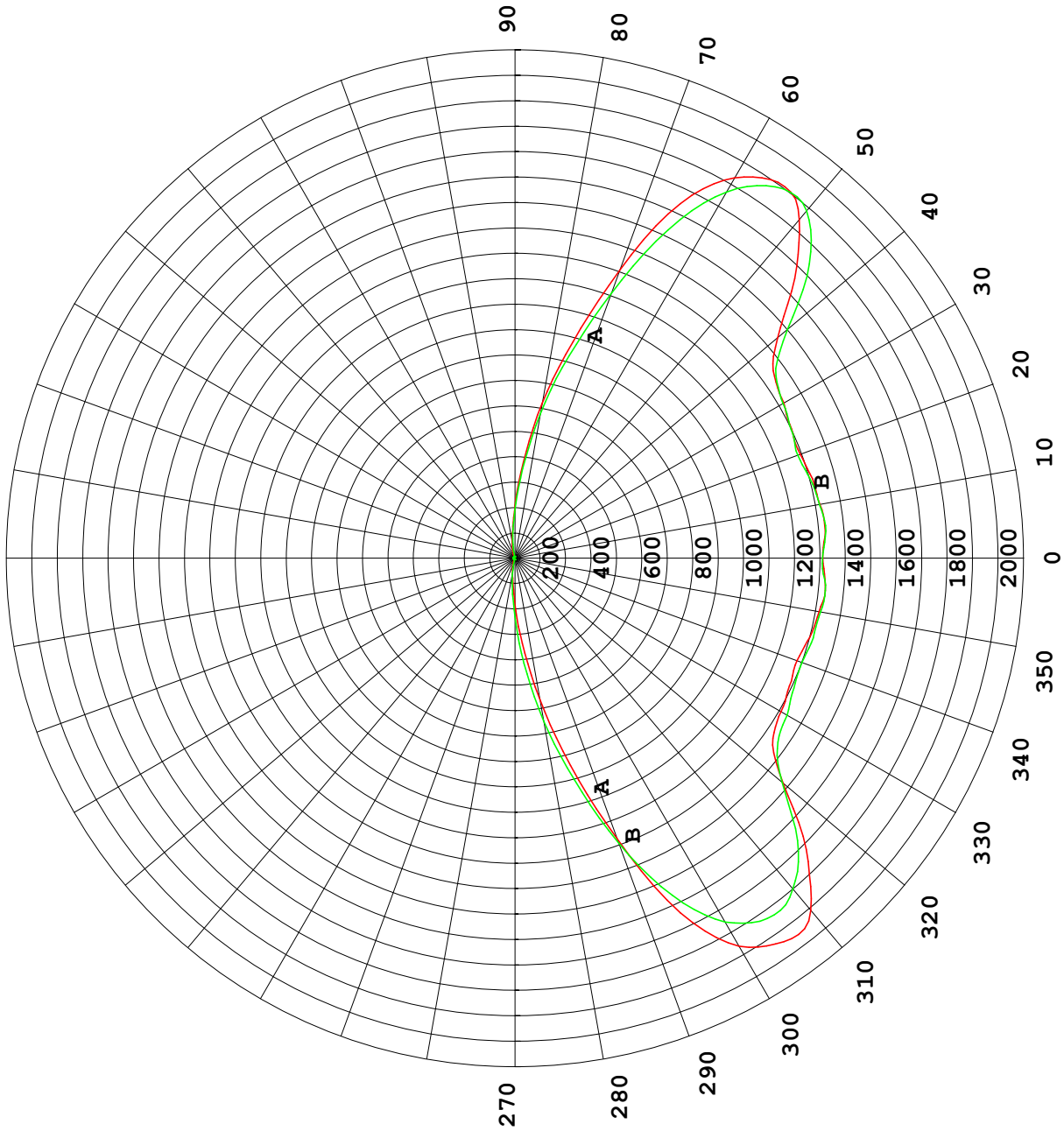
UNIT: cd

C (DEG) \ γ (DEG)	0	90	180	270															
0	1210	1209	1210	1209															
5	1225	1226	1225	1227															
10	1215	1221	1218	1216															
15	1201	1214	1211	1202															
20	1181	1201	1195	1183															
25	1191	1210	1201	1199															
30	1209	1236	1221	1217															
35	1238	1262	1247	1253															
40	1376	1372	1348	1400															
45	1620	1572	1556	1637															
50	1810	1700	1739	1784															
55	1843	1731	1804	1784															
60	1763	1653	1727	1663															
65	1539	1464	1539	1425															
70	1174	1194	1205	1109															
75	844	903	882	824															
80	566	651	620	576															
85	337	416	380	354															
90	184	231	207	193															
95	99.7	126	113	101															
100	59.5	60.4	66.9	45.1															
105	37.3	15.6	40.7	7.99															
110	23.7	6.21	25.3	6.01															
115	13.7	6.78	14.7	6.54															
120	7.46	7.16	7.90	6.90															
125	7.17	7.41	7.17	7.14															
130	7.25	7.52	7.32	7.32															
135	7.32	7.56	7.43	7.43															
140	7.37	7.56	7.50	7.47															
145	7.39	7.53	7.48	7.47															
150	7.31	7.41	7.38	7.39															
155	7.15	7.22	7.18	7.22															
160	7.03	7.03	6.98	7.05															
165	6.99	6.97	6.93	6.95															
170	6.98	6.94	6.95	6.93															
175	6.98	6.95	7.04	6.96															
180	7.03	7.02	7.04	7.00															

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: DEG
 Operators:
 Test Date: 2018-05-08

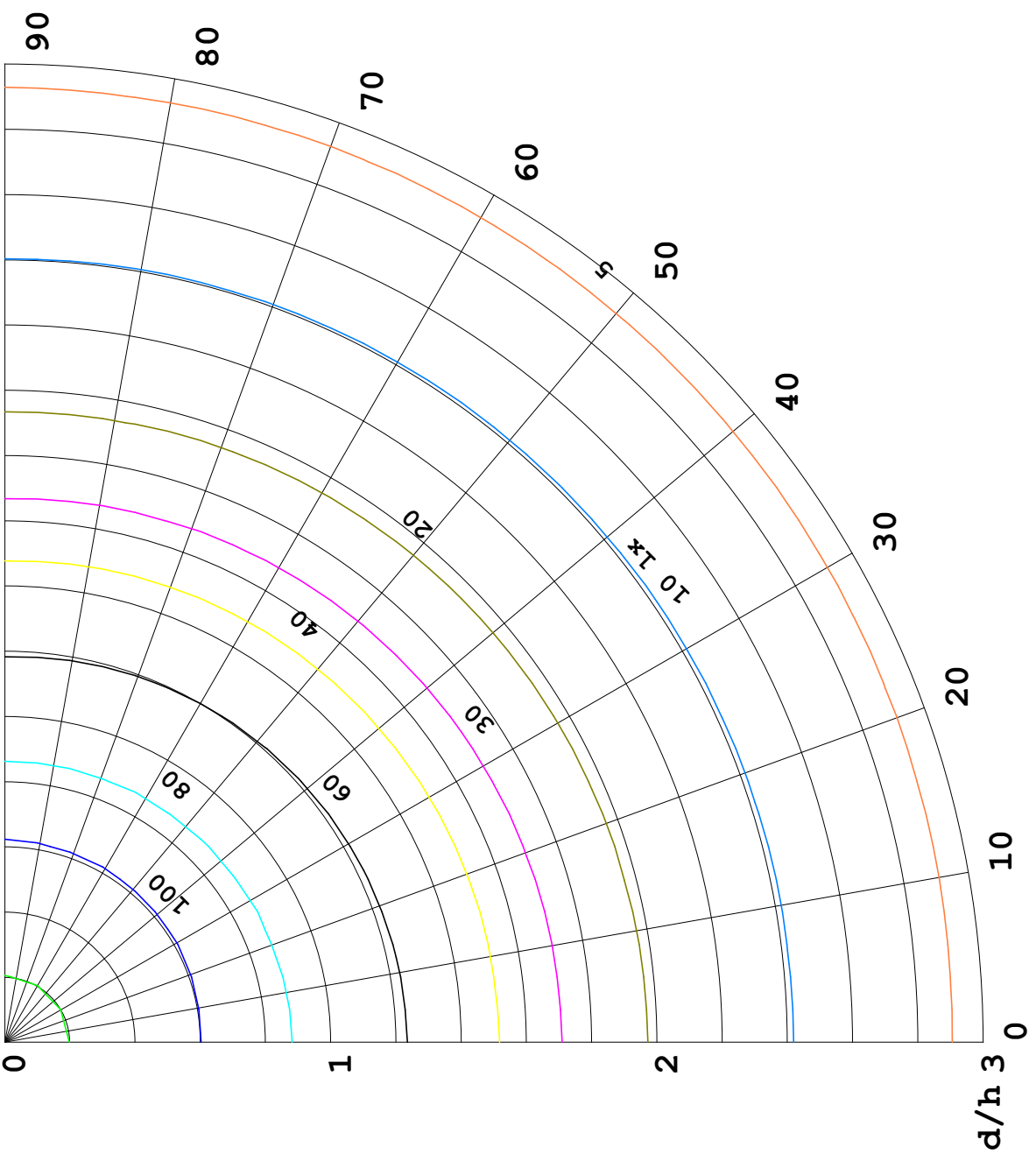
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: GO-2000B_V1 SYSTEM V2.0.284
 Humidity: 65.0%
 Test Distance: 9.100m [K=1.0000]
 Remarks:

I (cd)



$K = 1$

1000 lm



F = 5000 lm
 K = 0.7
 Hcc = 0.0 m
 Hfc = 0.0 m
 Eave = 100 lx

	Pcc	Pw	Pfc
—————	70	50	30
—————	50	30	20

