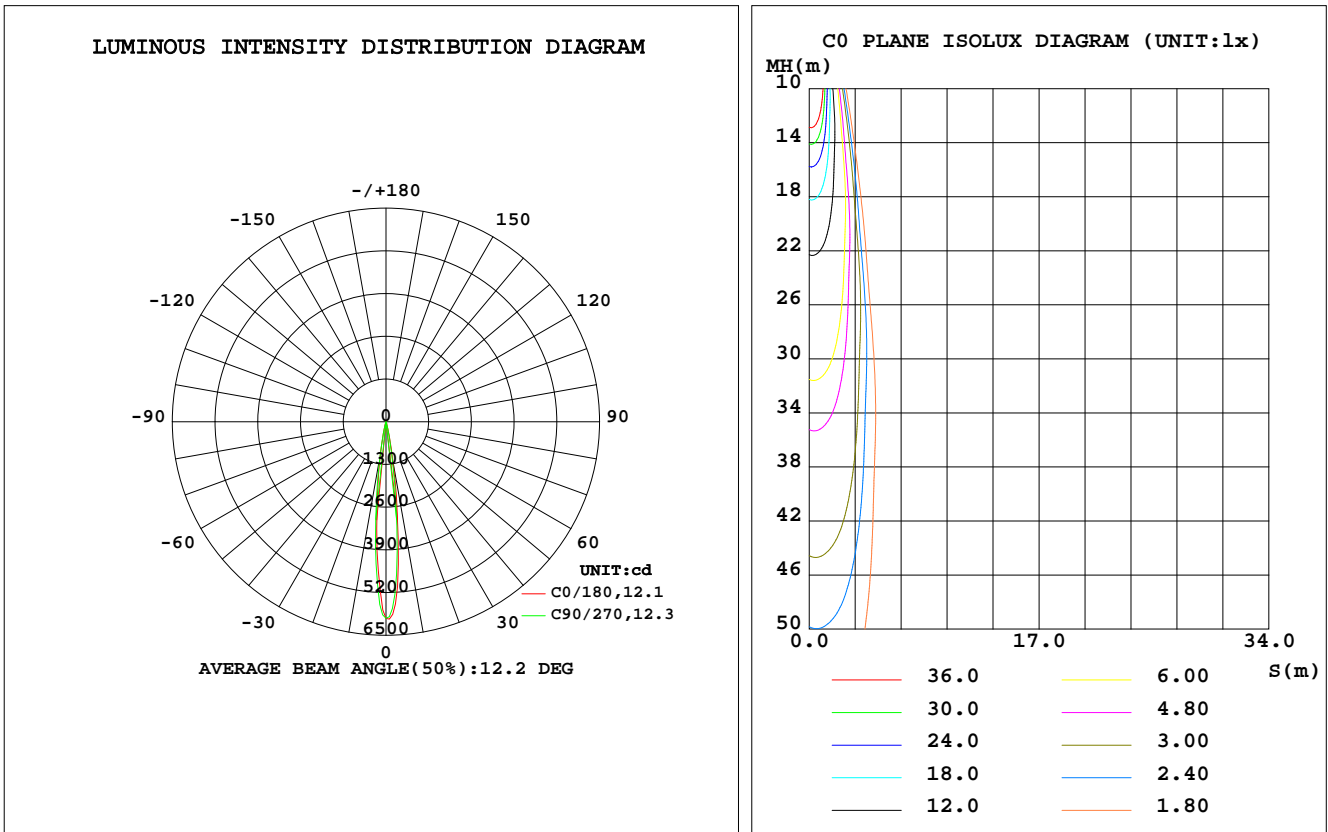


## LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm		
NAME: PB15 PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	PB15 5500K	Imax(cd)	6027	S/MH(C0/180)	0.19
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	0.21
RATED VOLTAGE(V)		TOTAL FLUX(lm)	375.71	$\eta$ UP,DN(C0-180)	0.1,51.3
NOMINAL FLUX(lm)	375.712	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.1,48.6
LAMPS INSIDE	1	$\eta$ up(%)	0.2	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)		$\eta$ down(%)	99.8	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks:

## ZONAL FLUX DIAGRAM

### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1198	1207	1017	928.0	961.4	982.5	1024	1079	0- 10	267.9	267.9	71.3,71.3
20	65.15	67.99	59.90	58.06	62.74	64.41	57.47	60.26	10- 20	75.61	343.5	91.4,91.4
30	17.65	18.61	16.94	16.41	16.45	16.48	15.26	16.58	20- 30	15.09	358.6	95.5,95.5
40	8.281	8.522	7.923	8.400	8.343	8.672	6.750	7.287	30- 40	7.049	365.7	97.3,97.3
50	5.290	5.380	4.425	5.214	6.039	5.984	3.802	3.963	40- 50	4.959	370.6	98.6,98.6
60	2.759	2.767	2.023	2.487	2.297	2.533	1.399	1.708	50- 60	3.172	373.8	99.5,99.5
70	0.6895	0.6944	0.5434	0.6245	0.1527	0.1489	0	0	60- 70	1.173	375.0	99.8,99.8
80	0	0	0	0	0	0	0	0	70- 80	0.1104	375.1	99.8,99.8
90	0	0	0	0	0	0	0	0	80- 90	0	375.1	99.8,99.8
100	0	0	0	0	0	0	0	0	90-100	0	375.1	99.8,99.8
110	0	0	0	0	0	0	0	0	100-110	0	375.1	99.8,99.8
120	0	0	0	0	0	0	0	0	110-120	0	375.1	99.8,99.8
130	0	0	0	0	0	0	0	0	120-130	0	375.1	99.8,99.8
140	0	0	0	0	0	0	0	0	130-140	0	375.1	99.8,99.8
150	0	0	0	0	0	0	0	0	140-150	0	375.1	99.8,99.8
160	0.2270	0.2990	0.1495	0.3828	1.380	1.237	1.166	1.010	150-160	0.0639	375.2	99.9,99.9
170	1.456	1.613	1.626	1.712	1.762	1.688	1.553	1.710	160-170	0.4011	375.6	100,100
180	1.606	1.612	1.630	1.710	1.686	1.612	1.553	1.554	170-180	0.1542	375.7	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 368.34 lm

%lum = 98.0%

%lamp = 98.0%

Conical surface Flux(120deg): 373.81 lm

%lum = 99.5%

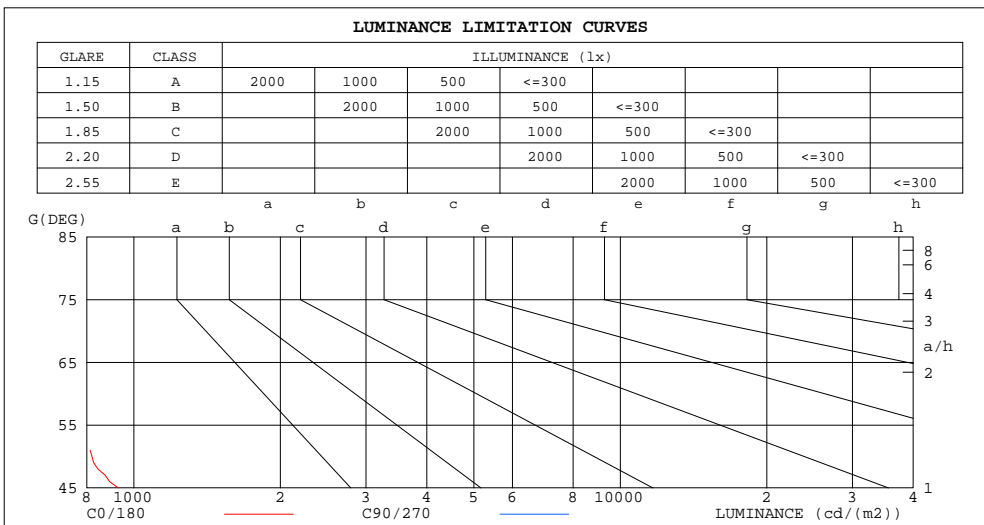
%lamp = 99.5%

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.5DEG  
Operators:William  
Test Date:2021-04-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity:56.4%  
Test Distance:26.000m [K=1.4238]  
Remarks:

## LUMINANCE LIMITATION CURVES

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	0	0
80	0	0
75	89	0
70	201	159
65	380	257
60	550	404
55	720	528
50	820	688
45	928	835

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks:

## WEC AND CCEC

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm									
NAME: PixelBrick				TYPE:LED			WEIGHT:N/A		
SPEC.:N/A				DIM.:			SERIAL No.:N/A		
MFR.: Astera LED Technology GmbH				SUR.:			Shielding Angle:N/A		

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	.114	.065	.021	.108	.061	.019	.095	.055	.017	.084	.048	.016	.073	.043	.014	
2.0	.104	.057	.017	.098	.054	.017	.088	.049	.015	.079	.044	.014	.070	.040	.013	
3.0	.095	.050	.015	.090	.048	.015	.082	.045	.014	.074	.041	.013	.067	.037	.012	
4.0	.087	.045	.013	.084	.044	.013	.077	.041	.012	.070	.038	.011	.064	.035	.011	
5.0	.081	.041	.012	.078	.040	.012	.072	.037	.011	.066	.035	.010	.061	.033	.010	
6.0	.075	.038	.011	.072	.037	.011	.067	.035	.010	.063	.033	.010	.059	.031	.009	
7.0	.070	.035	.010	.068	.034	.010	.064	.032	.009	.060	.031	.009	.056	.029	.009	
8.0	.066	.032	.009	.064	.031	.009	.060	.030	.009	.057	.029	.008	.054	.028	.008	
9.0	.062	.030	.008	.060	.029	.008	.057	.028	.008	.054	.027	.008	.051	.026	.008	
10.0	.059	.028	.008	.057	.028	.008	.054	.027	.008	.052	.026	.007	.049	.025	.007	

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	.192	.192	.192	.164	.164	.164	.112	.112	.112	.064	.064	.064	.021	.021	.021	
1.0	.168	.159	.151	.144	.137	.130	.098	.094	.090	.057	.054	.052	.018	.018	.017	
2.0	.148	.134	.122	.127	.115	.105	.087	.080	.074	.050	.046	.043	.016	.015	.014	
3.0	.132	.114	.100	.113	.099	.087	.078	.069	.061	.045	.040	.036	.014	.013	.012	
4.0	.118	.099	.084	.101	.085	.073	.070	.059	.051	.040	.035	.030	.013	.011	.010	
5.0	.107	.086	.071	.091	.074	.062	.063	.052	.043	.037	.030	.026	.012	.010	.008	
6.0	.097	.076	.060	.083	.065	.053	.057	.046	.037	.033	.027	.022	.011	.009	.007	
7.0	.088	.067	.052	.076	.058	.045	.052	.041	.032	.030	.024	.019	.010	.008	.006	
8.0	.081	.060	.045	.070	.052	.039	.048	.036	.028	.028	.021	.017	.009	.007	.006	
9.0	.075	.054	.040	.064	.047	.035	.044	.033	.025	.026	.019	.015	.008	.006	.005	
10.0	.069	.049	.035	.060	.042	.031	.041	.030	.022	.024	.018	.013	.008	.006	.004	

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks:

## UGR(Unified Glare Rating) Table

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm										
NAME: PixelBrick					TYPE:LED			WEIGHT:N/A		
SPEC.:N/A					DIM.:			SERIAL No.:N/A		
MFR.: Astera LED Technology GmbH					SUR.:			Shielding Angle:N/A		

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	2.6	3.0	2.8	3.2	3.3	1.4	1.9	1.6	2.1	2.2
3H	2.8	3.3	3.0	3.5	3.6	1.6	2.0	1.8	2.2	2.4
4H	2.8	3.2	3.0	3.4	3.6	1.5	1.9	1.7	2.1	2.3
6H	2.7	3.1	3.0	3.3	3.6	1.4	1.8	1.7	2.1	2.3
8H	2.6	3.1	2.9	3.3	3.5	1.4	1.8	1.7	2.0	2.3
12H	2.6	3.0	2.9	3.3	3.5	1.3	1.7	1.6	2.0	2.2
4H 2H	2.8	3.2	3.0	3.4	3.6	1.8	2.3	2.1	2.5	2.7
3H	3.0	3.4	3.3	3.7	3.9	1.9	2.3	2.2	2.6	2.8
4H	3.0	3.3	3.3	3.6	3.9	1.8	2.2	2.2	2.5	2.8
6H	2.9	3.2	3.2	3.5	3.9	1.7	2.1	2.1	2.4	2.7
8H	2.8	3.1	3.2	3.5	3.8	1.7	2.0	2.1	2.3	2.7
12H	2.7	3.0	3.1	3.4	3.8	1.6	1.9	2.0	2.3	2.7
8H 4H	2.8	3.1	3.2	3.5	3.8	1.7	2.0	2.1	2.4	2.7
6H	2.7	3.0	3.1	3.4	3.8	1.6	1.9	2.0	2.2	2.7
8H	2.6	2.9	3.1	3.3	3.7	1.5	1.8	2.0	2.2	2.6
12H	2.6	2.8	3.0	3.2	3.7	1.5	1.7	1.9	2.1	2.6
12H 4H	2.8	3.1	3.2	3.4	3.8	1.7	1.9	2.1	2.3	2.7
6H	2.6	2.9	3.1	3.3	3.7	1.5	1.8	2.0	2.2	2.6
8H	2.6	2.8	3.0	3.2	3.7	1.5	1.7	1.9	2.1	2.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.7 / - 1.1					+ 1.1 / - 1.6				
1.5H	+ 0.4 / - 0.9					+ 0.6 / - 1.1				
2.0H	+ 1.3 / - 1.8					+ 1.6 / - 2.3				

CIE Pub.117, 375.7 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = -3.4$ )

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.5DEG  
Operators:William  
Test Date:2021-04-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity:56.4%  
Test Distance:26.000m [K=1.4238]  
Remarks:

## UTILIZATION FACTORS TABLE

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

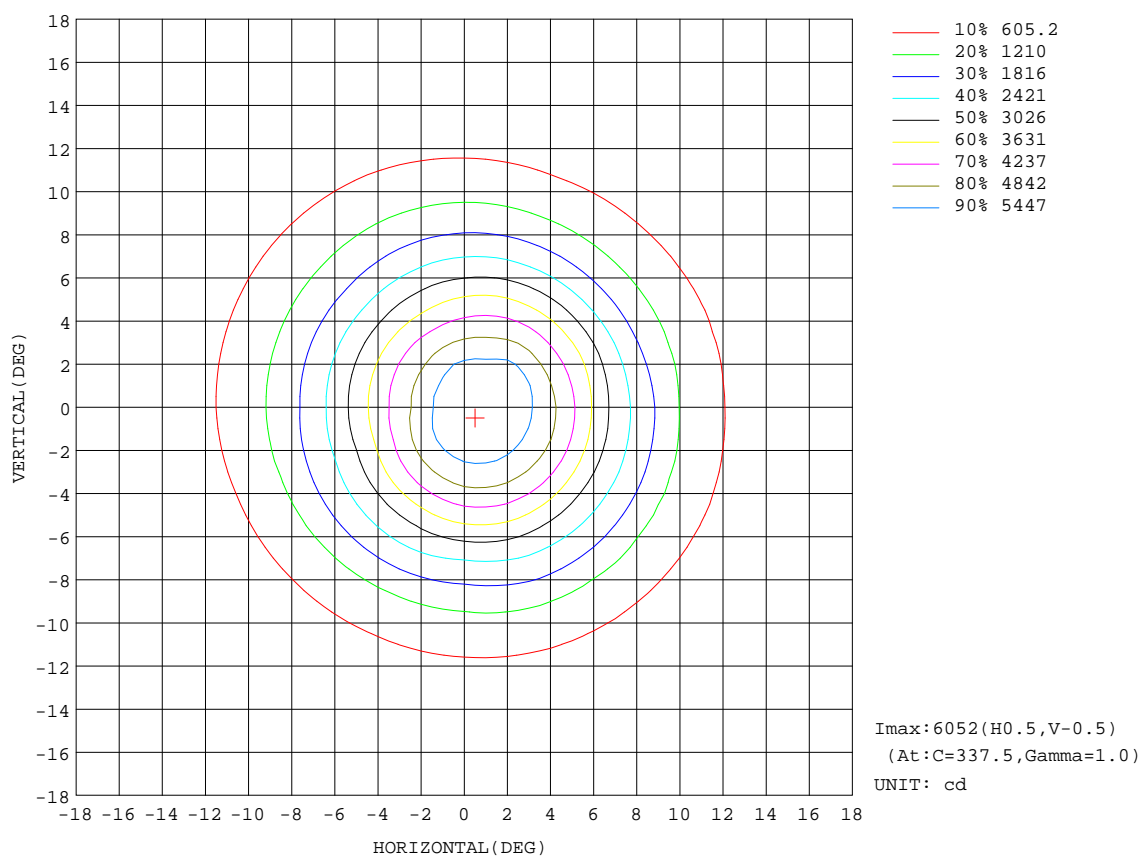
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	90	84	80	89	84	80	89	83	80	77
0.80	97	92	88	96	91	88	95	91	88	84
1.00	101	96	92	100	95	92	99	95	92	88
1.25	105	100	97	104	99	96	102	98	95	91
1.50	107	103	100	106	102	99	104	101	98	94
2.00	109	106	103	108	104	102	105	103	100	95
2.50	111	107	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	106	107	105	103	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	115	113	112	113	112	110	109	108	107	100
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks:

## ISOCANDELA DIAGRAM

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A

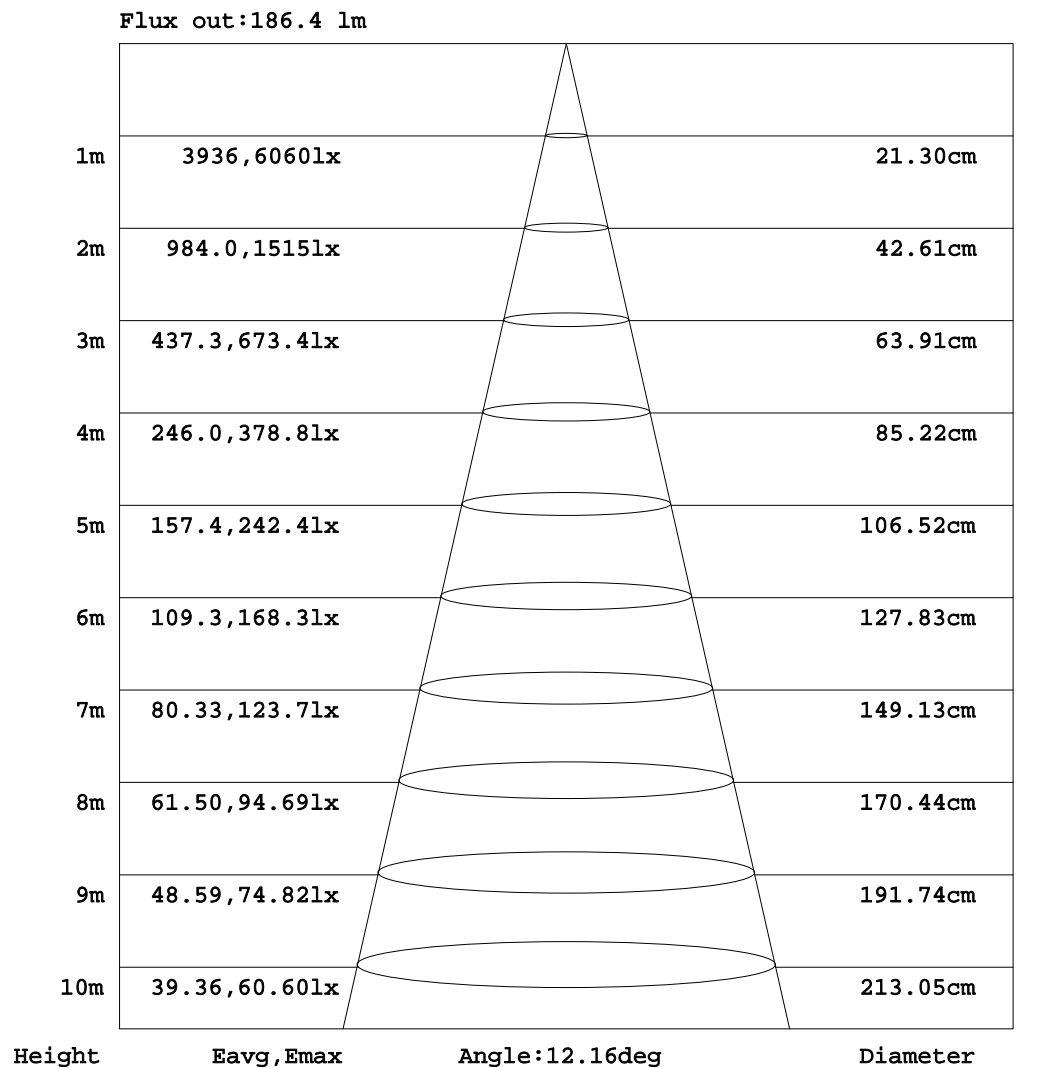


C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks:

## AAI Figure

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm		
NAME: PixelBrick	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Astera LED Technology GmbH	SUR.:	Shielding Angle:N/A



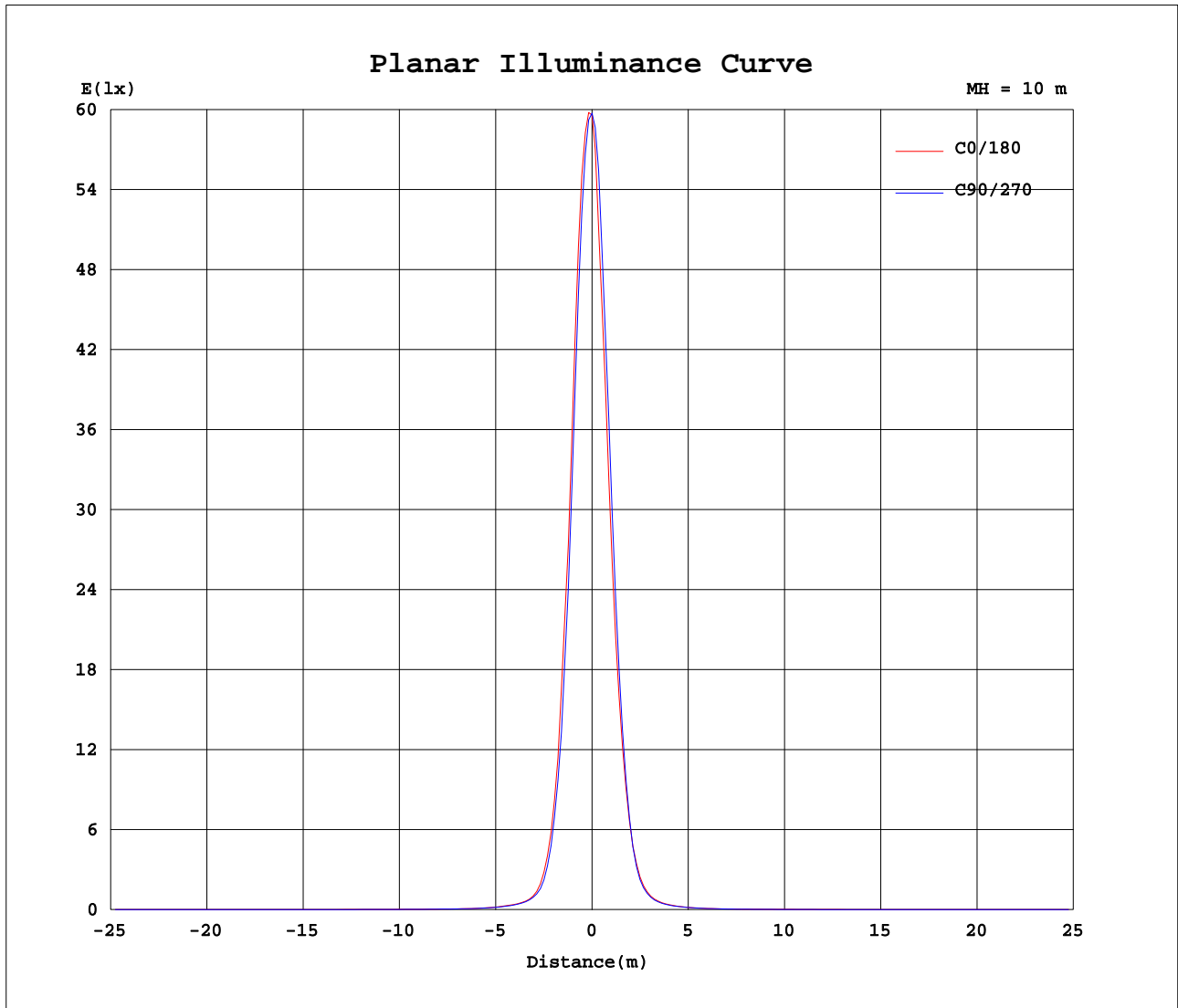
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks:



## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 24.5DEG  
Operators: William  
Test Date: 2021-04-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System: EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
Humidity: 56.4%  
Test Distance: 26.000m [K=1.4238]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:0V I:0A P:0W PF:0.0000 Freq:0Hz Lamp Flux:375.712x1 lm																		
NAME: PixelBrick									TYPE:LED					WEIGHT:N/A				
SPEC.:N/A									DIM.:					SERIAL No.:N/A				
MFR.: Astera LED Technology GmbH									SUR.:					Shielding Angle:N/A				

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982	5982			
5	4356	4361	4259	4149	3950	3684	3486	3269	3272	3299	3355	3498	3723	3970	4141	4265			
10	1198	1230	1207	1127	1017	948	928	922	961	972	982	1016	1024	1023	1079	1167			
15	217	222	212	192	176	170	173	178	201	216	213	201	183	173	182	207			
20	65.2	69.8	68.0	62.6	59.9	58.3	58.1	58.5	62.7	66.8	64.4	61.4	57.5	58.0	60.3	63.2			
25	34.9	40.0	37.5	33.2	30.8	29.3	28.6	28.4	29.9	31.3	30.1	29.6	28.3	29.6	32.1	33.7			
30	17.7	18.7	18.6	17.7	16.9	16.5	16.4	16.2	16.4	17.3	16.5	16.1	15.3	16.0	16.6	17.0			
35	11.3	11.8	11.8	11.4	11.1	10.8	11.0	10.9	10.6	11.4	11.1	10.3	9.85	9.99	10.2	10.5			
40	8.28	8.45	8.52	8.20	7.92	8.22	8.40	8.49	8.34	9.06	8.67	7.26	6.75	6.88	7.29	7.33			
45	6.59	6.76	6.61	6.19	5.91	6.44	6.84	7.18	7.28	8.60	7.59	6.18	5.19	4.88	5.28	5.47			
50	5.29	5.76	5.38	4.72	4.42	4.73	5.21	5.57	6.04	6.37	5.98	4.64	3.80	4.03	3.96	4.32			
55	4.14	4.61	4.22	3.41	3.03	3.11	3.74	4.02	3.75	4.15	3.91	3.01	2.48	2.48	2.80	3.24			
60	2.76	3.15	2.77	2.17	2.02	2.17	2.49	2.70	2.30	2.38	2.53	1.54	1.40	1.39	1.71	1.85			
65	1.61	1.85	1.69	1.32	1.09	1.24	1.56	1.78	1.15	1.30	1.46	0.39	0.23	0.23	1.01	1.16			
70	0.69	0.78	0.69	0.54	0.54	0.39	0.62	0.77	0.15	0.07	0.15	0.00	0.00	0.00	0.00	0.00			
75	0.23	0.23	0.15	0.16	0.00	0.16	0.23	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.23	0.23	0.08	0.08	0.08	0.16			
160	0.23	0.23	0.30	0.15	0.15	0.08	0.38	0.08	1.38	1.31	1.24	1.32	1.17	1.02	1.01	1.08			
165	1.46	1.38	1.38	1.31	1.32	1.08	1.48	1.54	1.76	1.77	1.84	1.78	1.63	1.70	1.87	2.08			
170	1.46	1.69	1.61	1.55	1.63	1.63	1.71	1.62	1.76	1.77	1.69	1.70	1.55	1.63	1.71	1.85			
175	1.46	1.61	1.61	1.55	1.63	1.55	1.71	1.62	1.61	1.54	1.61	1.62	1.55	1.63	1.63	1.70			
180	1.61	1.61	1.61	1.55	1.63	1.55	1.71	1.62	1.69	1.54	1.61	1.62	1.55	1.63	1.55	1.70			

C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature:24.5DEG  
 Operators:William  
 Test Date:2021-04-15

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-R5000\_V2 SYSTEM V2.0.366  
 Humidity:56.4%  
 Test Distance:26.000m [K=1.4238]  
 Remarks: