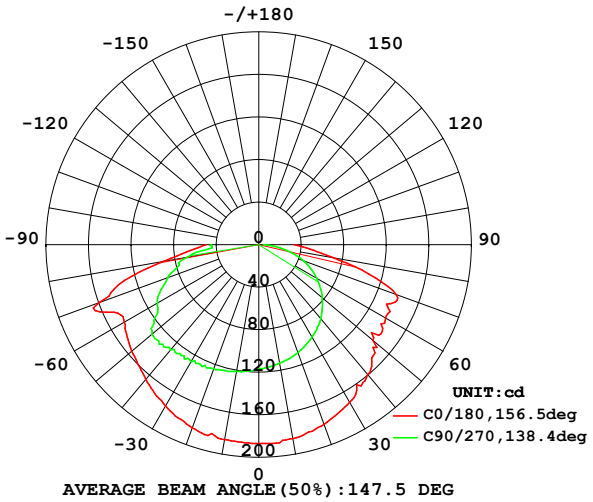
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

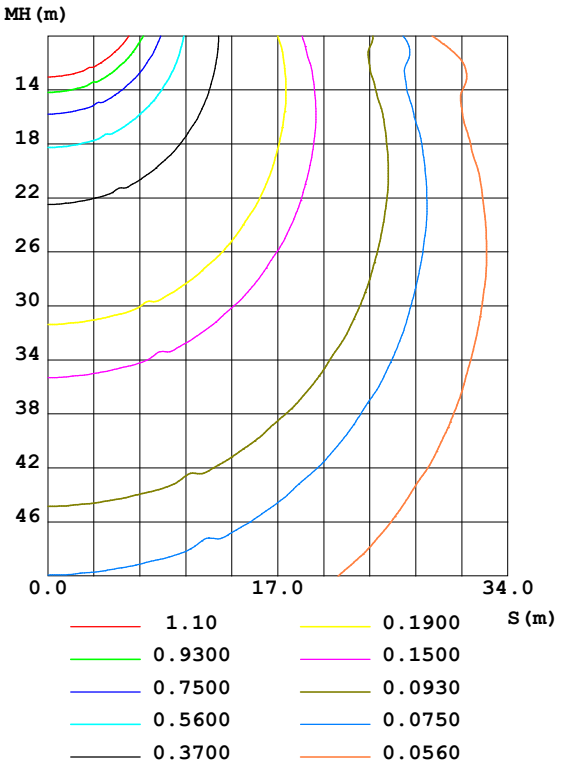
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 69.51 lm/W	
MODEL	5000K	Imax(cd)	187.4	S/MH(C0/180)	1.41
NOMINAL POWER(W)	9.6	LOR(%)	100.0	S/MH(C90/270)	1.66
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	673.51	η UP,DN(C0-180)	0.0,56.2
NOMINAL FLUX(lm)	673.507	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,43.8
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	219.8	η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):147.5 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	186.2	121.2	185.1	113.2					0- 10	14.49	14.49	2.15,2.15
20	183.1	124.0	179.8	107.9					10- 20	42.57	57.06	8.47,8.47
30	175.3	127.4	171.0	100.3					20- 30	67.57	124.6	18.5,18.5
40	165.4	129.3	159.5	90.79					30- 40	87.58	212.2	31.5,31.5
50	155.9	131.4	139.9	77.98					40- 50	101.9	314.2	46.6,46.6
60	145.9	110.1	137.9	62.88					50- 60	107.7	421.8	62.6,62.6
70	159.8	91.19	137.5	44.85					60- 70	110.8	532.7	79.1,79.1
80	90.88	68.22	70.63	22.76					70- 80	91.78	624.5	92.7,92.7
90	49.36	44.67	33.32	4.325					80- 90	49.05	673.5	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		

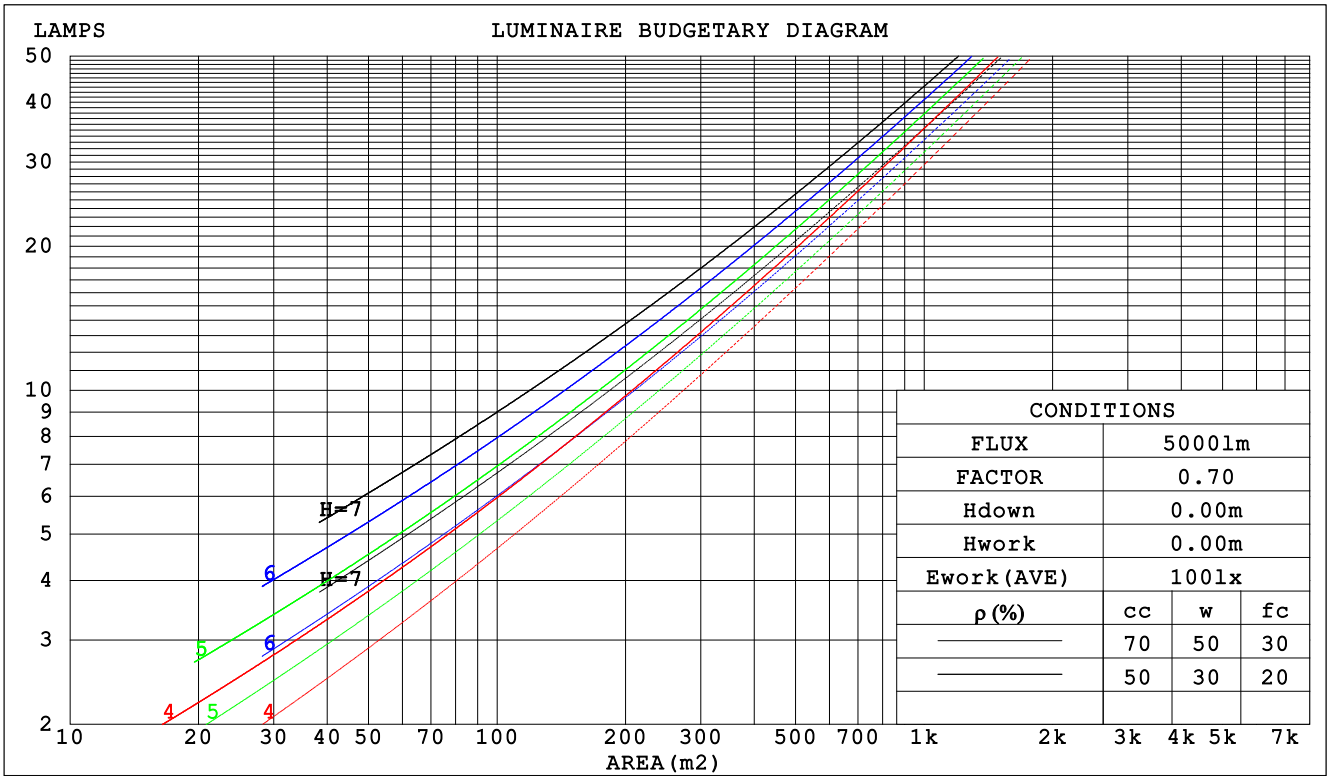
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	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	.93	.88	.96	.91	.86	.92	.87	.83	.88	.84	.81	.84	.81	.78	.76
2.0	.83	.75	.67	.81	.73	.67	.77	.71	.65	.74	.68	.63	.71	.66	.62	.59
3.0	.71	.62	.54	.70	.61	.53	.67	.59	.52	.64	.57	.51	.61	.55	.50	.48
4.0	.62	.52	.44	.61	.51	.44	.58	.50	.43	.56	.48	.42	.53	.47	.42	.39
5.0	.55	.45	.37	.54	.44	.37	.51	.43	.36	.49	.42	.36	.47	.41	.35	.33
6.0	.49	.39	.32	.48	.39	.32	.46	.38	.31	.44	.37	.31	.43	.36	.31	.28
7.0	.44	.34	.28	.43	.34	.28	.42	.33	.27	.40	.33	.27	.39	.32	.27	.25
8.0	.40	.31	.24	.39	.30	.24	.38	.30	.24	.37	.29	.24	.35	.29	.24	.22
9.0	.37	.28	.22	.36	.27	.22	.35	.27	.21	.34	.26	.21	.33	.26	.21	.19
10.0	.34	.25	.19	.33	.25	.19	.32	.25	.19	.31	.24	.19	.30	.24	.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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	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	.413	.235	.074	.406	.231	.073	.392	.225	.072	.379	.219	.070	.367	.213	.069	
2.0	.362	.198	.061	.355	.196	.060	.343	.191	.059	.331	.186	.058	.321	.182	.057	
3.0	.321	.171	.051	.315	.169	.051	.304	.165	.050	.294	.161	.049	.285	.158	.049	
4.0	.288	.150	.044	.283	.148	.044	.273	.145	.043	.264	.142	.043	.256	.139	.042	
5.0	.261	.133	.038	.256	.131	.038	.247	.129	.038	.239	.126	.038	.232	.124	.037	
6.0	.238	.119	.034	.234	.118	.034	.226	.116	.034	.219	.114	.033	.212	.112	.033	
7.0	.218	.108	.031	.215	.107	.030	.208	.105	.030	.202	.103	.030	.196	.102	.030	
8.0	.202	.099	.028	.199	.098	.028	.193	.096	.027	.187	.095	.027	.181	.093	.027	
9.0	.188	.091	.025	.185	.090	.025	.179	.089	.025	.174	.087	.025	.169	.086	.025	
10.0	.175	.084	.023	.172	.083	.023	.168	.082	.023	.163	.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	.187	.155	.126	.160	.133	.109	.110	.092	.075	.063	.053	.044	.020	.017	.014	
2.0	.182	.132	.090	.156	.113	.077	.107	.078	.054	.061	.046	.032	.020	.015	.010	
3.0	.174	.115	.067	.149	.099	.058	.103	.069	.041	.059	.040	.024	.019	.013	.008	
4.0	.166	.102	.053	.143	.088	.046	.098	.061	.032	.057	.036	.019	.018	.012	.006	
5.0	.158	.092	.043	.136	.079	.037	.094	.055	.026	.054	.033	.016	.017	.011	.005	
6.0	.150	.084	.036	.129	.072	.031	.089	.051	.022	.052	.030	.013	.017	.010	.004	
7.0	.143	.077	.031	.123	.067	.027	.085	.047	.019	.049	.027	.011	.016	.009	.004	
8.0	.136	.071	.027	.117	.062	.023	.081	.043	.016	.047	.026	.010	.015	.008	.003	
9.0	.129	.066	.024	.111	.057	.021	.077	.040	.015	.045	.024	.009	.015	.008	.003	
10.0	.123	.062	.021	.106	.054	.018	.073	.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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	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	25.7	27.5	26.0	27.7	27.9	24.7	26.4	24.9	26.6	26.8
3H	29.3	30.9	29.6	31.1	31.4	27.2	28.8	27.5	29.0	29.3
4H	30.8	32.3	31.1	32.6	32.8	28.4	29.9	28.7	30.2	30.5
6H	31.9	33.4	32.3	33.7	34.0	29.7	31.1	30.0	31.4	31.7
8H	32.4	33.8	32.8	34.1	34.5	30.3	31.7	30.7	32.0	32.3
12H	32.9	34.3	33.3	34.6	34.9	30.9	32.3	31.2	32.6	32.9
4H 2H	26.7	28.2	27.0	28.5	28.7	25.9	27.4	26.2	27.7	28.0
3H	30.2	31.6	30.6	31.9	32.3	28.6	30.0	29.0	30.3	30.6
4H	31.9	33.2	32.3	33.5	33.8	30.0	31.2	30.3	31.6	31.9
6H	33.2	34.4	33.6	34.7	35.1	31.3	32.5	31.8	32.9	33.2
8H	33.8	34.9	34.2	35.2	35.6	32.0	33.1	32.5	33.5	33.9
12H	34.4	35.4	34.8	35.8	36.2	32.7	33.7	33.1	34.1	34.5
8H 4H	32.3	33.4	32.7	33.8	34.2	30.8	31.9	31.2	32.2	32.6
6H	33.9	34.8	34.3	35.2	35.6	32.4	33.3	32.8	33.7	34.1
8H	34.6	35.4	35.1	35.9	36.3	33.2	34.0	33.7	34.5	34.9
12H	35.4	36.1	35.9	36.6	37.1	34.0	34.7	34.5	35.2	35.7
12H 4H	32.4	33.4	32.8	33.8	34.2	30.9	31.9	31.4	32.3	32.7
6H	34.0	34.8	34.5	35.3	35.7	32.6	33.5	33.1	33.9	34.3
8H	34.8	35.6	35.3	36.0	36.5	33.6	34.3	34.0	34.7	35.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.0 / - 0.0					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.2					+ 0.2 / - 0.4				

CIE Pub.117 Corrected 673.5 lm Total Lamp Luminous Flux.(8log(F/F0) = -1.4)

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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

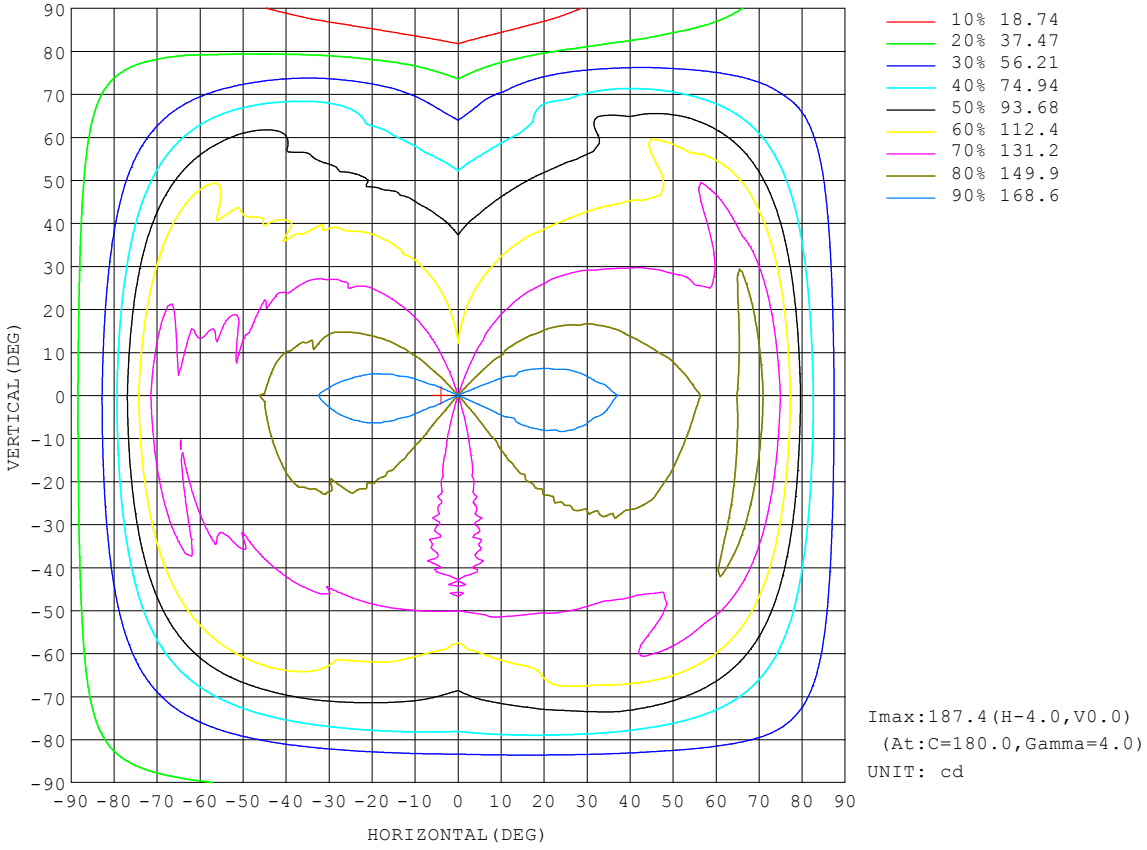
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	51	38	30	50	38	30	49	37	30	23
0.80	60	47	38	59	46	38	57	45	38	30
1.00	68	55	46	67	54	46	64	56	46	37
1.25	75	62	54	73	62	53	70	60	53	44
1.50	80	68	60	79	67	59	75	65	58	49
2.00	88	77	69	86	76	68	82	74	67	58
2.50	93	83	75	90	81	74	86	79	72	63
3.00	97	88	81	94	86	80	90	83	77	68
4.00	102	94	88	99	92	86	94	89	84	74
5.00	105	98	93	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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

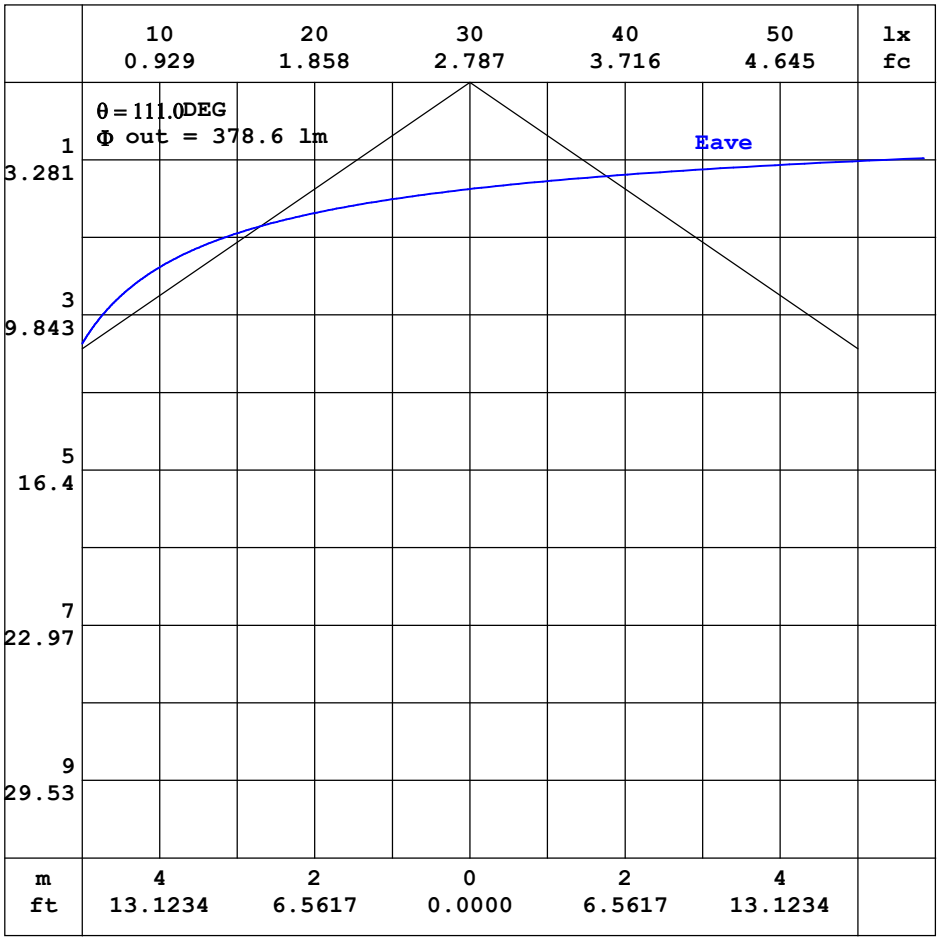


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



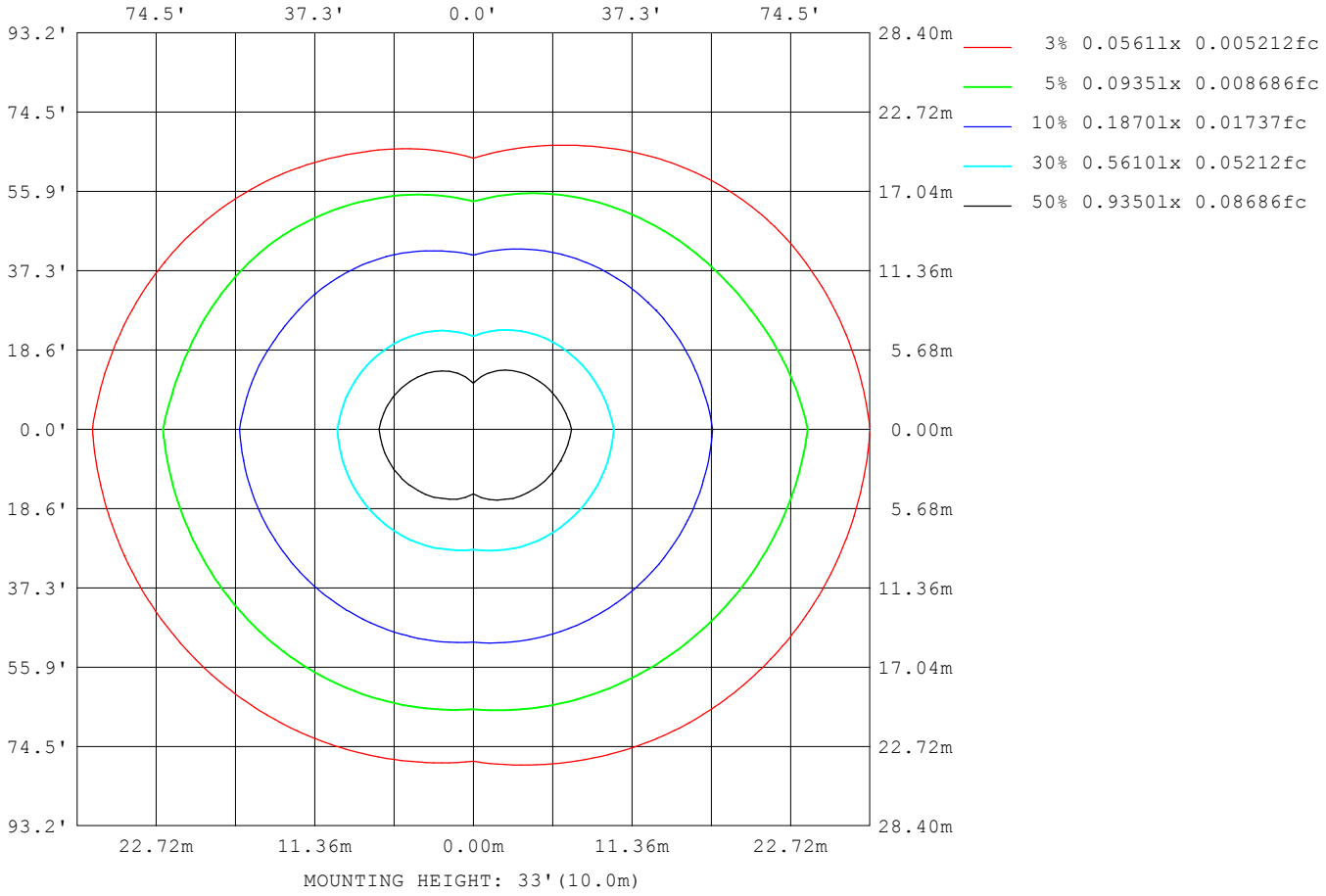
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

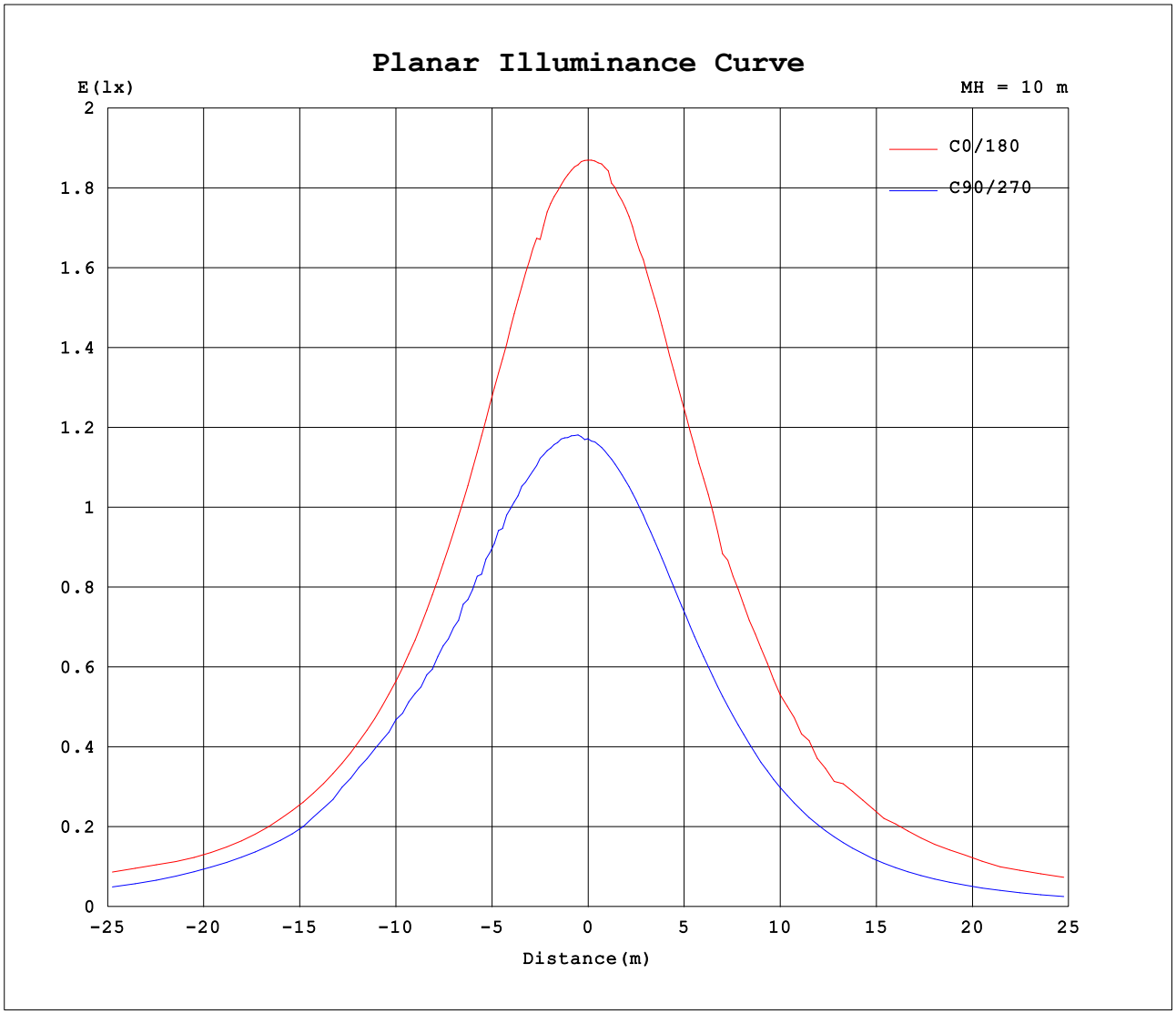
Test:U:24.00V I:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



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:0.4030A P:9.690W PF:1.000 Lamp Flux:673.507x1 lm		
NAME: HCP-3955965	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	187	117	187	117
5	187	119	187	115
10	186	121	185	113
15	186	123	182	111
20	183	124	180	108
25	180	127	175	104
30	175	127	171	100
35	171	127	161	95.9
40	165	129	159	90.8
45	160	133	150	84.5
50	156	131	140	78.0
55	151	119	142	70.8
60	146	110	138	62.9
65	151	102	133	54.4
70	160	91.2	138	44.9
75	131	77.8	107	34.1
80	90.9	68.2	70.6	22.8
85	64.4	47.4	48.5	11.6
90	49.4	44.7	33.3	4.33

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: