



DLC V4.1 TEST REPORT

Applicant's name	Shanghai Supertek Lighting Co., Ltd.
Address	No.455,laodongRoad,caowang industrial Zone,JIADING District,shanghai
Brand Name	SUPERTEK
Report No.	BTR66.181.16.0027.51
Product Name	WALLPACK FIXTURE
Basic Model	WP07A-50-4000K

Tested by (printed name and signature)	David Zhang	
Title	Test Engineer
Approved by (printed name and signature)	Steven Huo	
Title	Approved Signatory
Date of issue	Apr 18, 2017	

Testing Laboratory Name	BEST Test Service Shenzhen Co., Ltd.
Address	1 st Floor, 1 st Building, Weitai Industrial Park, Yingrenshi, Shiyao, Baoan, Shenzhen, China TEL: + 86-755-28236006; FAX: + 86-755-23467087 Email: certification@bestcert.cn
Accreditation	DLC/Lighting Facts/UL/ETL/ELI/CEC/EPA/DOE NVLAP Testing Lab Code: 200770-0

Test specification	
Standard	DLC V4.1
Test procedure	DLC Test Procedure
Non-standard test method	No

Test Report Form No.	BEST_DLC-V4.1
TRF originator	BEST Test Service Shenzhen Co., Ltd. Mr Tseng
Master TRF	BEST_DLC V4.1.doc

Note:
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Product description:	
Sample received date	Apr 10, 2017
Sample Quantity	1 pcs per model
Model Number	WP07A-50-4000K; WP07A-50-5000K
Rating(s) (V; Hz)	120-277VAC 50/60HZ
Nominal Power.....	50W
Nominal Power Factor	N/A
Nominal Lumen Output.....	5600lm; 5700lm
Nominal CCT	4000K; 5000K
Nominal CRI(Ra)	≥70
Nominal Life	50000H
Product Classification	<input type="checkbox"/> Premium <input checked="" type="checkbox"/> Standard
Category.....	<input type="checkbox"/> Indoor <input type="checkbox"/> Indoor Retrofit Kit
	<input checked="" type="checkbox"/> Outdoor <input type="checkbox"/> Outdoor Retrofit Kit
	<input type="checkbox"/> Linear Replacement Lamp <input type="checkbox"/> E39 Replacements for HID Lamps
	<input type="checkbox"/> Four Pin-Base Replacement Lamps for CFLs
General Applicant	Outdoor –Mid Output
Primary use	Outdoor Full-Cutoff Wall-mounted Area Luminaires
Dimmable	<input checked="" type="checkbox"/> Yes, <input type="checkbox"/> No
If Yes, Select Dimming Mechanism	<input checked="" type="checkbox"/> Continuous dimming, <input type="checkbox"/> Step dimming
If Yes, Mini Dimming Level	10%
Integral Controller	<input checked="" type="checkbox"/> Yes, <input type="checkbox"/> No
LED Lighting Source Manufacture	Lumileds
LED Lighting Source Model	LUXEON 3030 2D
LED Driver Brand.....	N/A
LED Driver Model Number.....	N/A
Maximum Recommended Temperature (°C) During Normal Operation	N/A
Fixtures Band (Retrofit Kit/Lamp Only)	N/A
Fixtures Model No. (Retrofit Kit/Lamp Only)	N/A

Test Method Description

ANSI C78.376-2001 Specifications for the Chromaticity of Fluorescent Lamps
 ANSI C78.377-2015 Specifications for the Chromaticity of Solid State Lighting Products
 ANSI/NEMA/ANSLG C78.377-2011 Specifications for the Chromaticity of Solid State Lighting Products
 ANSI C78.5-2003 Specifications for Performance of Self-ballasted Compact Fluorescent Lamps
 ANSI/ANSLG C78.81-2010 Double-Capped Fluorescent Lamps—Dimensional and Electrical Characteristics
 ANSI C78.901-2014 Single-Based Fluorescent Lamps—Dimensional and Electrical Characteristics
 ANSI/ANSLG C81.61-2009 Specifications for Bases (Caps) for Electric Lamps
 ANSI/ANSLG C81.62-2009 Lamp holders for Electric Lamps
 ANSI C82.11-2011 High-Frequency Fluorescent Lamp Ballasts
 ANSI/ANSLG C82.16-2015 (anticipated) Light Emitting Diode Drivers—Methods of Measurement
 ANSI C82.2-2002 Method of Measurement of Fluorescent Lamp Ballasts
 ANSI C82.77-10:2014 Harmonic Emission Limits—Related Power Quality Requirements for Lighting Equipment
 ANSI/IEEE C62.41.1-2002 IEEE Guide on the Surge Environment in Low-Voltage (1000 V and Less) AC Power Circuits
 ANSI/IEEE C62.41.2-2002 IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000V and Less) AC Power Circuits
 ANSI/UL 153-2002 Standard for Safety of Portable Electric Luminaires
 ANSI/UL 935-2009 Standard for Safety of Fluorescent-Lamp Ballasts
 ANSI/UL 1310-2010 Standard for Safety of Class 2 Power Units
 ANSI/UL 1574-2004 Standard for Safety of Track Lighting Systems
 ANSI/UL 1598-2008 Standard for Safety of Luminaires
 ANSI/UL 1598C Light-Emitting Diode (LED) Retrofit Luminaire Conversion Kits
 ANSI/UL 1598B-2010 Standard for Supplemental Requirements for Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires
 ANSI/UL 1993-2009 Standard for Safety of Self-Ballasted Lamps and Lamp Adapters
 ANSI/UL 2108-2004 Standard for Low-Voltage Lighting Systems
 ANSI/UL 8750-2009 Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products
 ASTM E283-04 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 CIE Pub. No. 13.3-1995 Method of Measuring and Specifying Color Rendering of Light Sources
 CIE Pub. No. 15:2004 Colorimetry
 EU Directive 2002/95/EC Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the Use of Certain Hazardous Substances In Electrical and Electronic Equipment
 FCC CFR Title 47 Part 15 Radio Frequency Devices
 FCC CFR Title 47 Part 18 Industrial, Scientific, and Medical Equipment
 IEC 60061-1 (2012) Lamp Caps and Holders Together with Gauges for the Control of Interchangeability and Safety – Part 1: Lamp Caps
 IEC 60081 Amend 4 Ed 5.0 (2010) Double-capped Fluorescent Lamps - Performance Specifications
 IEC 60901 (2011) Single-capped Fluorescent Lamps - Performance Specifications
 IEC 62301 ED.2.0 B:2011 Household electrical appliances - Measurement of standby power
 IEC 61347-2-3-am2 ed1.0 b.2011 Amendment 2 - Lamp Control Gear - Part 2-3: Particular Requirements for A.C. Supplied Electronic Ballasts for Fluorescent Lamps
 IEC 62321 Ed. 1.0 Electrotechnical Products - Determination Of Levels Of Six Regulated Substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers)
 IEEE PAR1789 IEEE Recommending Practices for Modulating Current in High Brightness LEDs for Mitigating Health Risks to Viewers
 IES LM-9-09 Electric and Photometric Measurements of Fluorescent Lamps
 IES LM-10-96 or LM-10-XX Photometric Testing of Outdoor Fluorescent Luminaires (2015 update anticipated)
 IES LM-31-95 Photometric Testing of Roadway Luminaires Using Incandescent Filament and High Intensity Discharge (HID) Lamps
 IES LM-40-10 Life Testing of Fluorescent Lamps
 IES LM-41-14 Approved Method for Photometric Testing of Indoor Fluorescent Luminaires
 IES LM-46-04 Photometric Testing of Indoor Luminaires Using High Intensity Discharge or Incandescent Filament Lamps
 IES LM-49-12 Life Testing of Incandescent Filament Lamps
 IES LM-58-13 Method for Spectroradiometric Measurement Methods for Light Sources
 IES LM-65-14 Life Testing of Compact Fluorescent Lamps
 IES LM-66-14 Electrical and Photometric Measurements of Single-Ended Compact Fluorescent Lamps
 IES LM-79-08 Electrical and Photometric Measurements of Solid-State Lighting Products
 IES LM-80-08 Measuring Lumen Maintenance of LED Light Sources
 IES LM-82-12 Method for the Characterization of LED Light Engines and Integrated LED Lamps for Electrical and Photometric Properties as a Function of Temperature
 IES LM-84-14 Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires
 IES RP-16-10 Nomenclature and Definitions for Illuminating Engineering
 IES TM-21-11 Projecting Long Term Lumen Maintenance of LED Sources
 IES TM-28-14 Projecting Long-Term Luminous Flux Maintenance of LED Lamps and Luminaires
 NEMA LL 9-2009 Dimming of T8 Fluorescent Lighting Systems
 NEMA LSD 45-2009 Recommendations for Solid State Lighting Sub-Assembly Interfaces for Luminaires
 NEMA SSL 7A-2013 Phase Cut Dimming for Solid State Lighting: Basic Compatibility

Initial Photometric and Electrical Test Data

EUT	Input Voltage (V)	Frequency (Hz)	Input Current (A)	ITHD	Input Power (W)	Power Factor	Lumen Output (Lumens)	Efficiency Lumen/w
WP07A-50-4000K	120.0	60.0	0.411	6.1%	49.15	0.996	5668.00	115.32
WP07A-50-4000K	277.0	60.0	0.186	18.2%	49.62	0.963	/	/

EUT	CCT (K)	CRI Ra	R9	x CIE1931	y CIE1931
WP07A-50-4000K	4048	74.0	-17	0.3765	0.3686
WP07A-50-5000K	5200	74.9	-15	0.3396	0.3455

EUT	u' CIE1976	v' CIE1976	Duv	Rf	Rg
WP07A-50-4000K	0.2258	0.4973	-0.0027	72	95
WP07A-50-5000K	0.2100	0.4808	-0.0008	72	95

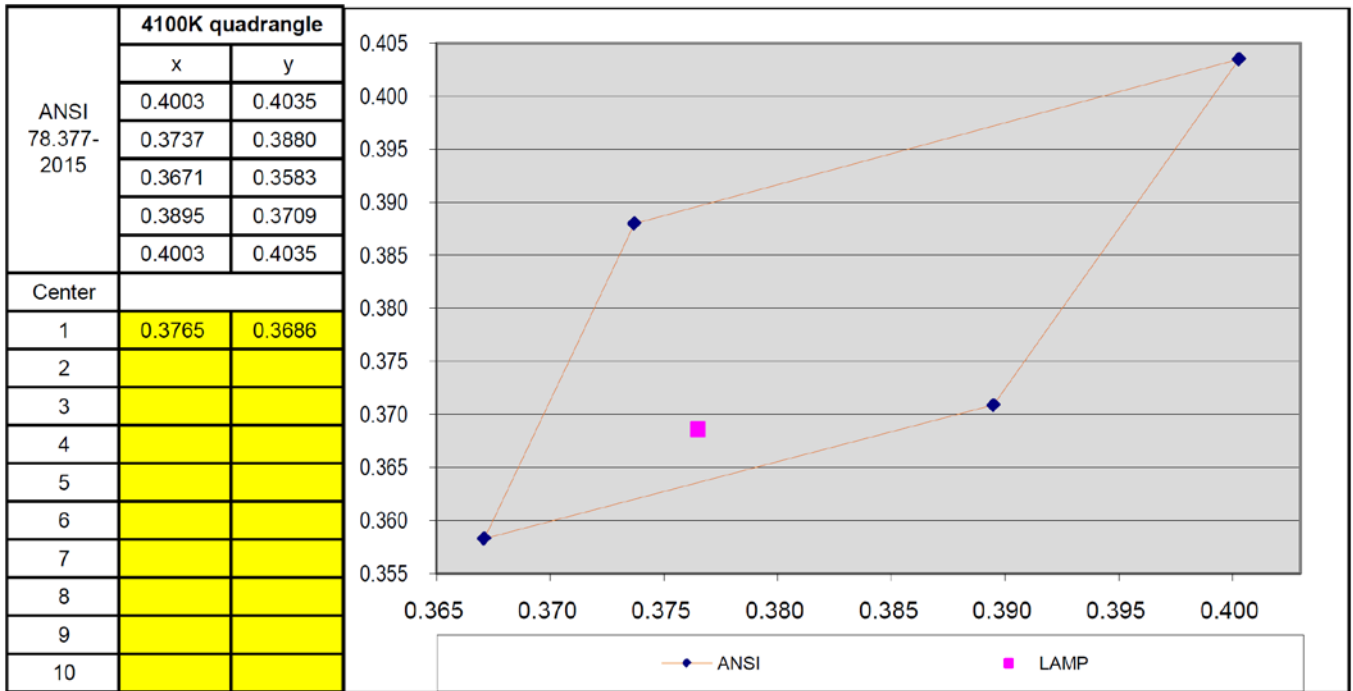
EUT	Zonal Lumen Density zone (0-90°)	Zonal Lumen Density zone (80-90°)*
WP07A-50-4000K	100.0%	0.4%

Note:

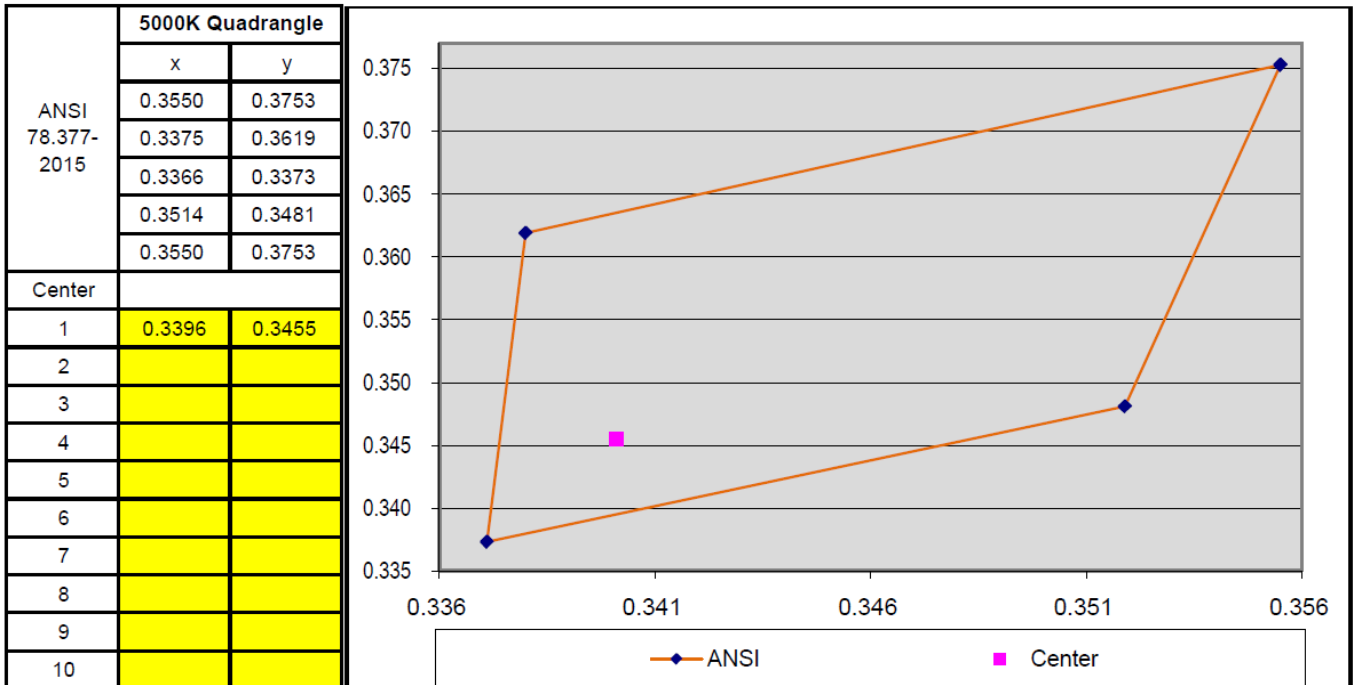
1. See the annex of Luminous Intensity Distribution Test Plots

7 Step Quadrangle

WP07A-50-4000K



WP07A-50-5000K



Spectral Energy Distribution

WP07A-50-4000K

WL(nm)	Spectrum	Spectrum	WL(nm)	Spectrum	Spectrum
380	0.0223	2.3190	585	0.8481	88.0300
385	0.0136	1.4100	590	0.8407	87.2600
390	0.0095	0.9823	595	0.8268	85.8200
395	0.0080	0.8350	600	0.8030	83.3500
400	0.0073	0.7581	605	0.7748	80.4300
405	0.0123	1.2790	610	0.7391	76.7100
410	0.0240	2.4940	615	0.6987	72.5200
415	0.0508	5.2750	620	0.6535	67.8300
420	0.0972	10.0900	625	0.6090	63.2100
425	0.1669	17.3200	630	0.5625	58.3900
430	0.2726	28.2900	635	0.5148	53.4400
435	0.4153	43.1000	640	0.4687	48.6500
440	0.6046	62.7500	645	0.4235	43.9600
445	0.8489	88.1100	650	0.3818	39.6300
450	0.9994	103.7000	655	0.3412	35.4100
455	0.7942	82.4400	660	0.3052	31.6700
460	0.5059	52.5100	665	0.2706	28.0900
465	0.3589	37.2500	670	0.2383	24.7400
470	0.2551	26.4800	675	0.2100	21.7900
475	0.1769	18.3600	680	0.1845	19.1500
480	0.1445	15.0000	685	0.1620	16.8100
485	0.1393	14.4600	690	0.1419	14.7200
490	0.1503	15.6000	695	0.1234	12.8100
495	0.1850	19.2000	700	0.1078	11.1900
500	0.2381	24.7100	705	0.0932	9.6740
505	0.3017	31.3200	710	0.0816	8.4660
510	0.3690	38.3000	715	0.0707	7.3350
515	0.4330	44.9500	720	0.0615	6.3850
520	0.4909	50.9500	725	0.0539	5.5950
525	0.5412	56.1700	730	0.0467	4.8470
530	0.5838	60.6000	735	0.0407	4.2200
535	0.6226	64.6200	740	0.0353	3.6630
540	0.6572	68.2100	745	0.0306	3.1760
545	0.6902	71.6400	750	0.0268	2.7840
550	0.7215	74.8900	755	0.0234	2.4300
555	0.7509	77.9400	760	0.0207	2.1460
560	0.7801	80.9800	765	0.0180	1.8720
565	0.8056	83.6200	770	0.0160	1.6570
570	0.8257	85.7000	775	0.0138	1.4340
575	0.8395	87.1400	780	0.0131	1.3620
580	0.8488	88.1000			

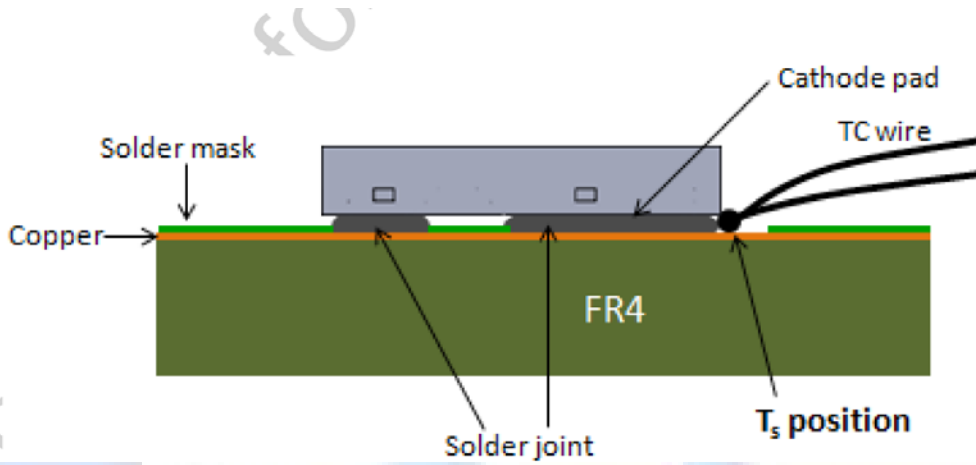
WP07A-50-5000K

WL(nm)	Spectrum	Spectrum	WL(nm)	Spectrum	Spectrum
380	0.0235	3.2400	585	0.5829	80.4000
385	0.0144	1.9860	590	0.5691	78.5000
390	0.0096	1.3300	595	0.5504	75.9200
395	0.0081	1.1170	600	0.5277	72.7800
400	0.0080	1.0970	605	0.5037	69.4800
405	0.0115	1.5900	610	0.4764	65.7100
410	0.0232	3.2010	615	0.4457	61.4700
415	0.0502	6.9300	620	0.4150	57.2400
420	0.0960	13.2400	625	0.3839	52.9600
425	0.1693	23.3500	630	0.3509	48.4000
430	0.2692	37.1200	635	0.3203	44.1800
435	0.4079	56.2700	640	0.2906	40.0800
440	0.5977	82.4400	645	0.2617	36.1000
445	0.8543	117.8000	650	0.2349	32.3900
450	0.9998	137.9000	655	0.2101	28.9800
455	0.7884	108.7000	660	0.1867	25.7500
460	0.5076	70.0100	665	0.1649	22.7400
465	0.3620	49.9300	670	0.1458	20.1200
470	0.2533	34.9300	675	0.1282	17.6900
475	0.1763	24.3100	680	0.1122	15.4800
480	0.1422	19.6100	685	0.0986	13.6000
485	0.1347	18.5800	690	0.0858	11.8300
490	0.1453	20.0400	695	0.0750	10.3500
495	0.1771	24.4300	700	0.0656	9.0420
500	0.2252	31.0600	705	0.0568	7.8400
505	0.2825	38.9600	710	0.0493	6.8040
510	0.3407	46.9900	715	0.0432	5.9550
515	0.3951	54.4900	720	0.0376	5.1800
520	0.4402	60.7200	725	0.0327	4.5080
525	0.4768	65.7600	730	0.0282	3.8900
530	0.5044	69.5700	735	0.0249	3.4310
535	0.5269	72.6700	740	0.0215	2.9680
540	0.5452	75.1900	745	0.0189	2.6030
545	0.5590	77.1100	750	0.0165	2.2690
550	0.5714	78.8200	755	0.0145	2.0050
555	0.5828	80.3800	760	0.0127	1.7460
560	0.5906	81.4700	765	0.0111	1.5320
565	0.5949	82.0500	770	0.0097	1.3450
570	0.5985	82.5600	775	0.0086	1.1930
575	0.5964	82.2600	780	0.0080	1.1040
580	0.5919	81.6500			

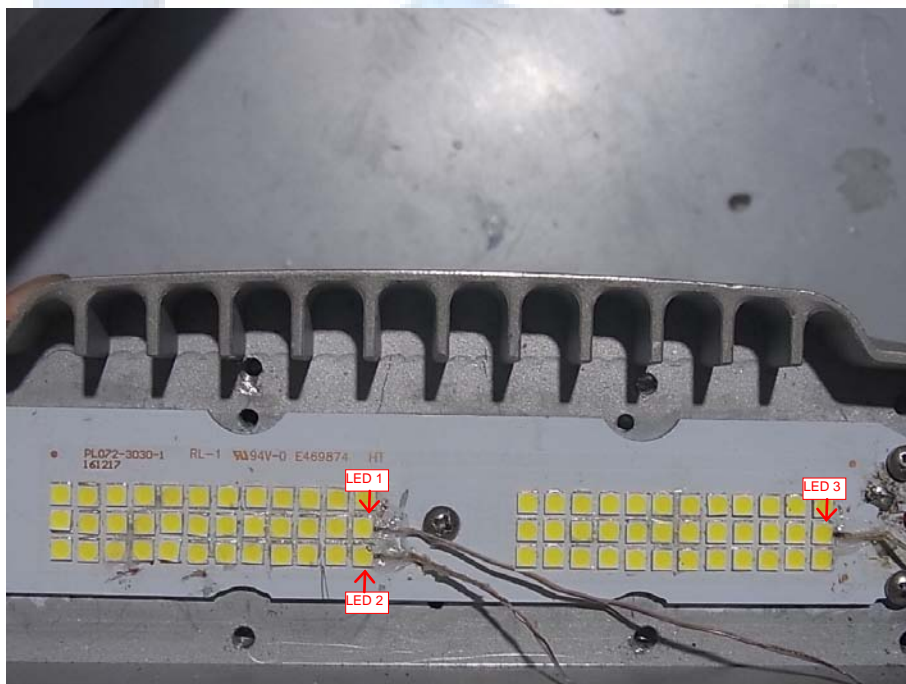
Driver Case Temperature/ LED Drive Current/TMP_{LED} Test Data

EUT	Driver Max Tc (°C)	Driver In-Situ Temperature (°C)	LED In-Situ Current (mA)	LED In-Situ Temperature (°C)(1#)	LED In-Situ Temperature (°C)(2#)	LED In-Situ Temperature (°C)(3#)
WP07A-50-4000K	N/A	N/A	102.2	87.4	86.7	86.2

LED Lighting Source Temperature Measurement Point in LM-80 Report



LED Lighting Source In Situ Temperature Measurement



TOP: LED 1



Lumen Maintenance and Lighting Source Life Test Data

L70

TM-21 Inputs

Instructions

Yellow fields are completed by the user. Fields not used should be left blank. Cyan fields are calculated based on user entries.

First, enter a description of the LED light source tested. Then complete the fields labeled "LM-80 Testing Details". Test duration must be at least 6,000 hours. If only one case temperature data set is to be used (no interpolation), complete only "Tested case temperature 1". For only two case temperature data sets, complete 1 and 2.

Next, further to the right, in the corresponding box(es) for each tested case temperature, enter the test data along with the time (in hours) at which each measurement was taken. Data entered must be normalized then averaged measured data (per TM-21 sections 5.2.1 and 5.2.2). If case temperatures have different test durations, enter data up to the lowest of the test durations for all of the case temperatures.

Enter drive current, *in-situ* temperature data and the percentage of initial lumens to project to in the fields labeled "In-Situ Inputs".

Results can be tailored to estimate lumen maintenance at a specific time by entering a value (t) in the yellow field. A complete TM-21 report will appear on the next tab labeled "Report".

Description of LED Light Source Tested (manufacturer, model, catalog number)		Test Data for 55°C Case Temperature		Test Data for 85°C Case Temperature		Test Data for 105°C Case Temperature	
Lumileds	LUXEON 3030 2D	Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)
		1000	99.18%	1000	98.98%	1000	98.84%
		2000	98.66%	2000	98.21%	2000	98.00%
		3000	98.49%	3000	97.84%	3000	97.50%
		4000	97.91%	4000	97.15%	4000	96.62%
		5000	97.58%	5000	96.76%	5000	96.24%
		6000	97.18%	6000	96.36%	6000	95.70%
		7000	96.66%	7000	95.94%	7000	95.33%
		8000	96.56%	8000	95.99%	8000	95.45%
		9000	96.30%	9000	95.53%	9000	94.81%

LM-80 Testing Details	
Total number of units tested per case temperature:	20
Number of failures:	0
Number of units measured:	20
Test duration (hours):	9000
Tested drive current (mA):	165
Tested case temperature 1 (T _c , °C):	55
Tested case temperature 2 (T _c , °C):	85
Tested case temperature 3 (T _c , °C):	105

In-Situ Inputs	
Drive current for each LED package/array/module (mA):	102.2
In-situ case temperature (T _c , °C):	87.4
Percentage of initial lumens to project to (e.g. for L ₇₀ , enter 70):	70

Results	
Time (t) at which to estimate lumen maintenance (hours):	50,000
Lumen maintenance at time (t) (%):	83.40%
Reported L70 (hours):	>54000

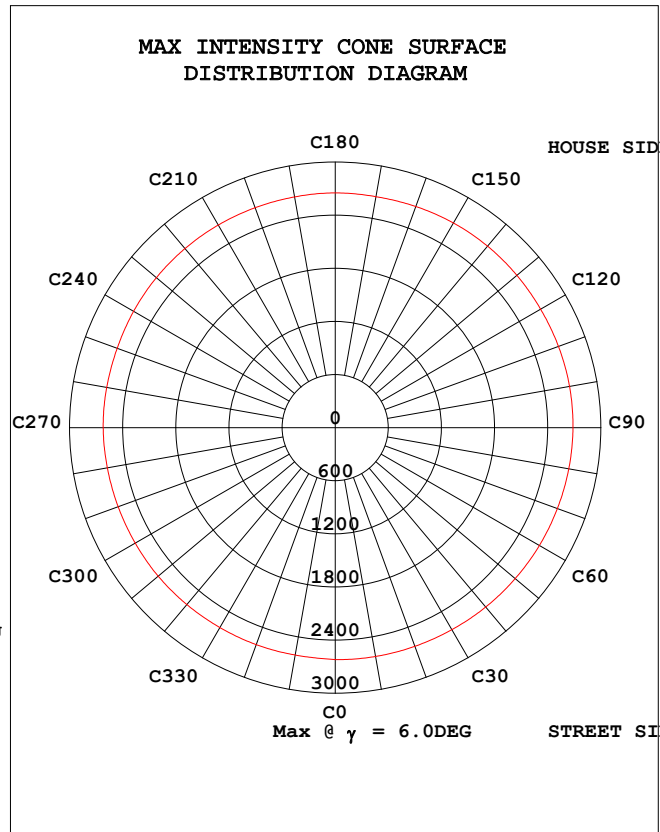
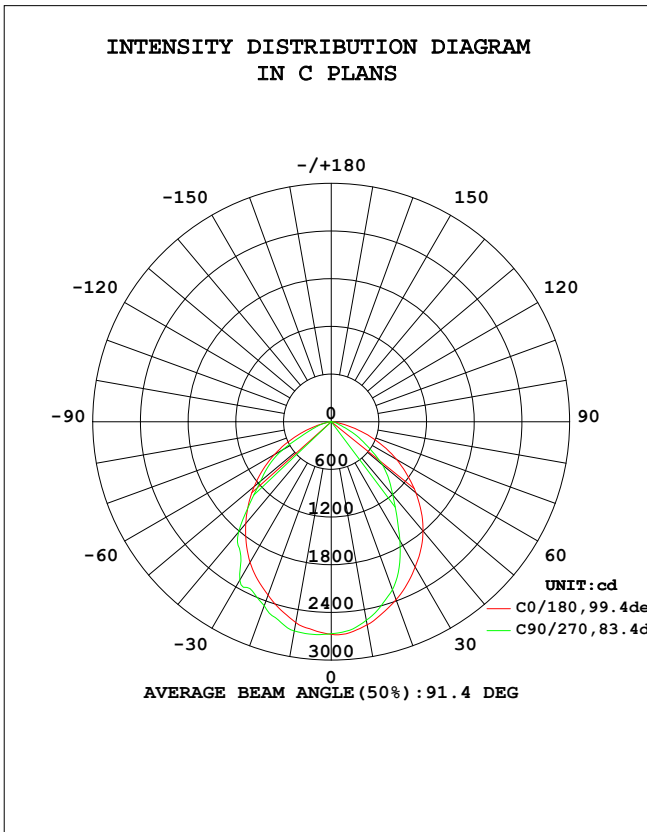
EUT Photos



STREETLIGHT PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.4112A P:49.15W PF:0.9961 Lamp Flux:5668x1 lm		
NAME:	TYPE:WP07A-50-4000K	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 115.32 lm/W			
MODEL	WP07A-50-4000K	I _{max} (cd)	2687	η street_up(%)	0.0
NOMINAL POWER(W)	50	LOR(%)	100.0	η street_down(%)	51.2
RATED VOLTAGE(V)	120.0	TOTAL FLUX(lm)	5668	η house_up(%)	0.0
NOMINAL FLUX(lm)	5668	MAXIMUM @ (C,γ)	100,6.0	η house_down(%)	48.8
LAMPS INSIDE	1	η up(%)	0.0	76 FLASHAREA(m2)	
TEST VOLTAGE(V)	120.0	η down(%)	100.0	SLI	



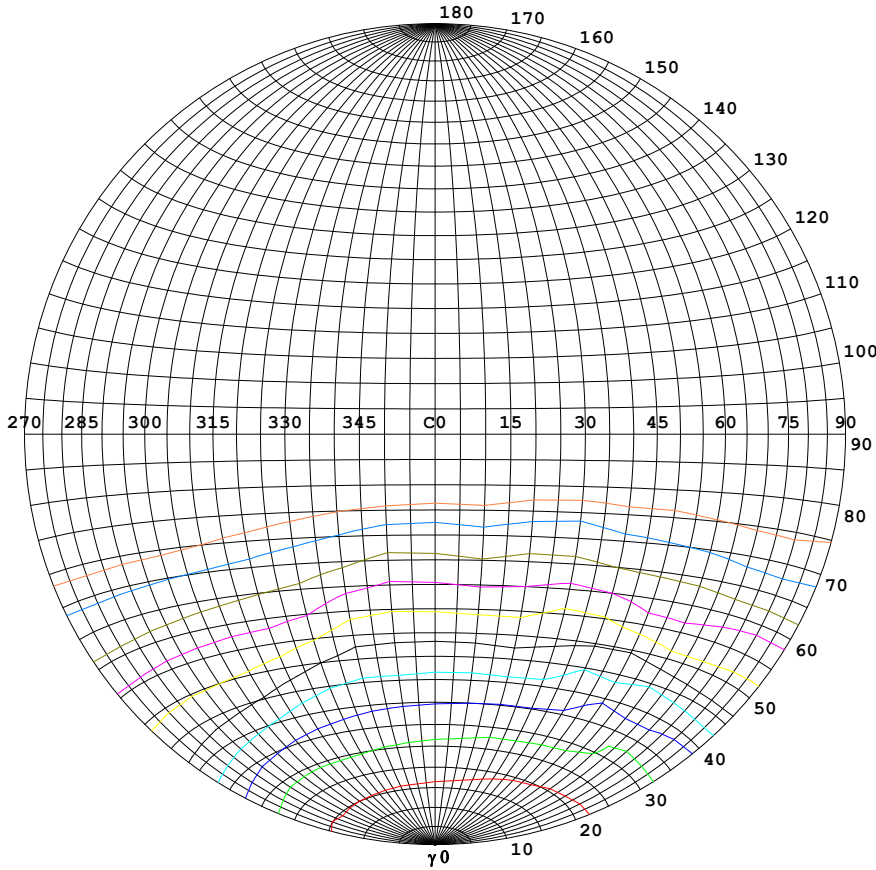
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.6DEG
 Operators: David
 Test Date: 2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity: 67.1%
 Test Distance: 2.543m [K=1.0000]
 Remarks:

Note: SLI: Specific Luminaire Index

STREETLIGHT ISOCANDELA DIAGRAM

Test:U:120.0V I:0.4112A P:49.15W PF:0.9961 Lamp Flux:5668x1 lm		
NAME:	TYPE:WP07A-50-4000K	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:	PROTECTION ANGLE:



Classification:

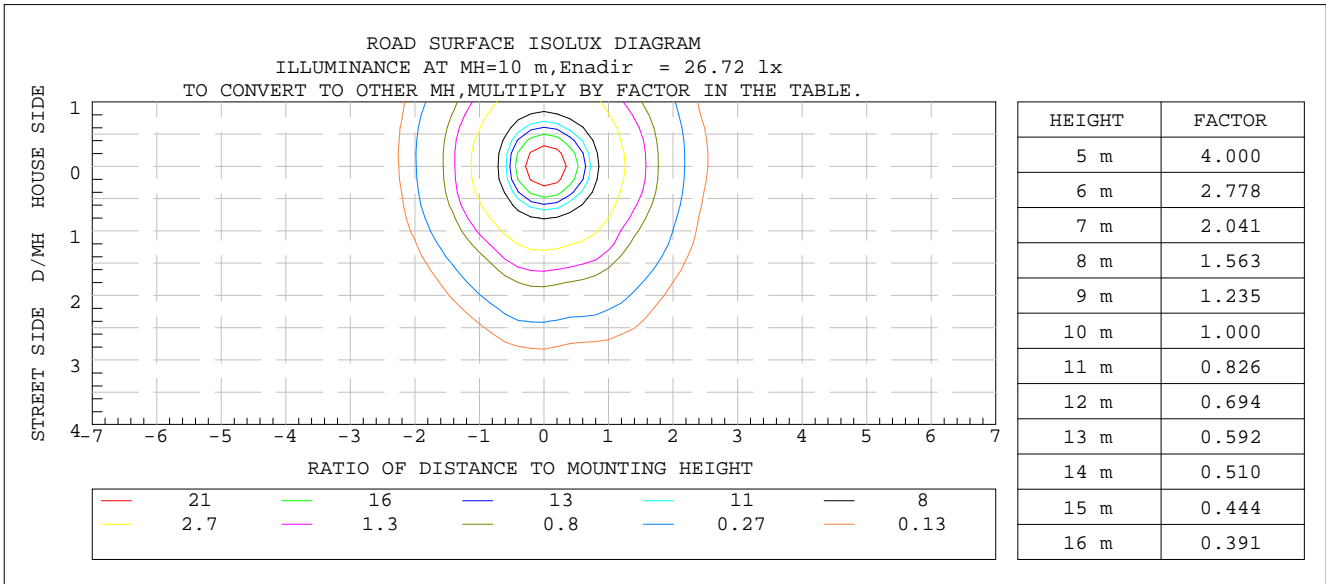
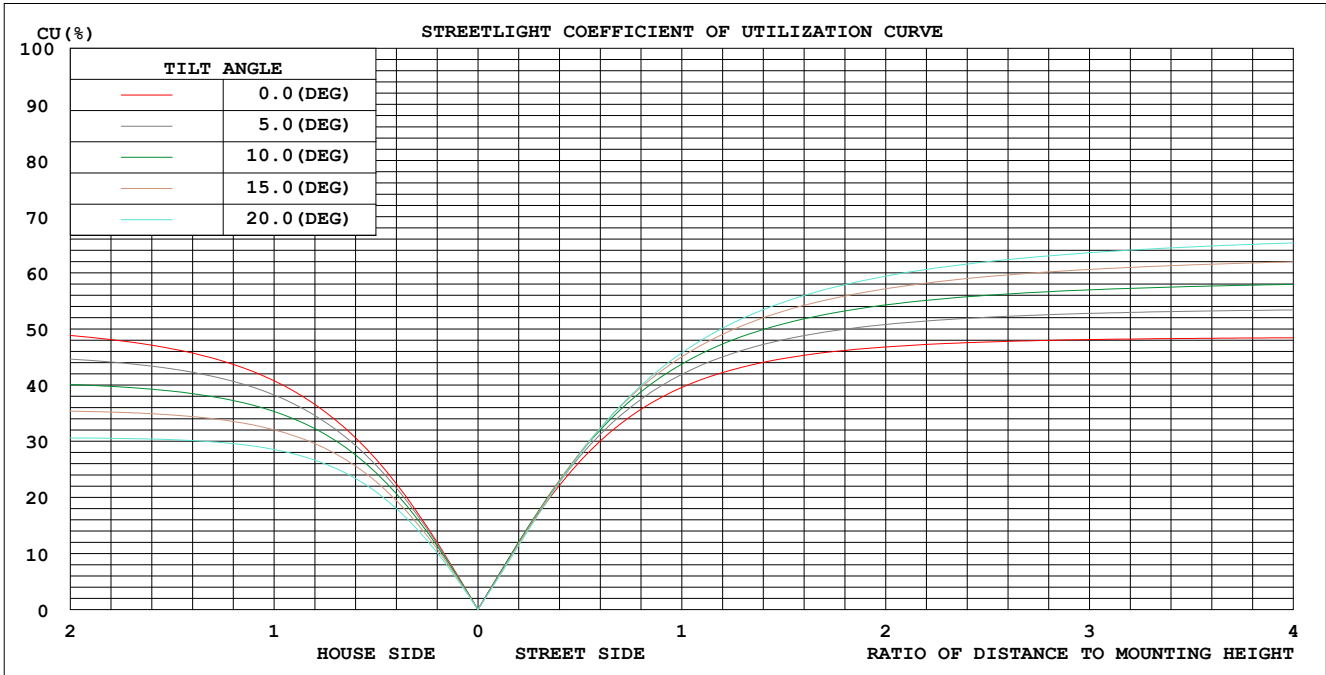
IES:Type II - Very Short
 CIE:Narrow - Short
 IES:Cut-off
 CIE:Full cut-off
 Max.At80:22.40cd/klm
 Max.At90:0.8597cd/klm
 Max.80-90:22.40cd/klm

ISOCANDELA DIAGRAM	
UNIT	cd
Imax=100%	2687
90%	2418
80%	2149
70%	1881
60%	1612
50%	1343
40%	1075
30%	806
20%	537
10%	269
5%	134

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.543m [K=1.0000]
 Remarks:

COEFFICIENT OF UTILIZATION CURVE
AND ISOLUX DIAGRAM



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.6DEG
Operators: David
Test Date: 2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity: 67.1%
Test Distance: 2.543m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

Test:U:120.0V I:0.4112A P:49.15W PF:0.9961 Lamp Flux:5668x1 lm		
NAME:	TYPE:WP07A-50-4000K	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:	PROTECTION ANGLE:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum
10	2567	2624	2672	2650	2595	2566	2538	2539	0- 10	251.2	251.2	4.43
20	2323	2400	2465	2437	2384	2316	2251	2282	10- 20	700.5	951.6	16.8
30	2044	2088	2300	2121	2112	2000	1728	1932	20- 30	1017	1969	34.7
40	1674	1777	1814	1842	1798	1520	1206	1419	30- 40	1149	3118	55
50	1266	1313	1159	1375	1392	1014	838.8	923.0	40- 50	1074	4192	74
60	823.7	747.3	702.4	783.5	951.0	591.6	406.2	496.8	50- 60	823.9	5016	88.5
70	373.0	304.4	223.8	355.9	488.5	218.2	107.9	155.9	60- 70	465.5	5481	96.7
80	48.41	72.01	60.50	100.2	108.3	43.92	33.35	29.99	70- 80	162.0	5643	99.6
90	0.3925	1.416	4.186	4.668	2.957	2.511	1.623	0.3478	80- 90	24.41	5668	100
100	0	0.0081	0.0460	0.0035	0	0	0	0	90-100	0.4124	5668	100
110	0	0	0	0	0	0	0	0	100-110	0.0016	5668	100
120	0.0065	0	0	0	0.0053	0.0042	0.0020	0.0046	110-120	0.0007	5668	100
130	0.0156	0.0060	0.0026	0.0077	0.0147	0.0154	0.0102	0.0151	120-130	0.0057	5668	100
140	0.0233	0.0154	0.0084	0.0162	0.0226	0.0228	0.0224	0.0231	130-140	0.0116	5668	100
150	0.0289	0.0225	0.0190	0.0233	0.0277	0.0290	0.0301	0.0283	140-150	0.0141	5668	100
160	0.0322	0.0285	0.0257	0.0280	0.0325	0.0335	0.0335	0.0306	150-160	0.0131	5668	100
170	0.0344	0.0334	0.0303	0.0319	0.0342	0.0351	0.0325	0.0309	160-170	0.0090	5668	100
180	0	0	0	0	0	0	0	0	170-180	0.0025	5668	100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.543m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.4112A P:49.15W PF:0.9961 Lamp Flux:5668x1 lm		
NAME:	TYPE:WP07A-50-4000K	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:	PROTECTION ANGLE:

Conical surface Flux(90deg):

3676.9 lm

%lum = 64.9%

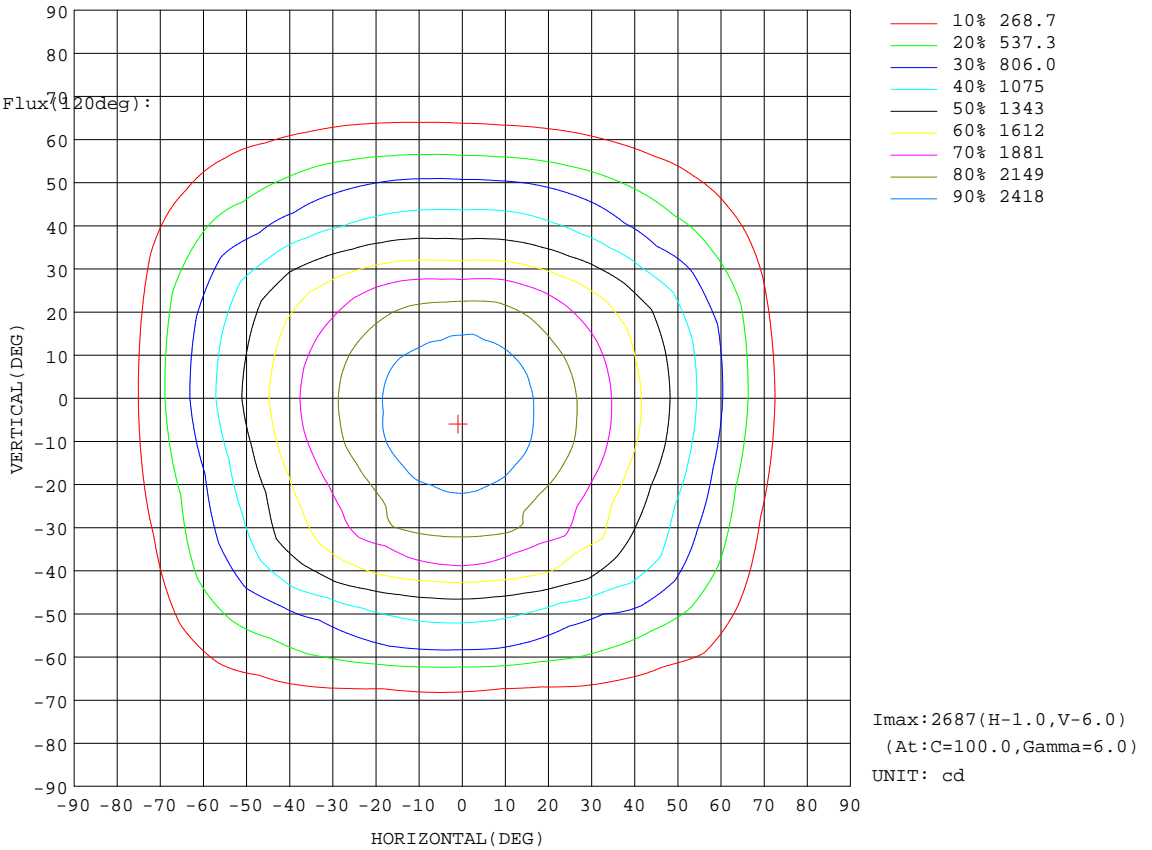
%lamp = 64.9%

Conical surface Flux(70deg):

5015.7 lm

%lum = 88.5%

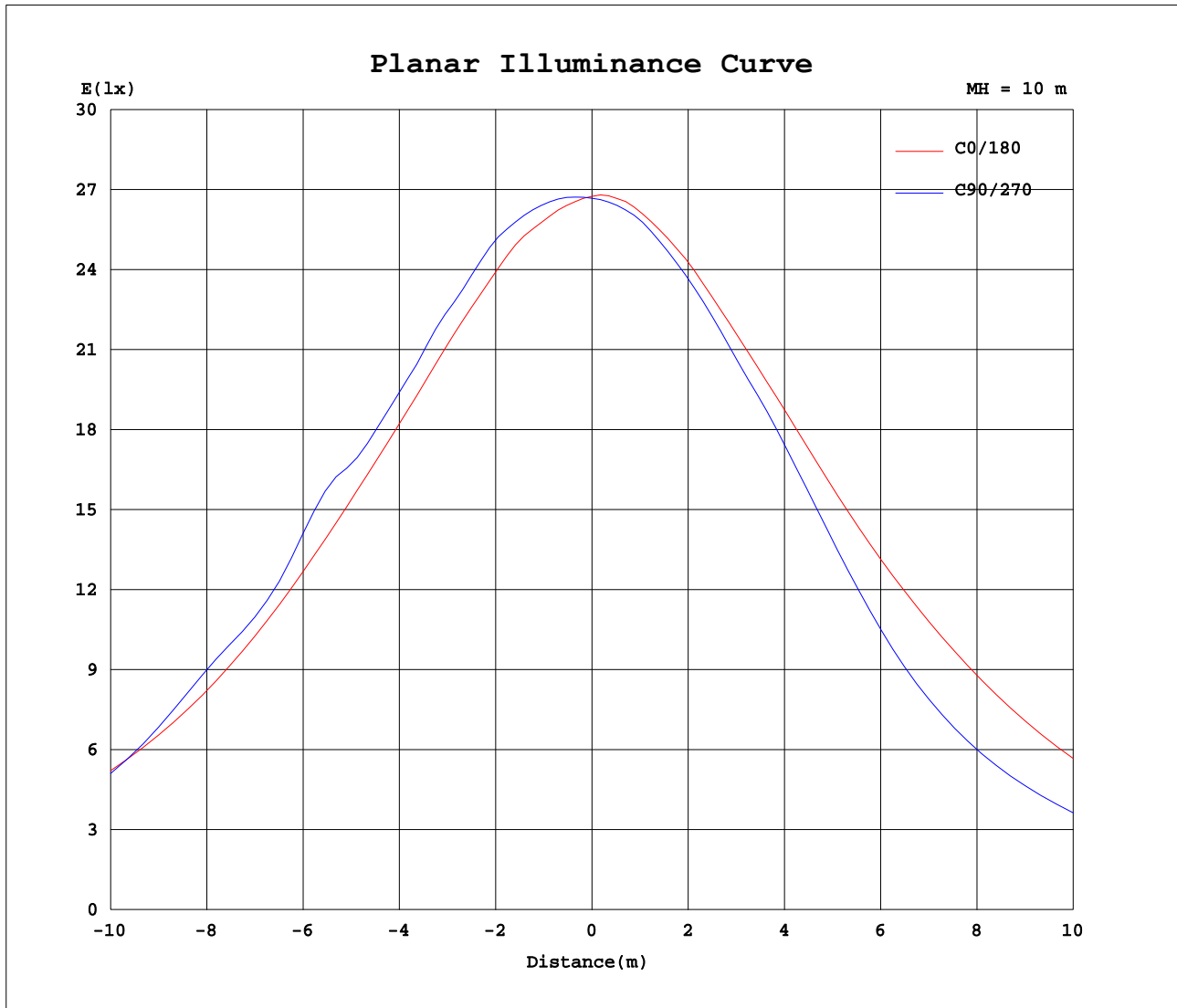
%lamp = 88.5%



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.543m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:2.543m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.4112A P:49.15W PF:0.9961 Lamp Flux:5668x1 lm		
NAME:	TYPE:WP07A-50-4000K	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	
0	2675	2674	2673	2672	2671	2670	2670	2669	2668	2668	2667	2667	2666	2666	2666	2665	2665	2665	2665	2675
5	2631	2633	2637	2643	2652	2659	2667	2673	2678	2685	2686	2684	2681	2678	2677	2673	2668	2661	2665	2665
10	2567	2571	2581	2596	2615	2633	2643	2651	2665	2672	2675	2667	2661	2656	2643	2628	2610	2593	2595	2595
15	2452	2462	2477	2499	2523	2546	2565	2575	2577	2582	2584	2581	2584	2578	2565	2545	2522	2497	2494	2494
20	2323	2334	2352	2376	2395	2406	2431	2453	2462	2465	2464	2462	2470	2438	2435	2426	2409	2387	2384	2384
25	2193	2204	2225	2239	2233	2253	2277	2309	2337	2349	2347	2334	2310	2283	2284	2274	2276	2260	2257	2257
30	2044	2055	2076	2070	2078	2098	2140	2255	2300	2300	2301	2292	2196	2140	2102	2102	2119	2113	2112	2112
35	1867	1878	1888	1888	1913	1976	2056	1992	1987	1997	1998	2007	2071	2055	1953	1936	1944	1961	1965	1965
40	1674	1679	1668	1669	1729	1825	1768	1811	1810	1814	1818	1837	1816	1848	1837	1758	1748	1780	1798	1798
45	1474	1471	1443	1475	1598	1539	1571	1489	1444	1445	1458	1507	1588	1626	1656	1581	1548	1566	1603	1603
50	1266	1253	1233	1282	1316	1310	1176	1150	1151	1159	1169	1182	1235	1351	1399	1421	1318	1330	1392	1392
55	1048	1022	1018	1121	1090	937	879	920	952	957	968	972	959	994	1146	1191	1106	1090	1167	1167
60	824	785	806	873	806	688	685	698	710	702	726	757	756	746	821	928	908	860	951	951
65	597	548	604	606	532	502	460	396	380	381	399	428	497	562	585	687	716	635	717	717
70	373	330	393	395	326	283	256	222	206	224	228	228	270	323	389	464	494	425	489	489
75	179	159	196	204	162	161	139	121	115	129	126	131	155	189	205	256	278	250	273	273
80	48.4	50.2	72.7	80.2	73.2	70.8	60.5	53.0	52.8	60.5	57.9	60.4	70.7	91.3	109	116	127	105	108	108
85	8.38	8.44	13.0	15.7	15.3	15.4	14.2	13.9	15.1	17.7	17.7	18.5	22.1	29.1	36.9	39.5	44.0	26.2	23.3	23.3
90	0.39	0.52	0.58	0.81	1.13	1.70	2.51	3.18	3.86	4.19	4.27	4.07	3.73	4.46	4.87	4.05	4.43	3.89	2.96	2.96
95	0.06	0.11	0.12	0.16	0.25	0.30	0.28	0.25	0.20	0.13	0.12	0.11	0.10	0.09	0.10	0.15	0.27	0.39	0.50	0.50
100	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.07	0.06	0.05	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
120	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
125	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
130	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
135	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
140	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
145	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
150	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03
155	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03
160	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
165	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
170	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
175	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.02	0.03	0.02	0.02
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-04-11

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.543m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.4112A P:49.15W PF:0.9961 Lamp Flux:5668x1 lm		
NAME:	TYPE:WP07A-50-4000K	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:	PROTECTION ANGLE:

Table--2

UNIT: cd

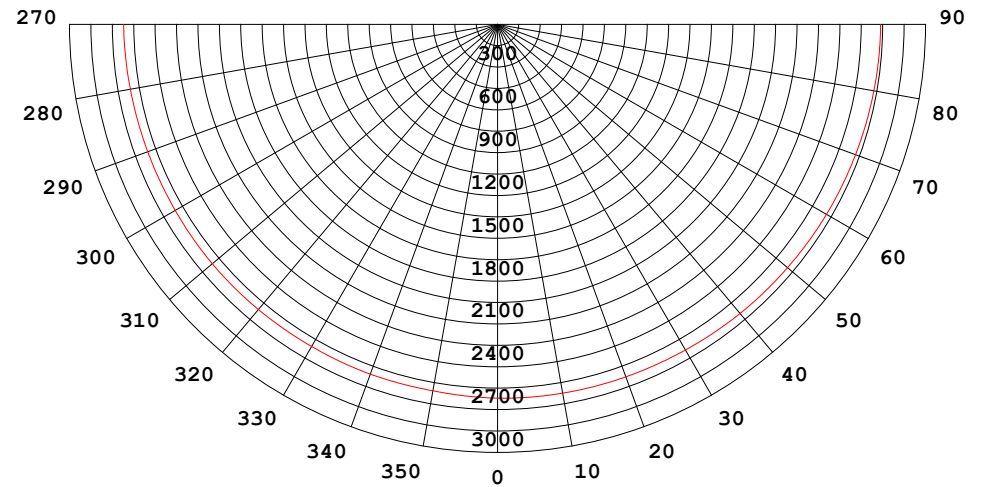
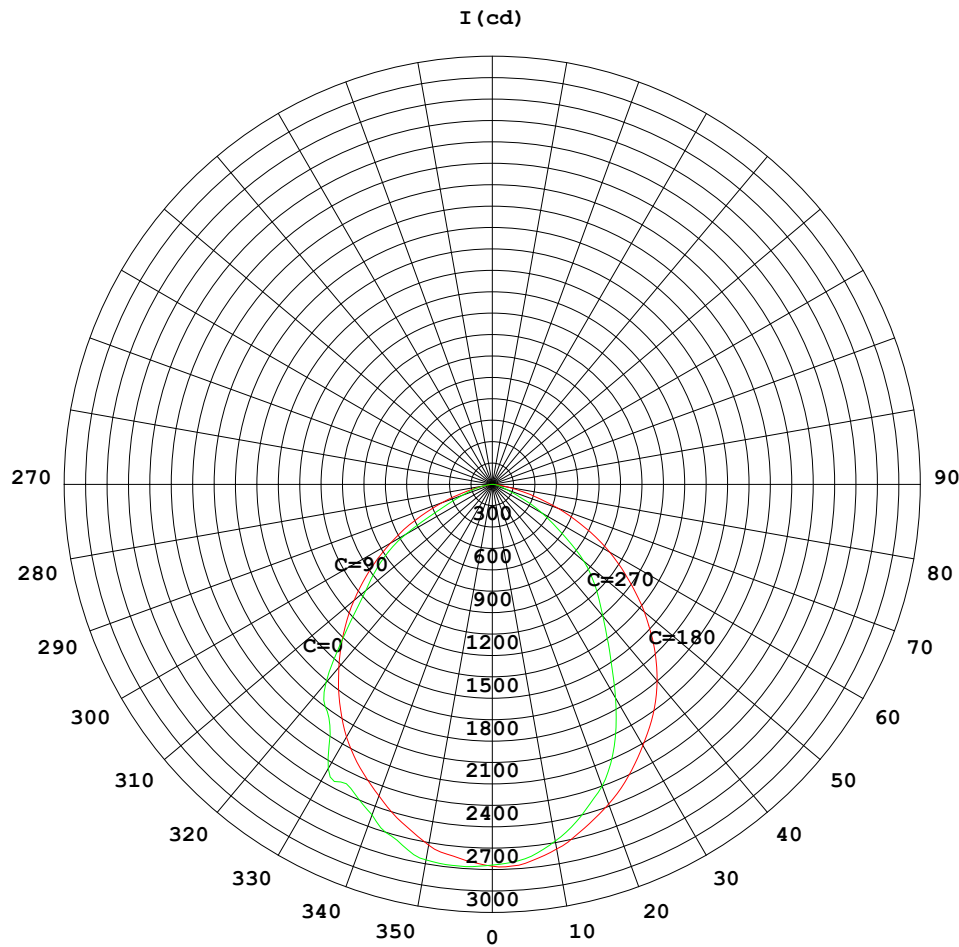
C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	2674	2673	2672	2671	2670	2670	2669	2668	2668	2667	2667	2666	2666	2666	2665	2665	2665		
5	2660	2657	2655	2652	2647	2638	2636	2637	2634	2626	2622	2623	2623	2623	2620	2619	2619		
10	2588	2582	2576	2572	2561	2547	2533	2535	2538	2535	2526	2531	2535	2543	2549	2556	2559		
15	2490	2483	2471	2446	2427	2417	2399	2408	2406	2420	2402	2412	2419	2426	2434	2439	2442		
20	2378	2371	2345	2327	2305	2281	2259	2241	2251	2256	2266	2276	2278	2287	2292	2312	2313		
25	2251	2240	2210	2186	2162	2130	2086	2043	2024	2049	2090	2102	2121	2125	2138	2163	2177		
30	2102	2080	2048	2023	1978	1912	1829	1756	1728	1761	1816	1861	1916	1948	1971	2007	2029		
35	1952	1919	1874	1827	1736	1625	1530	1465	1437	1464	1508	1564	1644	1739	1800	1831	1852		
40	1785	1750	1699	1589	1452	1347	1277	1228	1206	1227	1255	1291	1359	1478	1590	1647	1654		
45	1588	1572	1494	1331	1182	1113	1075	1045	1027	1042	1061	1071	1106	1199	1341	1450	1458		
50	1378	1371	1239	1065	963	925	899	864	839	848	874	888	906	940	1056	1233	1265		
55	1159	1133	951	824	781	732	673	622	593	597	630	669	710	728	793	990	1055		
60	949	900	695	616	567	496	451	425	406	407	421	438	467	526	582	728	835		
65	728	639	491	415	349	316	277	241	219	218	235	260	284	317	391	481	614		
70	507	395	309	242	195	156	125	112	108	106	109	115	135	176	217	278	369		
75	280	204	161	116	82.0	71.3	70.2	68.3	67.8	65.4	64.1	62.4	63.3	72.1	96.1	130	163		
80	106	84.5	61.9	47.9	40.0	36.1	35.2	34.1	33.4	31.9	29.9	28.6	28.8	31.2	35.7	42.1	47.2		
85	23.6	22.2	20.5	17.3	15.0	14.0	13.7	13.4	13.0	11.6	10.6	9.66	9.12	9.03	9.04	9.08	8.97		
90	2.98	2.90	2.84	2.61	2.41	2.28	2.15	1.93	1.62	1.27	0.92	0.61	0.40	0.29	0.23	0.24	0.31		
95	0.40	0.25	0.15	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	0.05		
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
120	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01		
125	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		
130	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02		
135	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
140	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
145	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
150	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
155	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
160	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
165	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
170	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03		
175	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.6DEG
 Operators:David
 Test Date:2017-04-11

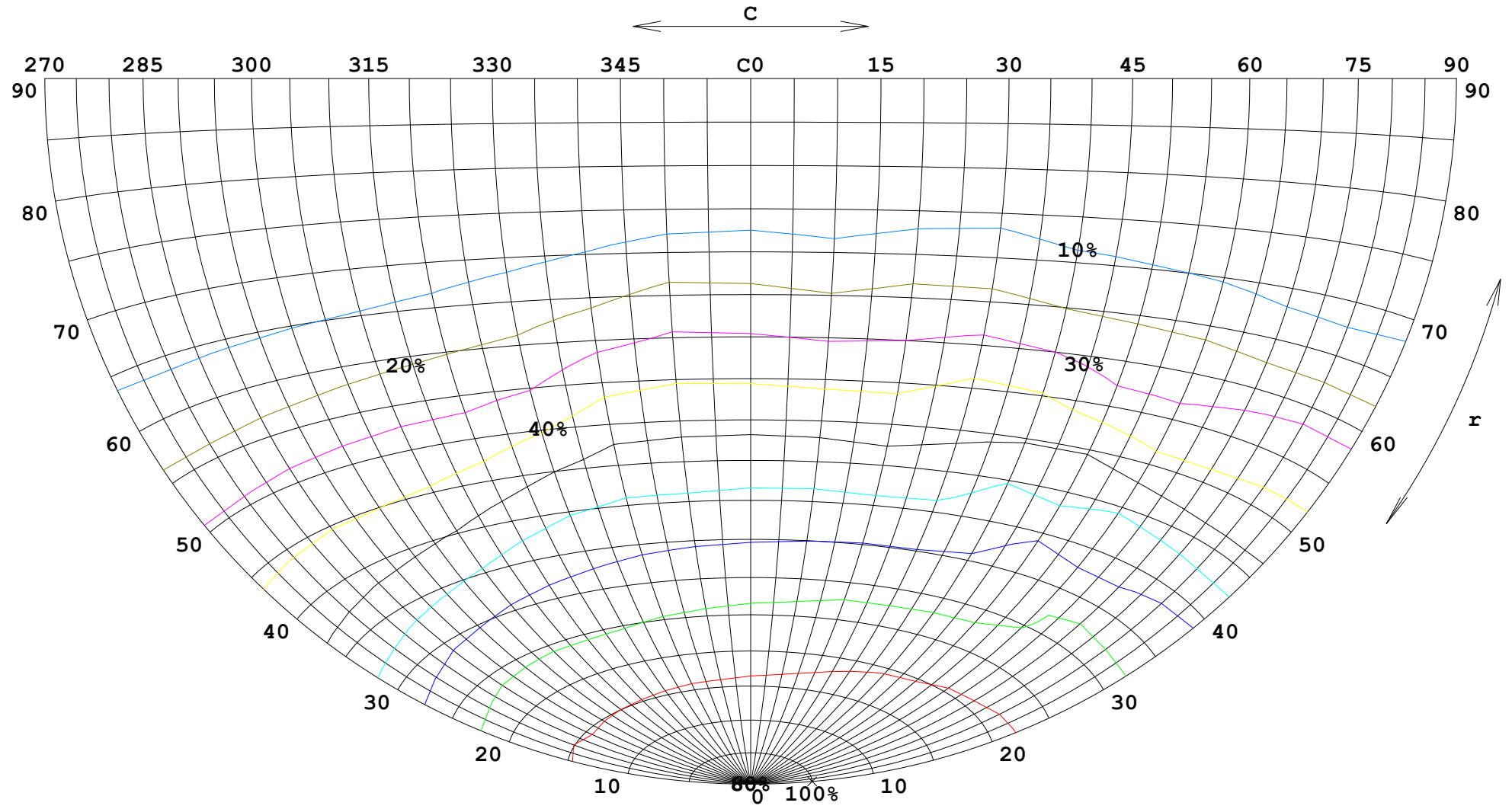
γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
 Humidity:67.1%
 Test Distance:2.543m [K=1.0000]
 Remarks:

FLUX DATA:

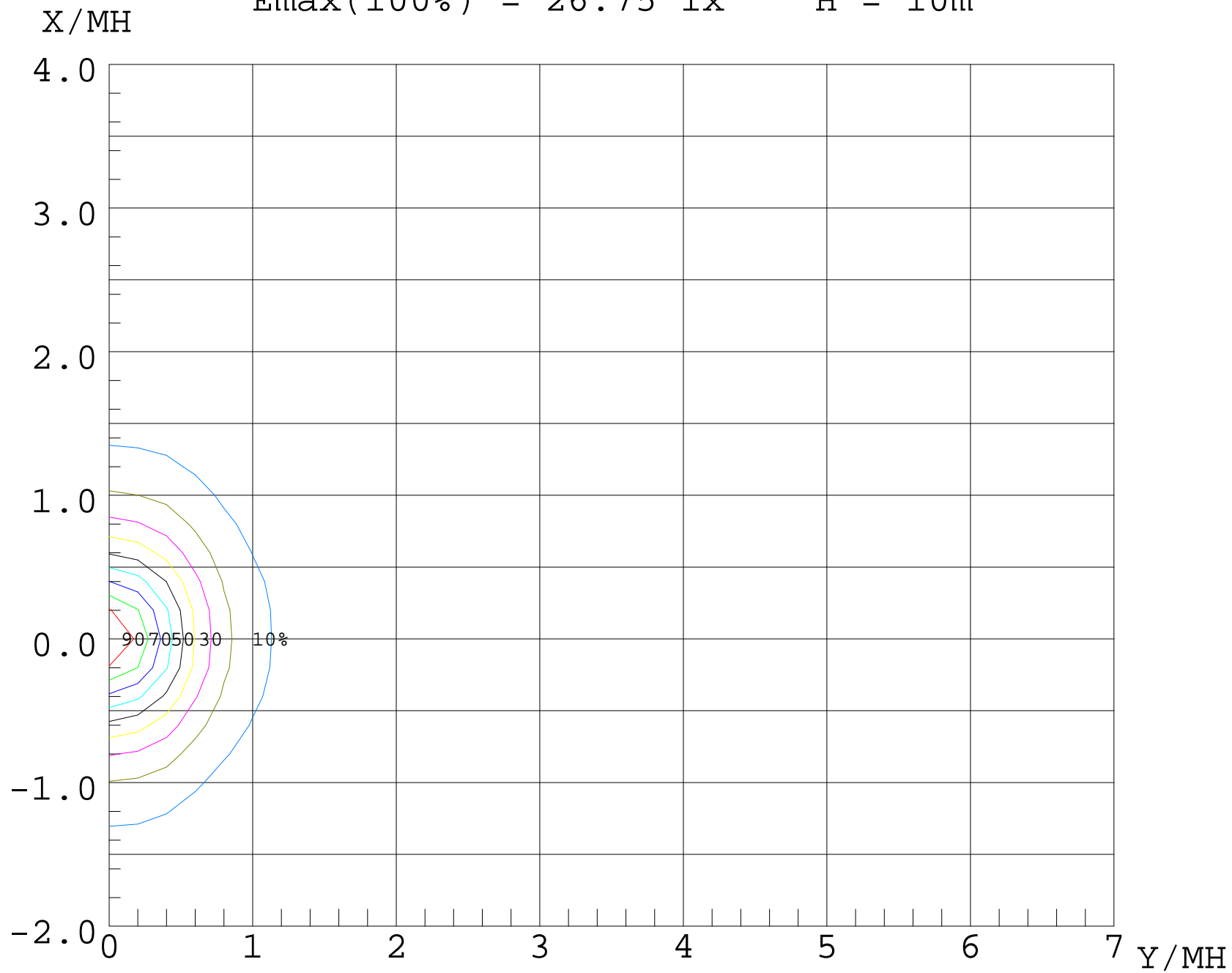
LOR: 100.0 %
STREET DOWN: 2900 lm
STREET UP: 0.1788 lm
HOUSE DOWN: 2768 lm
HOUSE UP: 0.2920 lm



$I_{max}(100\%) = 2687 \text{ cd}$



$E_{\max}(100\%) = 26.75 \text{ lx}$ $H = 10\text{m}$



UF (%)

80

70

60

50

40

30

20

10

0

-2

-1

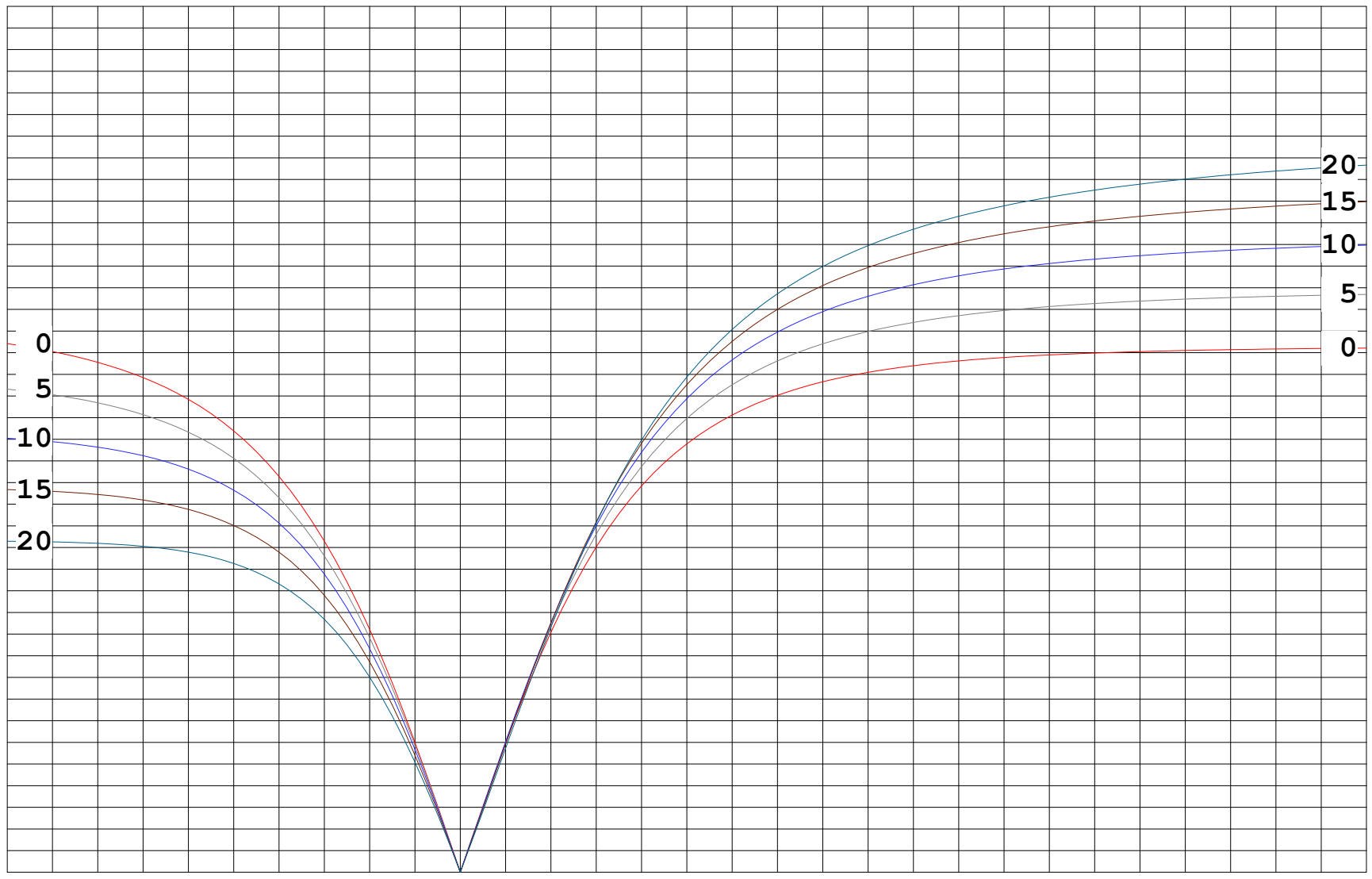
0

1

2

3

4 X/MH



20

15

10

5

0

0

5

10

15

20