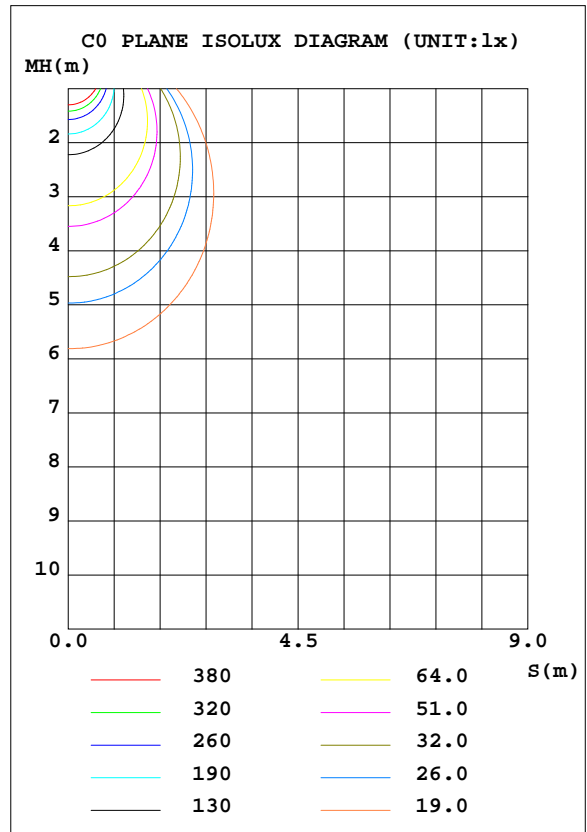
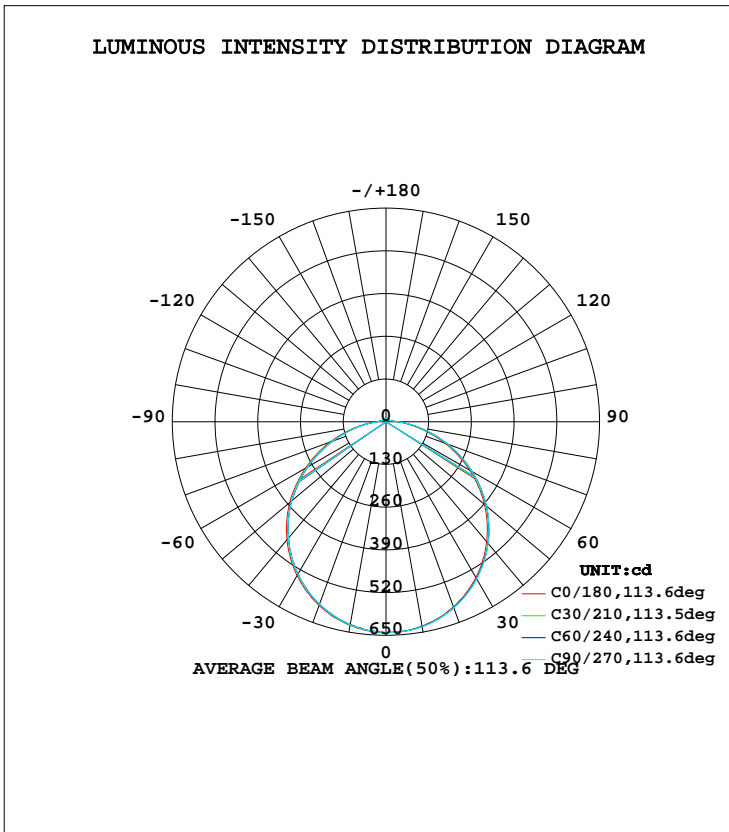


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 115.02 lm/W			
MODEL	136-040_4000K	Imax(cd)	642.0	S/MH(C0/180)	1.27
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	1.28
RATED VOLTAGE(V)	240	TOTAL FLUX(lm)	1978.4	η UP, DN(C0-180)	2.1, 49.1
NOMINAL FLUX(lm)	1978.4	CIE CLASS	DIRECT	η UP, DN(C180-360)	2.0, 46.7
LAMPS INSIDE	1	η up(%)	4.2	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	240.0	η down(%)	95.8	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	ℓlum,lamp
10	631.8	632.8	633.9	631.8	629.3	627.3	627.0	629.3	0- 10	60.69	60.69	3.07,3.07
20	599.5	602.2	602.8	599.3	595.2	591.6	591.1	594.7	10- 20	173.9	234.6	11.9,11.9
30	547.1	551.5	551.8	547.8	541.2	535.7	535.2	540.5	20- 30	264.0	498.6	25.2,25.2
40	476.9	482.1	483.6	477.5	468.9	462.8	461.5	468.3	30- 40	319.2	817.9	41.3,41.3
50	391.2	398.0	399.8	392.3	382.4	375.0	374.1	381.3	40- 50	332.6	1151	58.2,58.2
60	293.8	301.0	302.2	294.7	283.3	275.8	275.2	282.4	50- 60	302.5	1453	73.4,73.4
70	190.5	198.9	200.5	192.7	180.9	173.5	172.6	179.2	60- 70	234.9	1688	85.3,85.3
80	94.65	102.5	104.1	97.49	87.78	81.91	81.63	85.83	70- 80	144.8	1833	92.6,92.6
90	32.92	36.35	36.99	33.31	30.14	28.73	28.00	30.78	80- 90	63.23	1896	95.8,95.8
100	17.17	17.94	18.34	17.06	16.41	16.13	16.30	16.81	90-100	24.96	1921	97.1,97.1
110	12.76	13.08	13.16	12.68	12.59	12.54	12.68	12.82	100-110	15.43	1936	97.9,97.9
120	10.80	10.93	10.96	10.65	10.78	10.81	10.91	10.98	110-120	11.64	1948	98.5,98.5
130	9.654	9.793	9.845	9.490	9.814	9.925	9.984	10.03	120-130	9.221	1957	98.9,98.9
140	9.174	9.246	9.301	9.151	9.395	9.429	9.529	9.540	130-140	7.397	1965	99.3,99.3
150	9.180	9.130	9.152	9.085	9.288	9.330	9.271	9.420	140-150	5.818	1970	99.6,99.6
160	9.359	9.288	9.272	9.283	9.437	9.438	9.468	9.528	150-160	4.297	1975	99.8,99.8
170	9.844	9.791	9.810	9.819	9.868	9.859	9.863	9.885	160-170	2.711	1977	100,100
180	10.17	10.15	10.16	10.16	10.17	10.15	10.15	10.16	170-180	0.9537	1978	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

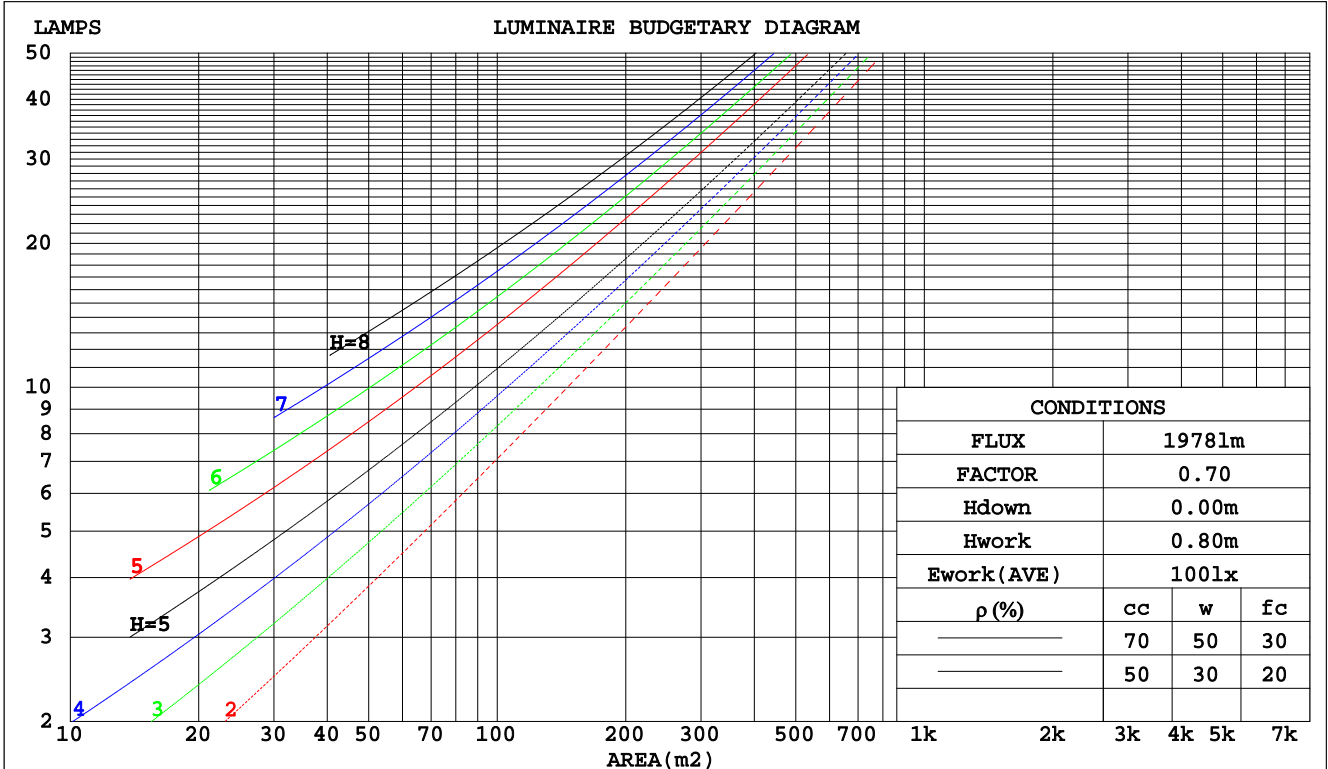
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																0
pfc	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	1.09	1.09	1.09	1.03	1.03	1.03	.98	.98	.98	.96
1.0	1.02	.98	.93	.99	.95	.92	.94	.91	.88	.90	.87	.84	.85	.83	.81	.79
2.0	.89	.82	.76	.86	.80	.74	.82	.77	.72	.78	.74	.70	.75	.71	.68	.65
3.0	.78	.69	.63	.76	.68	.62	.72	.66	.60	.69	.63	.59	.66	.61	.57	.55
4.0	.69	.60	.53	.67	.59	.52	.64	.57	.51	.61	.55	.50	.58	.53	.49	.46
5.0	.61	.52	.45	.60	.51	.45	.57	.50	.44	.55	.48	.43	.53	.47	.42	.40
6.0	.55	.46	.40	.54	.45	.39	.52	.44	.38	.50	.43	.38	.48	.42	.37	.35
7.0	.50	.41	.35	.49	.40	.35	.47	.39	.34	.45	.38	.33	.43	.37	.33	.31
8.0	.45	.37	.31	.45	.36	.31	.43	.36	.30	.41	.35	.30	.40	.34	.29	.27
9.0	.42	.33	.28	.41	.33	.28	.39	.32	.27	.38	.32	.27	.37	.31	.27	.25
10.0	.38	.30	.25	.38	.30	.25	.36	.30	.25	.35	.29	.24	.34	.28	.24	.22



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity: 65.0%
 Test Distance: 9.443m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	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	.325	.185	.059	.317	.181	.057	.301	.173	.055	.287	.165	.053	.274	.159	.051	
2.0	.300	.164	.050	.292	.161	.050	.278	.155	.048	.265	.149	.047	.253	.143	.045	
3.0	.275	.146	.044	.268	.144	.043	.256	.139	.042	.244	.134	.041	.233	.129	.040	
4.0	.252	.131	.039	.246	.129	.038	.235	.125	.037	.225	.121	.036	.215	.117	.036	
5.0	.232	.118	.034	.227	.117	.034	.217	.113	.033	.208	.110	.033	.199	.106	.032	
6.0	.215	.108	.031	.210	.106	.031	.201	.103	.030	.193	.100	.029	.185	.097	.029	
7.0	.200	.099	.028	.195	.097	.028	.187	.095	.027	.180	.092	.027	.173	.090	.026	
8.0	.186	.091	.026	.182	.090	.025	.175	.087	.025	.168	.085	.025	.162	.083	.024	
9.0	.174	.084	.024	.171	.083	.023	.164	.081	.023	.158	.079	.023	.152	.077	.022	
10.0	.164	.079	.022	.161	.078	.022	.155	.076	.021	.149	.074	.021	.144	.072	.021	

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	.222	.222	.222	.190	.190	.190	.130	.130	.130	.074	.074	.074	.024	.024	.024	
1.0	.213	.188	.165	.183	.161	.142	.125	.111	.098	.072	.064	.057	.023	.021	.018	
2.0	.206	.164	.129	.176	.141	.112	.121	.098	.078	.070	.057	.046	.022	.018	.015	
3.0	.198	.147	.106	.170	.127	.092	.116	.088	.064	.067	.051	.038	.022	.017	.012	
4.0	.190	.134	.090	.163	.115	.079	.112	.080	.055	.065	.047	.033	.021	.015	.011	
5.0	.183	.123	.080	.157	.107	.069	.108	.075	.049	.063	.044	.029	.020	.014	.010	
6.0	.175	.115	.072	.151	.100	.062	.104	.070	.044	.060	.041	.026	.019	.013	.009	
7.0	.169	.108	.066	.145	.094	.057	.100	.066	.041	.058	.039	.024	.019	.013	.008	
8.0	.162	.102	.062	.140	.089	.054	.097	.062	.038	.056	.037	.023	.018	.012	.008	
9.0	.156	.098	.058	.134	.085	.051	.093	.060	.036	.054	.035	.021	.018	.012	.007	
10.0	.150	.093	.055	.130	.081	.048	.090	.057	.034	.052	.034	.020	.017	.011	.007	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

Uncorrected UGR Table

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm										
NAME: 136-040_4000K					TYPE:18W			WEIGHT:		
DIM.:					SPEC.:4000K			SERIAL No.:1		
MFR.:					SUR.:0.15			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	20.2	21.7	20.5	22.0	22.2	20.3	21.8	20.6	22.1	22.3
3H	21.8	23.2	22.2	23.5	23.8	22.0	23.3	22.3	23.6	24.0
4H	22.5	23.8	22.9	24.1	24.5	22.7	24.0	23.1	24.3	24.7
6H	23.1	24.3	23.5	24.6	25.0	23.3	24.6	23.7	24.9	25.3
8H	23.3	24.5	23.7	24.9	25.2	23.6	24.8	24.0	25.1	25.5
12H	23.5	24.7	23.9	25.0	25.4	23.9	25.0	24.3	25.4	25.8
4H 2H	20.8	22.1	21.2	22.5	22.8	20.9	22.2	21.3	22.6	22.9
3H	22.7	23.8	23.1	24.2	24.6	22.8	23.9	23.2	24.3	24.7
4H	23.5	24.5	23.9	24.9	25.4	23.7	24.7	24.1	25.1	25.5
6H	24.2	25.1	24.7	25.6	26.0	24.4	25.4	24.9	25.8	26.3
8H	24.5	25.4	25.0	25.8	26.3	24.8	25.7	25.3	26.1	26.6
12H	24.8	25.6	25.3	26.1	26.6	25.1	25.9	25.6	26.4	26.9
8H 4H	23.8	24.7	24.3	25.1	25.6	24.0	24.8	24.5	25.3	25.8
6H	24.8	25.5	25.3	26.0	26.5	25.0	25.7	25.5	26.2	26.7
8H	25.2	25.8	25.7	26.3	26.9	25.4	26.1	26.0	26.6	27.1
12H	25.7	26.2	26.2	26.7	27.3	25.9	26.5	26.5	27.0	27.6
12H 4H	23.9	24.7	24.4	25.1	25.6	24.0	24.8	24.5	25.3	25.8
6H	24.9	25.5	25.4	26.0	26.6	25.1	25.7	25.6	26.2	26.7
8H	25.4	25.9	25.9	26.5	27.0	25.6	26.2	26.2	26.7	27.3
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	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117 Corrected 1978 lm Total Lamp Luminous Flux.(8log(F/F0) = 2.4)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:

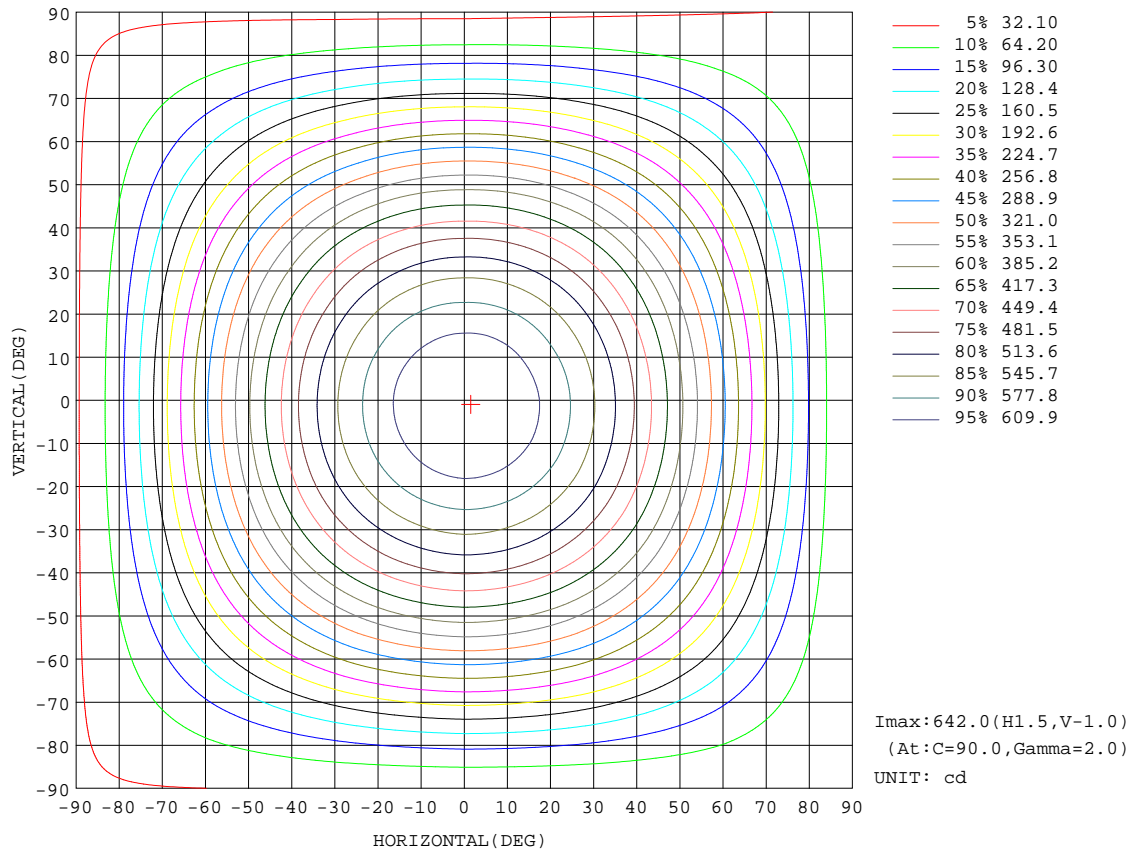
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	55	44	37	55	43	37	53	43	36	30
0.80	65	53	46	64	53	46	62	52	45	38
1.00	74	62	55	72	61	54	70	63	54	46
1.25	81	70	62	79	69	62	76	67	61	53
1.50	86	75	68	84	74	67	80	72	66	58
2.00	93	84	77	90	82	76	86	79	74	65
2.50	97	88	82	94	87	81	90	84	79	69
3.00	100	93	87	98	91	85	93	87	83	73
4.00	104	98	93	101	96	91	97	92	88	78
5.00	107	101	97	104	99	95	99	95	92	81
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:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:

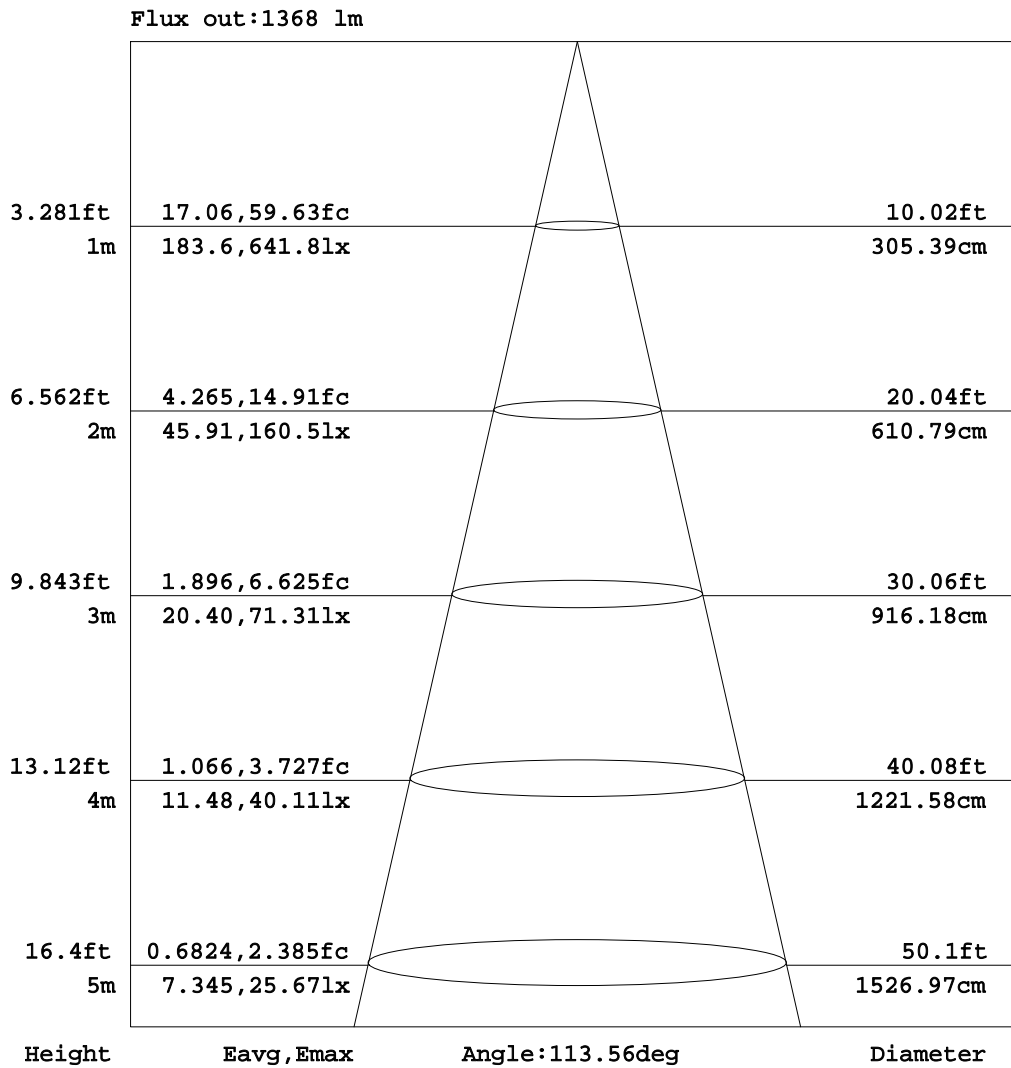


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

AAI Figure

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:



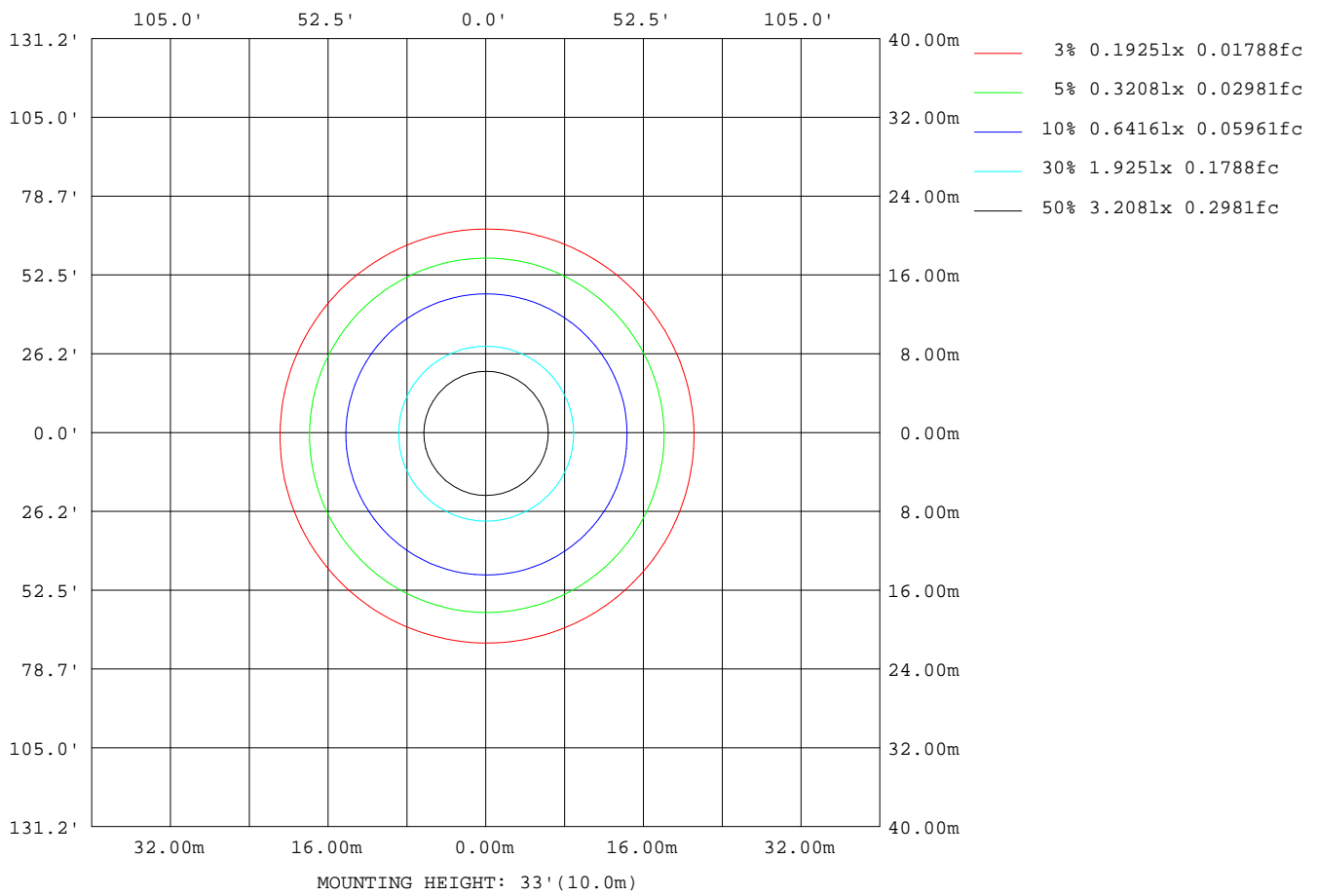
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

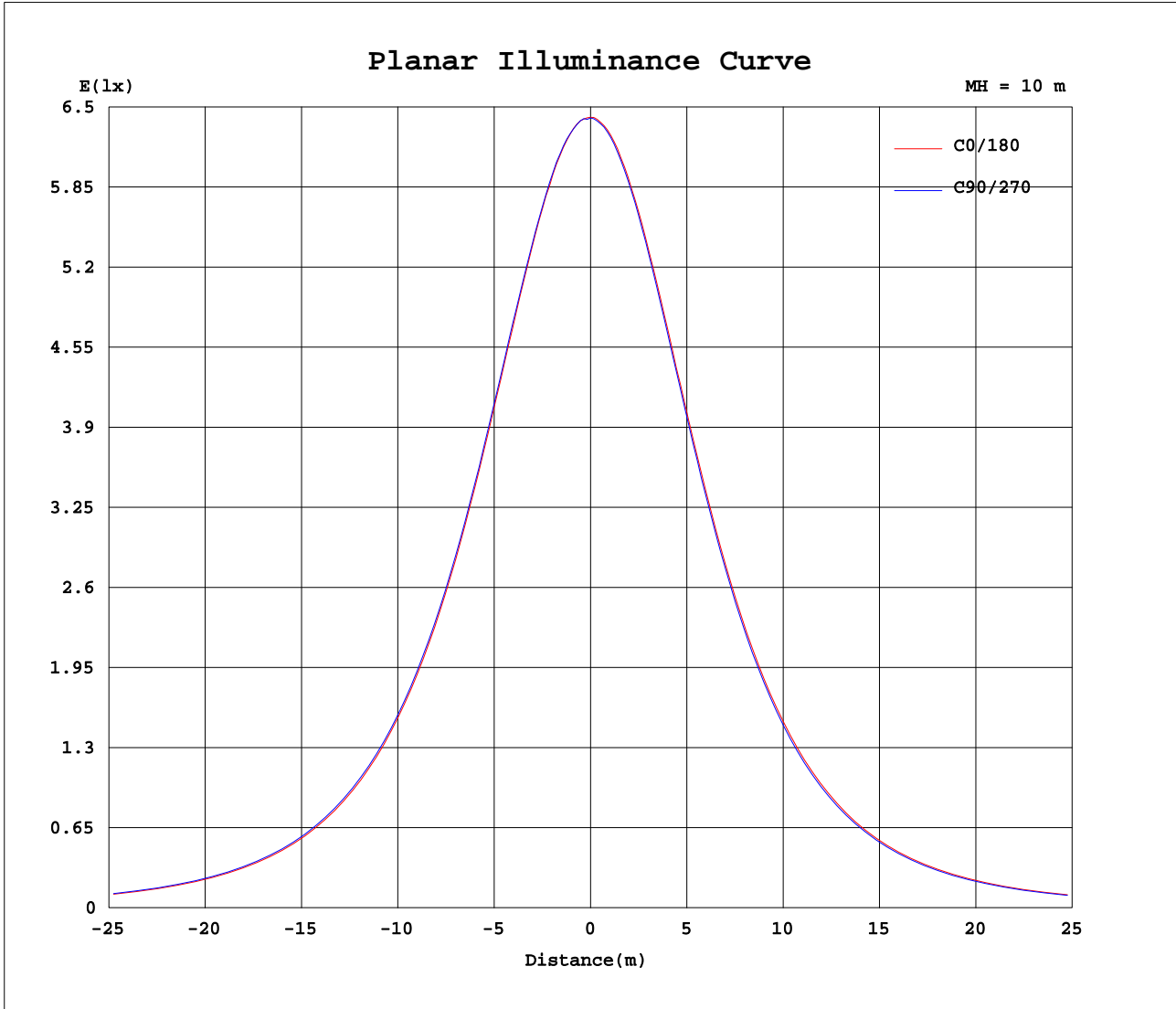
Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [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: 2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity: 65.0%
 Test Distance: 9.443m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:240.0V I:0.0750A P:17.20W PF:0.9520 Lamp Flux:1978.4x1 lm		
NAME: 136-040_4000K	TYPE:18W	WEIGHT:
DIM.:	SPEC.:4000K	SERIAL No.:1
MFR.:	SUR.:0.15	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	641	641	641	641	641	641	641	641	641	641	641	641							
5	640	640	639	640	640	639	638	637	637	637	638	639							
10	632	632	633	634	633	631	629	628	627	627	628	630							
15	618	620	621	621	618	617	615	612	611	612	614	616							
20	600	602	603	603	601	598	595	592	591	591	593	596							
25	575	579	580	580	577	575	571	567	566	566	568	572							
30	547	551	552	552	549	546	541	536	535	535	538	543							
35	514	518	519	520	516	513	507	502	501	501	504	509							
40	477	481	483	484	480	475	469	464	462	462	466	470							
45	436	441	443	443	439	434	428	422	419	420	424	429							
50	391	397	399	400	395	389	382	376	374	374	378	384							
55	343	349	352	352	348	341	333	328	324	326	329	336							
60	294	299	303	302	298	291	283	278	274	275	279	286							
65	242	248	252	252	247	240	232	226	223	224	227	234							
70	190	197	201	201	196	189	181	175	172	173	176	183							
75	140	147	150	151	145	140	132	126	124	123	127	132							
80	94.6	101	104	104	99.9	95.1	87.8	82.5	81.3	81.6	83.6	88.0							
85	57.9	63.8	64.6	65.0	62.5	58.8	53.1	48.6	47.9	48.0	49.9	52.5							
90	32.9	36.0	36.7	37.0	34.5	32.1	30.1	29.2	28.2	28.0	29.9	31.6							
95	22.7	23.3	24.5	24.9	23.0	21.4	20.7	20.3	20.0	20.2	21.1	22.4							
100	17.2	17.8	18.1	18.3	17.4	16.7	16.4	16.1	16.1	16.3	16.7	16.9							
105	14.5	14.8	15.0	15.0	14.6	14.1	14.1	13.9	14.0	14.1	14.3	14.4							
110	12.8	13.0	13.1	13.2	12.8	12.5	12.6	12.5	12.6	12.7	12.8	12.9							
115	11.6	11.8	11.9	11.9	11.6	11.4	11.6	11.5	11.6	11.6	11.7	11.8							
120	10.8	10.9	11.0	11.0	10.7	10.6	10.8	10.8	10.8	10.9	11.0	11.0							
125	10.2	10.3	10.2	10.3	10.1	9.99	9.86	10.3	10.3	10.4	10.4	10.5							
130	9.65	9.81	9.78	9.84	9.58	9.40	9.81	9.93	9.92	9.98	10.0	10.0							
135	9.39	9.42	9.45	9.52	9.36	9.11	9.56	9.66	9.65	9.70	9.76	9.76							
140	9.17	9.24	9.25	9.30	9.20	9.10	9.40	9.48	9.37	9.53	9.50	9.58							
145	9.17	9.15	9.15	9.18	9.12	9.06	9.33	9.40	9.26	9.36	9.35	9.48							
150	9.18	9.15	9.11	9.15	9.11	9.06	9.29	9.35	9.31	9.27	9.40	9.44							
155	9.23	9.18	9.16	9.16	9.18	9.14	9.33	9.36	9.33	9.37	9.42	9.44							
160	9.36	9.32	9.26	9.27	9.29	9.27	9.44	9.45	9.43	9.47	9.51	9.54							
165	9.56	9.50	9.45	9.49	9.51	9.51	9.62	9.63	9.61	9.64	9.66	9.69							
170	9.84	9.80	9.78	9.81	9.81	9.83	9.87	9.86	9.86	9.86	9.88	9.89							
175	10.1	10.1	10.0	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.1							
180	10.2	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.1	10.1	10.2	10.2							

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-07-20

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.276
 Humidity:65.0%
 Test Distance:9.443m [K=1.0000]
 Remarks: