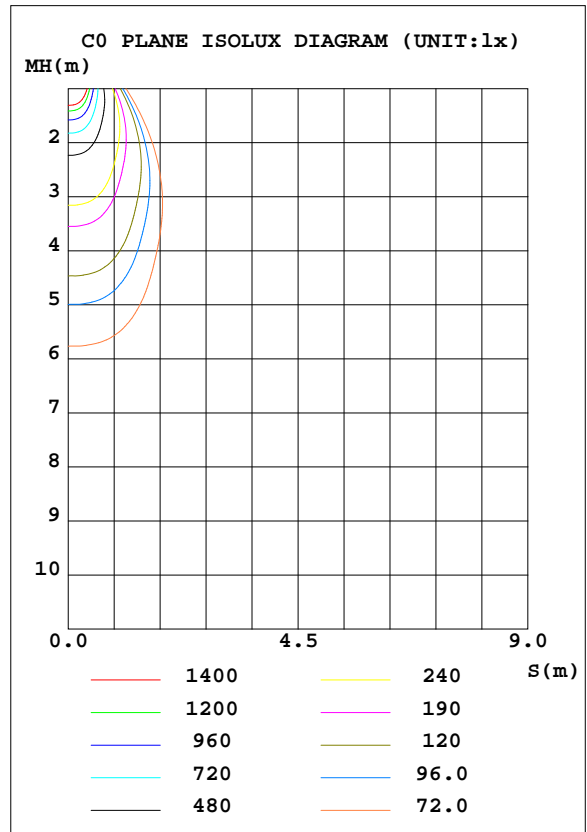
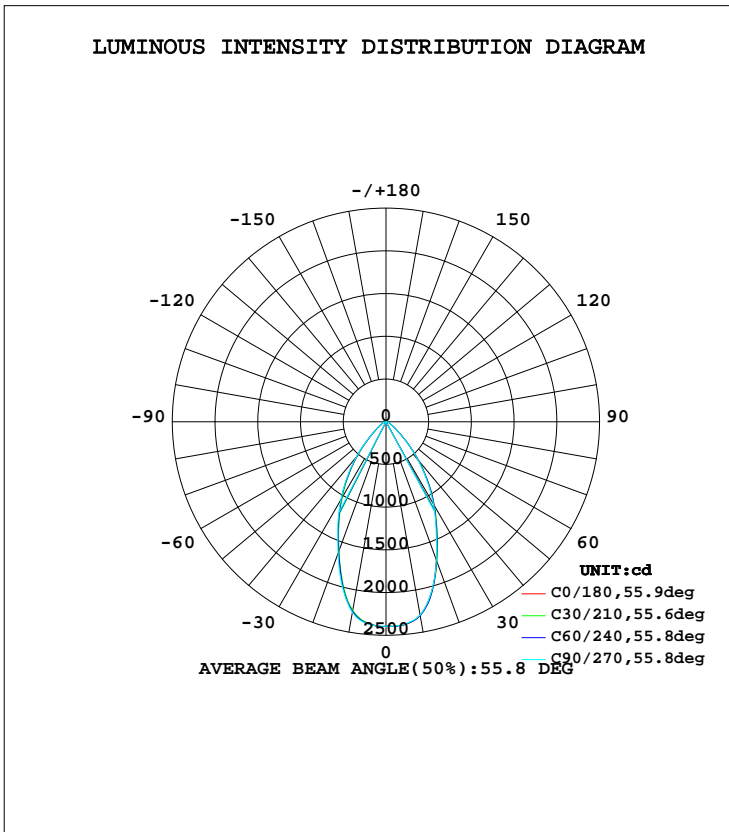


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 118.31 lm/W			
MODEL	CD20W-NW-W	I _{max} (cd)	2398	S/MH(C0/180)	0.84
NOMINAL POWER(W)	20	LOR(%)	100.0	S/MH(C90/270)	0.84
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	2378.0	η UP, DN(C0-180)	0.0, 51.0
NOMINAL FLUX(lm)	2377.95	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 49.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	240.1	η down(%)	100.0	CIBSE SHR MAX	0.90



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Φ lum, lamp
10	2297	2303	2297	2270	2254	2249	2265	2278	0- 10	224.0	224.0	9.42,9.42
20	1722	1738	1722	1666	1618	1615	1640	1676	10- 20	558.5	782.5	32.9,32.9
30	1134	1126	1109	1075	1042	1036	1059	1092	20- 30	624.0	1406	59.1,59.1
40	599.1	595.3	577.8	547.0	525.2	528.8	544.6	573.7	30- 40	507.2	1914	80.5,80.5
50	205.8	206.7	200.9	186.8	175.6	179.3	191.1	197.4	40- 50	270.9	2185	91.9,91.9
60	73.46	74.20	73.84	70.73	68.47	68.39	69.48	71.27	50- 60	105.9	2290	96.3,96.3
70	41.75	41.89	42.14	40.99	39.60	39.23	39.66	40.40	60- 70	54.22	2345	98.6,98.6
80	14.97	16.03	16.08	14.55	12.44	11.74	11.62	12.77	70- 80	29.45	2374	99.8,99.8
90	0	0	0	0	0	0	0	0	80- 90	3.811	2378	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		

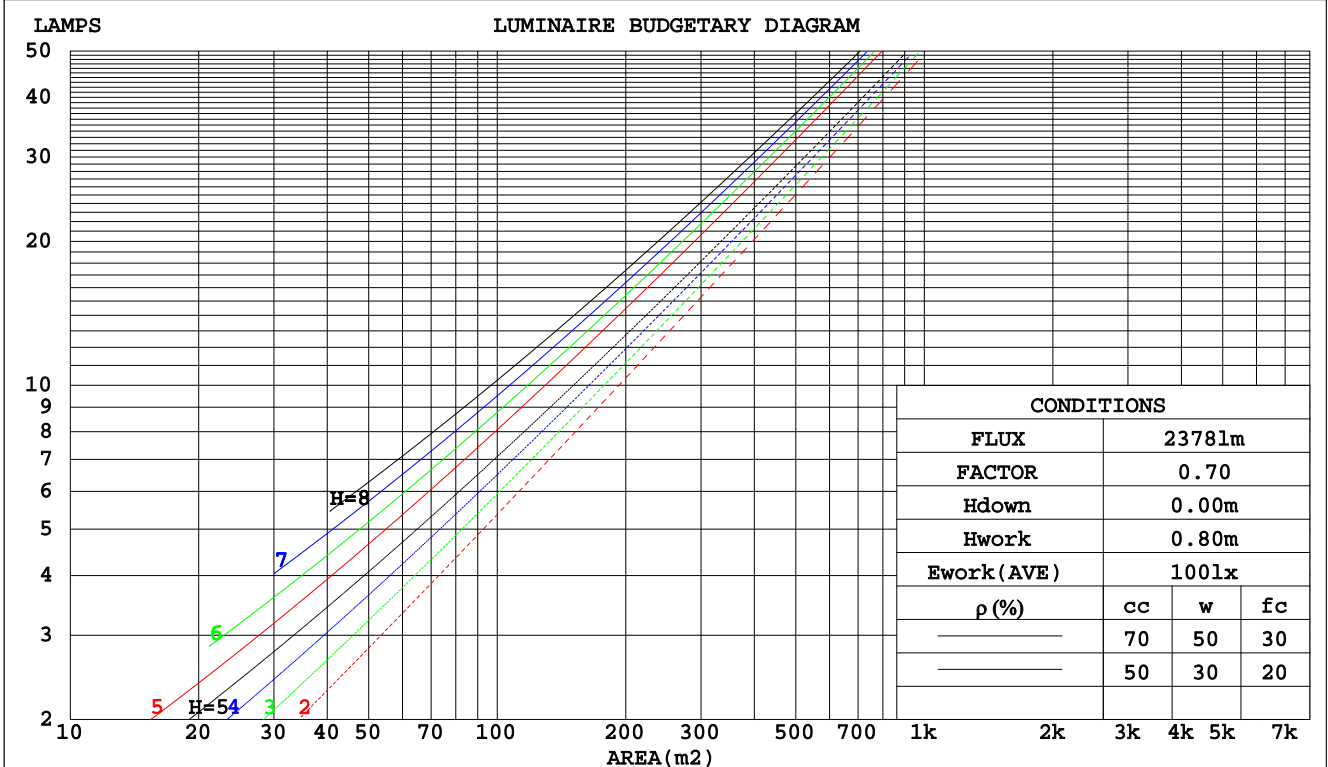
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION 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						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	1.09	1.07	1.04	1.07	1.05	1.02	1.03	1.01	.99	.99	.98	.96	.96	.95	.94	.92
2.0	1.01	.96	.92	.99	.95	.91	.96	.92	.89	.92	.90	.87	.90	.87	.85	.84
3.0	.93	.87	.83	.91	.86	.82	.89	.84	.80	.86	.82	.79	.84	.81	.78	.76
4.0	.86	.79	.75	.84	.79	.74	.82	.77	.73	.80	.76	.72	.78	.75	.72	.70
5.0	.79	.73	.68	.78	.72	.68	.77	.71	.67	.75	.70	.67	.73	.69	.66	.64
6.0	.74	.67	.63	.73	.67	.62	.71	.66	.62	.70	.65	.61	.69	.64	.61	.59
7.0	.69	.62	.58	.68	.62	.58	.67	.61	.57	.66	.61	.57	.65	.60	.57	.55
8.0	.65	.58	.54	.64	.58	.53	.63	.57	.53	.62	.57	.53	.61	.56	.53	.51
9.0	.61	.54	.50	.60	.54	.50	.59	.54	.50	.58	.53	.49	.57	.53	.49	.48
10.0	.57	.51	.47	.57	.51	.47	.56	.50	.46	.55	.50	.46	.54	.50	.46	.45



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION 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	.183	.105	.033	.171	.099	.032	.160	.093	.030	
2.0	.195	.107	.033	.189	.104	.032	.178	.099	.031	.168	.094	.030	.159	.090	.028	
3.0	.185	.098	.029	.180	.096	.029	.171	.092	.028	.162	.089	.027	.154	.085	.026	
4.0	.175	.091	.027	.171	.089	.026	.163	.086	.026	.155	.083	.025	.148	.081	.025	
5.0	.166	.085	.025	.162	.083	.024	.155	.081	.024	.149	.078	.023	.142	.076	.023	
6.0	.157	.079	.023	.154	.078	.022	.148	.076	.022	.142	.074	.022	.137	.072	.021	
7.0	.150	.074	.021	.147	.073	.021	.141	.071	.021	.136	.070	.020	.131	.068	.020	
8.0	.142	.070	.020	.140	.069	.019	.135	.067	.019	.130	.066	.019	.126	.064	.019	
9.0	.136	.066	.018	.133	.065	.018	.129	.064	.018	.125	.062	.018	.121	.061	.018	
10.0	.129	.062	.017	.127	.062	.017	.123	.060	.017	.119	.059	.017	.116	.058	.017	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.173	.157	.143	.148	.135	.123	.101	.093	.085	.058	.054	.049	.019	.017	.016	
2.0	.159	.132	.110	.136	.114	.095	.093	.079	.066	.054	.046	.039	.017	.015	.013	
3.0	.148	.114	.086	.127	.098	.075	.087	.068	.053	.050	.040	.031	.016	.013	.010	
4.0	.139	.099	.069	.119	.086	.060	.082	.060	.042	.047	.035	.025	.015	.011	.008	
5.0	.130	.088	.057	.112	.076	.049	.077	.053	.035	.045	.031	.021	.014	.010	.007	
6.0	.123	.079	.047	.106	.068	.041	.073	.048	.029	.042	.028	.017	.014	.009	.006	
7.0	.117	.072	.040	.101	.062	.035	.069	.044	.025	.040	.026	.015	.013	.008	.005	
8.0	.111	.066	.034	.096	.057	.030	.066	.040	.021	.038	.024	.013	.012	.008	.004	
9.0	.106	.060	.030	.091	.052	.026	.063	.037	.018	.037	.022	.011	.012	.007	.004	
10.0	.101	.056	.026	.087	.049	.023	.060	.034	.016	.035	.020	.010	.011	.007	.003	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

Uncorrected UGR Table

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm										
NAME: CD20W-NW-W					TYPE:20W			WEIGHT:		
DIM.:					SPEC.:4000K			SERIAL No.:1		
MFR.:					SUR.:0.04			PROTECTION 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	24.9	26.0	25.1	26.1	26.3	24.8	25.8	25.0	26.0	26.2
3H	25.1	26.0	25.3	26.3	26.5	25.0	25.9	25.2	26.1	26.4
4H	25.2	26.1	25.4	26.3	26.5	25.1	26.0	25.3	26.2	26.4
6H	25.2	26.1	25.5	26.3	26.6	25.1	26.0	25.4	26.2	26.5
8H	25.2	26.0	25.5	26.3	26.6	25.1	26.0	25.4	26.2	26.5
12H	25.1	26.0	25.5	26.2	26.5	25.1	25.9	25.4	26.1	26.4
4H 2H	24.8	25.8	25.1	26.0	26.2	24.7	25.6	25.0	25.9	26.1
3H	25.1	25.9	25.5	26.2	26.5	25.0	25.8	25.4	26.1	26.4
4H	25.3	26.0	25.7	26.3	26.7	25.2	25.9	25.6	26.3	26.6
6H	25.4	26.1	25.8	26.4	26.8	25.4	26.0	25.7	26.3	26.7
8H	25.4	26.0	25.8	26.4	26.7	25.4	26.0	25.8	26.3	26.7
12H	25.4	25.9	25.8	26.3	26.7	25.3	25.9	25.7	26.2	26.6
8H 4H	25.3	25.9	25.7	26.3	26.6	25.2	25.8	25.6	26.2	26.6
6H	25.5	26.0	25.9	26.4	26.8	25.4	25.9	25.9	26.3	26.7
8H	25.5	25.9	26.0	26.4	26.8	25.5	25.9	25.9	26.3	26.7
12H	25.5	25.8	25.9	26.3	26.7	25.4	25.8	25.9	26.2	26.7
12H 4H	25.3	25.8	25.7	26.2	26.6	25.2	25.7	25.6	26.1	26.5
6H	25.5	25.9	25.9	26.3	26.8	25.4	25.8	25.9	26.3	26.7
8H	25.5	25.9	26.0	26.3	26.8	25.4	25.8	25.9	26.2	26.7
Variations with the observer position at spacings:										
S = 1.0H	+ 1.5 / - 2.5					+ 1.5 / - 2.4				
1.5H	+ 2.3 / - 2.3					+ 2.2 / - 2.2				
2.0H	+ 3.3 / - 2.0					+ 3.2 / - 1.8				

CIE Pub.117 Corrected 2378 lm Total Lamp Luminous Flux.(8log(F/F0) = 3.0)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION ANGLE:

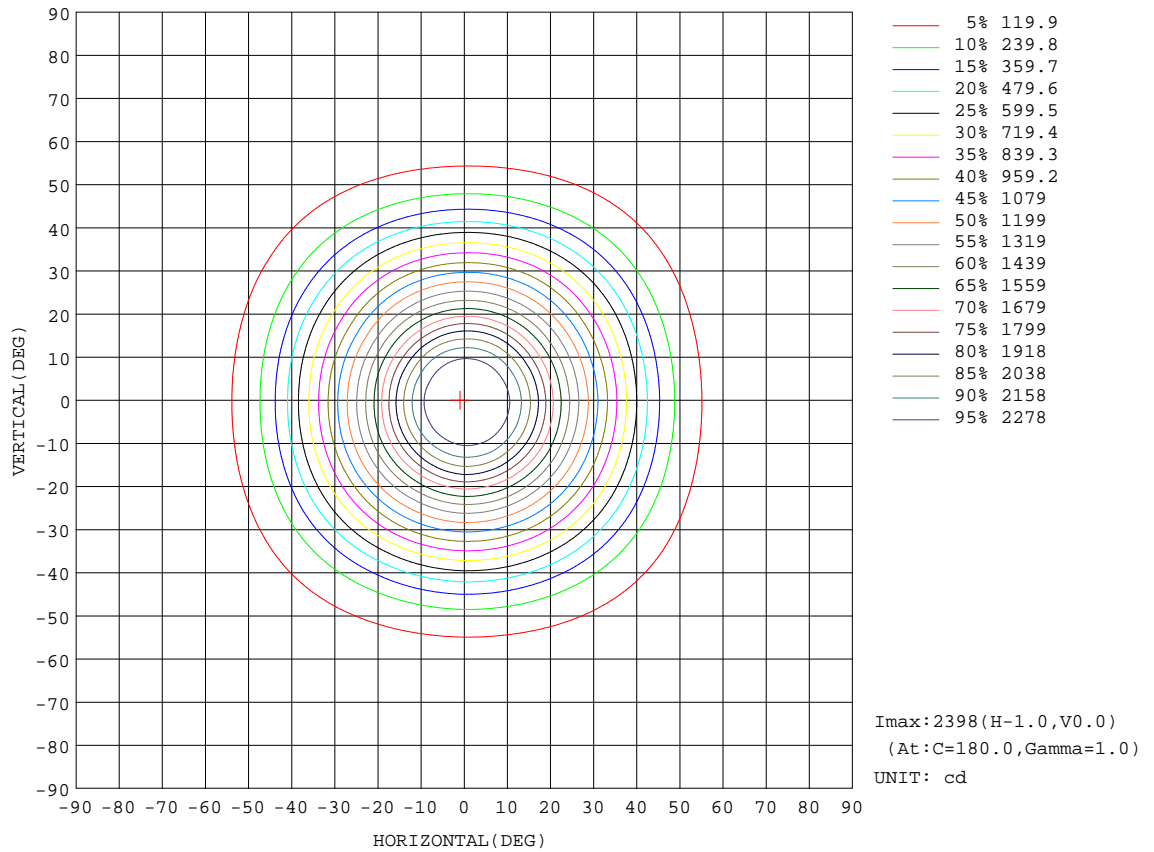
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	79	72	67	79	71	67	78	71	67	62
0.80	88	80	76	87	80	76	86	79	75	71
1.00	94	87	82	93	86	82	91	86	81	77
1.25	99	92	88	97	92	87	95	90	87	82
1.50	102	96	92	101	95	91	98	94	90	85
2.00	106	101	97	104	99	96	101	97	94	89
2.50	108	103	100	106	102	99	103	99	97	90
3.00	110	106	102	108	104	101	104	101	99	92
4.00	112	109	106	110	107	105	106	104	102	94
5.00	114	111	108	111	109	107	107	105	104	96
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:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION ANGLE:

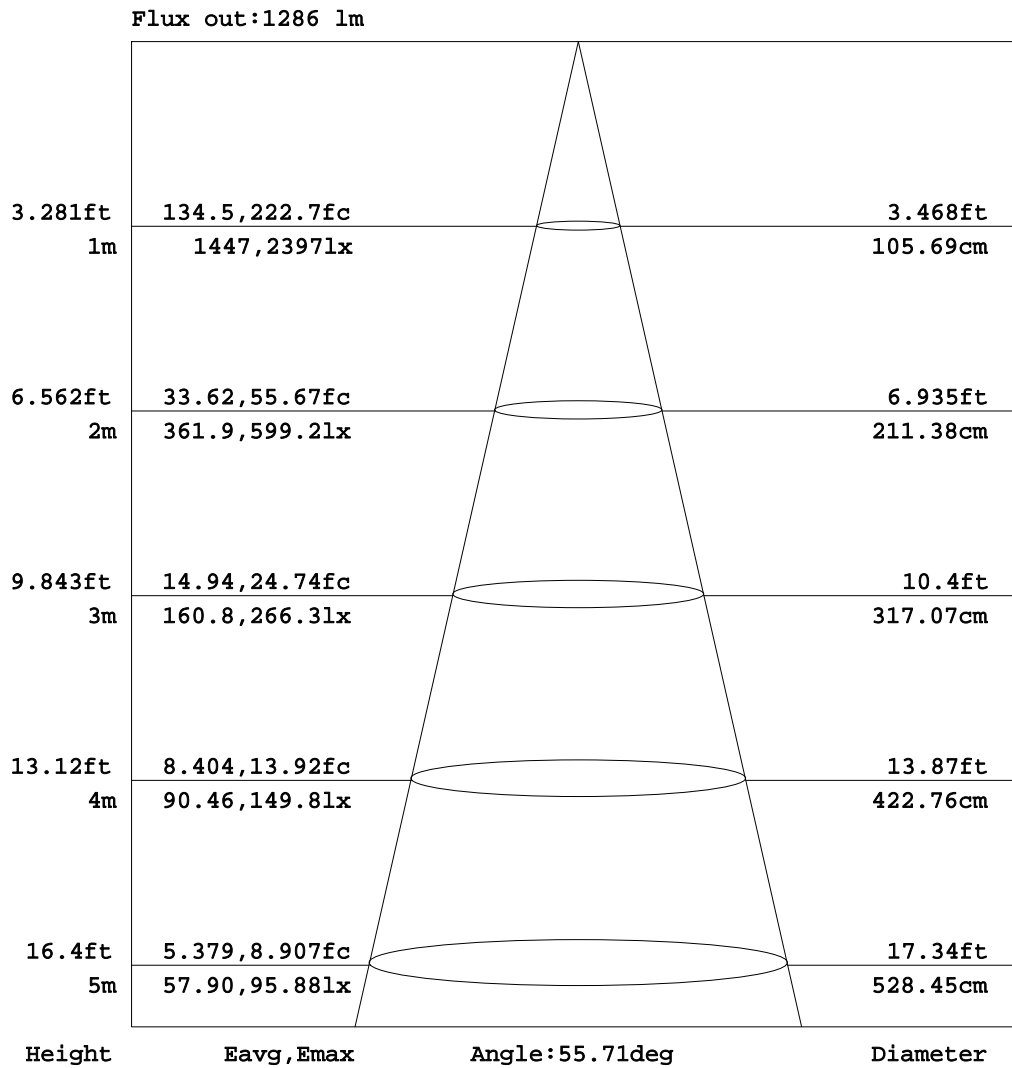


C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2018-10-15

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
Humidity:65.0%
Test Distance:9.600m [K=1.0000]
Remarks:

AAI Figure

Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION ANGLE:



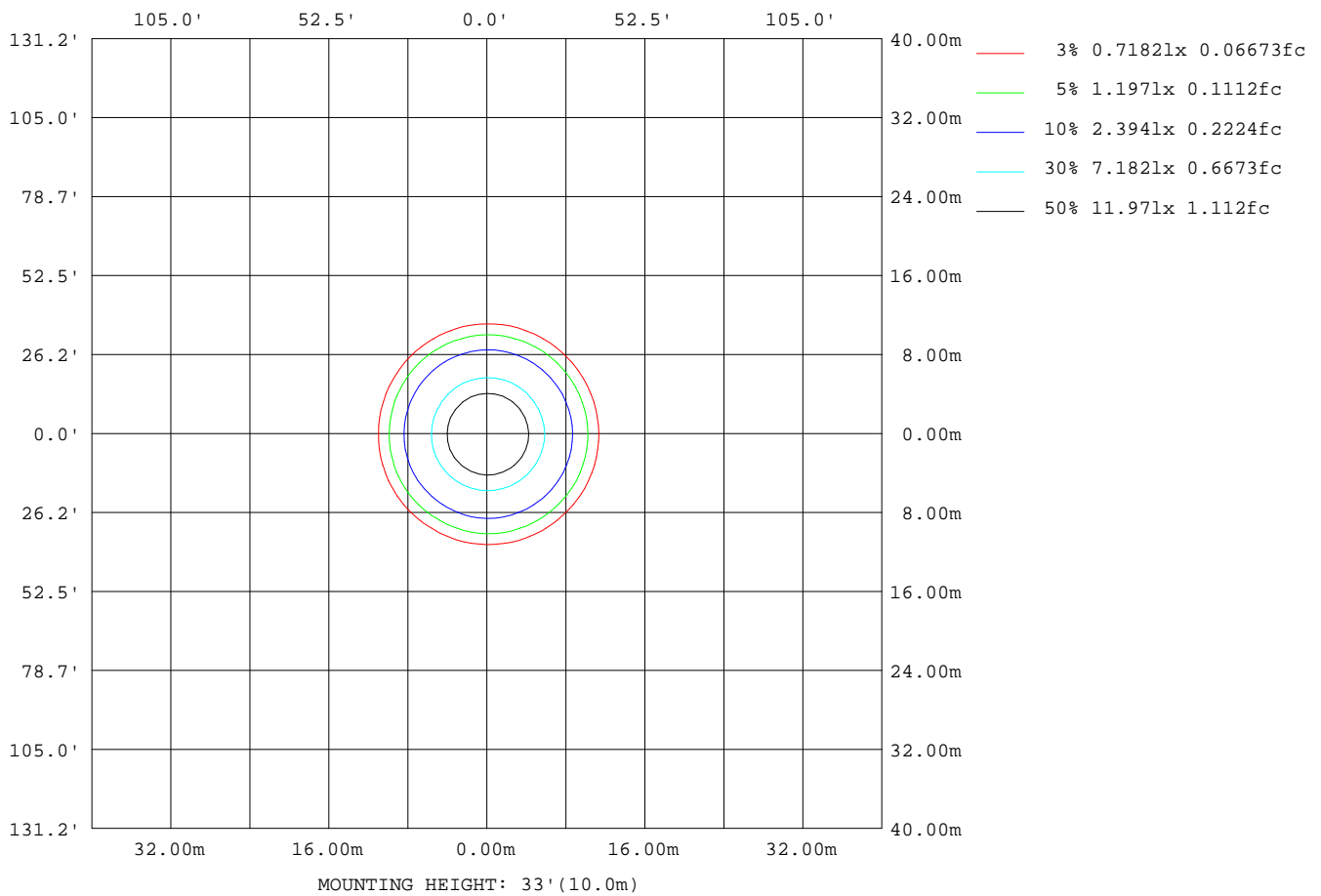
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

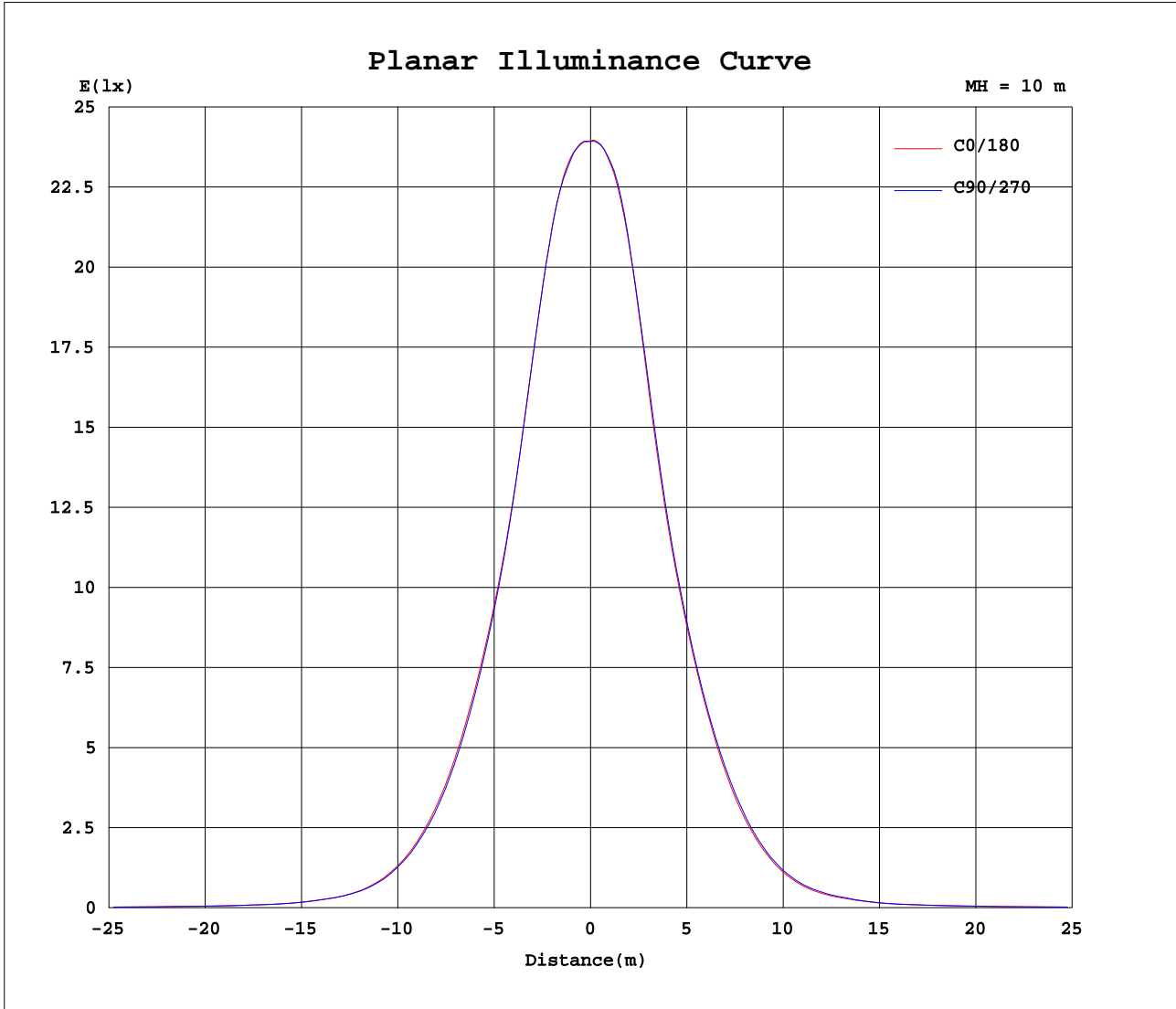
Test:U:240.1V I:0.0930A P:20.10W PF:0.8970 Lamp Flux:2377.95x1 lm		
NAME: CD20W-NW-W	TYPE:20W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.04	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.600m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2018-10-15

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity: 65.0%
 Test Distance: 9.600m [K=1.0000]
 Remarks:

