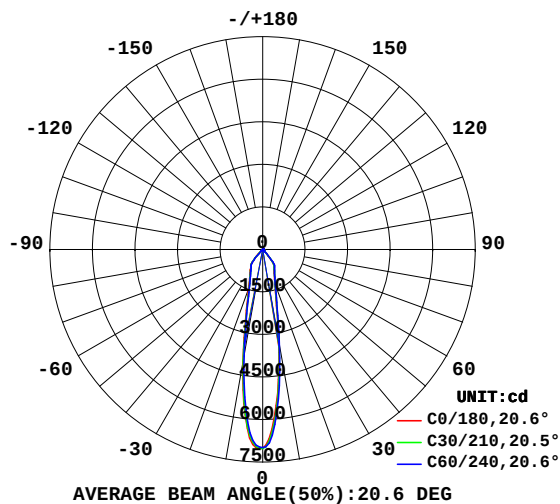


LUMINAIRE PHOTOMETRIC TEST REPORT

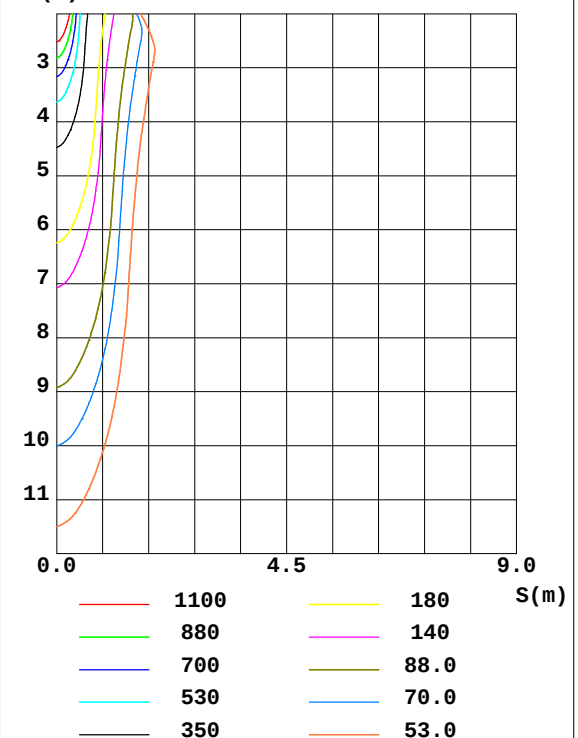
Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 55.63 lm/W
MODEL	CRI97-3000K-40W	Imax(cd)	7022	S/MH(C0/180)		0.32
NOMINAL POWER(W)	40	LOR(%)	100.0	S/MH(C90/270)		0.26
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	2202.8	η UP, DN(C0-180)		0.6, 45.7
NOMINAL FLUX(lm)	2202.81	CIE CLASS	DIRECT	η UP, DN(C180-360)		1.0, 52.6
LAMPS INSIDE	1	η up(%)	1.6	CIBSE SHR NOM		0.00
TEST VOLTAGE(V)	221.9	η down(%)	98.4	CIBSE SHR MAX		1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT: lx)



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2015-12-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.6625]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3285	3376	2354	3362	4060	3893	4991	3489	0- 10	472.3	472.3	21.4,21.4
20	1277	1303	1117	1332	1460	1390	1673	1328	10- 20	587.1	1059	48.1,48.1
30	823.9	837.1	763.8	841.9	884.2	855.1	936.8	833.6	20- 30	479.9	1539	69.9,69.9
40	399.3	455.6	218.2	484.6	576.9	525.6	678.2	453.3	30- 40	437.1	1976	89.7,89.7
50	47.41	48.09	39.87	52.74	57.42	52.14	66.99	52.52	40- 50	132.2	2109	95.7,95.7
60	17.78	18.86	15.41	20.09	22.52	21.57	28.44	21.79	50- 60	31.20	2140	97.1,97.1
70	9.249	9.990	9.676	10.54	11.57	11.71	11.35	11.47	60- 70	14.28	2154	97.8,97.8
80	4.376	5.323	3.096	5.329	6.530	7.055	7.131	6.984	70- 80	8.859	2163	98.2,98.2
90	2.385	2.347	2.486	2.301	4.390	4.383	4.226	4.527	80- 90	4.208	2167	98.4,98.4
100	2.901	2.823	2.853	2.739	5.037	5.042	4.810	5.019	90-100	3.918	2171	98.6,98.6
110	3.620	3.568	3.720	3.402	5.880	5.868	5.645	5.853	100-110	4.543	2176	98.8,98.8
120	4.288	4.215	4.336	4.052	6.839	6.830	6.472	6.857	110-120	5.032	2181	99,99
130	4.943	4.867	4.947	4.643	8.854	8.854	8.197	8.931	120-130	5.443	2186	99.2,99.2
140	5.975	5.851	5.790	5.521	10.51	10.33	10.15	10.32	130-140	5.802	2192	99.5,99.5
150	6.351	6.283	6.127	5.987	9.415	9.187	9.596	9.114	140-150	5.020	2197	99.7,99.7
160	6.477	6.461	6.362	6.377	7.850	7.667	7.869	7.515	150-160	3.409	2200	99.9,99.9
170	6.585	6.492	6.372	6.704	7.230	6.970	7.110	6.754	160-170	1.961	2202	100,100
180	6.504	6.345	6.427	6.188	6.543	6.332	6.416	6.182	170-180	0.6321	2203	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT: lm		

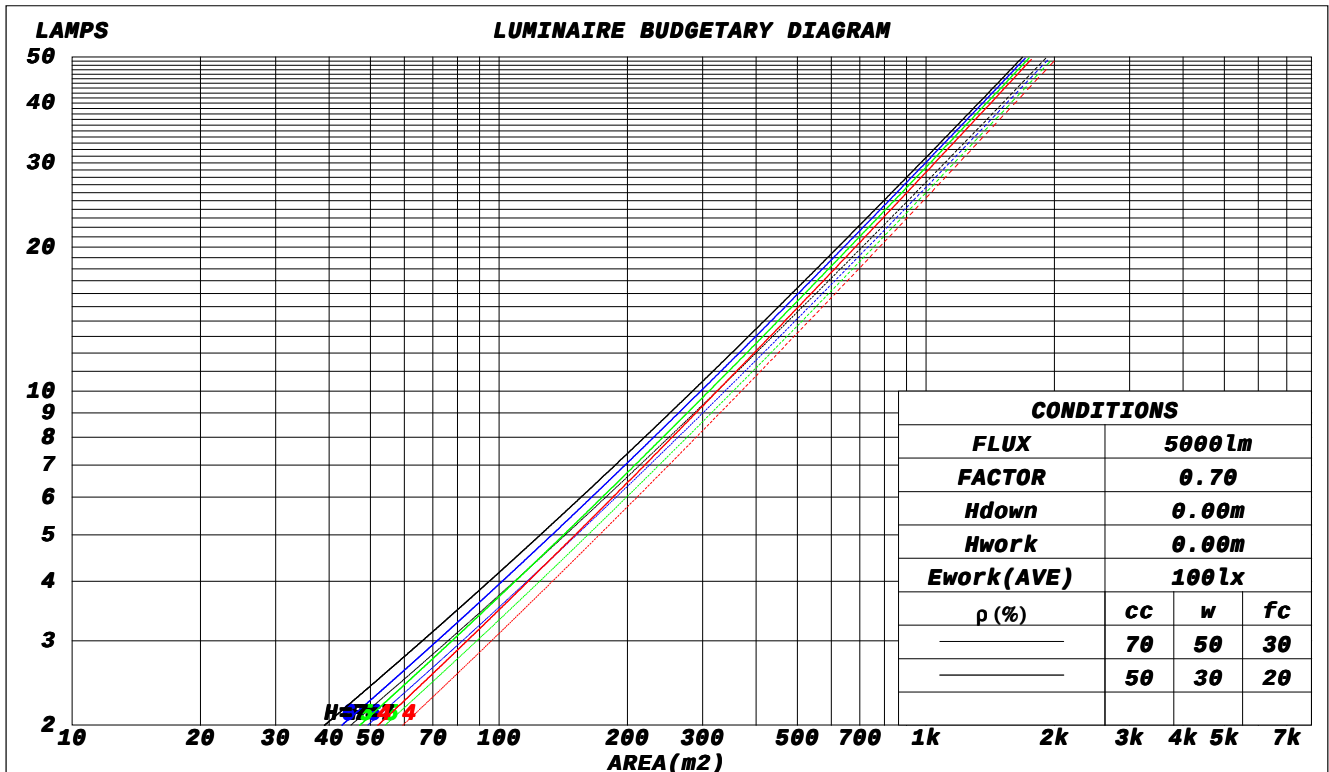
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.6625]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

ρ_{CC}	80%			70%			50%			30%			10%			0
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	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	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	.98
1.0	1.11	1.08	1.06	1.08	1.06	1.04	1.04	1.02	1.01	.99	.99	.97	.96	.95	.94	.92
2.0	1.03	.99	.96	1.01	.98	.95	.98	.95	.93	.95	.92	.90	.92	.90	.88	.87
3.0	.97	.92	.88	.95	.91	.87	.92	.89	.86	.90	.87	.84	.87	.85	.83	.81
4.0	.91	.86	.82	.90	.85	.81	.87	.83	.80	.85	.82	.79	.83	.80	.78	.76
5.0	.86	.80	.76	.85	.80	.76	.83	.78	.75	.81	.77	.74	.79	.76	.73	.72
6.0	.81	.75	.71	.80	.75	.71	.79	.74	.71	.77	.73	.70	.76	.72	.69	.68
7.0	.77	.71	.67	.76	.71	.67	.75	.70	.67	.73	.69	.66	.72	.69	.66	.64
8.0	.73	.68	.64	.72	.67	.64	.71	.67	.63	.70	.66	.63	.69	.65	.62	.61
9.0	.70	.64	.60	.69	.64	.60	.68	.63	.60	.67	.63	.60	.66	.62	.59	.58
10.0	.67	.61	.58	.66	.61	.57	.65	.60	.57	.64	.60	.57	.64	.60	.57	.56



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2015-12-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.6625]
 Remarks:

WEC AND CCEC

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

ρ_{CC}	80%			70%			50%			30%			10%			0	
ρ_W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρ_{fc}	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.174	.099	.031	.167	.095	.030	.153	.088	.028	.141	.081	.026	.129	.075	.024		
2.0	.165	.090	.028	.159	.088	.027	.147	.082	.025	.137	.077	.024	.127	.072	.023		
3.0	.156	.083	.025	.151	.081	.024	.141	.076	.023	.132	.072	.022	.124	.068	.021		
4.0	.148	.077	.023	.143	.075	.022	.135	.071	.021	.127	.068	.021	.120	.065	.020		
5.0	.140	.071	.021	.136	.070	.020	.129	.067	.020	.122	.064	.019	.116	.062	.019		
6.0	.133	.067	.019	.130	.066	.019	.123	.063	.018	.117	.061	.018	.111	.059	.017		
7.0	.127	.063	.018	.124	.062	.018	.118	.060	.017	.112	.058	.017	.107	.056	.016		
8.0	.121	.059	.017	.118	.058	.016	.113	.056	.016	.108	.055	.016	.104	.053	.015		
9.0	.115	.056	.016	.113	.055	.015	.108	.054	.015	.104	.052	.015	.100	.051	.015		
10.0	.110	.053	.015	.108	.052	.015	.104	.051	.014	.100	.050	.014	.096	.048	.014		

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.203	.203	.203	.173	.173	.173	.118	.118	.118	.068	.068	.068	.022	.022	.022	
1.0	.183	.170	.158	.157	.146	.136	.107	.100	.094	.062	.058	.055	.020	.019	.018	
2.0	.168	.145	.126	.144	.125	.109	.099	.086	.076	.057	.050	.045	.018	.016	.015	
3.0	.155	.126	.103	.133	.109	.089	.091	.076	.063	.053	.044	.037	.017	.014	.012	
4.0	.145	.111	.086	.124	.096	.075	.085	.067	.053	.049	.039	.031	.016	.013	.010	
5.0	.136	.100	.073	.116	.086	.064	.080	.060	.045	.046	.035	.027	.015	.012	.009	
6.0	.128	.090	.063	.110	.078	.055	.076	.055	.039	.044	.032	.023	.014	.011	.008	
7.0	.121	.083	.056	.104	.072	.049	.072	.050	.034	.042	.030	.021	.013	.010	.007	
8.0	.115	.076	.050	.099	.066	.043	.069	.046	.031	.040	.027	.018	.013	.009	.006	
9.0	.110	.071	.045	.095	.062	.039	.065	.043	.028	.038	.026	.017	.012	.008	.006	
10.0	.105	.067	.041	.090	.058	.036	.063	.041	.025	.037	.024	.015	.012	.008	.005	

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.6625]
Remarks:

Uncorrected UGR Table

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm										
NAME: LED Track Light					TYPE:LED					
MFR.: shenzhen powerstar technology co.,ltd										
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	14.8	15.7	15.0	15.9	16.0	14.6	15.5	14.9	15.7	15.9
3H	14.7	15.5	14.9	15.7	15.9	14.5	15.3	14.8	15.6	15.8
4H	14.6	15.4	14.9	15.6	15.9	14.5	15.3	14.8	15.5	15.8
6H	14.6	15.3	14.9	15.5	15.8	14.4	15.2	14.8	15.4	15.7
8H	14.5	15.2	14.9	15.5	15.8	14.4	15.1	14.7	15.4	15.7
12H	14.5	15.2	14.8	15.4	15.8	14.4	15.0	14.7	15.3	15.6
4H 2H	14.6	15.3	14.9	15.6	15.8	14.4	15.2	14.7	15.4	15.7
3H	14.5	15.1	14.8	15.4	15.7	14.3	15.0	14.7	15.3	15.6
4H	14.4	15.0	14.8	15.4	15.7	14.3	14.9	14.7	15.2	15.6
6H	14.4	14.9	14.8	15.3	15.7	14.3	14.8	14.7	15.2	15.6
8H	14.4	14.8	14.8	15.2	15.6	14.3	14.7	14.7	15.1	15.5
12H	14.3	14.8	14.8	15.2	15.6	14.2	14.7	14.7	15.1	15.5
8H 4H	14.3	14.8	14.7	15.2	15.6	14.2	14.7	14.6	15.1	15.5
6H	14.3	14.7	14.8	15.1	15.6	14.2	14.6	14.7	15.0	15.5
8H	14.3	14.6	14.7	15.1	15.6	14.2	14.5	14.7	15.0	15.5
12H	14.3	14.6	14.7	15.0	15.5	14.2	14.5	14.7	15.0	15.5
12H 4H	14.3	14.7	14.7	15.1	15.5	14.2	14.6	14.6	15.0	15.4
6H	14.3	14.6	14.7	15.1	15.5	14.2	14.5	14.6	15.0	15.4
8H	14.2	14.5	14.7	15.0	15.5	14.1	14.5	14.6	14.9	15.4
Variations with the observer position at spacings:										
S = 1.0H	+ 3.2 / - 7.8					+ 2.9 / - 7.2				
1.5H	+ 5.7 / - 6.7					+ 5.4 / - 6.4				
2.0H	+ 2.2 / - 1.7					+ 1.9 / - 1.6				

CIE Pub.117 Corrected 2203 lm Total Lamp Luminous Flux. (8log(F/F0) = 2.7)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.6625]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

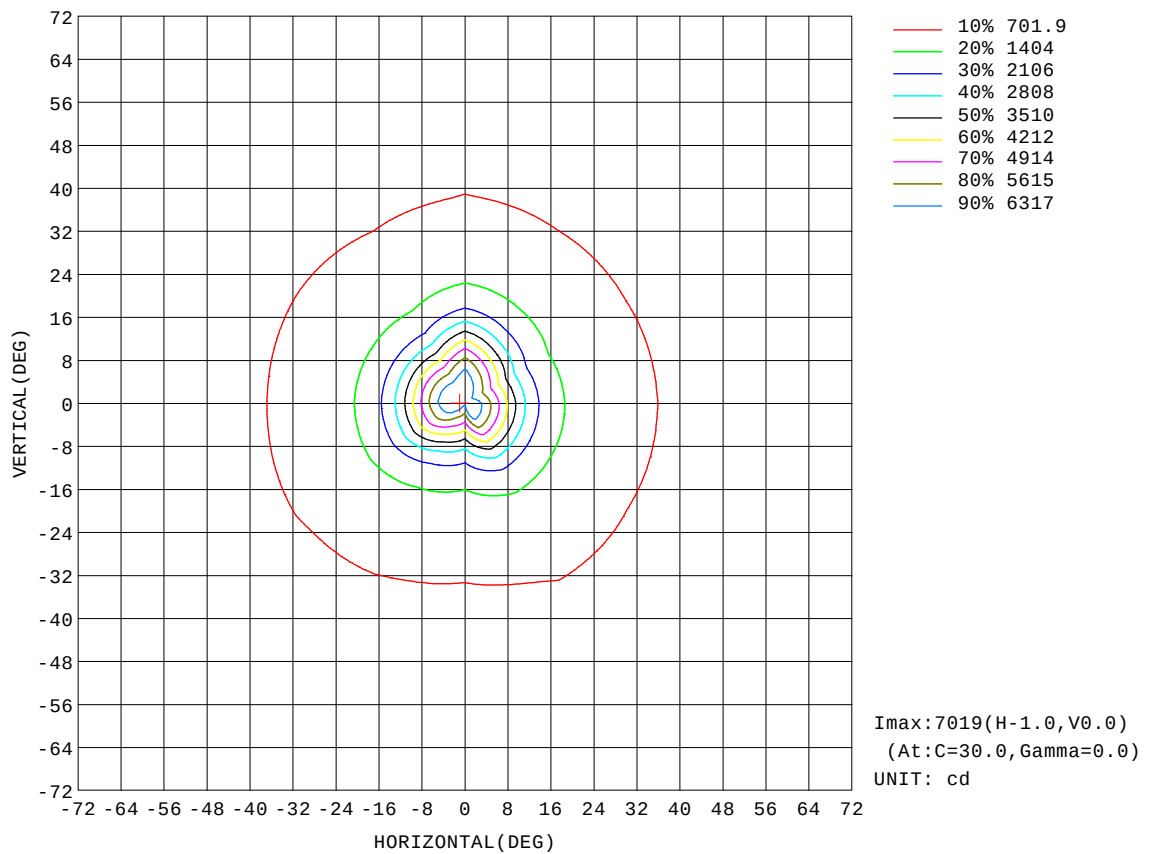
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	85	78	75	85	78	74	84	78	74	70
0.80	93	87	83	92	86	82	91	86	82	78
1.00	98	92	88	97	91	87	95	91	87	83
1.25	102	96	93	101	96	92	98	94	91	87
1.50	105	99	96	103	99	95	101	97	94	89
2.00	107	103	100	106	102	99	103	100	97	91
2.50	109	105	102	107	104	101	104	101	99	93
3.00	111	107	104	109	106	103	105	103	101	94
4.00	113	110	108	111	108	106	107	105	103	96
5.00	114	112	110	112	110	108	108	106	105	97
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:2015-12-07

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.6625]
Remarks:

ISOCANDELA DIAGRAM

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		



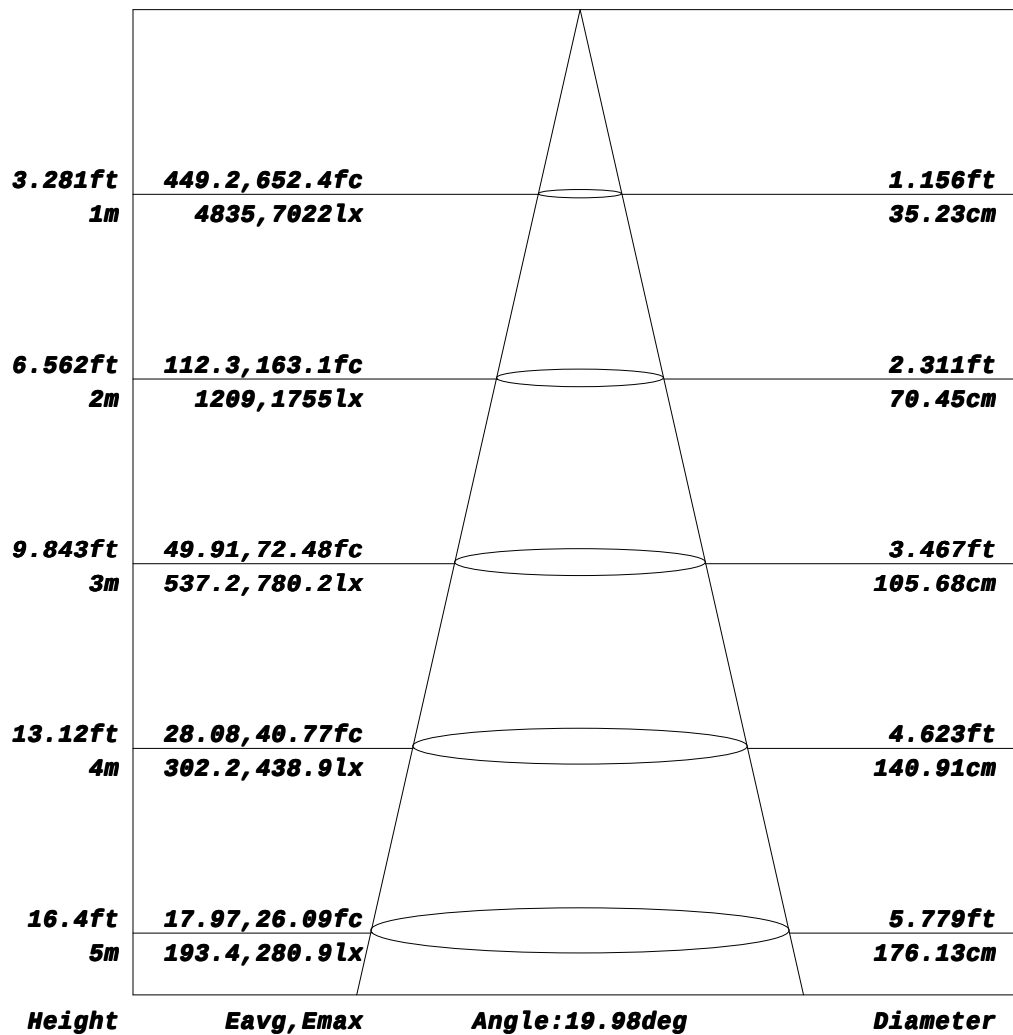
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.6625]
Remarks:

AAI Figure

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE: LED	
MFR.: shenzhen powerstar technology co., ltd		

Flux out:472.3 lm



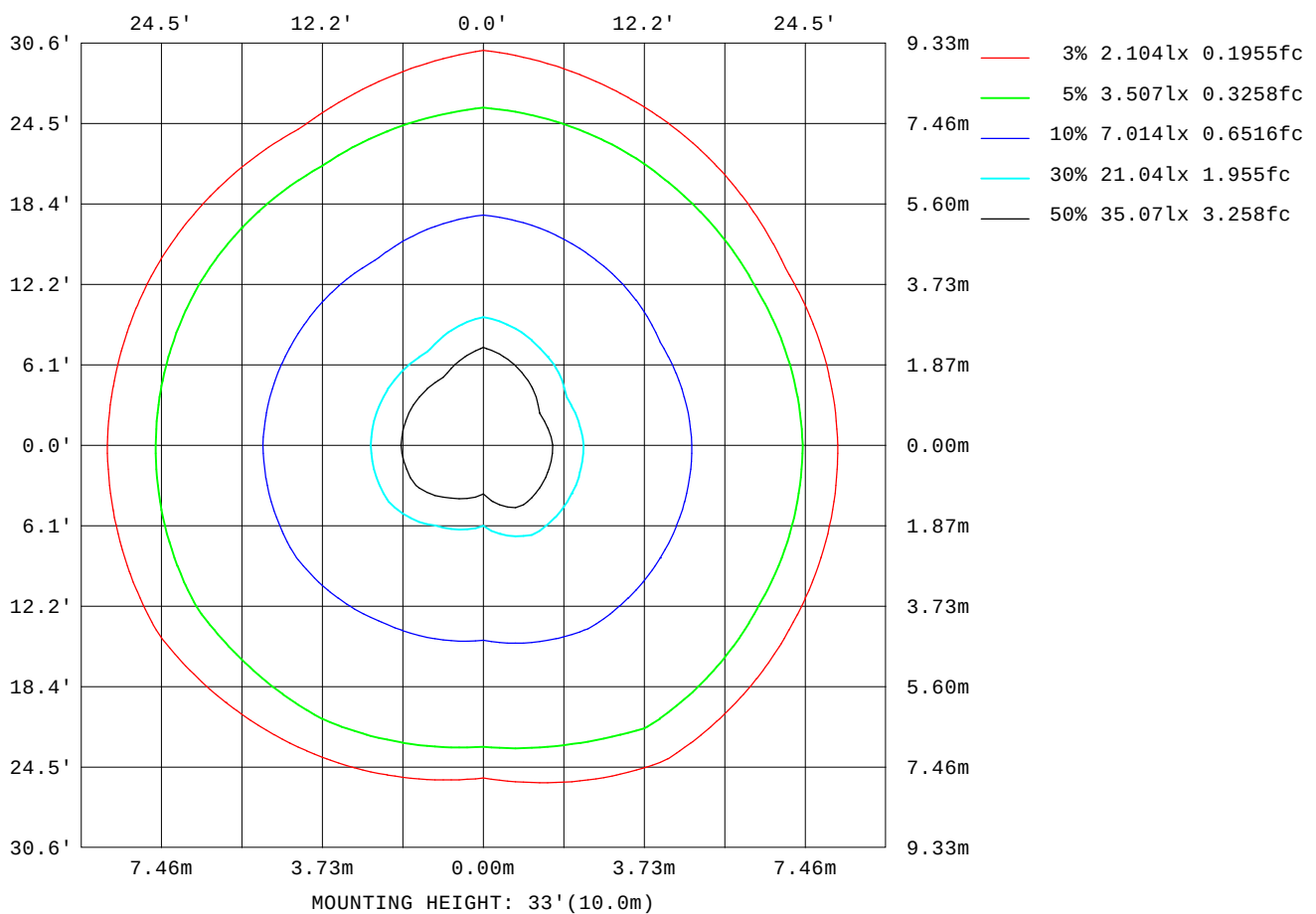
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.6625]
Remarks:

ISOLUX DIAGRAM

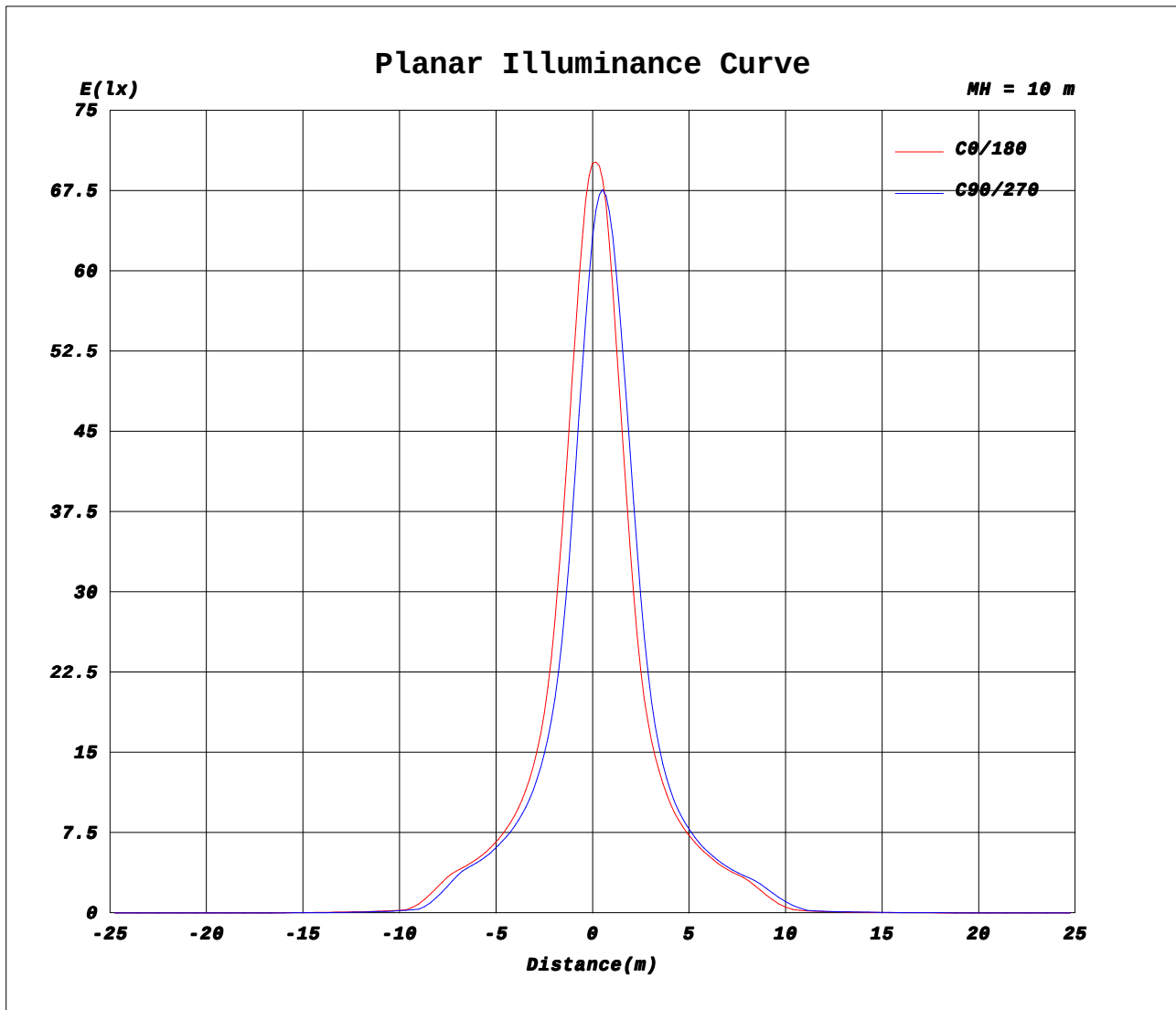
Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2015-12-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.6625]
Remarks:

Planar Illuminance Curve



C Range: $0 - 360\text{DEG}$
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2015-12-07

γ Range: $0 - 180\text{DEG}$
 γ Interval: 1.0DEG
Test System: EVERFINE G0-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [$K=0.6625$]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:221.9V I:0.1830A P:39.60W PF:0.9740 Lamp Flux:2202.81x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330						
0	7007	7022	6991	6302	6436	6585	7007	7022	6991	6302	6436	6585						
5	5524	5645	5747	4225	4892	5923	6327	6251	6113	6626	5889	5111						
10	3285	3322	3430	2354	2866	3859	4060	3965	3821	4991	3958	3020						
15	1865	1887	1938	1515	1744	2167	2225	2161	2092	2873	2211	1771						
20	1277	1289	1317	1117	1226	1437	1460	1408	1372	1673	1425	1230						
25	992	1002	1014	904	962	1074	1089	1058	1038	1188	1065	964						
30	824	828	846	764	811	873	884	859	851	937	860	807						
35	723	714	742	639	716	740	738	734	717	782	723	703						
40	399	424	487	218	394	576	577	549	502	678	541	365						
45	72.2	85.0	83.9	62.5	77.3	166	155	124	101	305	145	72.2						
50	47.4	47.2	49.0	39.9	47.2	58.2	57.4	53.7	50.6	67.0	57.4	47.6						
55	31.6	31.7	32.7	23.9	30.2	38.5	38.6	37.0	35.7	44.6	39.5	32.1						
60	17.8	18.5	19.2	15.4	17.9	22.3	22.5	21.8	21.3	28.4	24.0	19.4						
65	12.1	12.7	13.3	12.2	13.0	14.2	14.3	14.6	14.2	15.9	14.8	14.0						
70	9.25	9.50	10.5	9.68	10.2	10.9	11.6	11.8	11.6	11.4	11.5	11.5						
75	6.74	7.06	8.26	7.40	7.98	8.09	8.99	9.53	9.40	9.01	9.15	9.37						
80	4.38	4.85	5.79	3.10	5.16	5.50	6.53	6.65	7.46	7.13	7.23	6.74						
85	2.39	2.37	2.43	2.77	2.49	2.44	4.27	4.26	4.30	4.23	4.31	5.04						
90	2.39	2.35	2.34	2.49	2.30	2.30	4.39	4.37	4.39	4.23	4.29	4.76						
95	2.58	2.54	2.49	2.54	2.49	2.43	4.67	4.66	4.68	4.47	4.58	4.71						
100	2.90	2.87	2.78	2.85	2.78	2.70	5.04	5.03	5.06	4.81	4.94	5.10						
105	3.26	3.25	3.14	3.29	3.10	3.04	5.47	5.45	5.48	5.21	5.37	5.53						
110	3.62	3.63	3.51	3.72	3.42	3.39	5.88	5.86	5.87	5.64	5.78	5.93						
115	4.00	3.97	3.87	4.09	3.74	3.75	6.29	6.26	6.28	6.03	6.17	6.37						
120	4.29	4.26	4.17	4.34	4.02	4.08	6.84	6.81	6.85	6.47	6.69	7.02						
125	4.55	4.53	4.44	4.57	4.30	4.37	7.70	7.68	7.73	7.17	7.51	8.04						
130	4.94	4.91	4.83	4.95	4.68	4.61	8.85	8.83	8.87	8.20	8.62	9.25						
135	5.46	5.41	5.32	5.42	5.11	5.02	9.95	9.89	9.90	9.34	9.69	10.2						
140	5.98	5.90	5.80	5.79	5.56	5.48	10.5	10.3	10.3	10.2	10.2	10.4						
145	6.24	6.19	6.07	5.99	5.82	5.78	10.2	10.0	9.99	10.2	10.00	9.87						
150	6.35	6.35	6.22	6.13	6.01	5.96	9.42	9.22	9.16	9.60	9.21	9.01						
155	6.40	6.44	6.31	6.23	6.16	6.16	8.50	8.31	8.28	8.68	8.29	8.11						
160	6.48	6.52	6.40	6.36	6.29	6.46	7.85	7.68	7.66	7.87	7.57	7.46						
165	6.58	6.59	6.49	6.42	6.36	6.85	7.49	7.28	7.26	7.38	7.12	7.04						
170	6.58	6.51	6.47	6.37	6.31	7.10	7.23	6.97	6.96	7.11	6.86	6.65						
175	6.51	6.37	6.38	6.31	6.19	6.95	6.90	6.64	6.64	6.86	6.55	6.34						
180	6.50	6.35	6.34	6.43	6.21	6.17	6.54	6.32	6.35	6.42	6.21	6.15						

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2015-12-07

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.6625]
Remarks: