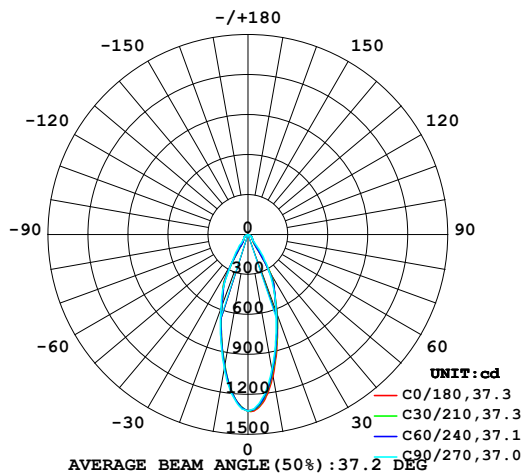


## LUMINAIRE PHOTOMETRIC TEST REPORT

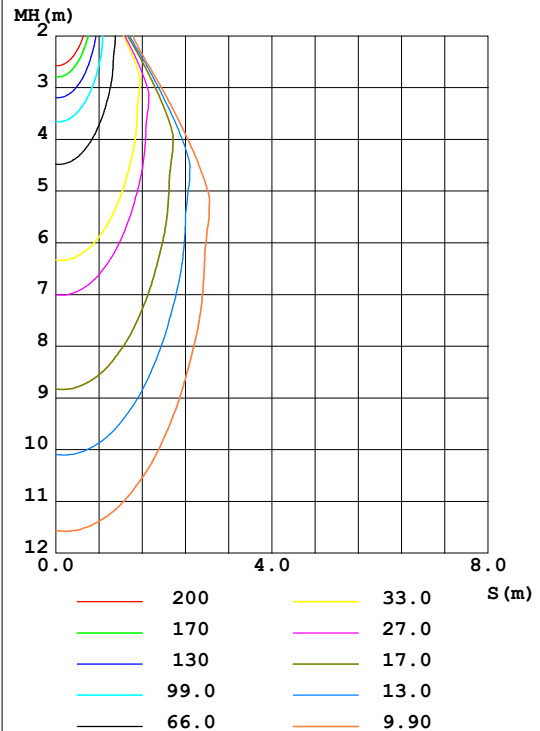
Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

DATA OF LAMP		PHOTOMETRIC DATA Eff: 47.88 lm/W			
MODEL	CXA 1512 9335 350MA	I <sub>max</sub> (cd)	1328	S/MH(C0/180)	0.57
NOMINAL POWER(W)	15	LOR(%)	65.3	S/MH(C90/270)	0.58
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	698.76	η UP,DN(C0-180)	0.0,33.4
NOMINAL FLUX(lm)	1070	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,31.9
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	220	η down(%)	65.3	CIBSE SHR MAX	0.70

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



H(β) Range:-90 - 90DEG  
H(β) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

## ZONAL FLUX DIAGRAM

### ZONAL FLUX DIAGRAM:

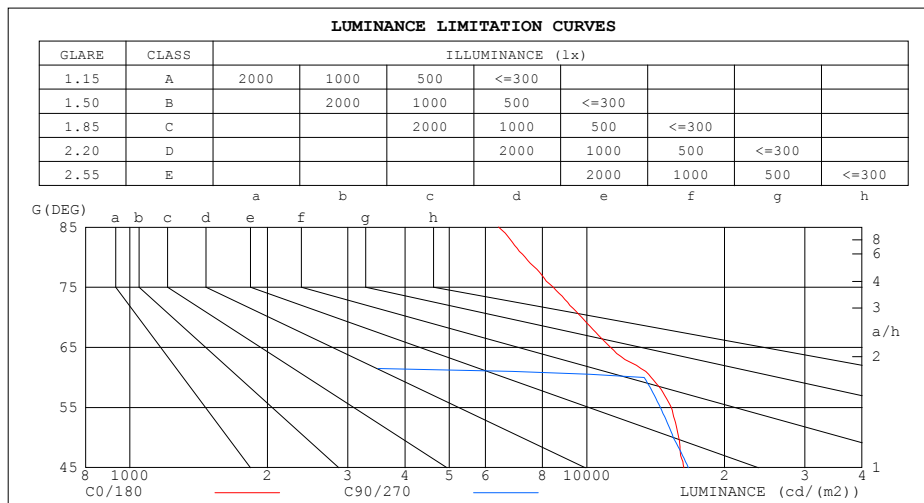
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1080	1055	1035	1021	1006	1004	1023	1053	0~ 10	111.5	111.5	16,10.4
20	645.4	635.6	618.2	603.3	580.3	578.8	591.0	622.4	10~ 20	223.6	335.1	48,31.3
30	342.7	315.9	315.4	276.5	227.9	220.3	238.1	287.8	20~ 30	205.5	540.6	77.4,50.5
40	56.27	57.24	57.05	55.66	53.67	52.43	52.15	54.02	30~ 40	73.85	614.5	87.9,57.4
50	42.71	41.95	41.59	40.61	39.84	39.52	40.02	40.77	40~ 50	36.54	651.0	93.2,60.8
60	28.95	28.49	27.92	27.21	26.56	26.18	26.40	27.27	50~ 60	30.65	681.7	97.6,63.7
70	13.94	0	0	0	12.96	0	0	0	60~ 70	13.58	695.2	99.5,65
80	5.324	0	0	0	4.613	0	0	0	70~ 80	3.189	698.4	100,65.3
90	0.0741	0	0	0	0.0281	0	0	0	80~ 90	0.3359	698.8	100,65.3
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		

H( $\beta$ ) Range:-90 - 90DEG  
 H( $\beta$ ) Interval: 1.0DEG  
 Test Speed: HIGH  
 Temperature:26DEG  
 Operators:  
 Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
 V(B) Interval: 2.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
 Humidity:65.0%  
 Test Distance:8.660m [K=1.0000]  
 Remarks: --

## LUMINANCE LIMITATION CURVES

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	6405	0
80	7329	0
75	8444	0
70	9745	0
65	11275	0
60	13842	13350
55	15322	14486
50	15885	15468
45	16308	16674

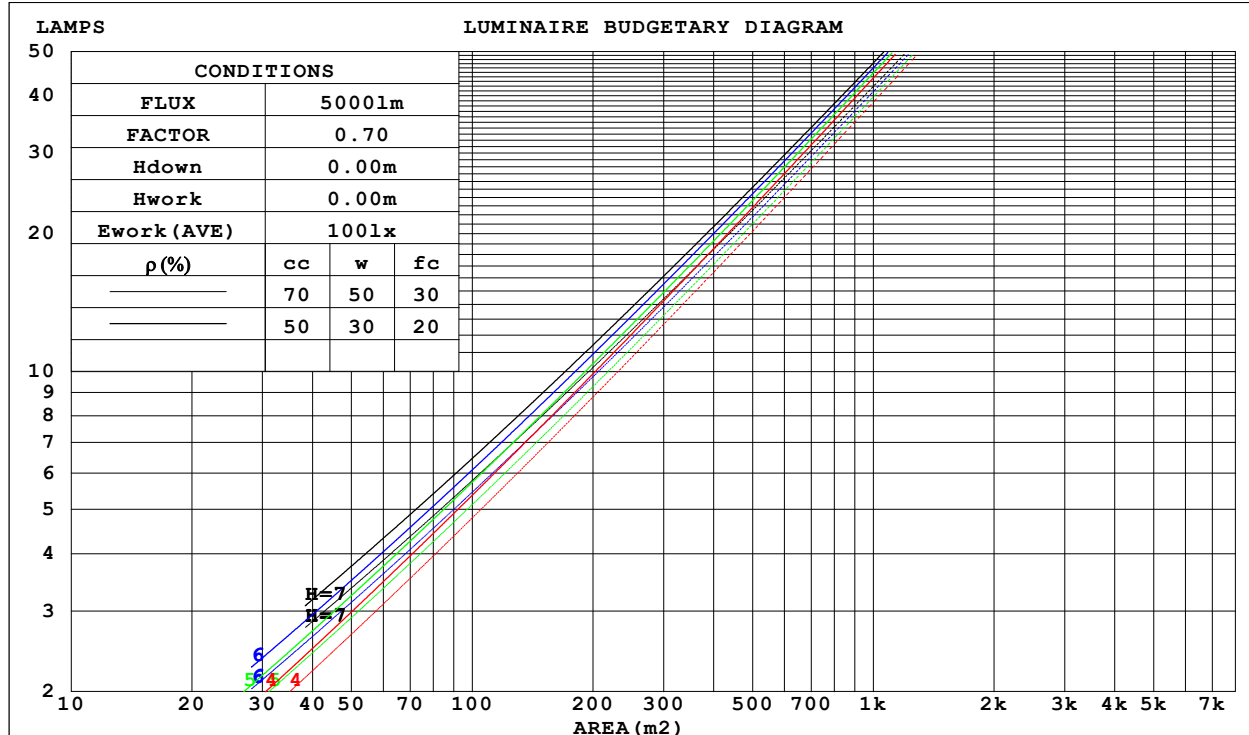
H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

$\rho_{cc}$	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			Coefficients of Utilization(CU)												
0.0	.78	.78	.78	.76	.76	.76	.73	.73	.73	.69	.69	.69	.67	.67	.67	.65
1.0	.72	.71	.69	.71	.69	.68	.68	.67	.66	.66	.65	.64	.64	.63	.62	.61
2.0	.67	.65	.63	.66	.64	.62	.64	.62	.60	.62	.61	.59	.60	.59	.58	.57
3.0	.63	.60	.57	.62	.59	.57	.60	.58	.56	.59	.57	.55	.57	.56	.54	.53
4.0	.59	.55	.53	.58	.55	.52	.57	.54	.52	.56	.53	.51	.54	.52	.51	.50
5.0	.56	.52	.49	.55	.51	.49	.54	.51	.48	.53	.50	.48	.52	.49	.48	.47
6.0	.52	.49	.46	.52	.48	.46	.51	.48	.46	.50	.47	.45	.49	.47	.45	.44
7.0	.50	.46	.43	.49	.46	.43	.48	.45	.43	.48	.45	.43	.47	.44	.42	.42
8.0	.47	.43	.41	.47	.43	.41	.46	.43	.41	.45	.43	.40	.45	.42	.40	.39
9.0	.45	.41	.39	.45	.41	.39	.44	.41	.39	.43	.41	.38	.43	.40	.38	.38
10.0	.43	.39	.37	.43	.39	.37	.42	.39	.37	.42	.39	.37	.41	.38	.37	.36



H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

## WEC AND CCEC

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

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	.116	.066	.021	.112	.064	.020	.104	.059	.019	.096	.055	.018	.089	.052	.017	
2.0	.111	.061	.019	.107	.059	.018	.100	.056	.017	.094	.053	.017	.088	.050	.016	
3.0	.105	.056	.017	.102	.055	.016	.096	.052	.016	.091	.050	.015	.086	.047	.015	
4.0	.099	.052	.015	.097	.051	.015	.092	.049	.015	.087	.047	.014	.083	.045	.014	
5.0	.094	.048	.014	.092	.047	.014	.087	.046	.013	.083	.044	.013	.079	.042	.013	
6.0	.089	.045	.013	.087	.044	.013	.083	.043	.012	.080	.041	.012	.076	.040	.012	
7.0	.085	.042	.012	.083	.041	.012	.080	.040	.012	.076	.039	.011	.073	.038	.011	
8.0	.081	.039	.011	.079	.039	.011	.076	.038	.011	.073	.037	.011	.071	.036	.011	
9.0	.077	.037	.010	.076	.037	.010	.073	.036	.010	.070	.035	.010	.068	.035	.010	
10.0	.074	.035	.010	.072	.035	.010	.070	.034	.010	.068	.034	.010	.066	.033	.009	

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	.124	.124	.124	.106	.106	.106	.073	.073	.073	.042	.042	.042	.013	.013	.013		
1.0	.112	.103	.095	.096	.088	.081	.065	.061	.056	.038	.035	.033	.012	.011	.011		
2.0	.102	.087	.074	.087	.074	.064	.060	.052	.044	.034	.030	.026	.011	.010	.008		
3.0	.094	.074	.059	.080	.064	.051	.055	.044	.036	.032	.026	.021	.010	.008	.007		
4.0	.087	.065	.048	.075	.056	.041	.051	.039	.029	.030	.023	.017	.010	.007	.006		
5.0	.081	.057	.039	.070	.049	.034	.048	.034	.024	.028	.020	.014	.009	.007	.005		
6.0	.076	.051	.033	.065	.044	.029	.045	.031	.020	.026	.018	.012	.008	.006	.004		
7.0	.071	.046	.028	.061	.040	.024	.042	.028	.017	.025	.016	.010	.008	.005	.003		
8.0	.068	.042	.024	.058	.036	.021	.040	.025	.015	.023	.015	.009	.008	.005	.003		
9.0	.064	.038	.021	.055	.033	.018	.038	.023	.013	.022	.014	.008	.007	.005	.003		
10.0	.061	.035	.018	.053	.031	.016	.036	.022	.011	.021	.013	.007	.007	.004	.002		

H( $\beta$ ) Range:-90 - 90DEG  
 H( $\beta$ ) Interval: 1.0DEG  
 Test Speed: HIGH  
 Temperature:26DEG  
 Operators:  
 Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
 V(B) Interval: 2.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
 Humidity:65.0%  
 Test Distance:8.660m [K=1.0000]  
 Remarks: --

## UGR(Unified Glare Rating) Table

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm										
NAME: LPA-LED-QP01-COI					TYPE:--			SERIAL No.:		
SPEC.:2124-A-58.8					DIM.: --					
MFR.:					SUR.:73					
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	18.4	19.3	18.6	19.5	19.7	18.4	19.3	18.6	19.5	19.6
3H	19.2	20.1	19.5	20.3	20.5	18.2	19.1	18.5	19.3	19.5
4H	19.5	20.3	19.8	20.6	20.8	18.1	18.9	18.4	19.2	19.4
6H	19.7	20.5	20.0	20.7	21.0	18.0	18.8	18.3	19.0	19.3
8H	19.8	20.5	20.1	20.8	21.0	18.0	18.7	18.3	19.0	19.2
12H	19.8	20.5	20.2	20.8	21.1	18.0	18.7	18.3	18.9	19.2
4H 2H	18.7	19.5	19.0	19.8	20.0	18.7	19.5	18.9	19.7	19.9
3H	19.7	20.4	20.0	20.6	20.9	18.5	19.2	18.8	19.4	19.7
4H	20.1	20.7	20.4	21.0	21.3	18.4	19.0	18.7	19.3	19.6
6H	20.3	20.9	20.7	21.2	21.6	18.3	18.8	18.7	19.2	19.5
8H	20.4	20.9	20.8	21.3	21.6	18.2	18.7	18.6	19.1	19.5
12H	20.5	20.9	20.9	21.3	21.7	18.2	18.7	18.6	19.0	19.4
8H 4H	19.9	20.4	20.3	20.8	21.1	18.3	18.8	18.7	19.2	19.5
6H	20.2	20.6	20.6	21.0	21.4	18.2	18.6	18.6	19.0	19.4
8H	20.2	20.6	20.7	21.0	21.5	18.2	18.5	18.6	18.9	19.4
12H	20.3	20.6	20.8	21.1	21.5	18.1	18.4	18.6	18.9	19.3
12H 4H	19.9	20.3	20.3	20.7	21.1	18.3	18.7	18.7	19.1	19.5
6H	20.1	20.5	20.6	20.9	21.3	18.2	18.5	18.6	18.9	19.4
8H	20.2	20.5	20.7	21.0	21.4	18.1	18.4	18.6	18.9	19.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.4 / - 0.6					+ 1.7 / - 1.5				
1.5H	+ 0.2 / - 0.4					+ 2.9 / - 2.4				
2.0H	+ 0.5 / - 0.9					+ 0.8 / - 1.2				

CIE Pub.117, 1070 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 0.2)  
Area: 0.00418326 m2

H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

## UTILIZATION FACTORS TABLE

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

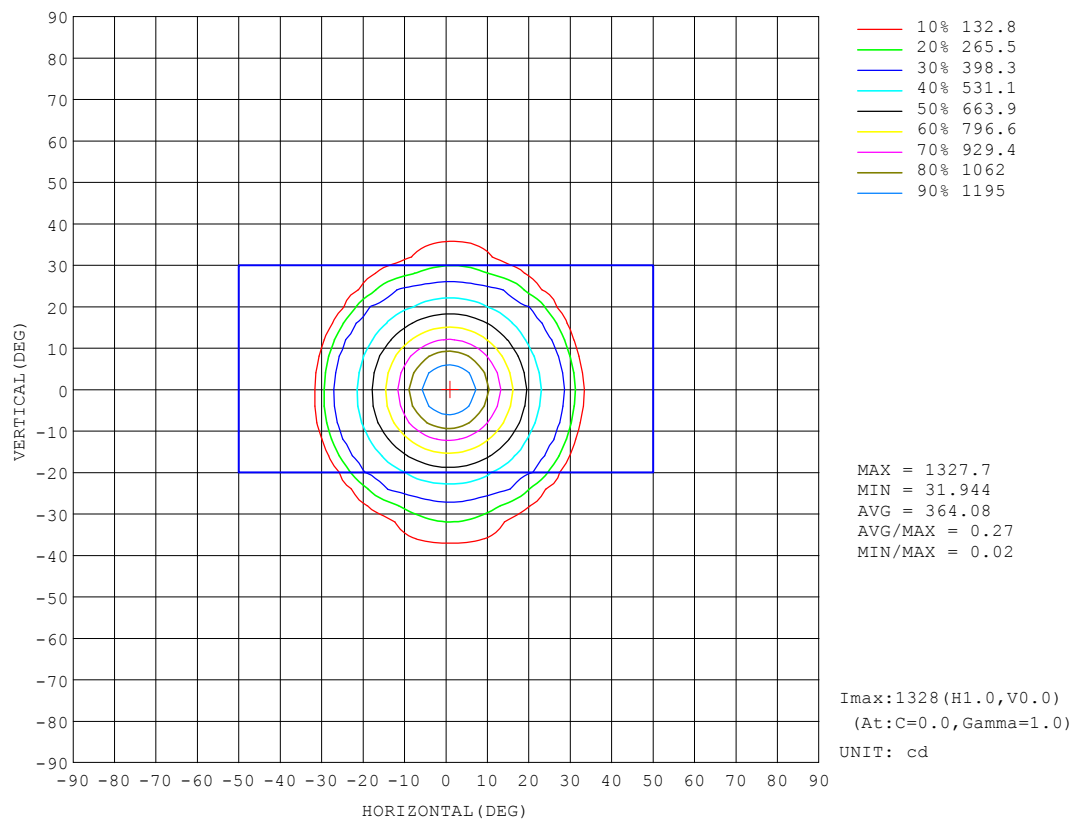
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	55	50	48	54	50	47	54	50	47	45
0.80	60	56	53	59	55	53	59	55	53	50
1.00	63	59	57	63	59	56	62	59	56	53
1.25	66	62	60	65	62	60	64	61	59	56
1.50	68	65	62	67	64	62	66	63	61	58
2.00	70	67	65	69	66	64	67	65	63	60
2.50	71	69	66	70	68	66	68	66	65	61
3.00	72	70	68	71	69	67	69	67	66	62
4.00	74	72	70	73	71	69	70	69	68	63
5.00	75	73	72	73	72	71	71	70	69	64
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

**H( $\beta$ ) Range:**-90 - 90DEG  
**H( $\beta$ ) Interval:** 1.0DEG  
**Test Speed:** HIGH  
**Temperature:**26DEG  
**Operators:**  
**Test Date:**2020-10-24

**V(B) Range:**-60 - 60DEG  
**V(B) Interval:** 2.0DEG  
**Test System:**EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
**Humidity:**65.0%  
**Test Distance:**8.660m [K=1.0000]  
**Remarks:** --

ISOCANDELA DIAGRAM

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	



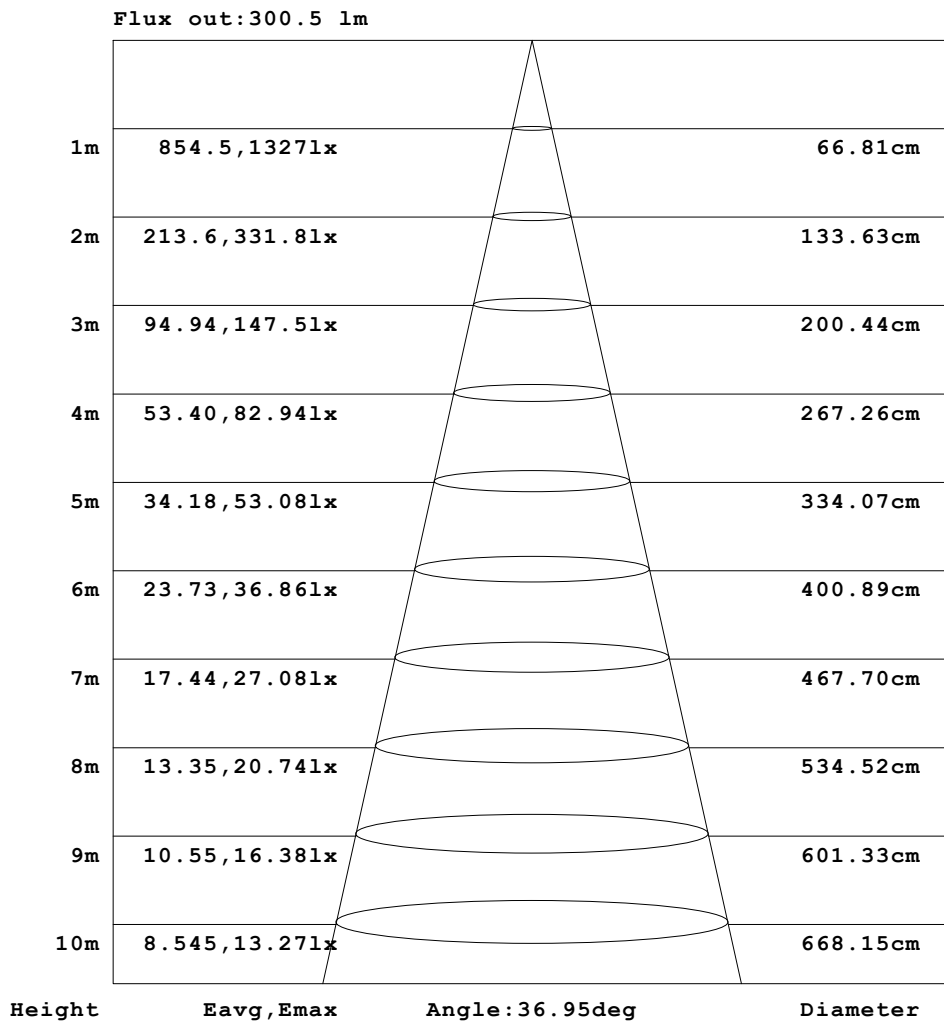
H( $\beta$ ) Range:-90 - 90DEG  
 H( $\beta$ ) Interval: 1.0DEG  
 Test Speed: HIGH  
 Temperature:26DEG  
 Operators:  
 Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
 V(B) Interval: 2.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
 Humidity:65.0%  
 Test Distance:8.660m [K=1.0000]  
 Remarks: --



AAI Figure

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	



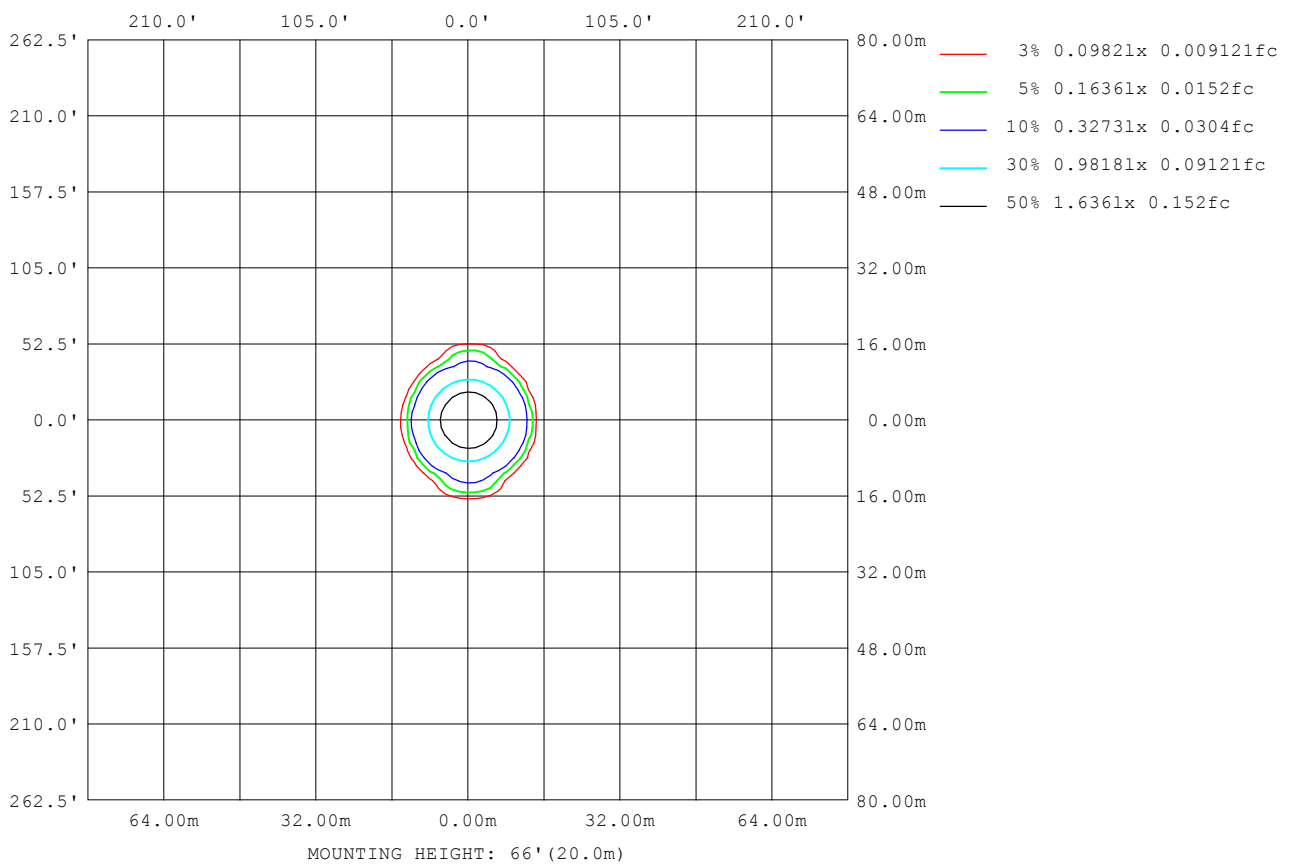
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

ISOLUX DIAGRAM

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	



H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

### LED Avg.L Report

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

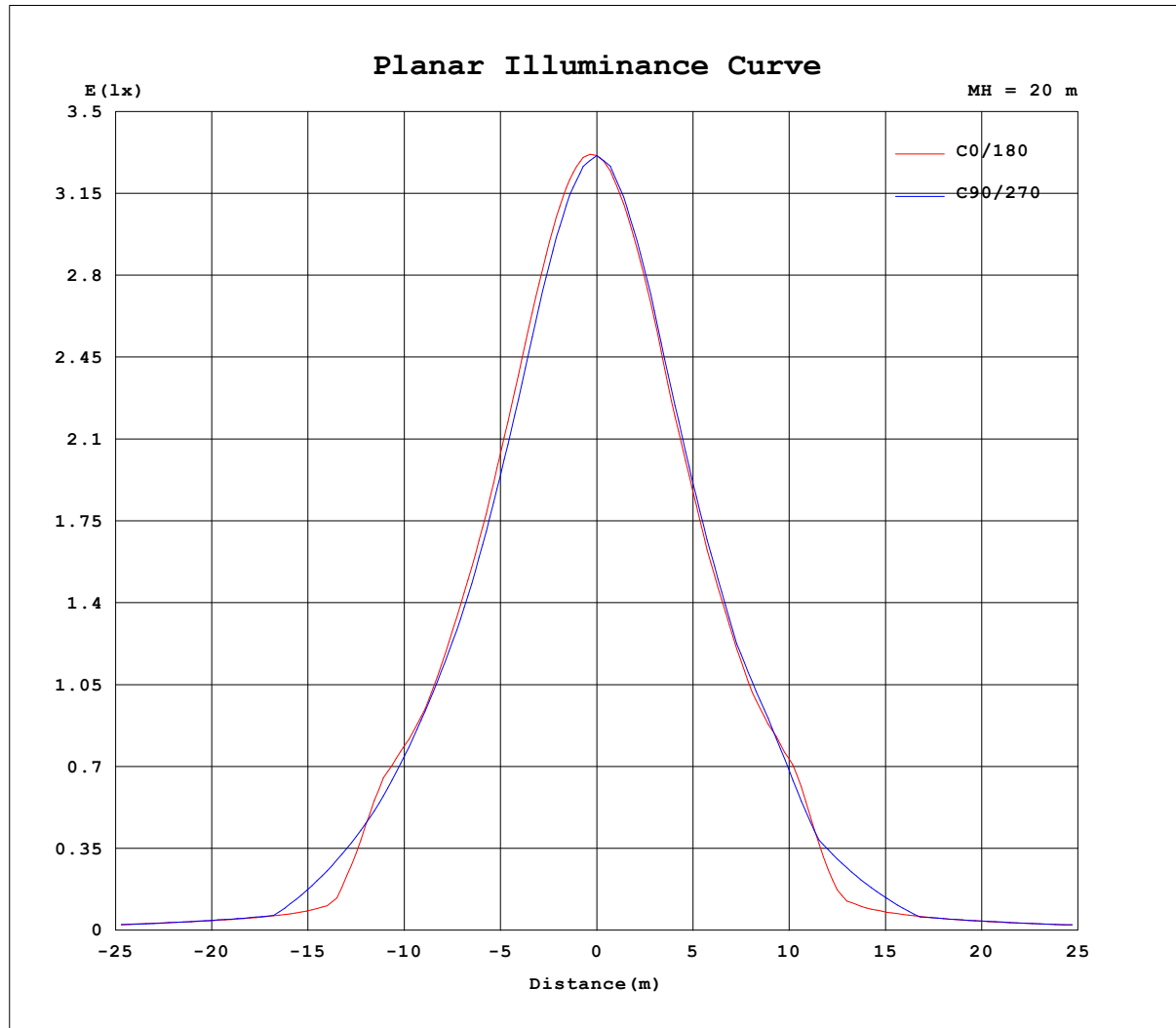
AvgL	cd/m2
L_0~180 (65) av	10925
L_0~180 (75) av	8049
L_0~180 (85) av	5637
L_90~270 (65) av	0
L_90~270 (75) av	0
L_90~270 (85) av	0
L_45 (65) av	11064
L_45 (75) av	0
L_45 (85) av	0

Standard: GB/T 29293-2012

H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

## Planar Illuminance Curve



H( $\beta$ ) Range:-90 - 90DEG  
H( $\beta$ ) Interval: 1.0DEG  
Test Speed: HIGH  
Temperature:26DEG  
Operators:  
Test Date:2020-10-24

V(B) Range:-60 - 60DEG  
V(B) Interval: 2.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.00.421  
Humidity:65.0%  
Test Distance:8.660m [K=1.0000]  
Remarks: --

```
V(B) Range:-60 - 60DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:8.660m [K=1.0000]
Remarks: --
```

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

Table--2

UNIT: cd

[illegible]

```
H( $\beta$ ) Range:-90 - 90DEG
H( $\beta$ ) Interval: 1.0DEG
Test Speed: HIGH
Temperature:26DEG
Operators:
Test Date:2020-10-24
```

```
V(B) Range:-60 - 60DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:8.660m [K=1.0000]
Remarks: --
```

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.16V I:0.0708A P:14.594W PF:0.9356 Freq:60.00Hz Lamp Flux:1070x1 lm		
NAME: LPA-LED-QP01-COI	TYPE:--	SERIAL No.:
SPEC.:2124-A-58.8	DIM.: --	
MFR.:	SUR.:73	

Table--3

UNIT: cd

[illegible]

```
H( $\beta$ ) Range:-90 - 90DEG
H( $\beta$ ) Interval: 1.0DEG
Test Speed: HIGH
Temperature:26DEG
Operators:
Test Date:2020-10-24
```

```
V(B) Range:-60 - 60DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:8.660m [K=1.0000]
Remarks: --
```

```
V(B) Range:-60 - 60DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:8.660m [K=1.0000]
Remarks: --
```