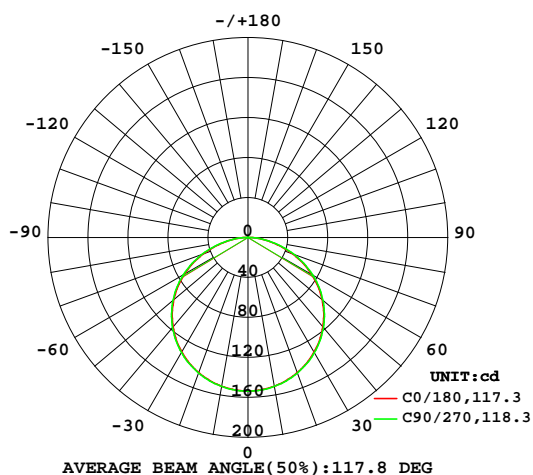


LUMINAIRE PHOTOMETRIC TEST REPORT

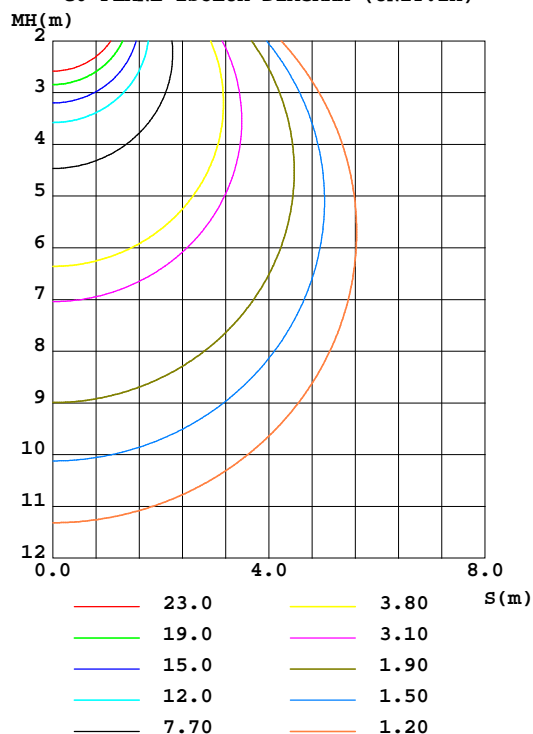
Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 35.98 lm/W			
MODEL	DLS-LS2020(B)FDXSS100	I _{max} (cd)	153.7	S/MH(C0/180)	1.28
NOMINAL POWER(W)	15	LOR(%)	100.0	S/MH(C90/270)	1.29
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	469.52	h UP,DN(C0-180)	0.3,49.7
NOMINAL FLUX(lm)	469.516	CIE CLASS	DIRECT	h UP,DN(C180-360)	0.3,49.7
LAMPS INSIDE	1	h up(%)	0.6	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	24	h down(%)	99.4	CIBSE SHR MAX	1.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:COLORS
 Test Date:2018-10-16

g Range: 0 - 180DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
 Humidity:65.0%
 Test Distance:7.500m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

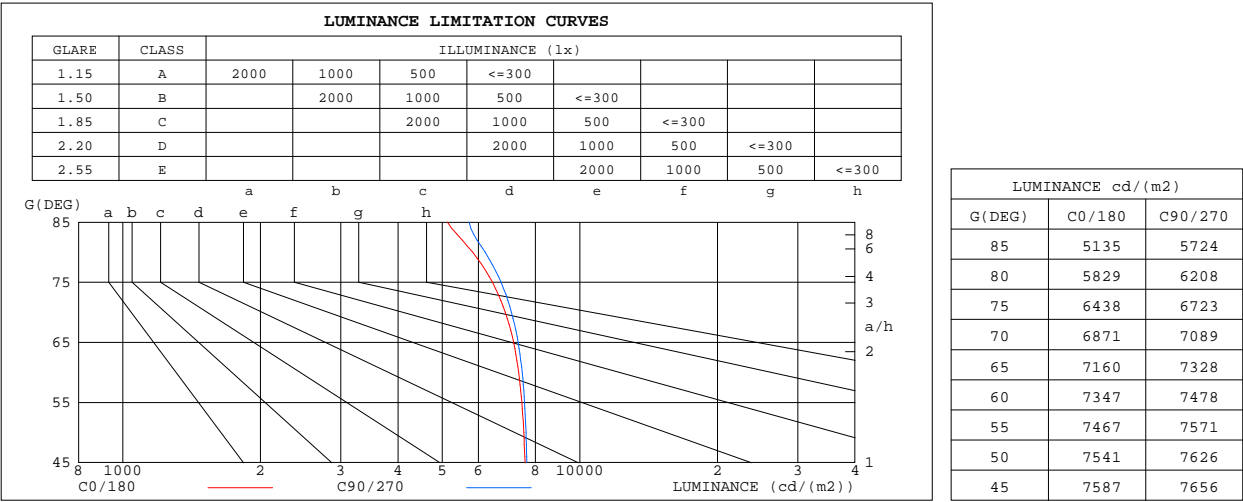
g	C0	C90	C180	C270					g	F zone	F total	%lum,lamp
10	151.1	151.4	151.1	151.4					0~ 10	14.55	14.55	3.1,3.1
20	144.0	144.4	144.0	144.4					10~ 20	41.88	56.43	12,12
30	132.4	133.1	132.4	133.1					20~ 30	64.11	120.5	25.7,25.7
40	116.7	117.5	116.7	117.5					30~ 40	78.50	199.0	42.4,42.4
50	96.94	98.04	96.94	98.04					40~ 50	83.12	282.2	60.1,60.1
60	73.47	74.78	73.47	74.78					50~ 60	77.04	359.2	76.5,76.5
70	47.00	48.49	47.00	48.49					60~ 70	60.50	419.7	89.4,89.4
80	20.24	21.56	20.24	21.56					70~ 80	36.01	455.7	97.1,97.1
90	1.297	1.815	1.297	1.815					80~ 90	10.94	466.7	99.4,99.4
100	0.2068	0.2021	0.2068	0.2021					90~100	0.3243	467.0	99.5,99.5
110	0.3025	0.3056	0.3025	0.3056					100~110	0.2687	467.2	99.5,99.5
120	0.4152	0.4183	0.4152	0.4183					110~120	0.3598	467.6	99.6,99.6
130	0.5249	0.5343	0.5249	0.5343					120~130	0.4237	468.0	99.7,99.7
140	0.6327	0.6095	0.6327	0.6095					130~140	0.4460	468.5	99.8,99.8
150	0.7035	0.6881	0.7035	0.6881					140~150	0.4148	468.9	99.9,99.9
160	0.7572	0.7465	0.7572	0.7465					150~160	0.3351	469.2	99.9,99.9
170	0.7878	0.7724	0.7878	0.7724					160~170	0.2170	469.4	100,100
180	0.7928	0.7959	0.7928	0.7959					170~180	0.0754	469.5	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:



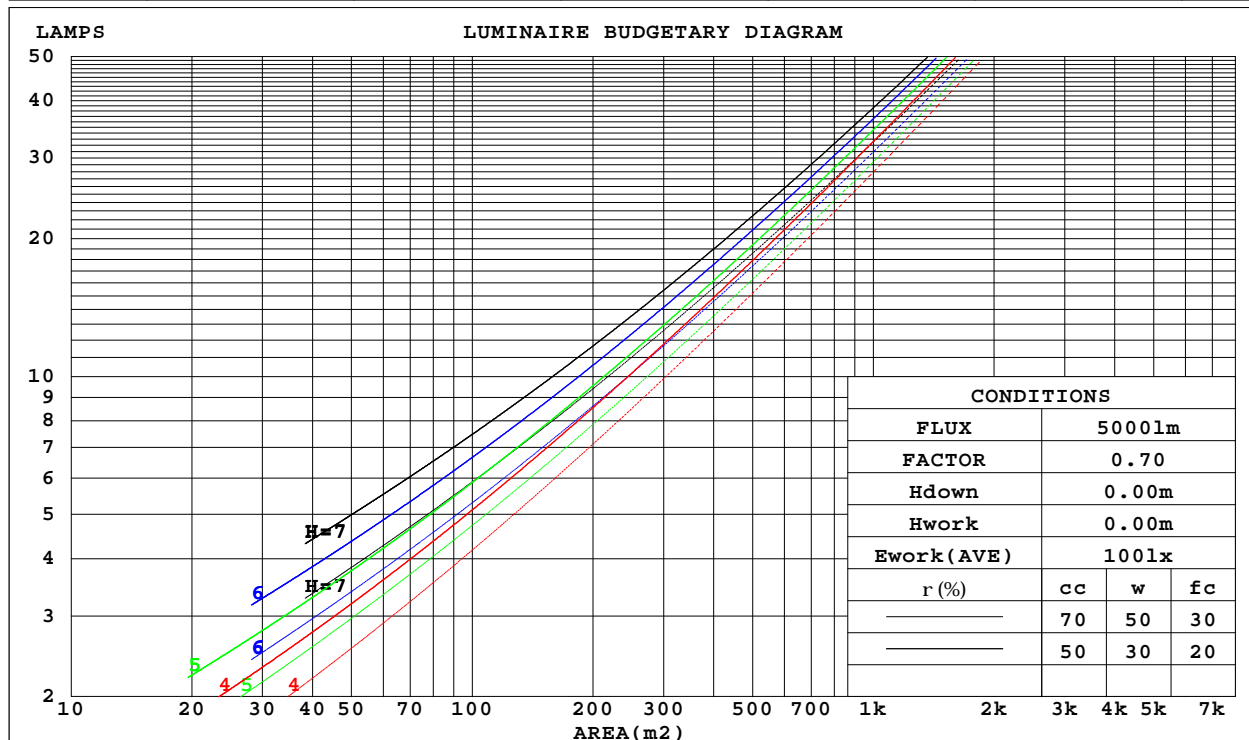
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

r _{cc}	80%			70%			50%			30%			10%			0
r _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
r _{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	1.01	1.01	1.01	.99
1.0	1.03	.99	.95	1.01	.97	.93	.96	.93	.90	.92	.90	.87	.89	.86	.84	.82
2.0	.89	.82	.77	.88	.81	.76	.84	.78	.74	.80	.76	.72	.77	.74	.70	.68
3.0	.78	.70	.63	.77	.69	.63	.74	.67	.61	.71	.65	.60	.68	.63	.59	.57
4.0	.69	.60	.53	.68	.59	.53	.65	.58	.52	.63	.56	.51	.60	.55	.50	.48
5.0	.62	.52	.46	.60	.52	.45	.58	.51	.45	.56	.49	.44	.54	.48	.44	.41
6.0	.55	.46	.40	.54	.46	.39	.52	.45	.39	.51	.44	.39	.49	.43	.38	.36
7.0	.50	.41	.35	.49	.41	.35	.48	.40	.34	.46	.39	.34	.45	.39	.34	.32
8.0	.46	.37	.31	.45	.37	.31	.44	.36	.31	.42	.35	.30	.41	.35	.30	.28
9.0	.42	.34	.28	.41	.33	.28	.40	.33	.28	.39	.32	.27	.38	.32	.27	.25
10.0	.39	.31	.25	.38	.30	.25	.37	.30	.25	.36	.29	.25	.35	.29	.25	.23



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Wall Exitance Coefficients(WEC)												
0.0																
1.0	.320	.182	.058	.313	.179	.057	.299	.172	.055	.287	.165	.053	.275	.160	.051	
2.0	.299	.164	.050	.293	.161	.050	.281	.156	.049	.270	.151	.047	.259	.147	.046	
3.0	.276	.147	.044	.270	.145	.044	.260	.141	.043	.250	.137	.042	.240	.133	.041	
4.0	.254	.132	.039	.249	.130	.038	.239	.127	.038	.230	.124	.037	.222	.121	.037	
5.0	.234	.119	.035	.230	.118	.034	.221	.115	.034	.213	.113	.033	.206	.110	.033	
6.0	.217	.109	.031	.213	.107	.031	.205	.105	.031	.198	.103	.030	.192	.101	.030	
7.0	.201	.100	.028	.198	.099	.028	.191	.097	.028	.185	.095	.028	.179	.093	.027	
8.0	.188	.092	.026	.185	.091	.026	.179	.089	.025	.173	.088	.025	.168	.086	.025	
9.0	.176	.085	.024	.173	.084	.024	.168	.083	.023	.162	.081	.023	.158	.080	.023	
10.0	.165	.079	.022	.163	.079	.022	.158	.077	.022	.153	.076	.022	.149	.075	.021	

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Ceiling Cavity Exitance Coefficients(CCEC)												
0.0	.195	.195	.195	.167	.167	.167	.114	.114	.114	.065	.065	.065	.021	.021	.021	
1.0	.186	.161	.138	.159	.138	.119	.109	.095	.082	.063	.055	.048	.020	.018	.015	
2.0	.178	.137	.102	.152	.118	.088	.104	.081	.061	.060	.047	.036	.019	.015	.012	
3.0	.170	.119	.078	.146	.103	.068	.100	.071	.048	.058	.042	.028	.019	.014	.009	
4.0	.163	.106	.062	.140	.091	.054	.096	.064	.038	.056	.037	.023	.018	.012	.007	
5.0	.155	.096	.051	.133	.083	.045	.092	.058	.032	.053	.034	.019	.017	.011	.006	
6.0	.148	.087	.043	.127	.076	.038	.088	.053	.027	.051	.031	.016	.016	.010	.005	
7.0	.141	.080	.038	.121	.070	.033	.084	.049	.023	.049	.029	.014	.016	.009	.005	
8.0	.135	.075	.033	.116	.065	.029	.080	.045	.021	.047	.027	.012	.015	.009	.004	
9.0	.129	.070	.030	.111	.060	.026	.077	.042	.018	.045	.025	.011	.014	.008	.004	
10.0	.123	.065	.027	.106	.057	.024	.073	.040	.017	.043	.024	.010	.014	.008	.003	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm											
NAME: DLS-LS2020(B)FDXSS100						TYPE:			WEIGHT:		
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC						DIM.: 1008*20*20mm			SERIAL No.:01		
MFR.: Colors						SUR.:1008*20			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	22.5	24.1	22.8	24.3	24.5	22.6	24.1	22.9	24.3	24.6	
	3H	24.1	25.6	24.4	25.8	26.1	24.2	25.7	24.5	25.9	26.2
	4H	24.8	26.1	25.1	26.4	26.7	24.9	26.3	25.2	26.5	26.8
	6H	25.2	26.5	25.6	26.8	27.1	25.4	26.7	25.7	27.0	27.3
	8H	25.4	26.6	25.7	26.9	27.2	25.6	26.8	25.9	27.1	27.4
	12H	25.5	26.7	25.8	27.0	27.3	25.7	26.9	26.0	27.2	27.5
4H	2H	23.2	24.5	23.5	24.8	25.1	23.2	24.6	23.5	24.8	25.1
	3H	25.0	26.2	25.3	26.5	26.8	25.0	26.2	25.4	26.5	26.9
	4H	25.7	26.8	26.1	27.2	27.5	25.8	26.9	26.2	27.3	27.6
	6H	26.3	27.3	26.7	27.7	28.0	26.5	27.4	26.9	27.8	28.2
	8H	26.5	27.4	27.0	27.8	28.2	26.7	27.6	27.1	28.0	28.4
	12H	26.7	27.5	27.1	27.9	28.3	26.9	27.7	27.3	28.1	28.5
8H	4H	26.0	26.9	26.5	27.3	27.7	26.1	27.0	26.6	27.4	27.8
	6H	26.8	27.5	27.2	28.0	28.4	26.9	27.7	27.4	28.1	28.5
	8H	27.1	27.7	27.5	28.2	28.6	27.2	27.9	27.7	28.3	28.8
	12H	27.3	27.9	27.8	28.3	28.8	27.5	28.1	28.0	28.5	29.0
12H	4H	26.1	26.9	26.5	27.3	27.7	26.1	27.0	26.6	27.4	27.8
	6H	26.9	27.5	27.3	28.0	28.4	27.0	27.6	27.4	28.1	28.5
	8H	27.2	27.8	27.7	28.2	28.7	27.3	27.9	27.8	28.4	28.9
Variations with the observer position at spacings:											
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2					
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3					
2.0H	+ 0.2 / - 0.3					+ 0.1 / - 0.3					

CIE Pub.117, 469.5 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -2.6)

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

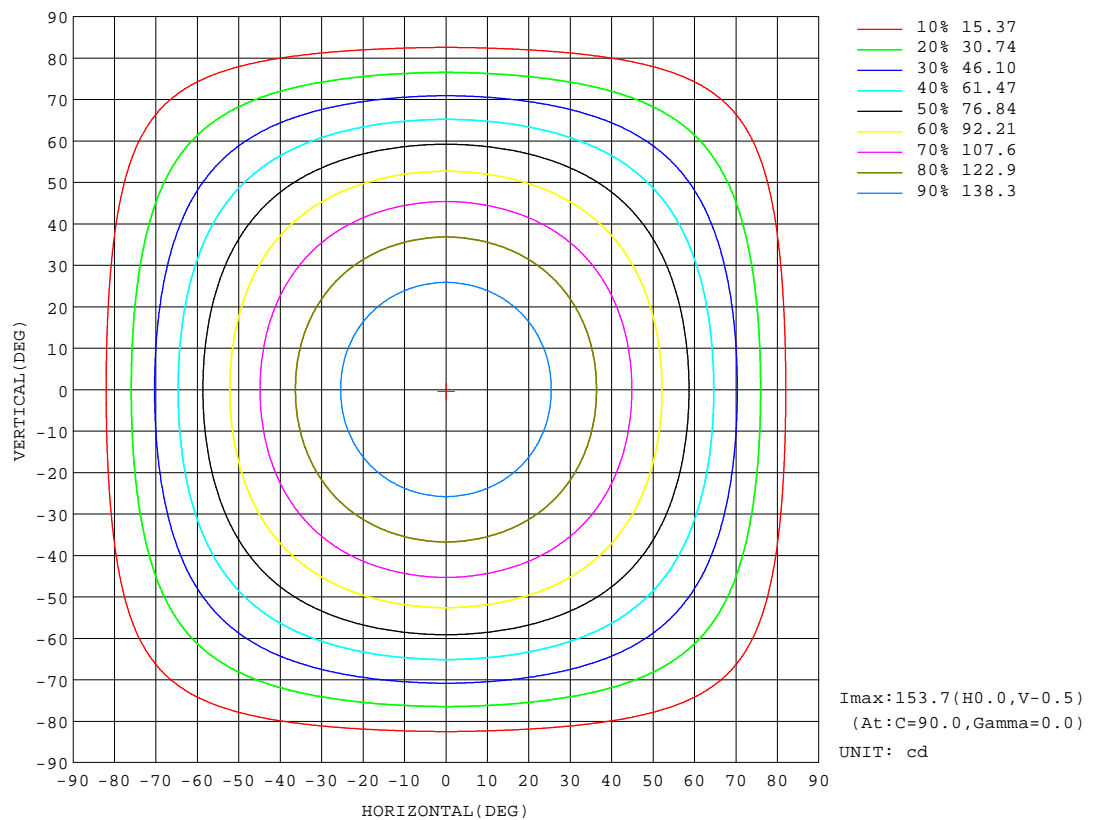
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	44	37	55	44	37	54	44	37	30
0.80	66	54	47	65	54	47	63	53	46	39
1.00	75	63	56	73	63	56	71	64	55	48
1.25	82	71	64	80	70	63	78	69	62	55
1.50	87	77	70	85	76	69	82	74	68	60
2.00	94	85	78	92	84	78	88	82	76	68
2.50	98	90	84	96	88	83	92	86	81	72
3.00	101	94	89	99	93	87	95	90	85	76
4.00	106	100	95	103	98	93	99	94	91	81
5.00	108	103	99	106	101	97	101	97	94	85
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:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:



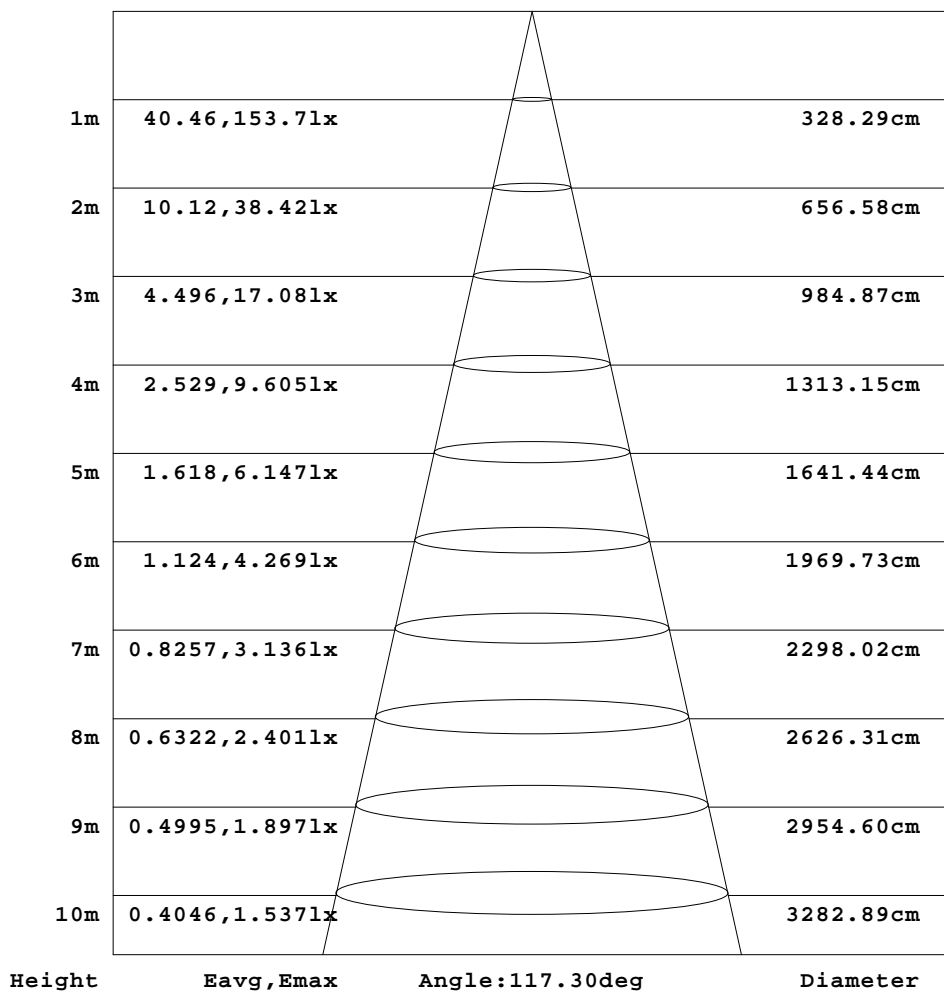
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

deg Range: 0 - 180DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

AAI Figure

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

Flux out:352.1 lm



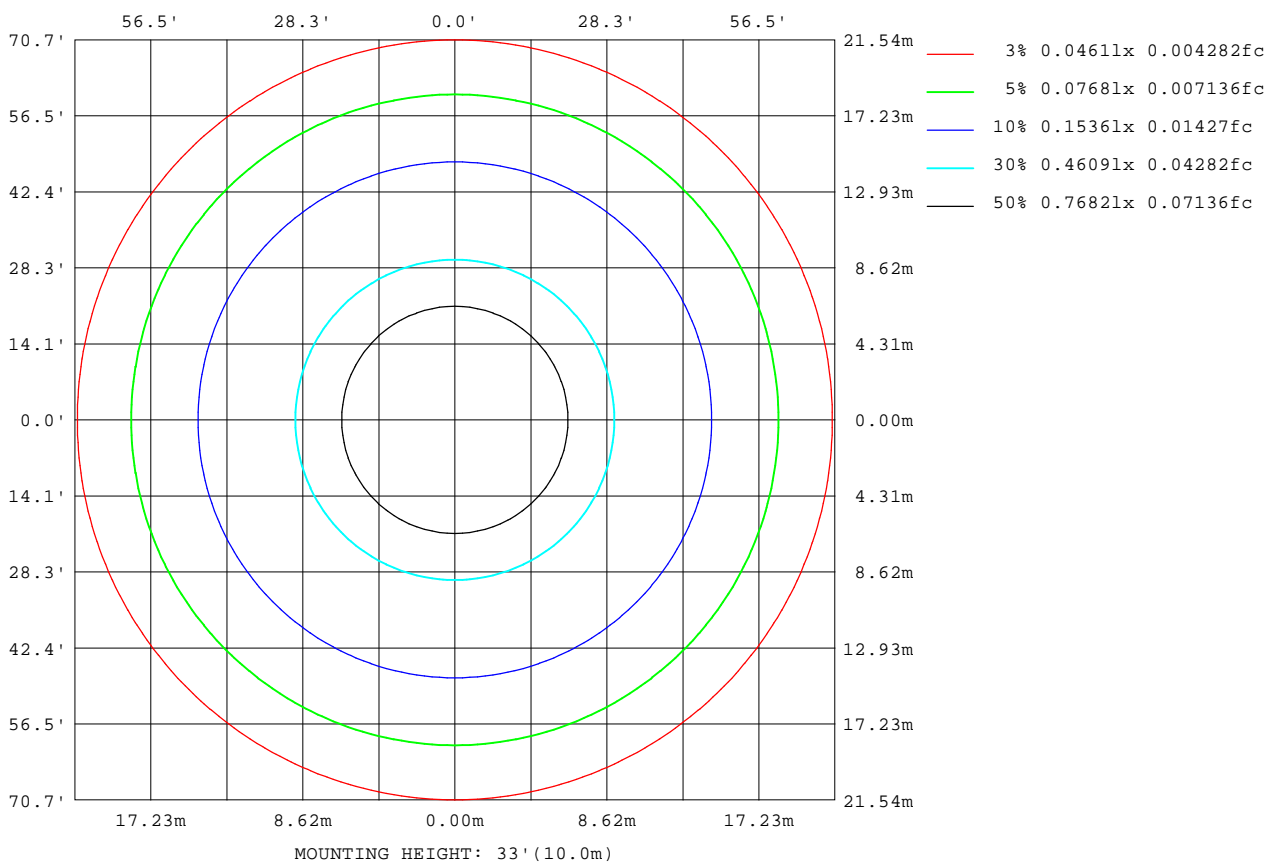
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

LED Avg.L Report

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

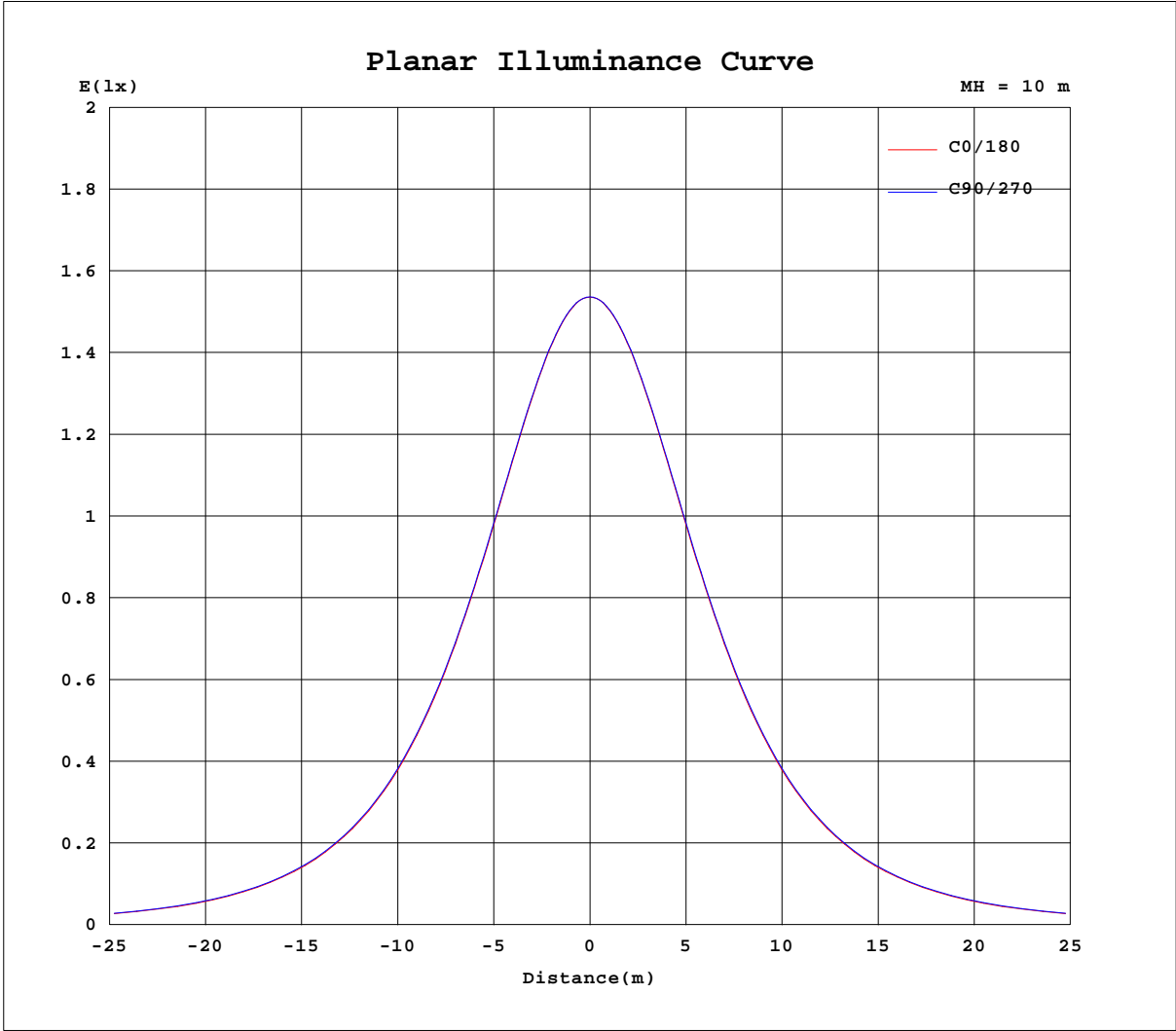
AvgL	cd/m2
L_0~180(65)av	7160
L_0~180(75)av	6438
L_0~180(85)av	5135
L_90~270(65)av	7328
L_90~270(75)av	6723
L_90~270(85)av	5724
L_45(65)av	7265
L_45(75)av	6616
L_45(85)av	5503

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
g Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

deg Range: 0 - 180DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.00V I:0.5400A P:13.05W PF:1.000 Freq:0Hz Lamp Flux:469.516x1 lm		
NAME: DLS-LS2020(B)FDXSS100	TYPE:	WEIGHT:
SPEC.:DLS-LS2020(B)FDXSS1008-F15NW9X-CC	DIM.: 1008*20*20mm	SERIAL No.:01
MFR.: Colors	SUR.:1008*20	Shielding Angle:

Table--1

UNIT: cd

C(DEG) g (DEG)	0	90	180	270														
0	154	154	154	154														
5	153	153	153	153														
10	151	151	151	151														
15	148	148	148	148														
20	144	144	144	144														
25	139	139	139	139														
30	132	133	132	133														
35	125	126	125	126														
40	117	118	117	118														
45	107	108	107	108														
50	96.9	98.0	96.9	98.0														
55	85.7	86.9	85.7	86.9														
60	73.5	74.8	73.5	74.8														
65	60.5	61.9	60.5	61.9														
70	47.0	48.5	47.0	48.5														
75	33.3	34.8	33.3	34.8														
80	20.2	21.6	20.2	21.6														
85	8.95	9.98	8.95	9.98														
90	1.30	1.82	1.30	1.82														
95	0.18	0.17	0.18	0.17														
100	0.21	0.20	0.21	0.20														
105	0.25	0.25	0.25	0.25														
110	0.30	0.31	0.30	0.31														
115	0.36	0.36	0.36	0.36														
120	0.42	0.42	0.42	0.42														
125	0.47	0.48	0.47	0.48														
130	0.52	0.53	0.52	0.53														
135	0.58	0.57	0.58	0.57														
140	0.63	0.61	0.63	0.61														
145	0.67	0.65	0.67	0.65														
150	0.70	0.69	0.70	0.69														
155	0.74	0.71	0.74	0.71														
160	0.76	0.75	0.76	0.75														
165	0.78	0.76	0.78	0.76														
170	0.79	0.77	0.79	0.77														
175	0.79	0.80	0.79	0.80														
180	0.79	0.80	0.79	0.80														

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:COLORS
Test Date:2018-10-16

g Range: 0 - 180DEG
Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.362
Humidity:65.0%
Test Distance:7.500m [K=1.0000]
Remarks: