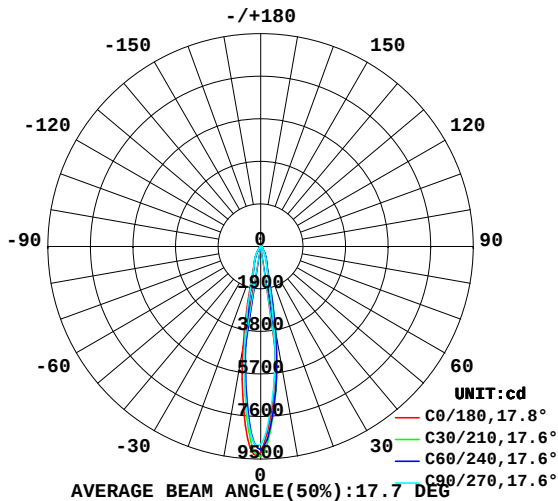


LUMINAIRE PHOTOMETRIC TEST REPORT

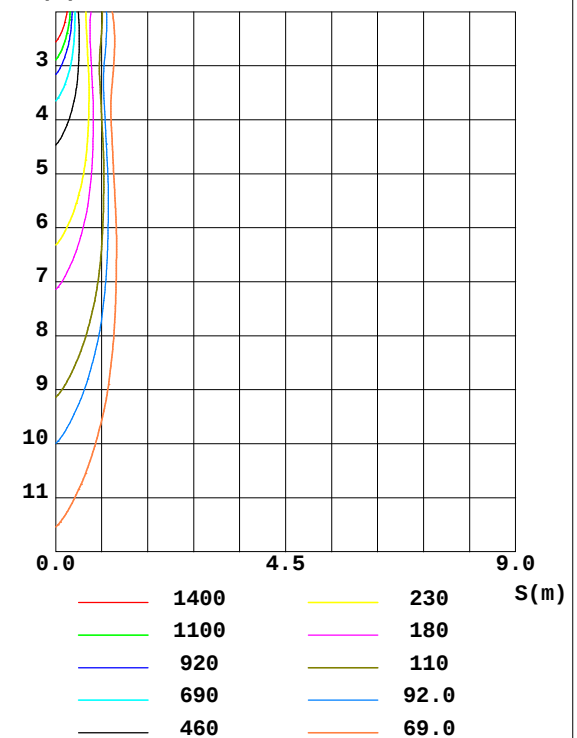
Test:U:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 72.26 lm/W
MODEL	CRI80-3000K-20W	Imax(cd)	9569	S/MH(C0/180)	0.28	
NOMINAL POWER(W)	22	LOR(%)	100.0	S/MH(C90/270)	0.29	
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	1524.6	η UP, DN(C0-180)	0.6, 44.4	
NOMINAL FLUX(lm)	1524.61	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.0, 54.0	
LAMPS INSIDE	1	η up(%)	1.6	CIBSE SHR NOM	0.00	
TEST VOLTAGE(V)	222.1	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	3273	3839	3278	2935	4600	3752	4015	4892	0- 10	574.3	574.3	37.7,37.7
20	798.0	807.8	729.7	709.7	901.5	875.5	899.9	941.4	10- 20	459.4	1034	67.8,67.8
30	377.0	378.3	328.0	307.3	415.2	384.6	405.0	445.6	20- 30	265.7	1299	85.2,85.2
40	101.4	112.2	94.73	76.50	114.8	94.49	100.7	129.4	30- 40	139.4	1439	94.4,94.4
50	24.96	28.82	24.73	21.48	31.01	28.16	29.08	32.05	40- 50	42.15	1481	97.1,97.1
60	3.081	3.193	3.159	3.148	4.206	3.673	3.700	4.312	50- 60	10.65	1492	97.8,97.8
70	2.338	2.417	2.387	2.339	3.284	3.170	3.011	3.137	60- 70	3.006	1495	98,98
80	1.504	1.594	1.562	1.467	3.130	3.047	2.905	2.978	70- 80	2.643	1497	98.2,98.2
90	1.222	1.220	1.230	1.220	3.170	3.130	3.065	3.053	80- 90	2.376	1500	98.4,98.4
100	1.686	1.456	1.621	1.746	3.349	3.314	3.231	3.209	90-100	2.477	1502	98.5,98.5
110	2.457	2.101	2.424	2.435	3.686	3.653	3.543	3.515	100-110	2.858	1505	98.7,98.7
120	2.842	2.717	2.841	2.768	4.344	4.388	4.190	4.100	110-120	3.199	1508	98.9,98.9
130	3.188	3.372	3.214	3.161	6.562	7.101	6.396	6.158	120-130	3.675	1512	99.2,99.2
140	4.093	4.435	4.148	4.050	8.693	8.946	8.472	8.449	130-140	4.474	1516	99.5,99.5
150	4.406	4.871	4.410	4.297	7.058	7.108	6.887	7.135	140-150	3.942	1520	99.7,99.7
160	4.781	5.017	4.472	4.547	5.359	5.353	5.019	5.197	150-160	2.475	1523	99.9,99.9
170	5.361	5.270	4.699	4.683	4.710	4.452	4.478	4.637	160-170	1.389	1524	100,100
180	4.341	4.180	4.090	4.073	4.368	4.180	4.078	4.078	170-180	0.4302	1525	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

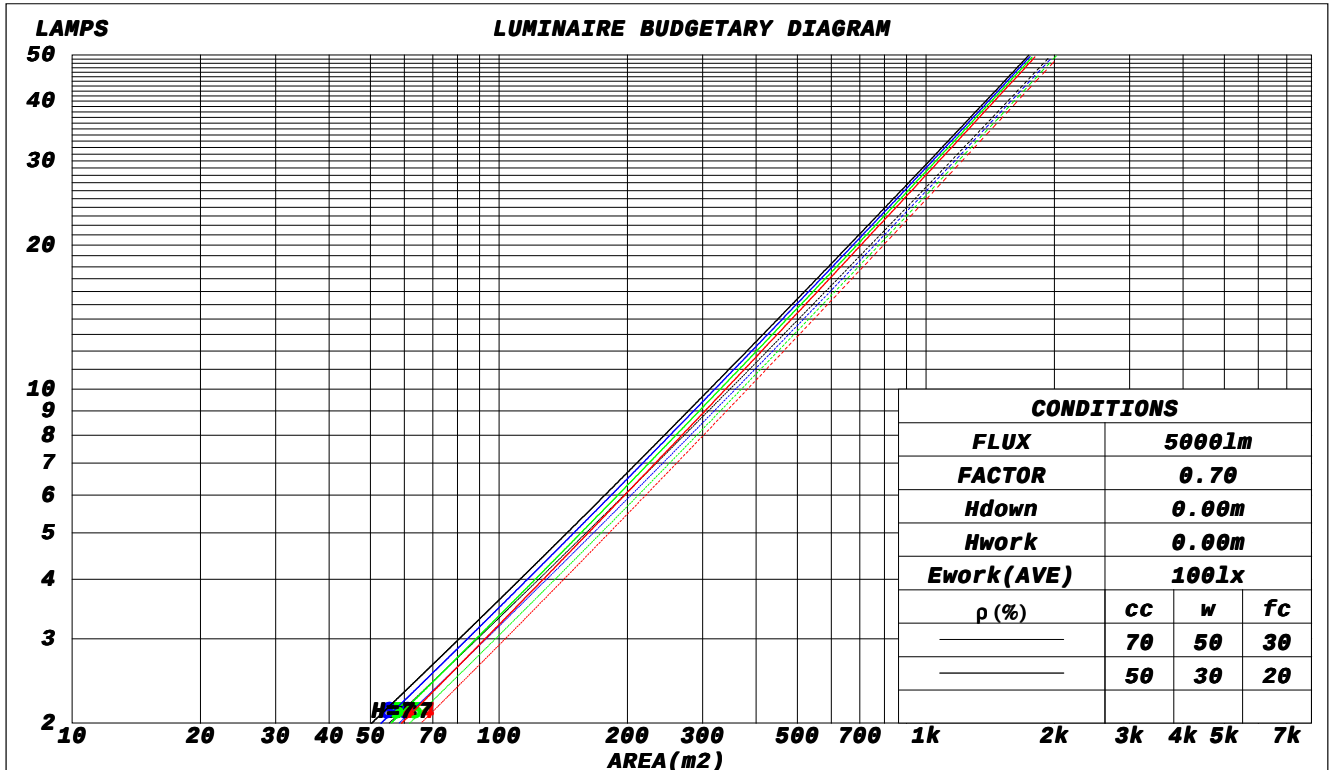
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

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:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 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															



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:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 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	.148	.084	.027	.141	.080	.025	.127	.073	.023	.115	.066	.021	.104	.060	.019		
2.0	.138	.075	.023	.132	.072	.022	.120	.067	.021	.110	.062	.019	.101	.057	.018		
3.0	.129	.068	.020	.124	.066	.020	.114	.062	.019	.105	.058	.018	.097	.054	.017		
4.0	.121	.063	.018	.116	.061	.018	.108	.057	.017	.101	.054	.016	.094	.051	.016		
5.0	.114	.058	.017	.110	.056	.016	.103	.054	.016	.097	.051	.015	.090	.048	.015		
6.0	.108	.054	.015	.104	.053	.015	.098	.050	.015	.093	.048	.014	.087	.046	.014		
7.0	.102	.050	.014	.099	.049	.014	.094	.047	.014	.089	.046	.013	.084	.044	.013		
8.0	.097	.047	.013	.095	.047	.013	.090	.045	.013	.085	.043	.012	.081	.042	.012		
9.0	.093	.045	.012	.090	.044	.012	.086	.043	.012	.082	.041	.012	.078	.040	.012		
10.0	.088	.042	.012	.086	.042	.012	.083	.040	.011	.079	.039	.011	.076	.038	.011		

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	.182	.170	.160	.155	.146	.137	.106	.100	.095	.061	.058	.055	.020	.019	.018	
2.0	.164	.145	.129	.141	.125	.112	.096	.087	.078	.056	.050	.046	.018	.016	.015	
3.0	.150	.126	.107	.129	.109	.093	.088	.076	.065	.051	.044	.038	.016	.014	.013	
4.0	.138	.111	.090	.118	.096	.078	.081	.067	.055	.047	.039	.033	.015	.013	.011	
5.0	.128	.099	.077	.110	.085	.067	.076	.060	.048	.044	.035	.028	.014	.011	.009	
6.0	.119	.089	.067	.102	.077	.059	.071	.054	.041	.041	.032	.025	.013	.010	.008	
7.0	.112	.081	.059	.096	.070	.052	.066	.049	.037	.039	.029	.022	.012	.009	.007	
8.0	.105	.074	.053	.091	.064	.046	.063	.045	.033	.036	.027	.020	.012	.009	.006	
9.0	.100	.069	.048	.086	.060	.042	.059	.042	.030	.035	.025	.018	.011	.008	.006	
10.0	.095	.064	.044	.082	.056	.038	.057	.039	.027	.033	.023	.016	.011	.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:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 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	8.9	9.6	9.1	9.8	10.0	8.4	9.1	8.6	9.2	9.4
3H	8.8	9.4	9.0	9.6	9.9	8.2	8.9	8.5	9.1	9.3
4H	8.7	9.3	9.0	9.6	9.8	8.2	8.8	8.5	9.0	9.3
6H	8.6	9.2	9.0	9.5	9.8	8.1	8.7	8.4	9.0	9.2
8H	8.6	9.2	8.9	9.5	9.7	8.1	8.7	8.4	8.9	9.2
12H	8.6	9.1	8.9	9.4	9.7	8.1	8.6	8.4	8.9	9.2
4H 2H	8.7	9.3	9.0	9.5	9.8	8.1	8.8	8.4	9.0	9.2
3H	8.5	9.1	8.9	9.4	9.7	8.0	8.6	8.3	8.8	9.1
4H	8.5	9.0	8.8	9.3	9.6	8.0	8.5	8.3	8.8	9.1
6H	8.4	8.9	8.8	9.2	9.6	7.9	8.4	8.3	8.7	9.1
8H	8.4	8.8	8.8	9.2	9.6	7.9	8.3	8.3	8.7	9.1
12H	8.4	8.8	8.8	9.2	9.6	7.9	8.3	8.3	8.7	9.1
8H 4H	8.3	8.7	8.8	9.1	9.5	7.8	8.2	8.2	8.6	9.0
6H	8.3	8.6	8.8	9.1	9.5	7.8	8.1	8.3	8.6	9.0
8H	8.3	8.6	8.8	9.0	9.5	7.8	8.1	8.3	8.6	9.0
12H	8.3	8.6	8.8	9.1	9.6	7.9	8.1	8.4	8.6	9.1
12H 4H	8.3	8.7	8.7	9.1	9.5	7.8	8.2	8.2	8.5	9.0
6H	8.3	8.6	8.7	9.0	9.5	7.8	8.1	8.2	8.5	9.0
8H	8.3	8.5	8.8	9.0	9.5	7.8	8.0	8.3	8.5	9.0
Variations with the observer position at spacings:										
S = 1.0H	+ 2.7 / - 7.7					+ 2.7 / - 7.0				
1.5H	+ 4.5 / - 7.3					+ 4.3 / - 6.5				
2.0H	+ 5.0 / - 4.3					+ 4.8 / - 4.1				

CIE Pub.117 Corrected 1525 lm Total Lamp Luminous Flux. (8log(F/F0) = 1.5)

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:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

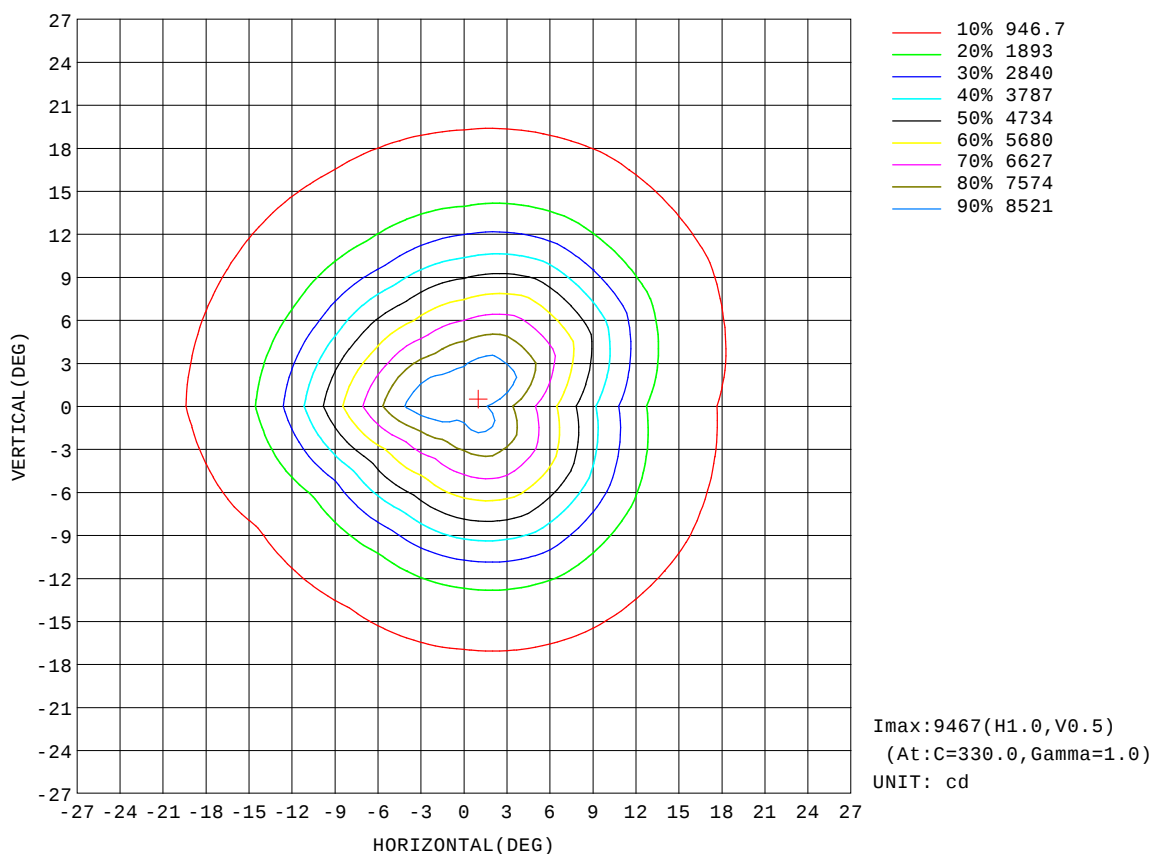
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	88	82	78	87	82	78	87	81	78	74
0.80	95	90	86	95	89	86	93	89	85	82
1.00	99	94	91	99	94	90	97	93	90	86
1.25	103	98	95	102	98	94	100	96	94	89
1.50	106	101	98	105	100	97	102	99	96	92
2.00	108	104	101	107	103	100	104	101	99	93
2.50	110	106	103	108	105	102	105	102	100	94
3.00	112	108	105	110	107	104	106	104	102	95
4.00	114	111	109	111	109	107	107	106	104	97
5.00	115	113	111	112	111	109	108	107	106	98
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:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		

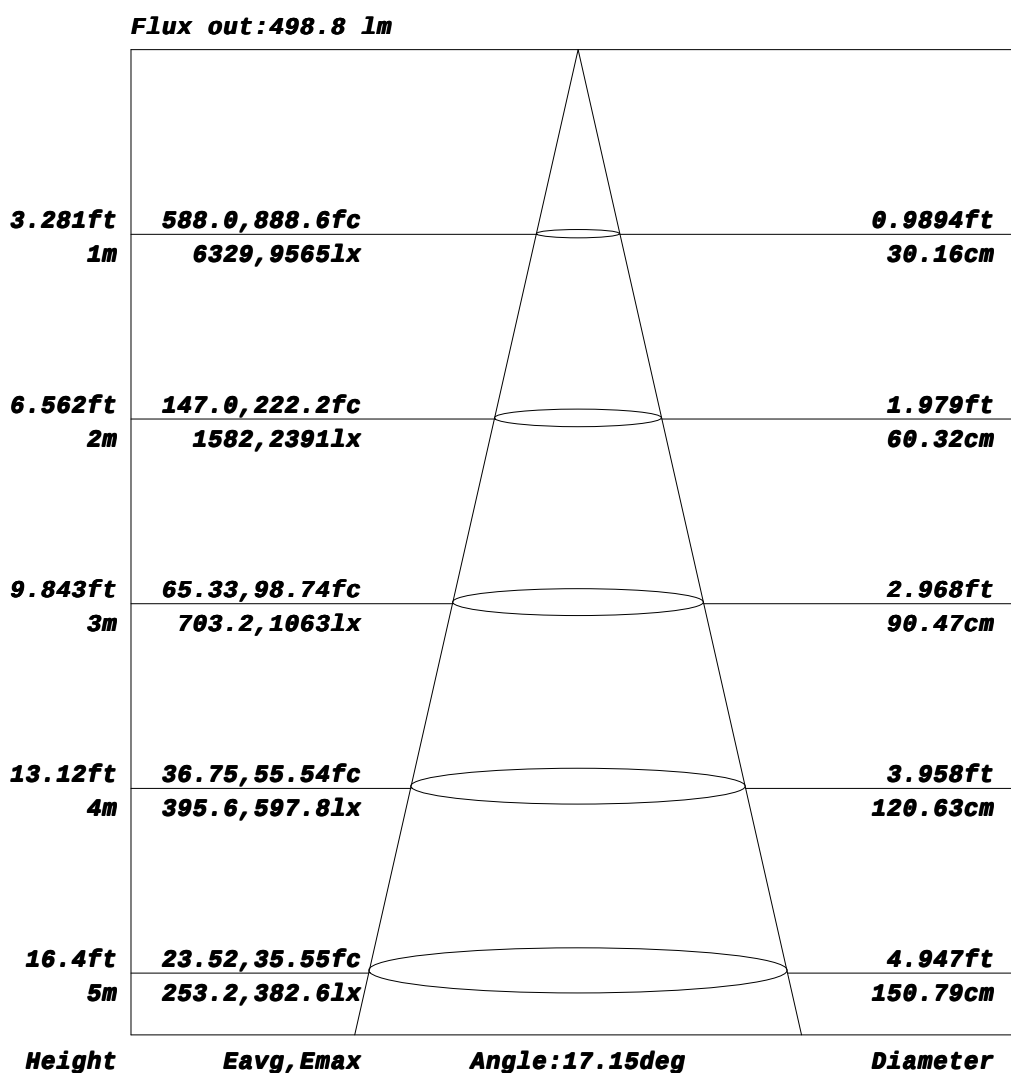


C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2015-12-07

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:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 lm		
NAME: LED Track Light	TYPE: LED	
MFR.: shenzhen powerstar technology co.,ltd		



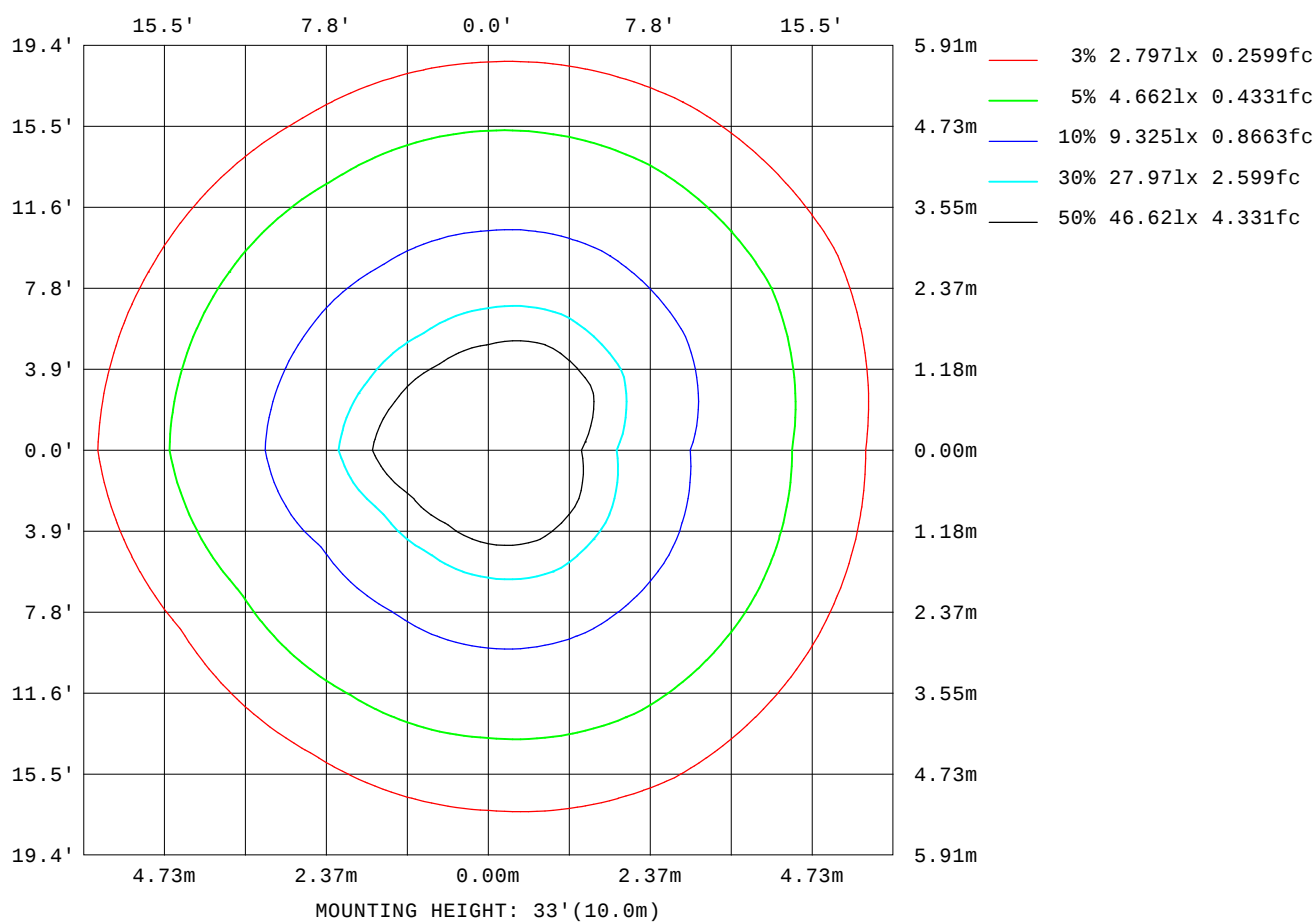
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

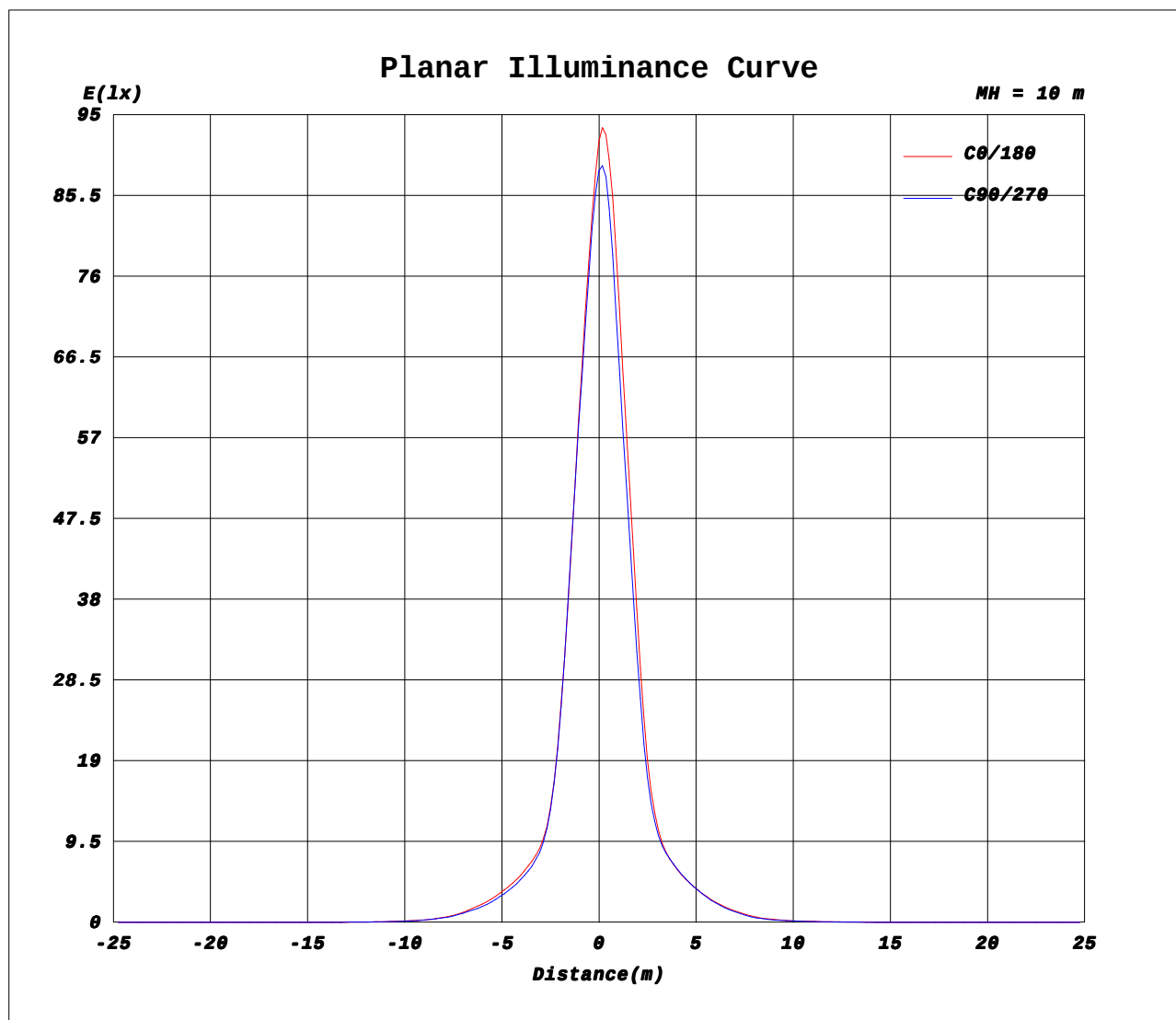
Test:U:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 lm		
NAME: LED Track Light	TYPE:LED	
MFR.: shenzhen powerstar technology co.,ltd		



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 - 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:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:222.1V I:0.0980A P:21.10W PF:0.9620 Lamp Flux:1524.61x1 lm																	
NAME: LED Track Light									TYPE:LED								
MFR.: shenzhen powerstar technology co.,ltd																	

Table--1

UNIT: cd

γ (DEG)	C (DEG)																	
	0	30	60	90	120	150	180	210	240	270	300	330						
0	9187	9377	9074	8841	8958	9418	9187	9377	9074	8841	8958	9418						
5	6624	7135	7016	6499	6072	6469	8008	7465	6994	7263	8036	8118						
10	3273	3827	3852	3278	2835	3036	4600	3910	3595	4015	4878	4907						
15	1255	1429	1413	1229	1081	1150	1725	1510	1432	1560	1888	1893						
20	798	817	799	730	699	720	902	882	869	900	951	932						
25	567	566	558	504	479	493	625	607	592	626	663	657						
30	377	382	374	328	302	312	415	389	381	405	443	448						
35	219	243	224	199	164	169	249	220	217	230	270	273						
40	101	117	107	94.7	76.5	76.5	115	95.2	93.7	101	128	131						
45	49.4	54.4	52.6	46.2	39.9	39.7	56.3	50.0	48.4	51.6	59.9	60.3						
50	25.0	29.2	28.4	24.7	20.5	22.4	31.0	28.7	27.7	29.1	32.2	31.9						
55	6.74	8.36	9.30	7.81	7.03	7.45	12.7	10.4	9.17	10.7	14.2	13.0						
60	3.08	3.16	3.23	3.16	3.06	3.23	4.21	3.77	3.57	3.70	4.58	4.04						
65	2.69	2.73	2.72	2.71	2.67	2.78	3.38	3.35	3.20	3.14	3.28	3.26						
70	2.34	2.40	2.43	2.39	2.29	2.39	3.28	3.26	3.08	3.01	3.12	3.15						
75	1.89	2.00	1.99	1.95	1.80	1.94	3.19	3.15	3.01	2.93	3.01	3.05						
80	1.50	1.60	1.59	1.56	1.42	1.51	3.13	3.11	2.98	2.90	2.96	3.00						
85	1.27	1.34	1.31	1.31	1.25	1.26	3.10	3.09	3.04	2.98	2.97	2.99						
90	1.22	1.24	1.20	1.23	1.23	1.21	3.17	3.15	3.11	3.07	3.05	3.06						
95	1.35	1.27	1.26	1.32	1.38	1.41	3.24	3.23	3.19	3.14	3.12	3.13						
100	1.69	1.42	1.50	1.62	1.69	1.80	3.35	3.33	3.29	3.23	3.20	3.21						
105	2.12	1.66	1.86	2.06	2.06	2.23	3.50	3.49	3.44	3.37	3.33	3.35						
110	2.46	2.00	2.20	2.42	2.37	2.50	3.69	3.68	3.63	3.54	3.51	3.52						
115	2.73	2.42	2.52	2.72	2.64	2.66	3.92	3.92	3.87	3.77	3.72	3.74						
120	2.84	2.72	2.71	2.84	2.79	2.74	4.34	4.42	4.36	4.19	4.08	4.12						
125	2.93	3.18	2.85	2.95	2.92	2.84	5.20	5.77	5.31	5.04	4.83	4.89						
130	3.19	3.66	3.08	3.21	3.21	3.11	6.56	7.46	6.74	6.40	6.11	6.20						
135	3.64	4.27	3.53	3.67	3.69	3.57	7.99	8.95	8.06	7.81	7.56	7.63						
140	4.09	4.83	4.04	4.15	4.12	3.98	8.69	9.38	8.51	8.47	8.45	8.45						
145	4.31	5.21	4.31	4.37	4.30	4.17	8.26	8.76	7.89	8.05	8.24	8.20						
150	4.41	5.34	4.41	4.41	4.36	4.23	7.06	7.56	6.65	6.89	7.16	7.11						
155	4.52	5.49	4.49	4.41	4.43	4.34	5.91	6.53	5.62	5.75	5.99	5.94						
160	4.78	5.41	4.63	4.47	4.55	4.55	5.36	5.70	5.00	5.02	5.23	5.16						
165	5.20	5.51	4.95	4.67	4.68	4.74	4.88	4.70	4.68	4.67	4.89	4.82						
170	5.36	5.40	5.14	4.70	4.64	4.73	4.71	4.46	4.44	4.48	4.55	4.72						
175	4.67	4.62	4.53	4.35	4.25	4.35	4.47	4.17	4.18	4.20	4.28	4.24						
180	4.34	4.20	4.16	4.09	4.06	4.09	4.37	4.19	4.17	4.08	4.07	4.09						

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: