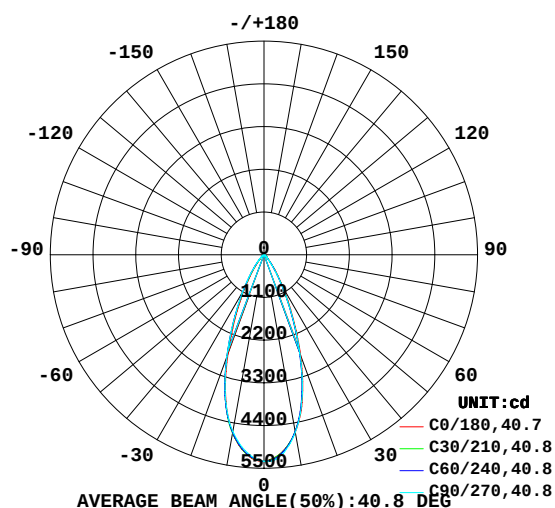


LUMINAIRE PHOTOMETRIC TEST REPORT

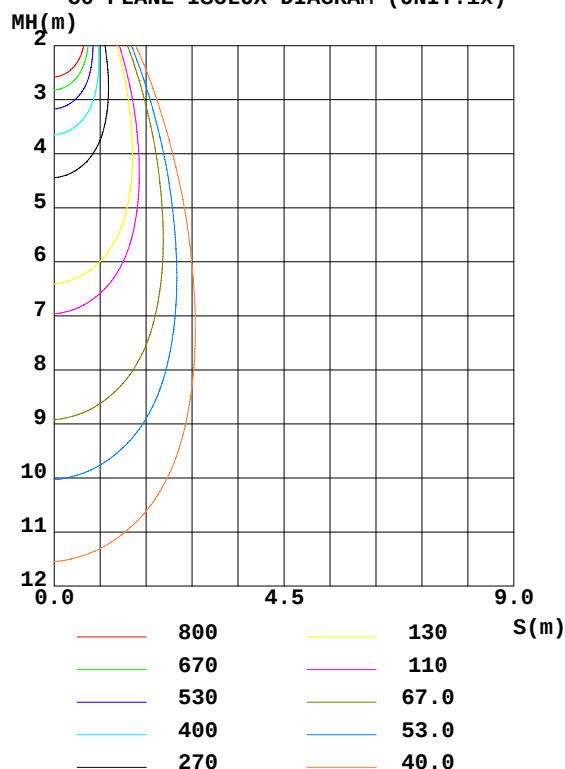
NAME: LED	TYPE: track lights	WEIGHT: 1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 105.00 lm/W			
MODEL		Imax(cd)	5328	S/MH(C0/180)	0.65
NOMINAL POWER(W)	30	LOR(%)	104.8	S/MH(C90/270)	0.67
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	2873.3	η UP, DN(C0-180)	0.0, 51.8
NOMINAL FLUX(lm)	2741.89	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 53.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	230	η down(%)	104.8	CIBSE SHR MAX	0.65

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT: lx)



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity: 65.0%
Test Distance: 5.300m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

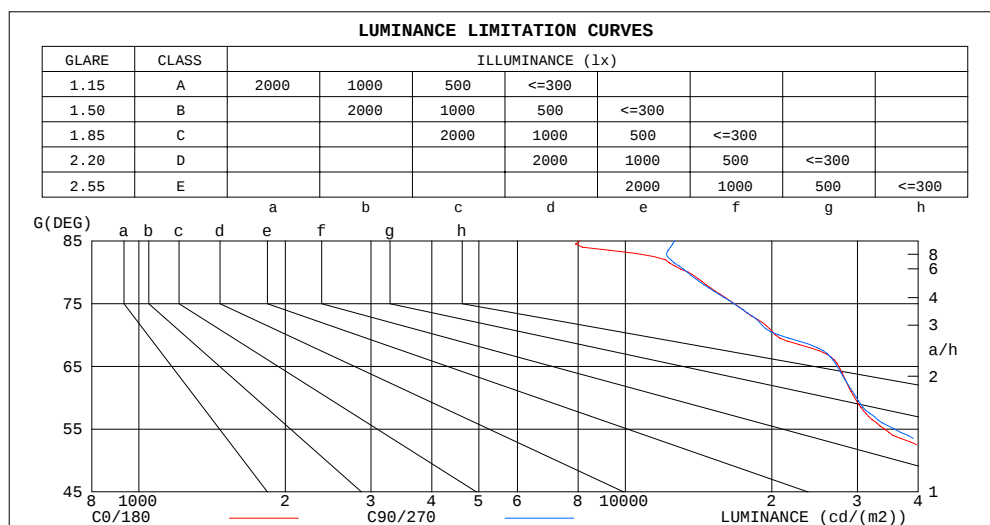
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	4642	4635	4647	4739	4654	4643	4619	4576	0- 10	475.0	475.0	16.5,17.3
20	2760	2715	2709	2812	2716	2772	2795	2698	10- 20	1041	1516	52.8,55.3
30	997.9	962.2	945.8	986.8	962.3	1055	1084	1026	20- 30	800.6	2317	80.6,84.5
40	269.7	243.9	226.2	241.4	236.7	293.8	314.8	294.2	30- 40	348.6	2665	92.8,97.2
50	75.83	79.05	77.44	78.49	74.75	84.99	94.63	87.34	40- 50	111.5	2777	96.6,101
60	39.00	40.05	39.45	39.52	39.25	41.46	43.14	41.72	50- 60	51.06	2828	98.4,103
70	18.35	18.35	18.67	19.85	18.56	19.06	18.83	18.19	60- 70	30.09	2858	99.5,104
80	6.169	6.080	6.150	6.468	6.185	6.247	5.837	5.444	70- 80	12.35	2870	99.9,105
90	0.6719	0.6904	0.7031	0.6871	0.6090	0.5960	0.6145	0.6062	80- 90	3.114	2873	100,105
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: 15.0DEG
 Test Speed: MEDIUM
 Temperature:28DEG
 Operators:SYF
 Test Date:2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
 Humidity:65.0%
 Test Distance:5.300m [K=1.0000]
 Remarks:

LUMINANCE LIMITATION CURVES

NAME: LED	TYPE:track lights	WEIGHT:1.1
SPEC.: VN-TL0030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	8073	12636
80	13482	13407
75	16760	16712
70	20357	20668
65	27453	27254
60	29601	29872
55	34104	35769
50	44767	45608
45	69101	63520

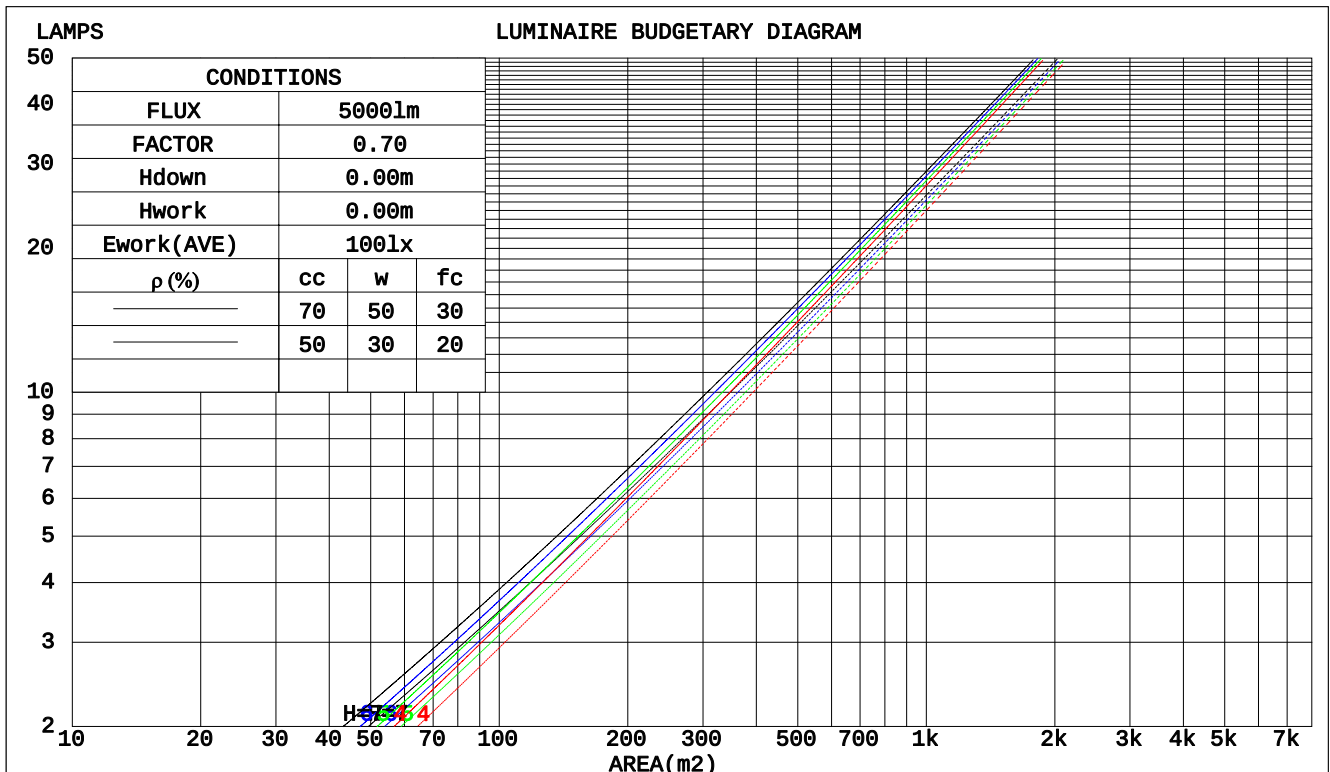
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: MEDIUM
 Temperature:28DEG
 Operators:SYF
 Test Date:2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
 Humidity:65.0%
 Test Distance:5.300m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: LED	TYPE:track lights	WEIGHT:1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Coefficients of Utilization(CU)												
0.0	1.25	1.25	1.25	1.22	1.22	1.22	1.16	1.16	1.16	1.11	1.11	1.11	1.07	1.07	1.07	1.05
1.0	1.17	1.14	1.12	1.14	1.12	1.10	1.10	1.08	1.07	1.06	1.05	1.03	1.03	1.01	1.00	.99
2.0	1.09	1.05	1.02	1.07	1.04	1.01	1.04	1.01	.98	1.01	.98	.96	.98	.96	.94	.93
3.0	1.02	.98	.94	1.01	.97	.93	.98	.95	.91	.96	.93	.90	.93	.91	.89	.87
4.0	.97	.91	.87	.95	.90	.87	.93	.89	.86	.91	.88	.85	.89	.86	.84	.82
5.0	.91	.86	.82	.90	.85	.81	.88	.84	.80	.87	.83	.80	.85	.82	.79	.78
6.0	.86	.81	.77	.86	.80	.76	.84	.79	.76	.83	.79	.75	.81	.78	.75	.73
7.0	.82	.76	.72	.81	.76	.72	.80	.75	.72	.79	.75	.71	.78	.74	.71	.70
8.0	.78	.73	.69	.78	.72	.68	.77	.72	.68	.76	.71	.68	.75	.71	.68	.66
9.0	.75	.69	.65	.74	.69	.65	.73	.68	.65	.72	.68	.65	.71	.67	.64	.63
10.0	.71	.66	.62	.71	.66	.62	.70	.65	.62	.69	.65	.62	.69	.65	.62	.60



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature:28DEG
Operators:SYF
Test Date:2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity:65.0%
Test Distance:5.300m [K=1.0000]
Remarks:

WEC AND CCEC

NAME: LED	TYPE:track lights	WEIGHT:1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

ρ_{cc}	80%			70%			50%			30%			10%			0	
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρ_{fc}	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.178	.101	.032	.171	.098	.031	.158	.091	.029	.146	.084	.027	.135	.078	.025		
2.0	.169	.092	.028	.163	.090	.028	.152	.084	.026	.142	.079	.025	.132	.075	.024		
3.0	.159	.085	.025	.154	.083	.025	.145	.079	.024	.136	.075	.023	.128	.071	.022		
4.0	.151	.078	.023	.146	.077	.023	.138	.073	.022	.131	.070	.021	.124	.067	.021		
5.0	.143	.073	.021	.139	.071	.021	.132	.069	.020	.126	.066	.020	.120	.064	.019		
6.0	.136	.068	.019	.133	.067	.019	.127	.065	.019	.121	.063	.018	.116	.061	.018		
7.0	.129	.064	.018	.127	.063	.018	.121	.061	.018	.116	.060	.017	.112	.058	.017		
8.0	.124	.060	.017	.121	.060	.017	.116	.058	.017	.112	.057	.016	.108	.055	.016		
9.0	.118	.057	.016	.116	.057	.016	.112	.055	.016	.108	.054	.015	.104	.053	.015		
10.0	.113	.054	.015	.111	.054	.015	.108	.053	.015	.104	.052	.015	.101	.051	.015		

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.200	.200	.200	.171	.171	.171	.116	.116	.116	.067	.067	.067	.021	.021	.021	
1.0	.179	.165	.152	.153	.142	.131	.105	.097	.091	.060	.056	.053	.019	.018	.017	
2.0	.162	.139	.119	.139	.120	.103	.095	.083	.072	.055	.048	.042	.018	.016	.014	
3.0	.149	.119	.095	.127	.103	.083	.087	.071	.058	.051	.042	.034	.016	.014	.011	
4.0	.137	.103	.078	.118	.089	.067	.081	.062	.047	.047	.036	.028	.015	.012	.009	
5.0	.128	.091	.064	.110	.079	.056	.075	.055	.039	.044	.032	.023	.014	.011	.008	
6.0	.119	.081	.054	.103	.070	.047	.071	.049	.033	.041	.029	.020	.013	.009	.006	
7.0	.112	.073	.046	.096	.063	.040	.067	.044	.028	.039	.026	.017	.013	.009	.006	
8.0	.106	.066	.039	.091	.058	.034	.063	.040	.024	.037	.024	.014	.012	.008	.005	
9.0	.100	.061	.034	.086	.053	.030	.060	.037	.021	.035	.022	.013	.011	.007	.004	
10.0	.095	.056	.030	.082	.049	.026	.057	.034	.018	.033	.020	.011	.011	.007	.004	

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature:28DEG
Operators:SYF
Test Date:2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity:65.0%
Test Distance:5.300m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

NAME: LED						TYPE:track lights			WEIGHT:1.1		
SPEC.: VN-TLo030-01 3000K CRI80						DIM.:			SERIAL No.:		
MFR.: 1						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	2H	21.7	22.6	21.9	22.7	22.9	21.5	22.4	21.7	22.5	22.7
	3H	21.9	22.7	22.1	22.9	23.1	21.7	22.5	21.9	22.7	22.9
	4H	21.9	22.7	22.2	22.9	23.1	21.7	22.5	22.0	22.7	22.9
	6H	21.9	22.6	22.2	22.9	23.1	21.7	22.5	22.0	22.7	22.9
	8H	21.9	22.6	22.2	22.8	23.1	21.7	22.4	22.0	22.7	22.9
	12H	21.9	22.5	22.2	22.8	23.1	21.7	22.4	22.0	22.6	22.9
4H	2H	21.7	22.4	21.9	22.7	22.9	21.5	22.2	21.7	22.5	22.7
	3H	21.9	22.6	22.3	22.9	23.1	21.8	22.4	22.1	22.7	23.0
	4H	22.0	22.6	22.4	22.9	23.2	21.9	22.5	22.2	22.8	23.1
	6H	22.1	22.6	22.4	22.9	23.3	21.9	22.4	22.3	22.8	23.1
	8H	22.0	22.5	22.4	22.9	23.3	21.9	22.4	22.3	22.7	23.1
	12H	22.0	22.5	22.4	22.8	23.2	21.9	22.3	22.3	22.7	23.1
8H	4H	22.0	22.5	22.4	22.8	23.2	21.8	22.3	22.2	22.6	23.0
	6H	22.0	22.4	22.5	22.8	23.2	21.9	22.3	22.3	22.7	23.1
	8H	22.0	22.4	22.5	22.8	23.3	21.9	22.3	22.4	22.7	23.1
	12H	22.0	22.4	22.5	22.8	23.3	21.9	22.2	22.4	22.7	23.1
12H	4H	21.9	22.4	22.3	22.7	23.1	21.8	22.2	22.2	22.6	23.0
	6H	22.0	22.4	22.4	22.8	23.2	21.9	22.2	22.3	22.6	23.1
	8H	22.0	22.3	22.5	22.8	23.2	21.9	22.2	22.3	22.6	23.1
Variations with the observer position at spacings:											
S = 1.0H		+ 2.3 / - 2.6					+ 1.8 / - 2.3				
1.5H		+ 4.0 / - 2.2					+ 3.2 / - 2.0				
2.0H		+ 2.3 / - 1.1					+ 1.8 / - 1.1				

CIE Pub.117, 2742 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 3.5$)

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature:28DEG
Operators:SYF
Test Date:2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 γ Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity:65.0%
Test Distance:5.300m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

NAME: LED	TYPE: track lights	WEIGHT: 1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

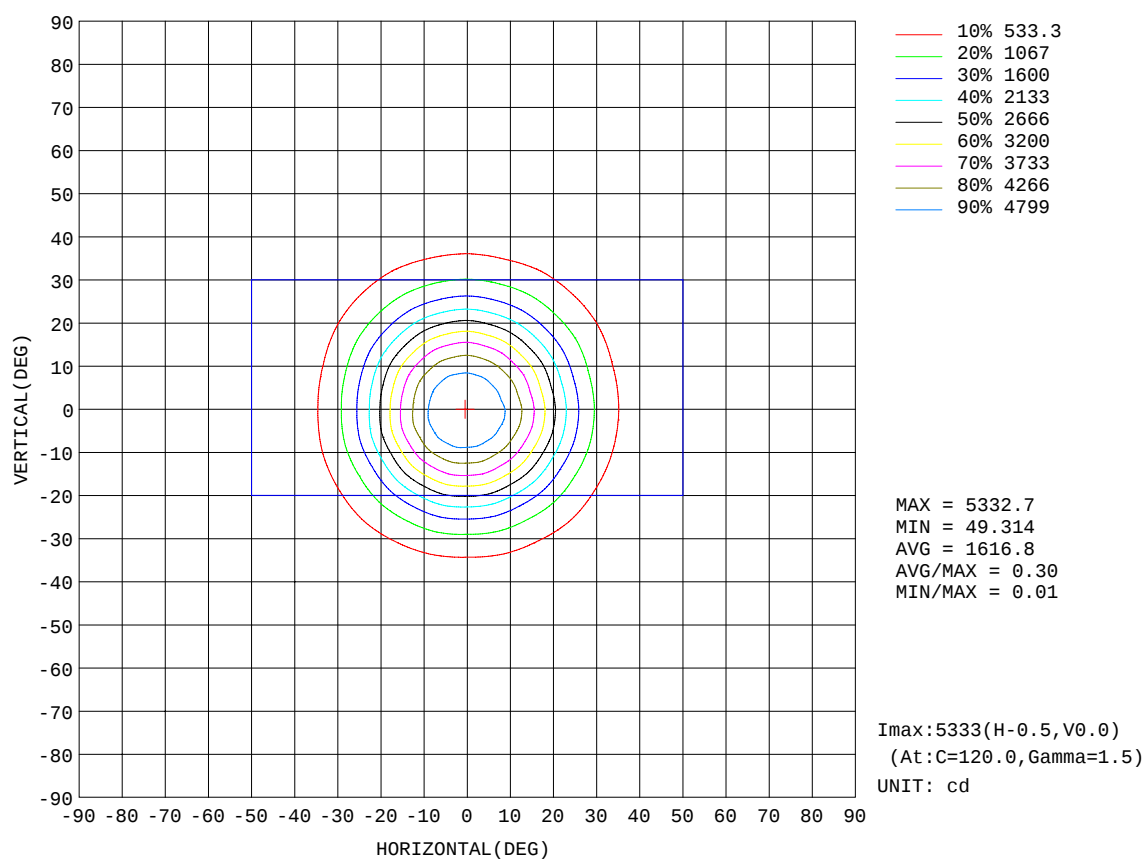
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	91	84	81	91	84	80	90	84	80	77
0.80	99	93	89	98	92	89	97	92	88	84
1.00	104	98	94	103	97	94	101	97	93	89
1.25	108	102	99	107	102	98	105	100	97	93
1.50	111	106	102	109	105	102	107	103	100	96
2.00	114	109	106	112	108	105	109	106	103	98
2.50	115	111	108	114	110	107	110	107	105	99
3.00	117	113	110	115	112	109	112	109	107	100
4.00	119	116	114	117	115	112	113	111	110	102
5.00	120	118	116	118	116	114	114	113	111	103
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: MEDIUM
 Temperature: 28DEG
 Operators: SYF
 Test Date: 2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
 Humidity: 65.0%
 Test Distance: 5.300m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

NAME: LED	TYPE: track lights	WEIGHT: 1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

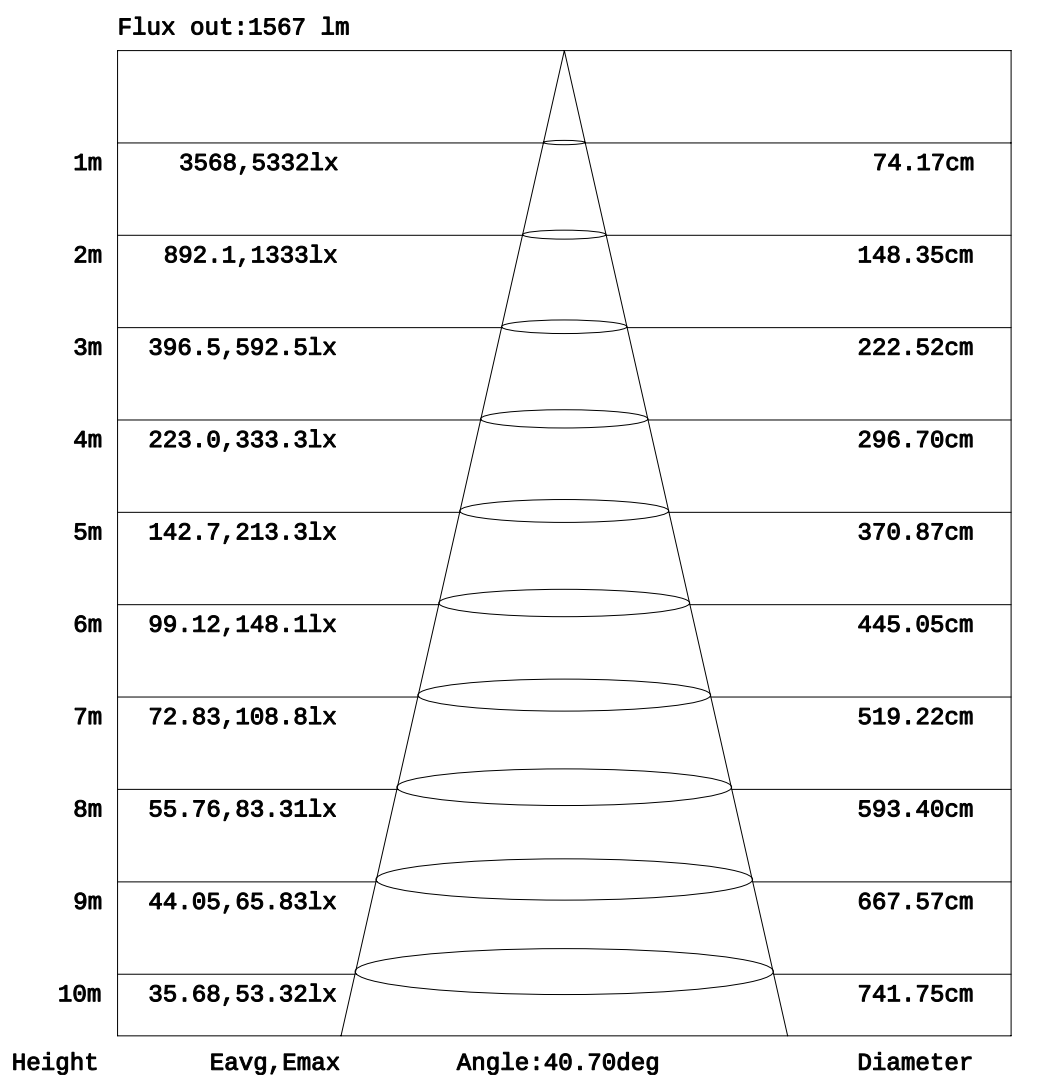


C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity: 65.0%
Test Distance: 5.300m [K=1.0000]
Remarks:

AAI Figure

NAME: LED	TYPE: track lights	WEIGHT: 1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:



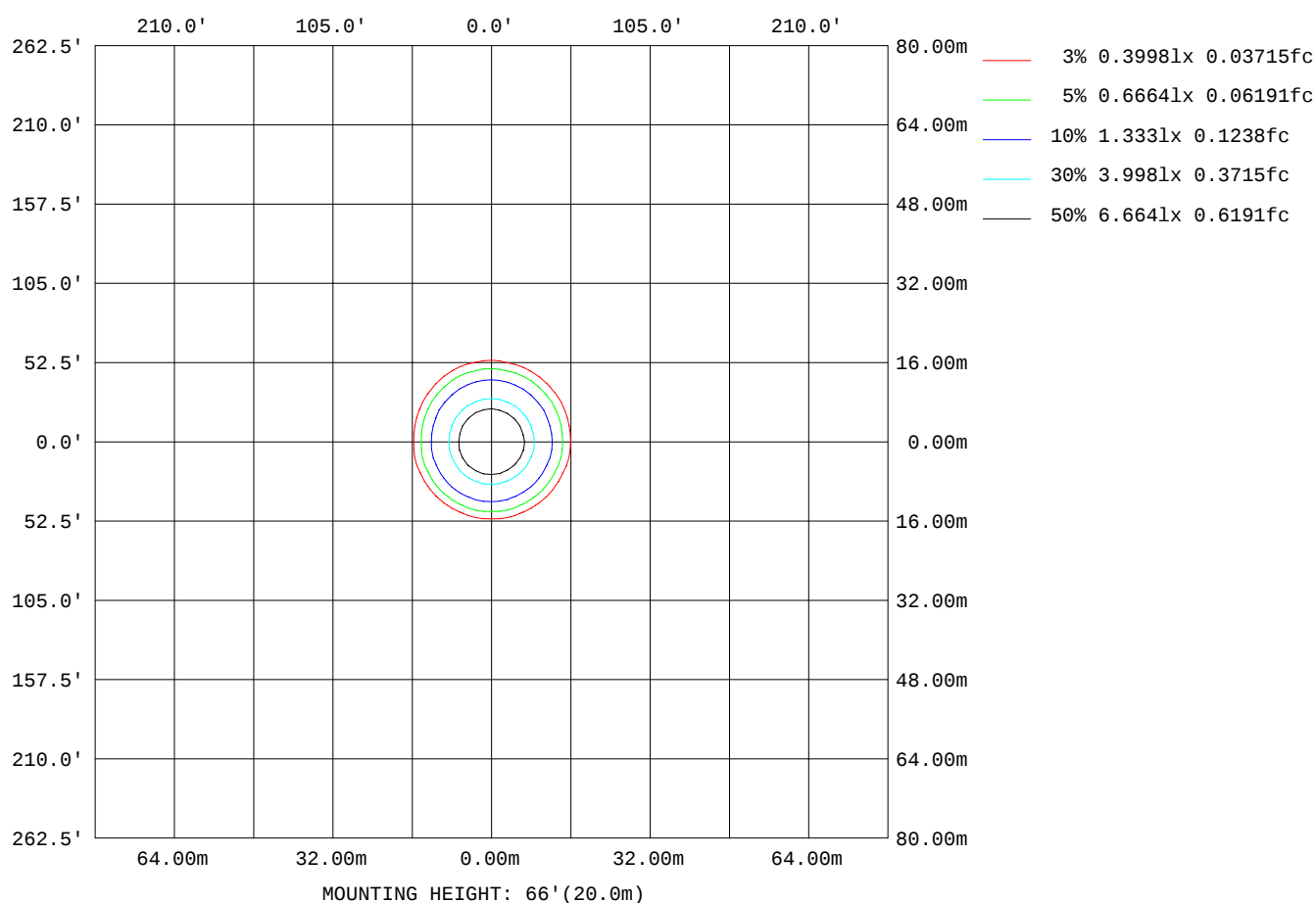
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity: 65.0%
Test Distance: 5.300m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

NAME: LED	TYPE: track lights	WEIGHT: 1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity: 65.0%
Test Distance: 5.300m [K=1.0000]
Remarks:

LED Avg.L Report

NAME: LED	TYPE: track lights	WEIGHT: 1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

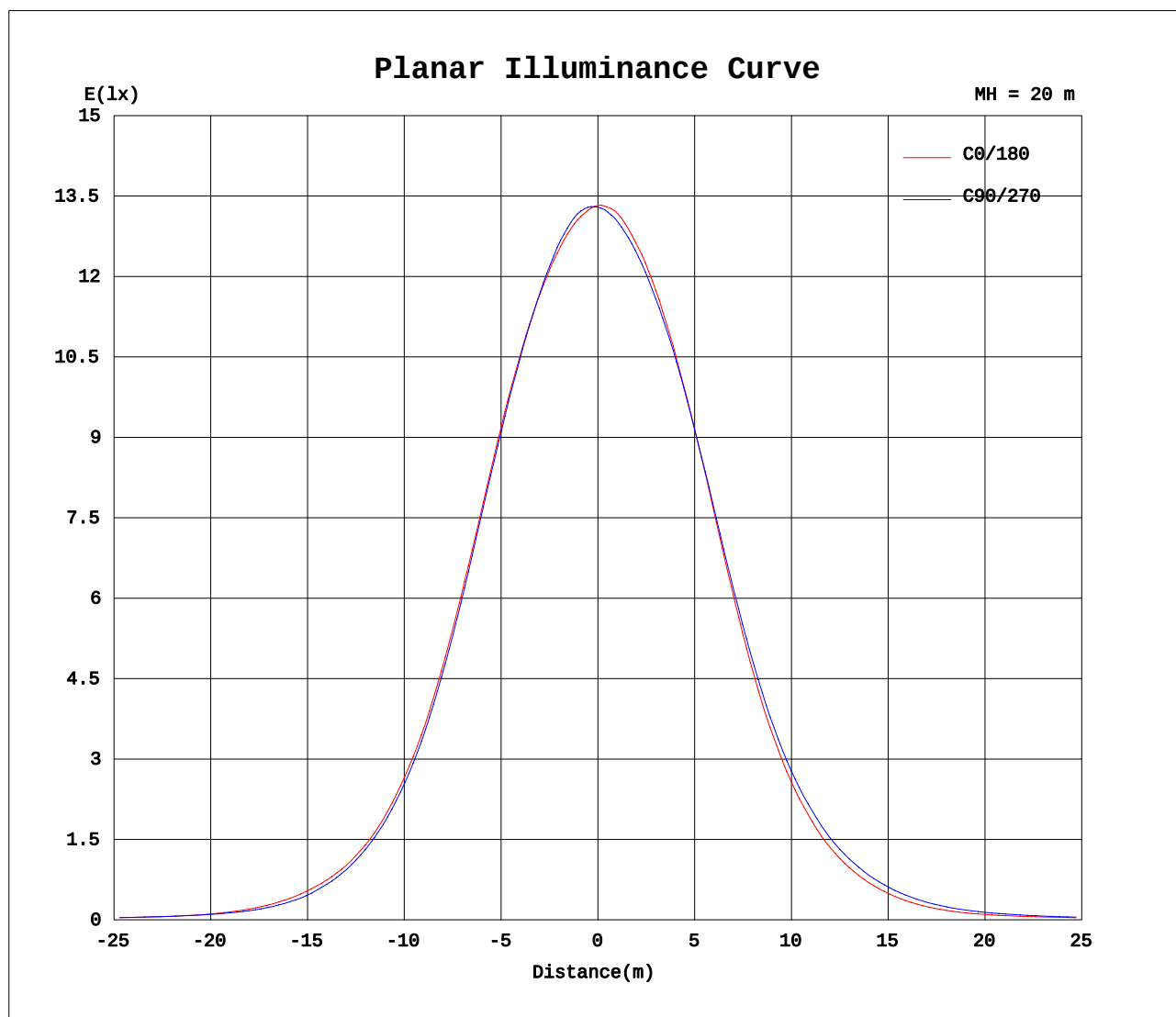
AvgL	cd/m2
L_0~180(65)av	27500
L_0~180(75)av	16729
L_0~180(85)av	7734
L_90~270(65)av	28013
L_90~270(75)av	16540
L_90~270(85)av	12274
L_45(65)av	27868
L_45(75)av	16672
L_45(85)av	12564

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity: 65.0%
Test Distance: 5.300m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: MEDIUM
 Temperature: 28DEG
 Operators: SYF
 Test Date: 2017-10-10

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.401
 Humidity: 65.0%
 Test Distance: 5.300m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: LED	TYPE:track lights	WEIGHT:1.1
SPEC.: VN-TLO030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

Table - -1

UNIT: cd

[illegible]

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

```

Range: 0 - 90DEG
Interval: 0.5DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity:65.0%
Test Distance:5.300m [K=1.0000]
Remarks:

```

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: LED	TYPE:track lights	WEIGHT:1.1
SPEC.: VN-TL030-01 3000K CRI80	DIM.:	SERIAL No.:
MFR.: 1	SUR.:	Shielding Angle:

Table - -2

UNIT: cd

[illegible]

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: MEDIUM
Temperature: 28DEG
Operators: SYF
Test Date: 2017-10-10

```

Range: 0 - 90DEG
Interval: 0.5DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.401
Humidity:65.0%
Test Distance:5.300m [K=1.0000]
Remarks:

```