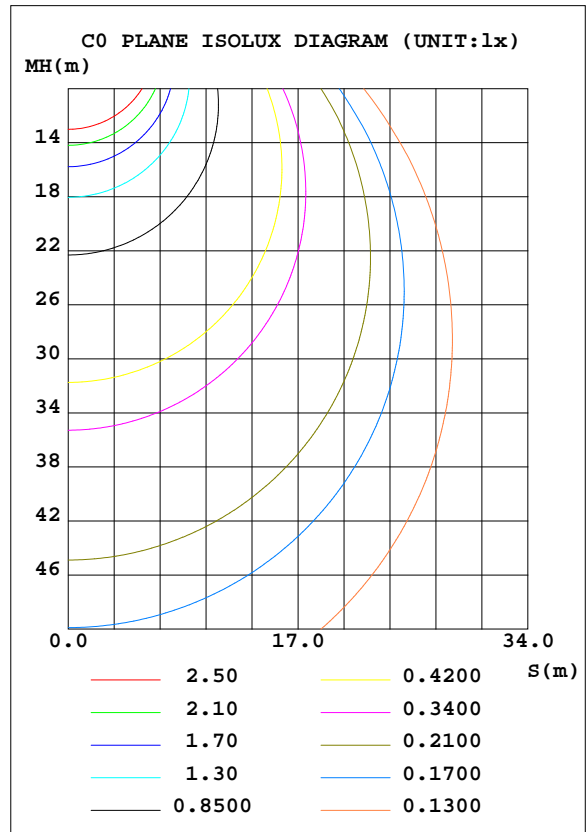
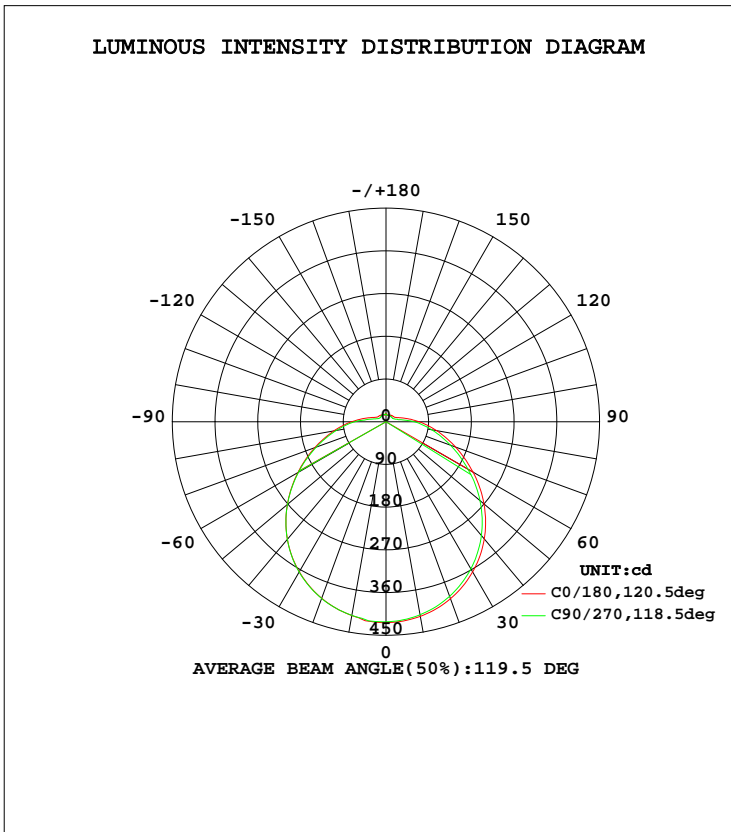


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 87.45 lm/W			
MODEL	MO16070465	Imax(cd)	423.2	S/MH(C0/180)	1.28
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	1.26
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	1547.8	$\eta$ UP, DN(C0-180)	4.9, 44.3
NOMINAL FLUX(lm)	1547.81	CIE CLASS	SEMI-D.	$\eta$ UP, DN(C180-360)	5.2, 45.7
LAMPS INSIDE	1	$\eta$ up(%)	10.1	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	221.1	$\eta$ down(%)	89.9	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature:29DEG  
 Operators:Tommy  
 Test Date:2016-08-04

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity:51%  
 Test Distance:10.500m [K=1.0000]  
 Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\Phi$ lum,lamp
10	416.3	411.8	413.0	411.1	414.6	417.1	414.3	415.2	0- 10	39.88	39.88	2.58,2.58
20	396.8	391.1	391.5	391.0	395.8	398.7	396.3	396.6	10- 20	114.6	154.5	9.98,9.98
30	365.2	358.4	357.7	358.9	365.2	368.3	365.8	365.6	20- 30	175.4	329.9	21.3,21.3
40	322.3	314.2	312.8	315.5	323.2	326.2	323.5	322.9	30- 40	214.6	544.5	35.2,35.2
50	269.6	260.6	258.6	262.5	271.3	273.8	271.1	270.0	40- 50	227.3	771.9	49.9,49.9
60	211.5	202.9	199.2	205.2	214.5	215.1	213.1	211.7	50- 60	213.4	985.2	63.7,63.7
70	156.1	147.8	144.6	150.1	159.7	158.1	156.2	154.9	60- 70	179.1	1164	75.2,75.2
80	108.3	99.62	97.80	101.9	111.7	108.1	106.5	104.8	70- 80	135.7	1300	84,84
90	69.79	61.97	60.07	63.94	72.60	68.11	65.92	65.05	80- 90	92.14	1392	89.9,89.9
100	42.30	36.38	26.45	37.85	44.31	40.28	32.30	38.13	90-100	55.05	1447	93.5,93.5
110	26.31	22.04	18.66	22.90	27.40	24.05	19.51	22.84	100-110	31.00	1478	95.5,95.5
120	20.19	15.66	15.64	16.59	20.66	17.05	15.71	16.34	110-120	19.40	1498	96.8,96.8
130	18.96	14.71	15.58	15.40	19.29	15.59	15.39	15.21	120-130	14.88	1512	97.7,97.7
140	17.76	15.07	15.51	15.41	18.11	15.63	15.61	15.52	130-140	12.53	1525	98.5,98.5
150	16.48	14.58	14.79	14.96	16.96	15.93	16.29	15.86	140-150	10.02	1535	99.2,99.2
160	15.26	14.22	14.13	14.27	15.86	15.23	16.09	15.89	150-160	7.168	1542	99.6,99.6
170	13.60	15.26	14.62	14.23	14.14	13.74	15.09	15.26	160-170	4.163	1546	99.9,99.9
180	17.65	16.80	16.55	17.16	17.69	16.81	16.57	17.15	170-180	1.480	1548	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

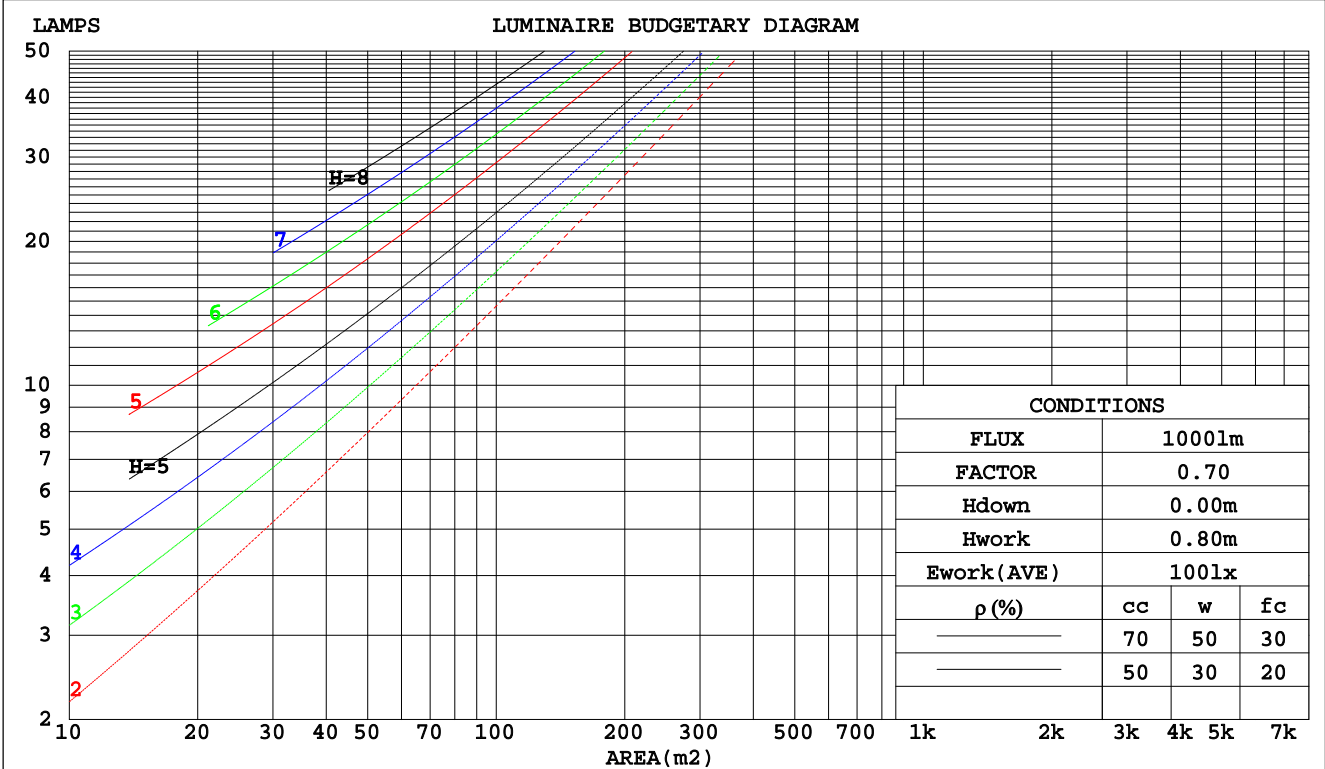
C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature:29DEG  
 Operators:Tommy  
 Test Date:2016-08-04

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity:51%  
 Test Distance:10.500m [K=1.0000]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	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	1.17	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	.94	.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	.58
3.0	.74	.65	.58	.72	.64	.57	.67	.60	.55	.63	.57	.53	.59	.54	.50	.48
4.0	.65	.56	.49	.63	.55	.48	.59	.52	.46	.56	.50	.45	.53	.47	.43	.40
5.0	.58	.49	.42	.56	.48	.41	.53	.46	.40	.50	.43	.38	.47	.42	.37	.35
6.0	.52	.43	.36	.51	.42	.36	.48	.40	.35	.45	.39	.33	.43	.37	.32	.30
7.0	.47	.38	.32	.46	.37	.31	.43	.36	.30	.41	.34	.30	.39	.33	.29	.26
8.0	.43	.34	.28	.42	.34	.28	.40	.32	.27	.38	.31	.26	.36	.30	.26	.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	.23	.34	.27	.22	.32	.26	.21	.31	.25	.21	.19



C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature: 29DEG  
 Operators: Tommy  
 Test Date: 2016-08-04

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity: 51%  
 Test Distance: 10.500m [K=1.0000]  
 Remarks:

## WEC AND CCEC

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.363	.206	.065	.353	.201	.064	.333	.191	.061	.316	.182	.058	.299	.174	.056	
2.0	.321	.176	.054	.312	.172	.053	.294	.164	.051	.278	.156	.049	.264	.149	.047	
3.0	.288	.153	.046	.280	.150	.045	.264	.143	.044	.250	.137	.042	.237	.131	.041	
4.0	.261	.136	.040	.254	.133	.039	.240	.127	.038	.227	.122	.037	.215	.117	.036	
5.0	.239	.122	.035	.232	.119	.035	.220	.114	.034	.208	.110	.033	.197	.105	.032	
6.0	.220	.110	.032	.214	.108	.031	.202	.104	.030	.192	.100	.029	.182	.096	.028	
7.0	.203	.100	.028	.198	.098	.028	.187	.095	.027	.178	.091	.026	.169	.088	.026	
8.0	.189	.092	.026	.184	.091	.026	.174	.087	.025	.166	.084	.024	.157	.081	.024	
9.0	.176	.085	.024	.172	.084	.023	.163	.081	.023	.155	.078	.022	.147	.075	.022	
10.0	.165	.079	.022	.161	.078	.022	.153	.075	.021	.146	.072	.021	.139	.070	.020	

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.267	.267	.267	.228	.228	.228	.156	.156	.156	.090	.090	.090	.029	.029	.029	
1.0	.261	.233	.207	.224	.200	.179	.153	.138	.123	.088	.080	.072	.028	.026	.023	
2.0	.254	.210	.172	.217	.180	.149	.149	.125	.104	.086	.073	.061	.028	.023	.020	
3.0	.246	.193	.150	.211	.166	.130	.145	.115	.091	.084	.067	.054	.027	.022	.018	
4.0	.238	.180	.135	.205	.155	.117	.141	.108	.083	.081	.063	.049	.026	.021	.016	
5.0	.231	.170	.125	.198	.147	.109	.136	.103	.077	.079	.060	.045	.025	.020	.015	
6.0	.223	.162	.117	.192	.140	.102	.132	.098	.072	.077	.058	.043	.025	.019	.014	
7.0	.216	.155	.112	.186	.134	.097	.129	.094	.069	.075	.055	.041	.024	.018	.014	
8.0	.210	.149	.108	.180	.129	.094	.125	.091	.067	.073	.054	.040	.024	.018	.013	
9.0	.203	.144	.104	.175	.125	.091	.121	.088	.065	.071	.052	.039	.023	.017	.013	
10.0	.198	.140	.102	.170	.122	.089	.118	.086	.063	.069	.051	.038	.022	.017	.013	

C Range: 0 - 360DEG  
C Interval: 45.0DEG  
Test Speed: HIGH  
Temperature:29DEG  
Operators:Tommy  
Test Date:2016-08-04

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
Humidity:51%  
Test Distance:10.500m [K=1.0000]  
Remarks:

## Uncorrected UGR Table

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm										
NAME: 83750					TYPE:			WEIGHT:		
DIM.:					SPEC.:			SERIAL No.:		
MFR.:					SUR.:D350mm			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	17.3	18.7	17.7	19.1	19.5	17.0	18.5	17.4	18.9	19.3
3H	19.2	20.5	19.6	21.0	21.4	18.9	20.3	19.4	20.7	21.1
4H	20.2	21.5	20.7	21.9	22.4	19.9	21.1	20.3	21.6	22.0
6H	21.3	22.5	21.8	22.9	23.4	20.9	22.1	21.4	22.5	23.0
8H	21.9	23.0	22.4	23.5	24.0	21.4	22.6	21.9	23.0	23.5
12H	22.5	23.6	23.0	24.1	24.6	22.0	23.1	22.5	23.6	24.1
4H 2H	17.9	19.2	18.3	19.6	20.1	17.7	19.0	18.2	19.4	19.9
3H	20.1	21.2	20.6	21.6	22.2	19.8	20.9	20.3	21.4	21.9
4H	21.2	22.3	21.8	22.8	23.3	20.9	22.0	21.5	22.5	23.0
6H	22.5	23.4	23.0	23.9	24.5	22.1	23.0	22.7	23.6	24.2
8H	23.2	24.0	23.7	24.6	25.2	22.8	23.6	23.3	24.2	24.8
12H	24.0	24.7	24.5	25.3	25.9	23.5	24.3	24.1	24.8	25.5
8H 4H	21.6	22.5	22.2	23.0	23.6	21.4	22.3	22.0	22.8	23.4
6H	23.2	23.9	23.8	24.5	25.1	22.8	23.6	23.4	24.1	24.8
8H	24.0	24.7	24.6	25.3	25.9	23.7	24.3	24.3	24.9	25.6
12H	25.0	25.6	25.6	26.2	26.9	24.6	25.1	25.2	25.8	26.5
12H 4H	21.7	22.5	22.3	23.1	23.7	21.5	22.3	22.1	22.8	23.5
6H	23.3	24.0	23.9	24.6	25.2	23.0	23.7	23.6	24.3	24.9
8H	24.3	24.8	24.9	25.5	26.2	23.9	24.5	24.6	25.1	25.8
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117 Corrected 1548 lm Total Lamp Luminous Flux.(8log(F/F0) = 1.5)

C Range: 0 - 360DEG  
C Interval: 45.0DEG  
Test Speed: HIGH  
Temperature:29DEG  
Operators:Tommy  
Test Date:2016-08-04

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
Humidity:51%  
Test Distance:10.500m [K=1.0000]  
Remarks:

## UTILIZATION FACTORS TABLE

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:

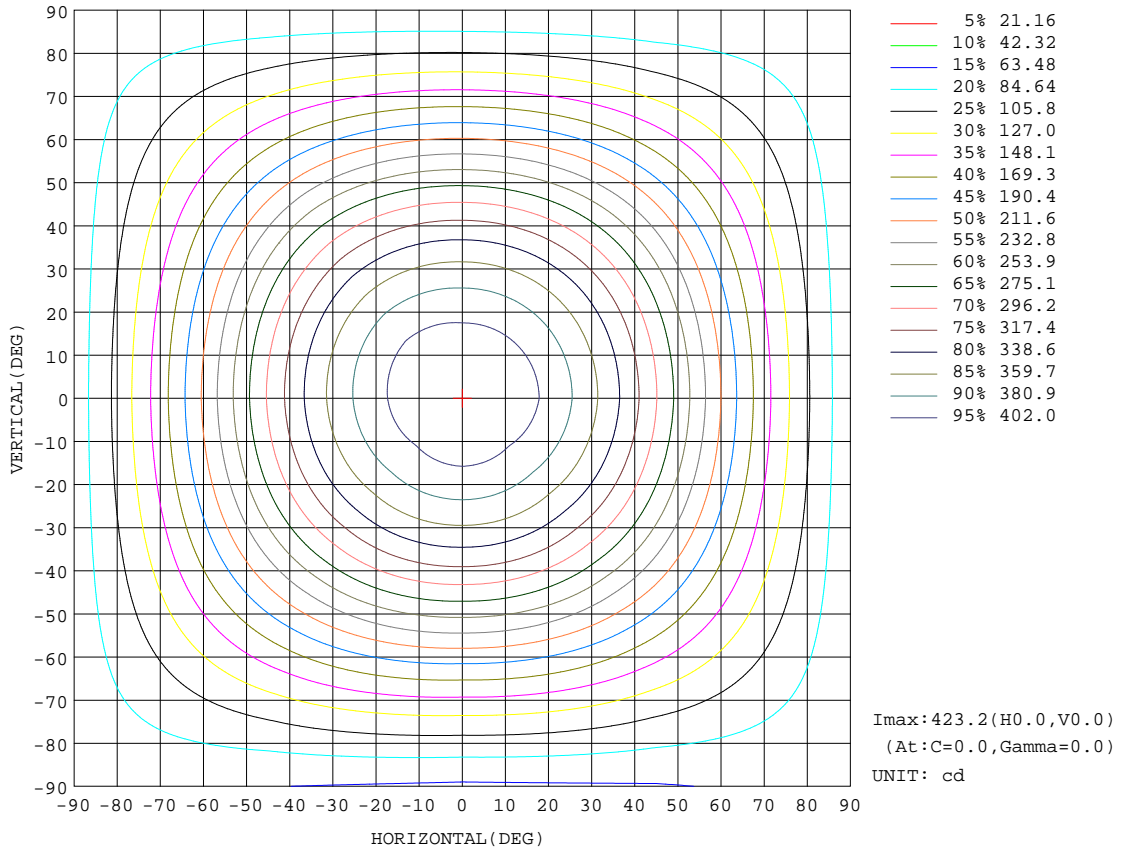
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	52	40	33	51	39	32	49	39	32	25
0.80	61	49	41	60	48	41	58	47	40	33
1.00	69	57	49	68	56	49	65	57	48	40
1.25	76	64	56	74	63	56	71	61	54	46
1.50	81	70	62	79	69	61	75	66	59	50
2.00	88	78	71	86	76	69	81	73	67	57
2.50	93	83	76	90	81	75	85	77	72	61
3.00	96	88	81	93	85	79	88	81	76	65
4.00	101	93	87	97	91	85	91	86	82	70
5.00	103	97	92	100	94	90	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: 45.0DEG  
 Test Speed: HIGH  
 Temperature:29DEG  
 Operators:Tommy  
 Test Date:2016-08-04

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity:51%  
 Test Distance:10.500m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:



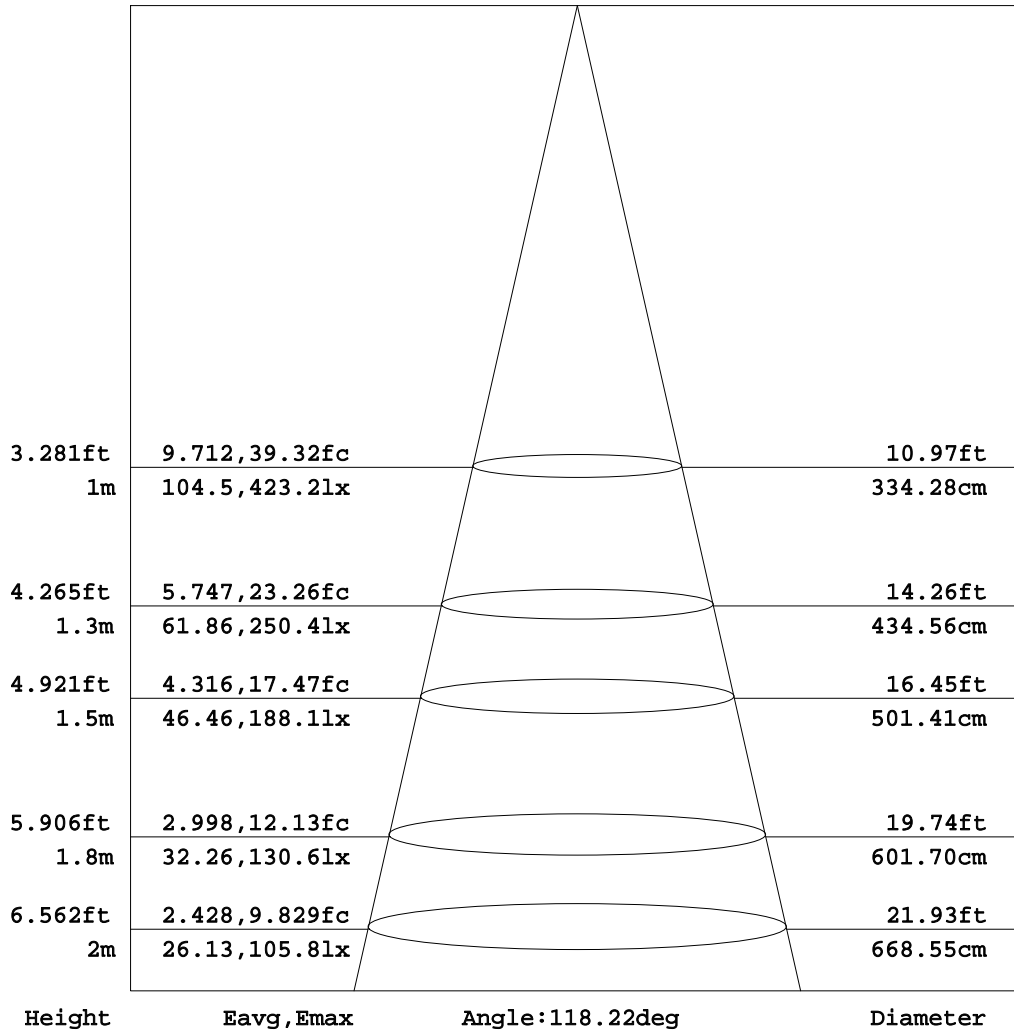
C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature: 29DEG  
 Operators: Tommy  
 Test Date: 2016-08-04

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity: 51%  
 Test Distance: 10.500m [K=1.0000]  
 Remarks:

AAI Figure

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:

Flux out:985.2 lm



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

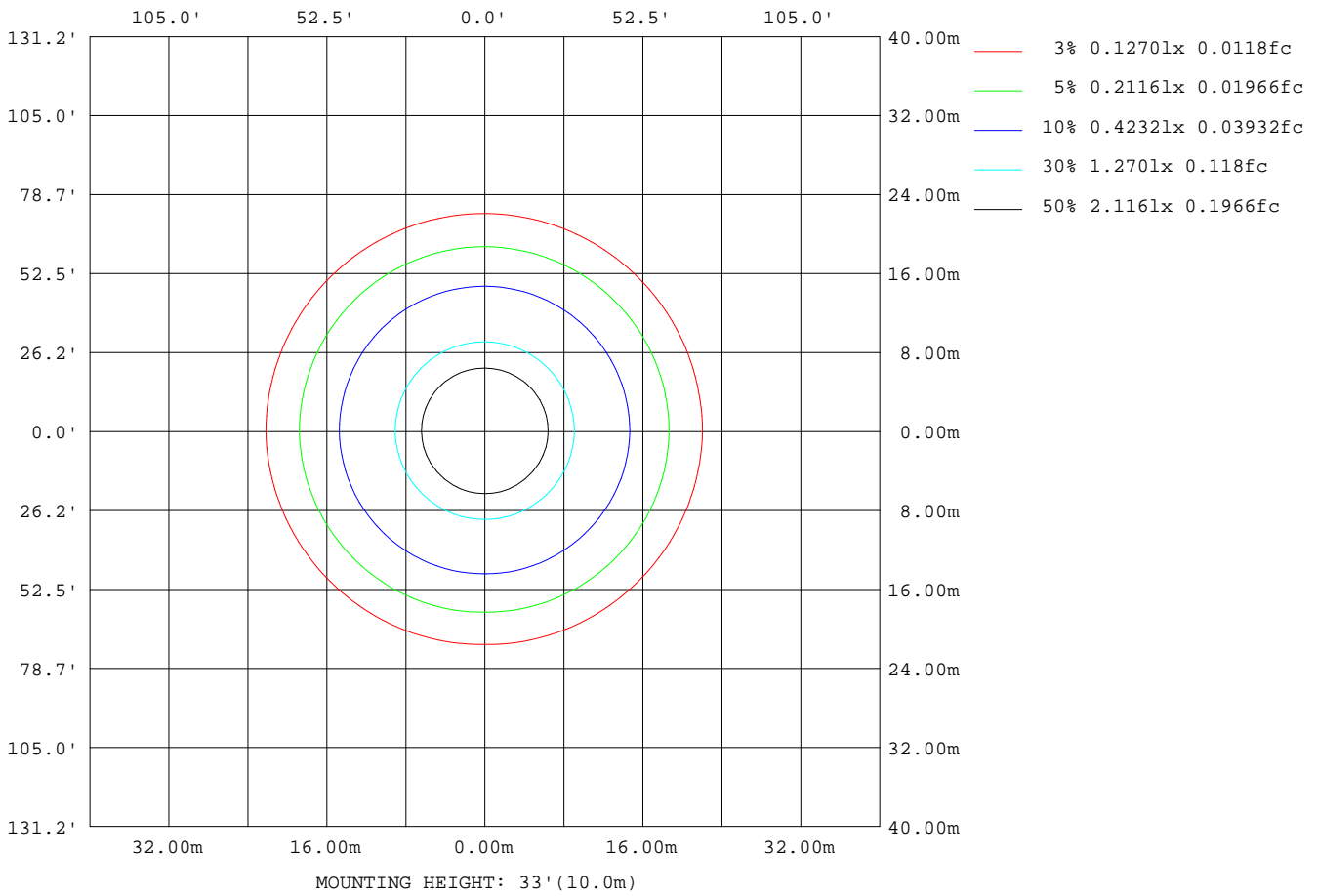
C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature:29DEG  
 Operators:Tommy  
 Test Date:2016-08-04

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity:51%  
 Test Distance:10.500m [K=1.0000]  
 Remarks:



ISOLUX DIAGRAM

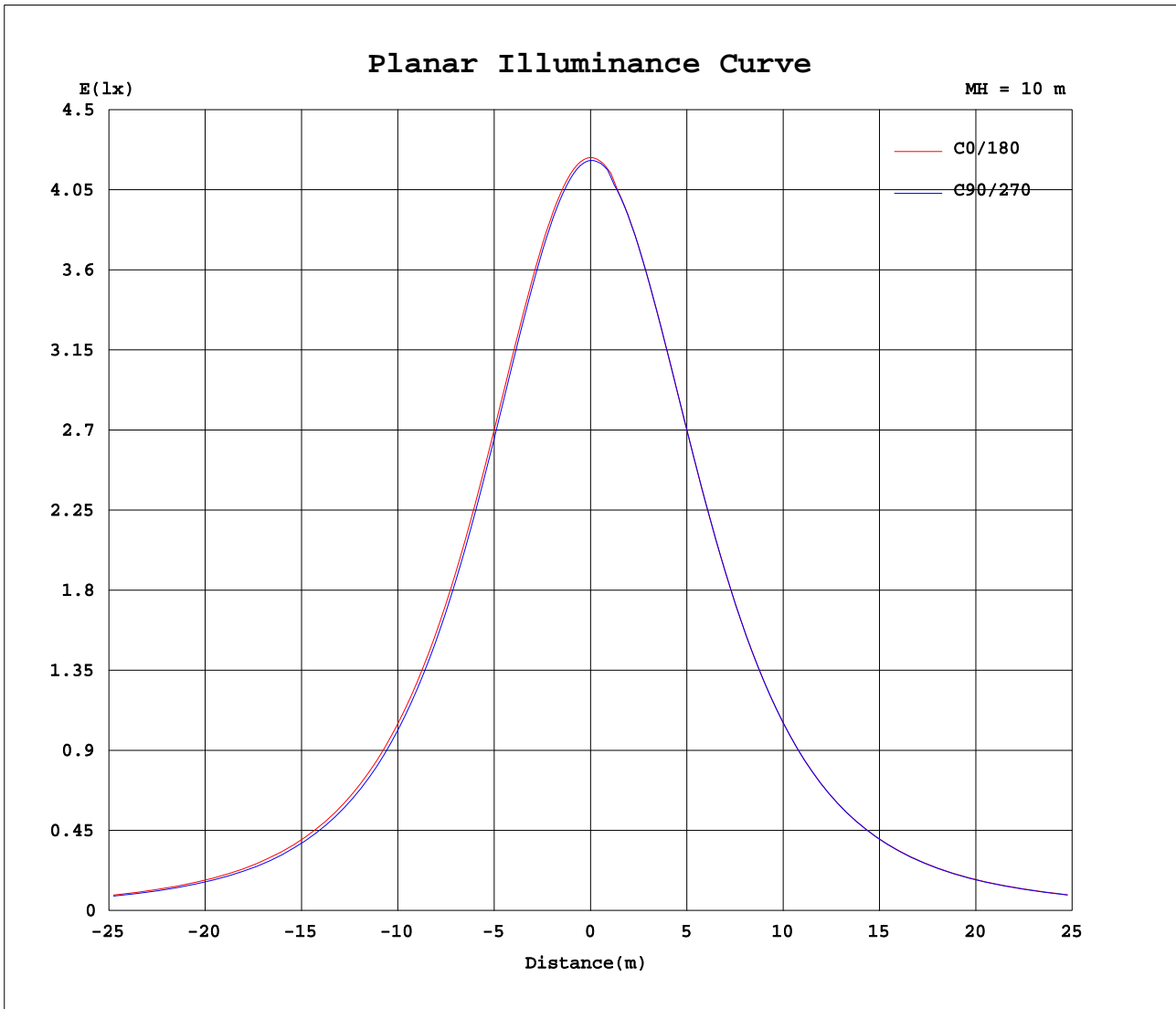
Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature:29DEG  
 Operators:Tommy  
 Test Date:2016-08-04

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity:51%  
 Test Distance:10.500m [K=1.0000]  
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature: 29DEG  
 Operators: Tommy  
 Test Date: 2016-08-04

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity: 51%  
 Test Distance: 10.500m [K=1.0000]  
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.8V I:0.0870A P:17.70W PF:0.9190 Lamp Flux:1547.81x1 lm		
NAME: 83750	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:D350mm	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	45	90	135	180	225	270	315										
0	423	422	422	421	423	422	422	421										
5	421	418	419	417	422	421	421	420										
10	416	412	413	411	415	417	414	415										
15	408	403	404	403	407	410	407	407										
20	397	391	391	391	396	399	396	397										
25	382	376	376	376	382	385	383	383										
30	365	358	358	359	365	368	366	366										
35	345	338	337	339	346	349	346	346										
40	322	314	313	315	323	326	324	323										
45	297	288	287	290	298	301	298	298										
50	270	261	259	263	271	274	271	270										
55	241	232	229	234	243	245	242	241										
60	211	203	199	205	214	215	213	212										
65	183	175	171	177	186	186	184	182										
70	156	148	145	150	160	158	156	155										
75	131	123	120	125	135	132	130	129										
80	108	99.6	97.8	102	112	108	107	105										
85	87.7	79.4	77.8	81.5	90.9	86.7	84.9	83.5										
90	69.8	62.0	60.1	63.9	72.6	68.1	65.9	65.0										
95	54.6	47.5	40.2	49.3	57.0	52.6	44.8	50.0										
100	42.3	36.4	26.5	37.8	44.3	40.3	32.3	38.1										
105	32.9	28.0	21.8	29.2	34.4	30.8	24.4	29.2										
110	26.3	22.0	18.7	22.9	27.4	24.1	19.5	22.8										
115	22.3	18.2	16.5	18.8	22.9	19.6	16.9	18.6										
120	20.2	15.7	15.6	16.6	20.7	17.0	15.7	16.3										
125	19.4	14.9	15.5	15.7	19.7	16.0	15.4	15.4										
130	19.0	14.7	15.6	15.4	19.3	15.6	15.4	15.2										
135	18.4	14.9	15.5	15.4	18.8	15.5	15.5	15.3										
140	17.8	15.1	15.5	15.4	18.1	15.6	15.6	15.5										
145	17.2	15.0	15.3	15.3	17.5	15.8	16.0	15.7										
150	16.5	14.6	14.8	15.0	17.0	15.9	16.3	15.9										
155	15.8	14.6	14.7	14.5	16.3	15.7	16.3	16.0										
160	15.3	14.2	14.1	14.3	15.9	15.2	16.1	15.9										
165	14.5	13.7	13.6	13.9	15.0	14.6	15.7	15.6										
170	13.6	15.3	14.6	14.2	14.1	13.7	15.1	15.3										
175	16.8	16.4	15.6	16.3	17.3	14.9	15.5	16.3										
180	17.7	16.8	16.6	17.2	17.7	16.8	16.6	17.1										

C Range: 0 - 360DEG  
 C Interval: 45.0DEG  
 Test Speed: HIGH  
 Temperature:29DEG  
 Operators:Tommy  
 Test Date:2016-08-04

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.275  
 Humidity:51%  
 Test Distance:10.500m [K=1.0000]  
 Remarks: