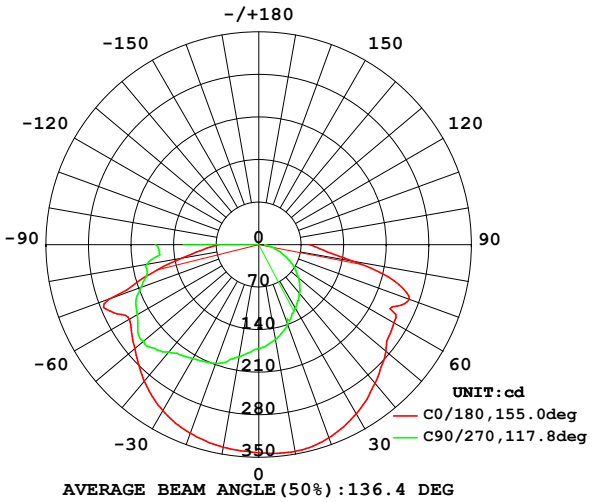
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

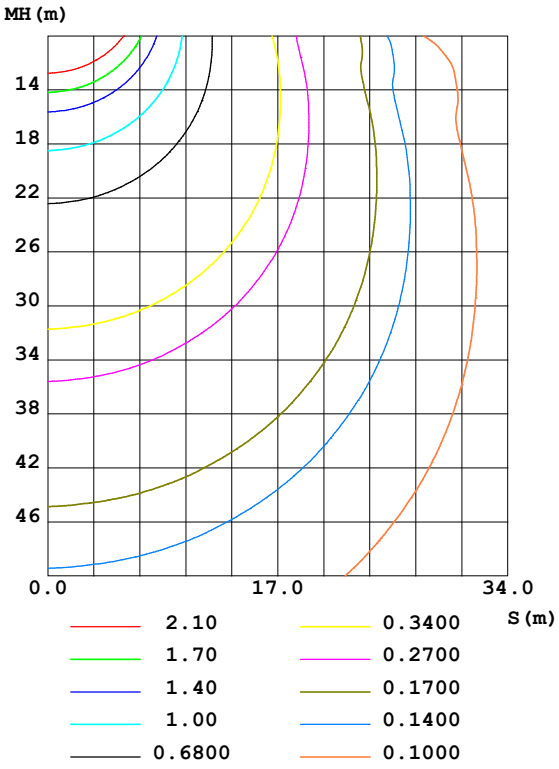
DATA OF LAMP		PHOTOMETRIC DATA Eff: 63.09 lm/W			
MODEL	3000K	Imax(cd)	345.5	S/MH(C0/180)	1.38
NOMINAL POWER(W)	19.2	LOR(%)	100.0	S/MH(C90/270)	2.01
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	1191.2	η UP,DN(C0-180)	0.0,58.7
NOMINAL FLUX(lm)	1191.17	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,41.3
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	219.8	η down(%)	100.0	CIBSE SHR MAX	1.15

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):136.4 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum,lamp
10	338.3	187.1	345.4	158.4					0- 10	24.55	24.55	2.06,2.06
20	330.2	207.9	338.2	139.8					10- 20	72.64	97.19	8.16,8.16
30	315.6	216.9	321.3	121.4					20- 30	115.0	212.2	17.8,17.8
40	293.2	230.8	297.5	104.3					30- 40	149.1	361.3	30.3,30.3
50	266.5	246.8	273.2	86.00					40- 50	174.6	535.9	45,45
60	246.0	230.9	257.0	63.54					50- 60	187.1	723.0	60.7,60.7
70	263.2	206.7	263.8	39.75					60- 70	195.4	918.4	77.1,77.1
80	128.4	186.7	157.8	20.32					70- 80	166.9	1085	91.1,91.1
90	66.73	170.2	82.76	10.20					80- 90	105.9	1191	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

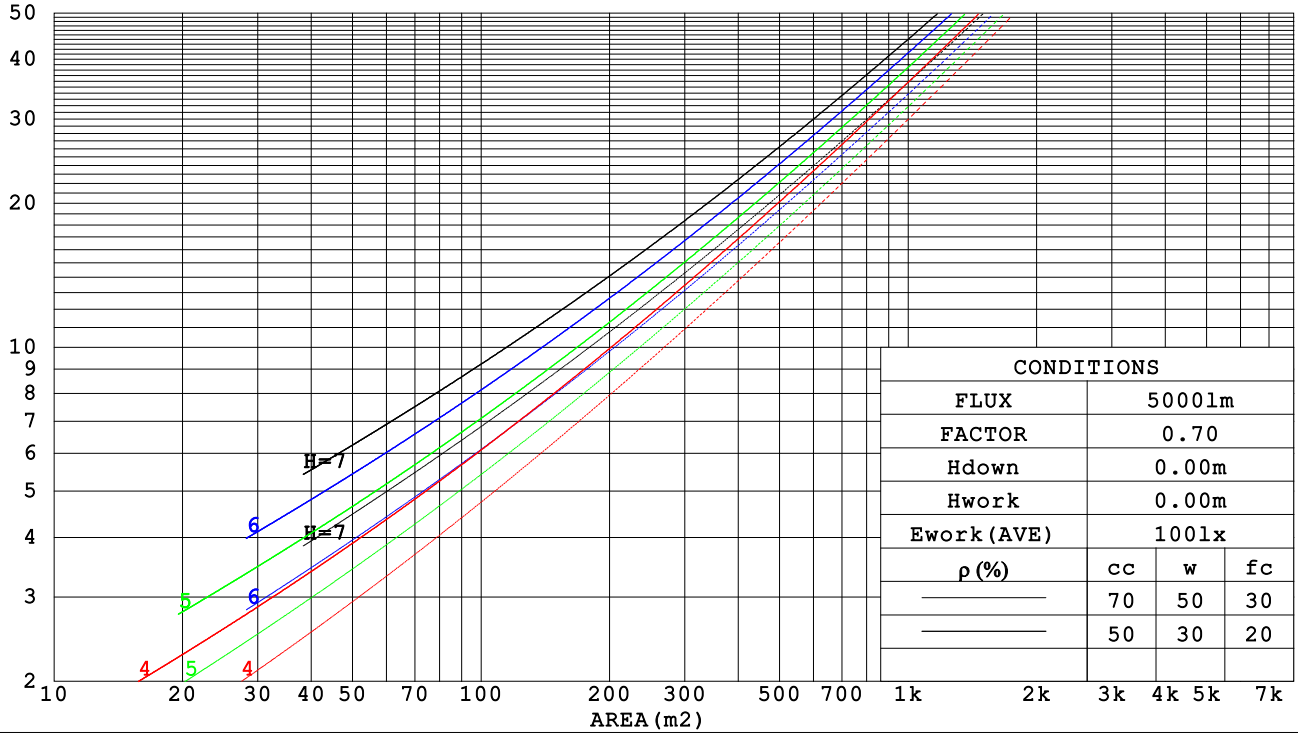
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Coefficients of Utilization(CU)												
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	.98	.92	.86	.95	.90	.85	.91	.86	.82	.87	.83	.79	.83	.80	.77	.74
2.0	.82	.73	.66	.80	.72	.65	.76	.69	.64	.73	.67	.62	.70	.65	.60	.58
3.0	.70	.60	.52	.69	.59	.52	.65	.57	.51	.63	.56	.50	.60	.54	.49	.46
4.0	.61	.51	.43	.60	.50	.43	.57	.49	.42	.55	.47	.41	.52	.46	.41	.38
5.0	.54	.44	.36	.53	.43	.36	.51	.42	.35	.48	.41	.35	.47	.40	.34	.32
6.0	.48	.38	.31	.47	.38	.31	.45	.37	.30	.43	.36	.30	.42	.35	.30	.27
7.0	.43	.34	.27	.43	.33	.27	.41	.33	.26	.39	.32	.26	.38	.31	.26	.24
8.0	.39	.30	.24	.39	.30	.24	.37	.29	.23	.36	.29	.23	.35	.28	.23	.21
9.0	.36	.27	.21	.35	.27	.21	.34	.26	.21	.33	.26	.21	.32	.25	.20	.19
10.0	.33	.25	.19	.33	.24	.19	.32	.24	.19	.31	.24	.19	.30	.23	.18	.17



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coeffcients(WEC)									
0.0																
1.0	.431	.245	.078	.424	.242	.077	.410	.235	.075	.397	.229	.074	.385	.223	.072	
2.0	.372	.204	.062	.365	.201	.062	.353	.196	.061	.341	.191	.060	.331	.187	.059	
3.0	.328	.174	.052	.322	.172	.052	.311	.168	.051	.300	.165	.050	.291	.161	.050	
4.0	.292	.152	.045	.287	.150	.044	.277	.147	.044	.268	.144	.043	.260	.141	.043	
5.0	.264	.134	.039	.259	.133	.039	.250	.130	.038	.242	.128	.038	.235	.125	.038	
6.0	.240	.120	.034	.236	.119	.034	.228	.117	.034	.221	.115	.034	.214	.113	.034	
7.0	.220	.109	.031	.217	.108	.031	.210	.106	.031	.203	.104	.030	.197	.103	.030	
8.0	.203	.099	.028	.200	.099	.028	.194	.097	.028	.188	.095	.028	.183	.094	.027	
9.0	.189	.091	.025	.186	.091	.025	.180	.089	.025	.175	.088	.025	.170	.087	.025	
10.0	.176	.084	.023	.174	.084	.023	.169	.083	.023	.164	.081	.023	.160	.080	.023	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.189	.155	.125	.161	.133	.107	.110	.092	.074	.064	.053	.043	.020	.017	.014	
2.0	.183	.132	.088	.157	.113	.076	.107	.078	.053	.062	.046	.031	.020	.015	.010	
3.0	.176	.115	.066	.151	.099	.057	.103	.069	.040	.060	.040	.024	.019	.013	.008	
4.0	.167	.102	.052	.144	.088	.045	.099	.061	.032	.057	.036	.019	.018	.012	.006	
5.0	.159	.092	.042	.137	.080	.037	.094	.056	.026	.055	.033	.015	.018	.011	.005	
6.0	.151	.084	.035	.130	.073	.031	.090	.051	.022	.052	.030	.013	.017	.010	.004	
7.0	.144	.077	.030	.123	.067	.026	.085	.047	.019	.050	.028	.011	.016	.009	.004	
8.0	.136	.071	.026	.117	.062	.023	.081	.043	.016	.047	.026	.010	.015	.008	.003	
9.0	.129	.066	.023	.111	.057	.020	.077	.040	.015	.045	.024	.009	.015	.008	.003	
10.0	.123	.062	.021	.106	.054	.018	.074	.038	.013	.043	.022	.008	.014	.007	.003	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

Uncorrected UGR Table

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm										
NAME: HCP-3955193					TYPE:			WEIGHT:		
DIM.:					SPEC.:			SERIAL No.:1		
MFR.: HAVIT COMMERCIAL					SUR.:0.008			PROTECTION ANGLE:		

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	27.7	29.5	28.0	29.7	29.9	27.4	29.1	27.7	29.3	29.6
	3H	31.0	32.7	31.4	32.9	33.2	30.2	31.9	30.5	32.1	32.4
	4H	32.2	33.8	32.5	34.0	34.3	31.6	33.2	32.0	33.5	33.8
	6H	33.1	34.6	33.5	34.9	35.2	33.3	34.8	33.7	35.1	35.4
	8H	33.6	35.0	33.9	35.3	35.6	34.2	35.7	34.6	36.0	36.3
	12H	34.0	35.4	34.4	35.7	36.0	35.2	36.6	35.6	36.9	37.3
4H	2H	28.8	30.3	29.1	30.6	30.9	28.5	30.1	28.9	30.4	30.6
	3H	32.1	33.5	32.5	33.8	34.1	31.5	32.9	31.9	33.2	33.5
	4H	33.4	34.7	33.8	35.0	35.4	33.0	34.3	33.4	34.6	35.0
	6H	34.5	35.7	34.9	36.1	36.4	34.8	36.0	35.2	36.4	36.7
	8H	35.0	36.1	35.5	36.5	36.9	35.8	36.9	36.2	37.3	37.7
	12H	35.6	36.6	36.0	37.0	37.4	36.9	37.9	37.3	38.3	38.7
8H	4H	33.9	35.0	34.4	35.4	35.8	33.6	34.7	34.1	35.1	35.5
	6H	35.3	36.3	35.8	36.7	37.1	35.7	36.6	36.1	37.0	37.5
	8H	36.0	36.9	36.5	37.3	37.8	36.8	37.7	37.3	38.1	38.6
	12H	36.8	37.5	37.3	38.0	38.5	38.1	38.9	38.6	39.3	39.8
12H	4H	34.1	35.1	34.5	35.5	35.9	33.7	34.8	34.2	35.2	35.6
	6H	35.6	36.4	36.1	36.9	37.3	35.9	36.8	36.4	37.2	37.6
	8H	36.4	37.1	36.9	37.6	38.1	37.1	37.9	37.6	38.4	38.8

Variations with the observer position at spacings:		
S = 1.0H	+ 0.0 / - 0.0	+ 0.1 / - 0.1
1.5H	+ 0.3 / - 0.2	+ 0.2 / - 0.2
2.0H	+ 0.2 / - 0.3	+ 0.2 / - 0.4

CIE Pub.117 Corrected 1191 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.6)

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

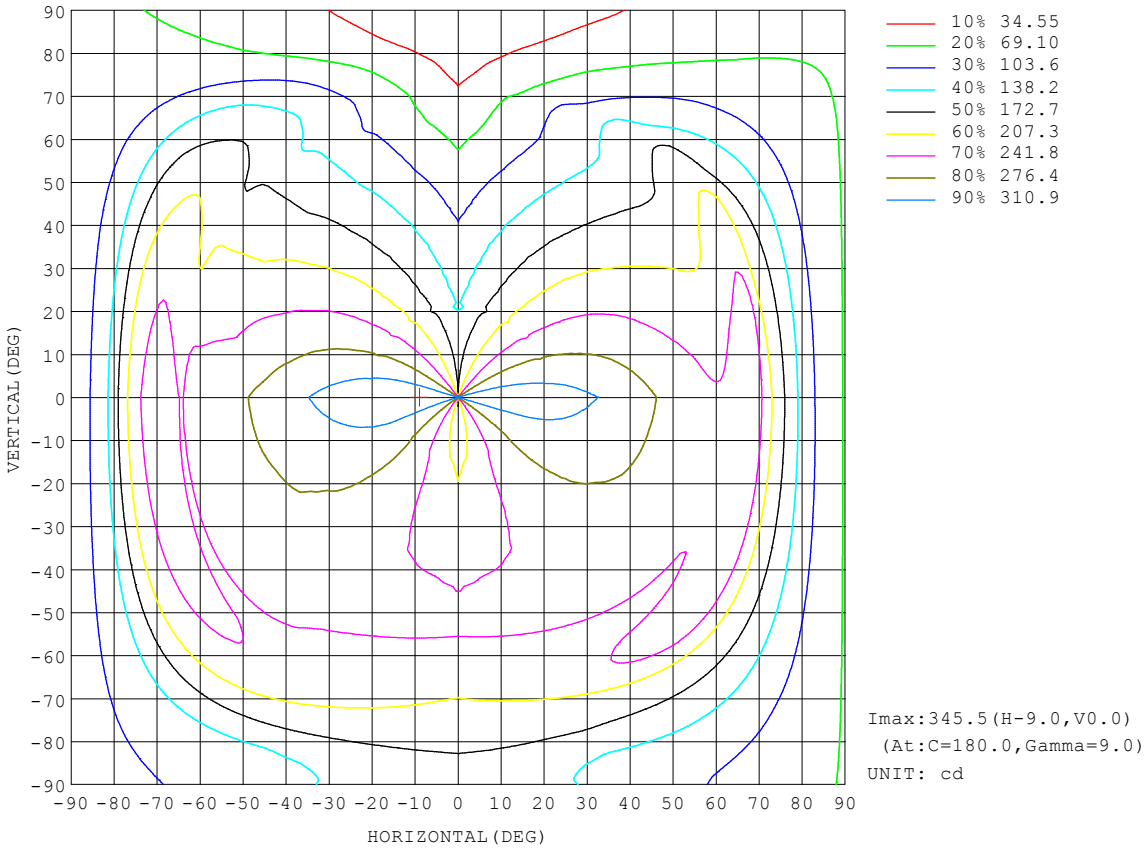
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	50	37	29	49	37	29	48	36	29	22
0.80	59	46	37	58	45	37	56	45	37	29
1.00	67	54	45	66	53	45	63	55	44	36
1.25	74	61	53	73	61	52	70	59	51	43
1.50	80	67	58	78	66	58	74	64	57	48
2.00	87	76	68	85	75	67	81	72	65	56
2.50	92	82	74	90	80	73	85	77	71	61
3.00	96	87	79	93	85	78	89	82	76	66
4.00	101	93	87	98	91	85	93	88	83	72
5.00	104	97	91	101	95	90	96	91	87	77
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

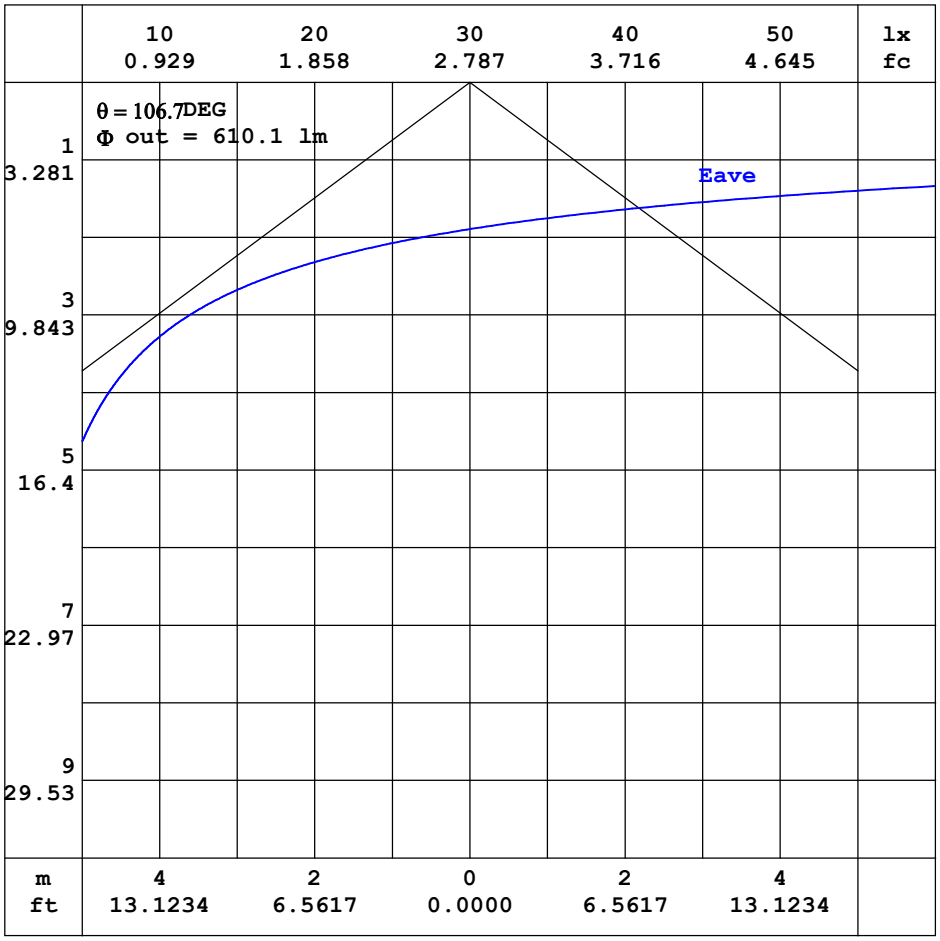


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

AAI CURVES

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



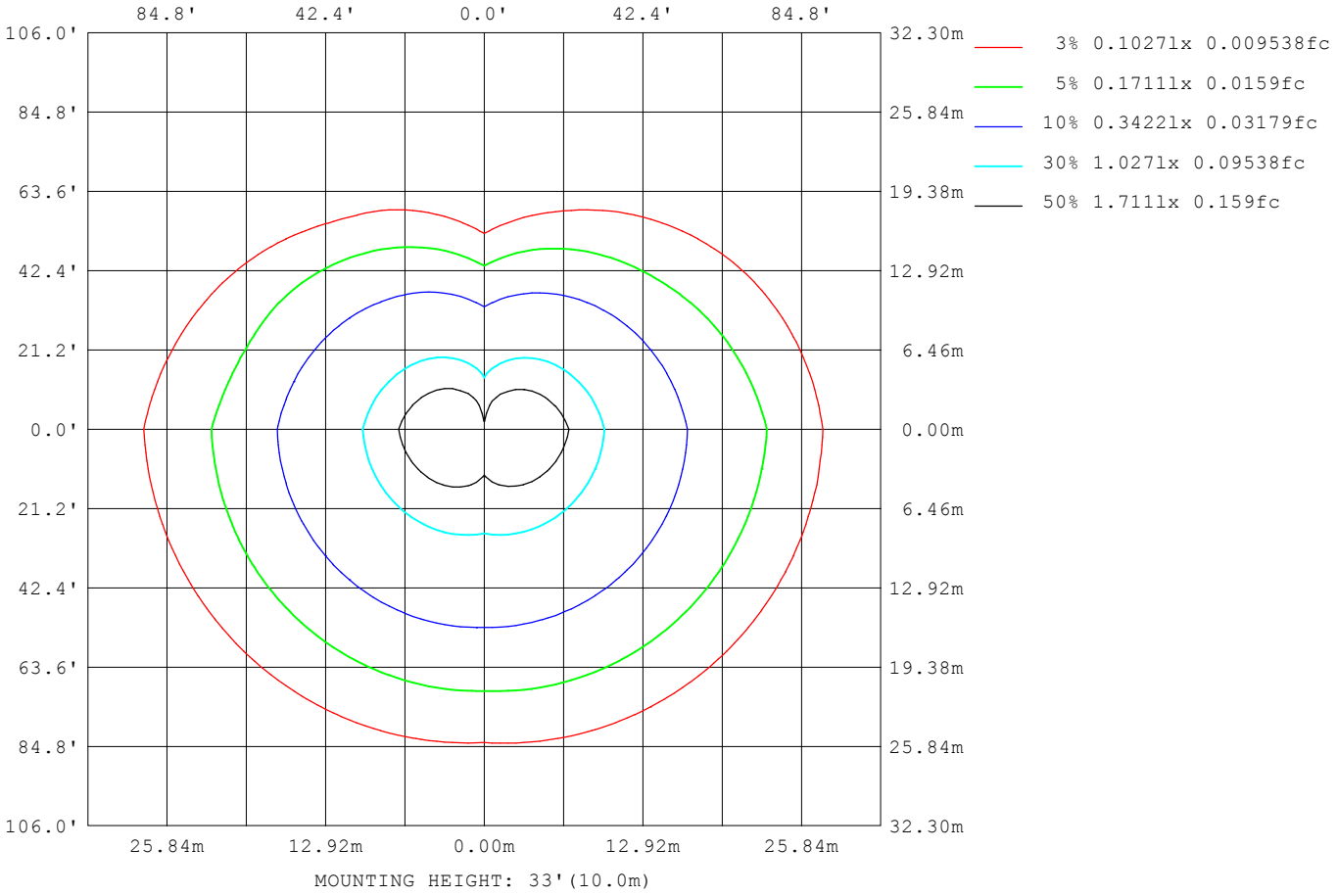
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

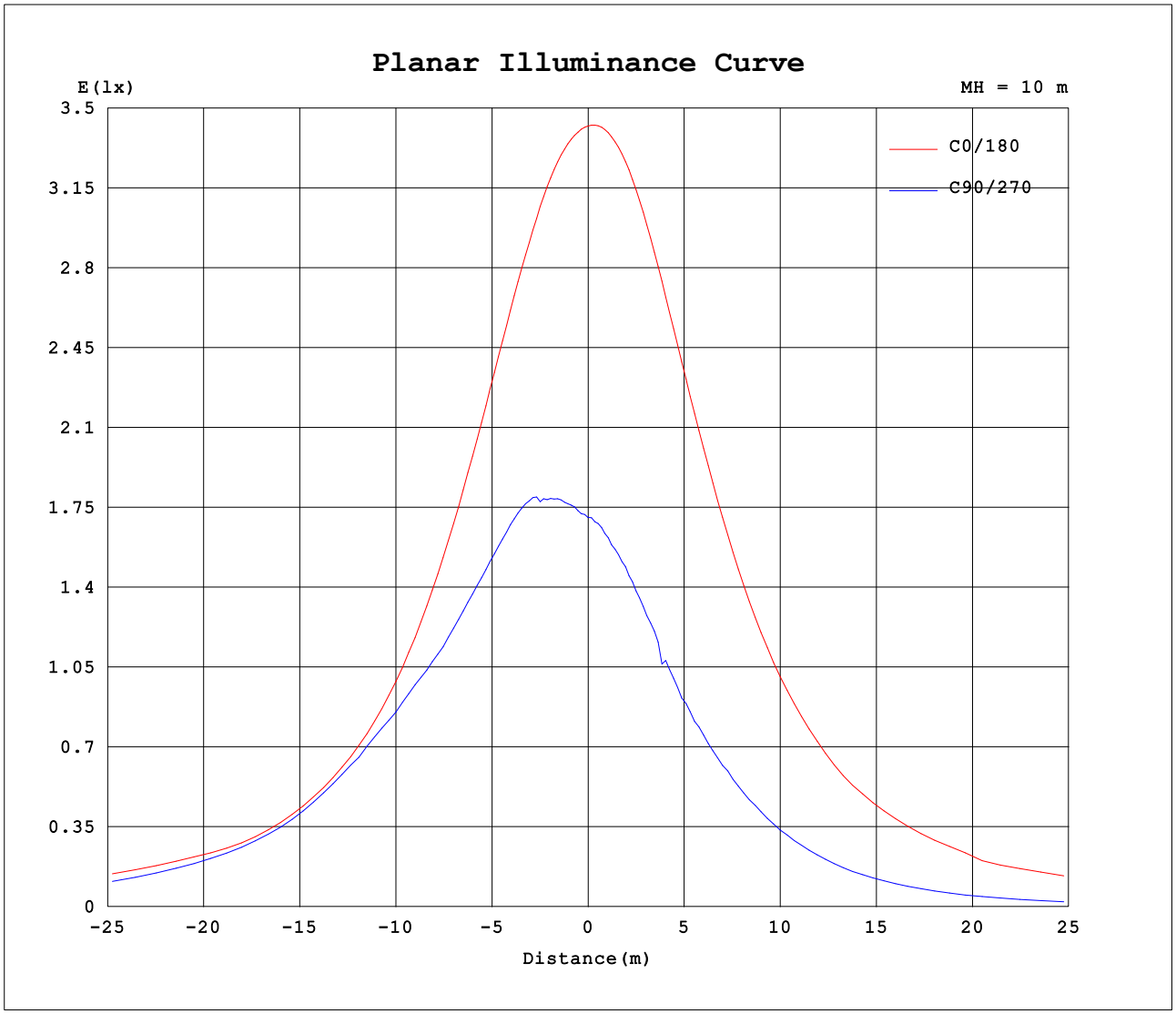
Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.00V I:0.7860A P:18.88W PF:1.000 Lamp Flux:1191.17x1 lm		
NAME: HCP-3955193	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	90	180	270
0	342	171	342	171
5	340	178	345	166
10	338	187	345	158
15	335	199	343	150
20	330	208	338	140
25	324	212	331	129
30	316	217	321	121
35	306	222	310	113
40	293	231	298	104
45	279	241	285	95.1
50	267	247	273	86.0
55	255	243	262	74.9
60	246	231	257	63.5
65	264	223	242	50.9
70	263	207	264	39.7
75	184	191	231	28.6
80	128	187	158	20.3
85	90.9	164	107	13.2
90	66.7	170	82.8	10.2

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks: