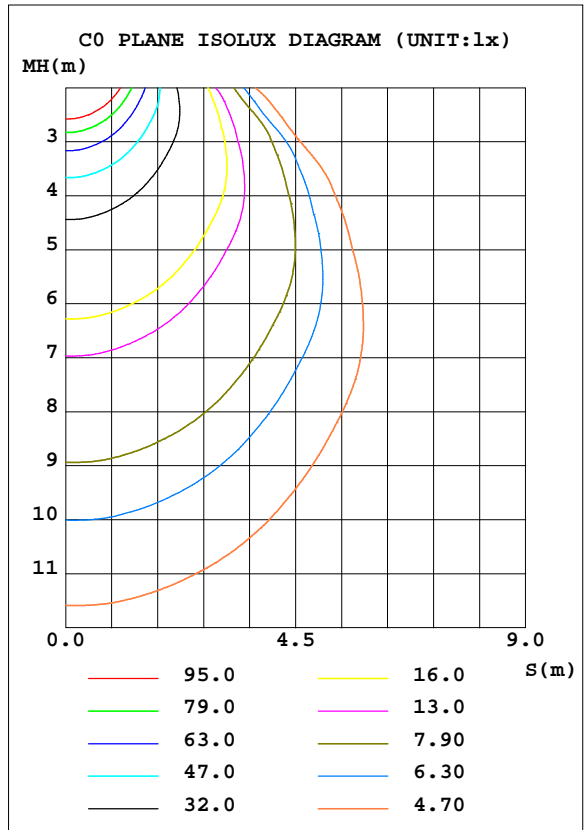
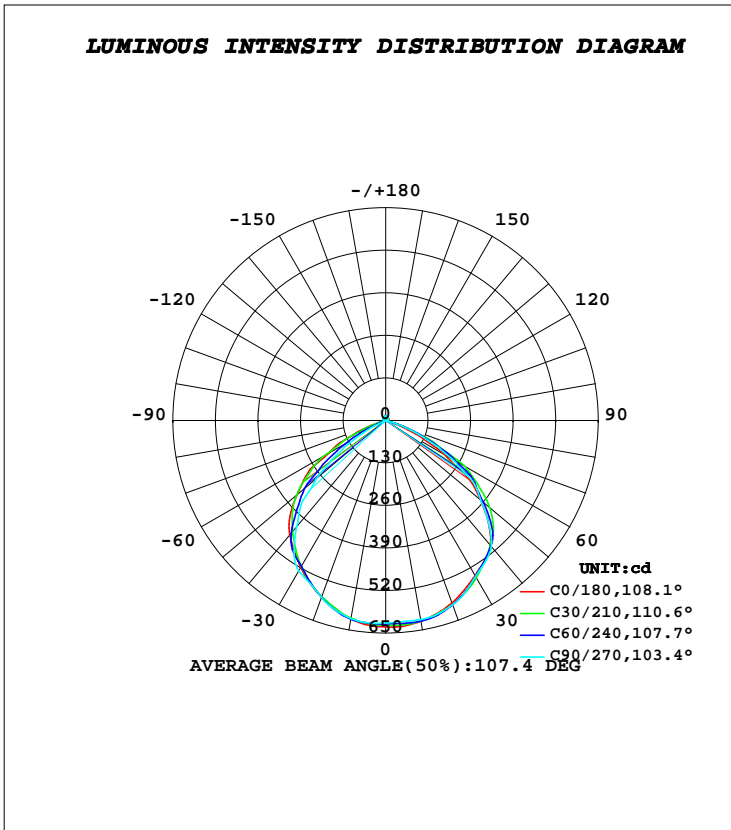


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 73.05 lm/W
MODEL	IMSYLF020WBKSLMDL	I _{max} (cd)	632.0	S/MH(C0/180)	1.30	
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	1.33	
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	1563.2	η UP, DN(C0-180)	1.2, 51.8	
NOMINAL FLUX(lm)	1563.24	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.6, 45.4	
LAMPS INSIDE	1	η up(%)	2.8	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	220.4	η down(%)	97.2	CIBSE SHR MAX	1.35	



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-09-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7100]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	622.4	622.3	617.7	602.0	615.5	615.0	614.5	610.7	0- 10	59.04	59.04	3.78,3.78
20	593.0	599.0	598.8	570.9	573.9	574.2	575.0	575.1	10- 20	169.5	228.6	14.6,14.6
30	547.4	552.1	550.0	522.7	518.6	515.3	531.1	527.7	20- 30	257.3	485.8	31.1,31.1
40	497.2	499.1	502.5	460.4	456.2	446.5	423.7	462.4	30- 40	314.6	800.5	51.2,51.2
50	379.5	403.4	379.9	376.7	354.5	339.8	277.0	351.9	40- 50	323.2	1124	71.9,71.9
60	206.7	260.7	233.4	260.1	202.6	180.9	101.0	167.2	50- 60	256.1	1380	88.3,88.3
70	29.71	74.22	64.15	91.45	55.82	26.37	6.435	15.52	60- 70	119.2	1499	95.9,95.9
80	2.565	3.780	4.004	3.848	5.719	4.802	3.864	3.764	70- 80	16.74	1516	97,97
90	1.868	1.642	1.548	1.764	3.713	3.708	3.576	3.620	80- 90	3.398	1519	97.2,97.2
100	2.981	2.621	2.262	2.526	4.678	4.808	4.824	4.707	90-100	3.391	1522	97.4,97.4
110	4.535	4.089	3.634	3.960	6.292	6.399	6.380	6.186	100-110	4.648	1527	97.7,97.7
120	6.270	5.809	5.379	5.670	8.013	8.070	8.045	7.708	110-120	5.955	1533	98.1,98.1
130	7.849	7.515	7.213	7.284	9.491	9.488	9.451	8.982	120-130	6.843	1540	98.5,98.5
140	9.167	8.974	8.712	8.601	10.51	10.51	10.41	9.985	130-140	6.953	1547	99,99
150	10.56	10.34	10.04	9.958	11.46	11.42	11.24	10.93	140-150	6.355	1553	99.4,99.4
160	11.99	11.75	11.46	11.35	12.62	12.36	12.16	11.87	150-160	5.219	1558	99.7,99.7
170	13.28	13.03	12.73	12.57	13.62	13.20	12.91	12.69	160-170	3.514	1562	99.9,99.9
180	14.17	13.77	13.42	13.20	14.27	13.77	13.36	13.20	170-180	1.263	1563	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

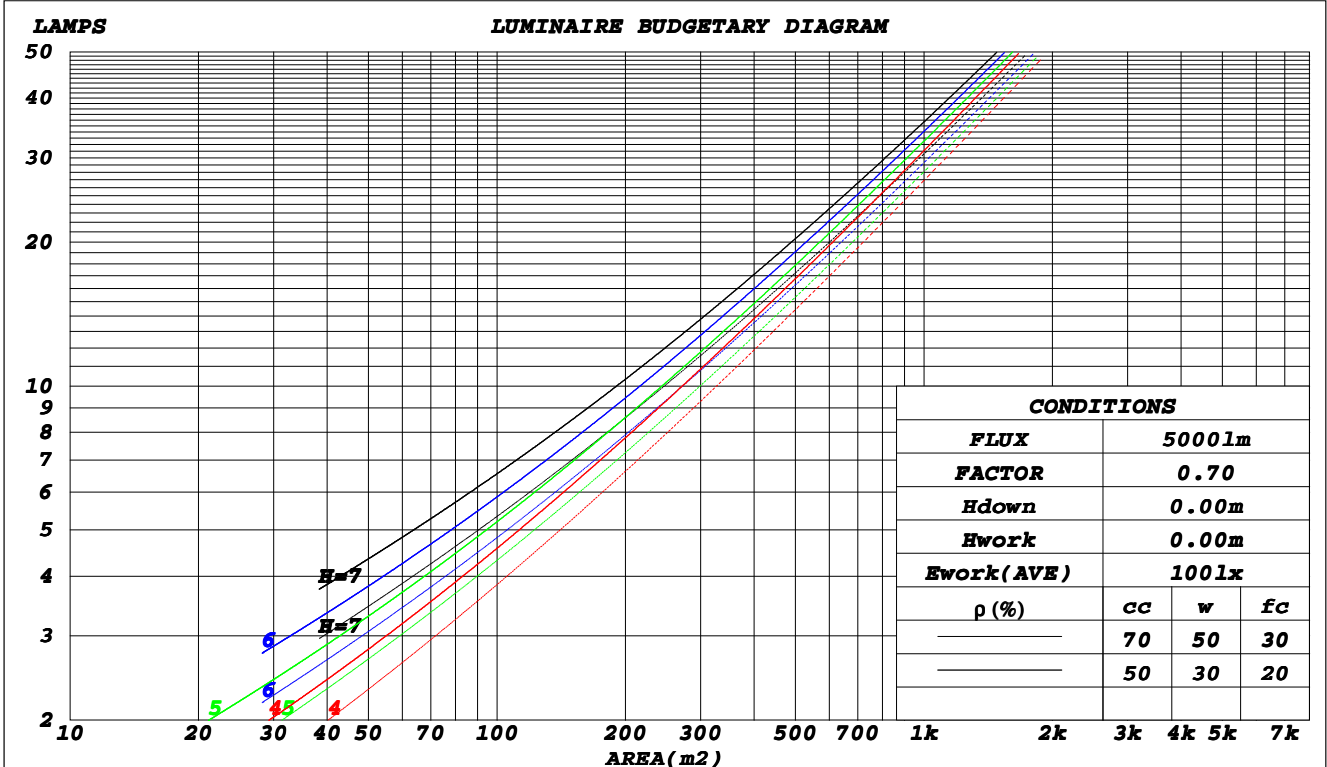
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-09-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7100]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

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	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.04	1.04	1.04	.99	.99	.99	.97
1.0	1.06	1.03	.90	1.04	1.01	.98	.99	.96	.94	.95	.93	.91	.91	.89	.88	.85
2.0	.94	.89	.84	.92	.87	.82	.88	.84	.80	.85	.81	.78	.82	.79	.76	.74
3.0	.84	.77	.71	.82	.76	.70	.79	.73	.69	.76	.71	.67	.73	.69	.66	.64
4.0	.75	.67	.61	.74	.66	.60	.71	.64	.59	.68	.63	.58	.66	.61	.57	.55
5.0	.67	.59	.53	.66	.58	.53	.64	.57	.52	.62	.56	.51	.59	.54	.50	.48
6.0	.61	.52	.47	.60	.52	.46	.58	.51	.46	.56	.50	.45	.54	.49	.44	.42
7.0	.55	.47	.41	.54	.46	.41	.53	.46	.40	.51	.45	.40	.49	.44	.40	.38
8.0	.50	.42	.37	.50	.42	.37	.48	.41	.36	.47	.40	.36	.45	.40	.36	.34
9.0	.46	.38	.33	.46	.38	.33	.44	.37	.33	.43	.37	.32	.42	.36	.32	.30
10.0	.43	.35	.30	.42	.35	.30	.41	.34	.30	.40	.34	.29	.39	.33	.29	.27



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2017-09-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7100]
 Remarks:

WEC AND CCEC

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

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	.252	.143	.045	.244	.139	.044	.229	.132	.042	.216	.125	.040	.204	.118	.038	
2.0	.247	.136	.042	.241	.132	.041	.228	.127	.039	.216	.121	.038	.205	.116	.037	
3.0	.236	.126	.038	.230	.123	.037	.219	.119	.036	.208	.114	.035	.199	.110	.034	
4.0	.223	.116	.034	.218	.114	.034	.208	.110	.033	.198	.106	.032	.190	.103	.031	
5.0	.210	.107	.031	.205	.105	.031	.196	.102	.030	.188	.099	.029	.180	.096	.029	
6.0	.197	.099	.028	.193	.098	.028	.185	.095	.028	.178	.092	.027	.170	.090	.027	
7.0	.186	.092	.026	.182	.091	.026	.175	.088	.025	.168	.086	.025	.161	.084	.025	
8.0	.175	.086	.024	.172	.084	.024	.165	.082	.024	.159	.080	.023	.153	.078	.023	
9.0	.165	.080	.022	.162	.079	.022	.156	.077	.022	.150	.075	.022	.145	.074	.021	
10.0	.156	.075	.021	.153	.074	.021	.148	.072	.020	.143	.071	.020	.138	.069	.020	

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																
1.0	.198	.178	.161	.169	.153	.138	.116	.105	.096	.067	.061	.056	.021	.020	.018	
2.0	.188	.154	.125	.161	.133	.108	.110	.092	.076	.064	.053	.044	.020	.017	.014	
3.0	.180	.136	.101	.154	.117	.088	.106	.082	.061	.061	.048	.036	.020	.015	.012	
4.0	.172	.122	.084	.148	.106	.073	.102	.074	.052	.059	.043	.030	.019	.014	.010	
5.0	.166	.112	.072	.142	.097	.063	.098	.068	.044	.057	.040	.026	.018	.013	.009	
6.0	.159	.103	.064	.137	.090	.055	.094	.063	.039	.055	.037	.023	.018	.012	.008	
7.0	.153	.097	.057	.131	.084	.050	.091	.059	.035	.053	.035	.021	.017	.011	.007	
8.0	.147	.091	.052	.126	.079	.046	.087	.055	.032	.051	.033	.019	.016	.011	.006	
9.0	.141	.086	.049	.122	.075	.042	.084	.052	.030	.049	.031	.018	.016	.010	.006	
10.0	.136	.082	.046	.117	.071	.040	.081	.050	.028	.047	.030	.017	.015	.010	.006	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2017-09-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7100]
 Remarks:

Uncorrected UGR Table

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

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	27.8	29.2	28.1	29.4	29.7	27.8	29.2	28.1	29.4	29.7
3H	28.0	29.2	28.3	29.5	29.8	28.2	29.4	28.5	29.7	30.0
4H	27.9	29.1	28.3	29.4	29.7	28.1	29.3	28.4	29.5	29.9
6H	27.8	28.9	28.2	29.2	29.5	28.0	29.1	28.3	29.4	29.7
8H	27.7	28.8	28.1	29.1	29.5	27.9	29.0	28.3	29.3	29.6
12H	27.7	28.7	28.1	29.0	29.4	27.9	28.9	28.3	29.2	29.6
4H 2H	28.2	29.3	28.5	29.6	29.9	28.2	29.3	28.5	29.6	29.9
3H	28.4	29.4	28.8	29.8	30.1	28.6	29.6	28.9	29.9	30.3
4H	28.3	29.3	28.8	29.6	30.0	28.5	29.4	28.9	29.8	30.1
6H	28.2	29.0	28.7	29.4	29.9	28.4	29.2	28.8	29.6	30.0
8H	28.2	28.9	28.6	29.3	29.8	28.3	29.1	28.8	29.5	29.9
12H	28.2	28.8	28.6	29.3	29.7	28.3	29.0	28.8	29.4	29.9
8H 4H	28.2	29.0	28.7	29.4	29.8	28.4	29.1	28.8	29.5	30.0
6H	28.1	28.7	28.6	29.2	29.7	28.3	28.9	28.8	29.3	29.8
8H	28.1	28.6	28.6	29.1	29.6	28.2	28.8	28.7	29.2	29.7
12H	28.1	28.5	28.6	29.0	29.5	28.2	28.6	28.7	29.1	29.7
12H 4H	28.2	28.9	28.7	29.3	29.7	28.3	29.0	28.8	29.4	29.9
6H	28.1	28.6	28.6	29.1	29.6	28.2	28.8	28.7	29.2	29.7
8H	28.1	28.5	28.6	29.0	29.5	28.2	28.6	28.7	29.1	29.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 0.6					+ 0.6 / - 0.5				
1.5H	+ 0.8 / - 1.3					+ 0.5 / - 0.9				
2.0H	+ 0.8 / - 1.4					+ 0.8 / - 1.1				

CIE Pub.117 Corrected 1563 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.6)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-09-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7100]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

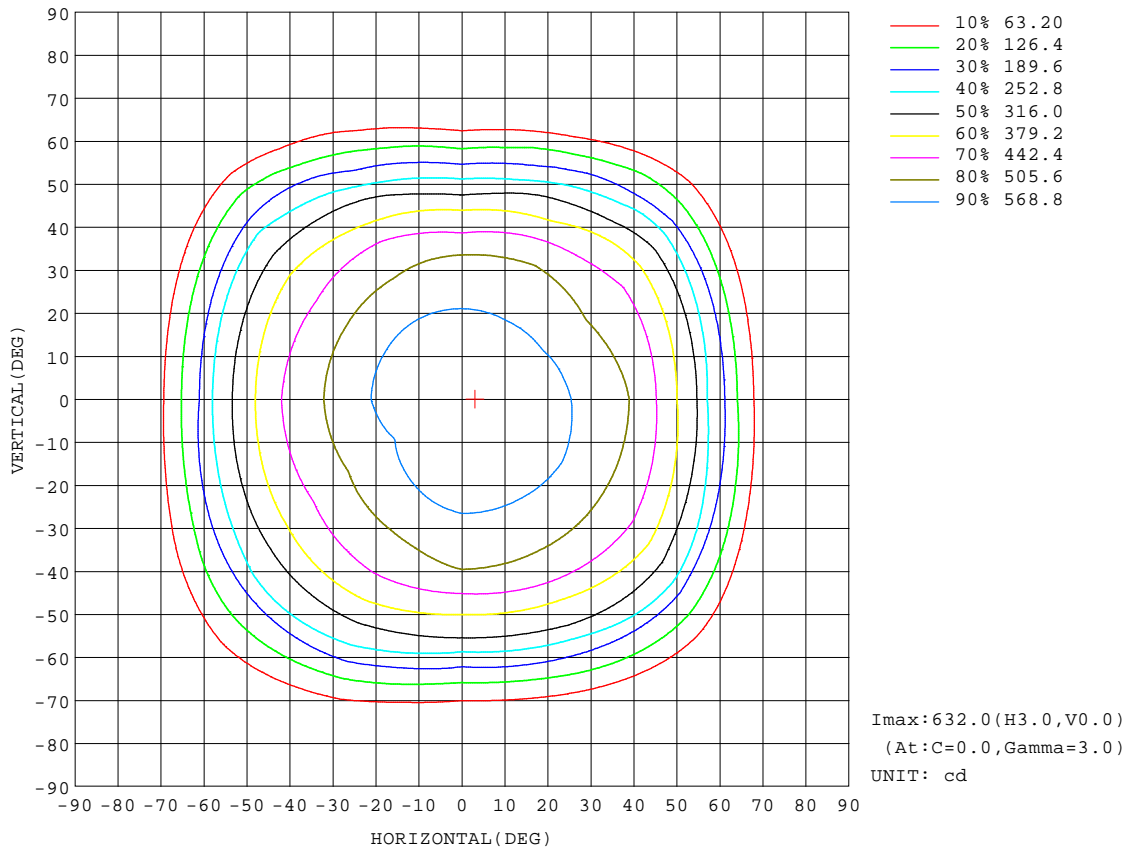
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	60	49	43	60	49	43	58	49	42	36
0.80	71	60	54	70	60	53	68	59	53	46
1.00	80	70	64	79	70	63	77	70	63	56
1.25	87	78	72	86	77	71	83	76	70	63
1.50	92	84	78	90	83	77	87	81	76	68
2.00	98	91	86	97	90	85	93	87	83	76
2.50	102	95	90	100	94	89	96	91	87	79
3.00	105	99	94	102	97	93	98	94	91	82
4.00	108	103	99	105	101	98	101	98	95	86
5.00	110	106	102	107	104	101	102	100	97	88
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-09-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7100]
Remarks:

ISOCANDELA DIAGRAM

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		



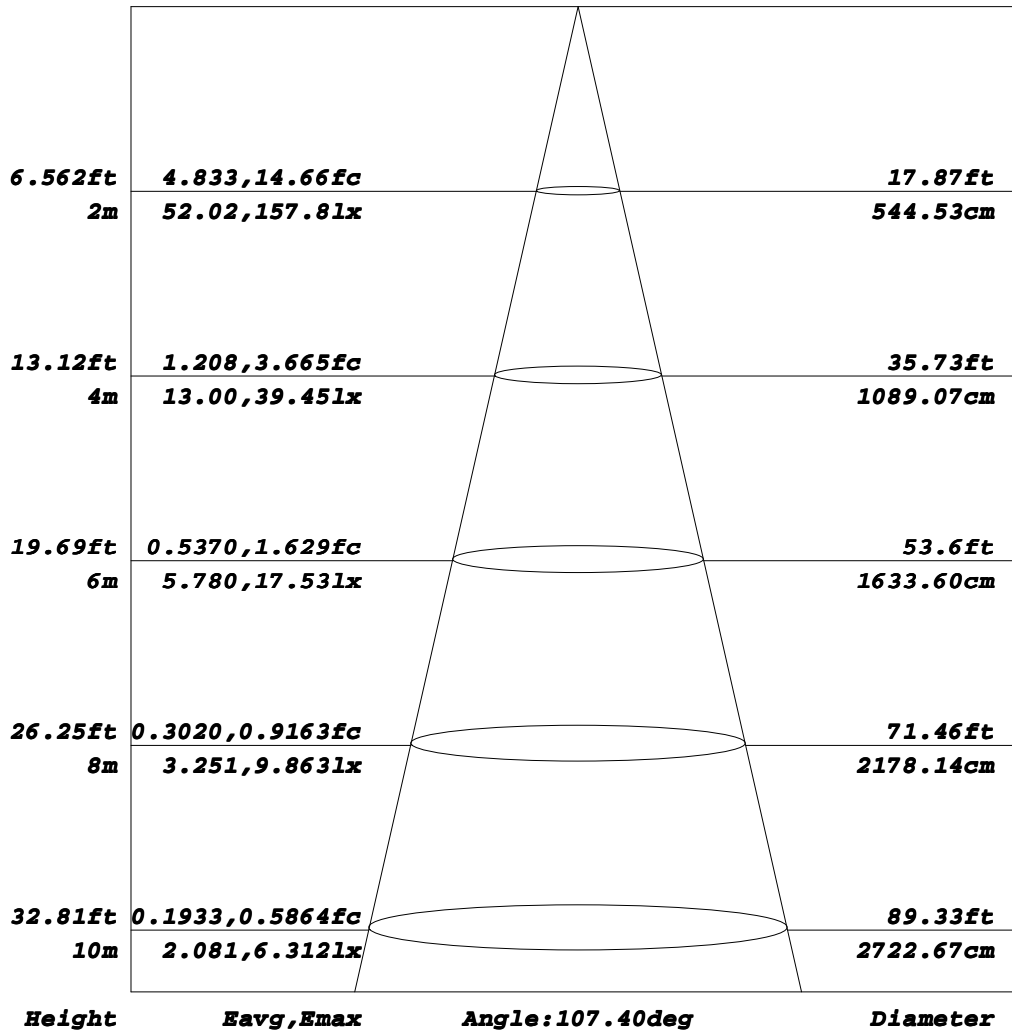
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-09-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7100]
Remarks:

AAI Figure

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

Flux out:1238 lm



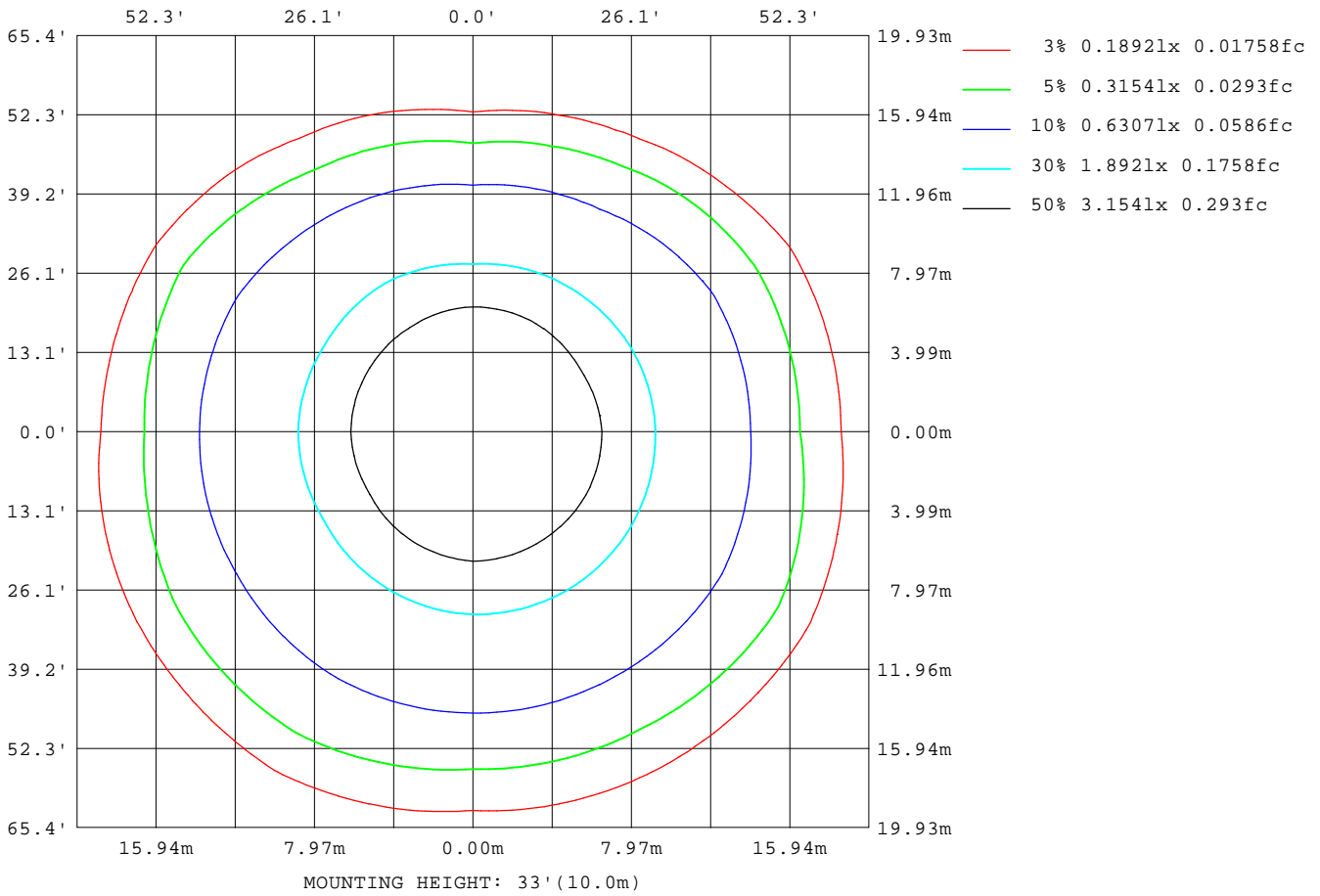
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2017-09-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7100]
 Remarks:

ISOLUX DIAGRAM

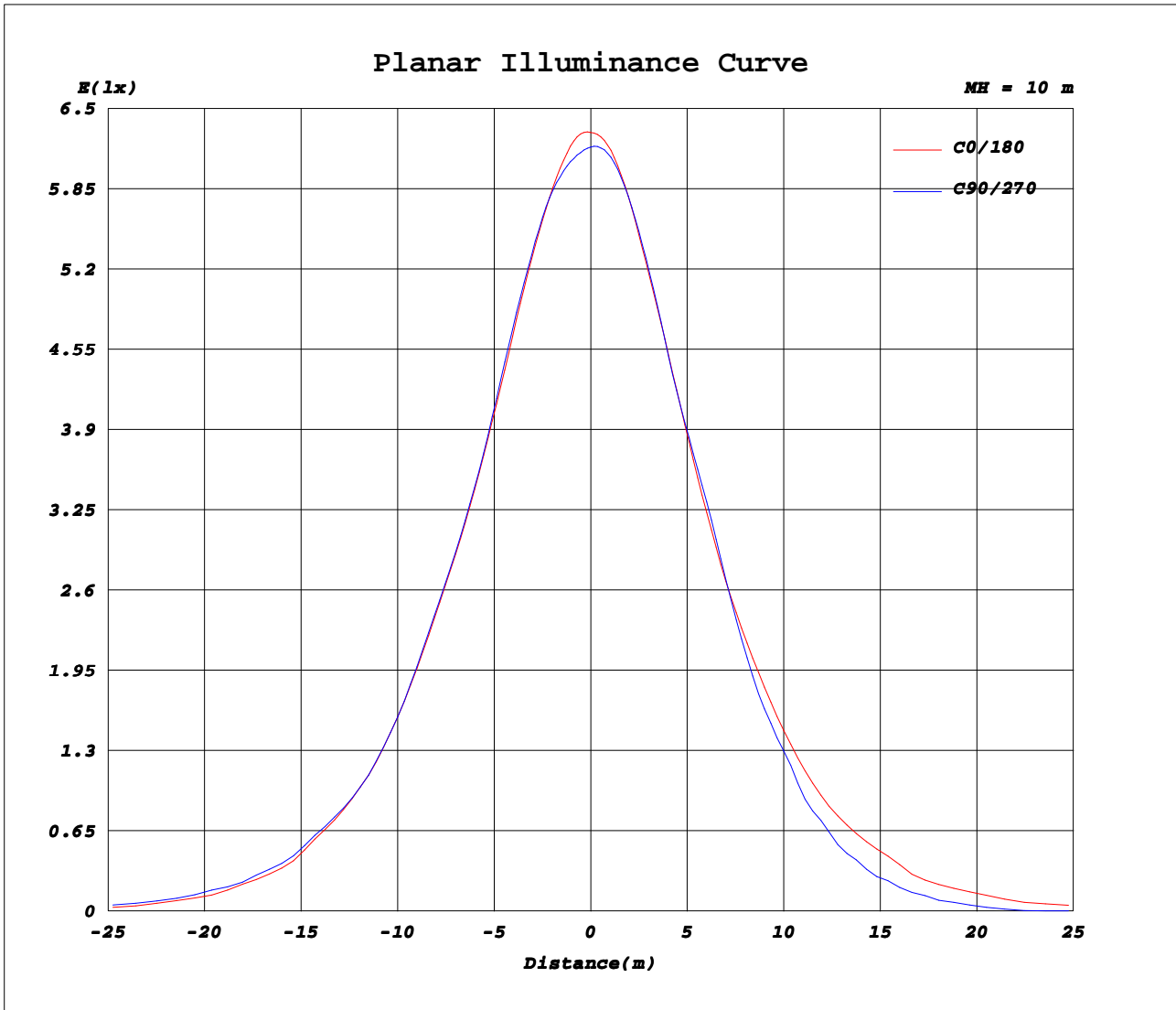
Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-09-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7100]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-09-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7100]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.4V I:0.1020A P:21.40W PF:0.9480 Lamp Flux:1563.24x1 lm		
NAME: IMSYLF020WBKSLMDL	TYPE:LED	
DIM.: 185*155mm	SUR.:100*80mm	
MFR.: SYNERJI		

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	631	626	622	619	617	615	631	626	622	619	617	615							
5	631	627	622	617	612	608	628	623	621	621	619	617							
10	622	622	623	618	607	597	616	613	617	614	613	608							
15	610	612	616	613	598	580	596	595	600	599	597	595							
20	593	599	599	599	581	561	574	573	575	575	573	577							
25	571	579	577	578	559	537	549	547	546	549	546	555							
30	547	554	550	550	534	511	519	515	515	531	526	529							
35	526	526	525	529	501	480	487	480	492	489	506	498							
40	497	498	500	503	471	450	456	443	450	424	454	471							
45	445	466	459	445	439	415	414	404	384	367	385	438							
50	380	416	391	380	388	365	354	356	324	277	324	379							
55	310	346	332	327	325	305	299	290	235	180	226	307							
60	207	277	244	233	268	252	203	222	140	101	139	195							
65	115	168	160	140	175	161	132	130	68.3	23.3	52.5	98.3							
70	29.7	76.1	72.3	64.2	97.8	85.1	55.8	44.8	7.99	6.44	5.73	25.3							
75	4.73	13.3	6.58	6.02	24.3	26.0	7.96	6.80	5.80	4.94	4.65	4.99							
80	2.56	3.67	3.89	4.00	4.06	3.64	5.72	5.09	4.52	3.86	3.84	3.69							
85	1.68	2.15	2.43	2.48	2.76	2.56	4.22	3.93	3.60	3.24	3.32	3.38							
90	1.87	1.73	1.55	1.55	1.76	1.76	3.71	3.75	3.66	3.58	3.63	3.61							
95	2.36	2.19	1.96	1.77	1.88	2.11	4.10	4.19	4.13	4.12	4.12	4.02							
100	2.98	2.76	2.48	2.26	2.39	2.67	4.68	4.81	4.81	4.82	4.79	4.62							
105	3.72	3.47	3.14	2.89	3.03	3.35	5.45	5.59	5.59	5.58	5.54	5.32							
110	4.54	4.27	3.91	3.63	3.78	4.14	6.29	6.40	6.39	6.38	6.31	6.06							
115	5.40	5.12	4.75	4.48	4.62	4.99	7.16	7.25	7.23	7.21	7.10	6.82							
120	6.27	5.98	5.64	5.38	5.49	5.85	8.01	8.08	8.06	8.04	7.87	7.55							
125	7.10	6.81	6.55	6.32	6.37	6.67	8.82	8.84	8.84	8.81	8.58	8.19							
130	7.85	7.60	7.43	7.21	7.18	7.39	9.49	9.50	9.48	9.45	9.20	8.76							
135	8.51	8.32	8.21	8.02	7.88	8.03	10.0	10.0	10.0	9.96	9.73	9.27							
140	9.17	9.03	8.92	8.71	8.54	8.66	10.5	10.5	10.5	10.4	10.2	9.77							
145	9.85	9.73	9.57	9.37	9.20	9.32	11.0	11.0	10.9	10.8	10.6	10.3							
150	10.6	10.4	10.2	10.0	9.90	10.0	11.5	11.4	11.4	11.2	11.1	10.8							
155	11.3	11.2	10.9	10.7	10.6	10.7	12.0	11.9	11.9	11.7	11.5	11.3							
160	12.0	11.9	11.6	11.5	11.3	11.4	12.6	12.4	12.3	12.2	12.0	11.8							
165	12.6	12.5	12.3	12.1	12.0	12.0	13.2	12.8	12.8	12.6	12.4	12.2							
170	13.3	13.2	12.9	12.7	12.6	12.6	13.6	13.3	13.1	12.9	12.8	12.6							
175	13.9	13.7	13.4	13.2	13.0	13.0	14.0	13.6	13.4	13.2	13.0	12.9							
180	14.2	14.0	13.6	13.4	13.2	13.2	14.3	13.9	13.7	13.4	13.2	13.2							

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-09-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7100]
Remarks: