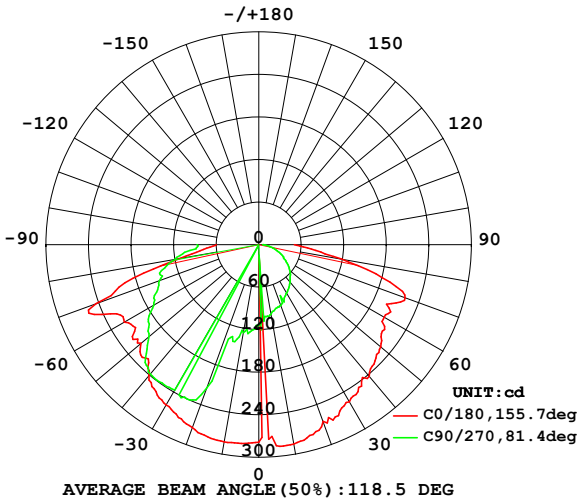
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

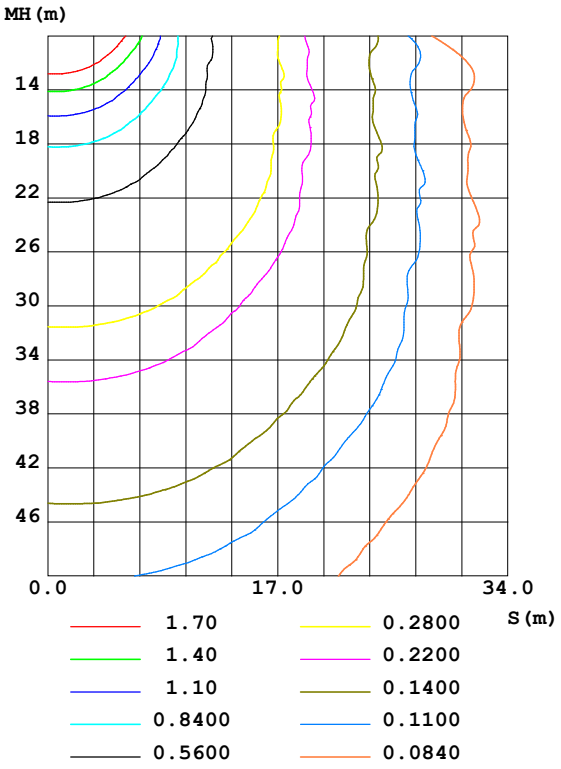
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 65.22 lm/W	
MODEL	4000K	Imax(cd)	286.2	S/MH(C0/180)	1.40
NOMINAL POWER(W)	14.4	LOR(%)	100.0	S/MH(C90/270)	0.78
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	960.01	η UP,DN(C0-180)	0.0,60.5
NOMINAL FLUX(lm)	960.009	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,39.5
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	219.8	η down(%)	100.0	CIBSE SHR MAX	1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):118.5 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	282.3	126.1	285.5	100.1					0- 10	18.48	18.48	1.93,1.93
20	274.5	214.9	265.5	91.57					10- 20	56.76	75.24	7.84,7.84
30	261.1	236.5	256.0	78.82					20- 30	95.25	170.5	17.8,17.8
40	240.8	238.3	242.3	68.80					30- 40	127.5	298.0	31,31
50	216.7	202.1	224.5	57.54					40- 50	144.3	442.3	46.1,46.1
60	219.2	171.1	204.7	43.70					50- 60	149.9	592.2	61.7,61.7
70	244.0	148.9	219.7	28.78					60- 70	158.9	751.0	78.2,78.2
80	113.0	119.2	119.1	15.12					70- 80	136.2	887.2	92.4,92.4
90	60.37	87.31	50.39	5.672					80- 90	72.77	960.0	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		

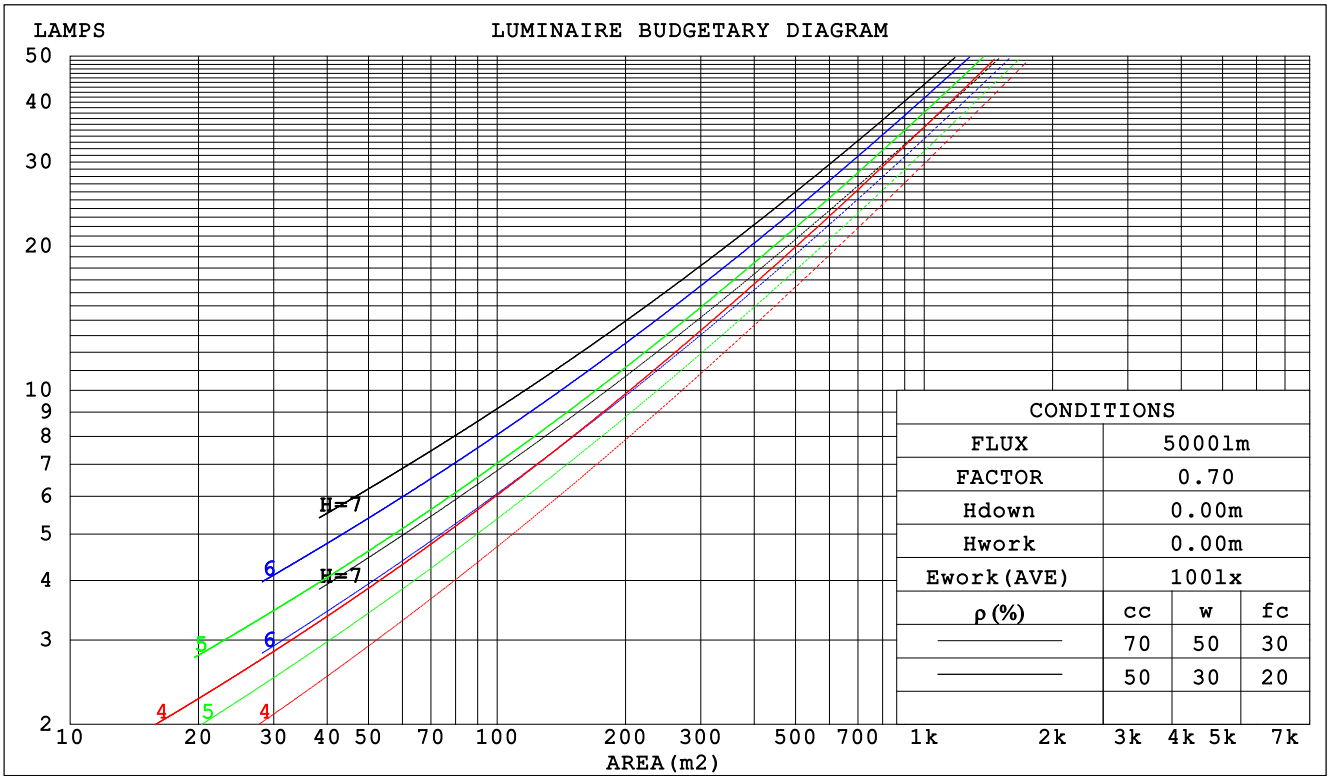
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	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	.00
1.0	.98	.92	.87	.96	.90	.86	.91	.87	.83	.87	.84	.80	.84	.81	.78	.75
2.0	.83	.74	.67	.81	.73	.66	.77	.70	.64	.73	.68	.63	.70	.66	.61	.59
3.0	.71	.61	.53	.69	.60	.53	.66	.58	.52	.63	.56	.51	.60	.55	.50	.47
4.0	.62	.51	.44	.60	.51	.43	.58	.49	.43	.55	.48	.42	.53	.46	.41	.39
5.0	.54	.44	.37	.53	.44	.36	.51	.42	.36	.49	.41	.35	.47	.40	.35	.33
6.0	.49	.38	.31	.48	.38	.31	.46	.37	.31	.44	.36	.30	.42	.35	.30	.28
7.0	.44	.34	.27	.43	.34	.27	.41	.33	.27	.40	.32	.26	.38	.31	.26	.24
8.0	.40	.30	.24	.39	.30	.24	.37	.29	.24	.36	.29	.23	.35	.28	.23	.21
9.0	.36	.27	.21	.36	.27	.21	.34	.26	.21	.33	.26	.21	.32	.25	.21	.19
10.0	.33	.25	.19	.33	.24	.19	.32	.24	.19	.31	.24	.19	.30	.23	.19	.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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	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	.419	.238	.076	.412	.235	.075	.398	.228	.073	.385	.222	.071	.374	.217	.070	
2.0	.366	.201	.062	.359	.198	.061	.347	.193	.060	.336	.188	.059	.325	.184	.058	
3.0	.324	.173	.052	.318	.171	.051	.307	.167	.051	.297	.163	.050	.288	.159	.049	
4.0	.290	.151	.044	.285	.149	.044	.275	.146	.044	.266	.143	.043	.258	.140	.043	
5.0	.262	.134	.039	.258	.132	.039	.249	.130	.038	.241	.127	.038	.234	.125	.037	
6.0	.239	.120	.034	.235	.119	.034	.227	.117	.034	.220	.114	.034	.213	.112	.033	
7.0	.220	.109	.031	.216	.108	.031	.209	.106	.030	.203	.104	.030	.197	.102	.030	
8.0	.203	.099	.028	.200	.098	.028	.194	.097	.028	.188	.095	.027	.182	.094	.027	
9.0	.188	.091	.025	.186	.090	.025	.180	.089	.025	.175	.088	.025	.170	.086	.025	
10.0	.176	.084	.023	.173	.084	.023	.168	.082	.023	.164	.081	.023	.159	.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	.188	.155	.126	.161	.133	.108	.110	.092	.075	.063	.053	.044	.020	.017	.014	
2.0	.182	.132	.089	.156	.113	.077	.107	.078	.054	.062	.046	.031	.020	.015	.010	
3.0	.175	.115	.067	.150	.099	.058	.103	.069	.041	.059	.040	.024	.019	.013	.008	
4.0	.167	.102	.052	.143	.088	.045	.099	.061	.032	.057	.036	.019	.018	.012	.006	
5.0	.159	.092	.042	.136	.079	.037	.094	.056	.026	.054	.033	.015	.018	.011	.005	
6.0	.151	.084	.035	.130	.072	.031	.089	.051	.022	.052	.030	.013	.017	.010	.004	
7.0	.143	.077	.030	.123	.067	.026	.085	.047	.019	.049	.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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	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	27.3	29.0	27.6	29.2	29.4	26.5	28.2	26.8	28.5	28.7
	3H	30.9	32.5	31.2	32.8	33.1	29.1	30.7	29.4	31.0	31.2
	4H	32.3	33.9	32.6	34.1	34.4	30.5	32.1	30.9	32.4	32.6
	6H	33.2	34.7	33.6	35.0	35.3	31.9	33.4	32.3	33.7	34.0
	8H	33.6	35.0	33.9	35.3	35.6	32.6	34.1	33.0	34.4	34.7
	12H	34.0	35.4	34.3	35.7	36.0	33.4	34.8	33.8	35.1	35.4
4H	2H	28.3	29.8	28.6	30.1	30.4	27.7	29.3	28.1	29.5	29.8
	3H	31.9	33.3	32.3	33.6	34.0	30.5	31.9	30.9	32.2	32.6
	4H	33.4	34.7	33.8	35.1	35.4	32.1	33.3	32.4	33.7	34.0
	6H	34.5	35.7	34.9	36.0	36.4	33.5	34.7	33.9	35.0	35.4
	8H	34.9	36.0	35.4	36.4	36.8	34.3	35.4	34.7	35.8	36.2
	12H	35.4	36.4	35.9	36.8	37.3	35.1	36.2	35.6	36.6	37.0
8H	4H	33.9	35.0	34.3	35.3	35.7	32.8	33.9	33.2	34.2	34.6
	6H	35.1	36.1	35.6	36.5	36.9	34.4	35.4	34.9	35.8	36.2
	8H	35.8	36.6	36.2	37.0	37.5	35.3	36.2	35.8	36.6	37.1
	12H	36.4	37.2	36.9	37.6	38.1	36.4	37.1	36.9	37.6	38.1
12H	4H	33.9	35.0	34.4	35.4	35.8	32.9	33.9	33.3	34.3	34.7
	6H	35.3	36.1	35.8	36.6	37.0	34.6	35.5	35.1	35.9	36.4
	8H	36.0	36.7	36.5	37.2	37.7	35.6	36.4	36.1	36.8	37.3

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

CIE Pub.117 Corrected 960.0 lm Total Lamp Luminous Flux.(8log(F/F0) = -0.1)

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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

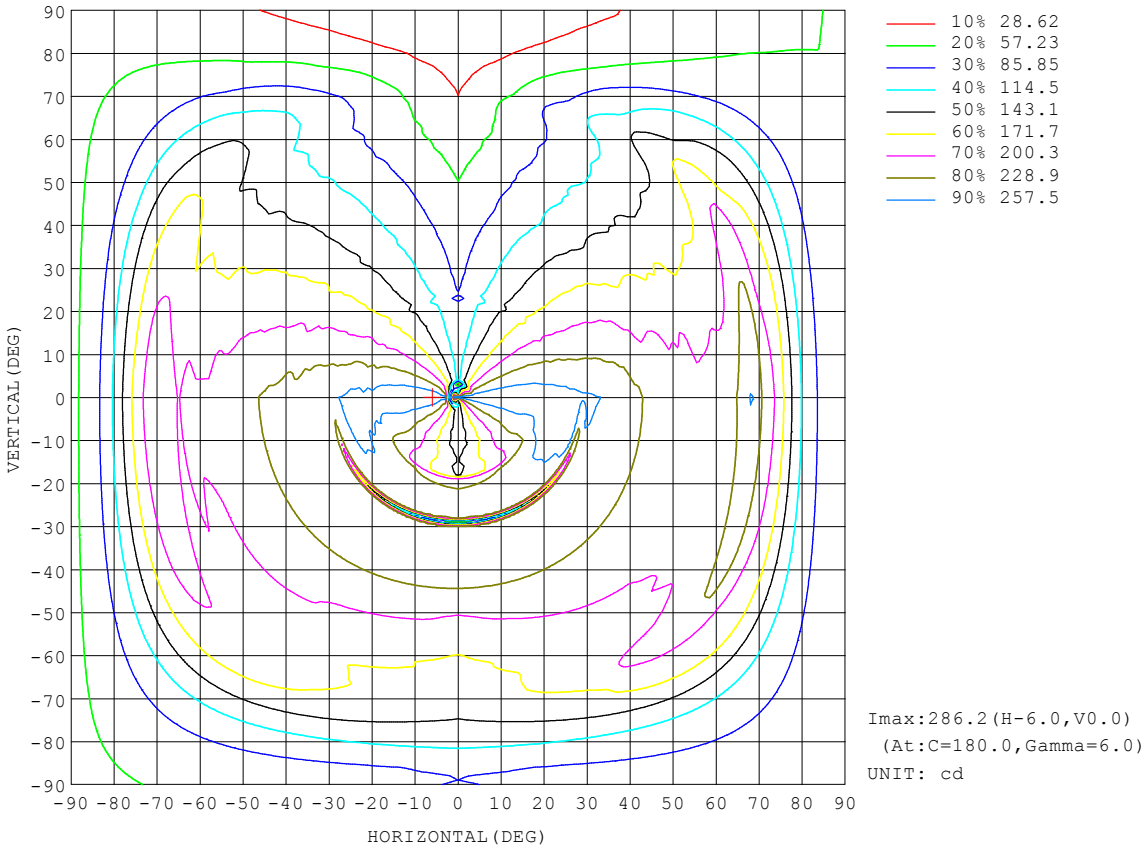
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	51	38	30	50	37	30	48	37	30	23
0.80	60	46	38	59	46	38	57	45	37	30
1.00	68	55	46	66	54	46	64	56	45	37
1.25	75	62	53	73	61	53	70	60	52	43
1.50	80	68	59	78	67	59	75	65	58	49
2.00	88	77	69	86	75	68	82	73	66	57
2.50	92	82	75	90	81	74	86	78	72	62
3.00	96	87	80	94	86	79	89	83	77	67
4.00	101	94	87	99	92	86	94	88	83	73
5.00	104	98	92	102	96	91	97	92	88	78
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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

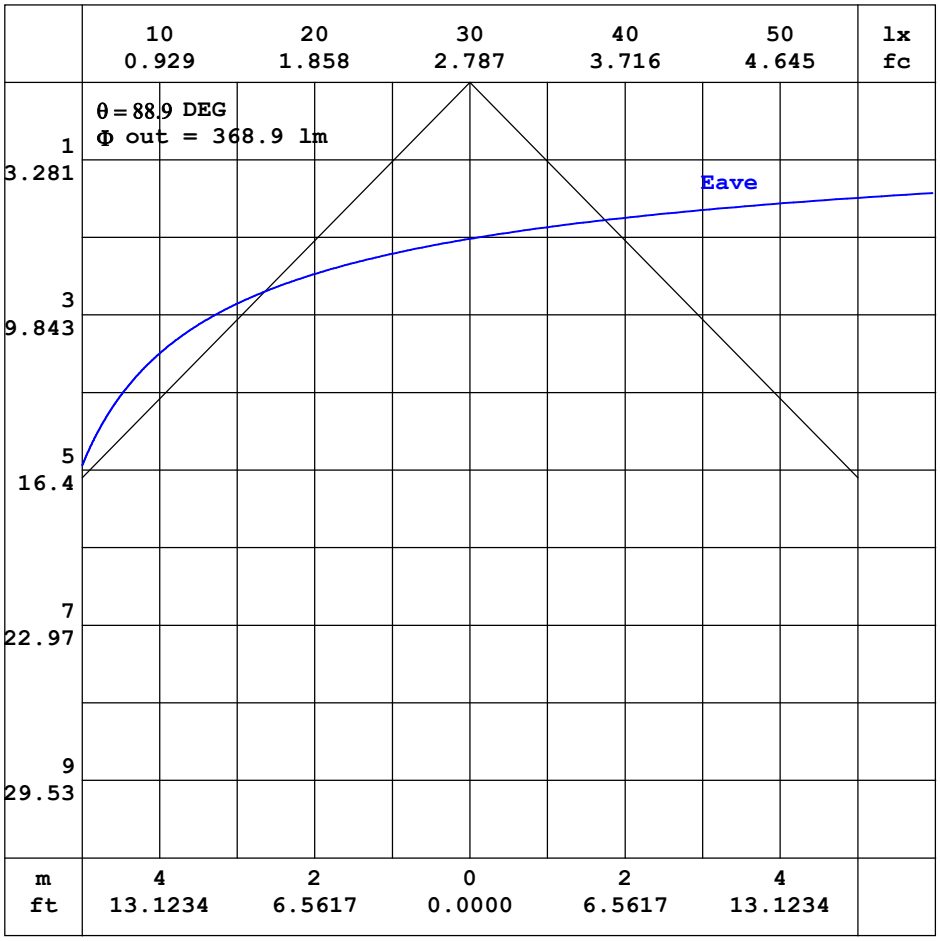


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



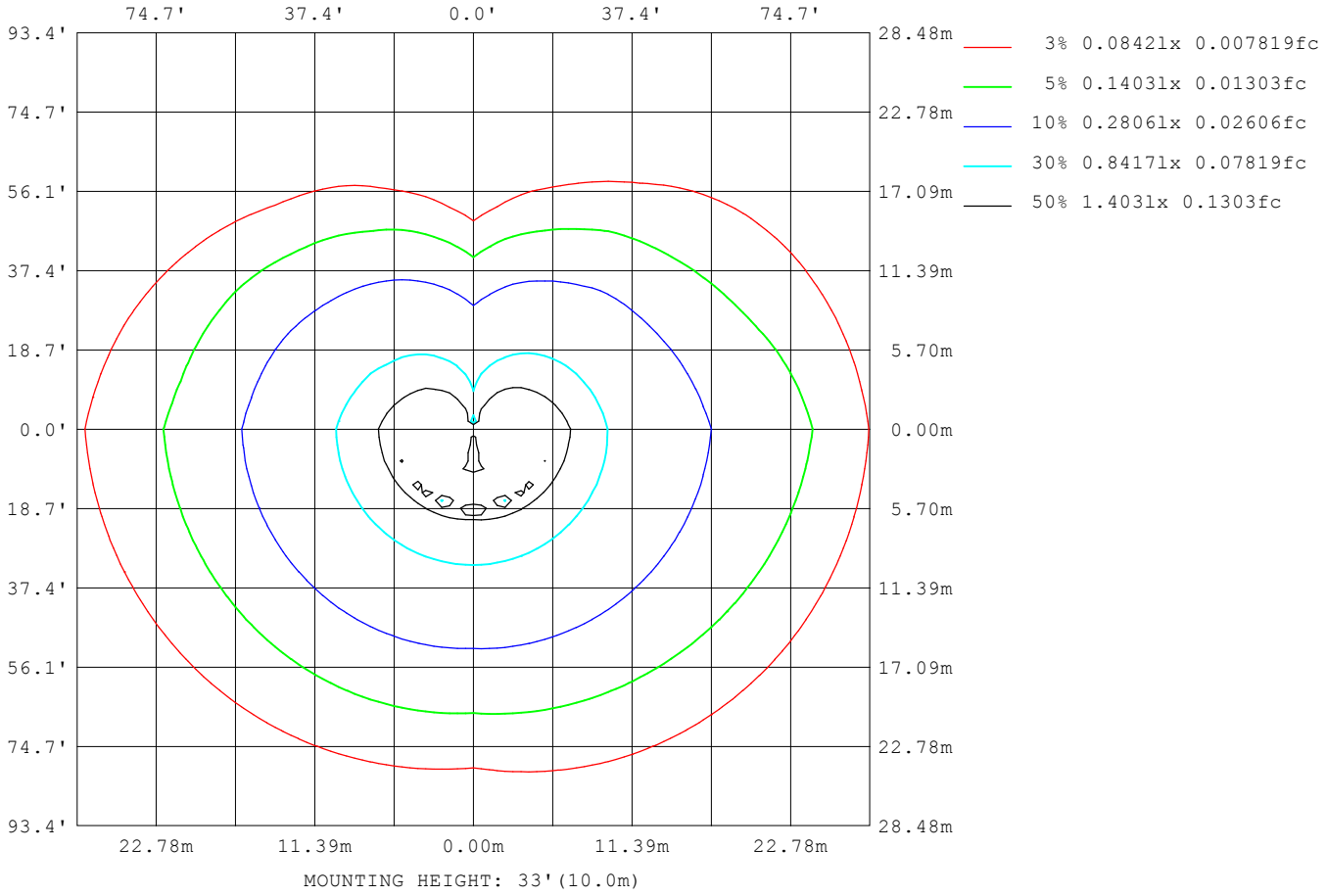
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

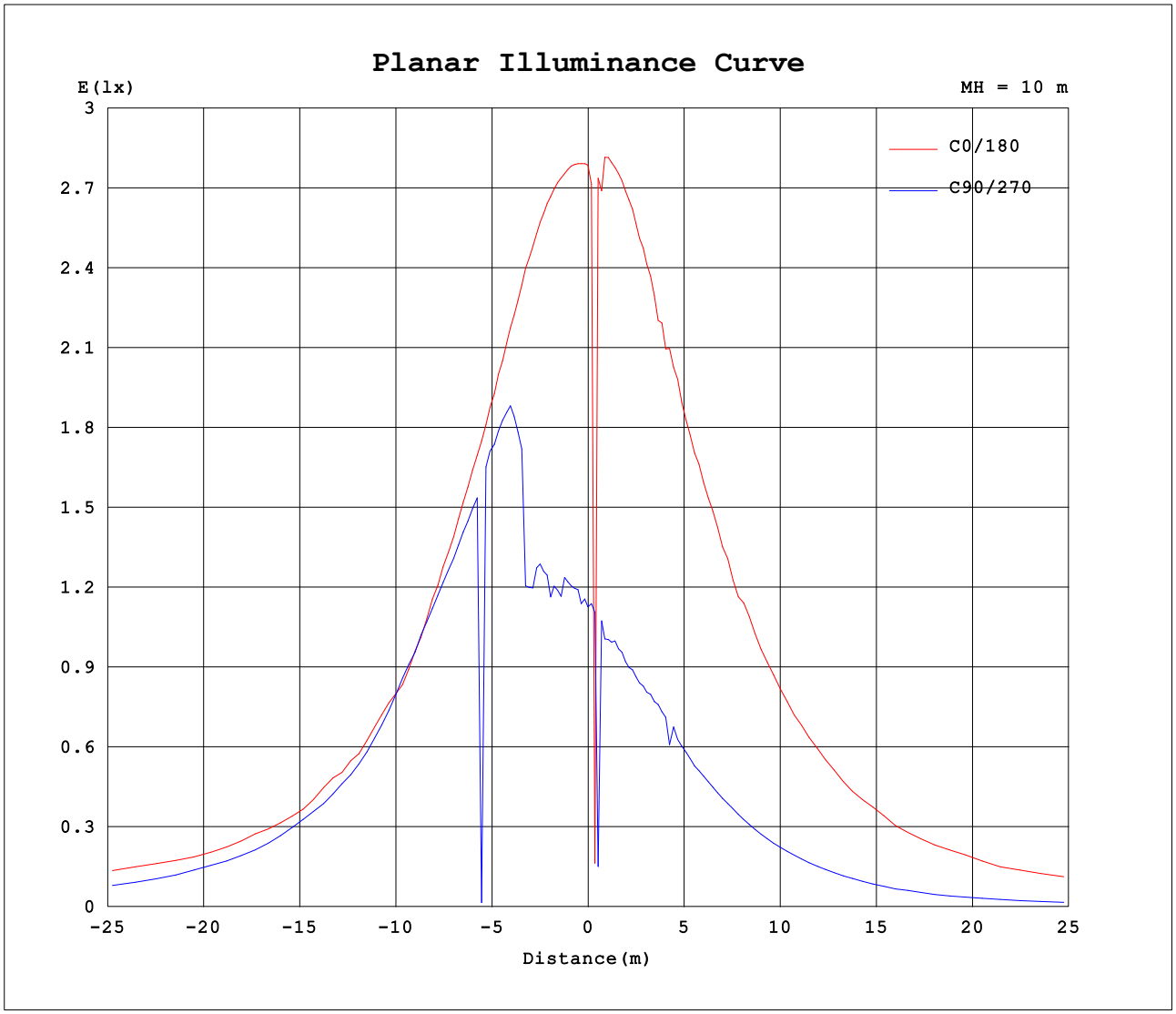
Test:U:24.00V I:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



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:0.6120A P:14.72W PF:1.000 Lamp Flux:960.009x1 lm		
NAME: HCP-3955144	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	279	113	279	113
5	281	122	285	102
10	282	126	286	100
15	281	141	279	93.4
20	275	215	265	91.6
25	269	240	266	84.4
30	261	237	256	78.8
35	253	238	246	74.2
40	241	238	242	68.8
45	226	226	232	63.2
50	217	202	224	57.5
55	214	190	213	50.8
60	219	171	205	43.7
65	231	159	199	36.9
70	244	149	220	28.8
75	184	142	180	22.5
80	113	119	119	15.1
85	78.5	97.7	74.8	8.75
90	60.4	87.3	50.4	5.67

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: