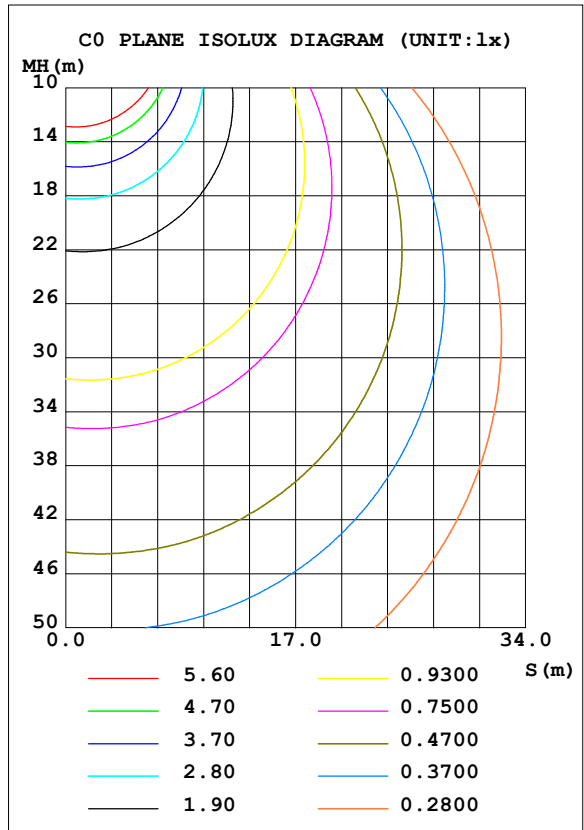
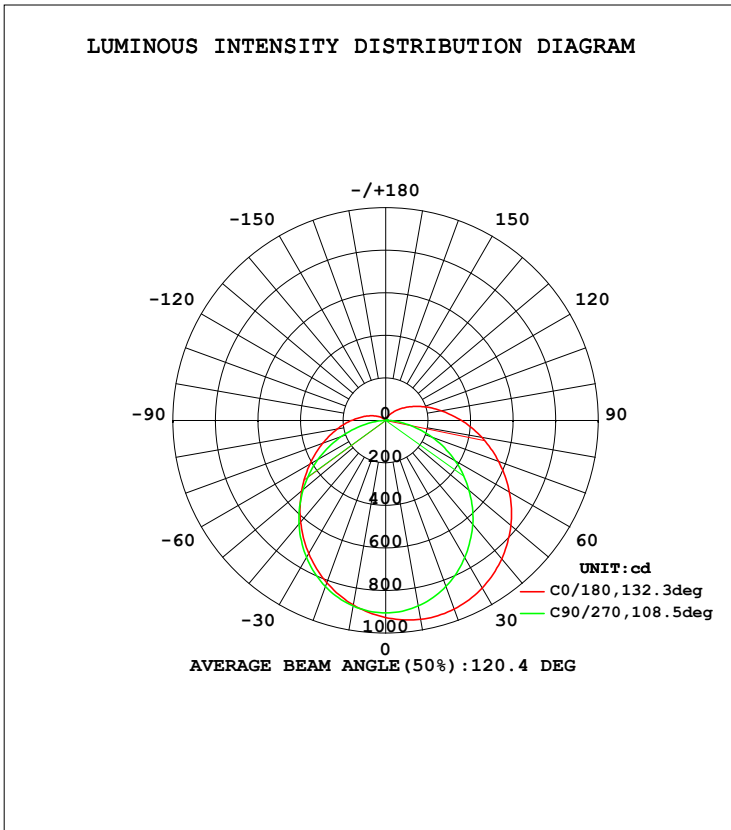


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.4V I:0.1314A P:29.42W PF:0.9717 Lamp Flux:3344.52x1 lm		
NAME: T82A15-30W	TYPE:LED 2835	WEIGHT:
SPEC.:LED TUBE T8	DIM.: 1498*26MM	SERIAL No.:1
MFR.: Integratech	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 113.68 lm/W			
MODEL		I _{max} (cd)	950.8	S/MH (C0/180)	1.17
NOMINAL POWER (W)	30	LOR (%)	100.0	S/MH (C90/270)	1.23
RATED VOLTAGE (V)	230.0	TOTAL FLUX (lm)	3344.5	η UP, DN (C0-180)	5.4, 46.7
NOMINAL FLUX (lm)	3344.52	CIE CLASS	DIRECT	η UP, DN (C180-360)	4.2, 43.7
LAMPS INSIDE	1	η up (%)	9.6	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	90.4	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.550m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

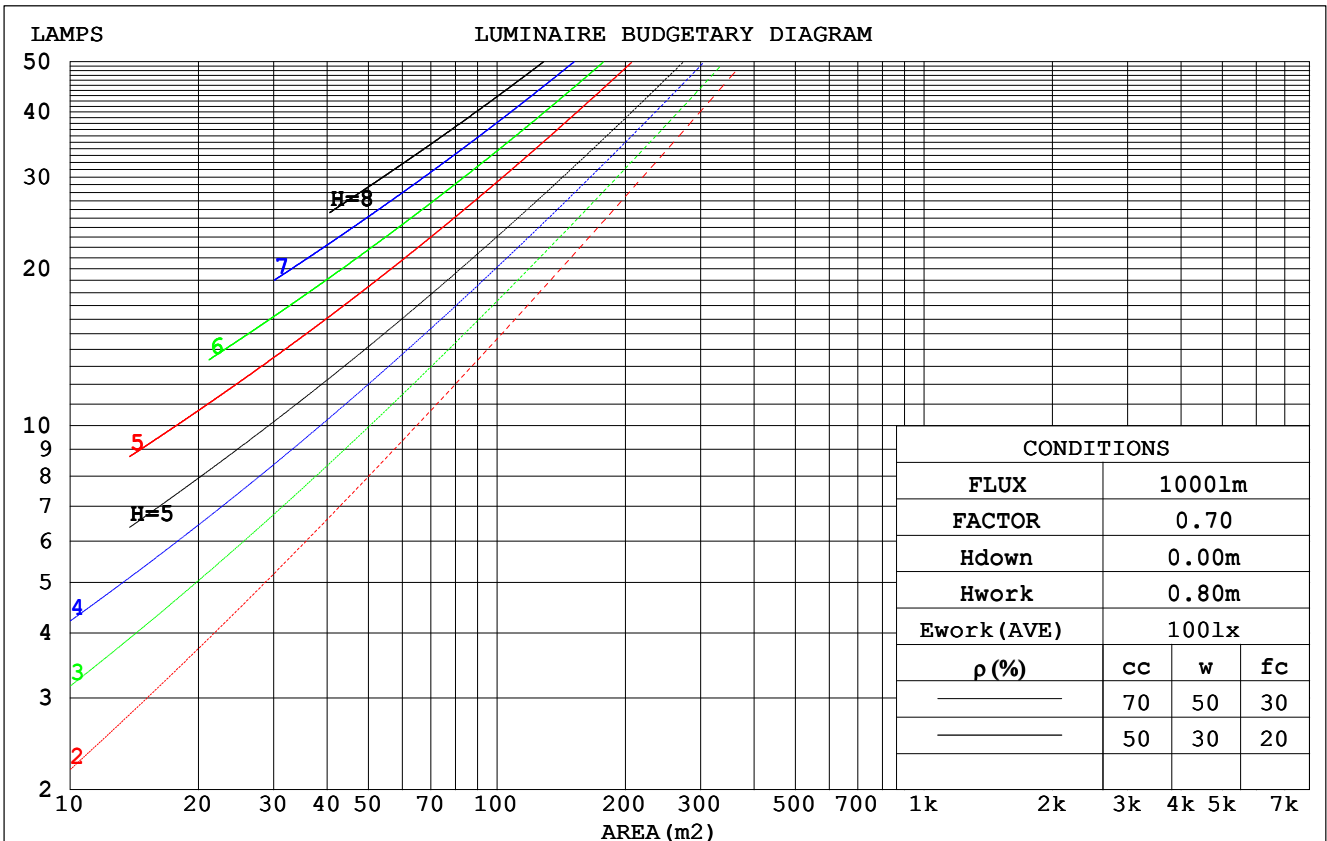
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	949.4	919.9	885.2	863.9	880.7	872.1	885.4	913.2	0- 10	86.31	86.31	2.58,2.58
20	942.8	896.3	830.2	795.4	811.9	803.1	830.8	890.2	10- 20	247.5	333.8	9.98,9.98
30	909.0	841.9	744.0	704.1	723.6	710.8	744.7	836.7	20- 30	376.4	710.2	21.2,21.2
40	849.3	762.5	637.1	596.3	622.7	602.2	634.7	758.0	30- 40	458.2	1168	34.9,34.9
50	768.2	663.7	511.7	481.2	517.1	485.4	507.6	659.3	40- 50	486.3	1655	49.5,49.5
60	671.8	555.2	376.2	368.2	412.3	368.9	368.6	547.9	50- 60	462.4	2117	63.3,63.3
70	565.8	442.0	233.8	263.0	315.5	261.8	223.6	434.6	60- 70	396.3	2513	75.2,75.2
80	458.6	330.4	96.71	173.4	231.3	171.3	85.45	323.6	70- 80	303.3	2817	84.2,84.2
90	356.8	232.7	7.959	104.4	161.9	102.1	4.214	218.0	80- 90	205.9	3023	90.4,90.4
100	266.2	155.3	9.054	58.93	107.4	56.80	2.971	155.3	90-100	136.3	3159	94.4,94.4
110	191.2	90.74	6.123	31.04	66.58	29.23	2.438	92.81	100-110	85.91	3245	97,97
120	129.8	46.49	4.846	15.80	37.59	14.19	2.390	49.10	110-120	49.71	3295	98.5,98.5
130	82.78	26.81	4.250	8.722	18.40	7.183	2.463	28.53	120-130	26.73	3321	99.3,99.3
140	48.76	15.44	4.016	5.405	8.104	4.189	2.697	16.53	130-140	12.78	3334	99.7,99.7
150	25.89	9.313	3.974	3.758	4.139	2.846	2.922	9.872	140-150	6.161	3340	99.9,99.9
160	11.72	6.181	3.532	3.665	2.621	2.713	3.123	6.618	150-160	2.819	3343	100,100
170	4.015	4.285	3.459	3.540	2.605	2.772	3.323	4.741	160-170	1.198	3344	100,100
180	2.789	3.122	3.448	3.732	2.772	3.131	3.448	3.682	170-180	0.3393	3345	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.550m [K=1.0000]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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						Coefficients of Utilization(CU)									
0.0	1.17	1.17	1.17	1.13	1.13	1.13	1.06	1.06	1.06	.99	.99	.99	.93	.93	.93	.90
1.0	.99	.93	.89	.95	.91	.87	.89	.85	.82	.84	.81	.78	.78	.76	.74	.71
2.0	.85	.77	.71	.82	.75	.69	.77	.71	.66	.72	.67	.63	.68	.64	.60	.57
3.0	.74	.65	.58	.71	.63	.57	.67	.60	.55	.63	.57	.52	.59	.54	.50	.48
4.0	.65	.56	.49	.63	.54	.48	.59	.52	.46	.56	.49	.44	.52	.47	.43	.40
5.0	.58	.48	.42	.56	.47	.41	.53	.45	.39	.50	.43	.38	.47	.41	.37	.34
6.0	.52	.43	.36	.50	.42	.35	.48	.40	.34	.45	.38	.33	.43	.37	.32	.30
7.0	.47	.38	.32	.46	.37	.31	.43	.36	.30	.41	.34	.29	.39	.33	.29	.26
8.0	.43	.34	.28	.42	.33	.28	.40	.32	.27	.38	.31	.26	.36	.30	.25	.23
9.0	.39	.31	.25	.38	.30	.25	.36	.29	.24	.35	.28	.24	.33	.27	.23	.21
10.0	.36	.28	.23	.35	.28	.22	.34	.27	.22	.32	.26	.21	.31	.25	.21	.19



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.550m [K=1.0000]
 Remarks:

WEC AND CCEC

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	.367	.209	.066	.357	.204	.065	.338	.194	.062	.320	.185	.059	.304	.176	.057	
2.0	.324	.177	.054	.315	.173	.053	.298	.165	.051	.282	.158	.049	.267	.151	.048	
3.0	.290	.155	.046	.282	.151	.045	.267	.145	.044	.253	.138	.042	.240	.133	.041	
4.0	.263	.137	.040	.256	.134	.040	.242	.128	.038	.229	.123	.037	.217	.118	.036	
5.0	.240	.122	.035	.233	.120	.035	.221	.115	.034	.209	.111	.033	.199	.106	.032	
6.0	.221	.111	.032	.215	.108	.031	.203	.104	.030	.193	.100	.029	.183	.096	.029	
7.0	.204	.101	.029	.199	.099	.028	.188	.095	.027	.179	.092	.027	.170	.088	.026	
8.0	.189	.093	.026	.185	.091	.026	.175	.088	.025	.167	.084	.024	.158	.081	.024	
9.0	.177	.086	.024	.172	.084	.024	.164	.081	.023	.156	.078	.022	.148	.075	.022	
10.0	.166	.079	.022	.162	.078	.022	.154	.075	.021	.146	.073	.021	.140	.070	.020	

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	.264	.264	.264	.225	.225	.225	.154	.154	.154	.088	.088	.088	.028	.028	.028	
1.0	.258	.230	.204	.221	.197	.175	.151	.136	.121	.087	.078	.071	.028	.025	.023	
2.0	.251	.206	.169	.215	.177	.146	.147	.123	.102	.085	.071	.060	.027	.023	.019	
3.0	.243	.189	.146	.209	.163	.127	.143	.113	.089	.083	.066	.052	.027	.022	.017	
4.0	.235	.176	.131	.202	.152	.114	.139	.106	.080	.080	.062	.048	.026	.020	.016	
5.0	.228	.166	.121	.196	.144	.105	.135	.101	.074	.078	.059	.044	.025	.019	.015	
6.0	.220	.158	.114	.189	.137	.099	.131	.096	.070	.076	.056	.042	.024	.018	.014	
7.0	.213	.152	.108	.183	.131	.094	.127	.092	.067	.074	.054	.040	.024	.018	.013	
8.0	.207	.146	.104	.178	.127	.091	.123	.089	.064	.072	.052	.038	.023	.017	.013	
9.0	.200	.141	.101	.172	.122	.088	.120	.086	.063	.070	.051	.037	.023	.017	.012	
10.0	.194	.137	.098	.168	.119	.086	.116	.084	.061	.068	.049	.036	.022	.016	.012	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.550m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

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	14.0	15.4	14.4	15.8	16.2	11.7	13.2	12.1	13.6	14.0
3H	16.5	17.9	17.0	18.3	18.7	13.3	14.6	13.7	15.0	15.5
4H	17.9	19.2	18.4	19.6	20.1	13.9	15.2	14.3	15.6	16.1
6H	19.4	20.6	19.9	21.1	21.6	14.3	15.6	14.8	16.0	16.5
8H	20.2	21.4	20.7	21.9	22.4	14.5	15.7	15.0	16.1	16.6
12H	21.2	22.3	21.7	22.8	23.3	14.6	15.7	15.1	16.2	16.7
4H 2H	14.5	15.8	15.0	16.3	16.7	12.9	14.2	13.4	14.6	15.1
3H	17.3	18.5	17.8	18.9	19.5	14.7	15.9	15.2	16.3	16.8
4H	18.9	20.0	19.4	20.5	21.0	15.5	16.6	16.0	17.1	17.6
6H	20.6	21.6	21.2	22.1	22.7	16.2	17.1	16.7	17.6	18.2
8H	21.6	22.5	22.2	23.0	23.6	16.4	17.3	17.0	17.8	18.4
12H	22.7	23.5	23.3	24.0	24.7	16.6	17.4	17.2	17.9	18.5
8H 4H	19.3	20.1	19.8	20.7	21.3	16.6	17.4	17.1	18.0	18.6
6H	21.3	22.0	21.9	22.6	23.2	17.6	18.3	18.2	18.9	19.5
8H	22.5	23.1	23.1	23.7	24.4	18.0	18.7	18.6	19.3	19.9
12H	23.8	24.4	24.4	25.0	25.7	18.4	18.9	19.0	19.5	20.2
12H 4H	19.3	20.1	19.9	20.6	21.3	16.9	17.7	17.4	18.2	18.8
6H	21.4	22.1	22.0	22.6	23.3	18.1	18.8	18.7	19.3	20.0
8H	22.7	23.2	23.3	23.9	24.5	18.7	19.3	19.3	19.9	20.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.5				

CIE Pub.117 Corrected 3345 lm Total Lamp Luminous Flux. (8log(F/F0) = 4.2)

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.550m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

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) $k(RI) \times RCR = 5$									
$k = 0.60$	52	39	32	51	39	32	49	38	32	25
0.80	61	48	41	60	48	40	58	47	40	32
1.00	69	57	49	67	56	48	65	57	47	39
1.25	76	64	56	74	63	55	71	61	54	46
1.50	81	69	61	79	68	61	75	66	59	50
2.00	88	78	70	86	76	69	81	73	67	57
2.50	92	83	75	90	81	74	84	77	72	61
3.00	96	87	80	93	85	79	88	81	76	65
4.00	100	93	87	97	91	85	91	86	82	70
5.00	103	97	92	100	94	89	94	89	85	73
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:
 Test Date: 2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.550m [K=1.0000]
 Remarks:

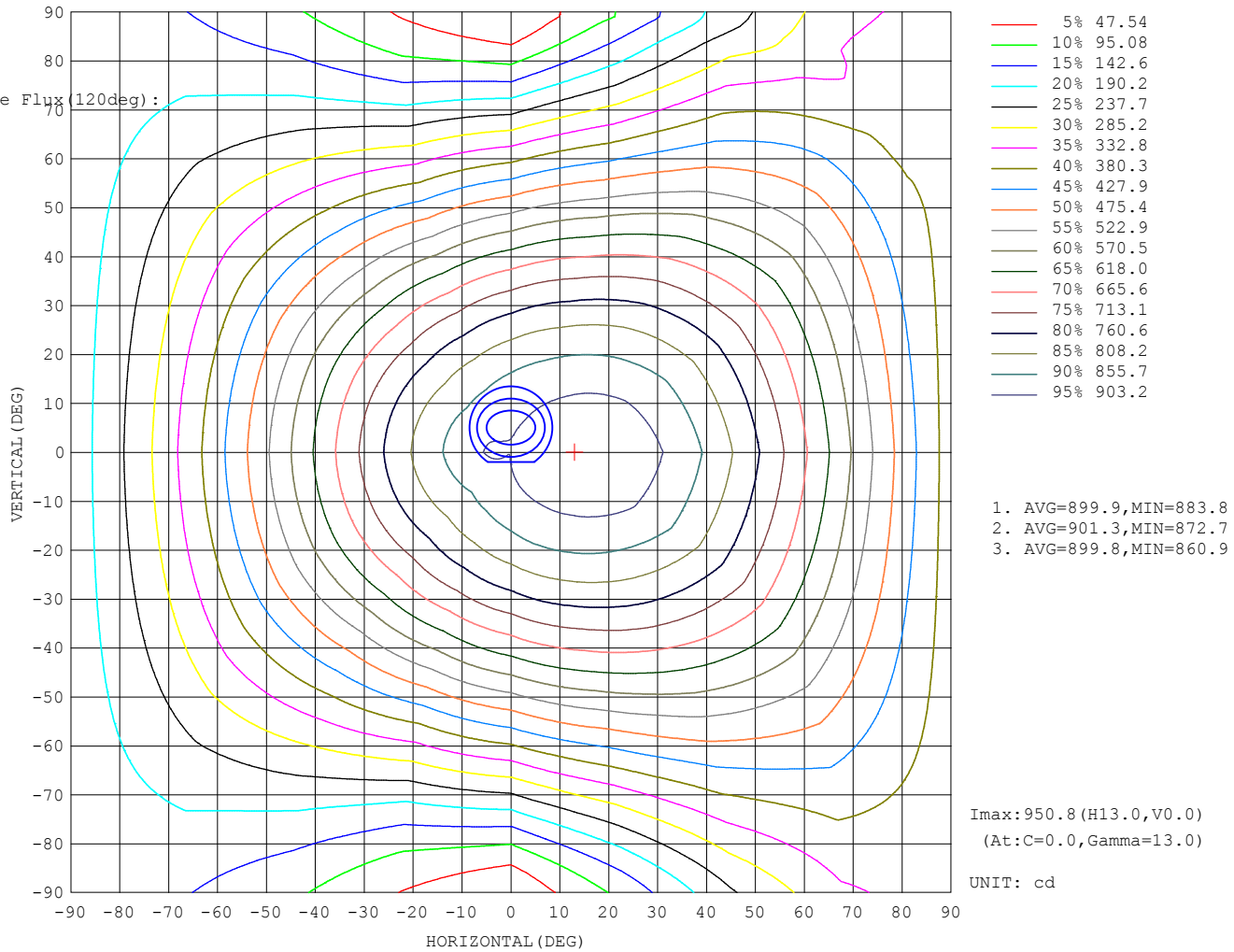
ISOCANDELA DIAGRAM

Conical surface Flux(90deg):

1411.4 lm
%lum = 42.2%
%lamp = 42.2%

Conical surface Flux(120deg):

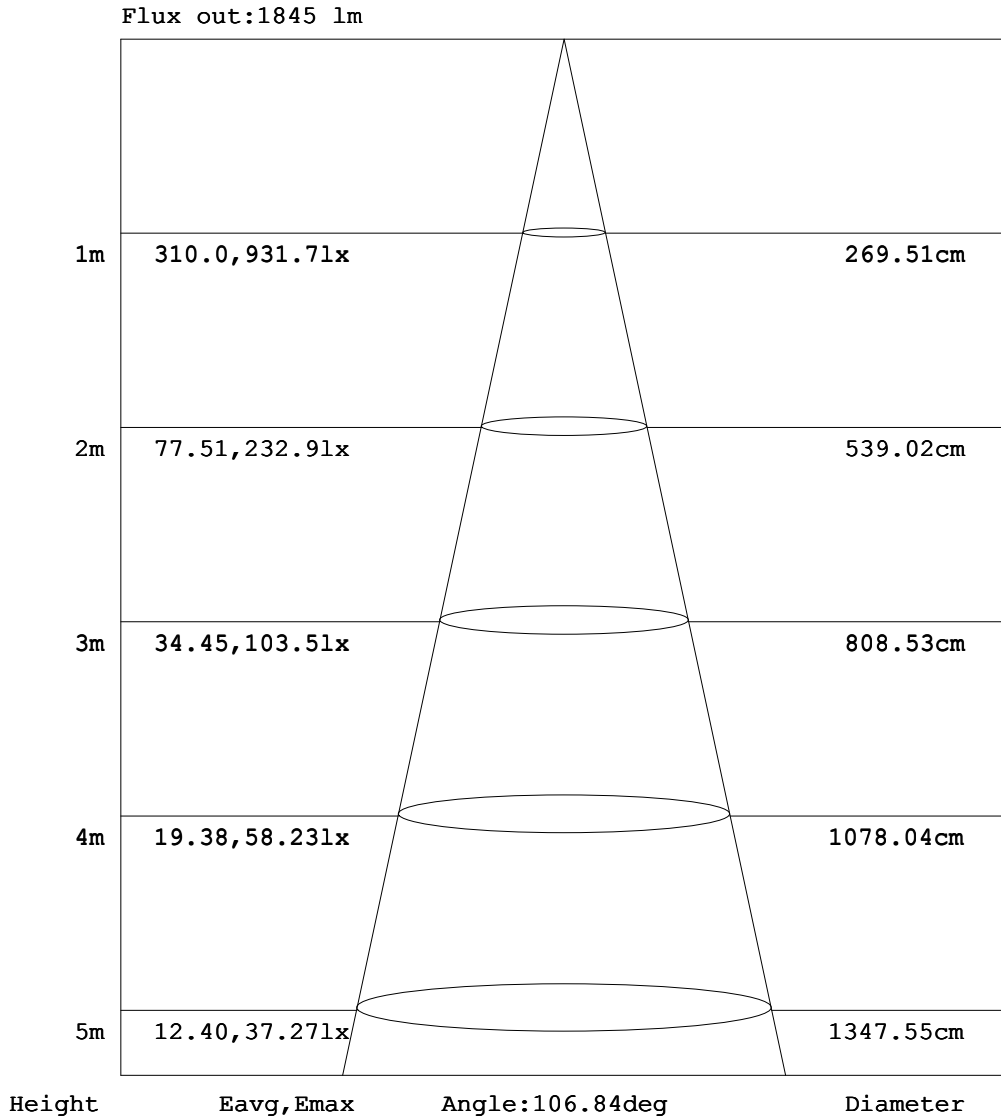
2117.1 lm
%lum = 63.3%
%lamp = 63.3%



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2015-10-22

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
Humidity:65.0%
Test Distance:11.550m [K=1.0000]
Remarks:

AAI Figure

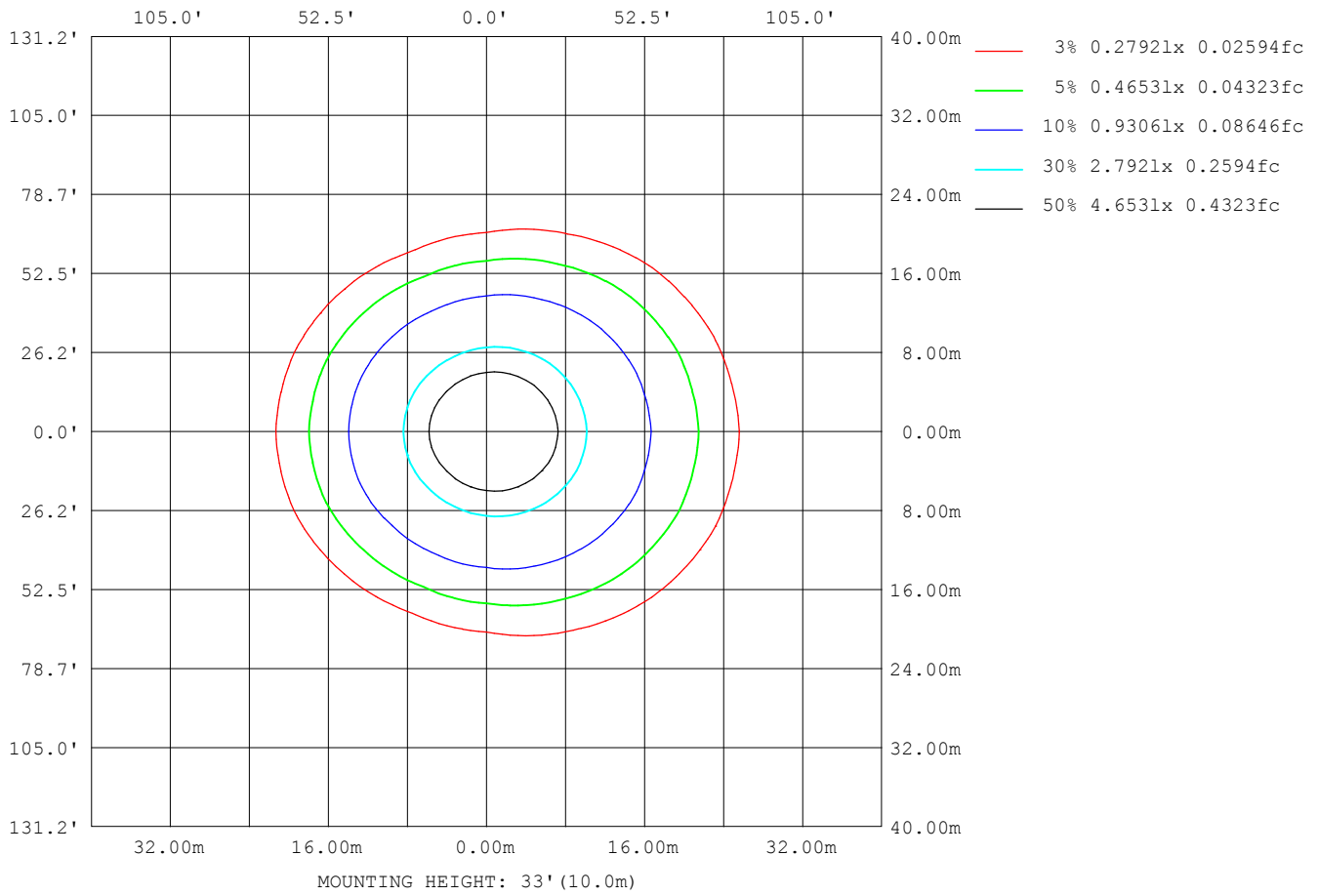


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.550m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.550m [K=1.0000]
 Remarks:

LED Avg.L Report

Test:U:230.4V I:0.1314A P:29.42W PF:0.9717 Lamp Flux:3344.52x1 lm		
NAME: T82A15-30W	TYPE:LED 2835	WEIGHT:
SPEC.:LED TUBE T8	DIM.: 1498*26MM	SERIAL No.:1
MFR.: Integratech	SUR.:	PROTECTION ANGLE:

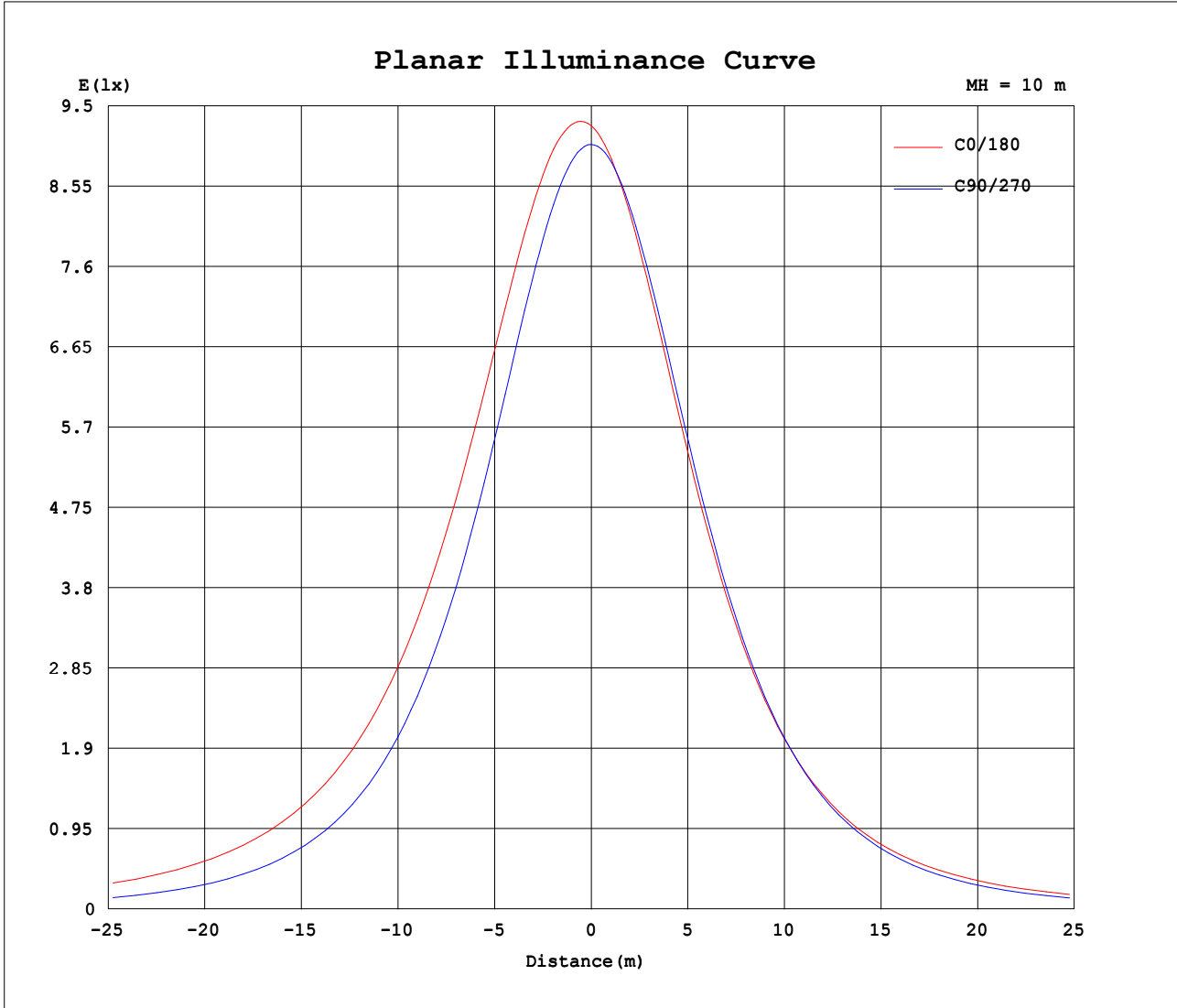
AvgL	cd/m2
L_0~180 (65) av	1162
L_0~180 (75) av	1514
L_0~180 (85) av	3450
L_90~270 (65) av	712
L_90~270 (75) av	610
L_90~270 (85) av	411
L_45 (65) av	957
L_45 (75) av	1156
L_45 (85) av	2341

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.550m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.550m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338			
0	927	922	912	907	904	902	904	917	927	922	912	907	904	902	904	917			
5	940	935	920	910	900	892	888	897	906	903	896	896	900	905	913	929			
10	949	941	920	903	885	871	864	872	881	877	872	876	885	898	913	934			
15	950	939	912	887	862	843	833	840	848	844	841	847	862	882	905	932			
20	943	930	896	863	830	808	795	803	812	807	803	811	831	858	890	923			
25	929	914	873	831	790	765	752	761	769	764	759	767	791	825	867	906			
30	909	891	842	791	744	715	704	715	724	718	711	717	745	786	837	882			
35	882	862	805	746	692	661	652	666	674	668	658	662	692	740	800	853			
40	849	826	762	695	637	603	596	614	623	615	602	603	635	689	758	817			
45	811	786	715	642	577	543	539	561	570	561	544	541	573	633	711	775			
50	768	741	664	583	512	479	481	507	517	506	485	476	508	573	659	729			
55	722	692	610	520	445	414	424	453	464	452	427	410	439	510	605	681			
60	672	641	555	456	376	348	368	401	412	399	369	343	369	445	548	631			
65	619	587	499	393	306	284	314	350	363	348	314	278	296	380	491	578			
70	566	532	442	327	234	222	263	302	316	300	262	217	224	315	435	520			
75	512	478	386	265	164	165	217	256	272	255	214	159	152	253	380	461			
80	459	424	330	206	96.7	115	173	216	231	214	171	109	85.5	195	324	392			
85	407	373	279	151	41.0	74.4	135	179	195	178	134	69.6	30.7	143	268	328			
90	357	325	233	107	7.96	46.3	104	147	162	145	102	41.9	4.21	100	218	318			
95	310	280	192	75.5	12.1	28.6	79.1	119	133	117	76.6	24.6	3.50	74.5	191	275			
100	266	239	155	51.8	9.05	18.0	58.9	94.4	107	92.8	56.8	14.6	2.97	51.3	155	235			
105	227	199	125	34.9	7.31	12.0	43.3	74.0	85.4	72.4	41.3	8.94	2.62	34.6	126	198			
110	191	161	90.7	24.6	6.12	8.73	31.0	57.1	66.6	55.5	29.2	5.92	2.44	23.9	92.8	166			
115	159	134	65.1	18.1	5.40	6.93	22.0	43.0	50.6	41.4	20.4	4.41	2.39	17.6	66.3	134			
120	130	110	46.5	13.8	4.85	5.83	15.8	31.5	37.6	30.1	14.2	3.57	2.39	13.2	49.1	110			
125	105	83.1	34.8	11.0	4.31	5.17	11.5	22.5	27.0	21.3	9.96	3.07	2.40	10.3	37.0	81.5			
130	82.8	55.1	26.8	8.69	4.25	4.45	8.72	15.9	18.4	14.7	7.18	2.71	2.46	8.03	28.5	55.1			
135	64.3	38.5	20.2	7.38	4.15	4.07	6.83	11.3	12.4	10.2	5.38	2.53	2.60	6.86	21.6	40.0			
140	48.8	27.7	15.4	6.79	4.02	3.87	5.40	8.16	8.10	7.07	4.19	2.50	2.70	6.24	16.5	29.0			
145	36.1	20.8	11.8	6.28	3.99	4.03	4.38	6.08	5.60	5.02	3.40	2.55	2.81	5.68	12.7	22.6			
150	25.9	15.7	9.31	5.65	3.97	3.80	3.76	4.79	4.14	3.75	2.85	2.61	2.92	5.23	9.87	17.1			
155	17.5	10.4	7.58	5.02	3.63	3.45	3.69	3.96	3.11	2.88	2.70	2.67	3.02	4.83	8.06	11.7			
160	11.7	7.36	6.18	4.58	3.53	3.36	3.67	3.73	2.62	2.69	2.71	2.74	3.12	4.51	6.62	8.52			
165	5.98	5.47	5.09	4.20	3.48	3.27	3.61	3.96	2.58	2.67	2.73	2.80	3.22	4.25	5.54	6.60			
170	4.01	4.37	4.28	3.88	3.46	3.25	3.54	4.01	2.60	2.70	2.77	2.89	3.32	4.02	4.74	5.49			
175	3.24	3.66	3.68	3.60	3.46	3.26	3.48	3.96	2.59	2.73	2.80	3.00	3.38	3.79	4.19	4.77			
180	2.79	3.04	3.12	3.29	3.45	3.51	3.73	4.19	2.77	3.01	3.13	3.32	3.45	3.52	3.68	4.24			

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2015-10-22

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.550m [K=1.0000]
 Remarks: