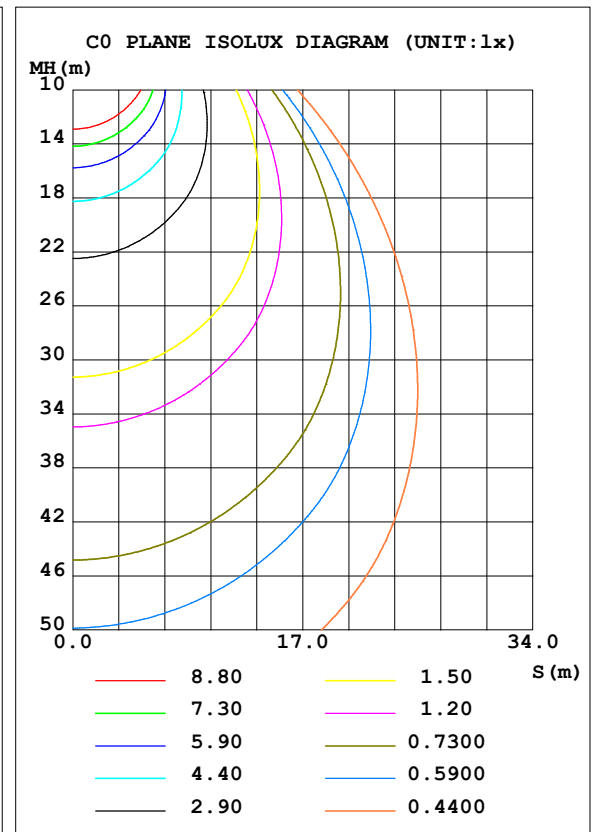
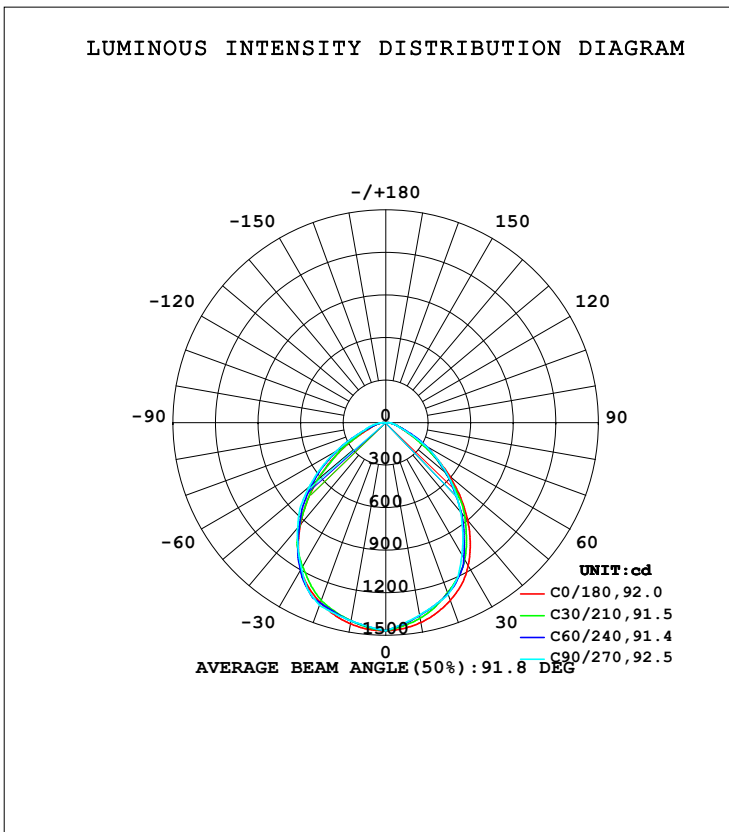


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KYPE:	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 104.84 lm/W			
MODEL		I <sub>max</sub> (cd)	1467	S/MH (C0/180)	1.21
NOMINAL POWER (W)	32	LOR (%)	100.0	S/MH (C90/270)	1.21
RATED VOLTAGE (V)	120	TOTAL FLUX (lm)	3082.7	η UP, DN (C0-180)	0.0, 47.5
NOMINAL FLUX (lm)	3082.72	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 52.5
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	120	η down (%)	100.0	CIBSE SHR MAX	1.25



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Testing Room  
 Test Date: 2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity: 65.0%  
 Test Distance: 11.160m [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	1431	1388	1378	1389	1440	1418	1418	1416	0- 10	136.5	136.5	4.43,4.43
20	1333	1281	1289	1278	1351	1336	1370	1339	10- 20	385.5	522.1	16.9,16.9
30	1163	1114	1076	1119	1196	1209	1190	1204	20- 30	572.6	1095	35.5,35.5
40	898.8	836.3	820.7	850.6	936.9	951.4	967.7	936.9	30- 40	640.7	1735	56.3,56.3
50	589.4	542.5	565.9	558.2	627.6	657.5	706.2	643.5	40- 50	580.0	2315	75.1,75.1
60	290.6	304.5	311.5	313.7	324.2	383.4	406.1	378.6	50- 60	417.6	2733	88.7,88.7
70	112.9	139.7	107.6	140.9	121.1	168.7	161.0	170.8	60- 70	219.8	2953	95.8,95.8
80	49.66	55.62	55.54	54.87	59.64	63.10	80.74	65.19	70- 80	98.28	3051	99,99
90	0.7576	2.782	3.480	2.848	0.7496	0.5723	0.5209	0.5209	80- 90	31.53	3083	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		

Conical surface Flux(90deg): 2040.3 lm

%lum = 66.2%

%lamp = 66.2%

Conical surface Flux(120deg): 2733.1 lm

%lum = 88.7%

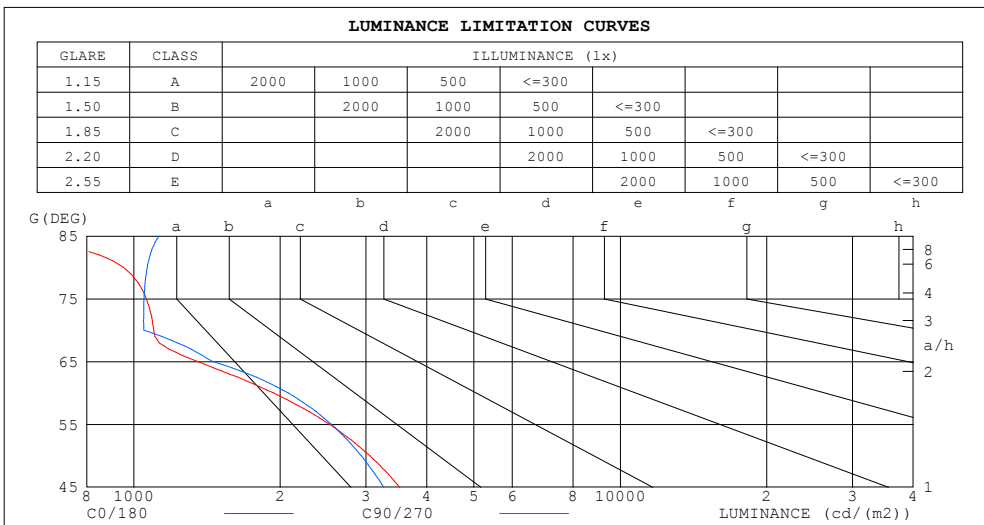
%lamp = 88.7%

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KYPE:	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	433	1128
80	953	1065
75	1061	1050
70	1099	1048
65	1352	1452
60	1936	2075
55	2525	2548
50	3055	2933
45	3517	3266

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KTYPE:	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding 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	.262	.149	.047	.255	.146	.046	.242	.139	.044	.230	.133	.043	.219	.127	.041	
2.0	.251	.138	.042	.245	.135	.042	.234	.130	.040	.223	.125	.039	.214	.121	.038	
3.0	.237	.126	.038	.231	.124	.037	.221	.120	.036	.212	.116	.036	.204	.113	.035	
4.0	.222	.115	.034	.217	.114	.034	.208	.111	.033	.200	.108	.032	.193	.105	.032	
5.0	.208	.106	.031	.204	.105	.030	.196	.102	.030	.189	.100	.030	.182	.097	.029	
6.0	.195	.098	.028	.191	.097	.028	.184	.094	.027	.178	.092	.027	.172	.090	.027	
7.0	.183	.091	.026	.180	.090	.026	.174	.088	.025	.168	.086	.025	.162	.084	.025	
8.0	.172	.084	.024	.169	.083	.024	.164	.082	.023	.159	.080	.023	.154	.079	.023	
9.0	.163	.079	.022	.160	.078	.022	.155	.077	.022	.150	.075	.022	.146	.074	.021	
10.0	.154	.074	.020	.151	.073	.020	.147	.072	.020	.143	.071	.020	.139	.070	.020	

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	.177	.157	.138	.151	.134	.119	.104	.092	.082	.060	.053	.048	.019	.017	.015	
2.0	.167	.132	.103	.143	.114	.089	.098	.079	.062	.056	.046	.036	.018	.015	.012	
3.0	.158	.114	.079	.136	.098	.069	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.150	.100	.062	.129	.087	.054	.089	.060	.038	.051	.035	.023	.016	.012	.007	
5.0	.143	.090	.051	.123	.078	.044	.084	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.136	.081	.042	.117	.070	.036	.081	.049	.026	.047	.029	.015	.015	.009	.005	
7.0	.129	.074	.035	.111	.064	.031	.077	.045	.022	.045	.027	.013	.014	.009	.004	
8.0	.123	.068	.030	.106	.059	.027	.074	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.118	.063	.027	.102	.055	.023	.070	.039	.016	.041	.023	.010	.013	.007	.003	
10.0	.113	.059	.023	.097	.051	.020	.067	.036	.015	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm										
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KTYPE:						WEIGHT:				
SPEC.:						DIM.:			SERIAL No.:	
MFR.: tospo						SUR.:			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	11.2	12.6	11.4	12.8	12.9	11.4	12.7	11.6	12.9	13.1
3H	11.6	12.8	11.9	13.1	13.3	11.8	13.0	12.1	13.3	13.5
4H	11.8	12.9	12.1	13.2	13.4	11.9	13.1	12.2	13.4	13.6
6H	11.9	13.0	12.2	13.3	13.6	12.1	13.2	12.4	13.5	13.7
8H	11.9	13.0	12.3	13.3	13.6	12.2	13.2	12.5	13.5	13.8
12H	11.9	12.9	12.2	13.2	13.5	12.2	13.3	12.6	13.5	13.8
4H 2H	11.5	12.7	11.8	12.9	13.1	11.6	12.8	11.9	13.1	13.3
3H	12.0	13.0	12.3	13.3	13.6	12.2	13.2	12.5	13.5	13.8
4H	12.3	13.2	12.6	13.5	13.9	12.4	13.4	12.8	13.7	14.0
6H	12.5	13.4	12.9	13.7	14.1	12.7	13.5	13.1	13.9	14.2
8H	12.6	13.3	13.0	13.7	14.1	12.8	13.6	13.2	14.0	14.3
12H	12.5	13.2	13.0	13.6	14.0	12.9	13.6	13.4	14.0	14.4
8H 4H	12.4	13.1	12.8	13.5	13.9	12.5	13.3	12.9	13.6	14.0
6H	12.7	13.4	13.2	13.8	14.2	12.9	13.5	13.3	13.9	14.3
8H	12.8	13.4	13.3	13.8	14.3	13.1	13.7	13.5	14.1	14.5
12H	12.9	13.4	13.3	13.8	14.3	13.3	13.8	13.8	14.2	14.7
12H 4H	12.4	13.1	12.8	13.4	13.8	12.5	13.2	12.9	13.6	14.0
6H	12.8	13.3	13.2	13.7	14.2	12.9	13.5	13.4	13.9	14.3
8H	12.9	13.4	13.4	13.8	14.3	13.2	13.6	13.6	14.1	14.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 0.7					+ 0.4 / - 0.5				
1.5H	+ 0.3 / - 0.5					+ 0.2 / - 0.3				
2.0H	+ 1.1 / - 1.4					+ 0.8 / - 0.7				

CIE Pub.117, 3083 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 3.9)

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

**UTILIZATION FACTORS TABLE**

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KTYPE:	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding Angle:

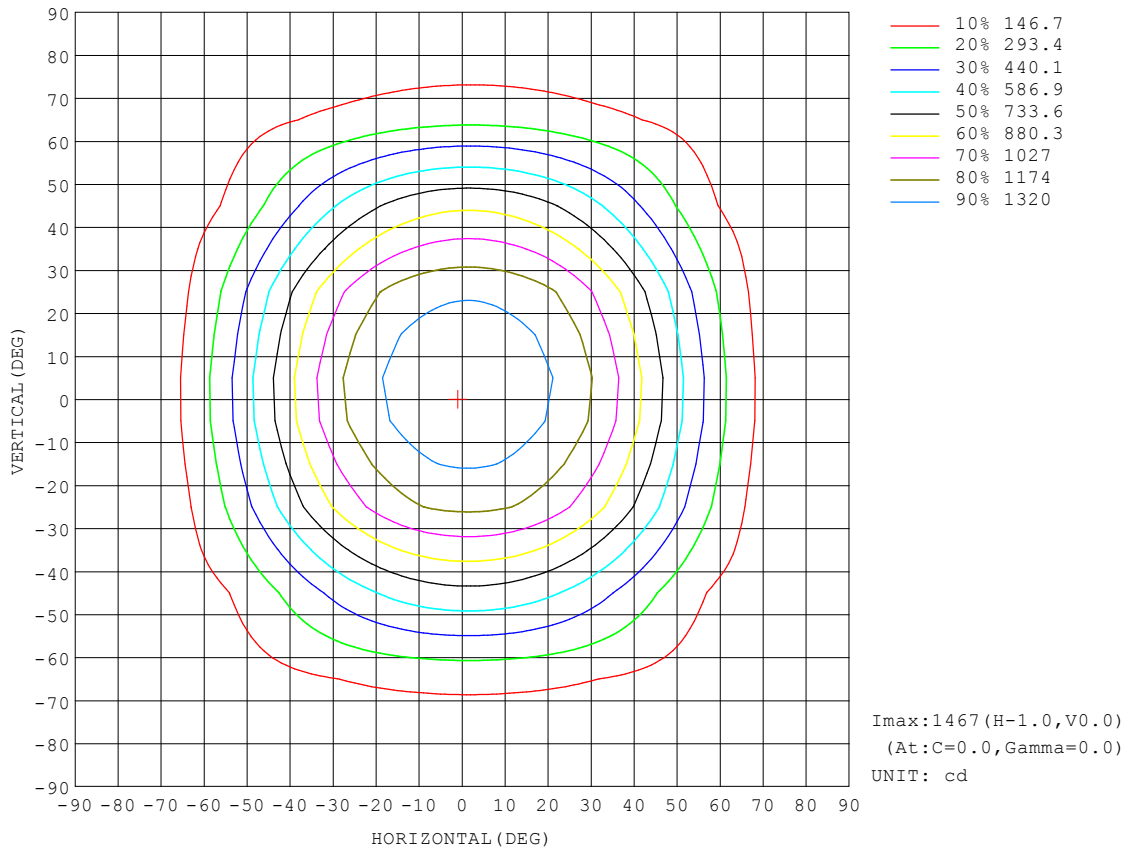
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	64	54	47	63	53	47	62	53	47	41
0.80	74	64	57	73	64	57	72	63	57	51
1.00	82	73	66	81	72	66	79	73	66	59
1.25	89	80	74	88	79	74	85	78	73	66
1.50	94	85	79	92	84	79	89	83	78	71
2.00	99	92	87	98	91	86	94	89	85	78
2.50	103	96	91	101	95	90	97	92	88	81
3.00	105	100	95	103	98	94	100	95	92	84
4.00	109	104	100	106	102	99	102	99	96	88
5.00	111	107	103	108	105	102	104	101	98	90
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

**ISOCANDELA DIAGRAM**

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KTYPE:	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding Angle:

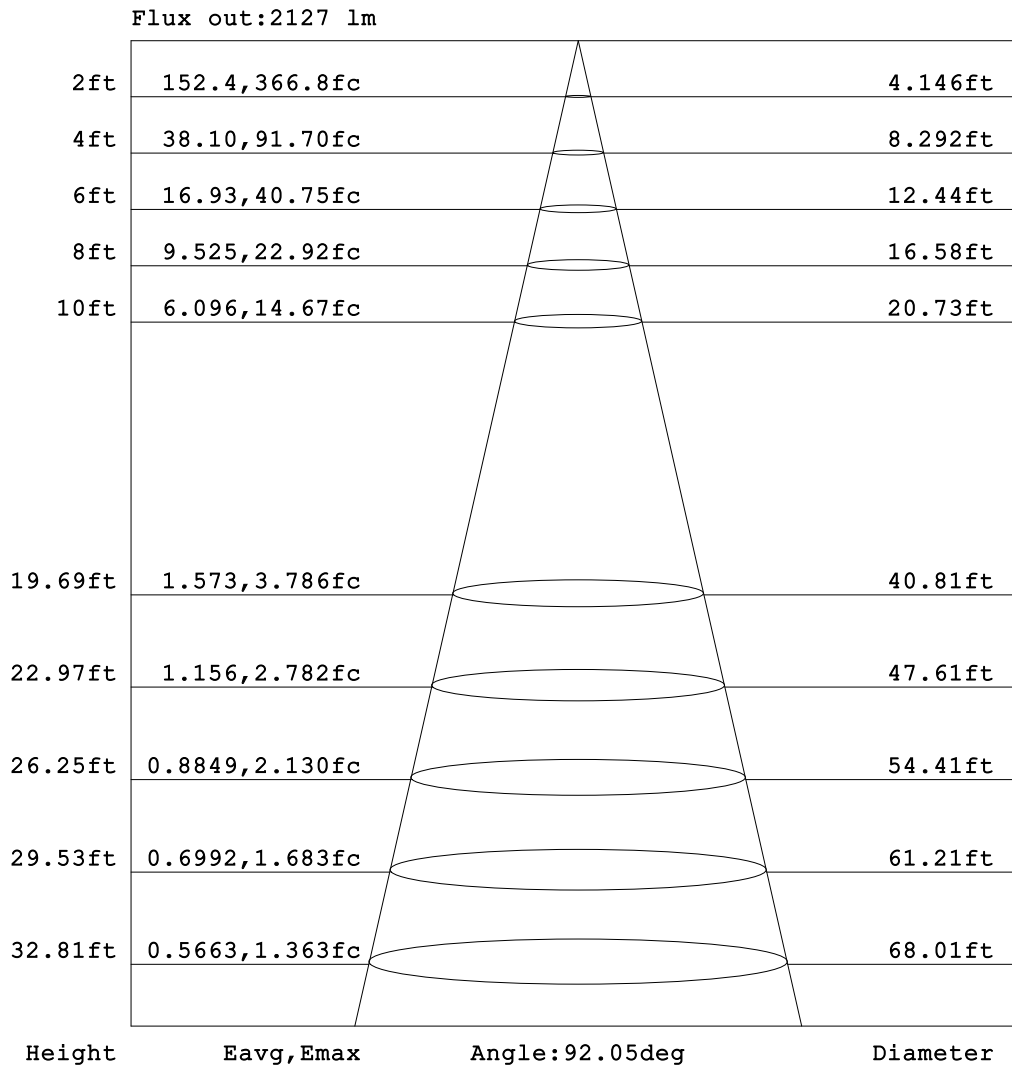


C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

**AAI Figure**

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W 35KTYPE:	WEIGHT:	
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding Angle:



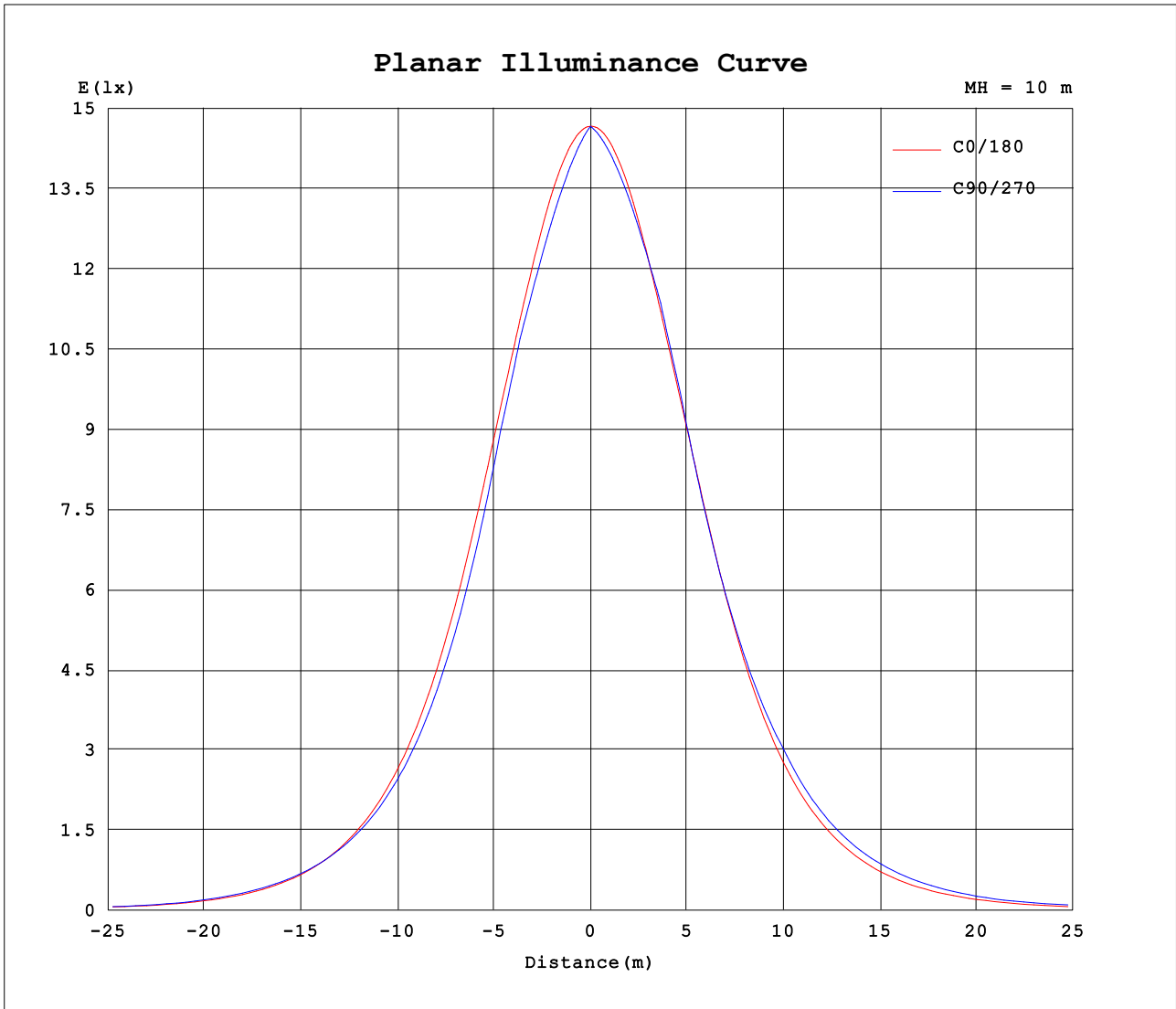
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Testing Room  
 Test Date: 2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity: 65.0%  
 Test Distance: 11.160m [K=1.0000]  
 Remarks:



Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Testing Room  
 Test Date: 2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity: 65.0%  
 Test Distance: 11.160m [K=1.0000]  
 Remarks:





LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.2459A P:29.40W PF:0.9962 Freq:59.98Hz Lamp Flux:3082.72x1 lm		
NAME: 9.5inch Commercial Retrofit Downlights 32W	35KYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: tospo	SUR.:	Shielding Angle:

Table--3

UNIT: cd

C (DEG) γ (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467	1467
5	1457	1455	1453	1451	1450	1448	1447	1446	1445	1444	1444	1443	1443	1443	1443	1443	1443	1443	1443
10	1430	1426	1423	1420	1418	1417	1417	1418	1418	1418	1418	1419	1419	1419	1419	1419	1418	1418	1417
15	1388	1382	1378	1379	1380	1382	1384	1384	1385	1386	1387	1388	1390	1391	1393	1393	1394	1394	1393
20	1328	1322	1325	1329	1332	1332	1333	1336	1341	1348	1354	1359	1363	1367	1369	1370	1370	1368	1366
25	1252	1253	1258	1260	1259	1262	1276	1290	1303	1303	1300	1299	1299	1300	1300	1301	1302	1302	1302
30	1155	1163	1167	1163	1173	1195	1213	1209	1209	1209	1204	1200	1197	1195	1193	1191	1190	1190	1190
35	1036	1050	1041	1054	1085	1088	1086	1087	1088	1089	1083	1079	1077	1076	1077	1078	1079	1080	1080
40	903	904	907	946	943	942	949	951	945	943	948	954	959	964	966	968	968	966	963
45	762	744	783	786	787	800	791	788	802	816	824	829	836	843	849	854	856	856	853
50	599	605	625	624	636	623	638	657	661	668	680	690	698	702	705	706	706	705	703
55	435	473	460	474	462	487	492	498	520	535	542	545	548	550	553	555	556	557	556
60	300	310	327	316	336	332	362	383	388	390	396	400	403	405	406	406	406	406	405
65	197	202	195	203	213	243	253	263	271	271	266	262	259	256	255	255	256	257	259
70	116	120	124	130	142	159	171	169	160	155	154	154	156	158	159	160	161	161	160
75	86.4	87.9	89.1	89.4	97.3	98.7	101	98.9	96.4	96.3	97.7	102	107	112	116	119	121	121	119
80	54.3	53.6	56.7	59.2	62.4	62.6	62.7	63.1	63.6	64.0	65.1	68.0	71.7	75.3	78.2	80.0	80.7	80.2	78.5
85	17.9	23.6	26.3	29.4	31.1	31.6	31.9	32.0	32.0	32.1	32.5	33.8	35.6	37.4	39.0	40.1	40.6	40.5	39.8
90	0.68	0.66	0.64	0.62	0.60	0.58	0.59	0.57	0.56	0.54	0.54	0.53	0.53	0.53	0.53	0.52	0.52	0.52	0.52

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-10-15

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

