

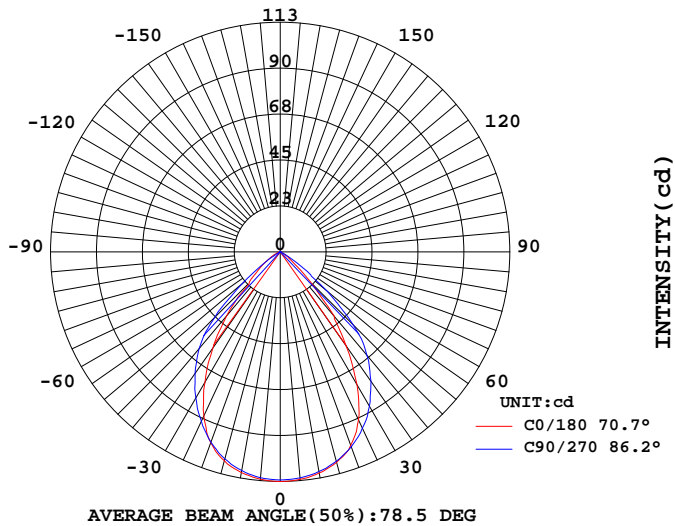
## LUMINAIRE PHOTOMETRIC TEST REPORT

Report number:

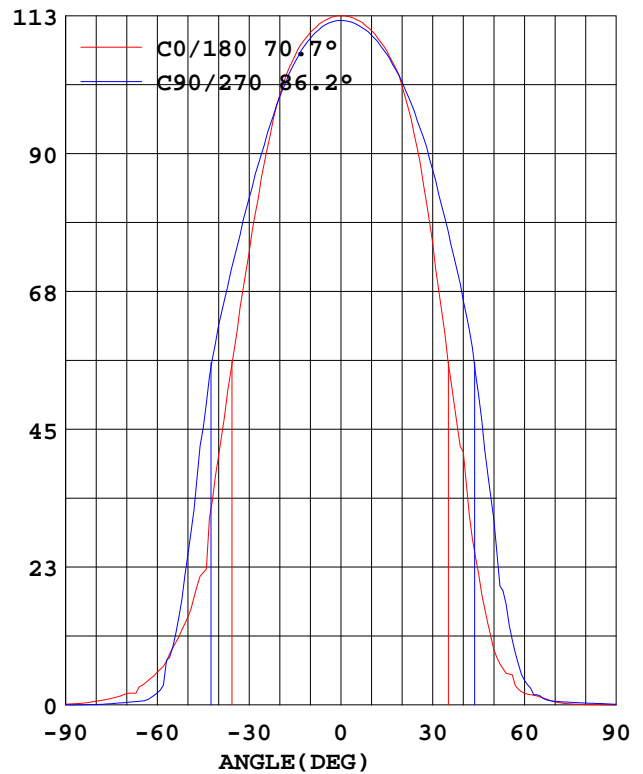
MANUFACTURER:					
Address:					
NAME:			TYPE:		WEIGHT:
SPECIFICATION:	CCT(K): 0		DIMENSION:		SERIAL No.:

DATA OF LAMP		Imax(cd)	113.0	S/MH(C0/180)	1.04
MODEL		EFFICIENCY(%)	100.0	S/MH(C90/270)	1.12
NOMINAL POWER(W)	3	TOTAL FLUX(lm)	163.1	Voltage(V)	12.03
RATED VOLTAGE(V)	12	EFFICIENCY(lm/W)	56.6	Current(A)	0.293
NOMINAL FLUX(lm)	163.1	$\eta$ up(%)	0.6	Power(W)	2.880
LAMPS QUANTITY	1	$\eta$ down(%)	99.4	Power Factor(PF)	0.813
TEST VOLTAGE(V)	12.0	Effective Flux(lm)	140.1	EEI	0.167

LUMINOUS INTENSITY DISTRIBUTION



LUMINOUS INTENSITY DISTRIBUTION



Test System:HOP00 HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks:

Color Temperature Data List

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:

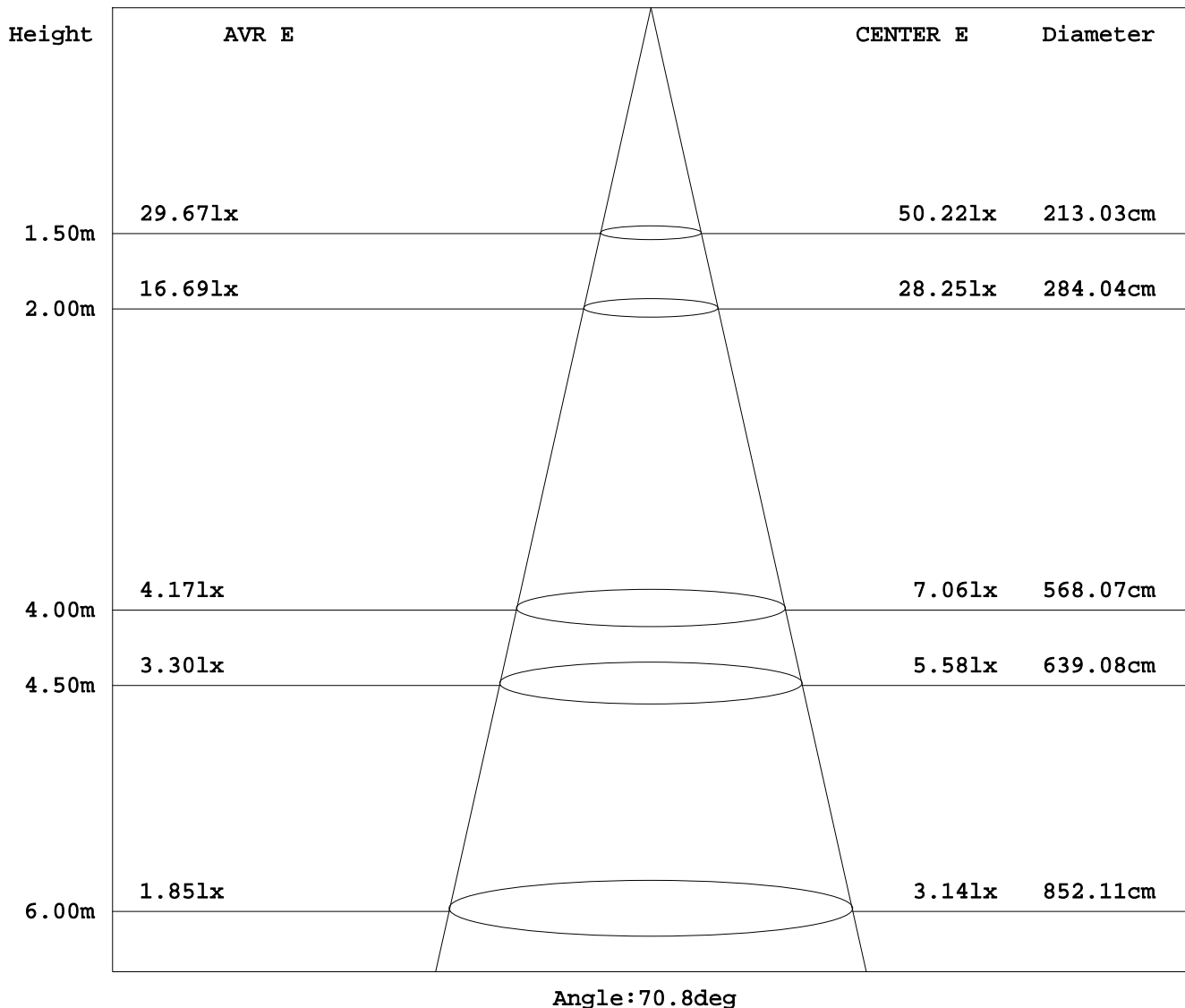
Test System:HOP00 HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks:

## AVERAGE AND CENTER E Figure

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:



Test System: HOPOO HP880D  
Temperature: 25.3DEG  
Operators:  
Test Date: 07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity: 65.0%  
Test Distance: 1.000 m  
Remarks:

# HONGPU GONIOPHOTOMETERS SYSTEM TEST REPORT

## ZONAL FLUX DIAGRAM

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:

γ	C0	C90	C180	C270					γ	zOne	total
5.0	112.3	111.5	112.3	111.6					0- 5	2.684	2.684
10.0	110.2	109.2	110.5	109.7					5- 10	7.940	10.62
15.0	106.4	105.4	107.2	106.7					10- 15	12.84	23.46
20.0	99.93	99.69	101.3	102.1					15- 20	17.09	40.56
25.0	89.01	91.89	91.21	95.73					20- 25	20.24	60.81
30.0	74.12	83.08	75.73	87.72					25- 30	21.80	82.62
35.0	57.91	73.07	56.50	77.86					30- 35	21.55	104.1
40.0	40.80	62.20	41.51	66.31					35- 40	19.74	123.9
45.0	21.68	45.50	21.50	50.77					40- 45	16.16	140.0
50.0	14.45	24.70	9.073	30.42					45- 50	10.91	151.0
55.0	9.339	9.354	5.049	13.09					50- 55	5.948	156.9
60.0	5.393	1.972	1.915	4.045					55- 60	2.699	159.6
65.0	3.227	0.642	1.324	1.518					60- 65	1.146	160.8
70.0	1.842	0.411	0.484	0.586					65- 70	0.572	161.3
75.0	1.083	0.206	0.171	0.436					70- 75	0.331	161.7
80.0	0.610	0.064	0.068	0.313					75- 80	0.192	161.8
85.0	0.257	0.017	0.020	0.212					80- 85	0.103	161.9
90.0	0.129	0.001	0	0.114					85- 90	0.049	162.0
95.0	0.096	0	0	0.070					90- 95	0.027	162.0
100.0	0.071	0.004	0.007	0.059					95-100	0.020	162.0
105.0	0.051	0.009	0.010	0.045					100-105	0.016	162.1
110.0	0.041	0.030	0.025	0.049					105-110	0.016	162.1
115.0	0.045	0.070	0.048	0.056					110-115	0.022	162.1
120.0	0.072	0.134	0.082	0.097					115-120	0.036	162.1
125.0	0.110	0.209	0.130	0.159					120-125	0.056	162.2
130.0	0.175	0.287	0.198	0.236					125-130	0.081	162.3
135.0	0.238	0.345	0.268	0.306					130-135	0.104	162.4
140.0	0.298	0.372	0.333	0.361					135-140	0.117	162.5
145.0	0.348	0.369	0.380	0.401					140-145	0.120	162.6
150.0	0.372	0.353	0.399	0.415					145-150	0.113	162.7
155.0	0.364	0.332	0.392	0.411					150-155	0.097	162.8
160.0	0.343	0.302	0.368	0.398					155-160	0.077	162.9
165.0	0.308	0.288	0.345	0.367					160-165	0.056	163.0
170.0	0.289	0.283	0.322	0.337					165-170	0.037	163.0
175.0	0.306	0.284	0.316	0.312					170-175	0.022	163.0
180.0	0.305	0.290	0.305	0.291					175-180	0.007	163.0
DEG	LUMINOUS INTENSITY:cd									UNIT:lm	

Test System:HOPPO HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

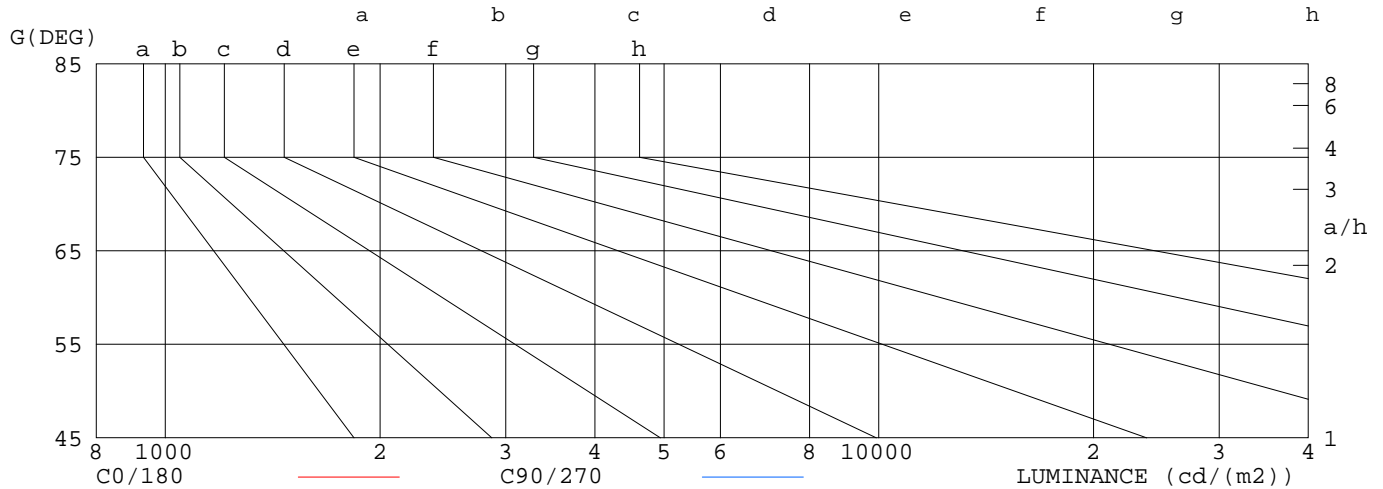
## LUMINANCE LIMITATION CURVES

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:

## LUMINANCE LIMITATION CURVES

GLARE	CLASS	ILLUMINANCE (lx)							
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300



LUMINANCE cd/m2		
G( DEG )	C0/180	C90/270
85	29	2
80	35	4
75	42	8
70	54	12
65	76	15
60	108	39
55	163	163
50	225	384
45	307	644

Test System:HOP00 HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

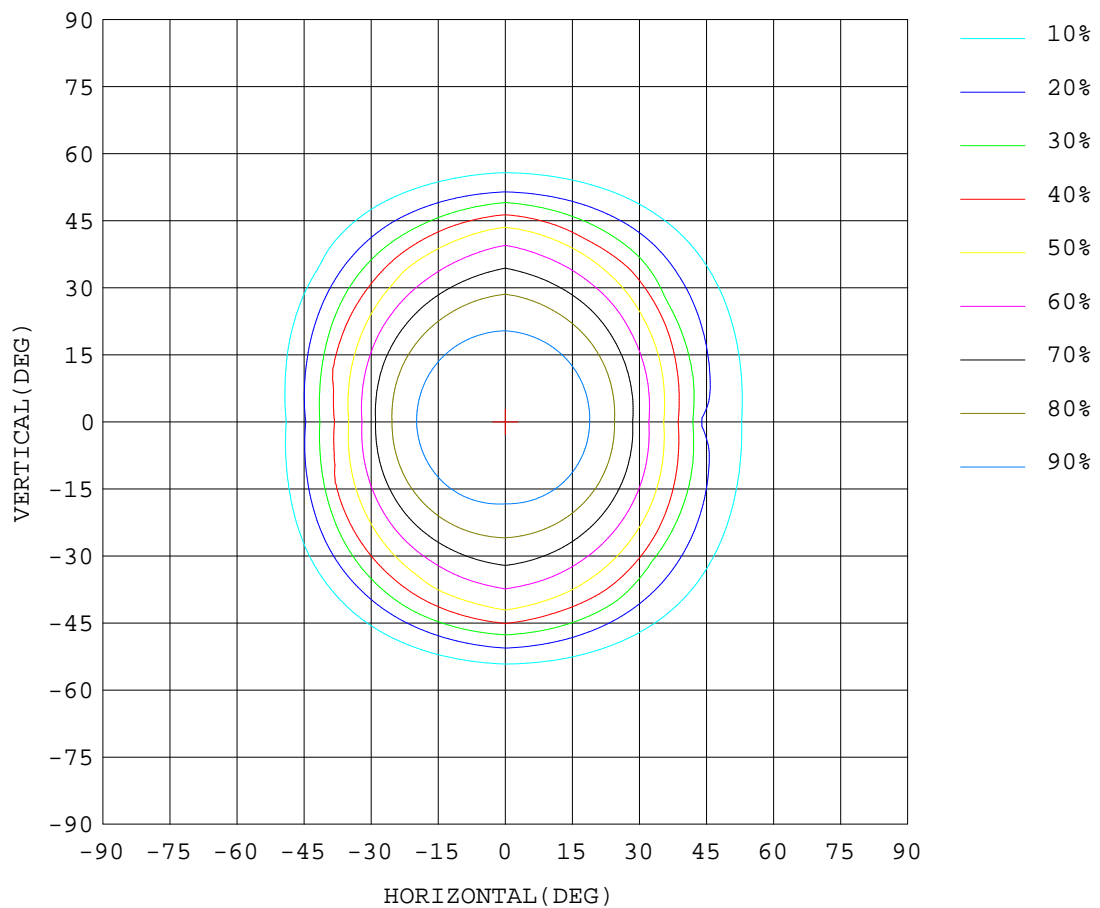
Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

## ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:

UNIT: cd



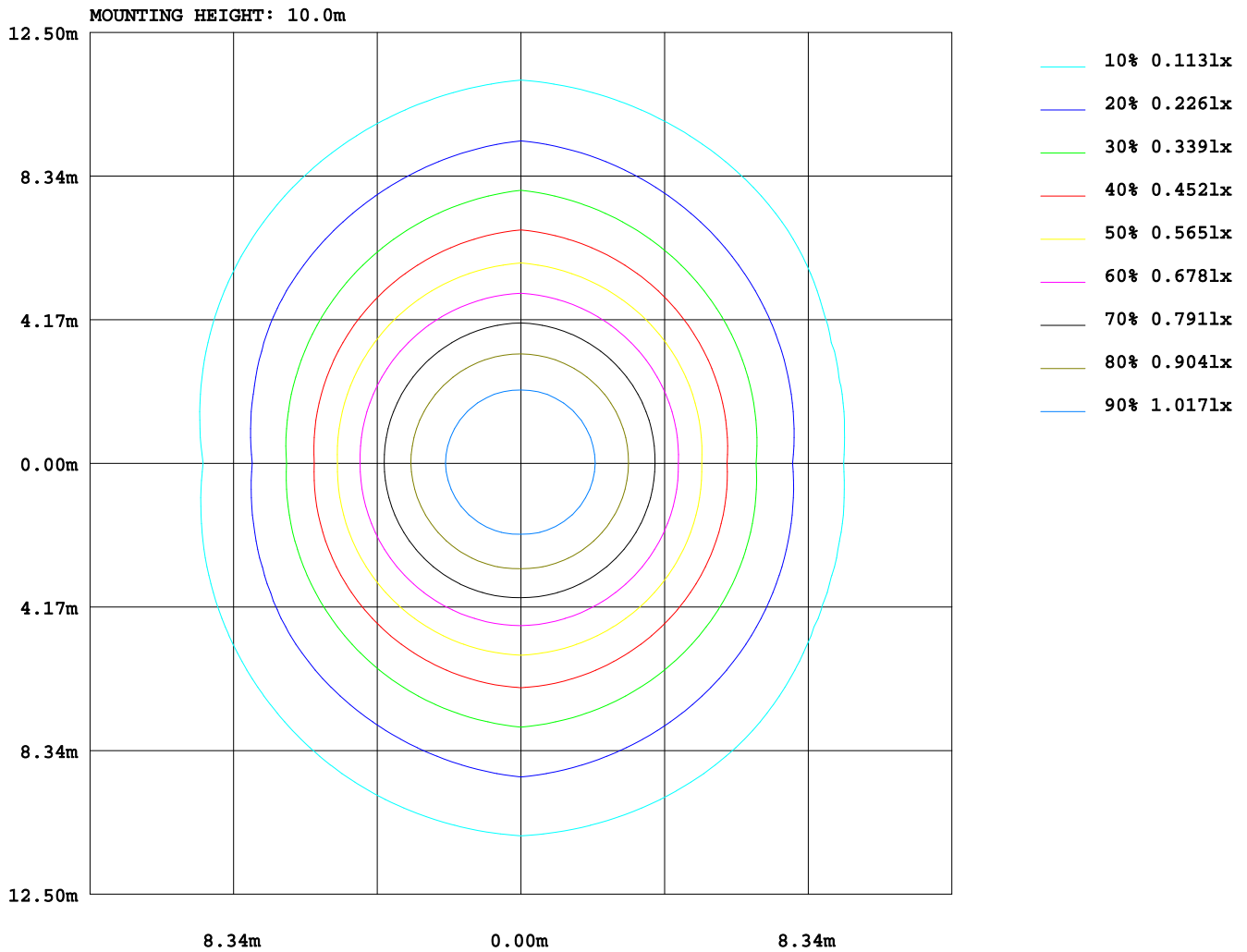
Test System:HOP00 HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks:

ISOLUX DIAGRAM

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:



Test System:HOP00 HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

# HONGPU GONIOPHOTOMETERS SYSTEM TEST REPORT

## AREA LUMINOUS FLUX

Report number:

MANUFACTURER:																			
Address:																			
NAME:										TYPE:					WEIGHT:				
SPECIFICATION:					CCT(K): 0					DIMENSION:					SERIAL No.:				

VERTICAL (DEG)	AREA FLUX DIAGRAM																		UNIT:lm		Φ t	Φ a
	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	70	80	90			
90 80 70 60 50 40 30   <																						

Test System:HOP00 HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

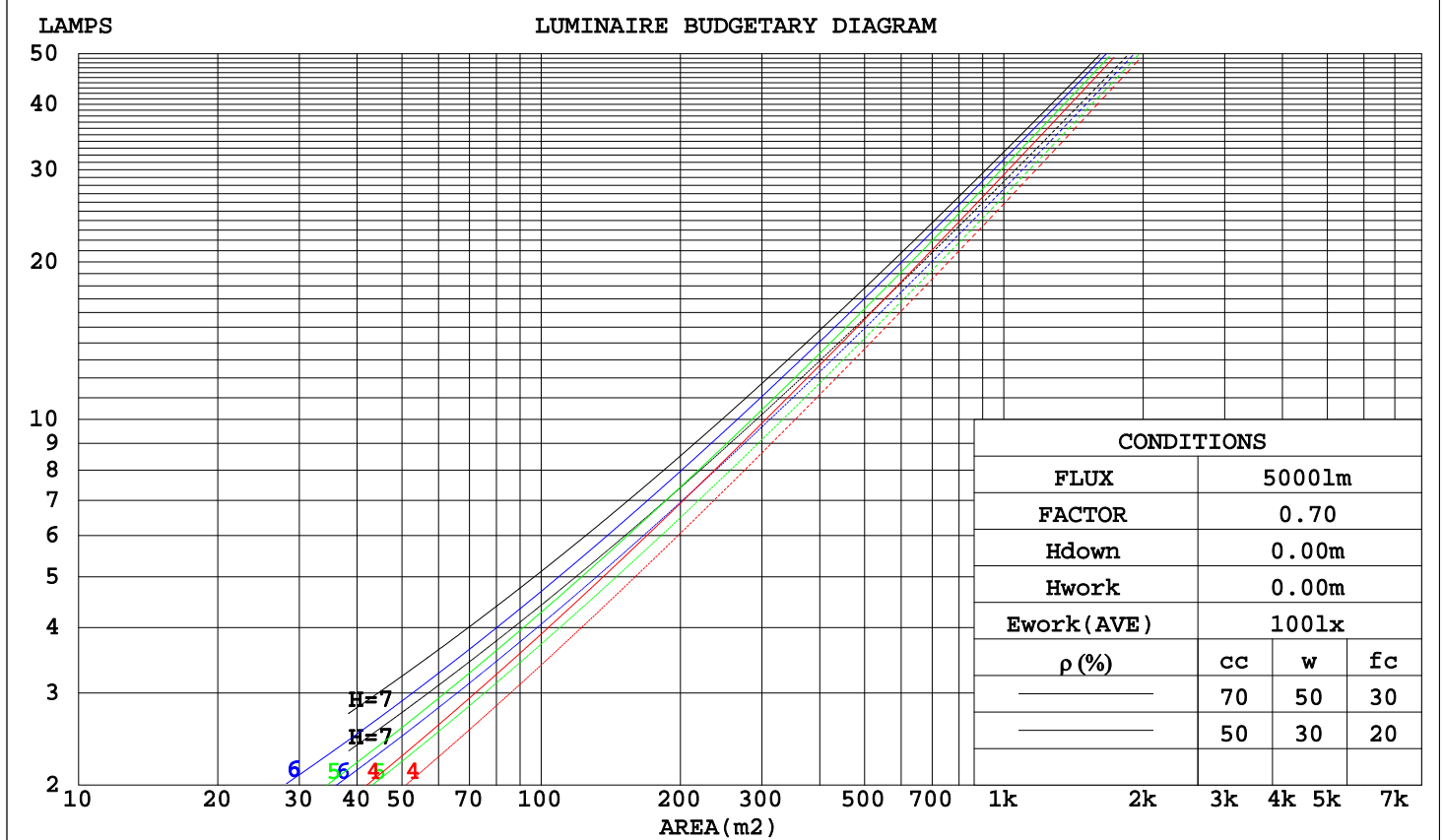


## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

MANUFACTURER:															
Address:															
NAME:								TYPE:				WEIGHT:			
SPECIFICATION:				CCT(K): 0				DIMENSION:				SERIAL No.:			

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio															



Test System:HOPPO HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

# HONGPU GONIOPHOTOMETERS SYSTEM TEST REPORT

## WEC AND CCEC

Report number:

MANUFACTURER:															
Address:															
NAME:								TYPE:				WEIGHT:			
SPECIFICATION:				CCT(K): 0				DIMENSION:				SERIAL No.:			

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	.205	.117	.037	.198	.113	.036	.185	.106	.034	.173	.100	.032	.162	.094	.030	
2.0	.200	.109	.034	.194	.107	.033	.182	.101	.031	.172	.097	.030	.162	.092	.029	
3.0	.191	.102	.031	.186	.100	.030	.177	.096	.029	.168	.092	.028	.159	.088	.027	
4.0	.183	.095	.028	.178	.093	.028	.170	.090	.027	.162	.087	.026	.154	.084	.026	
5.0	.174	.089	.026	.170	.087	.025	.163	.085	.025	.156	.082	.024	.149	.080	.024	
6.0	.166	.083	.024	.162	.082	.024	.155	.080	.023	.149	.078	.023	.143	.075	.022	
7.0	.158	.078	.022	.155	.077	.022	.149	.075	.022	.143	.073	.021	.138	.072	.021	
8.0	.150	.073	.021	.148	.073	.021	.142	.071	.020	.137	.069	.020	.132	.068	.020	
9.0	.143	.069	.019	.141	.069	.019	.136	.067	.019	.131	.066	.019	.127	.065	.019	
10.0	.137	.066	.018	.135	.065	.018	.130	.064	.018	.126	.063	.018	.122	.061	.018	

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	.195	.195	.195	.167	.167	.167	.114	.114	.114	.065	.065	.065	.021	.021	.021	
1.0	.178	.162	.147	.152	.139	.127	.104	.096	.088	.060	.055	.051	.019	.018	.017	
2.0	.165	.137	.114	.141	.118	.099	.097	.082	.069	.056	.048	.040	.018	.015	.013	
3.0	.154	.119	.090	.132	.102	.078	.091	.071	.055	.052	.042	.032	.017	.013	.011	
4.0	.145	.104	.073	.125	.090	.064	.086	.063	.045	.050	.037	.026	.016	.012	.009	
5.0	.138	.093	.060	.118	.081	.053	.081	.056	.037	.047	.033	.022	.015	.011	.007	
6.0	.131	.084	.051	.113	.073	.044	.078	.051	.031	.045	.030	.019	.015	.010	.006	
7.0	.125	.077	.044	.107	.067	.038	.074	.047	.027	.043	.028	.016	.014	.009	.005	
8.0	.119	.071	.038	.103	.062	.033	.071	.043	.024	.041	.026	.014	.013	.008	.005	
9.0	.114	.066	.034	.098	.057	.029	.068	.040	.021	.040	.024	.012	.013	.008	.004	
10.0	.110	.062	.030	.094	.054	.026	.066	.038	.019	.038	.022	.011	.012	.007	.004	

Test System:HOPPO HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

# HONGPU GONIOPHOTOMETERS SYSTEM TEST REPORT

## UGR Table

Report number:

MANUFACTURER:											
Address:											
NAME:						TYPE:			WEIGHT:		
SPECIFICATION:			CCT(K): 0			DIMENSION:			SERIAL No.:		
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	5.7	6.8	5.9	7.0	7.2	7.0	8.1	7.2	8.3	8.5	
	3H	5.6	6.7	5.9	6.9	7.1	6.8	7.8	7.1	8.0	
	4H	5.6	6.5	5.9	6.8	7.0	6.7	7.7	7.0	7.9	
	6H	5.5	6.4	5.8	6.7	7.0	6.6	7.5	6.9	7.8	
	8H	5.5	6.3	5.8	6.6	6.9	6.6	7.4	6.9	7.7	
	12H	5.4	6.3	5.8	6.6	6.9	6.5	7.3	6.8	7.6	
4H	2H	5.5	6.5	5.8	6.7	7.0	6.7	7.7	7.0	8.0	
	3H	5.5	6.3	5.8	6.6	6.9	6.6	7.4	6.9	7.7	
	4H	5.4	6.2	5.8	6.5	6.8	6.5	7.2	6.9	7.6	
	6H	5.4	6.0	5.8	6.4	6.8	6.4	7.1	6.8	7.4	
	8H	5.4	6.0	5.8	6.3	6.7	6.3	7.0	6.8	7.3	
	12H	5.3	5.9	5.8	6.3	6.7	6.3	6.9	6.7	7.2	
8H	4H	5.3	5.9	5.7	6.3	6.7	6.4	7.0	6.8	7.3	
	6H	5.3	5.8	5.7	6.2	6.6	6.3	6.8	6.7	7.2	
	8H	5.2	5.7	5.7	6.1	6.6	6.2	6.7	6.7	7.1	
	12H	5.2	5.6	5.7	6.0	6.5	6.2	6.5	6.7	7.0	
12H	4H	5.3	5.8	5.7	6.2	6.6	6.3	6.9	6.7	7.3	
	6H	5.2	5.7	5.7	6.1	6.5	6.2	6.7	6.7	7.1	
	8H	5.2	5.6	5.7	6.0	6.5	6.2	6.5	6.7	7.0	
Variations with the observer position at spacings:											
S = 1.0H	+ 2.5 / - 4.8					+ 2.3 / - 8.5					
1.5H	+ 2.3 / - 3.2					+ 2.3 / - 5.5					
2.0H	+ 4.0 / - 5.0					+ 5.9 / -10.8					

CIE Pub.117 Corrected 163.0 lm Total Lamp Luminous Flux.(8log(F/F0) = -6.3)

Test System:HOPPO HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

## UTILIZATION FACTORS TABLE

Report number:

MANUFACTURER:										
Address:										
NAME:					TYPE:			WEIGHT:		
SPECIFICATION:			CCT(K): 0		DIMENSION:			SERIAL No.:		

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) x RCR = 5									
k = 0.60	76	68	63	75	68	63	75	67	63	58
0.80	85	78	73	85	77	72	83	76	72	67
1.00	92	85	80	91	84	80	89	85	79	74
1.25	98	91	86	96	90	86	94	89	85	80
1.50	101	95	91	100	94	90	97	93	89	84
2.00	105	100	96	104	99	95	101	97	94	88
2.50	107	103	99	106	101	98	102	99	96	89
3.00	109	105	102	107	104	101	104	101	98	91
4.00	112	108	105	110	106	104	106	103	101	93
5.00	113	110	108	111	108	106	107	105	103	95
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004										
Suspended										
SHRNOM = 1.25										

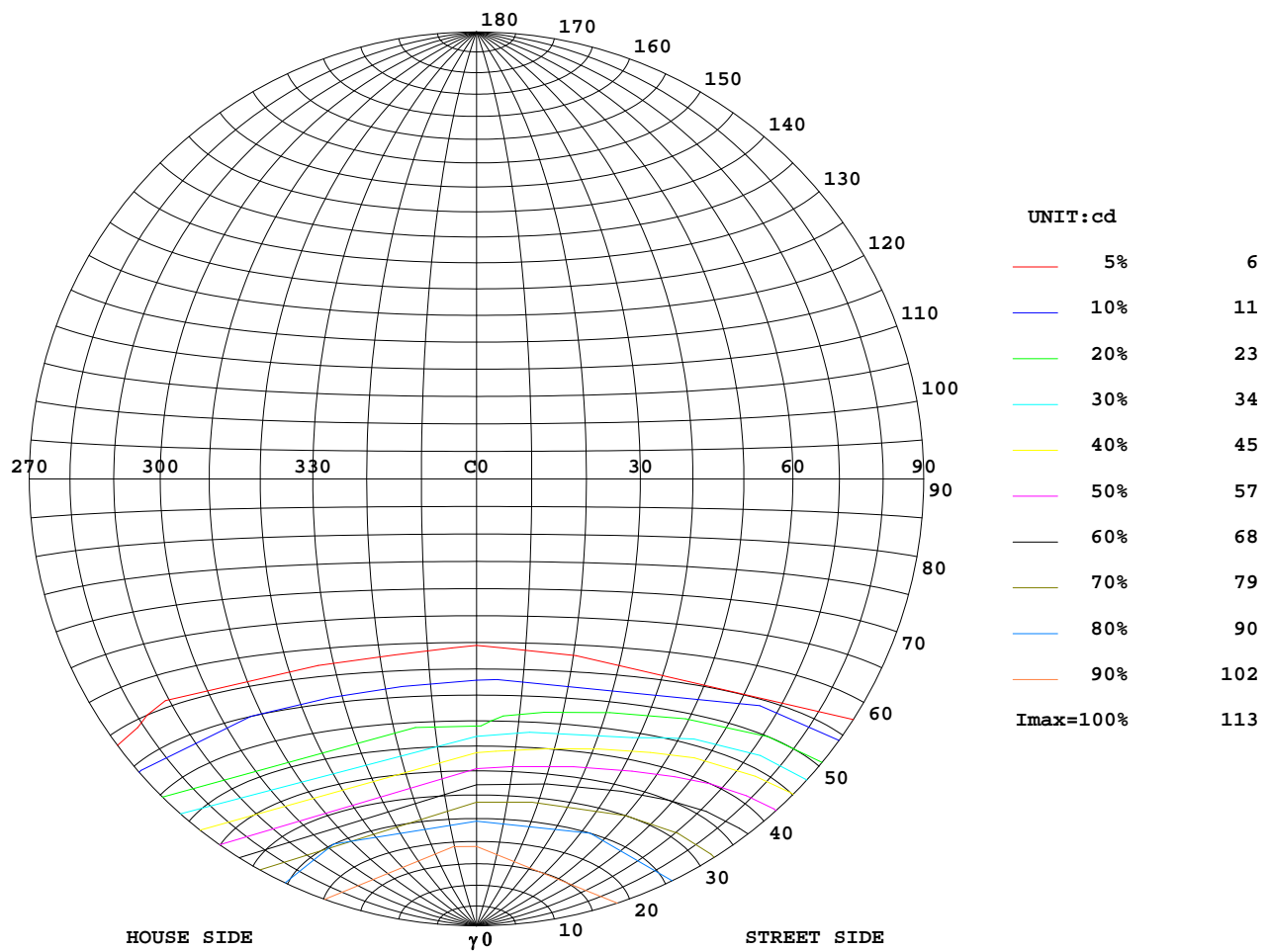
Test System:HOP00 HP880D  
 Temperature:25.3DEG  
 Operators:  
 Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:1.000 m  
 Remarks:

## ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:



Test System:HOP00 HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

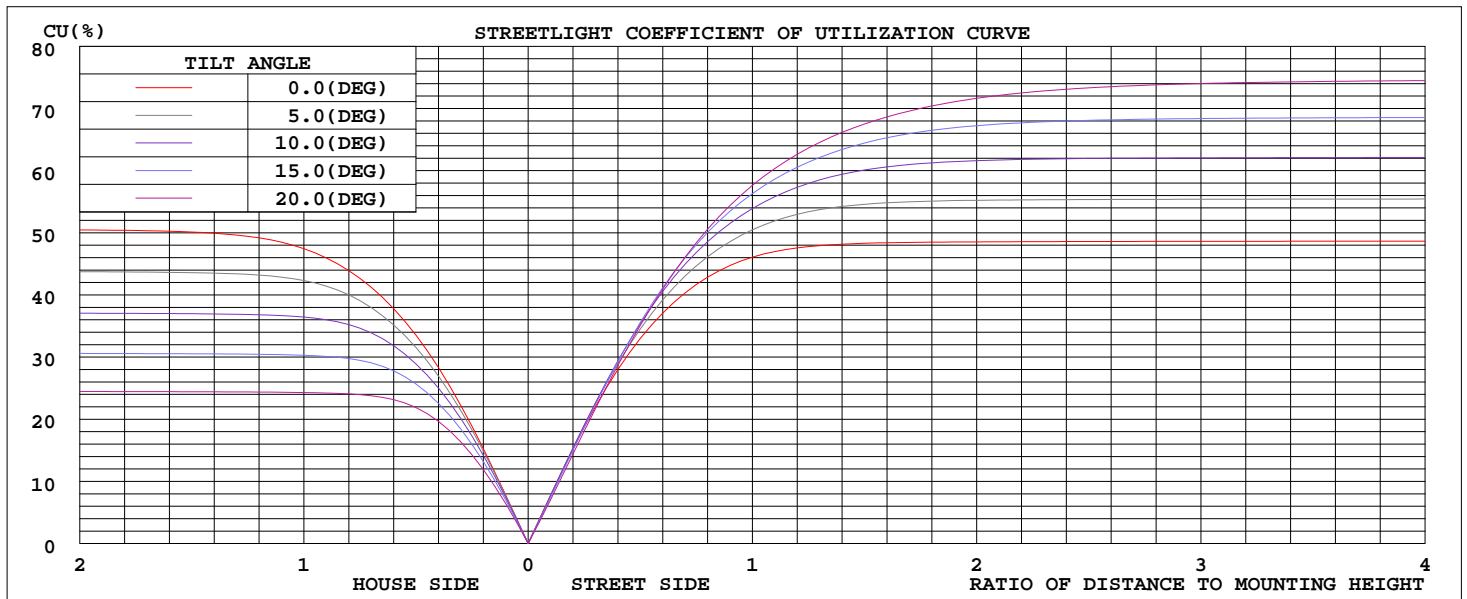
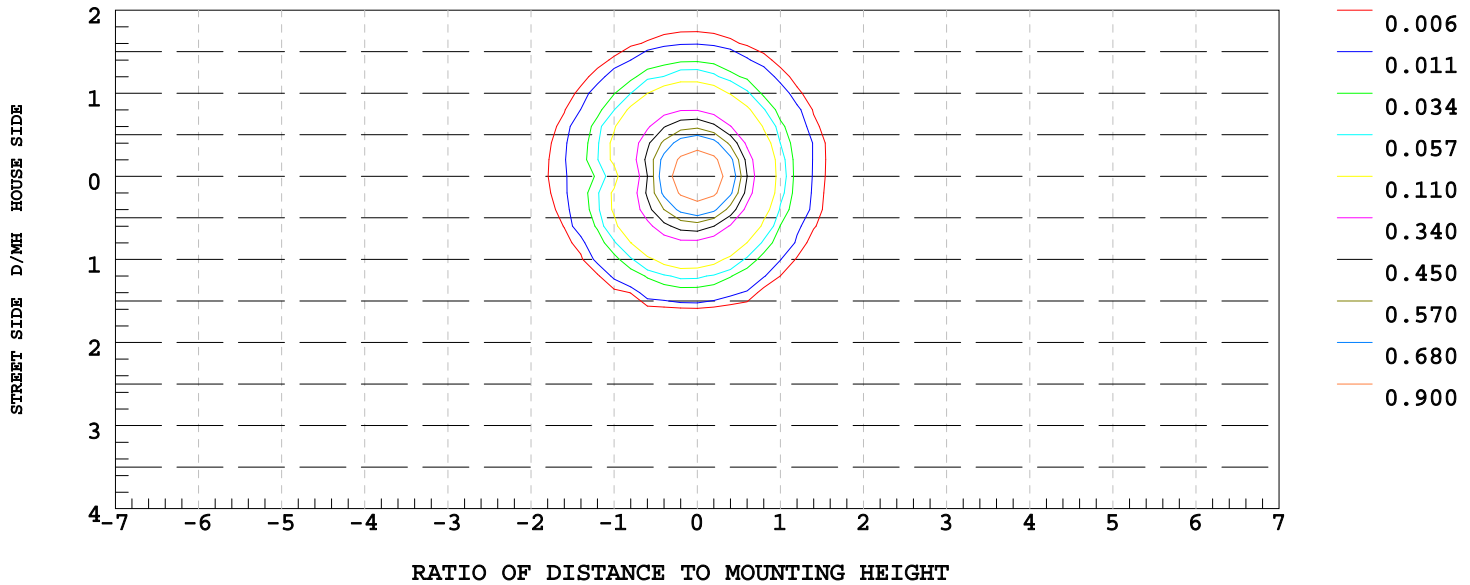
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks:

## ISOLUX DIAGRAM

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:

ILLUMINANCE AT MH=10 m,Enadir = 1.13 lx



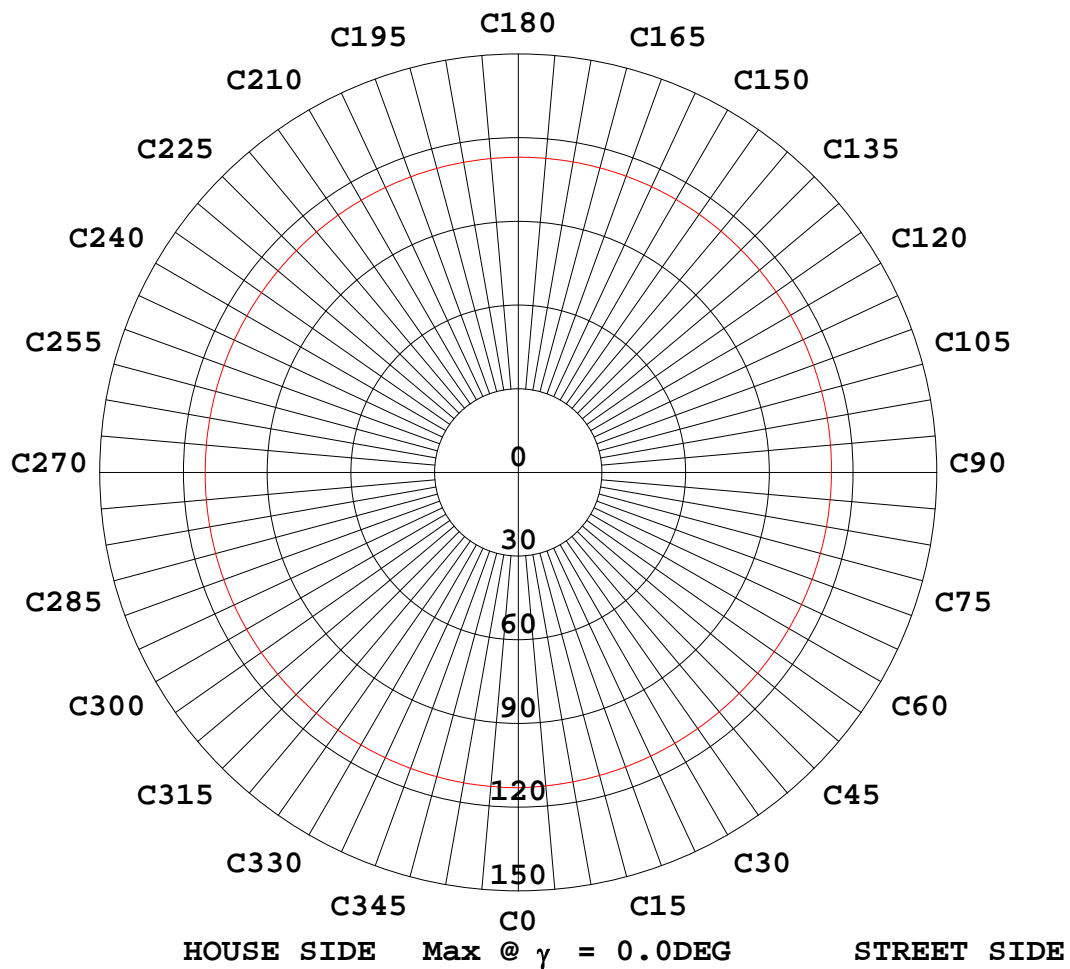
Test System:HOPPO HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks:

## ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:



Test System:HOP00 HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

Test Set: 10.0deg/s    C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Report number:

MANUFACTURER:			
Address:			
NAME:		TYPE:	WEIGHT:
SPECIFICATION:	CCT(K): 0	DIMENSION:	SERIAL No.:

UNIT: cd

C (DEG) γ (DEG)	0	90	180	270
0.0	113	112	113	112
5.0	112	112	112	112
10.0	110	109	111	110
15.0	106	105	107	107
20.0	99.9	99.6	101	102
25.0	89.0	91.8	91.2	95.7
30.0	74.1	83.0	75.7	87.7
35.0	57.9	73.0	56.5	77.8
40.0	40.8	62.2	41.5	66.3
45.0	21.6	45.5	21.5	50.7
50.0	14.4	24.7	9.07	30.4
55.0	9.33	9.35	5.04	13.0
60.0	5.39	1.97	1.91	4.04
65.0	3.22	0.64	1.32	1.51
70.0	1.84	0.41	0.48	0.59
75.0	1.08	0.21	0.17	0.44
80.0	0.61	0.06	0.07	0.31
85.0	0.26	0.02	0.02	0.21
90.0	0.13	0.00	0.00	0.11
95.0	0.10	0.00	0.00	0.07
100.0	0.07	0.00	0.01	0.06
105.0	0.05	0.01	0.01	0.05
110.0	0.04	0.03	0.03	0.05
115.0	0.05	0.07	0.05	0.06
120.0	0.07	0.13	0.08	0.10
125.0	0.11	0.21	0.13	0.16
130.0	0.17	0.29	0.20	0.24
135.0	0.24	0.34	0.27	0.31
140.0	0.30	0.37	0.33	0.36
145.0	0.35	0.37	0.38	0.40
150.0	0.37	0.35	0.40	0.41
155.0	0.36	0.33	0.39	0.41
160.0	0.34	0.30	0.37	0.40
165.0	0.31	0.29	0.34	0.37
170.0	0.29	0.28	0.32	0.34
175.0	0.31	0.28	0.32	0.31
180.0	0.31	0.29	0.31	0.29

Test System:HOPPO HP880D  
Temperature:25.3DEG  
Operators:  
Test Date:07-21-2023

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:1.000 m  
Remarks: