

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

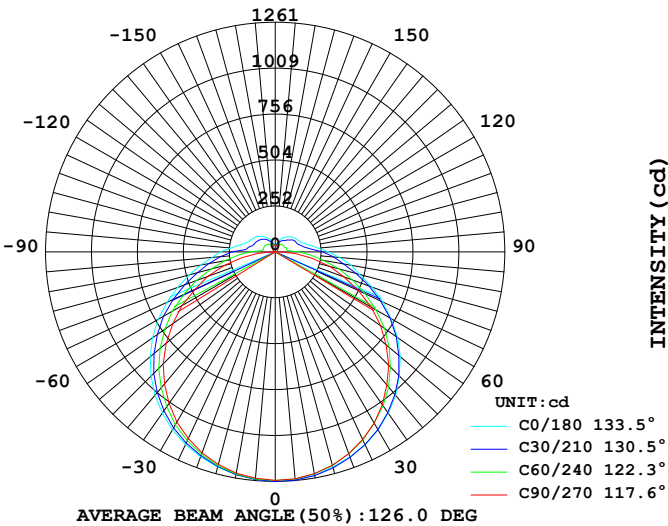
LUMINAIRE PHOTOMETRIC TEST REPORT

Report number:

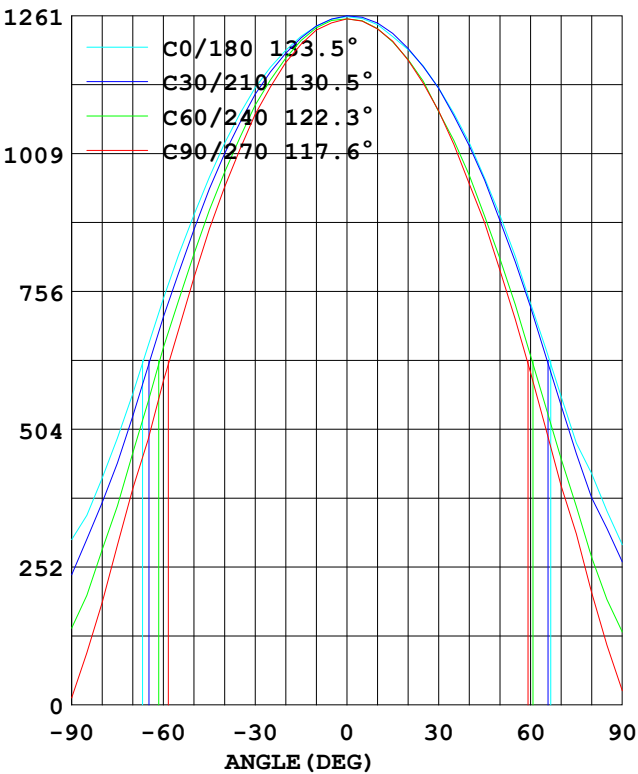
MANUFACTURER:		
Address:		
NAME: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

DATA OF LAMP		Imax(cd)	1261	S/MH(C0/180)	1.34
MODEL		EFFICIENCY(%)	100.0	S/MH(C90/270)	1.28
NOMINAL POWER(W)	36	TOTAL FLUX(lm)	4903.5	Voltage(V)	220.1
RATED VOLTAGE(V)	220	EFFICIENCY(lm/W)	137.0	Current(A)	0.170
NOMINAL FLUX(lm)	4903.6	$\eta$ up(%)	11.5	Power(W)	35.77
LAMPS QUANTITY	1	$\eta$ down(%)	88.5	Power Factor(PF)	0.954
TEST VOLTAGE(V)	220.1	Effective Flux(lm)	4601.2	EEI	0.106

LUMINOUS INTENSITY DISTRIBUTION



LUMINOUS INTENSITY DISTRIBUTION



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

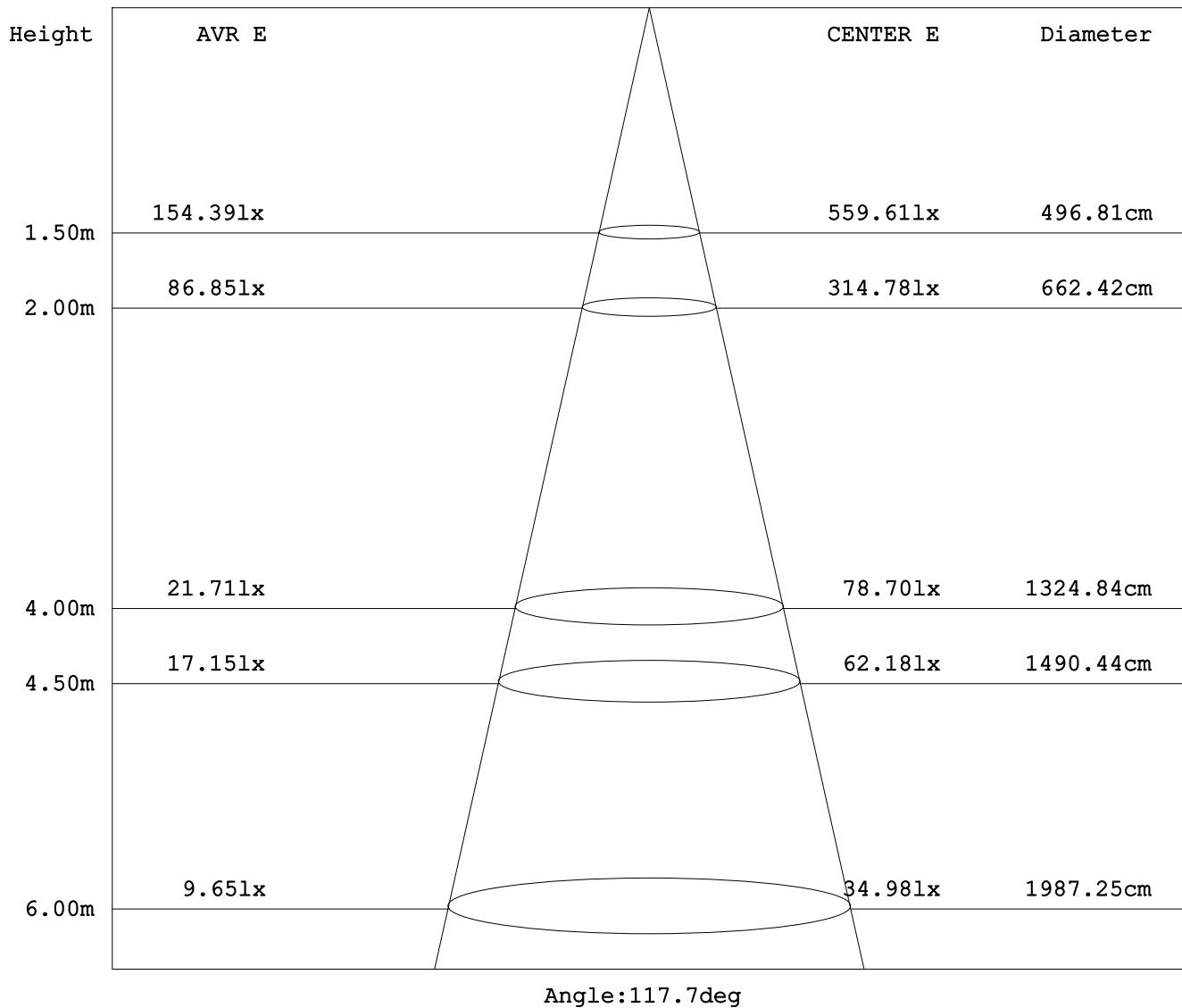
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## AVERAGE AND CENTER E Figure

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:



Test System: HOPOO HPG1800  
 Temperature: 25.3DEG  
 Operators:  
 Test Date: 2022年11月14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: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Zone	total
10.0	1242	1240	1235	1243	1245	1242	1237	1240	0- 10	119.2	119.2
20.0	1197	1188	1175	1192	1199	1191	1180	1188	10- 20	344.3	463.6
30.0	1129	1107	1080	1112	1128	1107	1087	1107	20- 30	531.5	995.2
40.0	1027	991.1	946.9	999.2	1029	995.9	953.3	995.9	30- 40	659.7	1655
50.0	896.3	847.2	781.7	854.5	896.1	851.7	795.5	851.1	40- 50	713.5	2369
60.0	743.4	681.6	592.5	688.9	735.1	684.2	608.7	684.2	50- 60	685.7	3054
70.0	569.4	494.7	395.7	502.5	564.9	499.9	401.7	500.8	60- 70	581.0	3635
80.0	414.9	327.1	187.6	337.8	423.5	324.8	205.9	326.5	70- 80	428.9	4064
90.0	302.3	189.1	12.82	202.7	292.8	197.5	26.01	202.5	80- 90	273.5	4338
100.0	206.6	108.2	4.235	117.3	200.1	112.7	9.801	118.0	90-100	151.1	4489
110.0	159.2	95.89	7.623	100.7	151.6	97.70	12.34	103.3	100-110	107.3	4596
120.0	144.5	91.41	12.34	91.05	138.5	89.41	16.21	98.37	110-120	90.18	4687
130.0	130.1	83.79	17.30	82.40	125.3	78.95	19.11	89.72	120-130	75.62	4762
140.0	111.6	73.38	22.74	68.78	108.8	67.69	23.71	77.80	130-140	58.37	4821
150.0	89.41	60.92	27.95	57.95	90.38	58.98	27.70	64.43	140-150	41.03	4862
160.0	65.94	48.52	32.54	48.03	68.97	48.94	32.18	51.12	150-160	25.44	4887
170.0	44.28	40.83	36.30	39.38	46.82	39.56	36.78	42.10	160-170	12.80	4900
180.0	40.41	38.35	38.96	38.47	39.93	38.29	39.32	38.59	170-180	3.756	4904
DEG	LUMINOUS INTENSITY:cd									UNIT:lm	

Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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

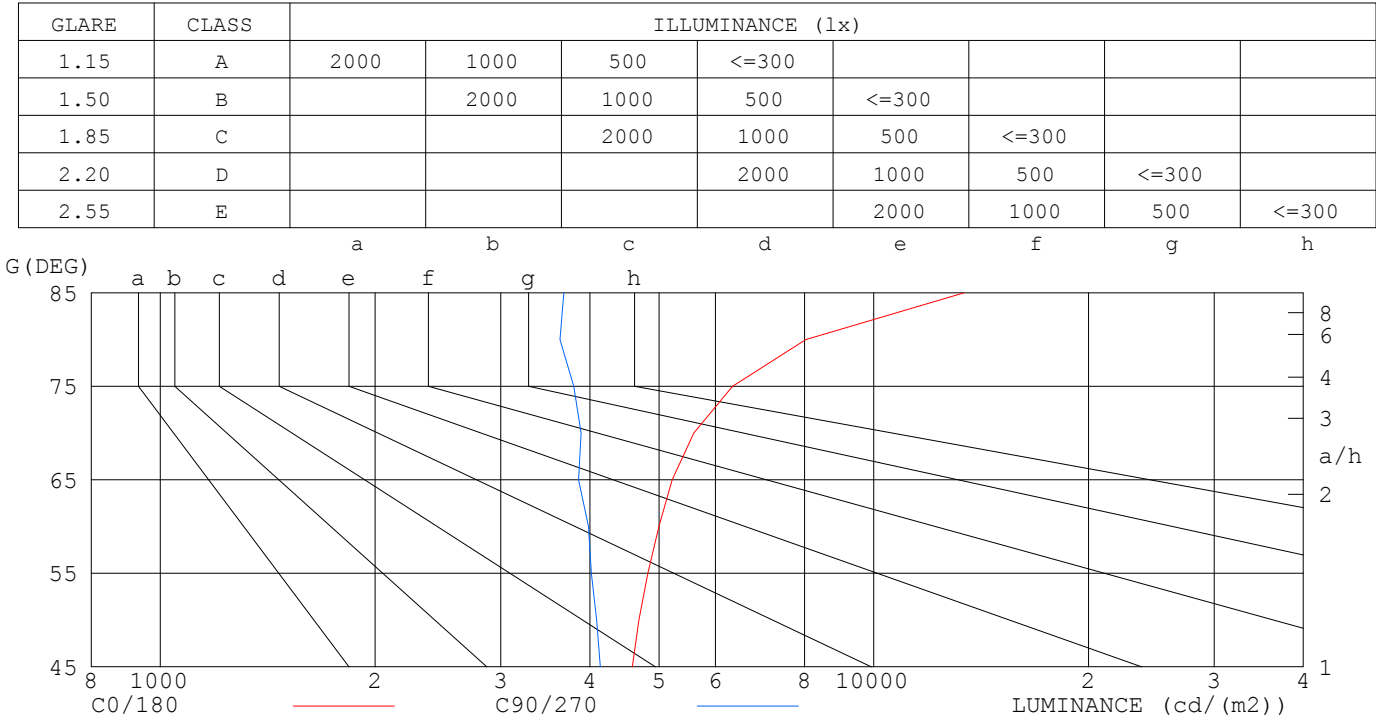
HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINANCE LIMITATION CURVES

Report number:

MANUFACTURER:					
Address:					
NAME: 1.5M-36W-4000K		TYPE:		WEIGHT:	
SPECIFICATION:		DIMENSION: 1500*152*52mm		SERIAL No.:	

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	13378	3677
80	8031	3632
75	6340	3798
70	5596	3889
65	5219	3856
60	4997	3983
55	4824	4020
50	4687	4088
45	4587	4136

Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

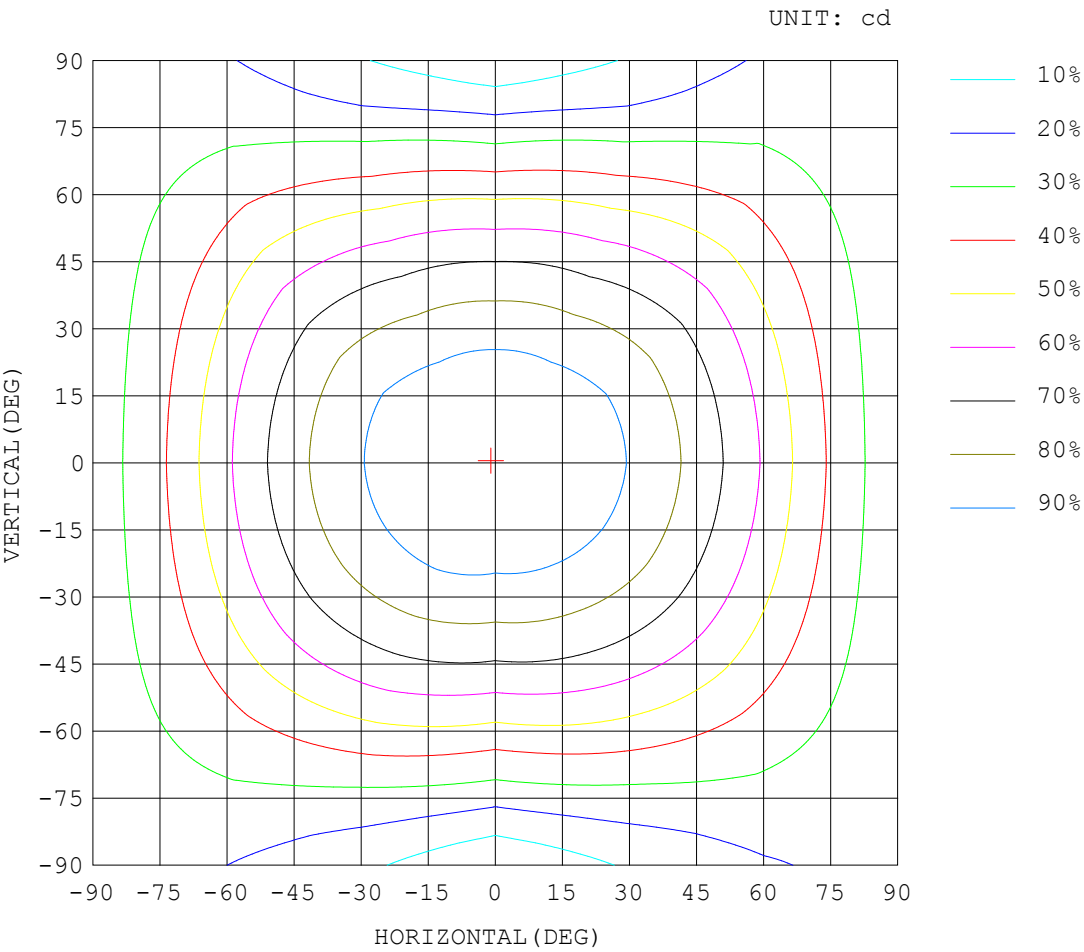
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

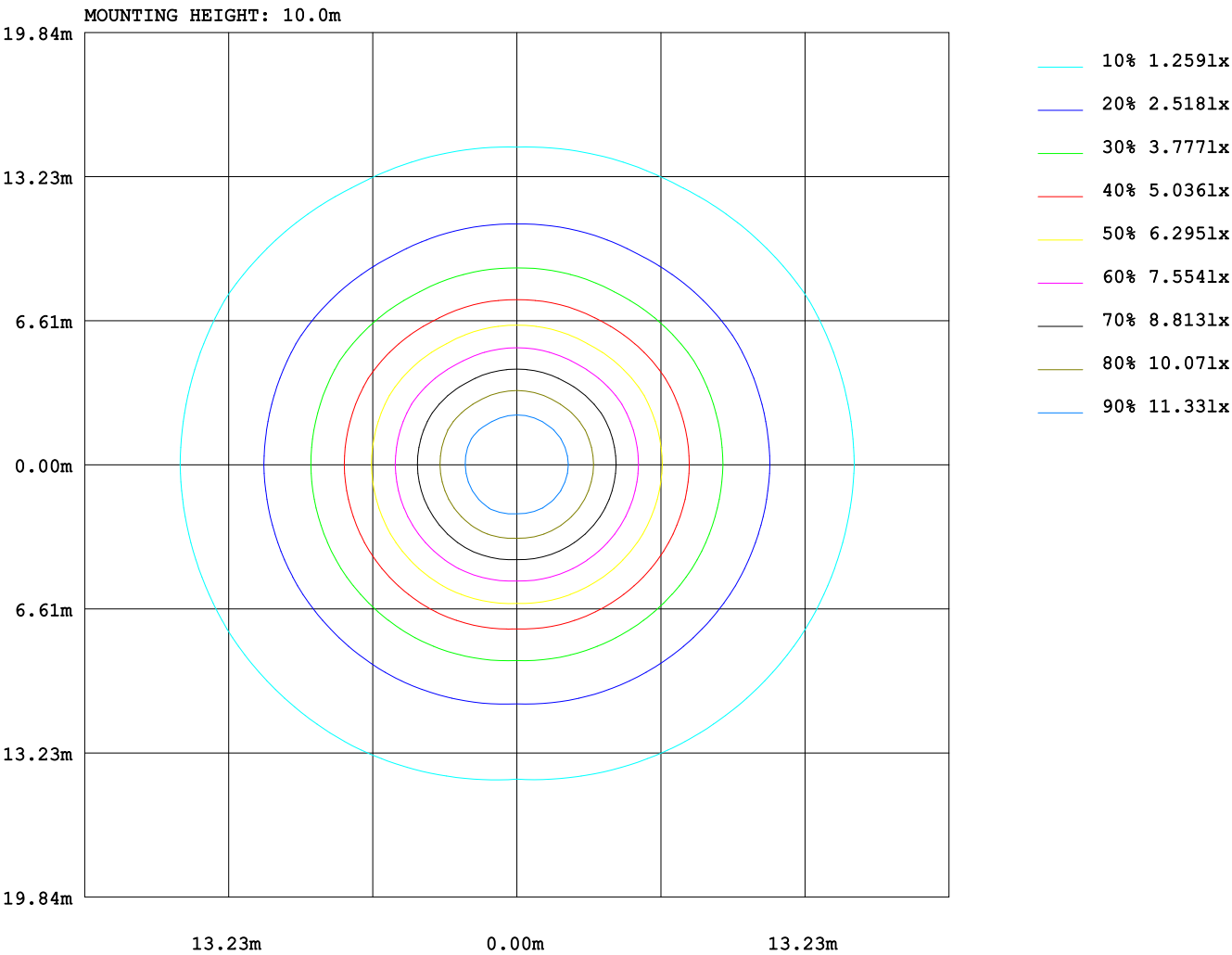
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14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: 1.5M-36W-4000K										TYPE:					WEIGHT:					
SPECIFICATION:										DIMENSION: 1500*152*52mm					SERIAL No.:					

VERTICAL (DEG)	AREA FLUX DIAGRAM																		UNIT:lm		Φ t	Φ a
	0.78	2.30	3.76	4.79	5.17	5.12	4.85	4.47	3.82	3.83	4.48	4.88	5.18	5.27	4.91	3.85	2.35	0.80	70.6	65.4		
90																						
80	0.81	2.56	4.42	6.07	7.31	8.28	9.04	9.57	9.58	9.57	9.56	9.02	8.28	7.35	6.14	4.47	2.58	0.83	116	116		
70	0.85	2.82	5.10	7.61	9.95	11.9	13.6	14.9	15.4	15.4	14.9	13.7	12.0	9.97	7.66	5.12	2.81	0.86	165	165		
60	0.89	3.06	5.84	9.29	12.6	15.7	18.3	20.4	21.3	21.3	20.4	18.3	15.8	12.6	9.30	5.88	3.05	0.88	216	216		
50	0.92	3.30	6.58	10.8	15.3	19.3	22.6	25.2	26.5	26.5	25.2	22.6	19.3	15.3	10.8	6.63	3.29	0.91	262	262		
40	0.95	3.50	7.26	12.1	17.5	22.3	26.3	29.2	30.8	30.9	29.2	26.3	22.3	17.4	12.1	7.29	3.51	0.94	300	300		
30	0.97	3.67	7.80	13.1	19.0	24.7	29.2	32.3	34.2	34.2	32.3	29.1	24.6	19.0	13.2	7.84	3.69	0.96	331	331		
	0.99	3.79	8.18	13.8	20.1	26.1	31.2	34.7	36.5	36.5	34.6	31.1	26.1	20.1	13.9	8.23	3.82	0.97	351	351		
	1.00	3.87	8.39	14.2	20.6	26.8	32.0	35.8	37.7	37.7	35.7	31.9	26.7	20.6	14.3	8.45	3.90	0.98	361	361		
	1.00	3.86	8.37	14.2	20.6	26.7	31.9	35.7	37.7	37.7	35.6	31.9	26.7	20.6	14.2	8.43	3.89	0.98	361	361		
	0.99	3.78	8.14	13.8	20.0	25.9	31.0	34.7	36.6	36.5	34.6	30.9	25.9	19.9	13.8	8.18	3.80	0.97	350	350		
-30	0.97	3.65	7.73	13.0	18.8	24.5	29.2	32.7	34.3	34.1	32.4	29.0	24.3	18.7	13.0	7.75	3.66	0.95	329	329		
-40	0.95	3.48	7.16	11.9	17.2	22.2	26.5	29.5	30.8	30.7	29.3	26.3	22.1	17.1	11.9	7.17	3.46	0.93	299	299		
-50	0.92	3.28	6.48	10.6	15.1	19.4	23.0	25.4	26.4	26.3	25.2	22.7	19.2	15.0	10.5	6.47	3.24	0.90	261	261		
-60	0.88	3.06	5.75	9.07	12.6	16.0	18.8	20.5	21.0	21.0	20.3	18.5	15.8	12.4	8.99	5.71	2.99	0.87	215	215		
-70	0.85	2.80	5.08	7.49	9.92	12.2	14.0	15.0	15.1	15.1	14.9	13.8	12.0	9.77	7.38	4.96	2.72	0.84	164	164		
-80	0.81	2.53	4.37	6.09	7.49	8.63	9.38	9.59	9.25	9.20	9.43	9.13	8.38	7.27	5.90	4.23	2.47	0.81	115	115		
-90	0.77	2.27	3.67	4.74	5.31	5.51	5.26	4.56	3.56	3.49	4.38	4.98	5.21	5.03	4.51	3.53	2.23	0.78	69.8	64.8		
	-90	-80	-70	-60	-50	-40	-30	-20	HORIZONTAL (DEG)					20	30	40	50	60	70	80	90	
Φ t	16.2	57.6	114	183	255	322	377	415	431	431	413	375	320	254	183	114	57.5	16.1	4904			
Φ a	16.2	57.6	114	183	255	322	376	413	429	428	411	374	320	254	183	114	57.5	16.1		4601		

Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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

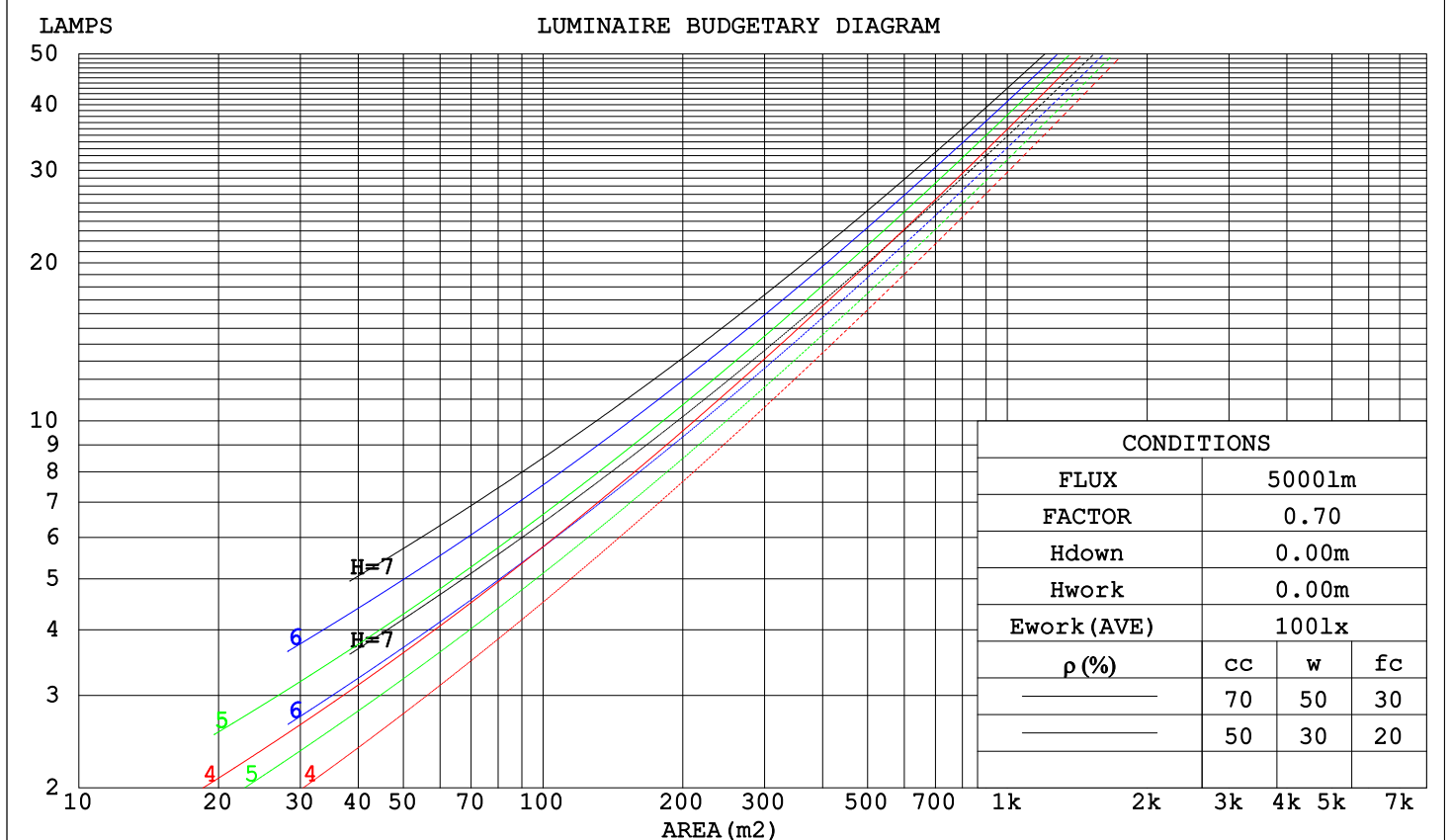
# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

MANUFACTURER:															
Address:															
NAME: 1.5M-36W-4000K								TYPE:				WEIGHT:			
SPECIFICATION:								DIMENSION: 1500*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11月14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: 1.5M-36W-4000K								TYPE:				WEIGHT:			
SPECIFICATION:								DIMENSION: 1500*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	.361	.205	.065	.350	.200	.063	.330	.189	.060	.312	.180	.058	.295	.171	.055															
2.0	.321	.176	.054	.311	.171	.053	.293	.163	.051	.276	.155	.049	.261	.148	.047															
3.0	.288	.154	.046	.280	.150	.045	.264	.143	.043	.249	.136	.042	.235	.130	.040															
4.0	.262	.136	.040	.254	.133	.039	.239	.127	.038	.226	.121	.037	.213	.116	.035															
5.0	.239	.122	.035	.232	.119	.035	.219	.114	.034	.207	.109	.032	.195	.104	.031															
6.0	.220	.110	.032	.214	.108	.031	.202	.103	.030	.191	.099	.029	.180	.095	.028															
7.0	.203	.101	.029	.198	.099	.028	.187	.094	.027	.177	.091	.026	.167	.087	.026															
8.0	.189	.092	.026	.184	.091	.026	.174	.087	.025	.165	.083	.024	.156	.080	.023															
9.0	.177	.085	.024	.172	.084	.023	.163	.080	.023	.154	.077	.022	.146	.074	.021															
10.0	.165	.079	.022	.161	.078	.022	.153	.075	.021	.145	.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
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.278	.278	.278	.238	.238	.238	.162	.162	.162	.093	.093	.093	.030	.030	.030	
1.0	.272	.244	.219	.233	.210	.188	.159	.144	.130	.092	.083	.076	.029	.027	.025	
2.0	.265	.221	.184	.227	.190	.159	.156	.132	.111	.090	.077	.065	.029	.025	.021	
3.0	.258	.204	.161	.221	.176	.140	.152	.122	.098	.088	.071	.058	.028	.023	.019	
4.0	.250	.191	.147	.215	.165	.127	.148	.115	.090	.085	.067	.053	.027	.022	.017	
5.0	.242	.181	.136	.208	.157	.119	.143	.110	.084	.083	.064	.050	.027	.021	.016	
6.0	.235	.173	.129	.202	.150	.112	.139	.105	.079	.081	.062	.047	.026	.020	.016	
7.0	.228	.167	.123	.196	.144	.108	.136	.101	.076	.079	.060	.045	.025	.020	.015	
8.0	.221	.161	.119	.191	.140	.104	.132	.098	.074	.077	.058	.044	.025	.019	.015	
9.0	.215	.156	.116	.185	.135	.101	.128	.095	.072	.075	.056	.043	.024	.018	.014	
10.0	.209	.152	.114	.181	.132	.099	.125	.093	.070	.073	.055	.042	.024	.018	.014	

Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年11月14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: 1.5M-36W-4000K					TYPE:			WEIGHT:			
SPECIFICATION:					DIMENSION: 1500*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	17.8	19.2	18.2	19.6	20.1	17.0	18.4	17.4	18.8	19.2	
3H	19.9	21.2	20.4	21.7	22.1	18.6	20.0	19.1	20.4	20.9	
4H	21.0	22.3	21.5	22.7	23.2	19.4	20.6	19.8	21.1	21.6	
6H	22.2	23.4	22.7	23.9	24.4	19.9	21.1	20.4	21.6	22.1	
8H	22.8	24.0	23.3	24.4	25.0	20.1	21.3	20.6	21.7	22.3	
12H	23.6	24.7	24.1	25.2	25.7	20.3	21.4	20.8	21.9	22.4	
4H 2H	18.4	19.7	18.9	20.1	20.6	17.8	19.0	18.2	19.5	20.0	
3H	20.7	21.8	21.2	22.3	22.9	19.7	20.8	20.2	21.3	21.8	
4H	22.0	23.0	22.5	23.5	24.1	20.5	21.5	21.1	22.1	22.6	
6H	23.4	24.3	23.9	24.8	25.4	21.3	22.2	21.8	22.7	23.3	
8H	24.1	24.9	24.7	25.5	26.1	21.6	22.4	22.1	23.0	23.6	
12H	25.0	25.8	25.6	26.3	27.0	21.8	22.5	22.4	23.1	23.8	
8H 4H	22.3	23.2	22.9	23.7	24.4	21.1	22.0	21.7	22.5	23.1	
6H	24.0	24.7	24.6	25.3	25.9	22.1	22.8	22.7	23.4	24.1	
8H	24.9	25.5	25.5	26.1	26.8	22.6	23.2	23.2	23.8	24.5	
12H	26.0	26.6	26.7	27.2	27.9	22.9	23.5	23.6	24.1	24.8	
12H 4H	22.3	23.1	22.9	23.7	24.4	21.2	22.0	21.8	22.6	23.3	
6H	24.1	24.7	24.7	25.3	26.0	22.4	23.0	23.0	23.6	24.3	
8H	25.1	25.7	25.8	26.3	27.0	22.9	23.5	23.6	24.1	24.8	
Variations with the observer position at spacings:											
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1					
1.5H	+ 0.2 / - 0.2					+ 0.2 / - 0.3					
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.4					

CIE Pub.117 Corrected 4904 lm Total Lamp Luminous Flux. (8log(F/F0) = 5.5)

Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年11月14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: 1.5M-36W-4000K						TYPE:			WEIGHT:	
SPECIFICATION:						DIMENSION: 1500*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) x RCR = 5									
k = 0.60	51	39	32	50	38	31	48	38	31	24
0.80	60	48	40	59	47	40	57	46	39	31
1.00	68	56	48	67	55	48	64	56	47	38
1.25	76	64	56	73	62	55	70	60	53	44
1.50	81	69	61	78	68	60	74	65	59	49
2.00	88	78	70	85	76	69	80	72	66	56
2.50	92	83	75	89	81	74	84	77	71	60
3.00	96	87	81	93	85	79	87	81	75	64
4.00	100	93	87	97	90	85	91	85	81	68
5.00	103	97	92	99	94	89	93	89	85	72
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004										
Suspended										
SHRNOM = 1.25										

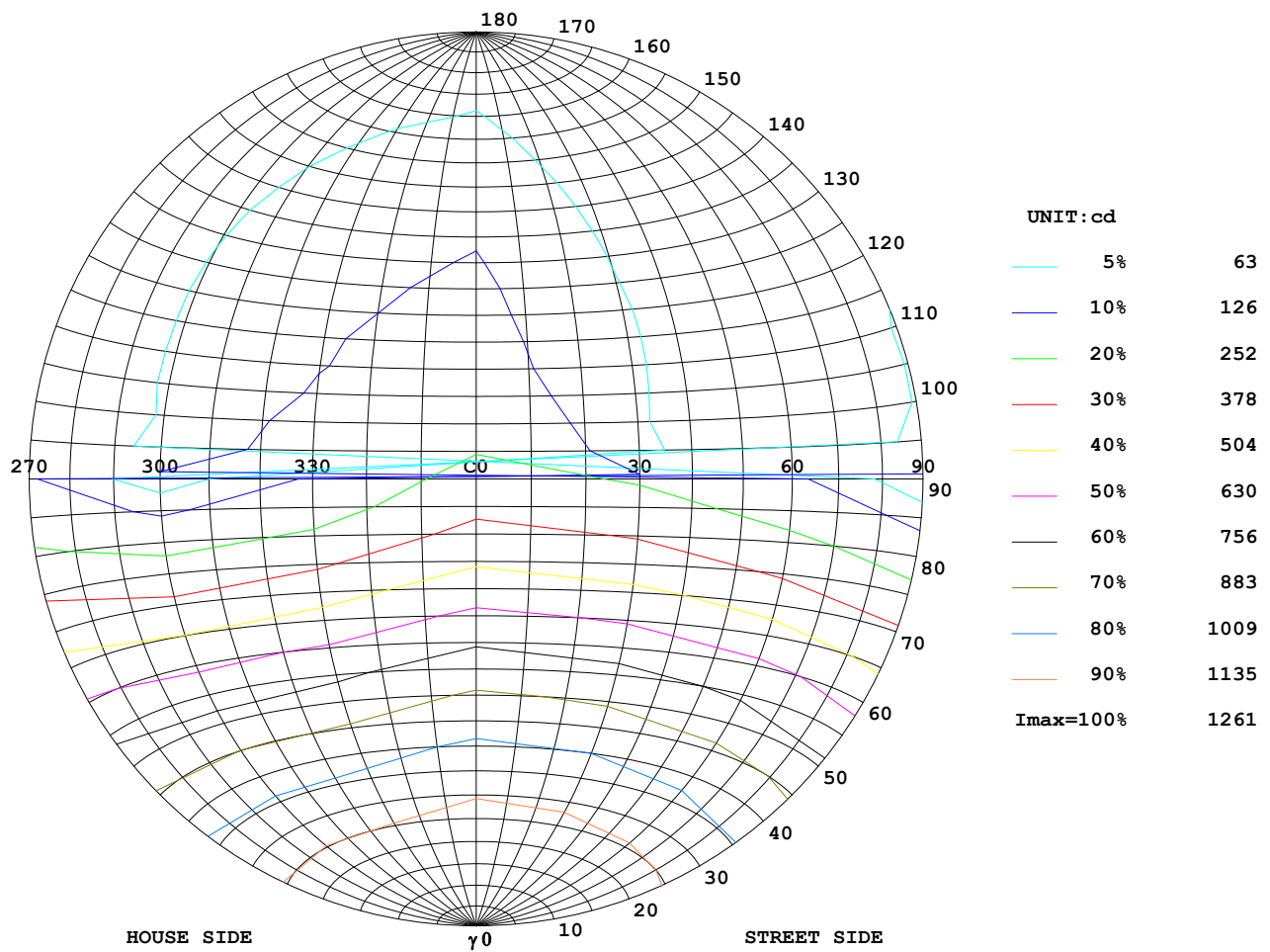
Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年11月14日

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: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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

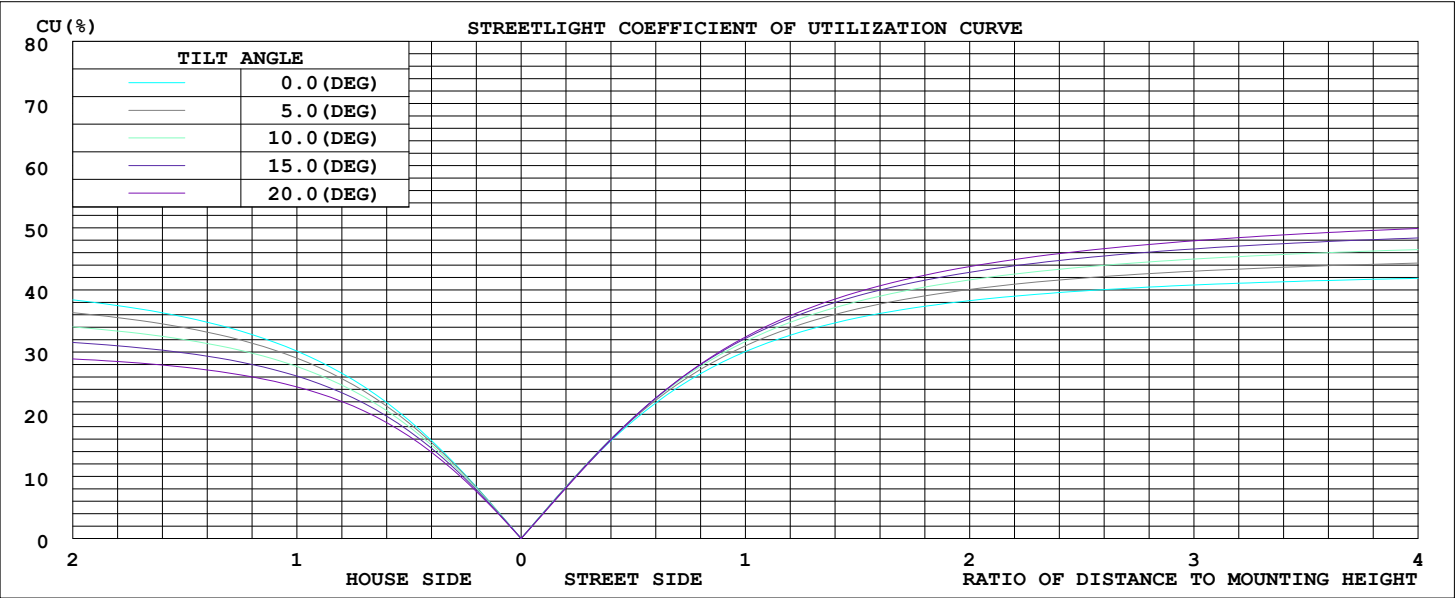
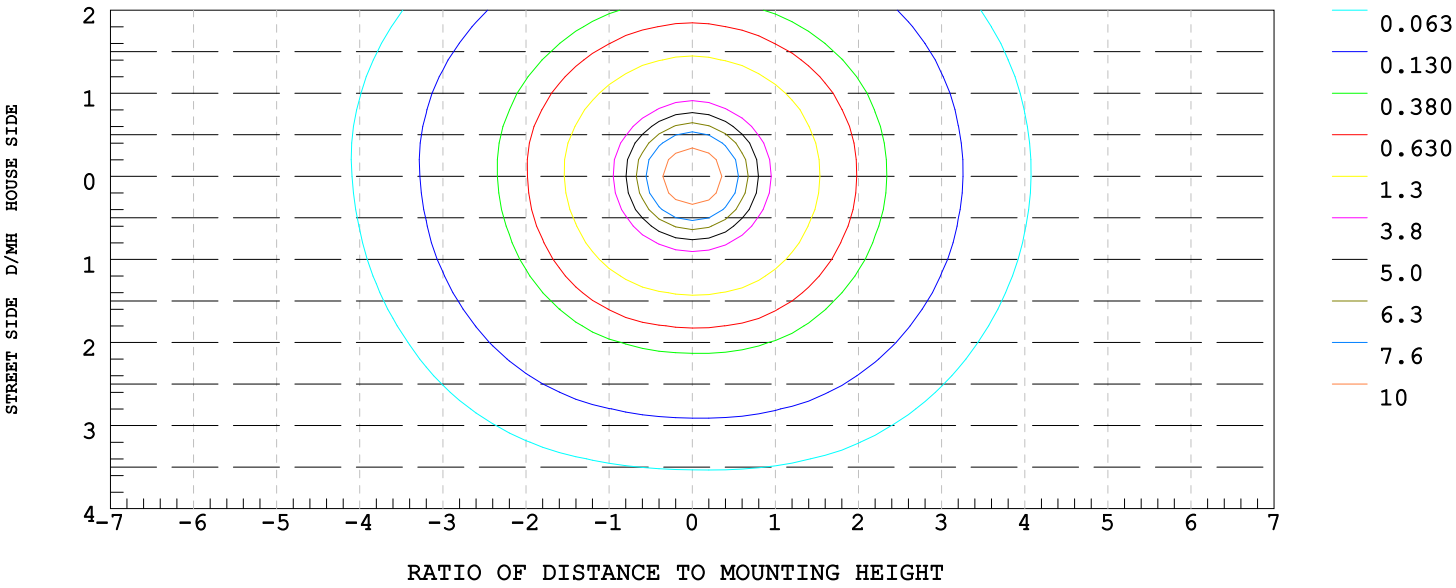
HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

ILLUMINANCE AT MH=10 m,Enadir = 12.59 lx



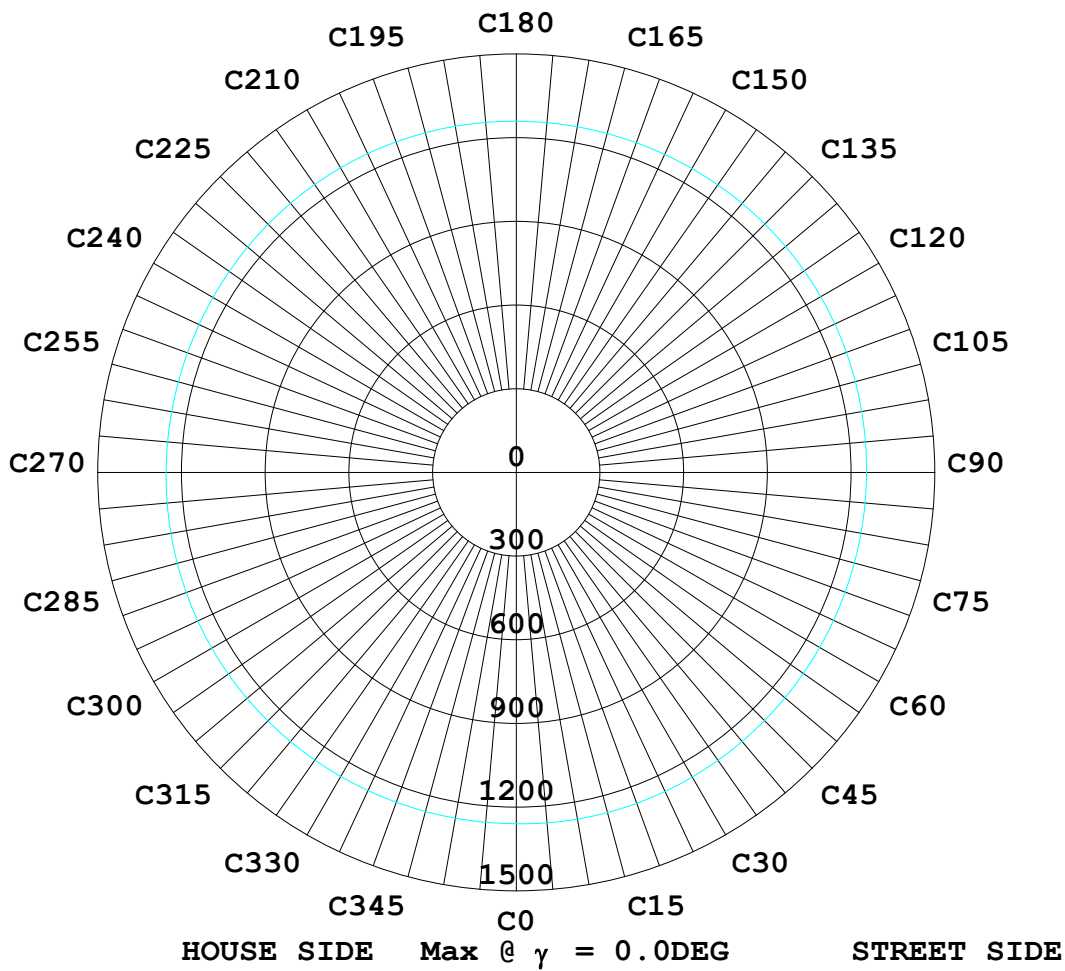
Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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: 1.5M-36W-4000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:



Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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