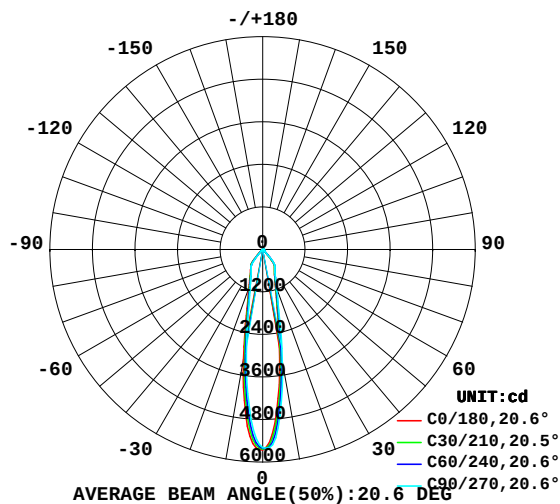


LUMINAIRE PHOTOMETRIC TEST REPORT

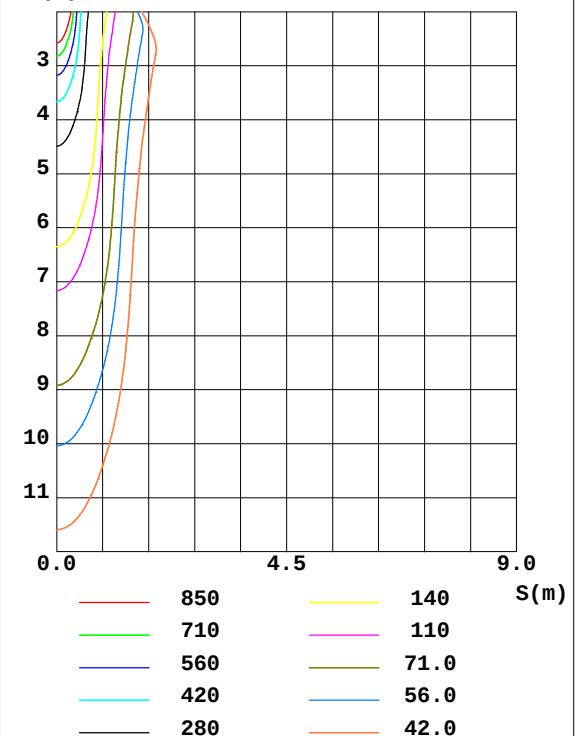
Test:U:221.9V I:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 58.88 lm/W			
MODEL	CRI97-3000K-30W	Imax(cd)	5650	S/MH(C0/180)	0.33
NOMINAL POWER(W)	30	LOR(%)	100.0	S/MH(C90/270)	0.38
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	1784.0	η UP, DN(C0-180)	0.6, 51.5
NOMINAL FLUX(lm)	1784.02	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.0, 46.9
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	2733	2953	3218	3335	3146	2868	2627	2509	0- 10	391.9	391.9	22,22
20	1049	1099	1160	1189	1145	1067	1015	991.5	10- 20	471.5	863.4	48.4,48.4
30	670.0	686.4	692.4	702.5	689.7	667.0	653.3	638.4	20- 30	384.7	1248	70,70
40	352.1	422.0	472.0	481.2	440.8	374.7	311.6	286.6	30- 40	354.0	1602	89.8,89.8
50	39.11	40.61	44.73	48.98	43.11	39.79	38.21	37.15	40- 50	105.5	1708	95.7,95.7
60	14.42	16.23	17.64	18.30	17.20	16.12	15.18	14.74	50- 60	24.92	1733	97.1,97.1
70	7.513	8.385	9.089	9.094	9.020	9.129	8.666	8.503	60- 70	11.33	1744	97.8,97.8
80	3.578	4.637	5.322	5.325	5.280	5.609	5.642	5.081	70- 80	7.305	1751	98.2,98.2
90	1.974	1.950	1.945	1.962	3.562	3.581	3.604	3.617	80- 90	3.503	1755	98.4,98.4
100	2.416	2.347	2.318	2.329	4.095	4.132	4.172	4.193	90-100	3.252	1758	98.5,98.5
110	2.959	2.928	2.892	2.904	4.770	4.799	4.826	4.846	100-110	3.771	1762	98.8,98.8
120	3.448	3.399	3.378	3.409	5.553	5.613	5.681	5.728	110-120	4.143	1766	99,99
130	3.970	3.895	3.868	3.914	7.101	7.287	7.391	7.452	120-130	4.510	1770	99.2,99.2
140	4.781	4.681	4.684	4.738	8.440	8.343	8.328	8.348	130-140	4.762	1775	99.5,99.5
150	5.075	5.047	5.028	5.130	7.512	7.325	7.173	7.225	140-150	4.050	1779	99.7,99.7
160	5.184	5.213	5.160	5.277	6.268	6.153	6.029	6.108	150-160	2.738	1782	99.9,99.9
170	5.287	5.267	5.358	5.377	5.762	5.604	5.601	5.569	160-170	1.584	1784	100,100
180	5.236	5.137	5.215	5.154	5.255	5.126	5.211	5.145	170-180	0.5116	1784	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT: lm		

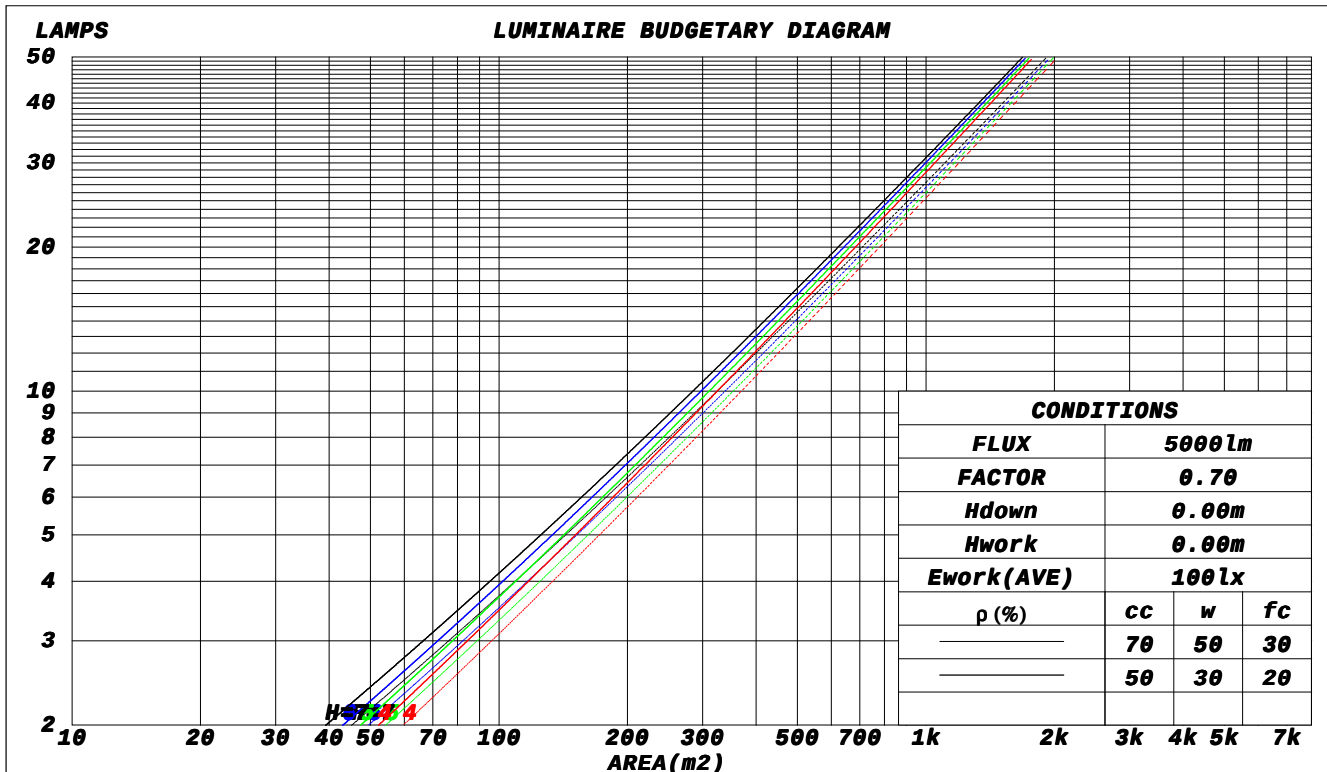
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2015-12-07

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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 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	.74	.72
6.0	.81	.76	.72	.80	.75	.71	.79	.74	.71	.77	.73	.70	.76	.72	.70	.68
7.0	.77	.71	.68	.76	.71	.67	.75	.70	.67	.74	.69	.66	.72	.69	.66	.65
8.0	.73	.68	.64	.73	.67	.64	.71	.67	.63	.70	.66	.63	.69	.65	.63	.61
9.0	.70	.64	.61	.69	.64	.61	.68	.64	.60	.67	.63	.60	.66	.63	.60	.58
10.0	.67	.61	.58	.66	.61	.58	.65	.61	.58	.65	.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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 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	.173	.099	.031	.166	.095	.030	.153	.088	.028	.140	.081	.026	.129	.075	.024		
2.0	.164	.090	.028	.158	.087	.027	.147	.082	.025	.136	.077	.024	.127	.072	.023		
3.0	.156	.083	.025	.150	.081	.024	.141	.076	.023	.132	.072	.022	.123	.068	.021		
4.0	.147	.077	.022	.143	.075	.022	.134	.071	.021	.126	.068	.020	.119	.065	.020		
5.0	.140	.071	.021	.136	.070	.020	.128	.067	.020	.121	.064	.019	.115	.061	.018		
6.0	.133	.066	.019	.129	.065	.019	.123	.063	.018	.117	.061	.018	.111	.058	.017		
7.0	.126	.062	.018	.123	.061	.017	.117	.059	.017	.112	.057	.017	.107	.056	.016		
8.0	.120	.059	.017	.118	.058	.016	.112	.056	.016	.108	.055	.016	.103	.053	.015		
9.0	.115	.056	.016	.113	.055	.015	.108	.053	.015	.103	.052	.015	.099	.050	.015		
10.0	.110	.053	.015	.108	.052	.015	.104	.051	.014	.100	.049	.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	.090	.091	.076	.063	.053	.044	.037	.017	.014	.012	
4.0	.145	.112	.086	.124	.096	.075	.085	.067	.053	.049	.039	.031	.016	.013	.010	
5.0	.136	.100	.074	.116	.086	.064	.080	.060	.045	.046	.035	.027	.015	.012	.009	
6.0	.128	.090	.064	.110	.078	.055	.076	.055	.039	.044	.032	.023	.014	.011	.008	
7.0	.121	.083	.056	.104	.072	.049	.072	.050	.035	.042	.030	.021	.013	.010	.007	
8.0	.115	.076	.050	.099	.066	.044	.068	.047	.031	.040	.027	.018	.013	.009	.006	
9.0	.110	.071	.045	.094	.062	.039	.065	.043	.028	.038	.026	.017	.012	.008	.006	
10.0	.105	.067	.041	.090	.058	.036	.063	.041	.026	.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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 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	20.0	20.9	20.2	21.1	21.3	20.8	21.7	21.1	21.9	22.1
3H	19.9	20.7	20.2	20.9	21.1	20.7	21.5	21.0	21.8	22.0
4H	19.8	20.6	20.1	20.8	21.1	20.7	21.4	21.0	21.7	21.9
6H	19.8	20.5	20.1	20.8	21.0	20.6	21.3	20.9	21.6	21.9
8H	19.7	20.4	20.1	20.7	21.0	20.6	21.3	20.9	21.6	21.9
12H	19.7	20.4	20.0	20.7	21.0	20.6	21.2	20.9	21.5	21.8
4H 2H	19.8	20.5	20.1	20.8	21.0	20.6	21.4	20.9	21.6	21.9
3H	19.7	20.3	20.0	20.6	20.9	20.5	21.2	20.8	21.5	21.8
4H	19.6	20.2	20.0	20.6	20.9	20.5	21.1	20.8	21.4	21.7
6H	19.6	20.1	20.0	20.5	20.9	20.5	21.0	20.9	21.3	21.7
8H	19.6	20.1	20.0	20.4	20.8	20.4	20.9	20.9	21.3	21.7
12H	19.5	20.0	20.0	20.4	20.8	20.4	20.9	20.8	21.3	21.7
8H 4H	19.5	20.0	19.9	20.4	20.8	20.3	20.8	20.8	21.2	21.6
6H	19.5	19.9	20.0	20.3	20.8	20.4	20.8	20.8	21.2	21.6
8H	19.5	19.8	20.0	20.3	20.8	20.4	20.7	20.8	21.2	21.6
12H	19.5	19.8	20.0	20.2	20.7	20.3	20.6	20.8	21.1	21.6
12H 4H	19.5	19.9	19.9	20.3	20.8	20.3	20.8	20.7	21.2	21.6
6H	19.5	19.8	19.9	20.3	20.7	20.3	20.7	20.8	21.1	21.6
8H	19.5	19.8	19.9	20.2	20.7	20.3	20.6	20.8	21.1	21.6
Variations with the observer position at spacings:										
S = 1.0H	+ 2.9 / - 8.0					+ 2.8 / - 7.7				
1.5H	+ 5.4 / - 6.8					+ 5.2 / - 6.9				
2.0H	+ 2.2 / - 1.7					+ 5.2 / - 2.1				

CIE Pub.117 Corrected 1784 lm Total Lamp Luminous Flux. (8log(F/F0) = 2.0)

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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

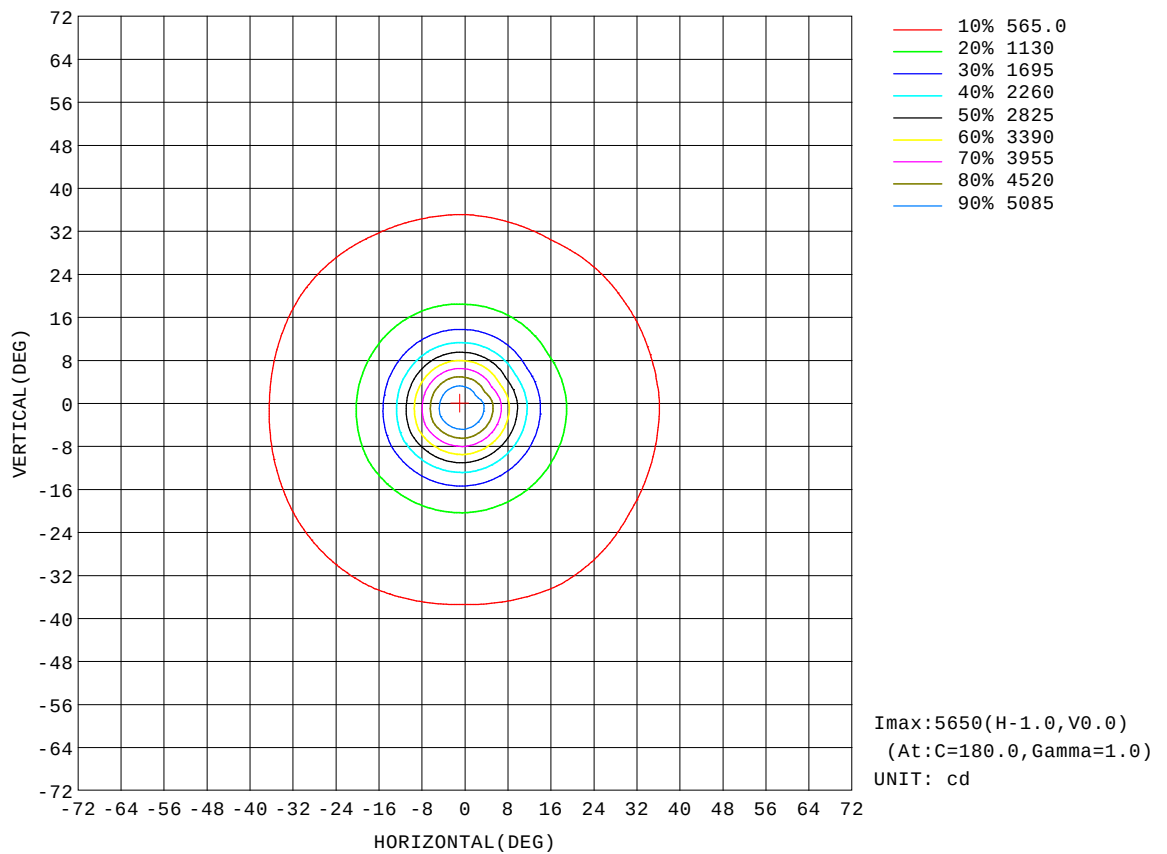
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	85	79	75	85	78	74	84	78	74	71
0.80	93	87	83	92	86	83	91	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	100	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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		



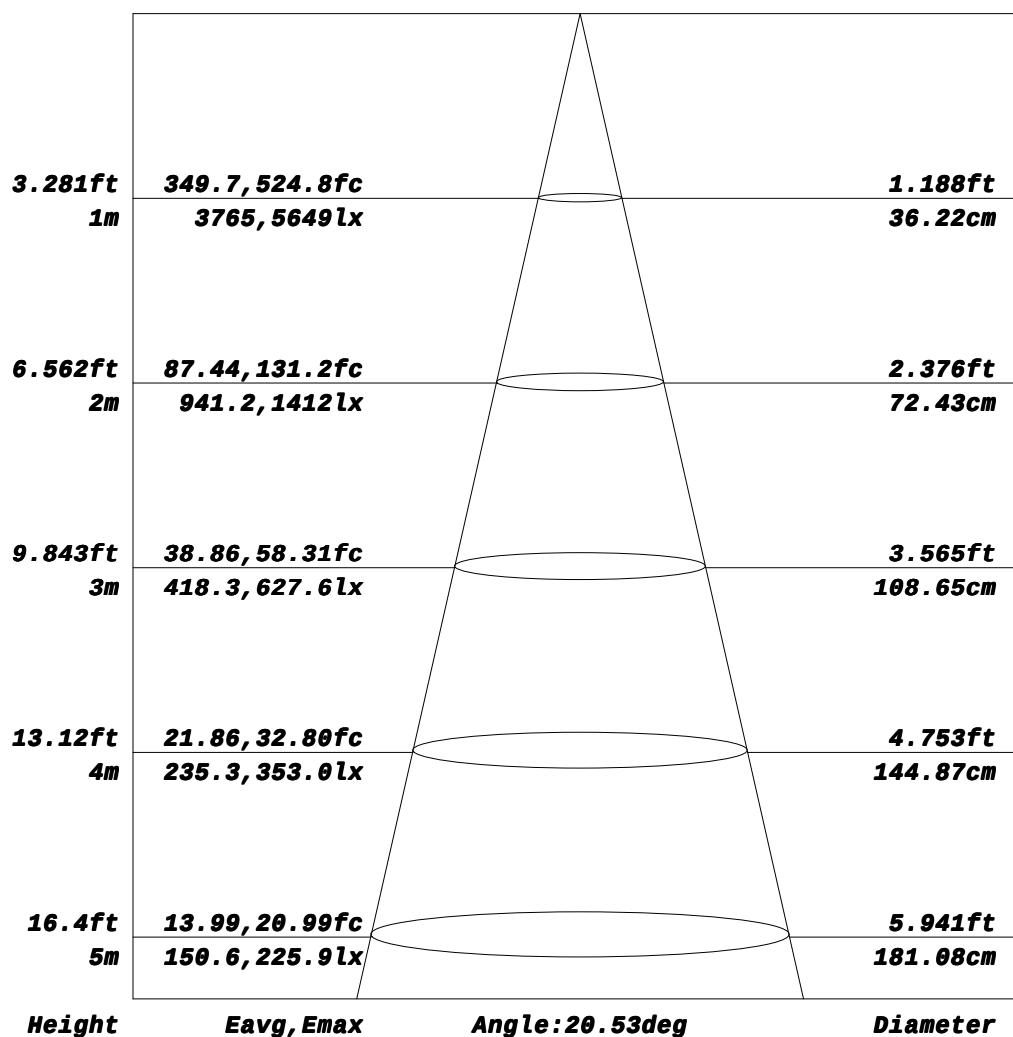
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

Flux out:446.9 lm



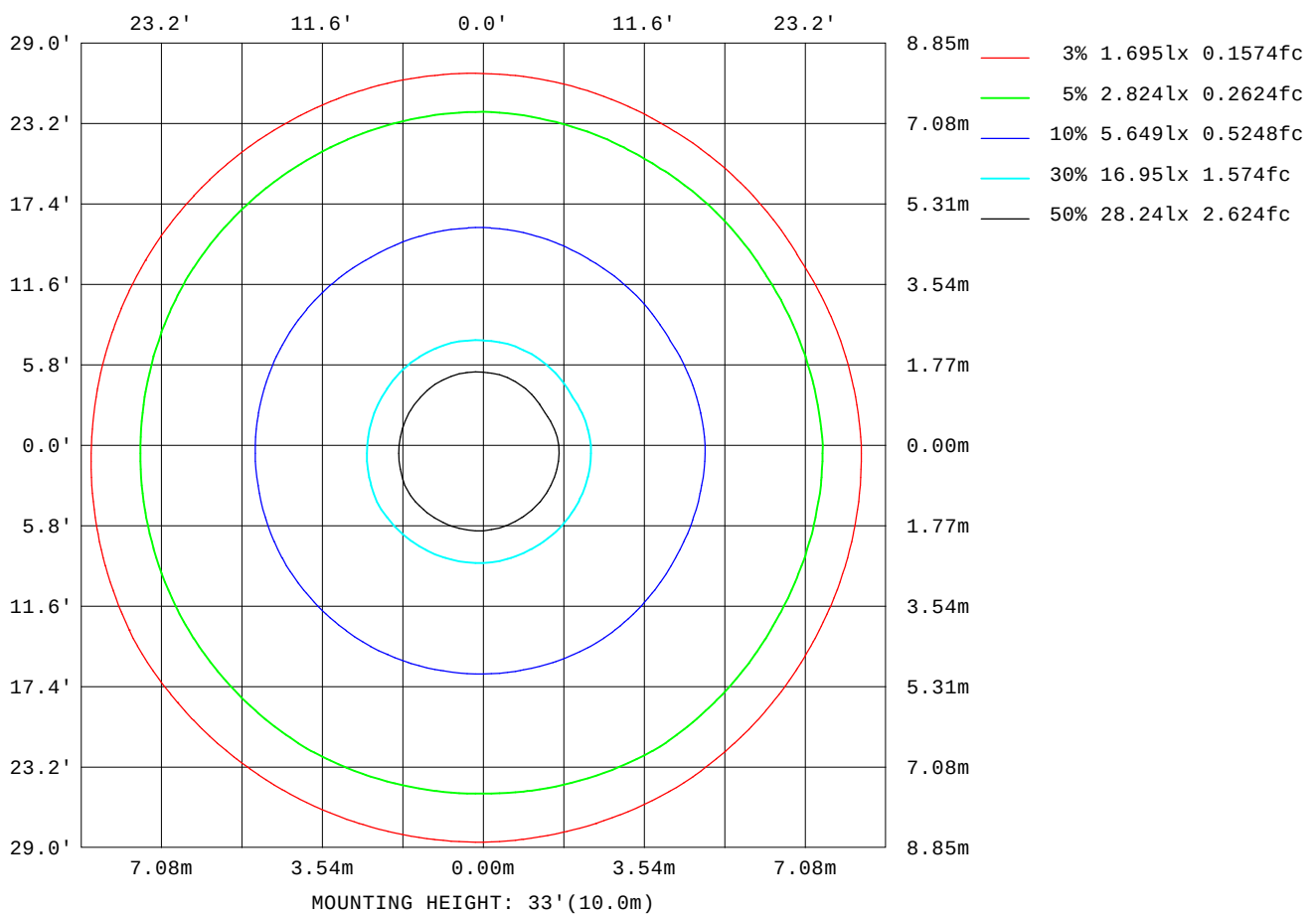
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

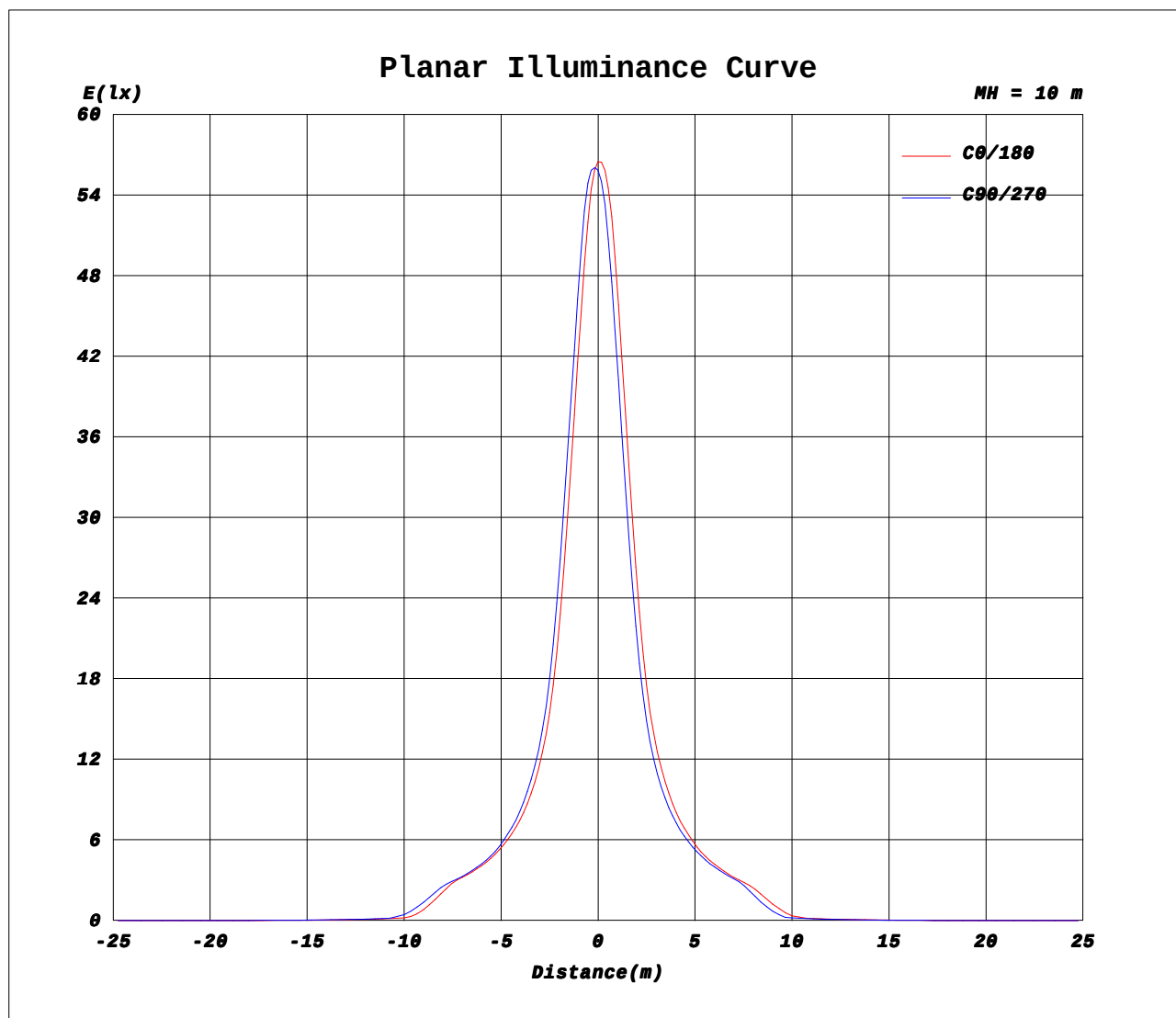
Test:U:221.9V I:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		



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:0.1410A P:30.30W PF:0.9640 Lamp Flux:1784.02x1 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	5649	5631	5610	5587	5563	5524	5649	5631	5610	5587	5563	5524						
5	4577	4742	4888	5047	5109	5139	5001	4823	4648	4443	4334	4237						
10	2733	2874	3032	3218	3306	3363	3146	2948	2788	2627	2546	2472						
15	1540	1603	1679	1766	1818	1843	1725	1626	1555	1480	1447	1422						
20	1049	1080	1117	1160	1181	1197	1145	1083	1050	1015	1000	983						
25	811	825	847	867	871	883	861	826	796	788	767	768						
30	670	674	698	692	704	701	690	676	658	653	635	642						
35	586	586	609	600	608	600	586	581	567	567	549	560						
40	352	393	451	472	480	483	441	399	350	312	290	284						
45	60.9	83.1	94.5	127	142	155	105	75.6	60.8	56.9	55.9	56.6						
50	39.1	39.6	41.7	44.7	48.8	49.2	43.1	41.1	38.5	38.2	37.2	37.2						
55	26.2	27.0	28.4	30.1	31.0	31.3	29.9	27.8	26.5	25.8	25.3	24.6						
60	14.4	15.8	16.6	17.6	18.2	18.4	17.2	16.5	15.8	15.2	15.0	14.5						
65	9.78	10.6	11.1	11.4	11.7	11.7	11.1	11.3	10.9	10.6	10.4	10.4						
70	7.51	7.94	8.83	9.09	9.24	8.95	9.02	9.22	9.03	8.67	8.54	8.47						
75	5.45	5.97	6.88	7.11	7.22	6.80	7.03	7.53	7.47	7.25	7.16	7.06						
80	3.58	4.26	5.01	5.32	5.52	5.13	5.28	5.32	5.90	5.64	5.40	4.76						
85	1.96	2.00	1.99	2.05	2.12	2.11	3.46	3.46	3.49	3.48	3.50	3.46						
90	1.97	1.97	1.93	1.94	1.96	1.97	3.56	3.57	3.59	3.60	3.63	3.61						
95	2.14	2.10	2.07	2.07	2.07	2.09	3.79	3.81	3.83	3.86	3.87	3.87						
100	2.42	2.35	2.34	2.32	2.32	2.34	4.10	4.11	4.15	4.17	4.19	4.20						
105	2.70	2.64	2.65	2.62	2.62	2.64	4.44	4.45	4.50	4.52	4.53	4.54						
110	2.96	2.91	2.95	2.89	2.90	2.91	4.77	4.79	4.81	4.83	4.84	4.85						
115	3.22	3.16	3.19	3.14	3.15	3.18	5.10	5.12	5.14	5.17	5.19	5.21						
120	3.45	3.40	3.40	3.38	3.39	3.43	5.55	5.59	5.64	5.68	5.72	5.74						
125	3.67	3.62	3.59	3.59	3.61	3.65	6.26	6.32	6.39	6.45	6.50	6.53						
130	3.97	3.91	3.88	3.87	3.89	3.94	7.19	7.25	7.32	7.39	7.43	7.47						
135	4.37	4.30	4.25	4.24	4.27	4.33	8.05	8.06	8.09	8.13	8.16	8.20						
140	4.78	4.71	4.65	4.68	4.70	4.77	8.44	8.35	8.34	8.33	8.31	8.38						
145	4.98	4.95	4.90	4.93	4.97	5.03	8.19	8.02	7.99	7.91	7.90	7.98						
150	5.07	5.08	5.02	5.03	5.11	5.15	7.51	7.35	7.30	7.17	7.18	7.27						
155	5.13	5.17	5.11	5.10	5.20	5.23	6.78	6.65	6.63	6.48	6.50	6.61						
160	5.18	5.25	5.18	5.16	5.28	5.28	6.27	6.15	6.16	6.03	6.04	6.17						
165	5.27	5.31	5.27	5.28	5.37	5.36	5.98	5.84	5.86	5.80	5.77	5.88						
170	5.29	5.26	5.27	5.36	5.39	5.37	5.76	5.60	5.61	5.60	5.53	5.61						
175	5.25	5.17	5.21	5.31	5.29	5.29	5.50	5.32	5.33	5.35	5.28	5.32						
180	5.24	5.12	5.15	5.22	5.15	5.16	5.25	5.11	5.15	5.21	5.14	5.15						

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: