

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

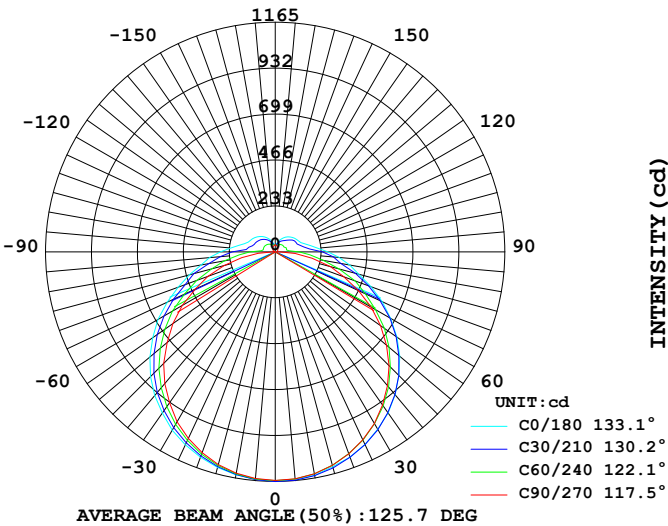
LUMINAIRE PHOTOMETRIC TEST REPORT

Report number:

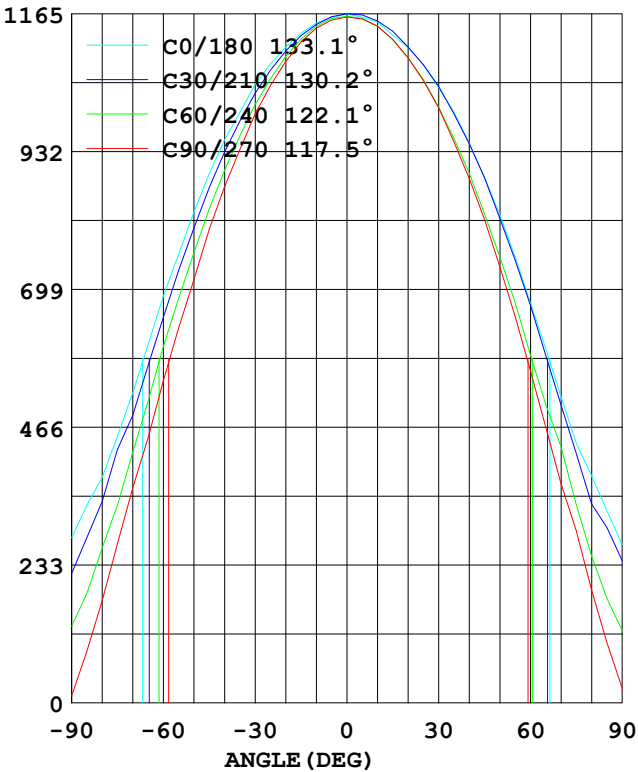
MANUFACTURER:		
Address:		
NAME: 1.5M-36W-3000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

DATA OF LAMP		Imax(cd)	1165	S/MH(C0/180)	1.33
MODEL		EFFICIENCY(%)	100.0	S/MH(C90/270)	1.28
NOMINAL POWER(W)	36	TOTAL FLUX(lm)	4520.5	Voltage(V)	220.0
RATED VOLTAGE(V)	220	EFFICIENCY(lm/W)	122.6	Current(A)	0.175
NOMINAL FLUX(lm)	4520.5	$\eta$ up(%)	11.5	Power(W)	36.86
LAMPS QUANTITY	1	$\eta$ down(%)	88.5	Power Factor(PF)	0.956
TEST VOLTAGE(V)	220.0	Effective Flux(lm)	4239.0	EEI	0.118

LUMINOUS INTENSITY DISTRIBUTION



LUMINOUS INTENSITY DISTRIBUTION



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

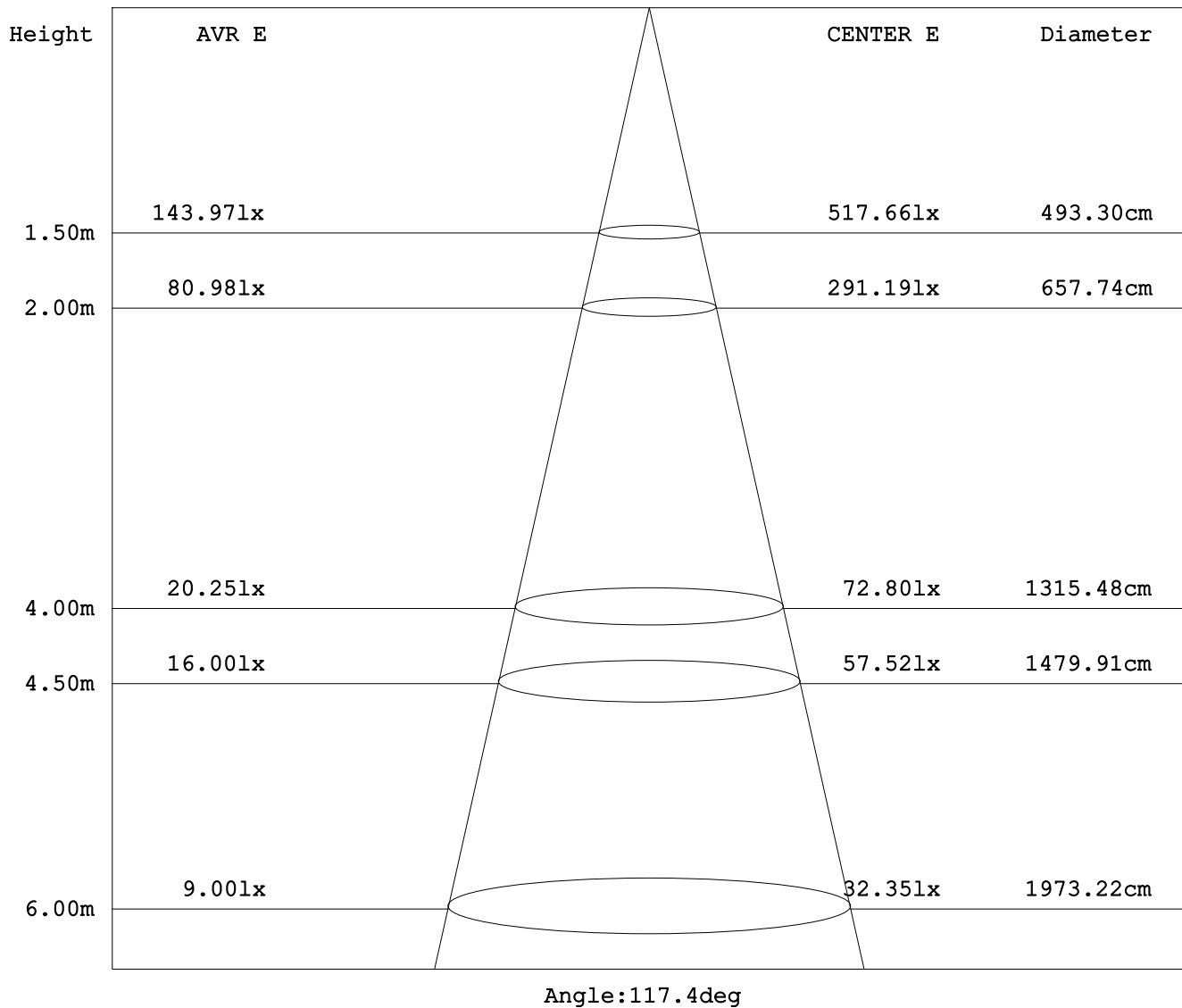
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## AVERAGE AND CENTER E Figure

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-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-36W-3000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total
10.0	1149	1145	1141	1148	1151	1149	1144	1146	0- 10	110.2	110.2
20.0	1109	1097	1084	1100	1109	1099	1090	1098	10- 20	318.1	428.4
30.0	1045	1021	995.7	1025	1040	1025	1006	1024	20- 30	491.1	919.5
40.0	951.6	915.7	872.5	920.3	946.3	920.3	886.4	920.2	30- 40	609.3	1529
50.0	829.9	782.1	715.7	786.1	825.4	786.5	737.3	787.6	40- 50	658.9	2188
60.0	687.8	627.4	544.8	632.2	676.2	630.2	561.6	632.1	50- 60	632.2	2820
70.0	524.6	455.0	363.8	459.6	517.7	468.4	370.8	469.5	60- 70	535.6	3356
80.0	381.5	301.5	172.9	309.8	384.0	292.4	190.9	295.5	70- 80	395.4	3751
90.0	279.1	174.1	11.73	185.3	267.5	180.9	24.32	186.5	80- 90	251.5	4003
100.0	190.2	99.46	3.388	106.9	182.5	103.0	9.196	108.2	90-100	138.5	4141
110.0	146.4	87.96	6.897	91.71	138.5	89.29	12.22	95.10	100-110	98.25	4239
120.0	133.2	83.67	10.89	82.82	126.3	81.67	15.00	90.44	110-120	82.51	4322
130.0	119.6	76.83	15.73	74.47	114.5	72.60	17.90	81.85	120-130	69.17	4391
140.0	102.6	67.15	20.69	62.79	99.82	61.95	21.65	71.51	130-140	53.44	4445
150.0	82.03	56.14	25.28	52.69	82.27	53.66	25.16	59.16	140-150	37.55	4482
160.0	60.50	44.46	29.88	43.80	62.79	44.64	29.03	46.64	150-160	23.24	4505
170.0	41.26	37.26	33.15	35.63	43.07	36.29	33.27	38.41	160-170	11.68	4517
180.0	36.66	35.02	35.45	35.02	36.54	35.21	35.93	35.15	170-180	3.428	4521
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:

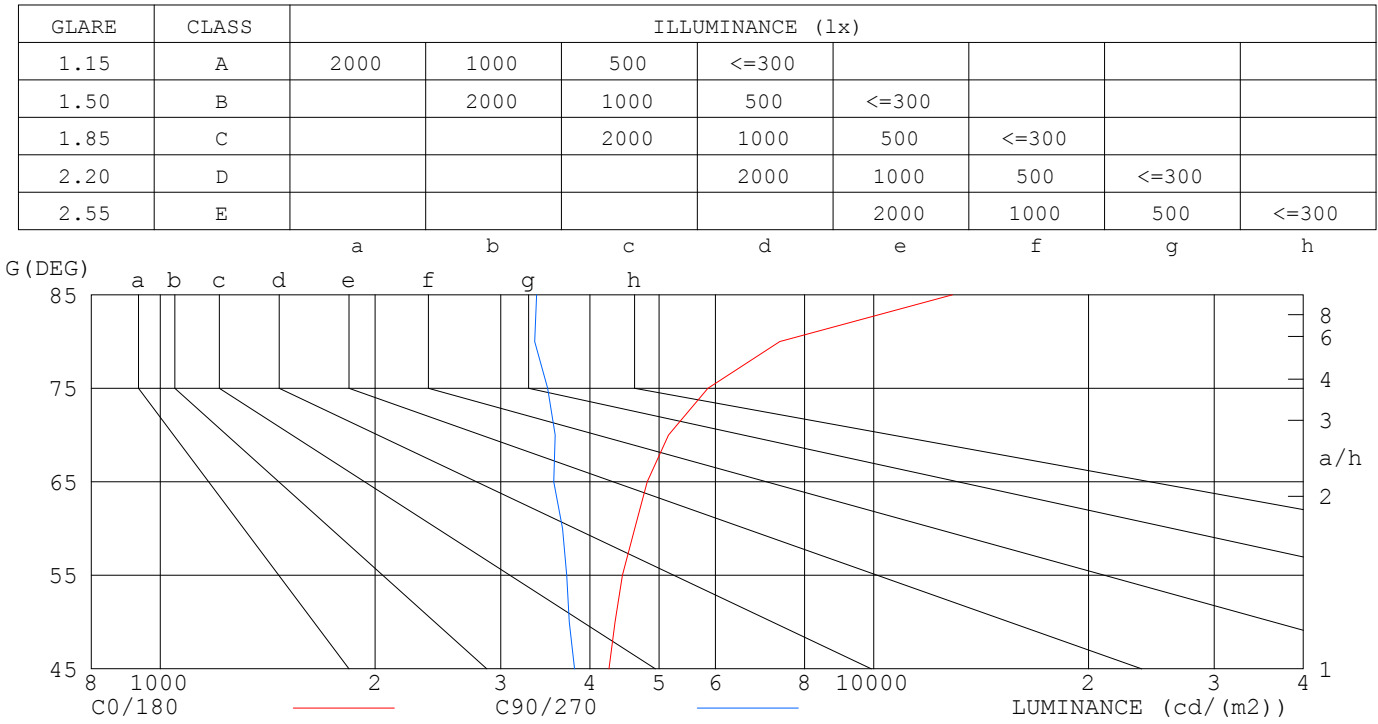
HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

LUMINANCE LIMITATION CURVES

Report number:

MANUFACTURER:					
Address:					
NAME: 1.5M-36W-3000K		TYPE:		WEIGHT:	
SPECIFICATION:		DIMENSION: 1500*152*52mm		SERIAL No.:	

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	12888	3369
80	7384	3347
75	5853	3491
70	5156	3575
65	4814	3560
60	4624	3663
55	4443	3712
50	4340	3742
45	4255	3807

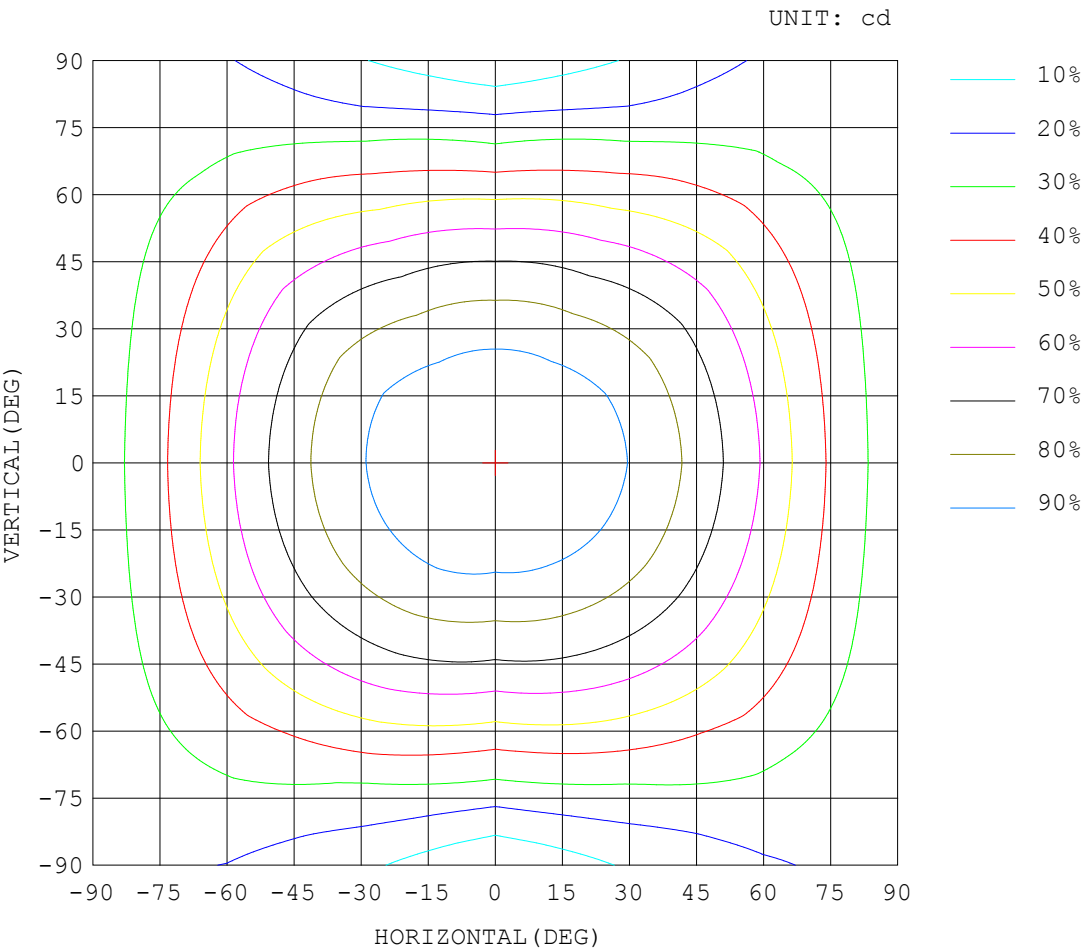
Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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-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

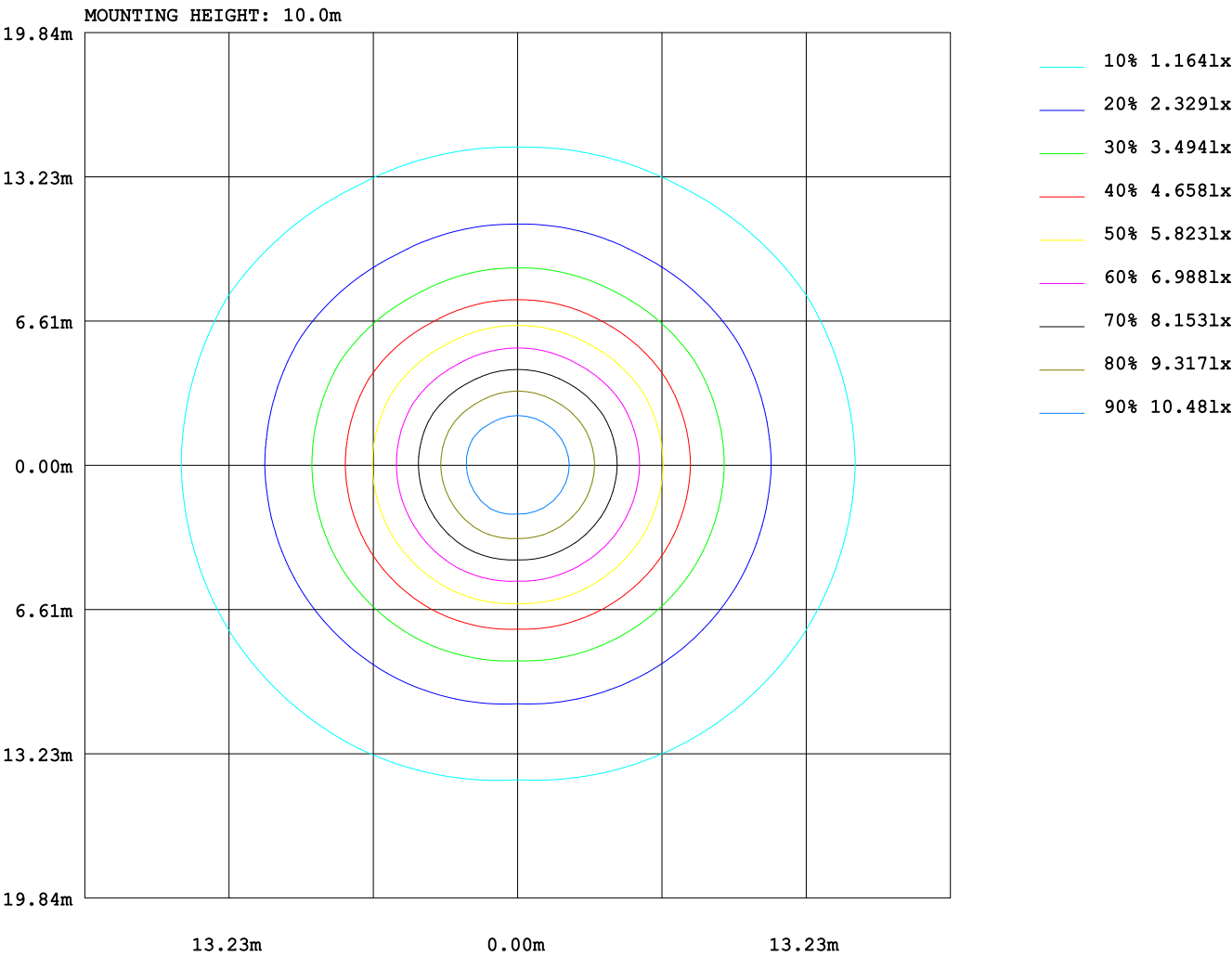
Test Set: 10.0deg/s C-Gamma (TYPE C)  
Humidity:65.0%  
Test Distance:11.000 m  
Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-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-36W-3000K										TYPE:					WEIGHT:					
SPECIFICATION:										DIMENSION: 1500*152*52mm					SERIAL No.:					

VERTICAL (DEG)	AREA FLUX DIAGRAM																		UNIT:lm		Φ t	Φ a
	0.71	2.11	3.45	4.40	4.74	4.69	4.45	4.12	3.54	3.55	4.14	4.50	4.76	4.85	4.53	3.56	2.19	0.74	65.1	60.2		
90																						
80	0.75	2.35	4.02	5.46	6.63	7.60	8.37	8.89	8.88	8.88	8.89	8.37	7.62	6.69	5.56	4.12	2.42	0.77	106	106		
70	0.78	2.56	4.58	6.93	9.21	11.2	12.7	13.8	14.2	14.2	13.9	12.8	11.2	9.24	6.98	4.64	2.62	0.81	153	153		
60	0.81	2.77	5.33	8.54	11.7	14.5	16.9	18.8	19.7	19.7	18.9	17.0	14.6	11.7	8.56	5.38	2.80	0.84	199	199		
50	0.84	2.99	6.04	9.98	14.1	17.8	20.8	23.3	24.6	24.6	23.3	20.9	17.8	14.1	10.0	6.09	3.01	0.86	242	242		
40	0.86	3.18	6.66	11.2	16.1	20.6	24.3	27.0	28.6	28.6	27.0	24.3	20.6	16.1	11.2	6.72	3.22	0.88	278	278		
30	0.88	3.35	7.17	12.1	17.6	22.8	27.0	29.9	31.6	31.6	29.9	27.0	22.8	17.6	12.1	7.23	3.39	0.90	305	305		
	0.90	3.47	7.52	12.7	18.5	24.1	28.8	32.0	33.7	33.7	32.0	28.8	24.1	18.6	12.8	7.60	3.52	0.91	324	324		
	0.91	3.54	7.71	13.1	19.0	24.7	29.5	33.1	34.9	34.8	33.0	29.6	24.7	19.1	13.2	7.80	3.60	0.92	334	334		
	0.91	3.54	7.69	13.0	18.9	24.6	29.4	32.9	34.9	34.8	33.0	29.5	24.7	19.0	13.1	7.78	3.59	0.92	333	333		
	0.90	3.47	7.47	12.6	18.4	23.9	28.6	32.0	33.8	33.7	31.9	28.6	23.9	18.4	12.7	7.54	3.52	0.91	323	323		
-30	0.88	3.35	7.09	11.9	17.3	22.5	26.9	30.1	31.6	31.5	29.9	26.8	22.5	17.3	12.0	7.14	3.39	0.90	304	304		
-40	0.86	3.20	6.57	10.9	15.8	20.5	24.4	27.2	28.4	28.3	27.0	24.3	20.4	15.8	11.0	6.62	3.22	0.88	276	276		
-50	0.84	3.01	5.98	9.73	13.8	17.8	21.2	23.4	24.3	24.2	23.3	21.0	17.7	13.8	9.72	6.03	3.01	0.85	240	240		
-60	0.81	2.79	5.36	8.35	11.5	14.7	17.3	18.9	19.4	19.3	18.7	17.1	14.5	11.4	8.36	5.39	2.77	0.82	198	198		
-70	0.77	2.56	4.67	6.99	9.11	11.1	12.9	13.8	13.9	13.9	13.7	12.7	11.0	9.12	7.01	4.61	2.55	0.79	152	152		
-80	0.74	2.32	4.00	5.59	6.86	7.81	8.42	8.68	8.46	8.46	8.67	8.39	7.76	6.75	5.45	3.92	2.32	0.76	105	105		
-90	0.71	2.07	3.35	4.33	4.86	5.05	4.82	4.18	3.26	3.22	4.04	4.60	4.80	4.64	4.15	3.26	2.07	0.72	64.1	59.5		
	-90	-80	-70	-60	-50	-40	-30	-20	HORIZONTAL (DEG)				20	30	40	50	60	70	80	90		
Φ t	14.8	52.6	105	168	235	297	347	383	398	398	382	347	296	235	169	106	53.2	15.1	4521			
Φ a	14.8	52.6	105	168	235	297	347	381	396	395	380	346	296	235	169	106	53.2	15.1			4239	

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:

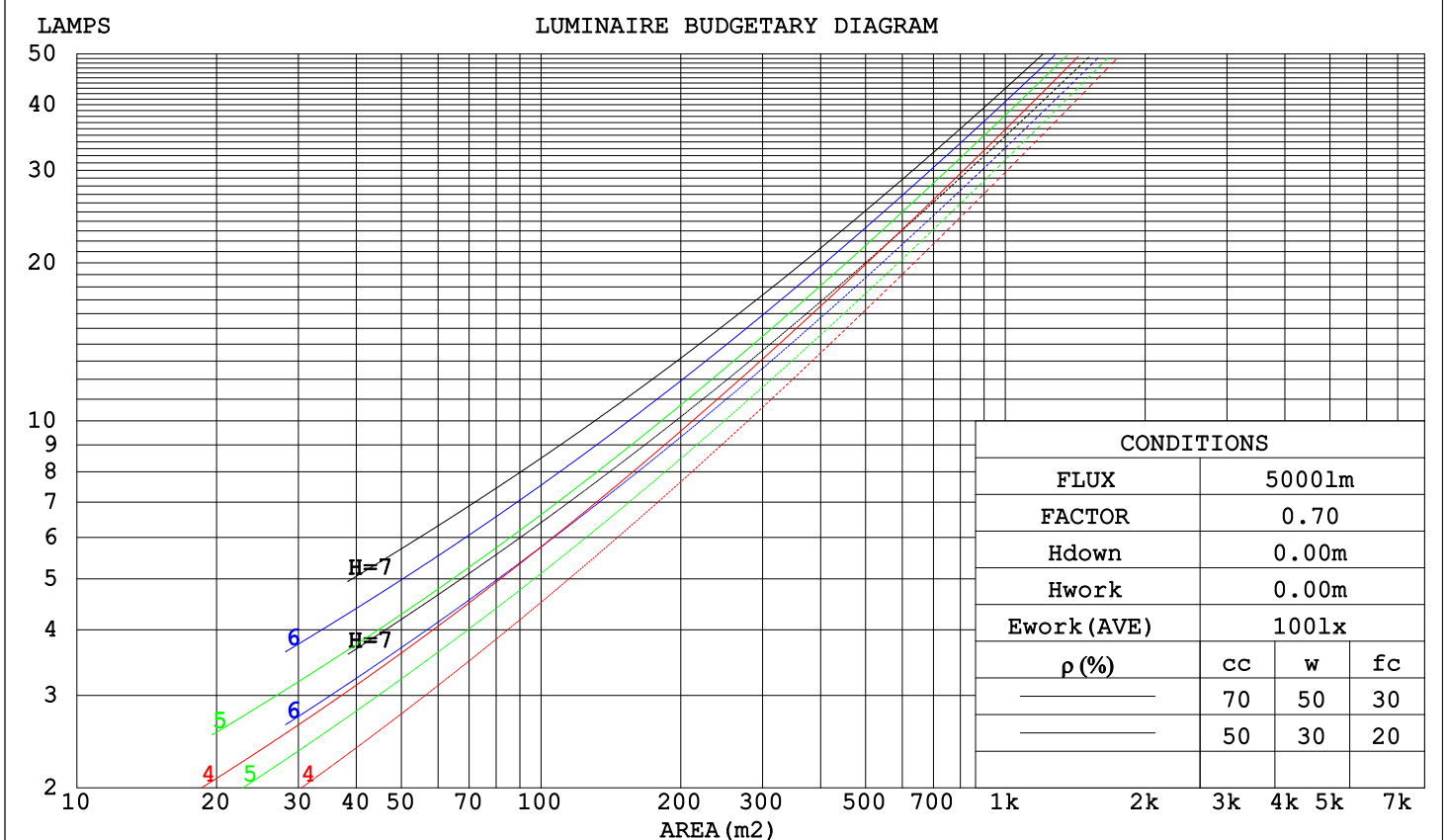
# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Report number:

MANUFACTURER:															
Address:															
NAME: 1.5M-36W-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-36W-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	.361	.205	.065	.350	.200	.063	.330	.189	.060	.312	.180	.058	.295	.171	.055															
2.0	.320	.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	.237	.237	.237	.162	.162	.162	.093	.093	.093	.030	.030	.030	
1.0	.272	.244	.218	.233	.209	.188	.159	.144	.130	.092	.083	.076	.029	.027	.024	
2.0	.265	.220	.183	.227	.190	.158	.155	.131	.110	.090	.076	.065	.029	.025	.021	
3.0	.257	.203	.161	.220	.176	.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	.136	.208	.156	.118	.143	.109	.083	.083	.064	.049	.027	.021	.016	
6.0	.234	.173	.128	.202	.150	.112	.139	.105	.079	.081	.062	.047	.026	.020	.016	
7.0	.227	.166	.123	.196	.144	.107	.135	.101	.076	.079	.059	.045	.025	.019	.015	
8.0	.221	.160	.119	.190	.139	.104	.132	.098	.073	.077	.058	.044	.025	.019	.014	
9.0	.215	.155	.115	.185	.135	.101	.128	.095	.072	.075	.056	.043	.024	.018	.014	
10.0	.209	.151	.113	.180	.131	.099	.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-36W-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	17.5	19.0	17.9	19.4	19.8	16.7	18.1	17.1	18.5	18.9	
	3H	19.6	21.0	20.1	21.4	21.9	18.3	19.7	18.8	20.1	20.6
	4H	20.8	22.0	21.2	22.5	23.0	19.1	20.3	19.5	20.8	21.3
	6H	21.9	23.1	22.4	23.6	24.1	19.6	20.8	20.1	21.3	21.8
	8H	22.6	23.8	23.1	24.2	24.8	19.8	21.0	20.3	21.5	22.0
	12H	23.4	24.5	23.9	25.0	25.6	20.0	21.1	20.5	21.6	22.1
4H	2H	18.1	19.4	18.6	19.8	20.3	17.5	18.7	18.0	19.2	19.7
	3H	20.5	21.6	21.0	22.1	22.6	19.4	20.5	19.9	21.0	21.5
	4H	21.8	22.8	22.3	23.3	23.9	20.2	21.3	20.8	21.8	22.4
	6H	23.1	24.0	23.7	24.6	25.2	21.0	21.9	21.6	22.4	23.0
	8H	23.9	24.8	24.5	25.3	26.0	21.3	22.1	21.8	22.7	23.3
	12H	24.8	25.6	25.4	26.2	26.9	21.5	22.3	22.1	22.8	23.5
8H	4H	22.1	22.9	22.7	23.5	24.1	20.8	21.7	21.4	22.2	22.9
	6H	23.7	24.4	24.3	25.0	25.7	21.8	22.5	22.4	23.1	23.8
	8H	24.7	25.3	25.3	26.0	26.7	22.3	22.9	22.9	23.5	24.2
	12H	25.9	26.4	26.5	27.1	27.8	22.7	23.2	23.3	23.8	24.6
12H	4H	22.1	22.9	22.7	23.5	24.1	21.0	21.8	21.6	22.3	23.0
	6H	23.8	24.5	24.5	25.1	25.8	22.1	22.7	22.7	23.4	24.1
	8H	24.9	25.5	25.6	26.1	26.8	22.7	23.2	23.3	23.9	24.6
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	+ 0.1 / - 0.3					+ 0.2 / - 0.4					

CIE Pub.117 Corrected 4521 lm Total Lamp Luminous Flux. (8log(F/F0) = 5.2)

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-36W-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) x 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	75	64
4.00	100	93	87	97	90	85	91	85	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

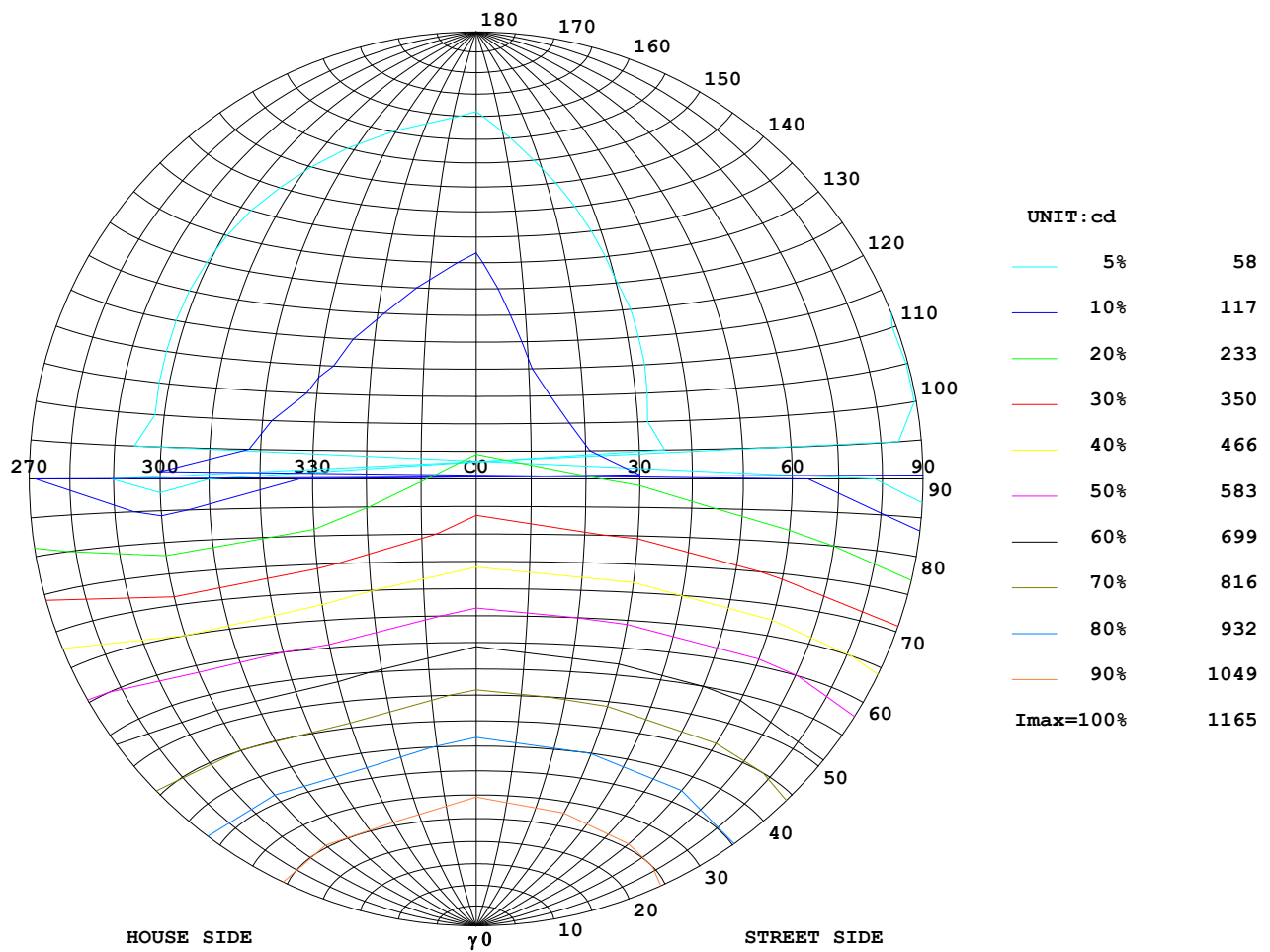
Test Set: 10.0deg/s C-Gamma (TYPE C)  
 Humidity:65.0%  
 Test Distance:11.000 m  
 Remarks:

HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

ISOCANDELA DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-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:

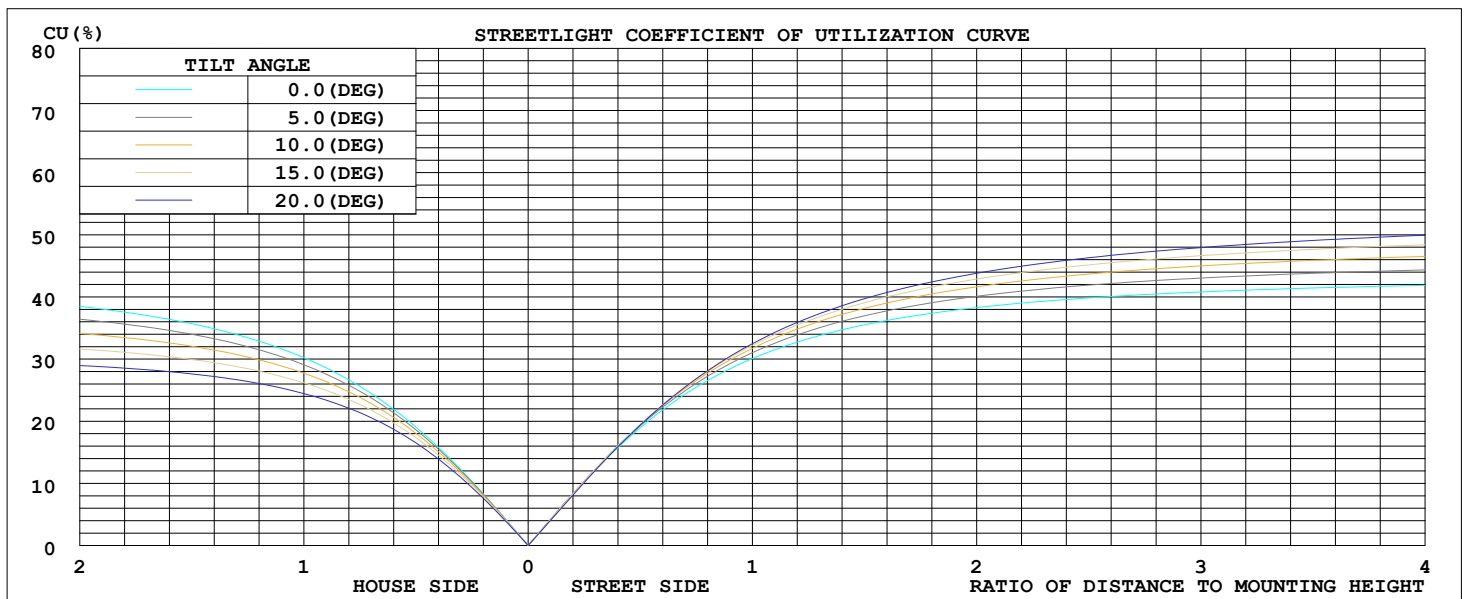
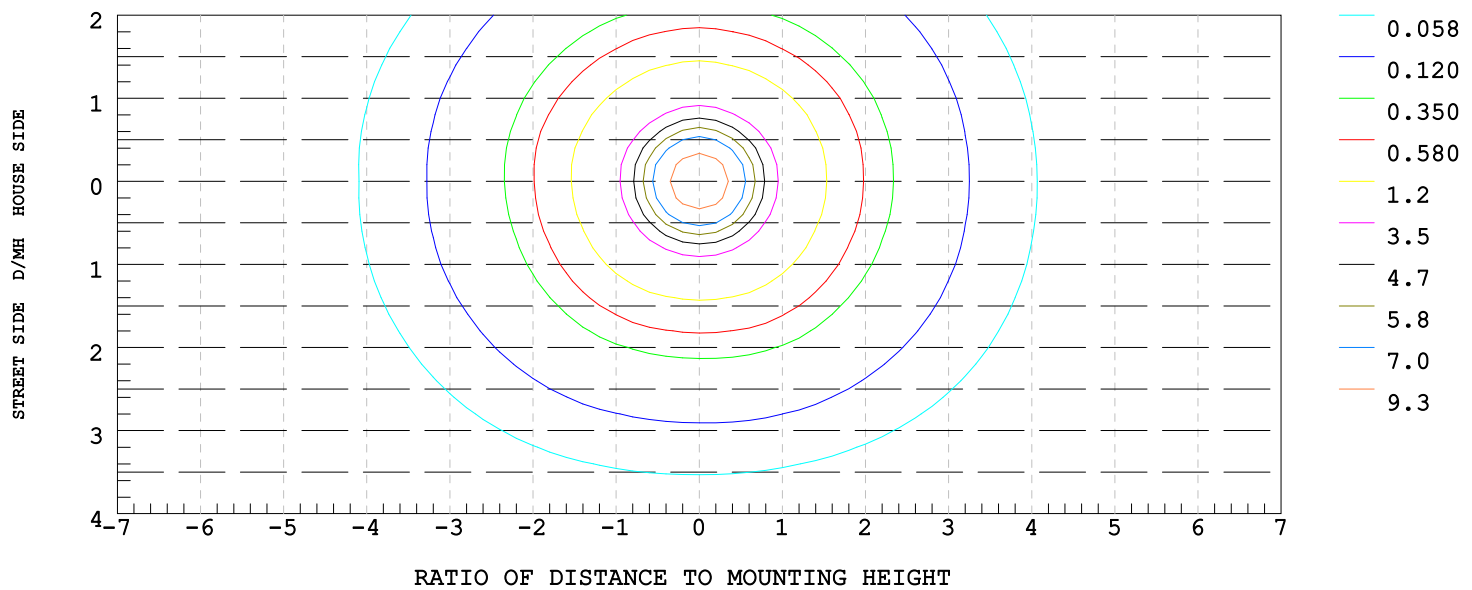
# HOPOO GONIOPHOTOMETERS SYSTEM TEST REPORT

## ISOLUX DIAGRAM

Report number:

MANUFACTURER:		
Address:		
NAME: 1.5M-36W-3000K	TYPE:	WEIGHT:
SPECIFICATION:	DIMENSION: 1500*152*52mm	SERIAL No.:

ILLUMINANCE AT MH=10 m, Enadir = 11.65 lx



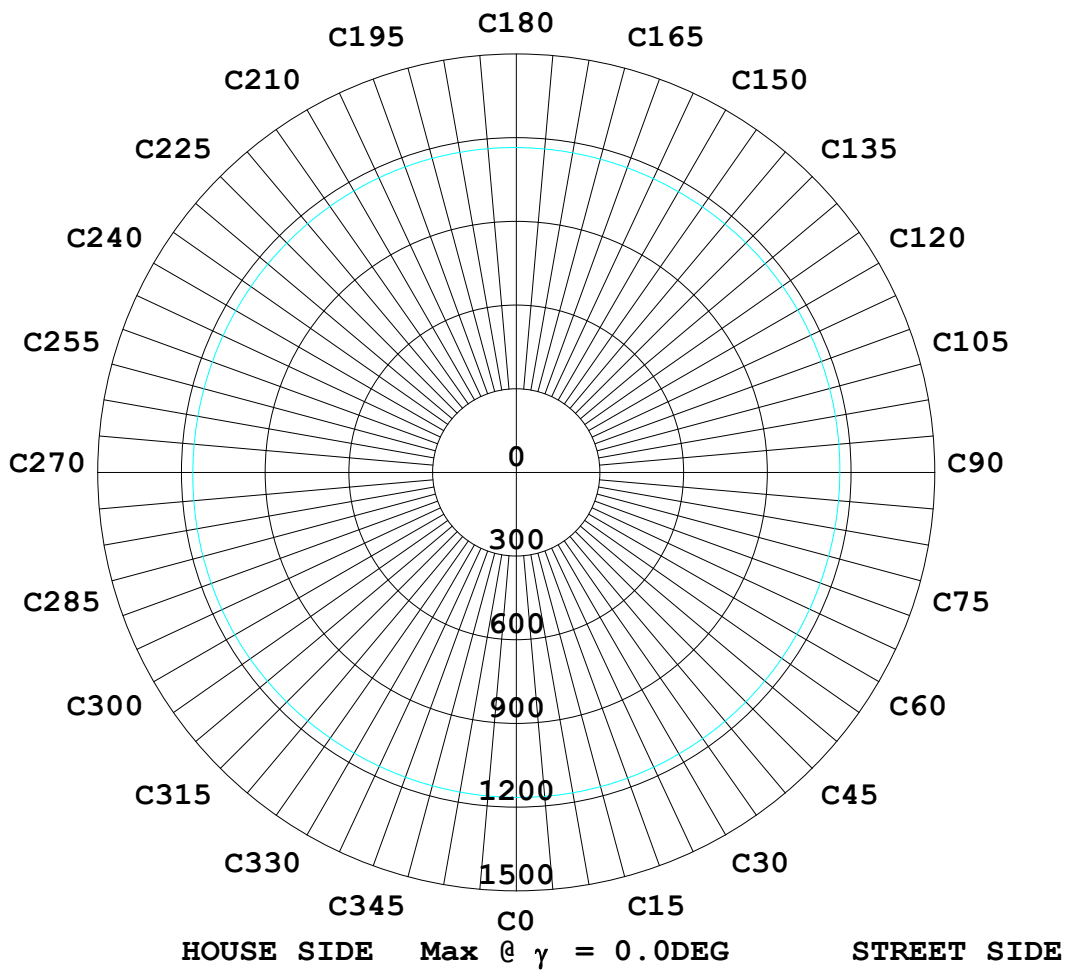
Test System:HOPOO HPG1800  
Temperature:25.3DEG  
Operators:  
Test Date:2022年11月14日

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-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: