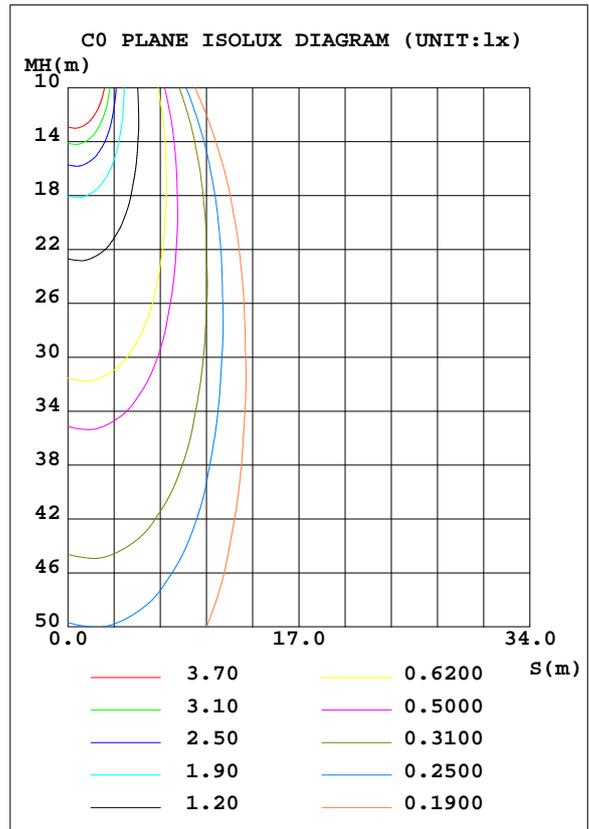
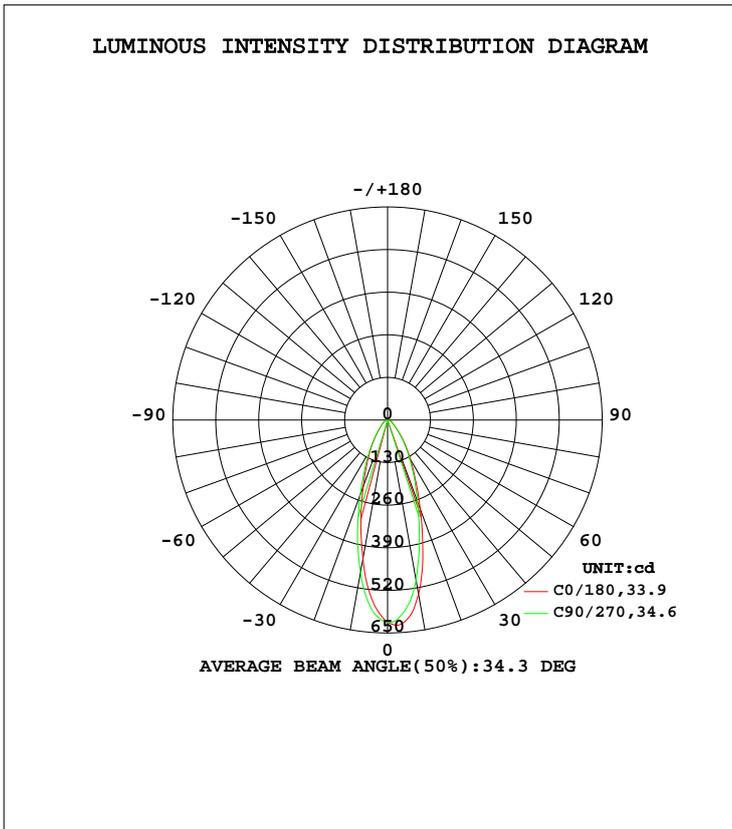


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 129.04 lm/W			
MODEL	MR16 3W 24V	I _{max} (cd)	627.1	S/MH(C0/180)	0.50
NOMINAL POWER(W)	3	LOR(%)	100.0	S/MH(C90/270)	0.55
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	354.74	η UP, DN(C0-180)	0.4,54.1
NOMINAL FLUX(lm)	354.741	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.4,45.0
LAMPS INSIDE	1	η up(%)	0.9	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	24	η down(%)	99.1	CIBSE SHR MAX	0.60



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270				γ	Φ zone	Φ total	%lum, lamp
10	540.2	497.8	430.6	473.1				0- 10	52.45	52.45	14.8,14.8
20	289.2	265.6	215.9	243.4				10- 20	99.90	152.4	42.9,42.9
30	138.7	130.8	103.5	109.3				20- 30	81.16	233.5	65.8,65.8
40	63.61	59.66	46.12	47.26				30- 40	51.52	285.0	80.3,80.3
50	28.45	27.06	22.55	23.19				40- 50	28.66	313.7	88.4,88.4
60	16.14	15.35	13.67	14.45				50- 60	17.22	330.9	93.3,93.3
70	11.33	8.554	7.963	9.781				60- 70	11.97	342.9	96.7,96.7
80	5.010	3.172	2.972	4.018				70- 80	6.838	349.7	98.6,98.6
90	0.8056	0.0766	0.0536	0.0700				80- 90	1.881	351.6	99.1,99.1
100	0.0536	0.0844	0.0919	0.0460				90-100	0.0877	351.7	99.1,99.1
110	0.0919	0.1457	0.1609	0.1073				100-110	0.0950	351.8	99.2,99.2
120	0.1989	0.2761	0.2835	0.2066				110-120	0.1632	351.9	99.2,99.2
130	0.3975	0.5139	0.5212	0.4137				120-130	0.2995	352.2	99.3,99.3
140	0.7583	0.9047	0.9118	0.7743				130-140	0.4881	352.7	99.4,99.4
150	1.240	1.365	1.341	1.211				140-150	0.6637	353.4	99.6,99.6
160	1.608	1.703	1.662	1.549				150-160	0.6773	354.1	99.8,99.8
170	1.808	1.863	1.838	1.733				160-170	0.4893	354.6	100,100
180	1.861	1.863	1.861	1.832				170-180	0.1744	354.7	100,100
DEG	LUMINOUS INTENSITY:cd								UNIT:lm		

Conical surface Flux(90deg): 301.45 lm

%lum = 85.0%
 %lamp = 85.0%

Conical surface Flux(120deg): 330.91 lm

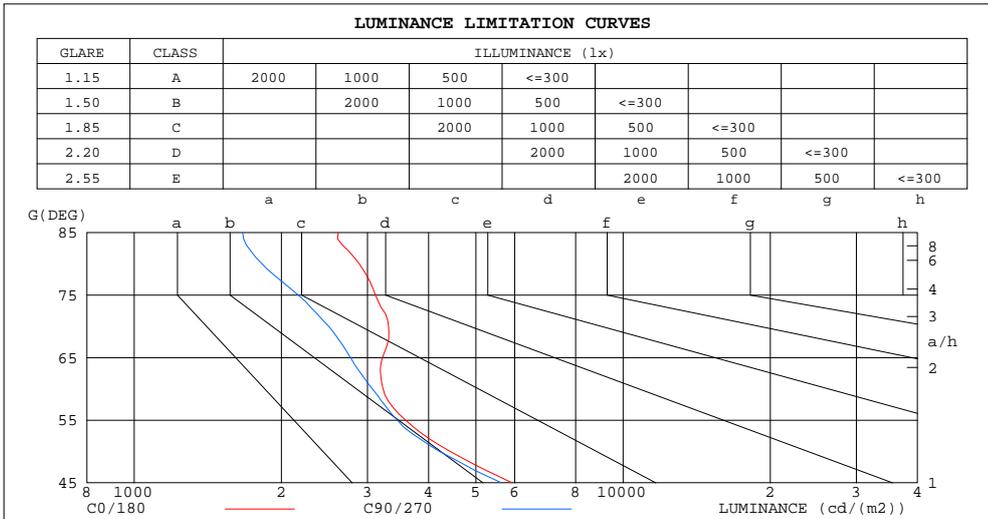
%lum = 93.3%
 %lamp = 93.3%

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2616	1666
80	2886	1826
75	3114	2164
70	3313	2500
65	3220	2771
60	3230	3069
55	3590	3451
50	4428	4208
45	5929	5640

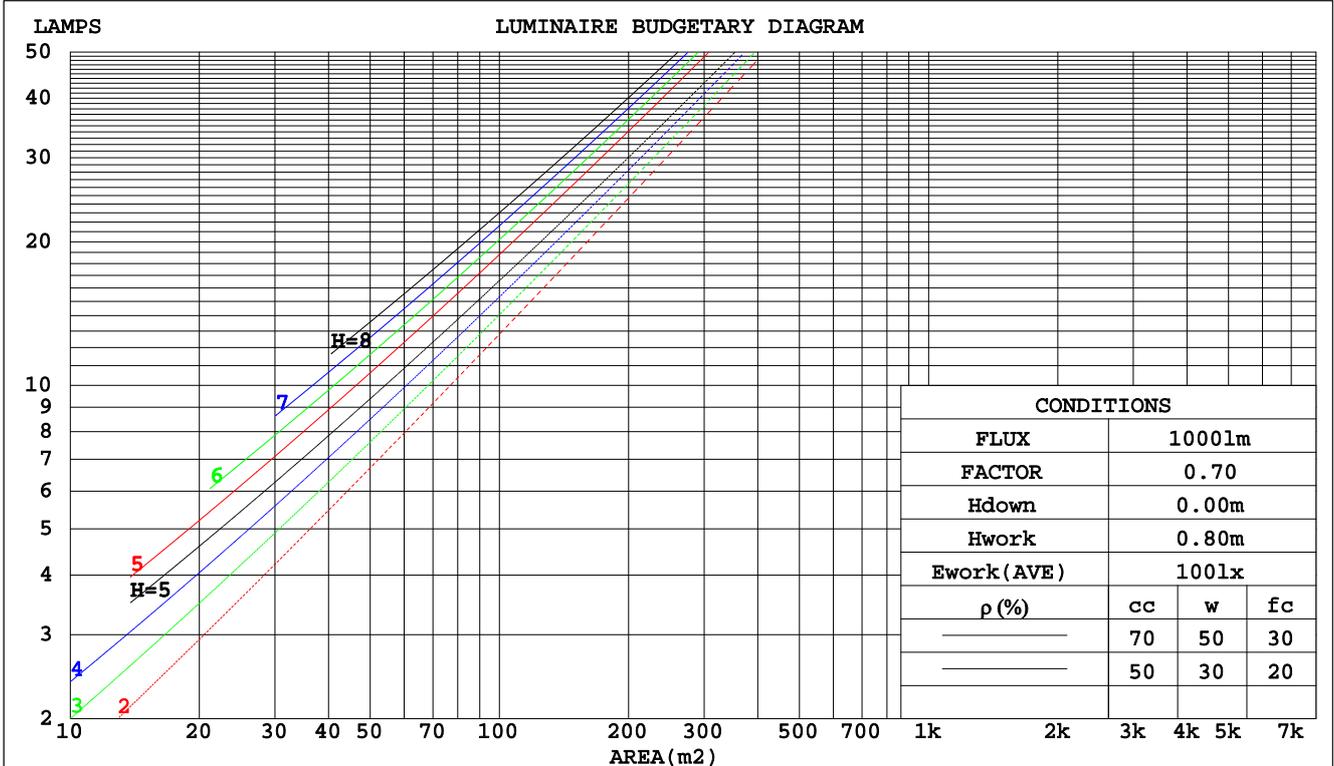
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 24.5DEG
 Operators:
 Test Date: 2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity: 47.5%
 Test Distance: 10.680m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																0
pfc	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	1.01	1.01	1.01	.99
1.0	1.09	1.06	1.04	1.07	1.04	1.02	1.03	1.01	.99	.99	.97	.96	.95	.94	.93	.91
2.0	1.01	.96	.92	.99	.95	.91	.95	.92	.89	.92	.89	.87	.89	.87	.85	.83
3.0	.93	.88	.83	.92	.87	.83	.89	.85	.81	.86	.83	.80	.84	.81	.78	.77
4.0	.87	.81	.76	.86	.80	.76	.83	.79	.75	.81	.77	.74	.79	.76	.73	.71
5.0	.81	.75	.70	.80	.74	.70	.78	.73	.69	.76	.72	.69	.75	.71	.68	.66
6.0	.76	.70	.65	.75	.69	.65	.74	.69	.65	.72	.68	.64	.71	.67	.64	.62
7.0	.72	.66	.61	.71	.65	.61	.70	.64	.61	.68	.64	.60	.67	.63	.60	.58
8.0	.68	.62	.58	.67	.61	.57	.66	.61	.57	.65	.60	.57	.64	.60	.56	.55
9.0	.64	.58	.54	.64	.58	.54	.63	.58	.54	.62	.57	.54	.61	.57	.53	.52
10.0	.61	.55	.51	.61	.55	.51	.60	.55	.51	.59	.54	.51	.58	.54	.51	.49



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding 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 Coefficients(WEC)									
0.0																
1.0	.202	.115	.036	.195	.111	.035	.182	.105	.033	.170	.098	.031	.159	.092	.030	
2.0	.191	.105	.032	.185	.102	.031	.174	.097	.030	.164	.092	.029	.154	.087	.027	
3.0	.180	.096	.029	.174	.093	.028	.165	.089	.027	.156	.085	.026	.147	.082	.025	
4.0	.168	.088	.026	.164	.086	.025	.156	.083	.025	.148	.079	.024	.140	.076	.023	
5.0	.158	.081	.023	.154	.079	.023	.147	.077	.023	.140	.074	.022	.134	.072	.021	
6.0	.149	.075	.021	.146	.074	.021	.139	.071	.021	.133	.069	.020	.128	.067	.020	
7.0	.141	.070	.020	.138	.069	.020	.132	.067	.019	.127	.065	.019	.122	.063	.019	
8.0	.134	.065	.018	.131	.065	.018	.126	.063	.018	.121	.061	.018	.117	.060	.017	
9.0	.127	.061	.017	.125	.061	.017	.120	.059	.017	.116	.058	.017	.112	.057	.016	
10.0	.121	.058	.016	.119	.057	.016	.115	.056	.016	.111	.055	.016	.107	.054	.015	

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	.197	.197	.197	.169	.169	.169	.115	.115	.115	.066	.066	.066	.021	.021	.021	
1.0	.180	.164	.150	.154	.141	.129	.105	.097	.089	.061	.056	.052	.019	.018	.017	
2.0	.166	.139	.117	.142	.120	.101	.097	.083	.071	.056	.048	.041	.018	.016	.013	
3.0	.154	.121	.094	.132	.104	.081	.091	.072	.057	.052	.042	.034	.017	.014	.011	
4.0	.144	.106	.077	.123	.092	.067	.085	.064	.047	.049	.037	.028	.016	.012	.009	
5.0	.135	.095	.065	.116	.082	.056	.080	.057	.040	.046	.034	.024	.015	.011	.008	
6.0	.127	.085	.055	.110	.074	.048	.076	.052	.034	.044	.030	.020	.014	.010	.007	
7.0	.121	.078	.048	.104	.068	.042	.072	.047	.030	.042	.028	.018	.013	.009	.006	
8.0	.115	.072	.042	.099	.062	.037	.068	.044	.026	.040	.026	.016	.013	.008	.005	
9.0	.109	.066	.038	.094	.058	.033	.065	.041	.023	.038	.024	.014	.012	.008	.005	
10.0	.104	.062	.034	.090	.054	.030	.062	.038	.021	.036	.022	.013	.012	.007	.004	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm										
NAME: MR16 3W 24V					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.:					SUR.:			Shielding 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	18.6	19.6	18.8	19.8	20.0	18.4	19.4	18.6	19.6	19.8
3H	19.6	20.5	19.9	20.8	21.0	19.1	20.1	19.4	20.3	20.5
4H	20.1	21.0	20.4	21.2	21.5	19.4	20.3	19.7	20.5	20.8
6H	20.5	21.3	20.8	21.6	21.8	19.6	20.4	19.9	20.7	21.0
8H	20.6	21.4	20.9	21.7	21.9	19.6	20.4	20.0	20.7	21.0
12H	20.7	21.4	21.0	21.7	22.0	19.7	20.4	20.0	20.7	21.0
4H 2H	18.9	19.7	19.2	20.0	20.2	18.7	19.6	19.0	19.8	20.0
3H	20.1	20.9	20.4	21.1	21.4	19.6	20.4	20.0	20.7	21.0
4H	20.7	21.4	21.1	21.7	22.1	20.0	20.7	20.4	21.1	21.4
6H	21.2	21.8	21.6	22.2	22.5	20.3	21.0	20.7	21.3	21.7
8H	21.4	22.0	21.8	22.3	22.7	20.4	21.0	20.8	21.4	21.8
12H	21.5	22.0	21.9	22.4	22.8	20.5	21.0	20.9	21.4	21.8
8H 4H	20.8	21.4	21.2	21.8	22.2	20.2	20.8	20.6	21.2	21.6
6H	21.5	21.9	21.9	22.4	22.8	20.6	21.1	21.1	21.5	22.0
8H	21.7	22.1	22.2	22.6	23.0	20.8	21.2	21.3	21.7	22.1
12H	21.9	22.3	22.4	22.7	23.2	20.9	21.3	21.4	21.7	22.2
12H 4H	20.8	21.3	21.2	21.7	22.2	20.2	20.8	20.7	21.2	21.6
6H	21.5	21.9	21.9	22.3	22.8	20.7	21.1	21.1	21.5	22.0
8H	21.8	22.1	22.2	22.6	23.1	20.9	21.2	21.4	21.7	22.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.6					+ 0.6 / - 0.8				
1.5H	+ 0.9 / - 0.5					+ 0.9 / - 0.7				
2.0H	+ 1.0 / - 0.5					+ 1.1 / - 0.6				

CIE Pub.117, 354.7 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -3.6)

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

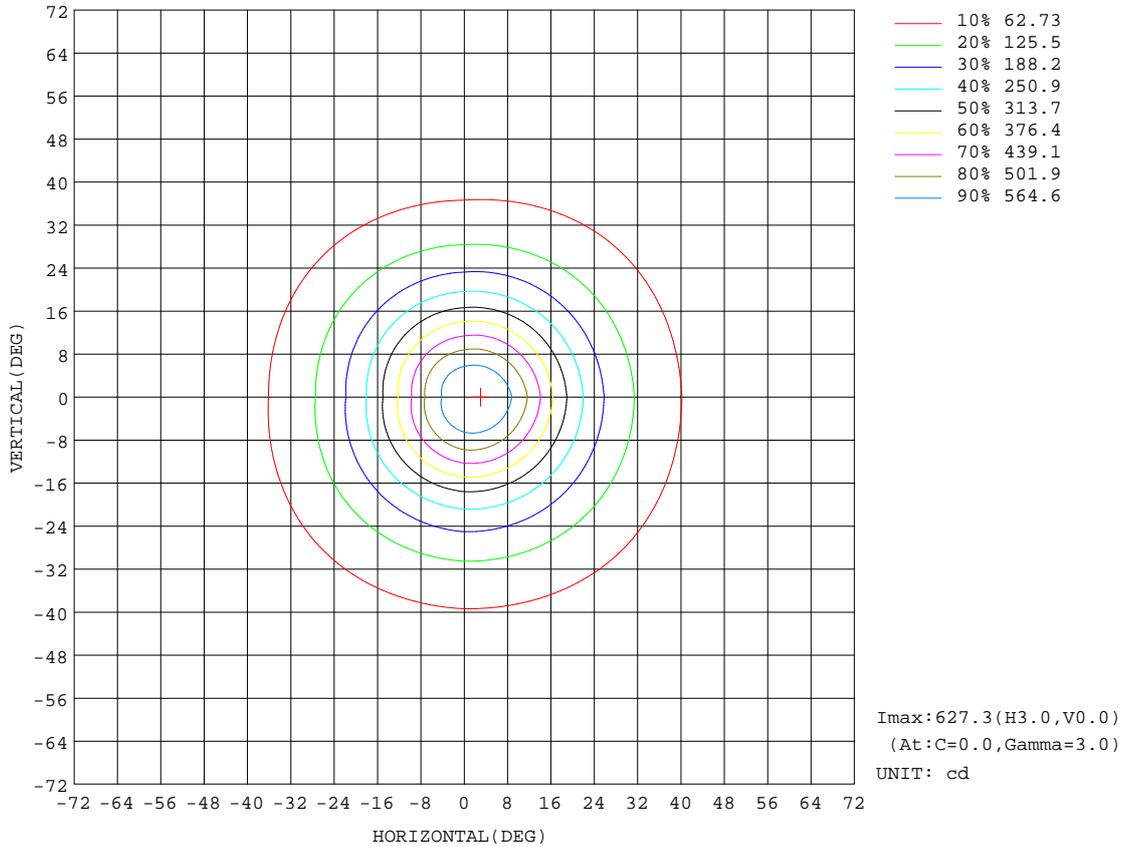
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	79	72	67	79	72	67	78	71	67	63
0.80	88	80	76	87	80	75	85	79	75	70
1.00	93	86	81	92	85	81	90	86	81	76
1.25	98	91	87	97	91	86	94	89	86	80
1.50	101	95	91	100	94	90	97	93	89	84
2.00	105	100	96	103	98	95	100	96	93	87
2.50	107	102	99	105	101	98	102	98	96	89
3.00	109	105	101	107	103	100	103	100	98	91
4.00	112	108	105	109	106	104	105	103	101	93
5.00	113	110	108	111	108	106	107	105	103	95
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:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



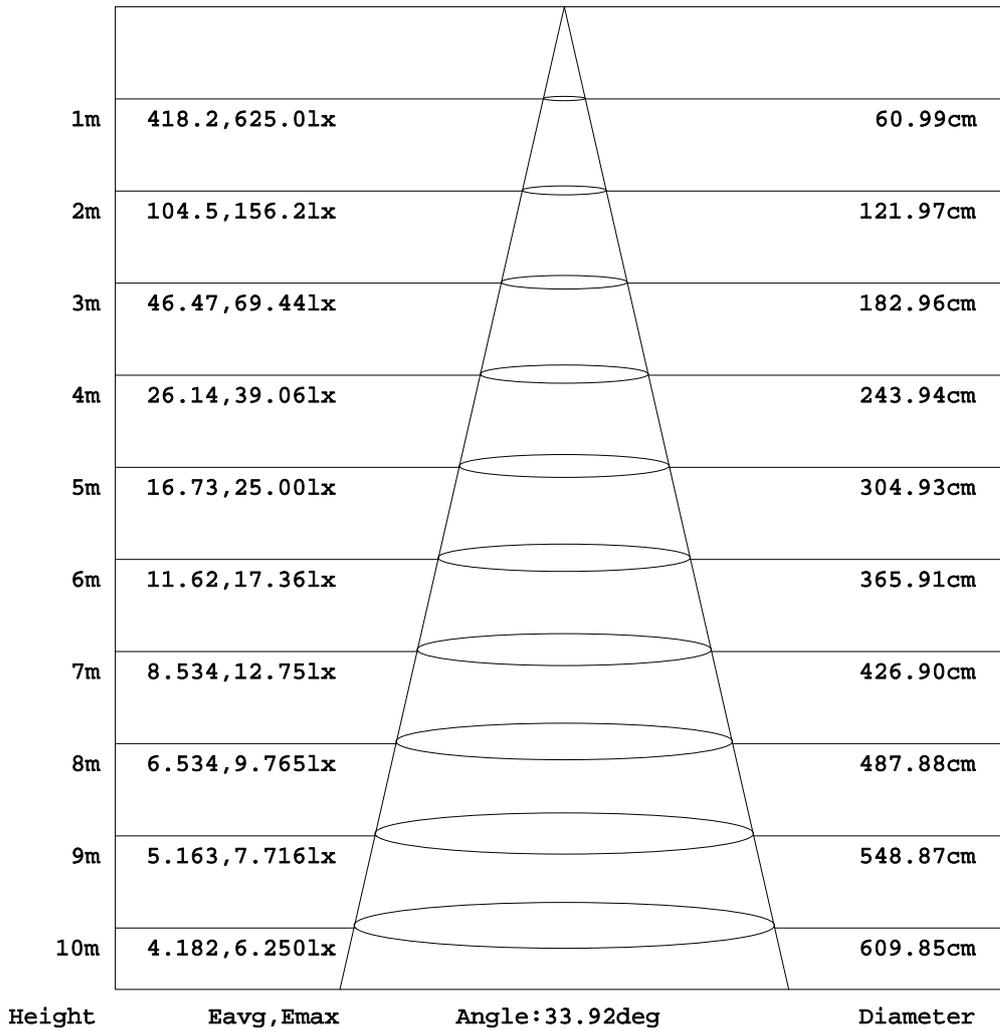
C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 24.5DEG
 Operators:
 Test Date: 2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity: 47.5%
 Test Distance: 10.680m [K=1.0000]
 Remarks:

AAI Figure

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

Flux out:122.8 lm



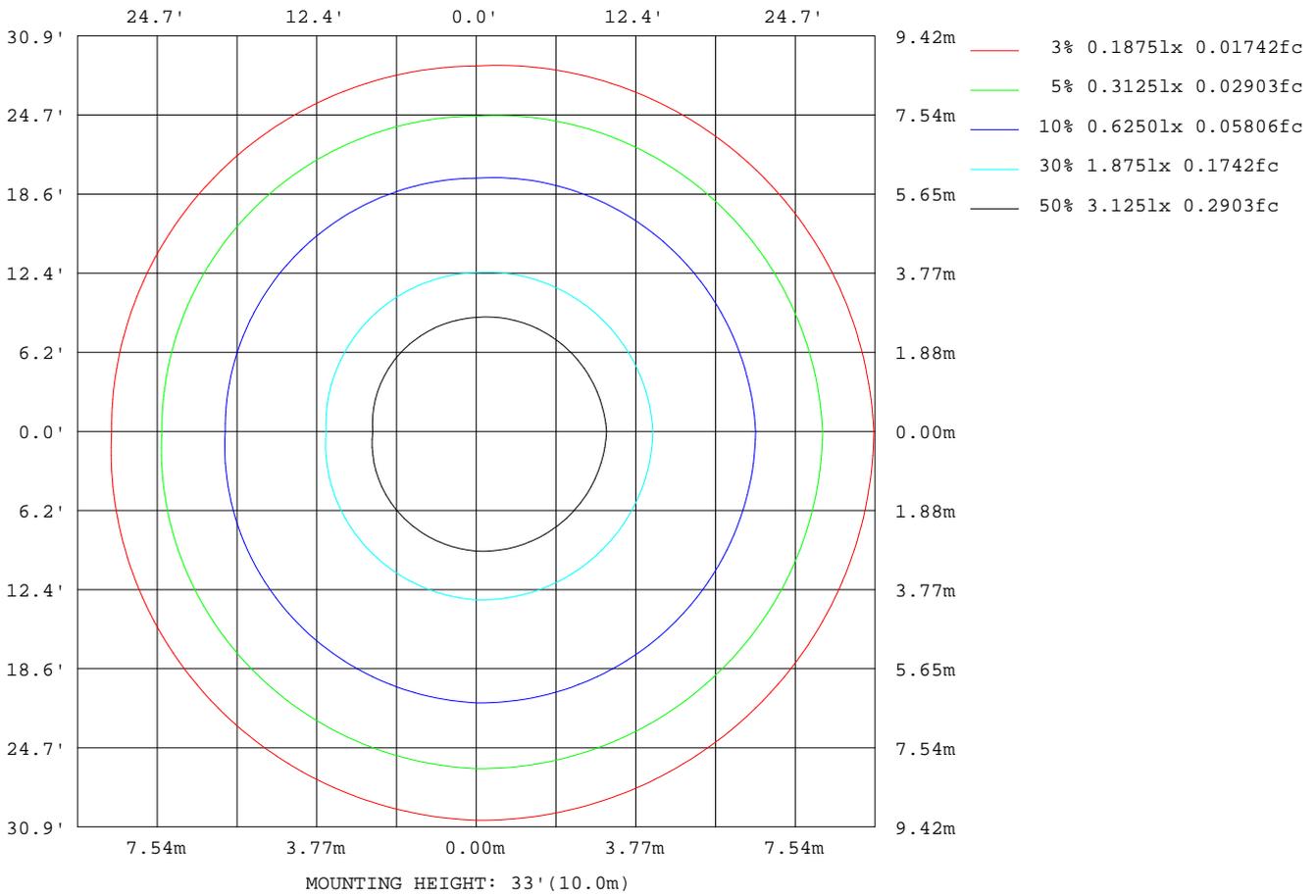
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 24.5DEG
 Operators:
 Test Date: 2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity: 47.5%
 Test Distance: 10.680m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

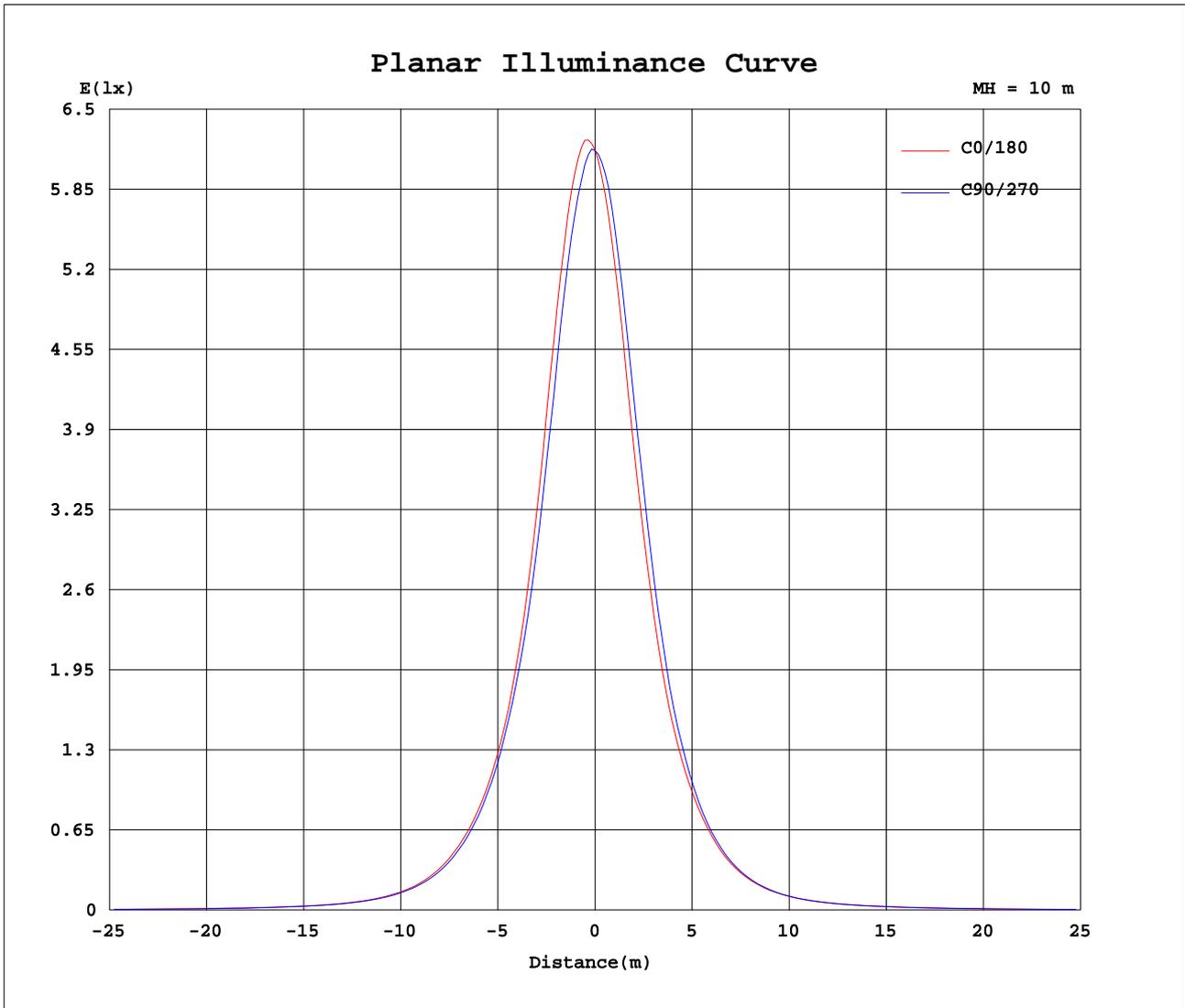
AvgL	cd/m2
L_0~180(65)av	2881
L_0~180(75)av	2595
L_0~180(85)av	1843
L_90~270(65)av	2828
L_90~270(75)av	2356
L_90~270(85)av	1718
L_45(65)av	2827
L_45(75)av	2413
L_45(85)av	1717

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
 Test Distance:10.680m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 24.5DEG
 Operators:
 Test Date: 2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity: 47.5%
 Test Distance: 10.680m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.04V I:0.1144A P:2.749W PF:0.9999 Freq:0Hz Lamp Flux:354.74lx1 lm		
NAME: MR16 3W 24V	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	90	180	270															
0	617	617	617	617															
5	616	586	548	576															
10	540	498	431	473															
15	413	374	313	352															
20	289	266	216	243															
25	199	189	150	165															
30	139	131	104	109															
35	95.4	89.8	68.7	71.8															
40	63.6	59.7	46.1	47.3															
45	41.9	39.9	31.4	31.9															
50	28.5	27.1	22.5	23.2															
55	20.6	19.8	17.5	17.7															
60	16.1	15.4	13.7	14.4															
65	13.6	11.7	10.7	12.2															
70	11.3	8.55	7.96	9.78															
75	8.06	5.60	5.38	6.59															
80	5.01	3.17	2.97	4.02															
85	2.28	1.45	0.93	1.54															
90	0.81	0.08	0.05	0.07															
95	0.05	0.06	0.07	0.05															
100	0.05	0.08	0.09	0.05															
105	0.05	0.12	0.12	0.05															
110	0.09	0.15	0.16	0.11															
115	0.12	0.19	0.21	0.12															
120	0.20	0.28	0.28	0.21															
125	0.27	0.37	0.39	0.32															
130	0.40	0.51	0.52	0.41															
135	0.56	0.68	0.70	0.57															
140	0.76	0.90	0.91	0.77															
145	1.00	1.14	1.13	1.00															
150	1.24	1.36	1.34	1.21															
155	1.45	1.56	1.52	1.40															
160	1.61	1.70	1.66	1.55															
165	1.73	1.82	1.77	1.67															
170	1.81	1.86	1.84	1.73															
175	1.83	1.86	1.86	1.79															
180	1.86	1.86	1.86	1.83															

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:24.5DEG
 Operators:
 Test Date:2022-11-01

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.361
 Humidity:47.5%
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 Remarks: