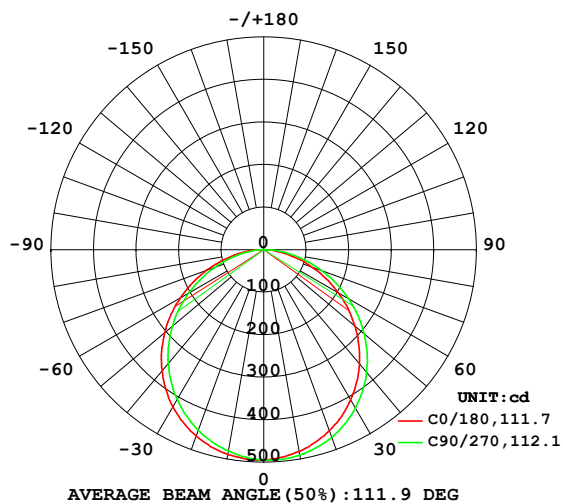


LUMINAIRE PHOTOMETRIC TEST REPORT

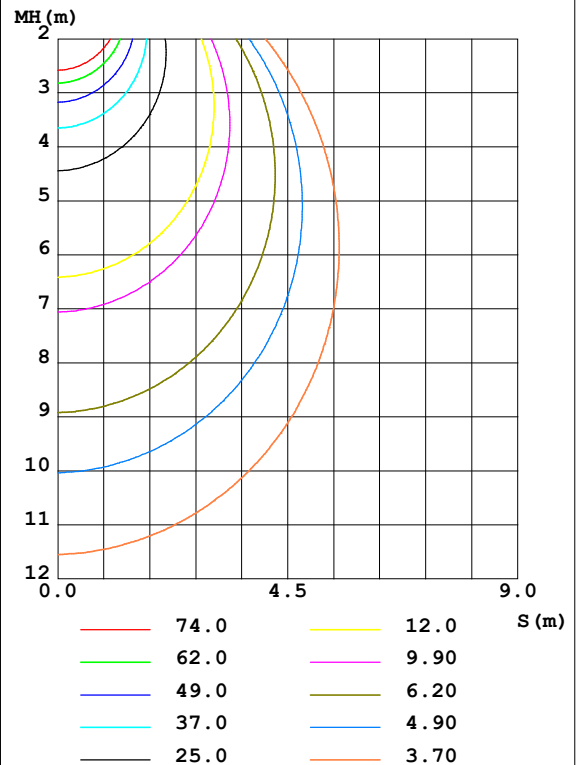
Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm					
NAME:		TYPE:		WEIGHT:	
SPEC.:		DIM.:		SERIAL No.:	
MFR.:		SUR.:		Shielding Angle:	

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 66.36 lm/W
MODEL	GM-RND12-TUN-WH	Imax(cd)	495.4	S/MH(C0/180)	1.28	
NOMINAL POWER(W)	22	LOR(%)	100.0	S/MH(C90/270)	1.23	
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1407.6	η UP,DN(C0-180)	0.0,51.3	
NOMINAL FLUX(lm)	1407.57	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,48.7	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	120	η down(%)	100.0	CIBSE SHR MAX	1.35	

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

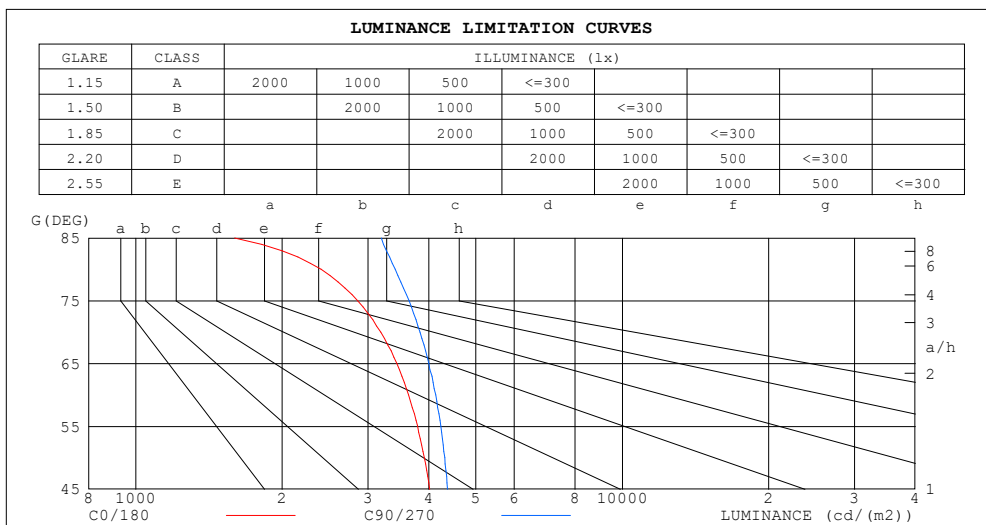
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	481.6	488.4	490.1	489.6	488.7	483.2	480.6	481.9	0- 10	46.76	46.76	3.32,3.32
20	452.8	464.9	469.1	466.9	465.9	454.7	451.4	453.4	10- 20	134.0	180.7	12.8,12.8
30	408.4	424.9	430.7	427.2	426.5	411.3	407.0	410.1	20- 30	203.2	383.9	27.3,27.3
40	350.1	370.0	376.4	371.8	371.9	353.3	349.2	352.9	30- 40	245.0	628.9	44.7,44.7
50	280.3	302.1	308.2	302.5	304.1	284.5	280.5	285.4	40- 50	253.6	882.4	62.7,62.7
60	202.3	224.3	229.6	222.9	226.1	205.1	203.0	208.3	50- 60	227.9	1110	78.9,78.9
70	121.3	142.3	146.0	138.8	142.7	122.8	122.1	127.6	60- 70	172.3	1283	91.1,91.1
80	46.44	64.07	65.87	59.56	63.34	46.84	46.89	52.05	70- 80	98.49	1381	98.1,98.1
90	0.2693	2.441	2.303	0.2213	1.637	0.4421	0.4615	0.4263	80- 90	26.52	1408	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: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

LUMINANCE LIMITATION CURVES

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	1598	3198
80	2404	3415
75	2857	3646
70	3189	3842
65	3441	4003
60	3637	4134
55	3796	4236
50	3920	4317
45	4022	4378

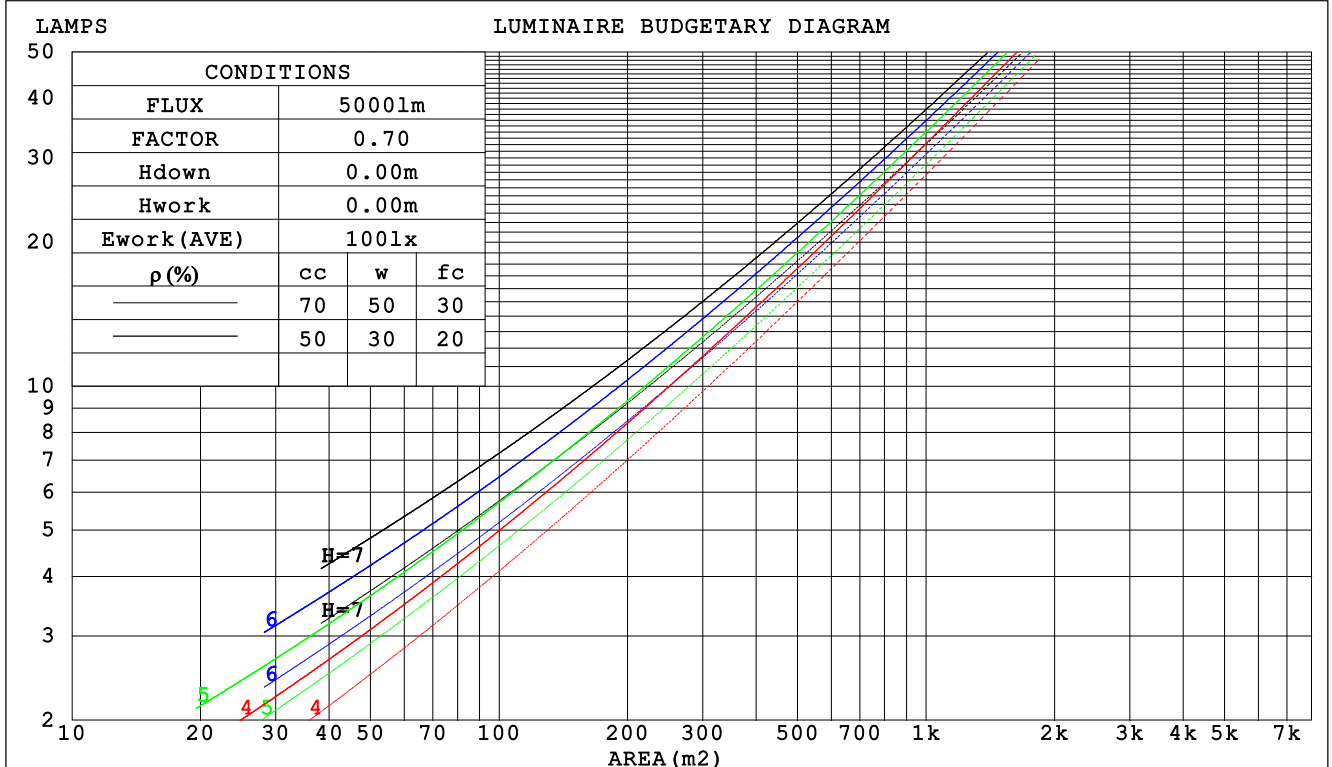
C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: HARRY
 Test Date: 2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
 Humidity: 65.0%
 Test Distance: 3.500m [K=1.0000]
 Remarks: GM

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	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	1.19	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	1.04	.00	.96	1.02	.98	.94	.97	.94	.91	.93	.91	.88	.90	.88	.86	.84
2.0	.90	.84	.78	.89	.82	.77	.85	.80	.75	.82	.77	.73	.79	.75	.72	.70
3.0	.79	.71	.65	.78	.70	.64	.75	.68	.63	.72	.66	.62	.69	.65	.61	.59
4.0	.70	.61	.55	.69	.61	.54	.66	.59	.54	.64	.58	.53	.62	.57	.52	.50
5.0	.63	.54	.47	.62	.53	.47	.59	.52	.46	.58	.51	.46	.56	.50	.45	.43
6.0	.56	.47	.41	.56	.47	.41	.54	.46	.40	.52	.45	.40	.50	.44	.40	.38
7.0	.51	.42	.36	.50	.42	.36	.49	.41	.36	.47	.41	.36	.46	.40	.35	.33
8.0	.47	.38	.32	.46	.38	.32	.45	.37	.32	.43	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.29	.42	.34	.29	.41	.34	.29	.40	.33	.29	.39	.33	.28	.27
10.0	.40	.32	.26	.39	.31	.26	.38	.31	.26	.37	.31	.26	.36	.30	.26	.24



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

WEC AND CCEC

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm					
NAME:		TYPE:		WEIGHT:	
SPEC.:		DIM.:		SERIAL No.:	
MFR.:		SUR.:		Shielding Angle:	

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	.310	.176	.056	.302	.173	.055	.289	.166	.053	.277	.160	.051	.266	.154	.050	
2.0	.291	.160	.049	.285	.157	.048	.274	.152	.047	.263	.147	.046	.253	.143	.045	
3.0	.270	.144	.043	.264	.142	.043	.254	.138	.042	.244	.134	.041	.236	.130	.040	
4.0	.249	.129	.038	.244	.128	.038	.235	.125	.037	.227	.122	.037	.219	.119	.036	
5.0	.230	.117	.034	.226	.116	.034	.218	.113	.033	.210	.111	.033	.203	.109	.033	
6.0	.214	.107	.031	.210	.106	.030	.202	.104	.030	.196	.102	.030	.189	.100	.030	
7.0	.199	.098	.028	.195	.097	.028	.189	.096	.028	.183	.094	.027	.177	.092	.027	
8.0	.186	.091	.026	.183	.090	.025	.177	.088	.025	.171	.087	.025	.166	.085	.025	
9.0	.174	.084	.024	.171	.083	.023	.166	.082	.023	.161	.081	.023	.157	.080	.023	
10.0	.164	.078	.022	.161	.078	.022	.156	.077	.022	.152	.075	.021	.148	.074	.021	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.180	.156	.134	.154	.134	.116	.106	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.172	.132	.098	.147	.114	.085	.101	.079	.059	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.074	.141	.099	.064	.097	.068	.045	.056	.040	.027	.018	.013	.009	
4.0	.157	.101	.058	.135	.087	.051	.093	.061	.036	.054	.036	.021	.017	.012	.007	
5.0	.149	.091	.047	.128	.078	.041	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.142	.082	.039	.122	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.123	.065	.025	.106	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

UGR(Unified Glare Rating) Table

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm										
NAME:					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	16.4	17.9	16.7	18.1	18.3	17.0	18.5	17.2	18.7	18.9
3H	17.8	19.2	18.1	19.4	19.7	18.6	20.0	18.9	20.2	20.4
4H	18.3	19.7	18.6	19.9	20.2	19.2	20.6	19.5	20.8	21.1
6H	18.7	19.9	19.0	20.2	20.5	19.7	21.0	20.0	21.2	21.5
8H	18.8	20.0	19.1	20.3	20.6	19.9	21.1	20.2	21.4	21.7
12H	18.8	20.0	19.1	20.3	20.6	20.0	21.2	20.4	21.5	21.8
4H 2H	17.1	18.4	17.4	18.7	18.9	17.5	18.9	17.8	19.1	19.4
3H	18.7	19.9	19.1	20.2	20.5	19.3	20.5	19.7	20.8	21.1
4H	19.4	20.4	19.7	20.8	21.1	20.2	21.2	20.5	21.6	21.9
6H	19.8	20.8	20.2	21.1	21.5	20.8	21.8	21.2	22.1	22.5
8H	20.0	20.9	20.4	21.2	21.6	21.1	22.0	21.5	22.3	22.7
12H	20.0	20.9	20.5	21.2	21.6	21.2	22.1	21.7	22.4	22.9
8H 4H	19.7	20.6	20.1	21.0	21.4	20.4	21.3	20.8	21.7	22.1
6H	20.4	21.1	20.8	21.5	21.9	21.3	22.0	21.7	22.4	22.8
8H	20.6	21.2	21.0	21.7	22.1	21.6	22.3	22.1	22.7	23.2
12H	20.7	21.3	21.2	21.7	22.2	21.9	22.5	22.4	22.9	23.4
12H 4H	19.8	20.6	20.2	21.0	21.4	20.4	21.2	20.9	21.6	22.0
6H	20.5	21.1	20.9	21.5	22.0	21.3	22.0	21.8	22.4	22.9
8H	20.7	21.3	21.2	21.7	22.2	21.7	22.3	22.2	22.7	23.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.4					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.4					+ 0.2 / - 0.3				

CIE Pub.117, 1408 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.2)
Area: 0.111111 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

UTILIZATION FACTORS TABLE

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

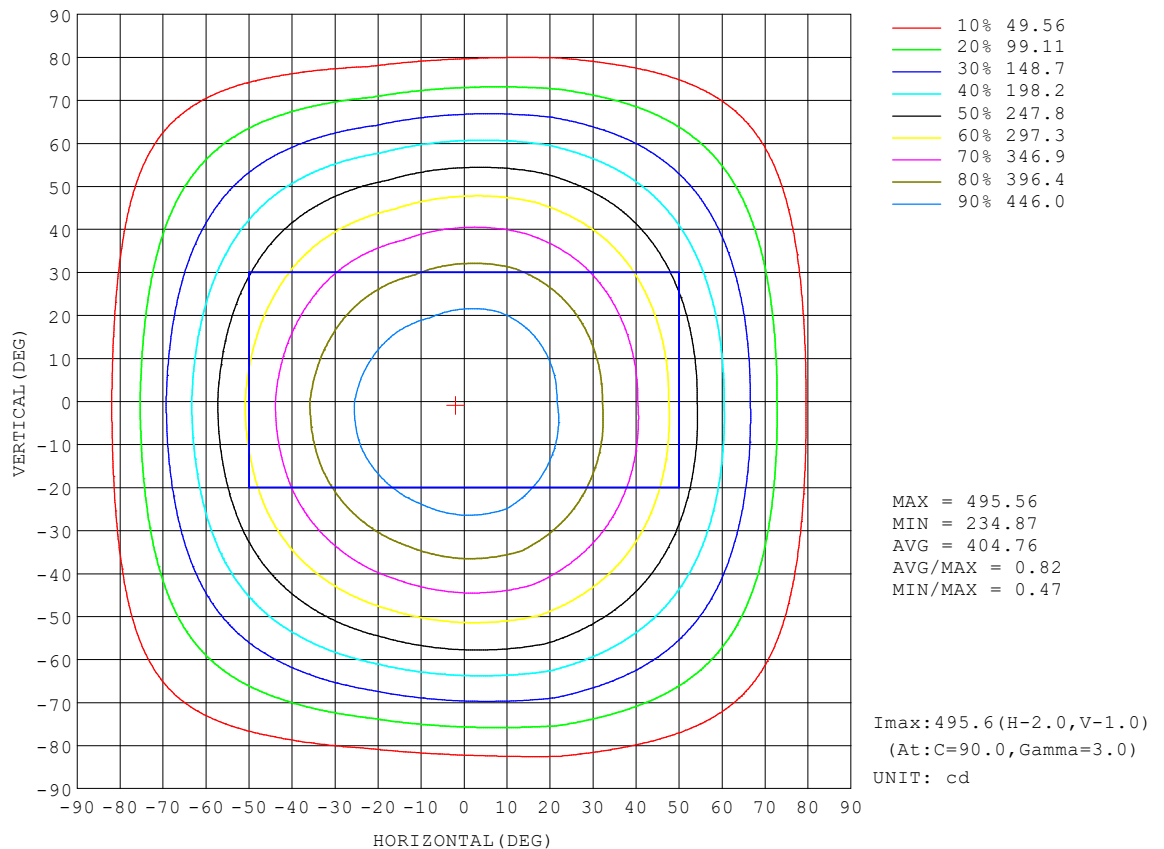
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	58	46	39	57	46	39	56	45	39	32
0.80	68	56	49	67	56	48	65	55	48	41
1.00	76	65	58	75	64	57	73	66	57	50
1.25	83	73	65	82	72	65	79	70	64	57
1.50	88	78	71	86	77	71	83	76	70	62
2.00	95	86	80	93	85	79	90	83	78	70
2.50	99	91	85	97	90	84	93	87	82	74
3.00	102	95	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	95	100	95	92	83
5.00	109	104	100	106	102	98	102	98	95	86
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: 25.3DEG
Operators: HARRY
Test Date: 2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity: 65.0%
Test Distance: 3.500m [K=1.0000]
Remarks: GM

ISOCANDELA DIAGRAM

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

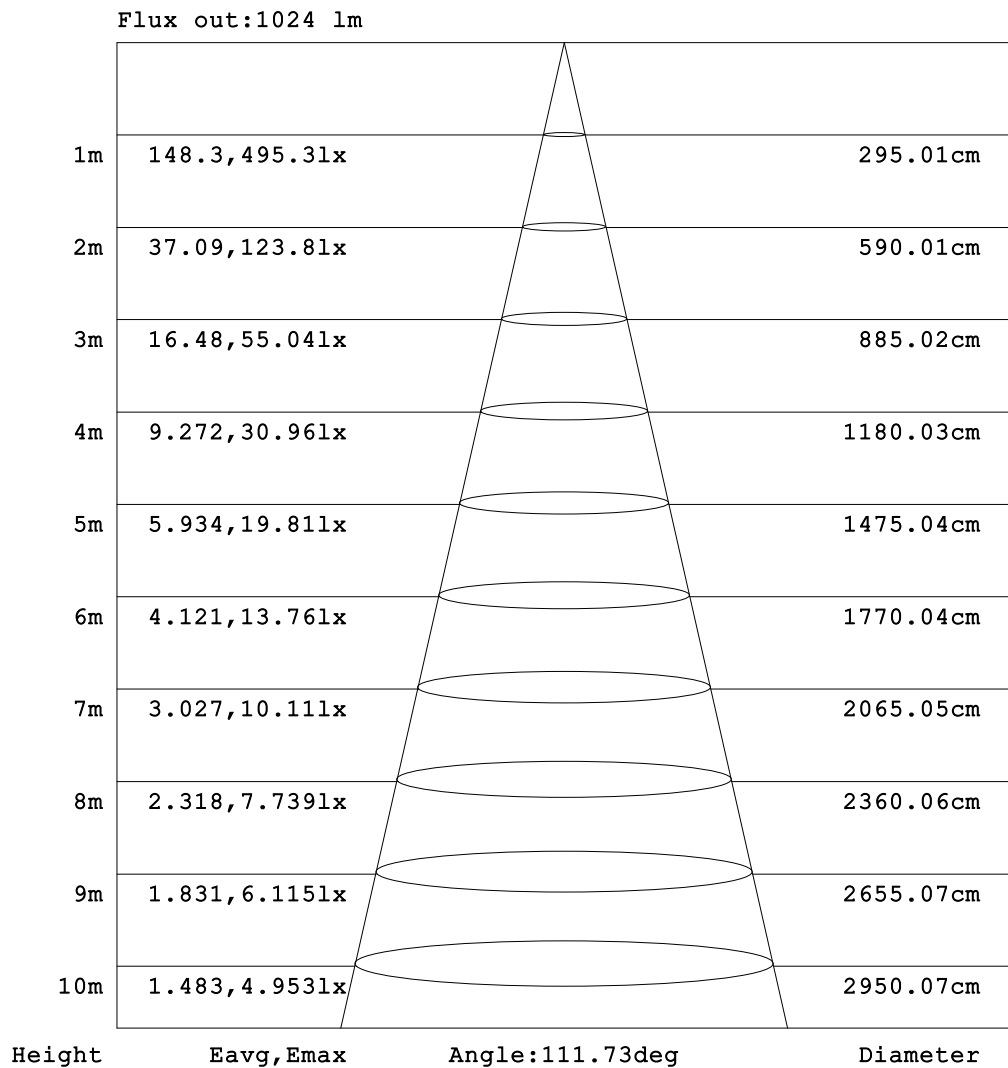


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

AAI Figure

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



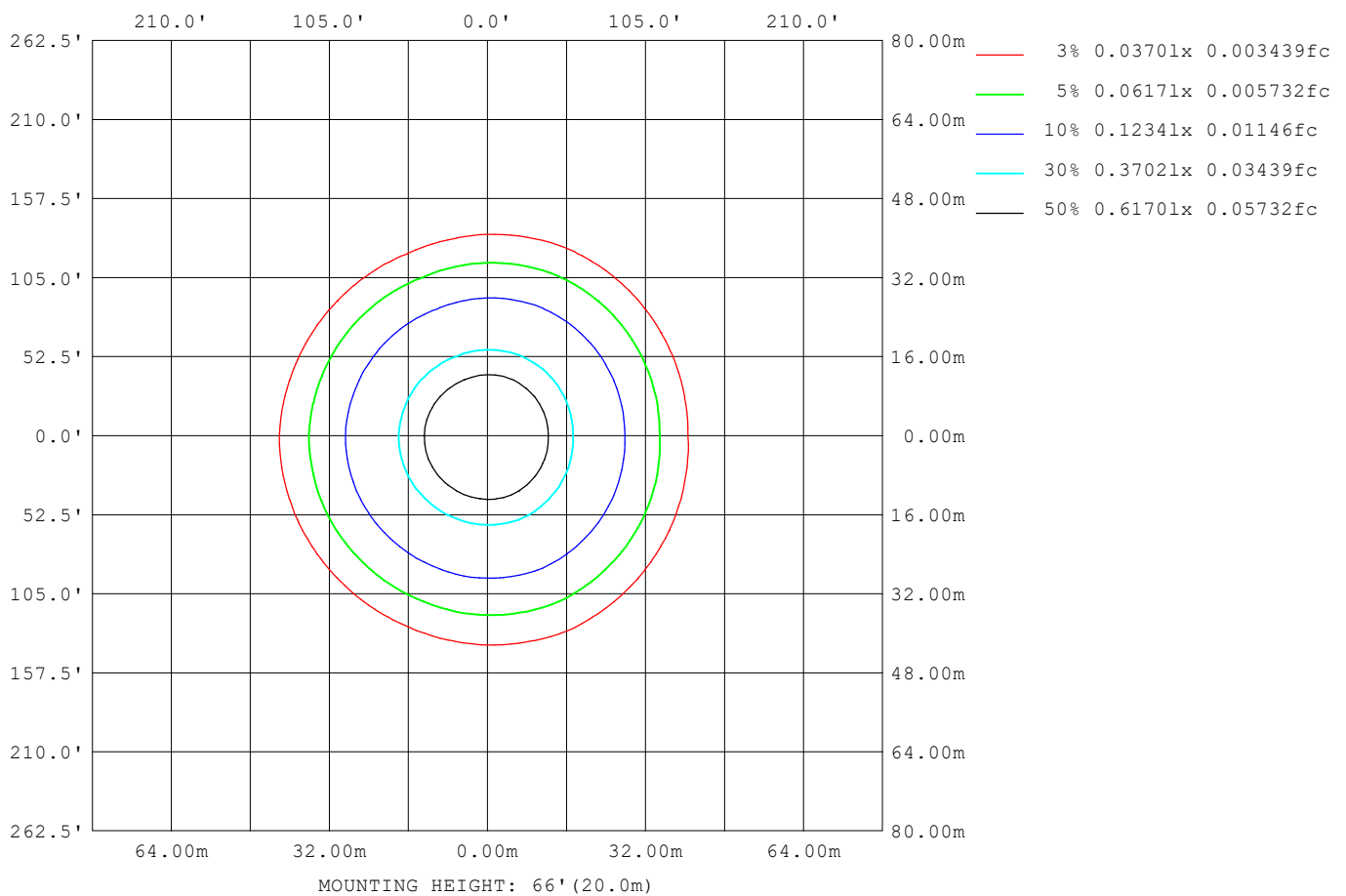
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

ISOLUX DIAGRAM

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: HARRY
 Test Date: 2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
 Humidity: 65.0%
 Test Distance: 3.500m [K=1.0000]
 Remarks: GM

LED Avg.L Report

Test:U:119.90V I:0.1886A P:21.211W PF:0.9378 Freq:59.98Hz Lamp Flux:1407.57x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

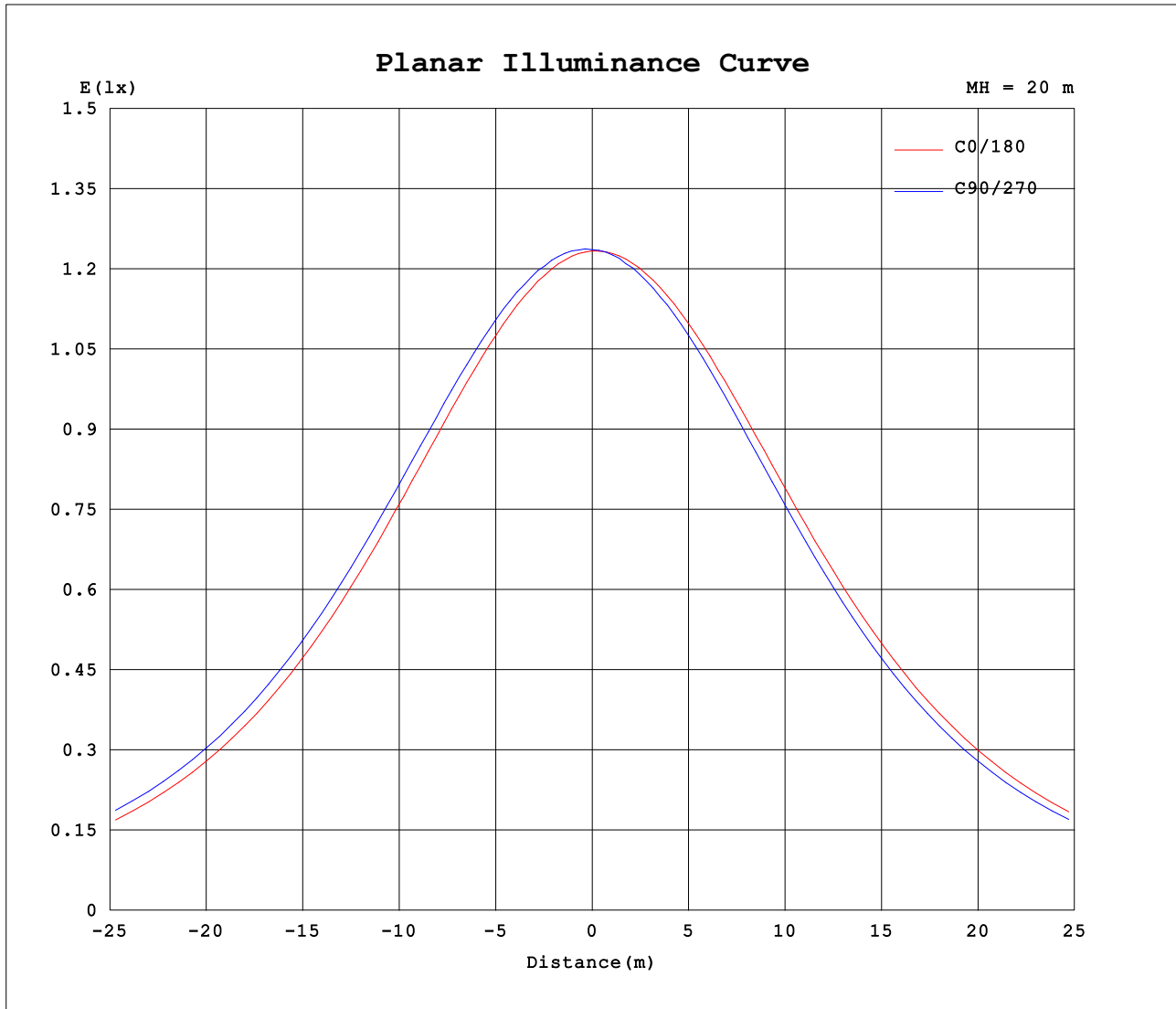
AvgL	cd/m2
L_0~180 (65) av	3687
L_0~180 (75) av	3198
L_0~180 (85) av	2306
L_90~270 (65) av	3731
L_90~270 (75) av	3266
L_90~270 (85) av	2384
L_45 (65) av	3706
L_45 (75) av	3230
L_45 (85) av	2340

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:HARRY
Test Date:2020-03-19

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: HARRY
 Test Date: 2020-03-19

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
 Humidity: 65.0%
 Test Distance: 3.500m [K=1.0000]
 Remarks: GM

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.421
Humidity:65.0%
Test Distance:3.500m [K=1.0000]
Remarks: GM

```