

## HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

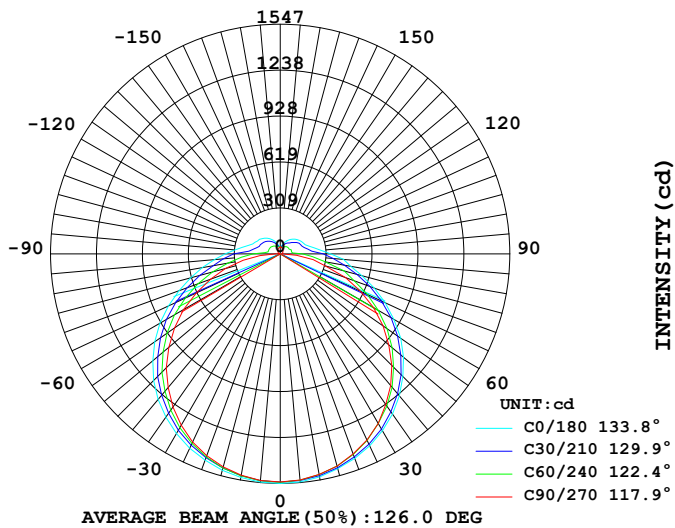
## LUMINAIRE PHOTOMETRIC TEST REPORT

Report number:

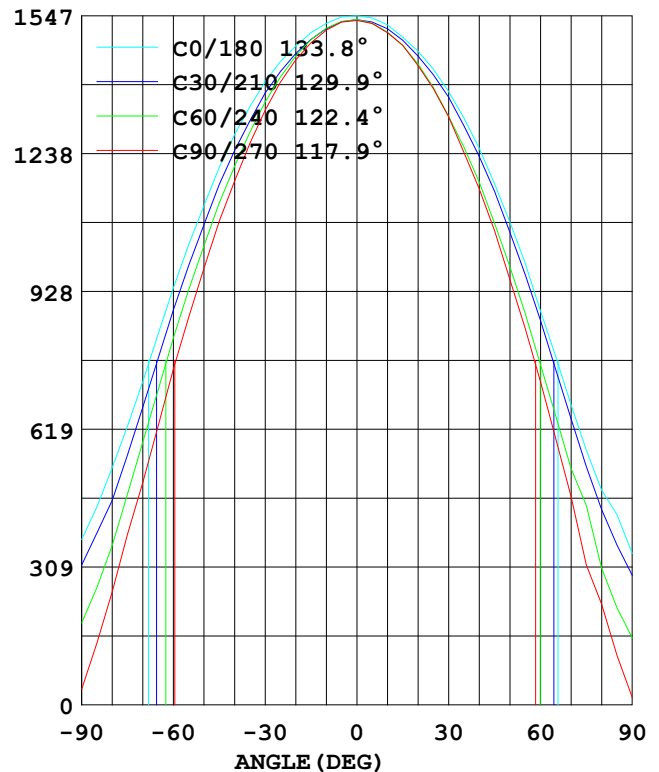
MANUFACTURER:		
Address:		
NAME: 1.5M-50W-3000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

DATA OF LAMP		Imax(cd)	1547	S/MH(C0/180)	1.35
MODEL		EFFICIENCY(%)	100.0	S/MH(C90/270)	1.29
NOMINAL POWER(W)	52	TOTAL FLUX(lm)	5984.1	Voltage(V)	220.0
RATED VOLTAGE(V)	220	EFFICIENCY(lm/W)	116.9	Current(A)	0.239
NOMINAL FLUX(lm)	5984.1	$\eta$ up(%)	11.4	Power(W)	51.20
LAMPS QUANTITY	1	$\eta$ down(%)	88.6	Power Factor(PF)	0.972
TEST VOLTAGE(V)	220.0	Effective Flux(lm)	5606.2	EEI	0.124

LUMINOUS INTENSITY DISTRIBUTION



LUMINOUS INTENSITY DISTRIBUTION



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

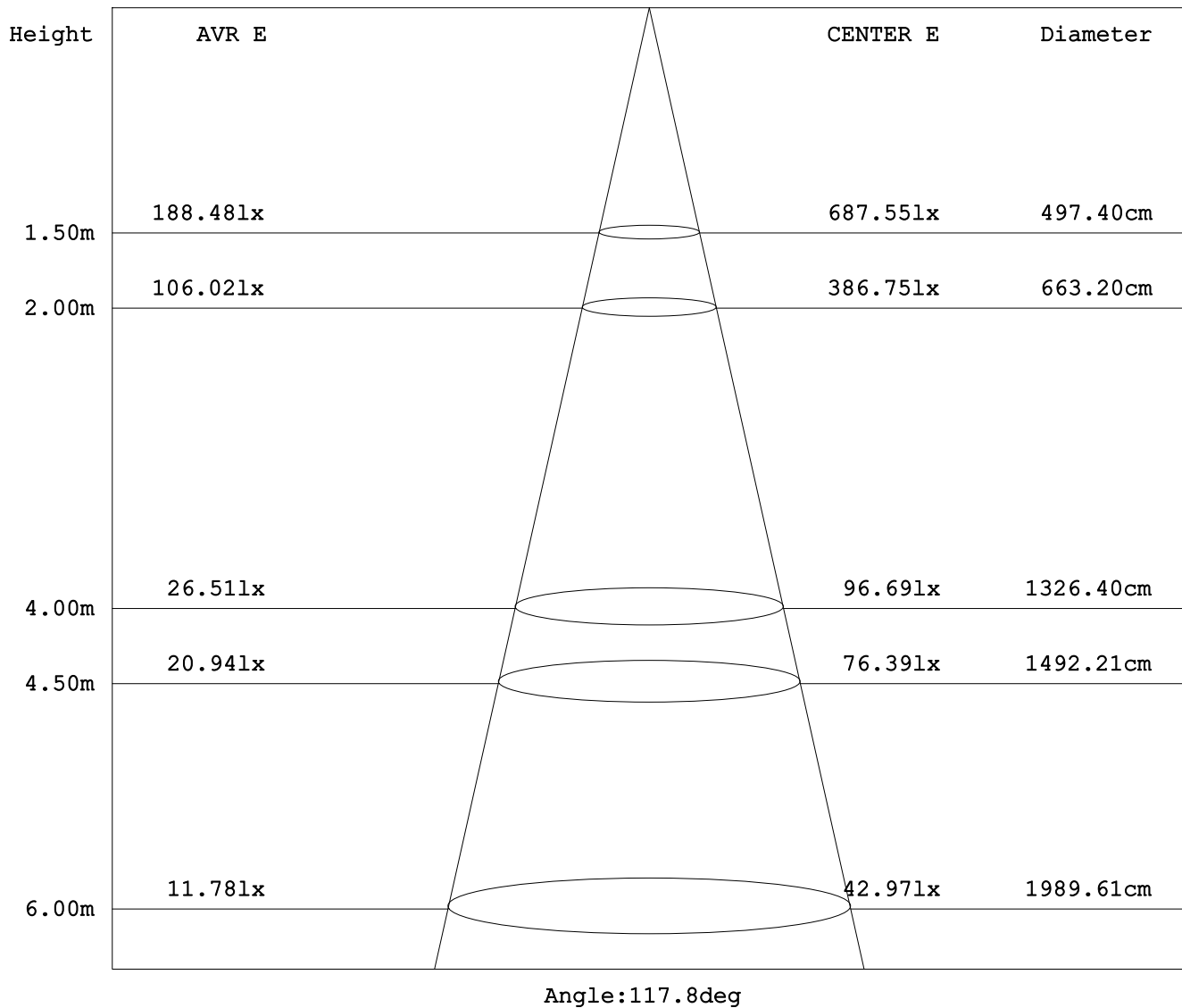
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## AVERAGE AND CENTER E Figure

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-50W-3000K	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-50W-3000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total
10.0	1530	1518	1514	1518	1526	1514	1509	1505	0- 10	145.7	145.7
20.0	1479	1459	1448	1459	1467	1447	1435	1441	10- 20	420.8	566.6
30.0	1399	1363	1334	1364	1376	1342	1320	1339	20- 30	649.8	1216
40.0	1280	1226	1175	1230	1249	1202	1158	1199	30- 40	806.5	2023
50.0	1121	1054	979.7	1058	1084	1022	955.1	1021	40- 50	872.9	2896
60.0	936.1	855.0	753.8	859.5	884.6	813.9	726.2	813.4	50- 60	839.0	3735
70.0	725.8	629.2	499.1	634.1	674.3	586.9	468.3	587.8	60- 70	711.3	4446
80.0	532.7	408.6	253.9	414.2	482.1	373.0	226.3	379.2	70- 80	523.2	4970
90.0	371.1	248.8	34.96	260.3	339.7	220.5	16.21	225.7	80- 90	330.1	5300
100.0	260.3	134.3	4.840	143.4	234.4	133.2	11.97	139.5	90-100	183.3	5483
110.0	197.5	116.7	9.317	120.9	179.8	117.6	15.73	124.6	100-110	129.8	5613
120.0	176.0	111.3	14.27	109.4	166.2	107.2	20.32	117.8	110-120	108.8	5722
130.0	160.4	103.0	20.32	99.09	150.0	94.07	24.80	106.6	120-130	91.28	5813
140.0	138.7	90.62	27.46	83.06	130.0	80.28	29.88	92.32	130-140	70.58	5884
150.0	111.9	75.98	33.39	69.99	106.6	69.81	35.21	76.16	140-150	49.62	5933
160.0	83.61	60.62	38.84	58.68	81.31	57.35	40.05	60.01	150-160	30.76	5964
170.0	55.17	50.09	43.19	47.67	54.81	47.19	45.01	50.33	160-170	15.46	5980
180.0	49.36	46.16	47.06	45.98	49.00	46.46	47.43	46.10	170-180	4.552	5984
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:

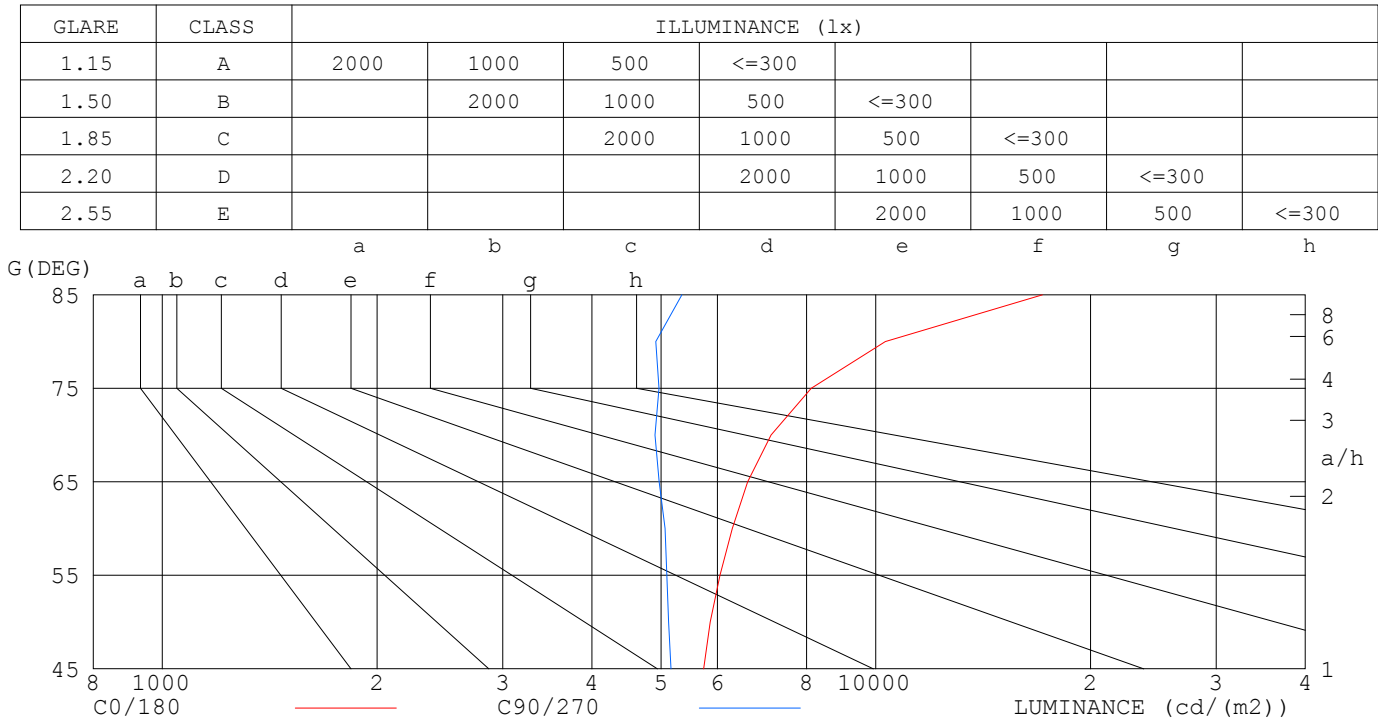
HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINANCE LIMITATION CURVES

Report number:

MANUFACTURER:					
Address:					
NAME: 1.5M-50W-3000K		TYPE:		WEIGHT:	
SPECIFICATION:		DIMENSION: 1500*152*52mm		SERIAL No.:	

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	17125	5347
80	10312	4916
75	8120	4968
70	7133	4905
65	6614	4970
60	6293	5067
55	6049	5094
50	5860	5123
45	5737	5164

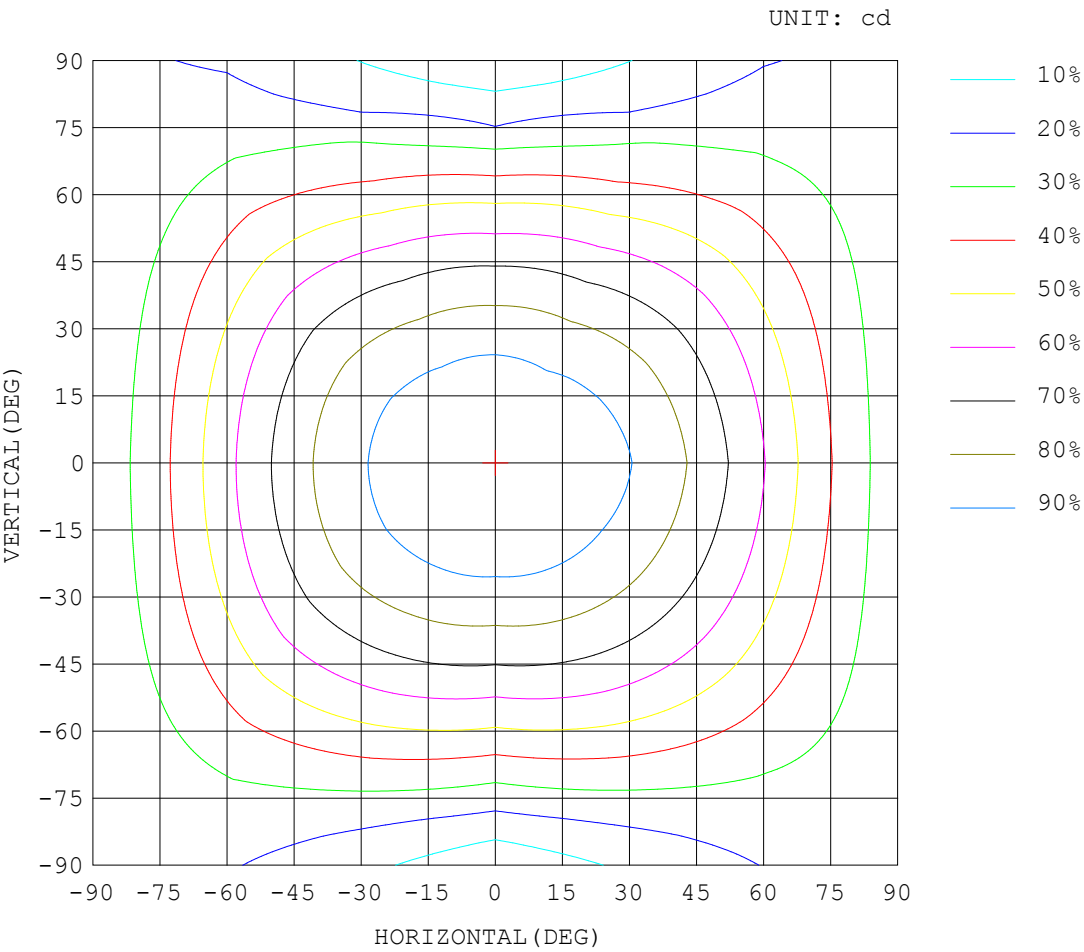
Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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-50W-3000K	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

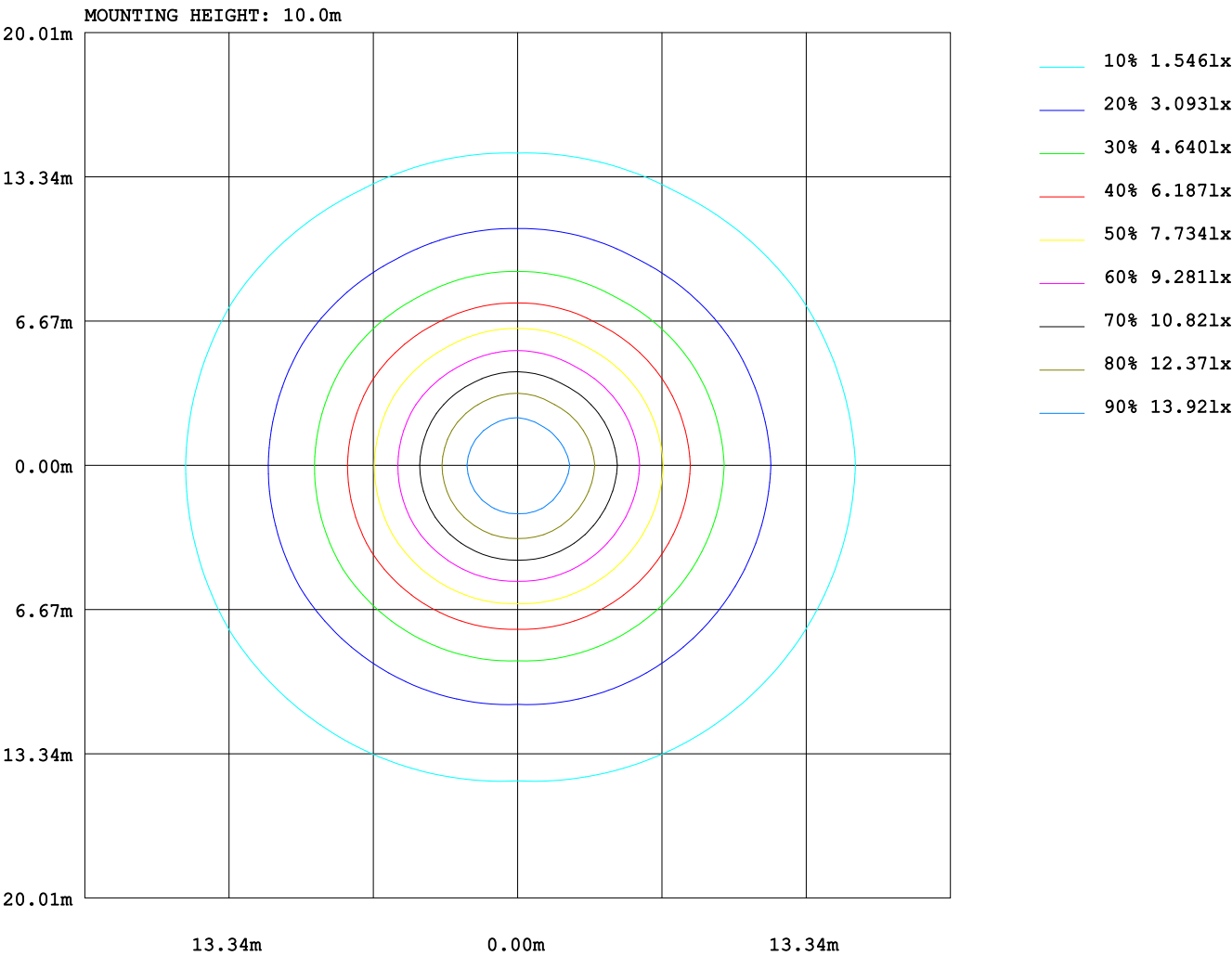
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-50W-3000K	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-50W-3000K										TYPE:					WEIGHT:				
SPECIFICATION:										DIMENSION: 1500*152*52mm					SERIAL No.:				

		AREA FLUX DIAGRAM																UNIT:lm			Φ t	Φ a
		0.90	2.63	4.22	5.34	5.80	5.78	5.44	4.89	4.05	4.05	4.90	5.45	5.84	5.93	5.51	4.40	2.78	0.96	78.9	70.7	
VERTICAL (DEG)	90	0.95	2.96	5.03	6.94	8.47	9.78	10.6	10.9	10.4	10.4	10.8	10.5	9.79	8.60	7.13	5.23	3.09	1.00	133	133	
	80	1.00	3.26	5.89	8.88	11.7	14.1	16.1	17.6	18.2	18.2	17.6	16.0	14.1	11.8	9.06	6.15	3.42	1.05	195	195	
	70	1.04	3.54	6.82	10.8	14.9	18.7	21.9	24.4	25.6	25.5	24.3	21.7	18.7	15.0	11.0	7.13	3.76	1.09	257	257	
	60	1.08	3.82	7.76	12.8	18.1	23.1	27.2	30.4	32.0	32.0	30.2	27.0	23.0	18.2	13.0	8.09	4.09	1.13	314	314	
	50	1.11	4.08	8.60	14.4	20.8	26.8	31.7	35.4	37.4	37.3	35.2	31.6	26.8	21.0	14.7	8.97	4.39	1.17	362	362	
	40	1.13	4.31	9.28	15.7	22.8	29.7	35.3	39.3	41.6	41.5	39.1	35.2	29.8	23.1	16.1	9.72	4.65	1.21	400	400	
	30	1.15	4.48	9.77	16.6	24.2	31.5	37.8	42.1	44.5	44.3	41.9	37.8	31.8	24.6	17.2	10.2	4.85	1.23	427	427	
		1.16	4.58	10.0	17.1	25.0	32.5	39.0	43.6	46.1	45.9	43.7	39.3	33.0	25.6	17.8	10.6	4.98	1.25	442	442	
		1.17	4.59	10.0	17.2	25.0	32.6	39.1	43.7	46.1	46.2	43.8	39.4	33.1	25.7	17.8	10.6	4.98	1.25	443	443	
		1.16	4.51	9.86	16.8	24.4	31.8	38.1	42.5	44.8	44.8	42.5	38.1	32.0	24.8	17.3	10.3	4.86	1.23	430	430	
		1.14	4.36	9.43	16.0	23.2	30.2	35.9	40.0	42.1	42.2	40.0	35.8	30.1	23.3	16.3	9.81	4.67	1.21	406	406	
	-30	1.12	4.15	8.80	14.8	21.4	27.5	32.7	36.3	38.1	38.1	36.3	32.6	27.4	21.3	14.9	9.09	4.42	1.18	371	371	
	-40	1.09	3.90	8.00	13.2	18.9	24.1	28.4	31.5	32.9	32.9	31.5	28.4	24.0	18.8	13.2	8.22	4.12	1.14	325	325	
	-50	1.06	3.64	7.10	11.4	15.8	20.0	23.4	25.7	26.5	26.5	25.7	23.4	19.9	15.7	11.3	7.25	3.79	1.10	270	270	
	-60	1.01	3.39	6.17	9.41	12.5	15.4	17.7	19.0	19.3	19.3	19.0	17.6	15.3	12.4	9.32	6.24	3.47	1.06	208	208	
	-70	0.97	3.10	5.39	7.53	9.30	10.8	11.8	12.2	11.9	11.9	12.1	11.7	10.6	9.17	7.40	5.35	3.14	1.01	146	146	
-80	0.92	2.77	4.60	6.00	6.73	6.99	6.75	6.03	4.95	4.90	5.90	6.54	6.75	6.51	5.82	4.54	2.84	0.97	90.6	85.5		
-90																						
		-90	-80	-70	-60	-50	-40	-30	-20	HORIZONTAL (DEG)				20	30	40	50	60	70	80	90	
Φ t	19.2	68.1	137	222	310	392	460	506	527	527	505	459	393	312	226	142	72.3	20.3	5984			
Φ a	19.2	68.1	137	222	310	392	459	504	524	523	503	458	393	312	226	142	72.3	20.3		5606		

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:

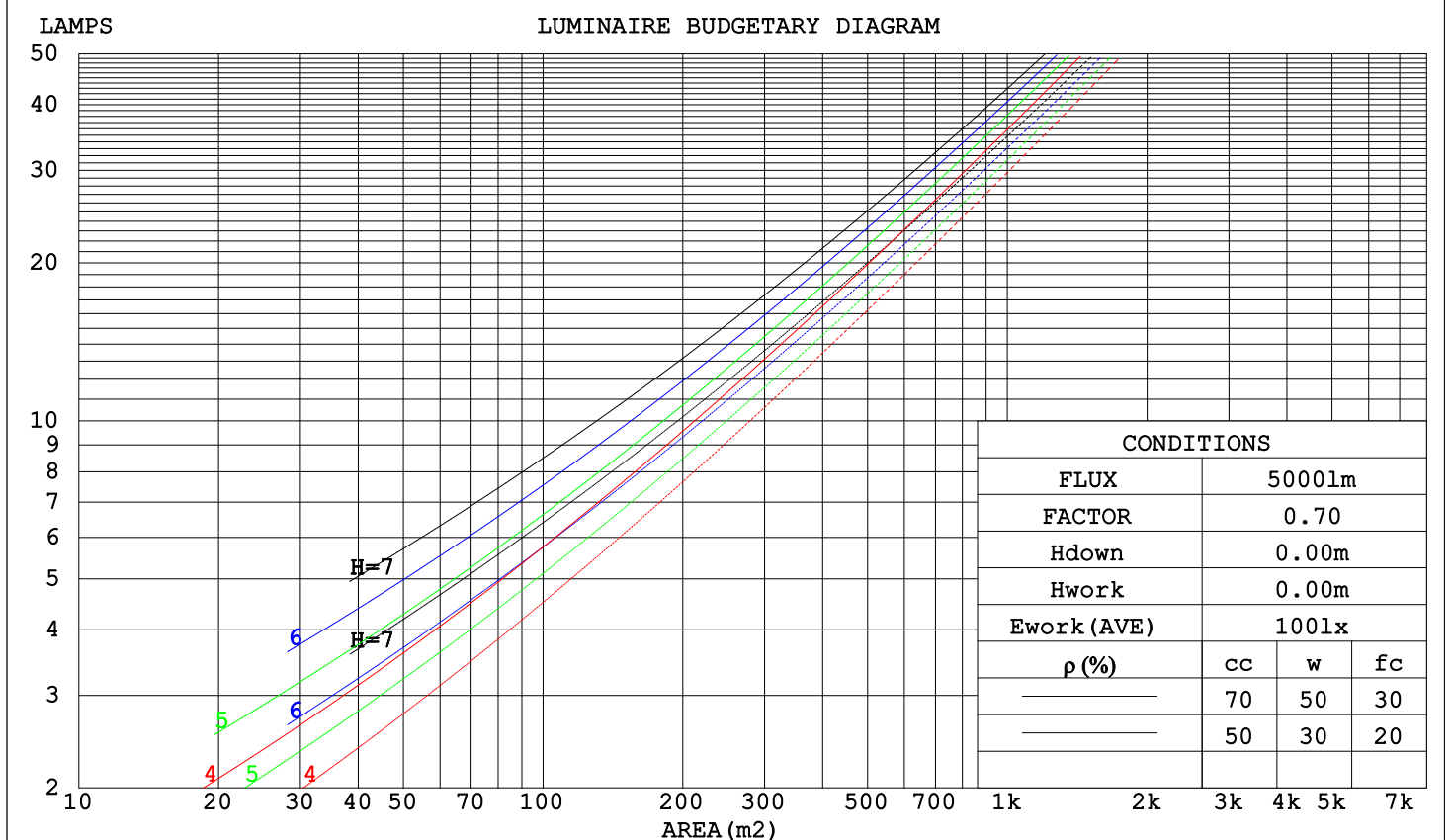
# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

MANUFACTURER:															
Address:															
NAME: 1.5M-50W-3000K								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-50W-3000K								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	.360	.205	.065	.350	.199	.063	.330	.189	.060	.311	.180	.058	.294	.171	.055															
2.0	.320	.176	.054	.311	.171	.053	.293	.163	.051	.276	.155	.048	.261	.148	.047															
3.0	.288	.153	.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	.204	.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	.237	.237	.237	.162	.162	.162	.093	.093	.093	.030	.030	.030	
1.0	.272	.244	.218	.232	.209	.188	.159	.144	.130	.092	.083	.076	.029	.027	.024	
2.0	.264	.220	.183	.227	.190	.158	.155	.131	.110	.090	.076	.065	.029	.025	.021	
3.0	.257	.203	.161	.220	.175	.139	.151	.122	.098	.087	.071	.058	.028	.023	.019	
4.0	.249	.191	.146	.214	.165	.127	.147	.115	.089	.085	.067	.053	.027	.022	.017	
5.0	.242	.181	.135	.208	.156	.118	.143	.109	.083	.083	.064	.049	.027	.021	.016	
6.0	.234	.172	.128	.201	.149	.112	.139	.105	.079	.081	.062	.047	.026	.020	.015	
7.0	.227	.166	.123	.196	.144	.107	.135	.101	.076	.078	.059	.045	.025	.019	.015	
8.0	.221	.160	.119	.190	.139	.103	.131	.098	.073	.076	.058	.044	.025	.019	.014	
9.0	.214	.155	.115	.185	.135	.101	.128	.095	.071	.075	.056	.043	.024	.018	.014	
10.0	.209	.151	.113	.180	.131	.098	.125	.092	.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-50W-3000K					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	18.7	20.1	19.1	20.5	20.9	17.9	19.3	18.3	19.7	20.2	
3H	20.8	22.2	21.3	22.6	23.1	19.6	20.9	20.1	21.4	21.8	
4H	22.0	23.2	22.4	23.7	24.2	20.4	21.6	20.8	22.1	22.6	
6H	23.2	24.4	23.7	24.8	25.3	21.0	22.1	21.5	22.6	23.1	
8H	23.8	25.0	24.3	25.4	26.0	21.2	22.3	21.7	22.8	23.4	
12H	24.6	25.7	25.1	26.2	26.7	21.4	22.5	21.9	23.0	23.5	
4H 2H	19.3	20.5	19.8	21.0	21.5	18.7	20.0	19.2	20.4	20.9	
3H	21.6	22.8	22.2	23.2	23.8	20.6	21.7	21.2	22.2	22.8	
4H	22.9	23.9	23.5	24.5	25.0	21.5	22.6	22.1	23.1	23.6	
6H	24.3	25.2	24.9	25.8	26.4	22.3	23.2	22.9	23.8	24.4	
8H	25.1	25.9	25.7	26.5	27.1	22.6	23.5	23.2	24.0	24.7	
12H	26.0	26.8	26.6	27.3	28.0	22.9	23.7	23.5	24.3	24.9	
8H 4H	23.3	24.1	23.8	24.7	25.3	22.1	22.9	22.7	23.5	24.1	
6H	24.9	25.6	25.5	26.2	26.9	23.1	23.8	23.7	24.4	25.1	
8H	25.9	26.5	26.5	27.1	27.8	23.6	24.3	24.2	24.9	25.6	
12H	27.0	27.6	27.7	28.2	28.9	24.1	24.6	24.7	25.2	26.0	
12H 4H	23.3	24.1	23.9	24.6	25.3	22.2	23.0	22.8	23.6	24.2	
6H	25.0	25.7	25.7	26.3	27.0	23.4	24.0	24.0	24.6	25.3	
8H	26.1	26.6	26.7	27.3	28.0	24.0	24.6	24.6	25.2	25.9	
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	+ 0.2 / - 0.3					+ 0.2 / - 0.4					

CIE Pub.117 Corrected 5984 lm Total Lamp Luminous Flux. (8log(F/F0) = 6.2)

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-50W-3000K	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) $k(RI) \times RCR = 5$									
$k = 0.60$	51	39	32	50	38	31	48	38	31	24
0.80	61	48	40	59	47	40	57	46	39	31
1.00	69	56	48	67	55	48	64	56	47	38
1.25	76	64	56	73	63	55	70	60	54	45
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	76	89	81	74	84	77	71	60
3.00	96	87	81	93	85	79	87	81	76	64
4.00	100	93	87	97	90	85	91	86	81	69
5.00	103	97	92	100	94	89	93	89	85	72
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

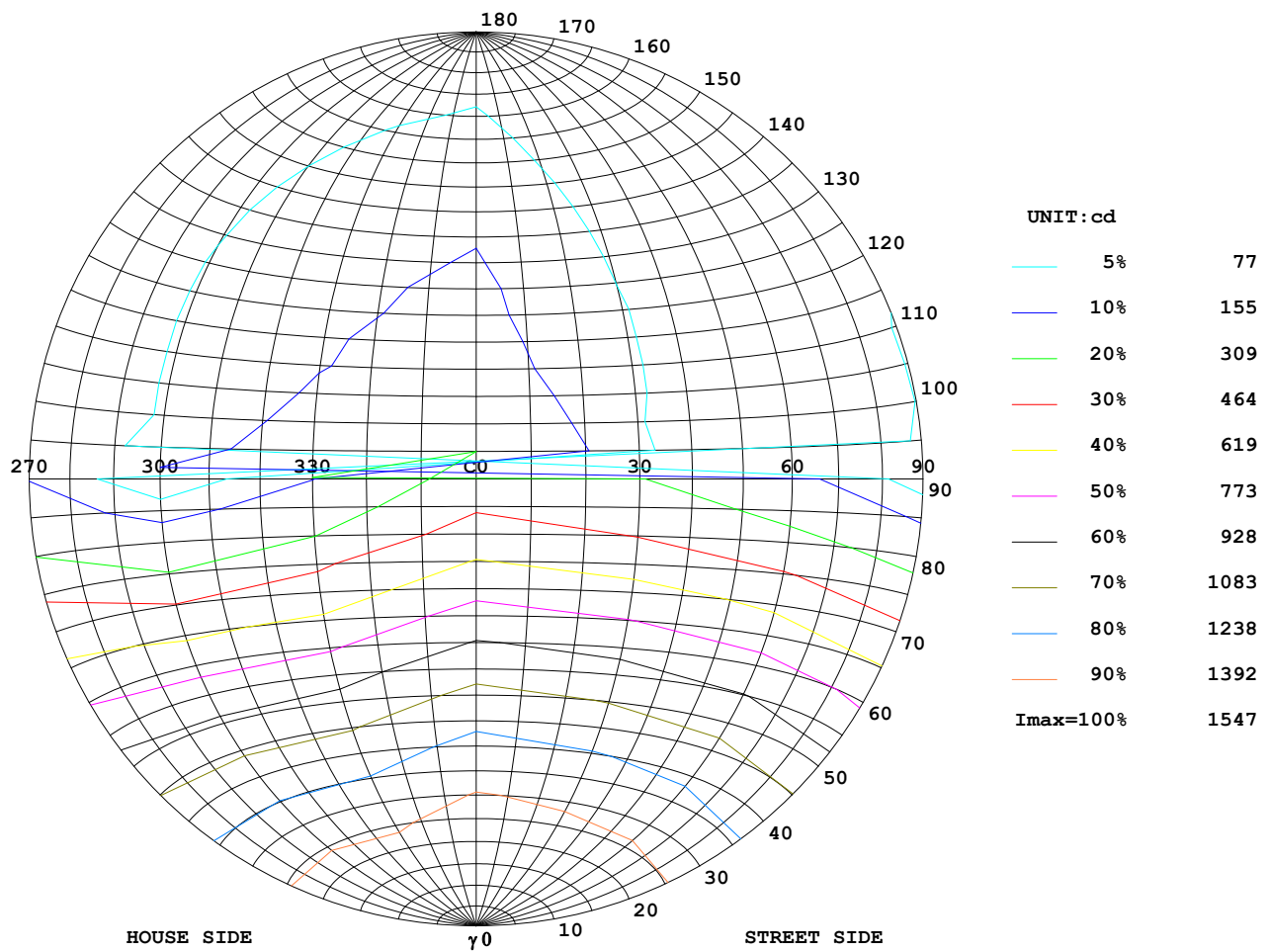
Test System:HOPOO HPG1800  
 Temperature:25.3DEG  
 Operators:  
 Test Date:2022年11月14日

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-50W-3000K	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:

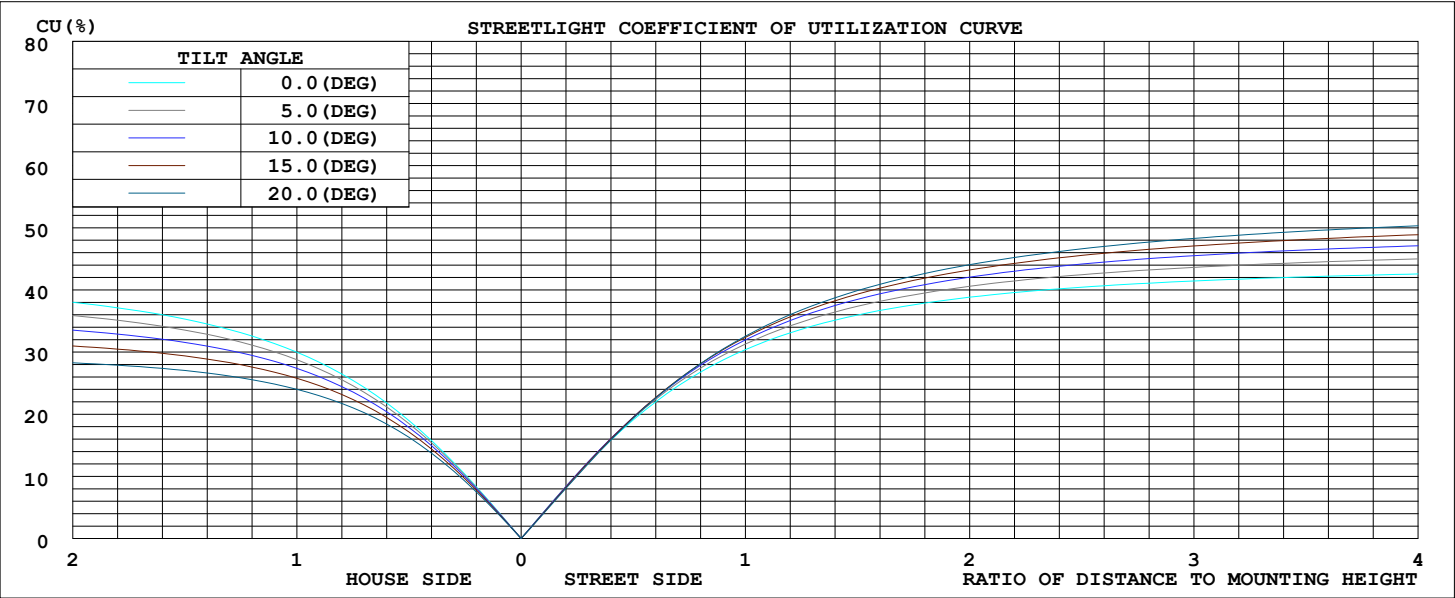
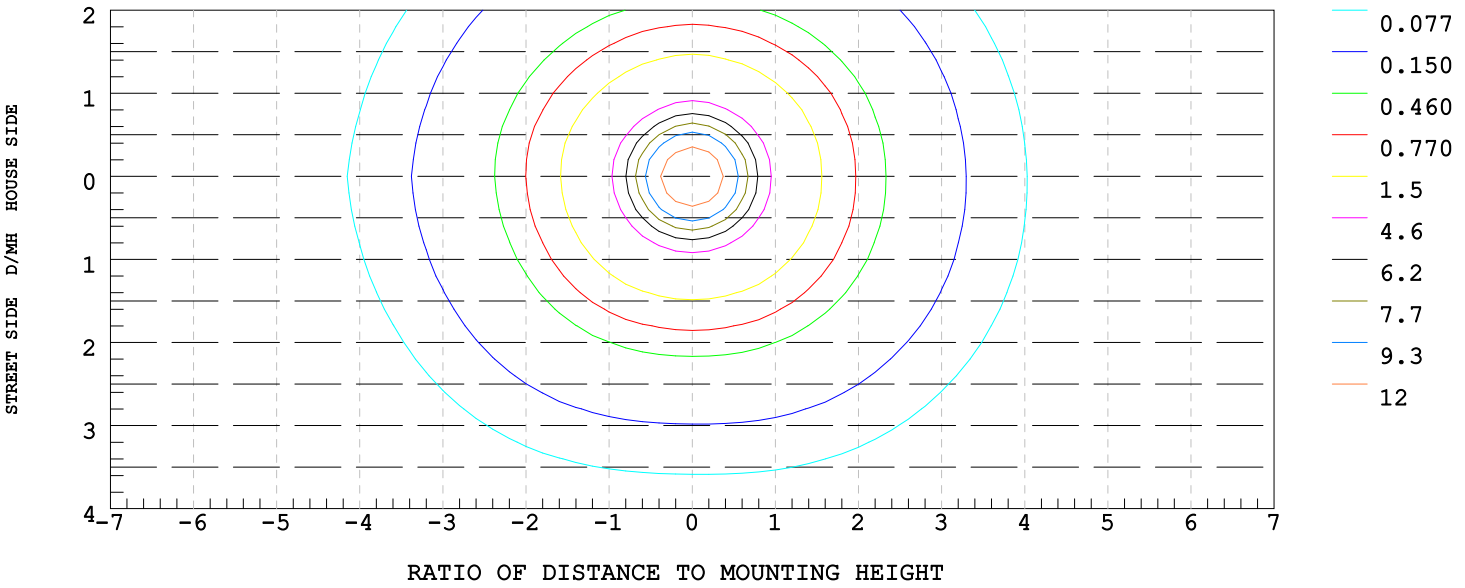
HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-50W-3000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

ILLUMINANCE AT MH=10 m,Enadir = 15.47 lx



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

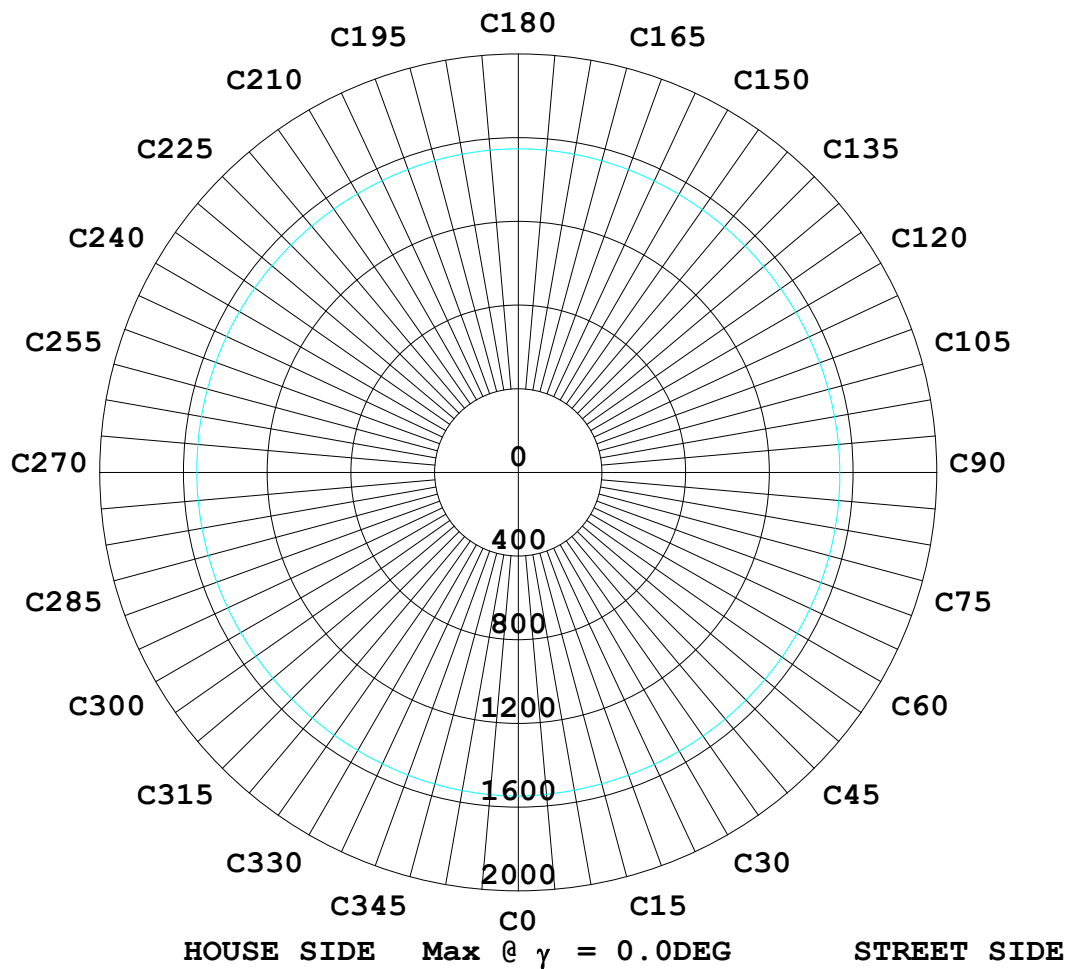
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-50W-3000K	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: