

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

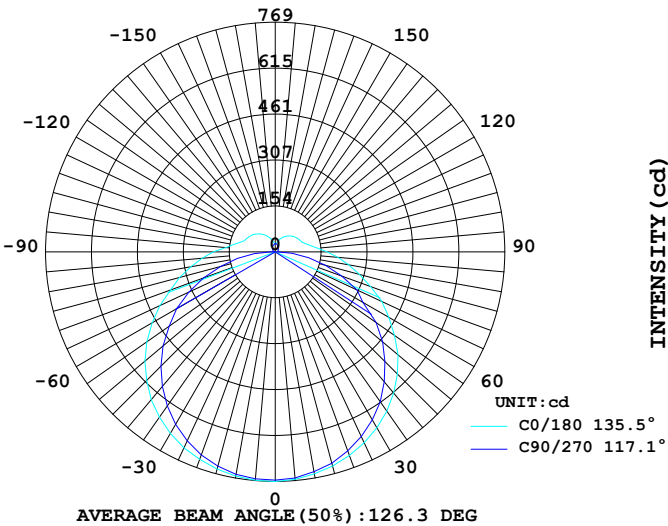
LUMINAIRE PHOTOMETRIC TEST REPORT

Report number:

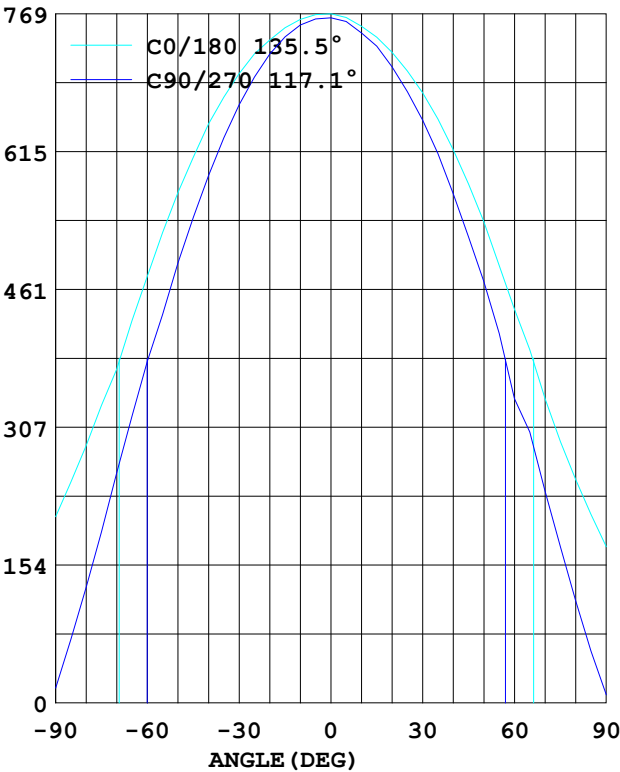
MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:

DATA OF LAMP		Imax(cd)	768.5	S/MH(C0/180)	1.36
MODEL		EFFICIENCY(%)	100.0	S/MH(C90/270)	1.30
NOMINAL POWER(W)	22	TOTAL FLUX(lm)	3025.7	Voltage(V)	220.1
RATED VOLTAGE(V)	220	EFFICIENCY(lm/W)	130.0	Current(A)	0.109
NOMINAL FLUX(lm)	3025.7	$\eta$ up(%)	12.3	Power(W)	23.28
LAMPS QUANTITY	1	$\eta$ down(%)	87.7	Power Factor(PF)	0.970
TEST VOLTAGE(V)	220.1	Effective Flux(lm)	2855.2	EEI	0.111

LUMINOUS INTENSITY DISTRIBUTION



LUMINOUS INTENSITY DISTRIBUTION



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

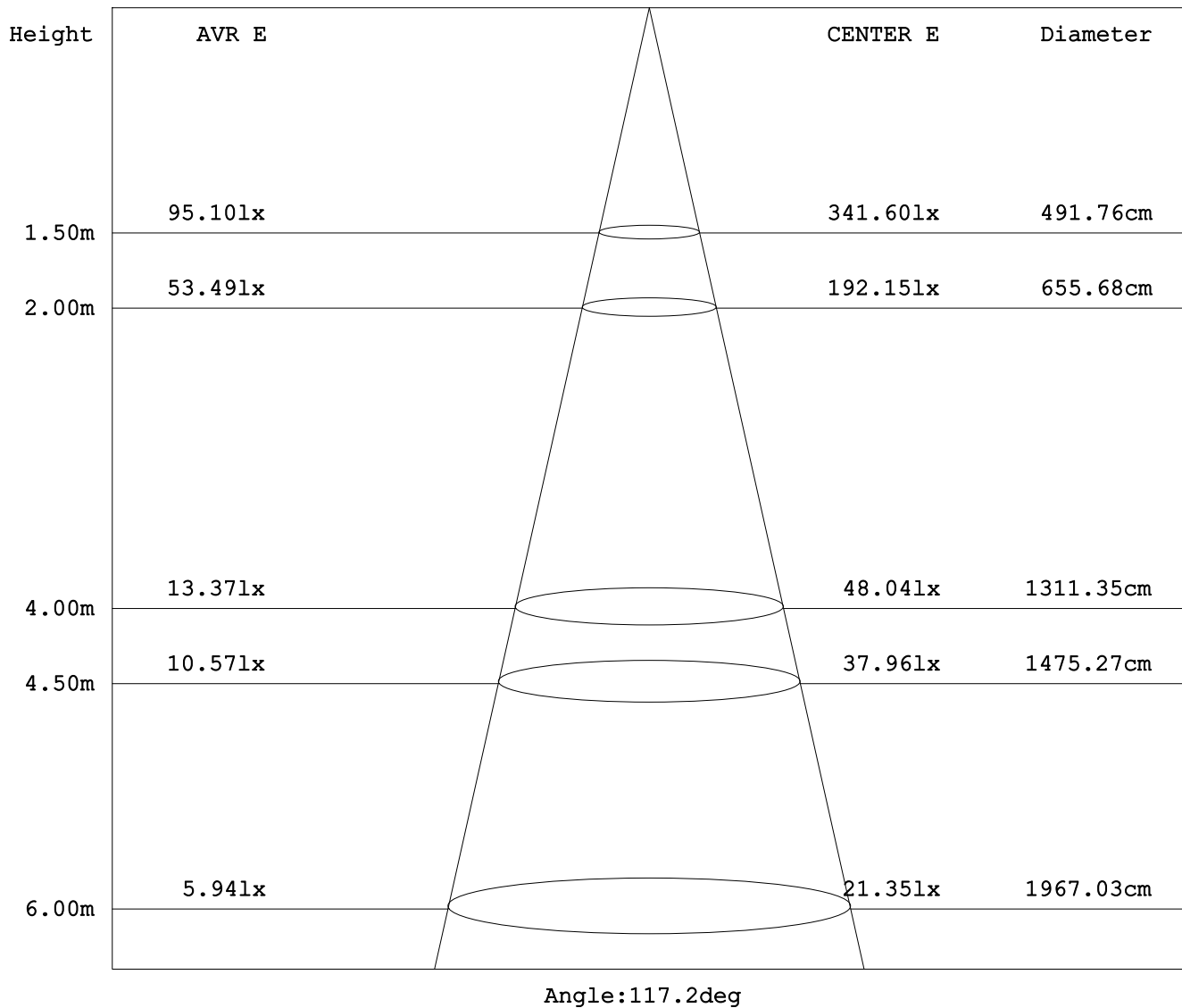
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## AVERAGE AND CENTER E Figure

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ZONAL FLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total
10.0	762.1	756.1	756.0	754.7	754.5	748.5	747.0	747.7	0- 10	72.38	72.38
20.0	739.1	729.6	723.5	727.2	725.5	712.0	709.3	713.4	10- 20	209.0	281.4
30.0	701.6	683.1	666.9	679.2	680.2	659.1	649.7	661.4	20- 30	322.4	603.9
40.0	645.7	617.5	588.0	612.8	616.8	587.0	567.7	590.8	30- 40	400.5	1004
50.0	569.1	532.3	490.5	529.1	536.6	499.4	469.8	505.5	40- 50	433.5	1438
60.0	476.0	429.5	381.1	427.4	439.2	400.6	339.4	406.6	50- 60	417.0	1855
70.0	372.4	330.0	256.8	325.7	339.6	294.0	236.4	299.8	60- 70	359.0	2214
80.0	287.1	218.6	129.1	216.3	249.3	190.0	114.3	197.8	70- 80	268.8	2483
90.0	207.6	132.3	16.57	132.2	174.1	109.5	9.075	115.7	80- 90	171.9	2655
100.0	142.4	72.59	2.662	72.41	120.7	66.36	7.018	71.99	90-100	96.83	2752
110.0	110.3	65.46	5.445	63.10	95.71	60.86	9.559	67.15	100-110	68.70	2820
120.0	101.7	62.85	8.470	60.68	88.81	56.80	11.97	64.13	110-120	59.49	2880
130.0	91.83	57.89	12.10	54.57	80.58	51.36	13.91	58.68	120-130	50.35	2930
140.0	78.89	51.60	15.36	47.73	70.30	43.92	15.24	51.48	130-140	39.21	2969
150.0	64.12	43.37	18.75	39.20	58.32	36.72	18.99	42.77	140-150	27.62	2997
160.0	49.12	35.51	22.38	32.24	45.13	30.85	23.59	34.66	150-160	17.18	3014
170.0	33.27	29.58	25.28	26.98	31.09	26.86	26.86	29.04	160-170	8.830	3023
180.0	27.70	27.28	28.07	26.80	27.46	27.28	28.19	26.92	170-180	2.656	3026
DEG	LUMINOUS INTENSITY:cd									UNIT:lm	

Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

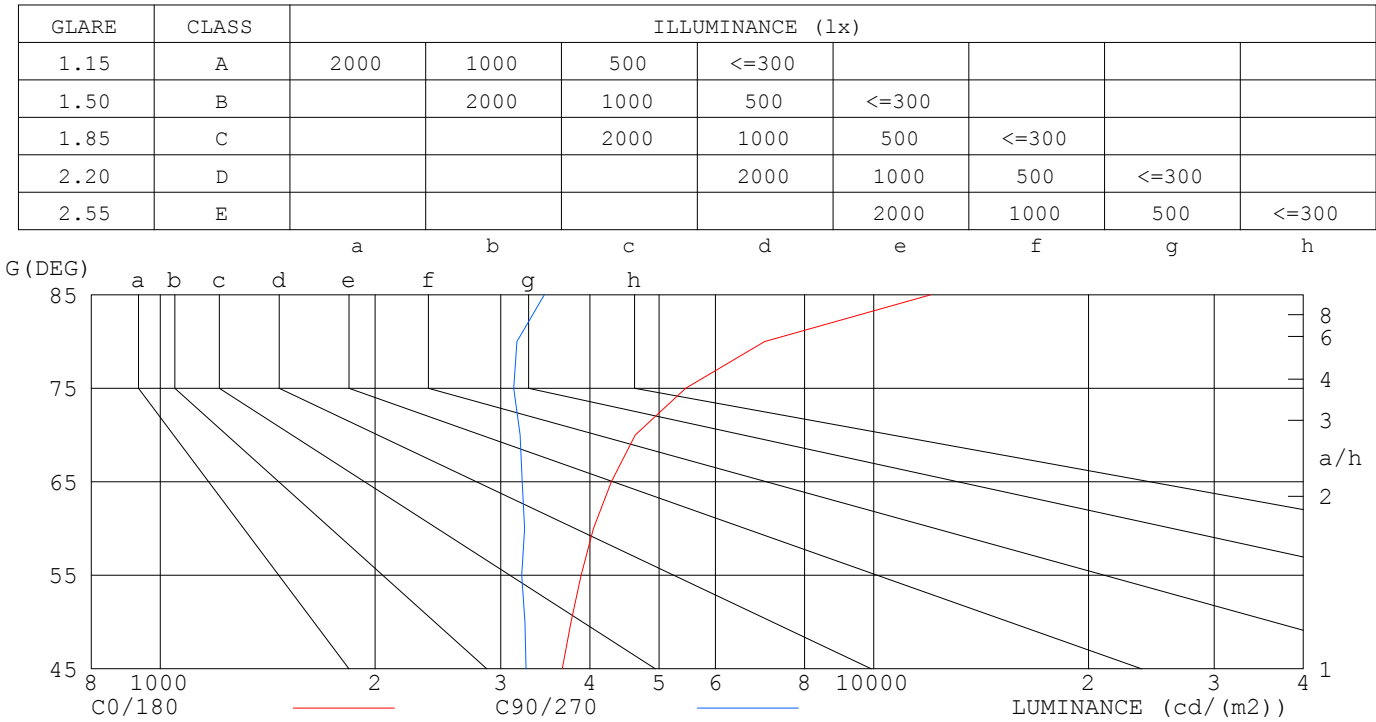
HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINANCE LIMITATION CURVES

Report number:

MANUFACTURER:					
Address:					
NAME: 1.2M-22W-5000K		TYPE:		WEIGHT:	
SPECIFICATION:		DIMENSION: 1200*152*52mm		SERIAL No.:	

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	12011	3453
80	7030	3161
75	5450	3128
70	4629	3193
65	4288	3216
60	4047	3241
55	3888	3210
50	3765	3244
45	3659	3256

Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

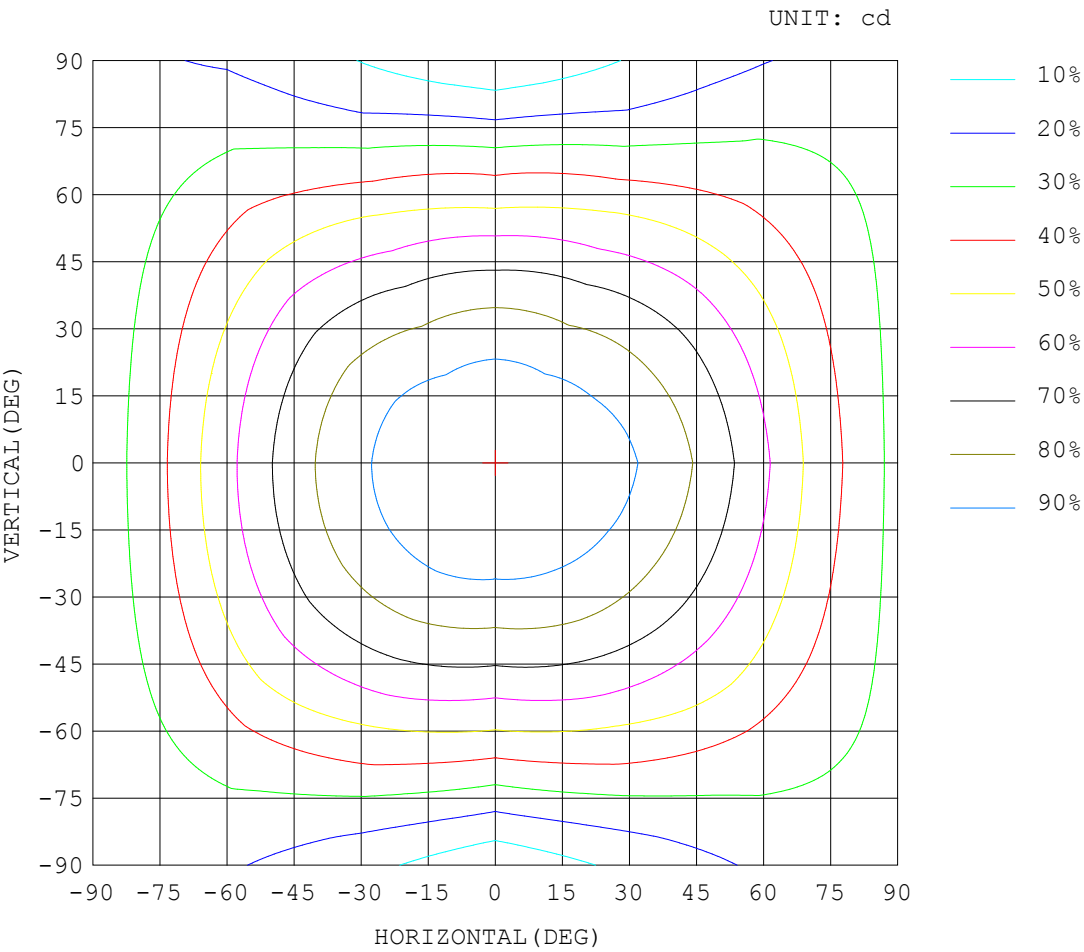
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

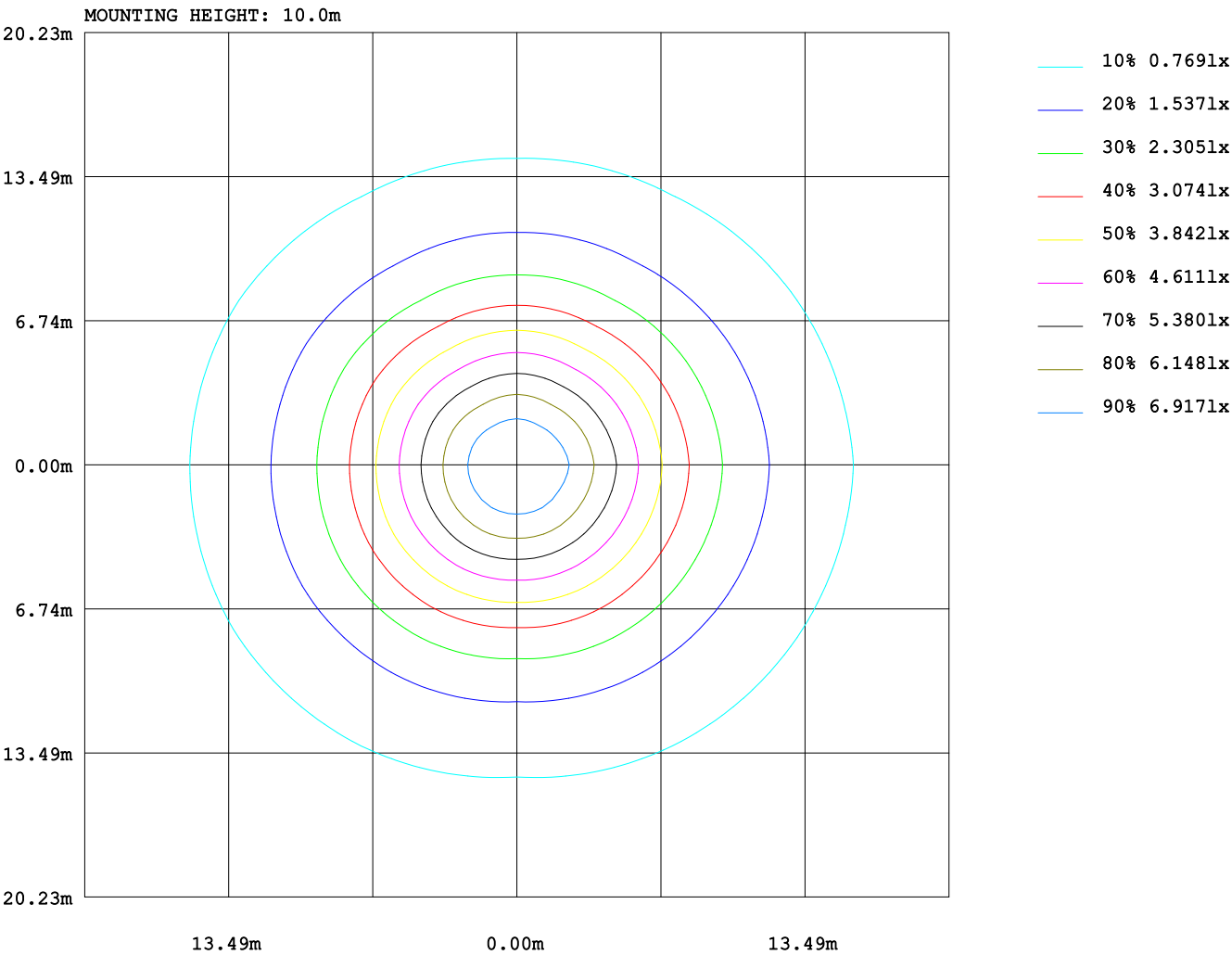
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

## HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## AREA LUMINOUS FLUX

Report number:

MANUFACTURER:																			
Address:																			
NAME: 1.2M-22W-5000K										TYPE:					WEIGHT:				
SPECIFICATION:										DIMENSION: 1200*152*52mm					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			
	0.46	1.33	2.16	2.74	2.94	2.86	2.67	2.43	2.05	2.08	2.53	2.82	3.04	3.10	2.87	2.30	1.49	0.53	40.4	36.6		
	0.48	1.51	2.62	3.60	4.27	4.74	5.12	5.43	5.43	5.46	5.50	5.23	4.89	4.44	3.76	2.80	1.68	0.56	67.6	67.6		
	0.50	1.67	3.05	4.52	5.84	7.01	7.99	8.78	9.04	9.06	8.85	8.10	7.14	5.99	4.68	3.25	1.85	0.58	97.9	97.9		
	0.52	1.82	3.49	5.50	7.43	9.25	10.7	11.8	12.4	12.4	11.9	10.8	9.40	7.58	5.66	3.73	2.02	0.60	127	127		
	0.54	1.96	3.94	6.36	8.92	11.2	13.2	14.8	15.6	15.7	14.8	13.3	11.4	9.07	6.55	4.18	2.18	0.63	155	155		
	0.56	2.09	4.33	7.13	10.2	13.1	15.4	17.2	18.3	18.4	17.3	15.6	13.2	10.4	7.39	4.60	2.33	0.65	179	179		
	0.57	2.20	4.65	7.76	11.2	14.6	17.3	19.2	20.4	20.4	19.2	17.4	14.7	11.5	8.11	4.96	2.45	0.66	198	198		
	0.58	2.28	4.89	8.21	11.9	15.5	18.6	20.7	21.9	21.9	20.7	18.7	15.8	12.3	8.67	5.24	2.55	0.68	212	212		
	0.59	2.33	5.03	8.48	12.3	16.0	19.2	21.6	22.8	22.8	21.7	19.6	16.5	12.9	9.04	5.44	2.61	0.69	220	220		
	0.59	2.33	5.06	8.51	12.4	16.1	19.3	21.7	22.9	22.9	21.8	19.7	16.6	12.9	9.08	5.46	2.62	0.69	221	221		
	0.59	2.30	4.96	8.32	12.1	15.7	18.8	21.1	22.4	22.4	21.2	19.0	16.1	12.5	8.78	5.31	2.56	0.68	215	215		
-30	0.58	2.22	4.76	7.94	11.5	14.9	17.8	20.0	21.0	21.0	20.0	18.0	15.1	11.8	8.29	5.06	2.47	0.67	204	204		
-40	0.56	2.12	4.45	7.40	10.6	13.7	16.3	18.2	19.0	19.1	18.2	16.4	13.8	10.7	7.65	4.72	2.35	0.65	186	186		
-50	0.55	2.00	4.06	6.71	9.42	12.0	14.3	15.8	16.4	16.4	15.8	14.3	12.1	9.53	6.89	4.31	2.21	0.63	164	164		
-60	0.53	1.86	3.62	5.80	8.03	10.0	11.7	12.9	13.3	13.3	12.9	11.7	10.0	8.13	5.96	3.84	2.05	0.61	137	137		
-70	0.51	1.71	3.17	4.81	6.43	7.95	9.09	9.73	9.85	9.84	9.71	9.06	7.98	6.52	4.93	3.35	1.88	0.59	107	107		
-80	0.49	1.55	2.73	3.87	4.82	5.64	6.18	6.32	6.08	6.07	6.29	6.14	5.63	4.88	3.96	2.88	1.71	0.56	75.8	75.8		
-90	0.47	1.40	2.32	3.03	3.43	3.61	3.50	3.11	2.53	2.51	3.07	3.43	3.57	3.45	3.10	2.44	1.55	0.54	47.1	44.8		
	-90	-80	-70	-60	-50	-40	-30	-20	HORIZONTAL (DEG)					20	30	40	50	60	70	80	90	
Φ t	9.68	34.7	69.3	111	154	194	228	251	262	262	252	230	198	158	115	73.9	38.6	11.1	3026			
Φ a	9.68	34.7	69.3	111	154	194	227	250	261	261	251	230	198	158	115	73.9	38.6	11.1		2855		

Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

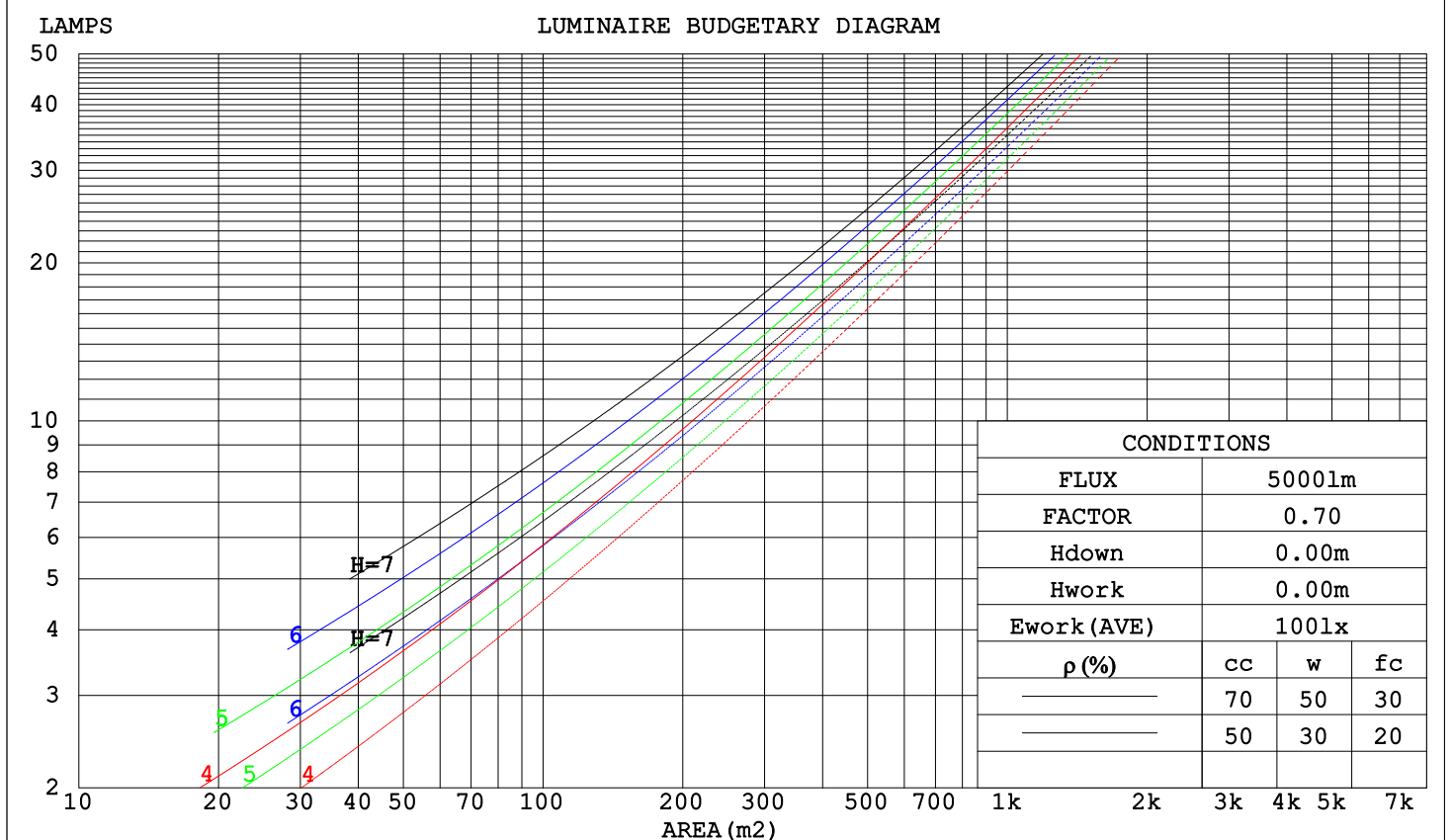
# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

MANUFACTURER:															
Address:															
NAME: 1.2M-22W-5000K								TYPE:				WEIGHT:			
SPECIFICATION:								DIMENSION: 1200*152*52mm				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:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.000 m  
 Remarks:



# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## WEC AND CCEC

Report number:

MANUFACTURER:															
Address:															
NAME: 1.2M-22W-5000K								TYPE:				WEIGHT:			
SPECIFICATION:								DIMENSION: 1200*152*52mm				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	.363	.206	.065	.352	.201	.064	.331	.190	.061	.313	.180	.058	.295	.171	.055	
2.0	.322	.176	.054	.312	.172	.053	.294	.163	.051	.277	.155	.049	.261	.148	.047	
3.0	.289	.154	.046	.280	.150	.045	.264	.143	.043	.249	.136	.042	.234	.130	.040	
4.0	.262	.136	.040	.254	.133	.039	.239	.127	.038	.225	.121	.037	.213	.115	.035	
5.0	.240	.122	.035	.232	.119	.035	.219	.114	.034	.206	.109	.032	.194	.104	.031	
6.0	.220	.110	.032	.214	.108	.031	.201	.103	.030	.190	.099	.029	.179	.094	.028	
7.0	.204	.101	.029	.198	.099	.028	.187	.094	.027	.176	.090	.026	.166	.086	.025	
8.0	.189	.092	.026	.184	.091	.026	.174	.087	.025	.164	.083	.024	.155	.080	.023	
9.0	.177	.085	.024	.172	.084	.023	.162	.080	.023	.154	.077	.022	.145	.074	.021	
10.0	.165	.079	.022	.161	.078	.022	.152	.075	.021	.144	.072	.020	.137	.069	.020	

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pf <sub>c</sub>	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.284	.284	.284	.243	.243	.243	.166	.166	.166	.095	.095	.095	.030	.030	.030	
1.0	.278	.250	.224	.238	.214	.193	.163	.148	.134	.094	.085	.078	.030	.027	.025	
2.0	.271	.227	.189	.232	.195	.164	.159	.135	.114	.092	.078	.067	.029	.025	.022	
3.0	.264	.210	.167	.226	.181	.145	.155	.126	.101	.090	.073	.060	.029	.024	.020	
4.0	.256	.197	.152	.220	.170	.132	.151	.119	.093	.087	.069	.055	.028	.023	.018	
5.0	.248	.187	.142	.213	.162	.123	.147	.113	.087	.085	.066	.052	.027	.022	.017	
6.0	.241	.179	.135	.207	.155	.117	.143	.108	.083	.083	.064	.049	.027	.021	.016	
7.0	.234	.172	.129	.201	.149	.113	.139	.105	.080	.081	.062	.047	.026	.020	.016	
8.0	.227	.167	.125	.196	.145	.109	.135	.101	.077	.079	.060	.046	.025	.020	.015	
9.0	.221	.162	.122	.190	.140	.106	.132	.099	.075	.077	.058	.045	.025	.019	.015	
10.0	.215	.158	.119	.185	.137	.104	.129	.096	.074	.075	.057	.044	.024	.019	.015	

Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.000 m  
 Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## Uncorrected UGR Table

Report number:

MANUFACTURER:											
Address:											
NAME: 1.2M-22W-5000K					TYPE:			WEIGHT:			
SPECIFICATION:					DIMENSION: 1200*152*52mm			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	17.1	18.6	17.6	19.0	19.4	16.3	17.7	16.7	18.1	18.6	
	3H	19.4	20.7	19.8	21.1	21.6	18.1	19.4	18.5	19.8	20.3
	4H	20.5	21.8	21.0	22.3	22.8	18.8	20.1	19.3	20.5	21.0
	6H	21.8	23.0	22.3	23.5	24.0	19.4	20.6	19.9	21.1	21.6
	8H	22.5	23.7	23.1	24.2	24.7	19.7	20.8	20.2	21.3	21.9
	12H	23.4	24.5	23.9	25.0	25.5	19.9	21.0	20.4	21.5	22.0
4H	2H	17.8	19.0	18.3	19.5	20.0	17.1	18.4	17.6	18.9	19.4
	3H	20.2	21.3	20.7	21.8	22.4	19.1	20.2	19.7	20.7	21.3
	4H	21.5	22.5	22.1	23.1	23.7	20.1	21.1	20.6	21.6	22.2
	6H	23.0	23.9	23.6	24.5	25.1	20.8	21.7	21.4	22.3	22.9
	8H	23.8	24.7	24.4	25.3	25.9	21.2	22.0	21.8	22.6	23.2
	12H	24.8	25.6	25.4	26.2	26.8	21.4	22.2	22.0	22.8	23.5
8H	4H	21.9	22.7	22.5	23.3	24.0	20.6	21.5	21.2	22.1	22.7
	6H	23.6	24.3	24.3	24.9	25.6	21.7	22.4	22.3	23.0	23.7
	8H	24.6	25.3	25.3	25.9	26.6	22.2	22.8	22.8	23.5	24.2
	12H	25.8	26.4	26.5	27.0	27.8	22.6	23.2	23.3	23.8	24.6
12H	4H	21.9	22.7	22.5	23.3	24.0	20.8	21.6	21.4	22.2	22.8
	6H	23.7	24.4	24.4	25.0	25.7	22.0	22.6	22.6	23.3	24.0
	8H	24.9	25.4	25.5	26.1	26.8	22.6	23.2	23.3	23.8	24.5
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	+ 0.2 / - 0.3					+ 0.2 / - 0.4					

CIE Pub.117 Corrected 3026 lm Total Lamp Luminous Flux. (8log(F/F0) = 3.8)

Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.000 m  
 Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## UTILIZATION FACTORS TABLE

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	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) $k(RI) \times RCR = 5$									
$k = 0.60$	51	38	31	50	38	31	48	37	31	24
0.80	60	48	40	59	47	39	56	46	39	31
1.00	68	56	48	66	55	47	63	56	46	38
1.25	75	63	55	73	62	54	69	60	53	44
1.50	80	69	61	78	67	60	73	65	58	48
2.00	87	77	69	85	75	68	80	72	66	55
2.50	92	82	75	89	80	73	83	76	70	59
3.00	95	87	80	92	84	78	86	80	75	63
4.00	100	93	87	96	90	85	90	85	80	68
5.00	103	96	91	99	94	89	92	88	84	71
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年12月1日

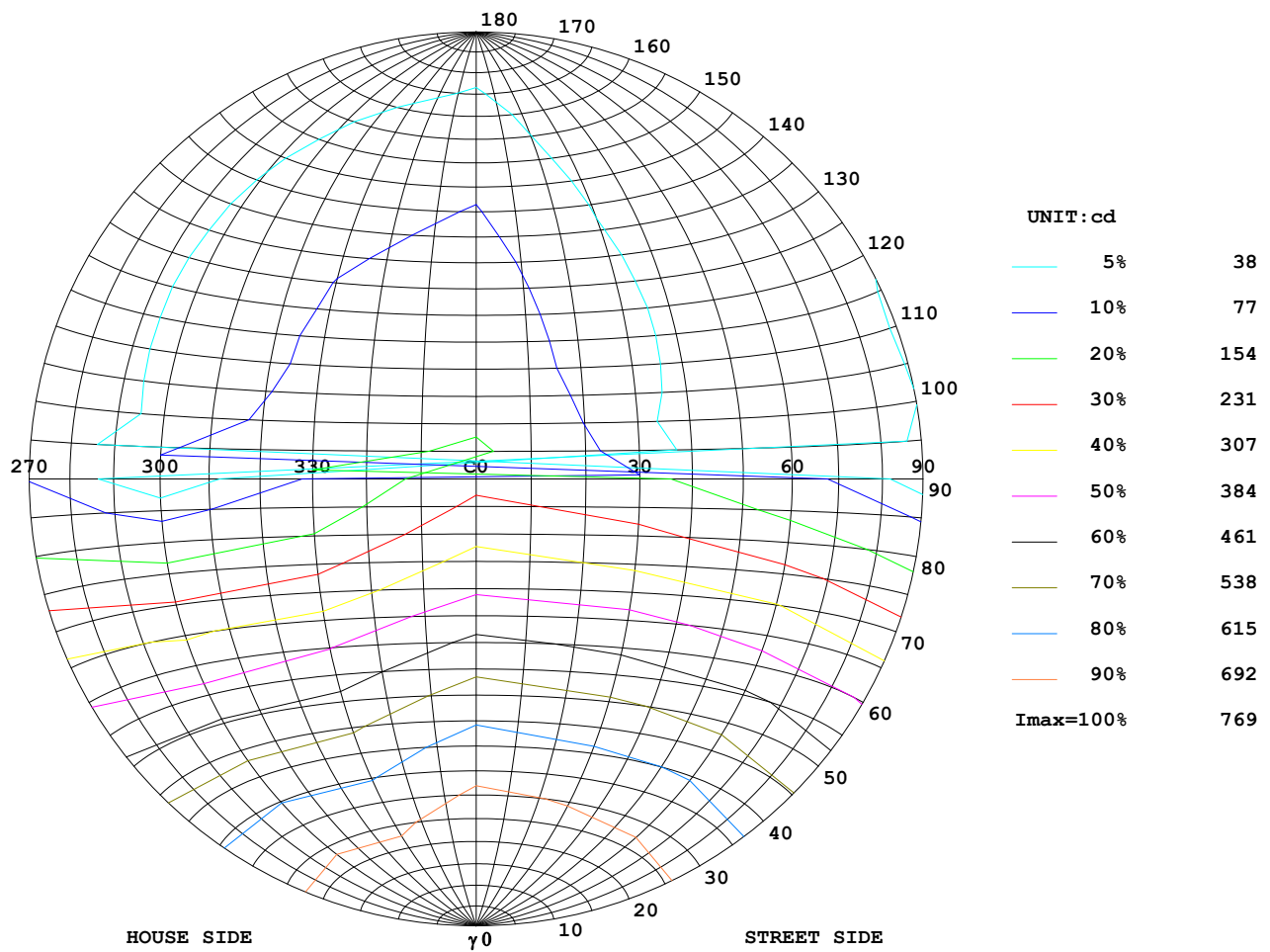
Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.000 m  
 Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

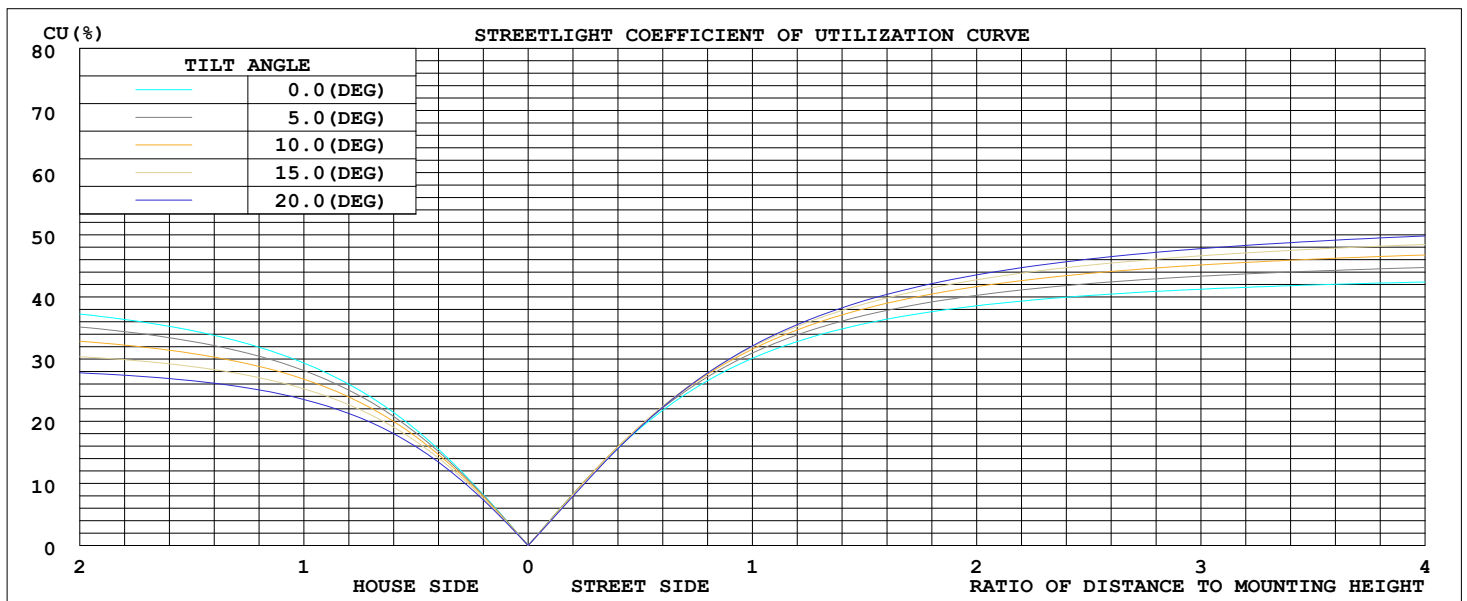
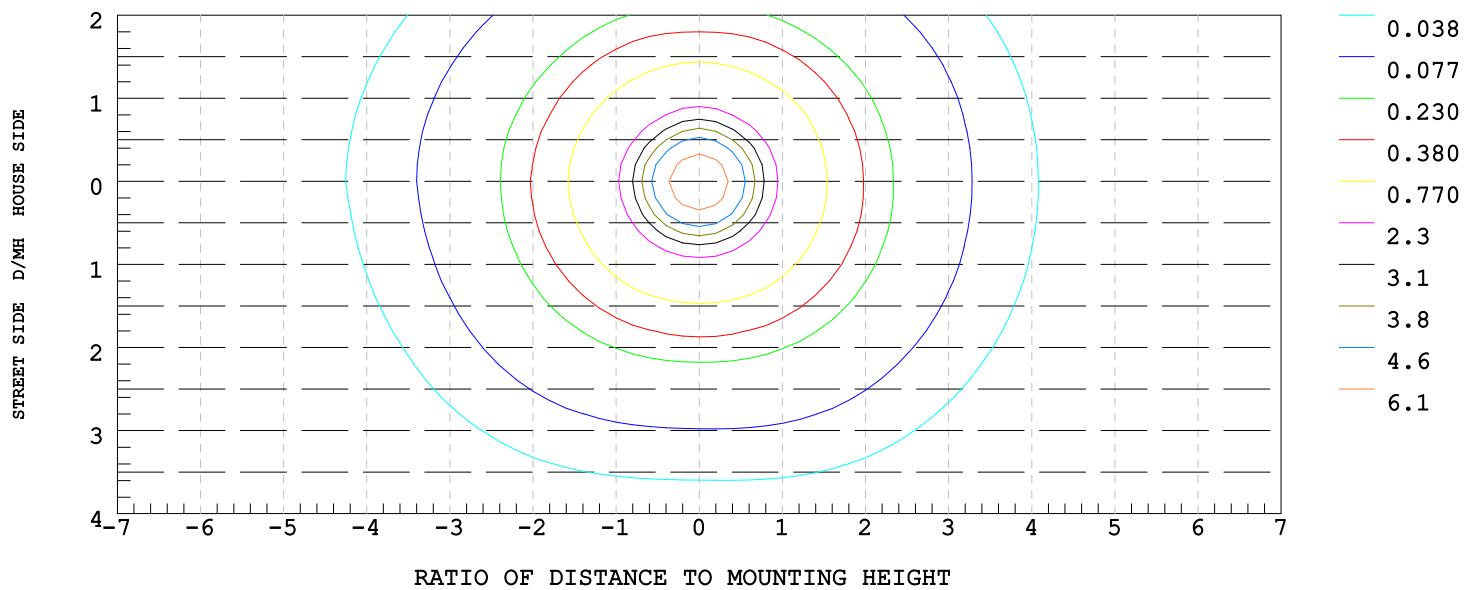
# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:

ILLUMINANCE AT MH=10 m, Enadir = 7.69 lx



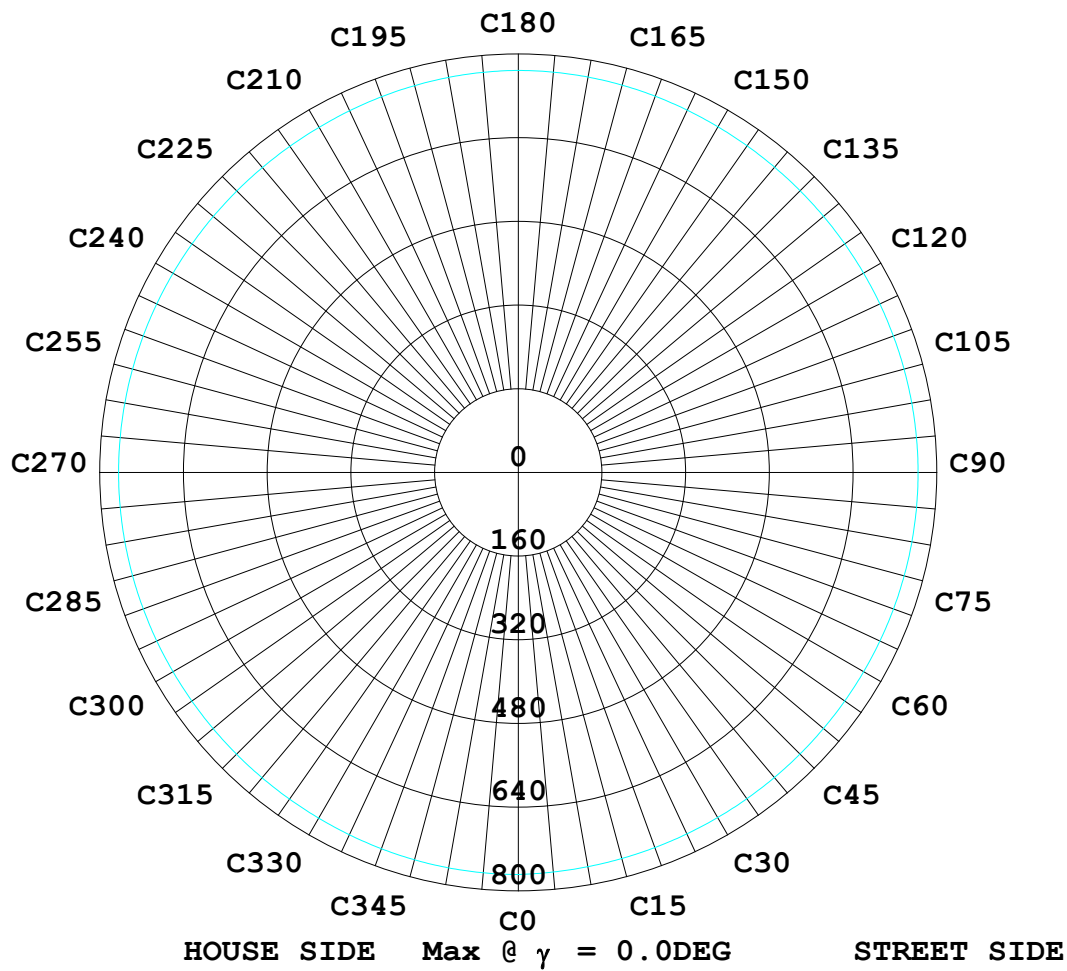
Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年12月1日

Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.000 m  
 Remarks:

ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.2M-22W-5000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1200*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年12月1日

Test Set: 10.0deg/s    C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks: