DLC V4.2 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......:	BTR66.181.17.0007.15
Product Name.....:	Outdoor Pole/Arm-mounted Decorative Luminaires
Model .....:	CL03C-80-40k-lv-01 ; CL03C-80-50k-lv-01
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 .....:	Oct 26, 2017
Testing Laboratory Name .....:	BEST Test Service Shenzhen Co., Ltd.
Address .....:	1st Floor, 1st Building, Weitai Industrial Park, Yingrenshi, Shiyan, 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 V4.2
Test procedure .....:	DLC Test Procedure
Non-standard test method .....:	No
Test Report Form No.	BEST_ DLC-V4.2
TRF originator.....:	BEST Test Service Shenzhen Co., Ltd. Mr Tseng
Master TRF .....:	BEST_DLC V4.2.doc

Product description:		
Sample received date .....:	Sept 25, 2017 to Oct 26, 2017	
Sample Quantity .....:	1 pcs per model	
Model Number .....:	CL03C-80-40k-lv-01; CL03C-80-50k-lv-01	
Rating(s) (V; Hz) .....:	120V-277VAC	
Nominal Power.....:	80W	
Nominal Power Factor .....:	N/A	
Nominal Lumen Output.....:	8560lm; 8720lm	
Nominal CCT .....:	4000K; 5000K	
Nominal CRI(Ra) .....:	70	
Nominal Life.....:	50000H	
Product Classification .....:	☐Premium	☒Standard
Category .....:	☐Indoor	☐Indoor Retrofit Kit
	☒Outdoor	☐Outdoor Retrofit Kit
	☐Linear Replacement Lamp	☐E39 Replacements for HID Lamps
	☐ Four Pin-Base Replacement Lamps for CFLs	
General Applicant .....:	Outdoor –Mid Output	
Primary use.....:	Outdoor Pole/Arm-mounted Decorative Luminaires	
Dimmable .....:	☒Yes,	☐No
If Yes, Select Dimming Mechanism ...:	☒Continuous dimming,	☐Step dimming
If Yes, Mini Dimming Level .....:	10%	
Integral Controller .....:	☒Yes,	☐No
LED Lighting Source Manufacture.....:	Seoul Semiconductor CO.,Ltd	
LED Lighting Source Model .....:	SAWxL60A-xx	
LED Driver Brand.....:	N/A	
LED Driver Model Number.....	N/A	
Maximum Recommended Temperature (ºC) 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 C82.11-2011High-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 Luminaries
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 Luminaries
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
CL03C-80-40k-lv-01	120.0	60.0	0.681	9.1%	81.08	0.992	8636.76	106.52
CL03C-80-40k-lv-01	277.0	60.0	0.315	18.3%	79.29	0.908	/	/
CL03C-80-50k-lv-01	120.0	60.0	0.670	8.9%	79.66	0.991	/	/
CL03C-80-50k-lv-01	277.0	60.0	0.317	18.1%	79.81	0.909	/	/

EUT	CCT (K)	CRI Ra	R9	x CIE1931	y CIE1931
CL03C-80-40k-lv-01	4245	75.2	-9	0.3688	0.3637
CL03C-80-50k-lv-01	5287	74.3	-14	0.3375	0.3455

EUT	u' CIE1976	v' CIE1976	Duv	Rf	Rg
CL03C-80-40k-lv-01	0.2226	0.4939	-0.0027	73	95
CL03C-80-50k-lv-01	0.2086	0.4806	0.0001	72	95

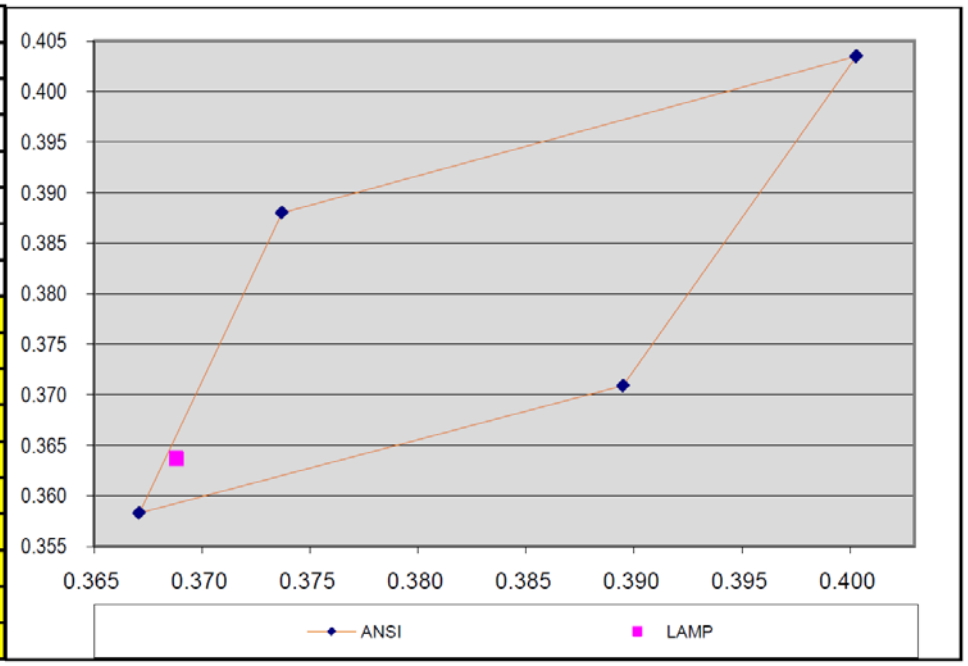
EUT	Zonal Lumen Density zone (0-90°)
CL03C-80-40k-lv-01	84.3%

Note:
See the annex of Luminous Intensity Distribution Test Plots

7 Step Quadrangle

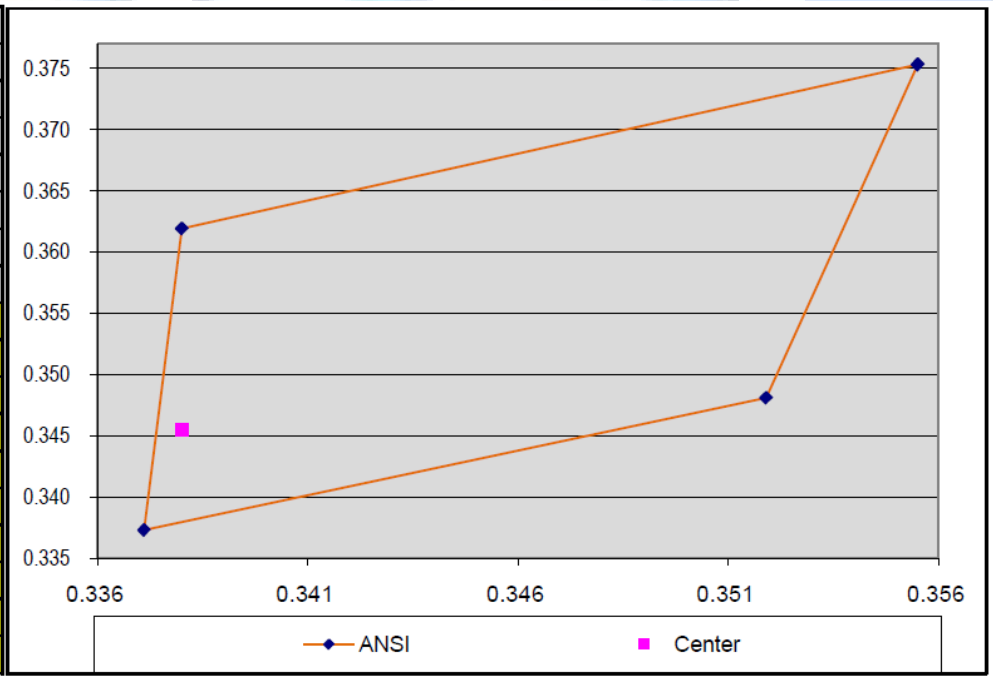
CL03C-80-40k-lv-01

	4100K quadrangle	
	x	y
ANSI 78.377-2015	0.4003	0.4035
	0.3737	0.3880
	0.3671	0.3583
	0.3895	0.3709
	0.4003	0.4035
Center		
1	0.3688	0.3637
2		
3		
4		
5		
6		
7		
8		
9		
10		



CL03C-80-50k-lv-01

	5000K Quadrangle	
	x	y
ANSI 78.377-2015	0.3550	0.3753
	0.3375	0.3619
	0.3366	0.3373
	0.3514	0.3481
	0.3550	0.3753
Center		
1	0.3375	0.3455
2		
3		
4		
5		
6		
7		
8		
9		
10		



Spectral Energy Distribution

CL03C-80-40k-lv-01

WL(nm)	Spectrum	Spectrum	WL(nm)	Spectrum	Spectrum
380	0.0204	2.1440	585	0.6699	70.4000
385	0.0134	1.4100	590	0.6664	70.0200
390	0.0079	0.8321	595	0.6551	68.8400
395	0.0060	0.6309	600	0.6397	67.2200
400	0.0057	0.5962	605	0.6197	65.1200
405	0.0067	0.7091	610	0.5937	62.3800
410	0.0113	1.1860	615	0.5642	59.2900
415	0.0236	2.4770	620	0.5295	55.6400
420	0.0476	5.0060	625	0.4936	51.8700
425	0.0923	9.6940	630	0.4559	47.9000
430	0.1704	17.9100	635	0.4175	43.8700
435	0.2851	29.9600	640	0.3806	39.9900
440	0.4384	46.0700	645	0.3439	36.1400
445	0.6857	72.0600	650	0.3100	32.5800
450	0.9769	102.6000	655	0.2777	29.1800
455	0.8561	89.9600	660	0.2475	26.0100
460	0.4928	51.7800	665	0.2190	23.0100
465	0.3334	35.0300	670	0.1935	20.3300
470	0.2390	25.1100	675	0.1700	17.8700
475	0.1529	16.0700	680	0.1495	15.7000
480	0.1130	11.8700	685	0.1305	13.7100
485	0.1022	10.7400	690	0.1141	11.9900
490	0.1043	10.9600	695	0.0989	10.3900
495	0.1259	13.2300	700	0.0859	9.0220
500	0.1706	17.9300	705	0.0744	7.8150
505	0.2325	24.4300	710	0.0646	6.7900
510	0.3012	31.6500	715	0.0564	5.9310
515	0.3701	38.8900	720	0.0495	5.1980
520	0.4304	45.2300	725	0.0428	4.4980
525	0.4790	50.3400	730	0.0373	3.9230
530	0.5160	54.2200	735	0.0318	3.3370
535	0.5431	57.0700	740	0.0280	2.9420
540	0.5651	59.3800	745	0.0245	2.5710
545	0.5834	61.3000	750	0.0214	2.2530
550	0.5990	62.9400	755	0.0189	1.9870
555	0.6142	64.5400	760	0.0168	1.7650
560	0.6285	66.0400	765	0.0145	1.5250
565	0.6425	67.5100	770	0.0126	1.3270
570	0.6550	68.8300	775	0.0111	1.1680
575	0.6657	69.9500	780	0.0105	1.1030
580	0.6695	70.3500	/	/	/

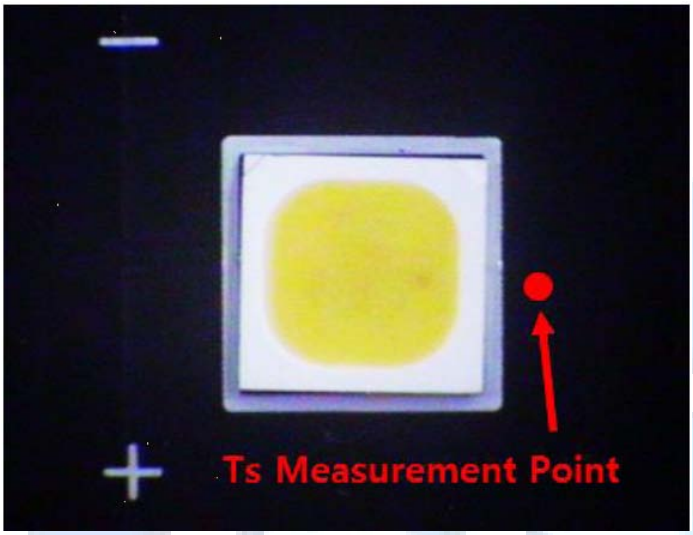
CL03C-80-50k-lv-01

WL(nm)	Spectrum	Spectrum	WL(nm)	Spectrum	Spectrum
380	0.0193	3.3180	585	0.4941	85.1400
385	0.0129	2.2250	590	0.4821	83.0700
390	0.0083	1.4340	595	0.4674	80.5400
395	0.0068	1.1750	600	0.4496	77.4600
400	0.0059	1.0240	605	0.4293	73.9700
405	0.0071	1.2230	610	0.4072	70.1700
410	0.0120	2.0670	615	0.3825	65.9000
415	0.0241	4.1460	620	0.3564	61.4100
420	0.0510	8.7900	625	0.3293	56.7400
425	0.0985	16.9700	630	0.3023	52.0800
430	0.1795	30.9300	635	0.2760	47.5600
435	0.2957	50.9500	640	0.2515	43.3400
440	0.4495	77.4500	645	0.2270	39.1100
445	0.6999	120.6000	650	0.2040	35.1400
450	0.9835	169.5000	655	0.1824	31.4300
455	0.8434	145.3000	660	0.1628	28.0500
460	0.4792	82.5600	665	0.1448	24.9500
465	0.3234	55.7200	670	0.1282	22.0800
470	0.2278	39.2500	675	0.1131	19.4800
475	0.1431	24.6600	680	0.0993	17.1000
480	0.1054	18.1600	685	0.0870	14.9900
485	0.0946	16.3100	690	0.0763	13.1500
490	0.0967	16.6600	695	0.0666	11.4800
495	0.1180	20.3300	700	0.0578	9.9640
500	0.1616	27.8500	705	0.0505	8.6970
505	0.2197	37.8500	710	0.0439	7.5670
510	0.2825	48.6800	715	0.0385	6.6280
515	0.3427	59.0400	720	0.0338	5.8300
520	0.3921	67.5600	725	0.0296	5.1070
525	0.4328	74.5700	730	0.0255	4.4010
530	0.4610	79.4300	735	0.0224	3.8520
535	0.4803	82.7600	740	0.0195	3.3580
540	0.4933	84.9900	745	0.0170	2.9240
545	0.5011	86.3500	750	0.0150	2.5920
550	0.5055	87.1000	755	0.0130	2.2450
555	0.5096	87.8000	760	0.0117	2.0170
560	0.5119	88.2000	765	0.0102	1.7630
565	0.5143	88.6200	770	0.0090	1.5440
570	0.5134	88.4600	775	0.0080	1.3700
575	0.5083	87.5800	780	0.0075	1.2910
580	0.5037	86.7900	/	/	/

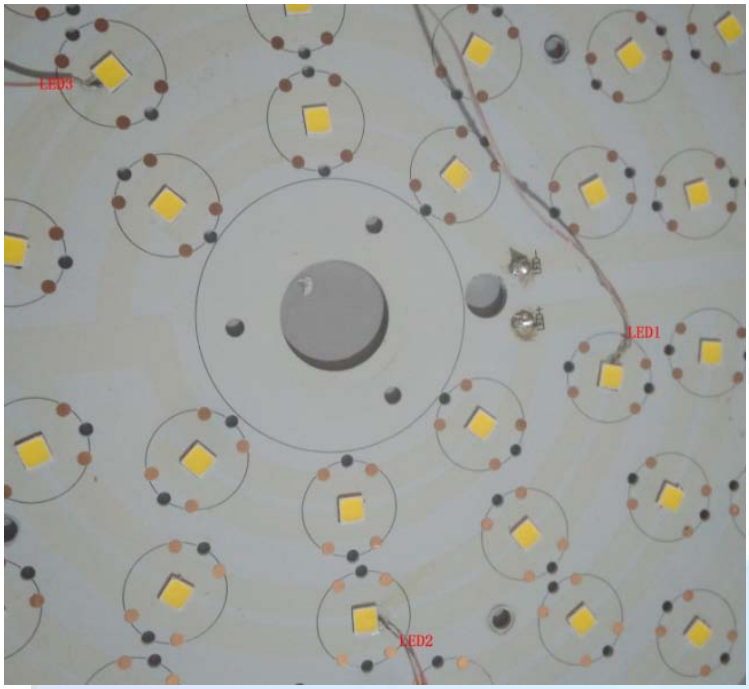
Driver Case Temperature/ LED Drive Current/TMP_{LED} Test Data

Driver Max Tc (℃)	Driver In-Situ Temperature (℃)	Temperature point location	LED In-Situ Current (mA)	LED In-Situ Temperature (℃)(1#)	LED In-Situ Temperature (℃)(2#)	LED In-Situ Temperature (℃)(3#)
N/A	N/A	(1): Maximum Temperature Point	75.3	75.5	75.4	76.8
		(2): Same with LM-80 Report	75.3	74.8	74.8	75.3

LED Lighting Source Temperature Measurement Point in LM-80 Report



LED Lighting Source In Situ Temperature Measurement(1)



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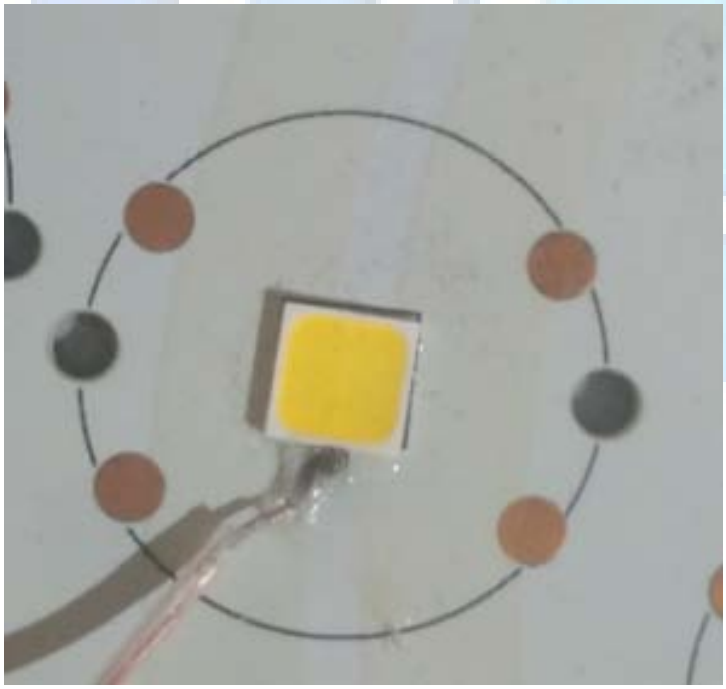
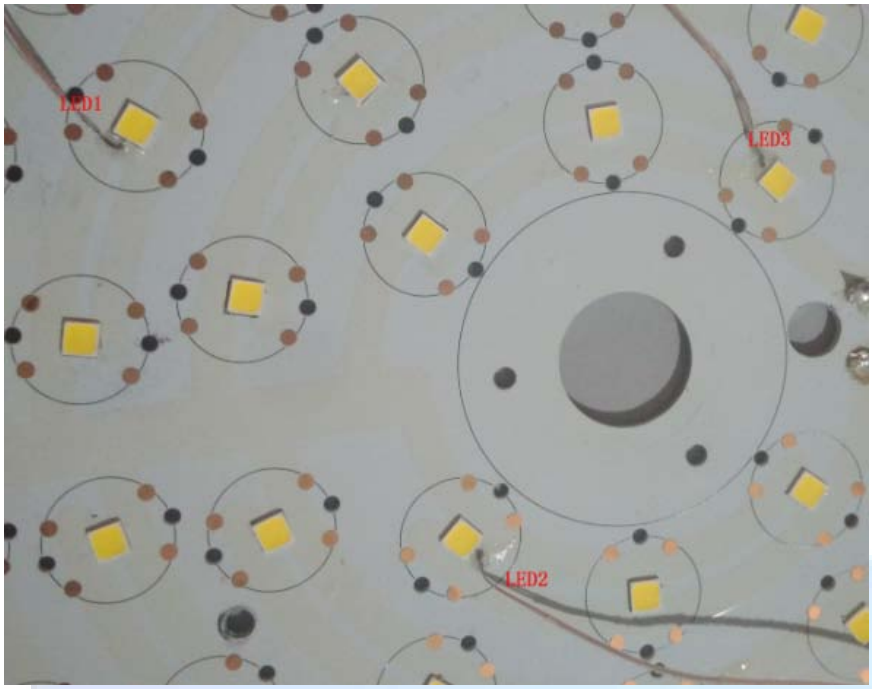
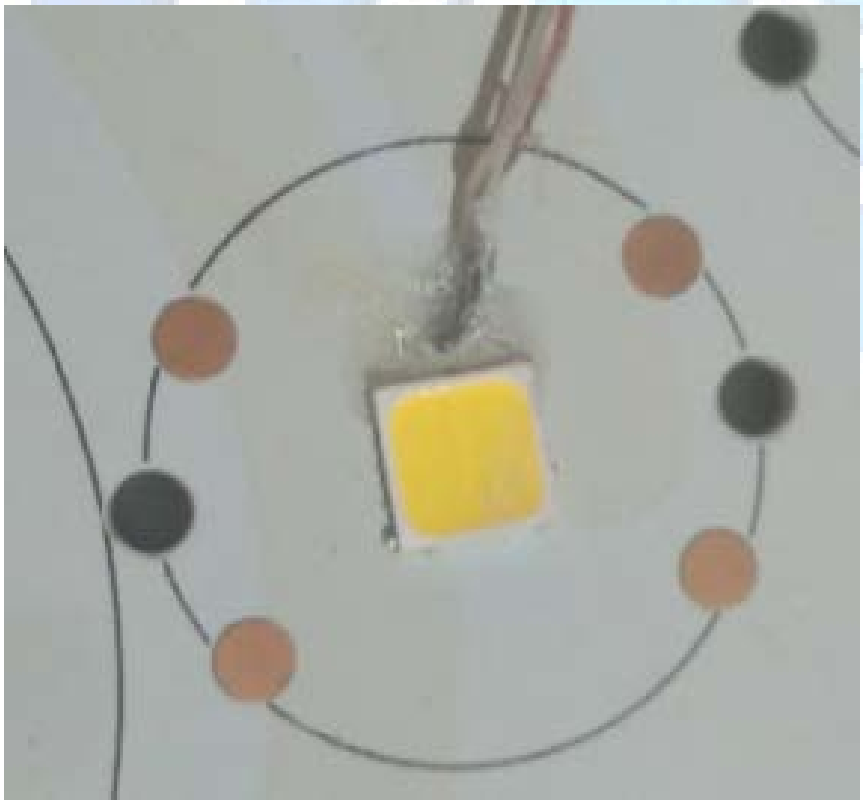


LED Lighting Source In Situ Temperature Measurement(2)



TOP: LED3



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".

LM-80 Test Inputs

Description of LED Light Source Tested (manufacturer, model, catalog number)
Seoul Semiconductor CO.,Ltd ; SAWxL60A-xx

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):	6000
Tested drive current (mA):	245
Tested case temperature 1 (T_c, °C):	55
Tested case temperature 2 (T_c, °C):	85
Tested case temperature 3 (T_c, °C):	

Test Data for 55°C Case Temperature		Test Data for 85°C Case Temperature		Tested Case Temperature 3	
Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)
1000	110.10%	1000	108.80%	1000	
2000	109.10%	2000	107.40%	2000	
3000	110.50%	3000	108.00%	3000	
4000	110.10%	4000	106.90%	4000	
5000	109.80%	5000	105.80%	5000	
6000	109.20%	6000	104.60%	6000	

***In-Situ* Inputs**

Drive current for each LED package/array/module (mA):	75.3
In-situ case temperature (T_c, °C):	76.8
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) (%):	89.93%
Reported L70 (hours):	>36000

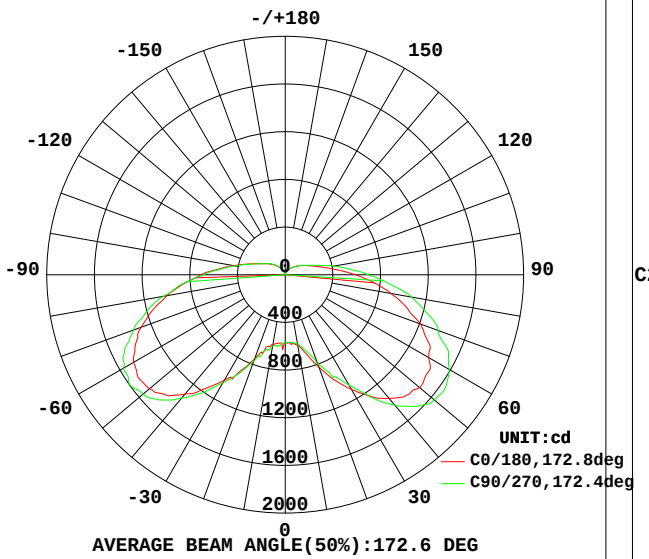
EUT Photo

STREETLIGHT PHOTOMETRIC TEST REPORT

Test:U:120.0V I:0.6812A P:81.08W PF:0.9918 Lamp Flux:8636.76x1 lm		
NAME: Outdoor Pole/Arm-mounted Decorative Luminaires	TYPE:CL03C-80-40k-lv-01	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:0.19*0.19*3.14	PROTECTION ANGLE:

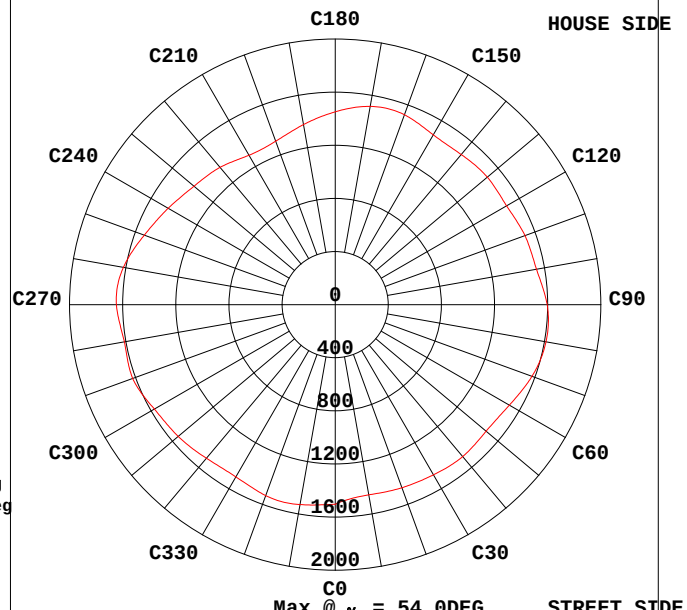
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 106.52 lm/W	
MODEL	CL03C-80-40k-lv-01	Imax(cd)	1648	η street_up(%)	8.8
NOMINAL POWER(W)	80	LOR(%)	100.0	η street_down(%)	45.5
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	8637	η house_up(%)	6.9
NOMINAL FLUX(lm)	8636.76	MAXIMUM @(C,γ)	270,54.0	η house_down(%)	38.8
LAMPS INSIDE	1	η up(%)	15.7	76 FLASHAREA(m2)	
TEST VOLTAGE(V)	120	η down(%)	84.3	SLI	

INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS



AVERAGE BEAM ANGLE(50%):172.6 DEG

MAX INTENSITY CONE SURFACE
DISTRIBUTION DIAGRAM



Max @ γ = 54.0DEG STREET SIDE

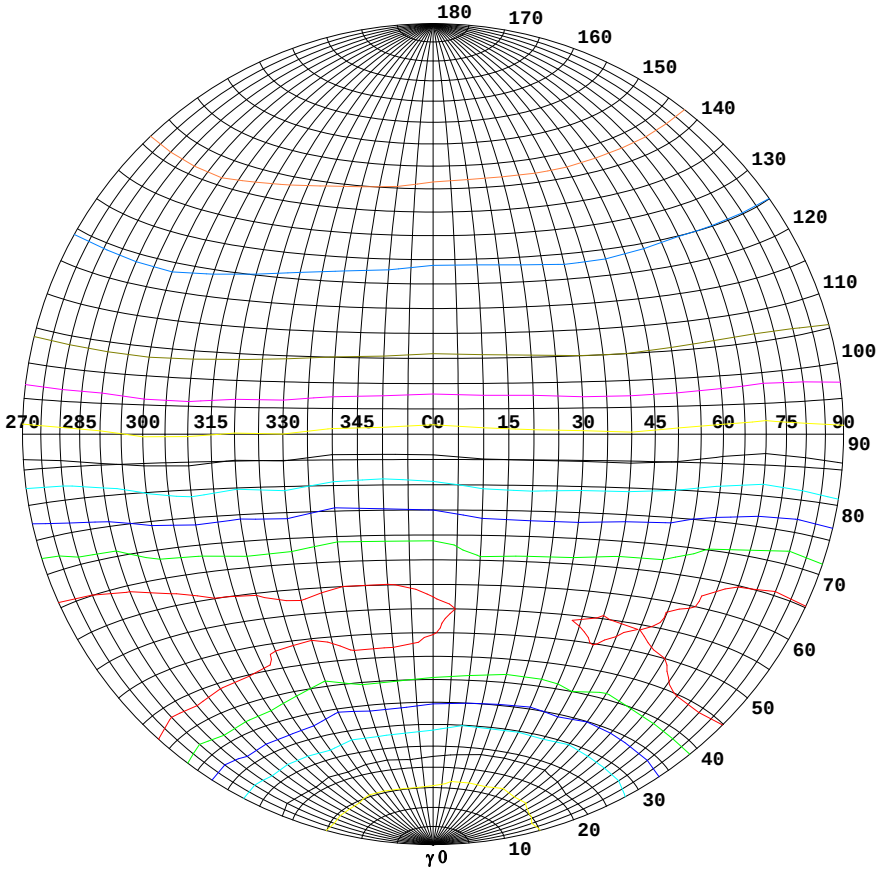
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-09-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

Note: SLI:Specific Luminaire Index

STREETLIGHT ISOCANDELA DIAGRAM

Test:U:120.0V I:0.6812A P:81.08W PF:0.9918 Lamp Flux:8636.76x1 lm		
NAME: Outdoor Pole/Arm-mounted Decorative Luminaires	TYPE:CL03C-80-40k-lv-01	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:0.19*0.19*3.14	PROTECTION ANGLE:



Classification:

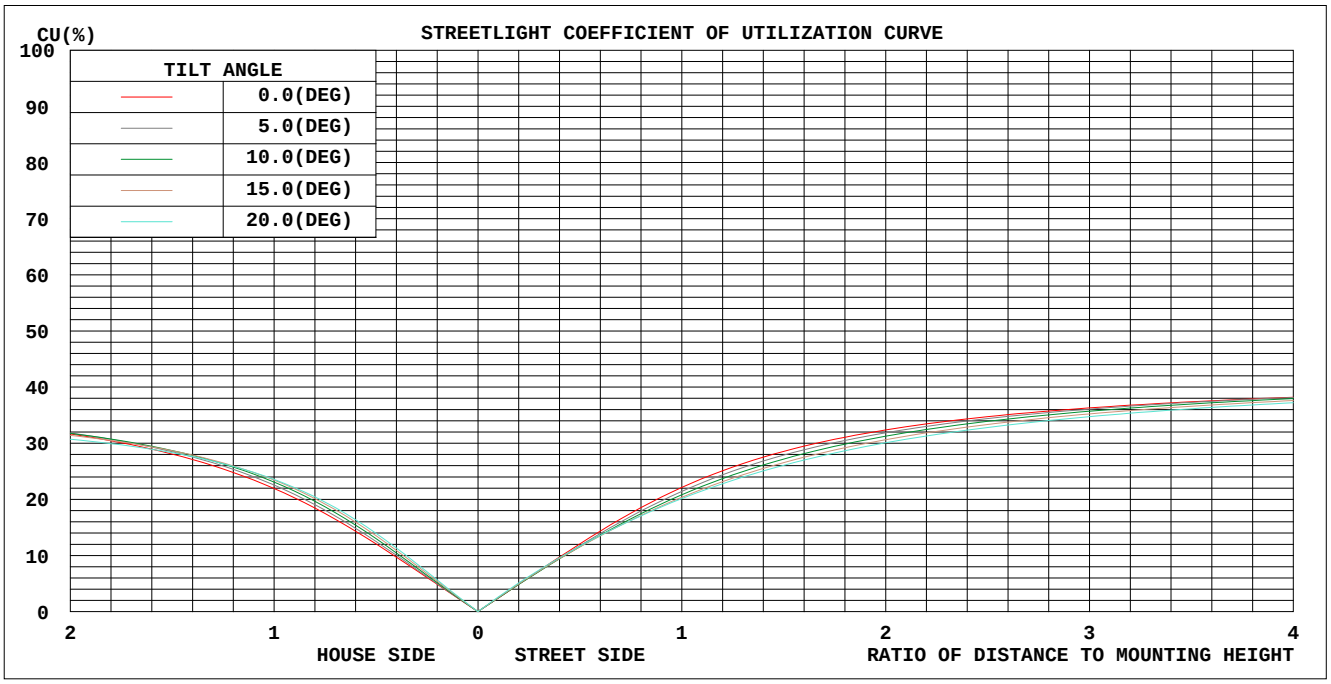
IES:Type IV - Very Short
CIE:Broad - Short
IES:None cut-off
CIE:Non-cut-off
Max.At80:124.4cd/klm
Max.At90:83.36cd/klm
Max.80-90:124.4cd/klm

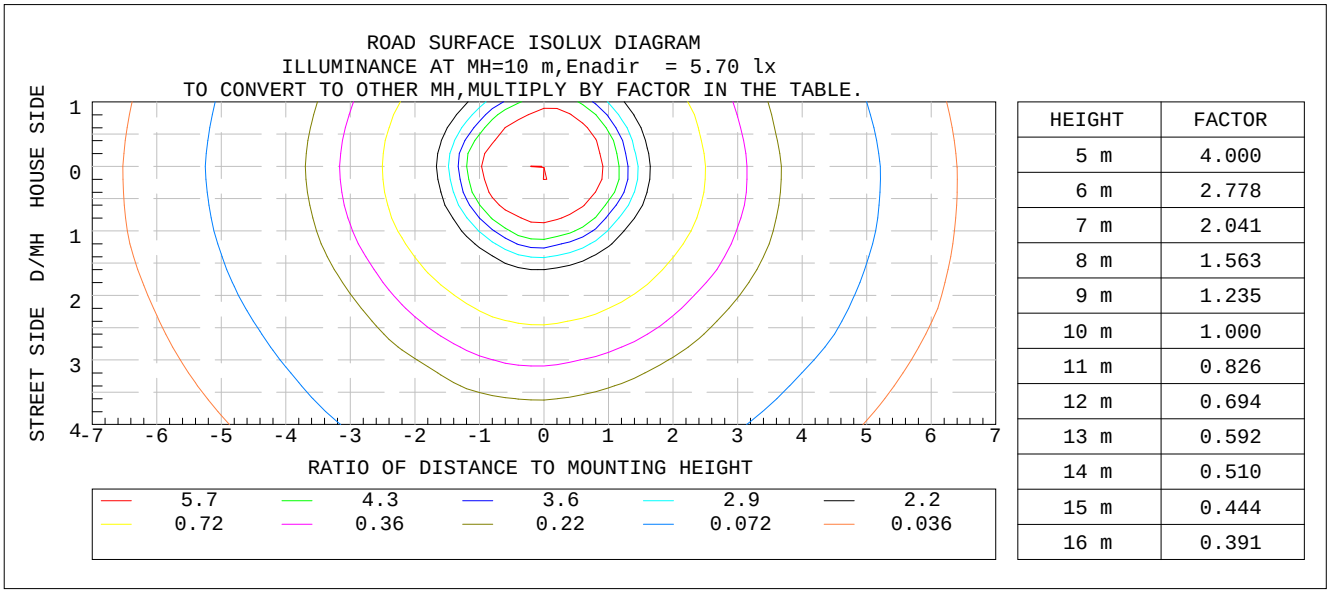
ISOCANDELA DIAGRAM	
UNIT	cd
Imax=100%	1648
90%	1483
80%	1318
70%	1154
60%	989
50%	824
40%	659
30%	494
20%	330
10%	165
5%	82

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-09-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM





HEIGHT	FACTOR
5 m	4.000
6 m	2.778
7 m	2.041
8 m	1.563
9 m	1.235
10 m	1.000
11 m	0.826
12 m	0.694
13 m	0.592
14 m	0.510
15 m	0.444
16 m	0.391

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-09-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

Test:U:120.0V I:0.6812A P:81.08W PF:0.9918 Lamp Flux:8636.76x1 lm		
NAME: Outdoor Pole/Arm-mounted Decorative Luminaire	TYPE:CL03C-80-40k-lv-01	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:0.19*0.19*3.14	PROTECTION ANGLE:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum
10	594.1	595.7	606.6	597.9	601.4	592.1	588.8	598.2	0- 10	55.85	55.85	0.65
20	749.4	734.4	769.0	792.7	824.3	779.3	804.1	781.5	10- 20	192.9	248.8	2.88
30	1023	1003	1046	1090	1110	1044	1070	1091	20- 30	428.0	676.8	7.84
40	1306	1302	1350	1353	1353	1281	1429	1358	30- 40	757.8	1435	16.6
50	1488	1471	1556	1479	1474	1378	1632	1521	40- 50	1109	2543	29.4
60	1469	1446	1567	1434	1390	1318	1591	1483	50- 60	1336	3880	44.9
70	1285	1264	1353	1204	1210	1142	1364	1258	60- 70	1354	5233	60.6
80	1008	976.3	1035	873.9	899.0	896.1	1074	968.6	70- 80	1175	6408	74.2
90	706.7	678.5	688.0	561.3	591.5	596.0	698.4	655.6	80- 90	874.6	7283	84.3
100	444.7	428.9	430.9	341.1	347.1	351.9	414.3	403.5	90-100	561.4	7844	90.8
110	272.6	261.6	268.6	223.3	221.2	206.8	233.8	239.7	100-110	328.4	8173	94.6
120	186.1	181.7	187.9	165.8	157.1	147.1	160.0	163.0	110-120	199.4	8372	96.9
130	132.1	136.0	139.4	119.5	107.8	100.9	107.4	113.3	120-130	129.8	8502	98.4
140	88.73	92.23	92.90	79.06	70.48	67.33	71.65	74.91	130-140	77.14	8579	99.3
150	53.45	52.90	51.65	42.08	39.58	39.58	40.93	46.11	140-150	39.41	8618	99.8
160	24.36	25.20	21.37	17.32	13.25	14.48	12.94	18.28	150-160	14.88	8633	100
170	6.088	6.566	6.038	6.296	5.957	6.679	7.382	6.451	160-170	3.244	8636	100
180	2.623	2.594	0.3993	0.7140	2.176	2.259	2.336	2.363	170-180	0.4286	8637	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:2017-09-26

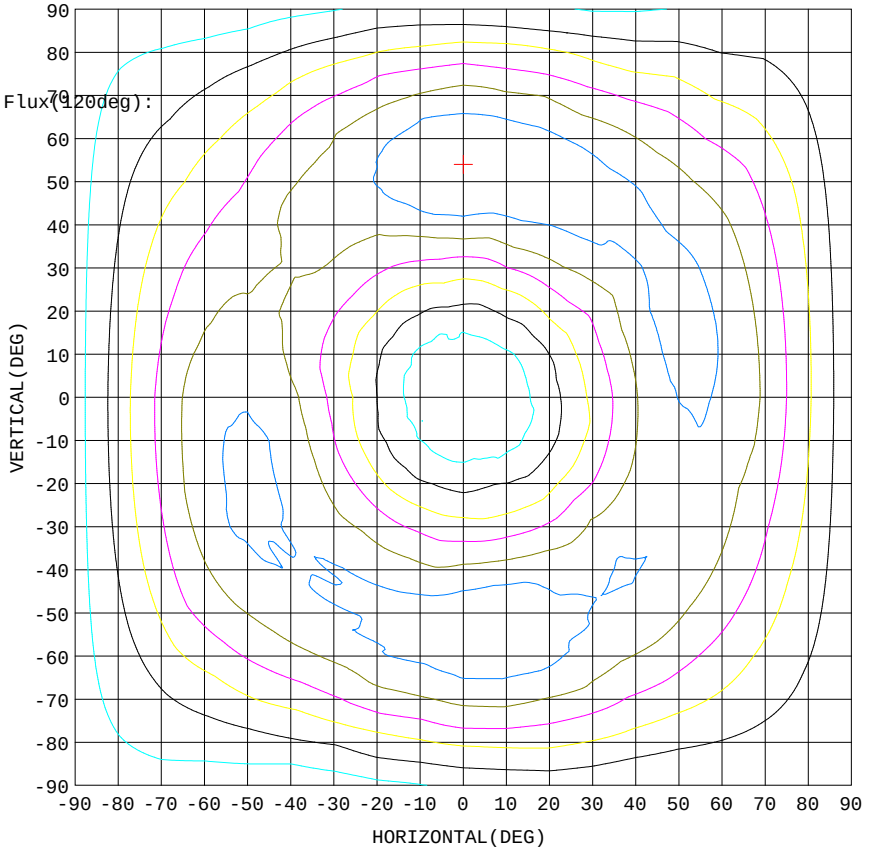
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:120.0V I:0.6812A P:81.08W PF:0.9918 Lamp Flux:8636.76x1 lm		
NAME: Outdoor Pole/Arm-mounted Decorative Luminaire	TYPE:CL03C-80-40k-lv-01	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:0.19*0.19*3.14	PROTECTION ANGLE:

Conical surface Flux(90deg):
1949.1 lm
%lum = 22.6%
%lamp = 22.6%

Conical surface Flux(120deg):
3879.8 lm
%lum = 44.9%
%lamp = 44.9%



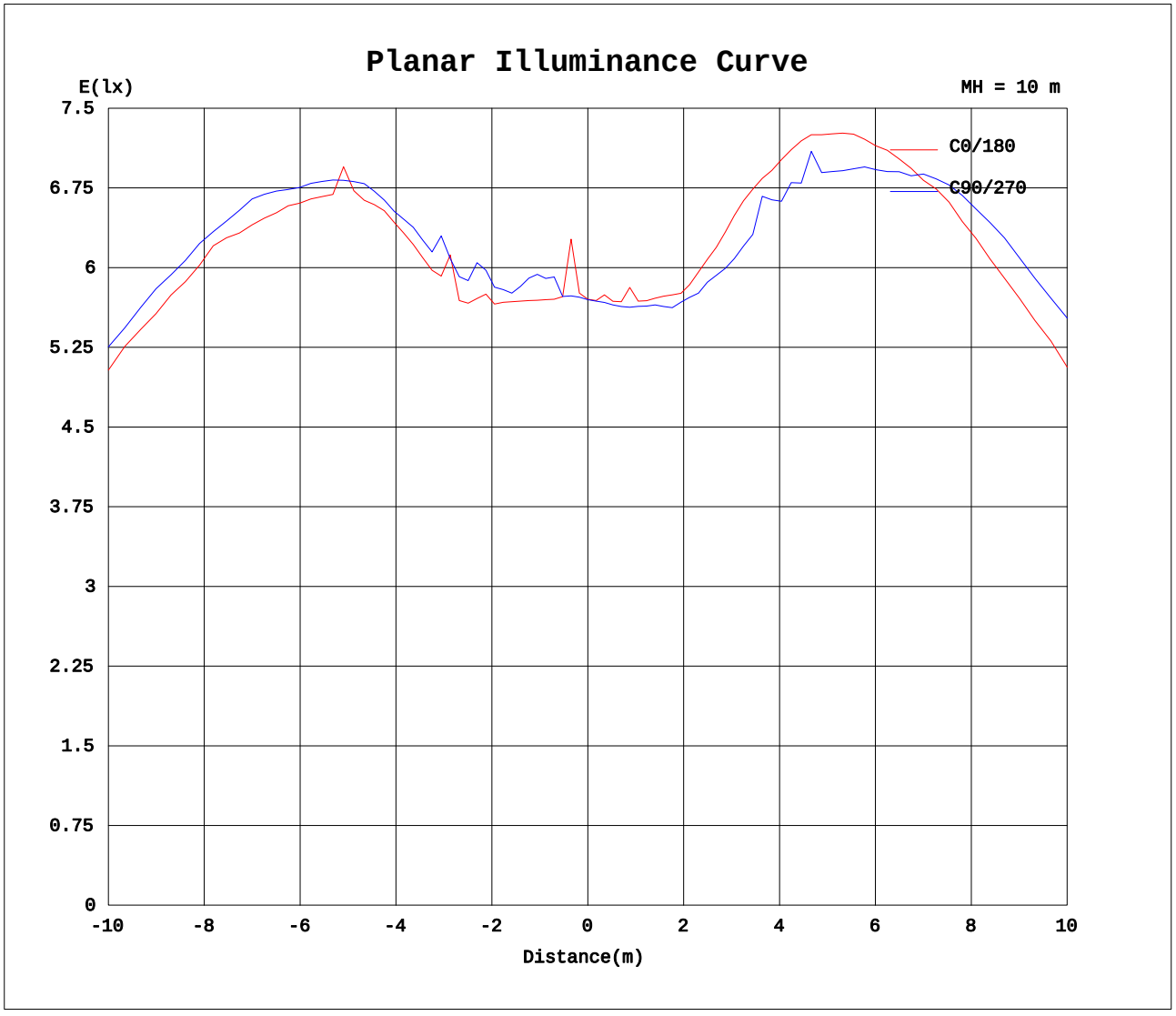
10% 164.8
20% 329.6
30% 494.4
40% 659.2
50% 824.0
60% 988.8
70% 1154
80% 1318
90% 1483

Imax:1648(H0.0,V54.0)
(At:C=270.0,Gamma=54.0)
UNIT: cd

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-09-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [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:2017-09-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.6812A P:81.08W PF:0.9918 Lamp Flux:8636.76x1 lm		
NAME: Outdoor Pole/Arm-mounted Decorative Luminaire	TYPE:CL03C-80-40k-lv-01	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:0.19*0.19*3.14	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	570	571	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570
5	576	577	578	576	577	577	579	579	637	597	582	581	581	581	579	577	574	572	588
10	594	593	588	591	594	597	590	596	605	607	601	597	600	598	598	617	607	604	601
15	631	625	630	634	629	640	637	654	669	656	658	666	670	669	684	679	682	683	687
20	749	731	739	733	727	742	740	766	780	769	778	791	779	797	789	809	801	824	824
25	891	855	861	855	866	867	895	928	900	912	920	930	928	930	939	950	950	961	974
30	1023	991	997	997	1010	996	1016	1030	1032	1046	1052	1070	1070	1083	1096	1101	1107	1120	1110
35	1165	1156	1148	1140	1171	1157	1173	1193	1201	1209	1194	1219	1229	1232	1243	1256	1261	1270	1241
40	1306	1293	1266	1287	1318	1286	1326	1354	1362	1350	1324	1347	1338	1352	1354	1360	1378	1383	1353
45	1425	1378	1376	1393	1412	1401	1435	1492	1507	1487	1449	1454	1446	1449	1439	1437	1458	1468	1432
50	1488	1437	1443	1459	1486	1456	1483	1570	1603	1556	1518	1524	1492	1480	1478	1478	1507	1506	1474
55	1507	1461	1466	1466	1486	1470	1518	1584	1612	1599	1525	1514	1480	1474	1478	1491	1510	1519	1449
60	1469	1407	1412	1421	1442	1451	1474	1542	1567	1567	1513	1485	1454	1443	1425	1443	1475	1456	1390
65	1387	1327	1341	1344	1372	1368	1436	1478	1492	1489	1423	1393	1333	1327	1324	1338	1381	1353	1322
70	1285	1244	1228	1236	1256	1272	1321	1348	1357	1353	1311	1264	1211	1211	1196	1226	1244	1221	1210
75	1153	1122	1109	1099	1115	1132	1178	1221	1219	1209	1152	1130	1061	1037	1059	1072	1078	1073	1055
80	1008	970	959	959	966	986	1032	1052	1053	1035	972	939	881	865	883	889	924	909	899
85	854	827	821	818	809	826	856	873	868	862	813	782	720	696	708	728	744	753	744
90	707	689	683	677	671	686	709	720	706	688	654	615	569	561	562	574	590	599	591
95	557	556	555	547	544	555	568	580	564	542	514	482	447	433	445	452	458	456	451
100	445	441	436	428	424	434	446	452	441	431	404	382	354	339	344	349	355	351	347
105	346	341	337	330	330	339	349	353	347	337	319	300	280	271	276	282	283	282	274
110	273	270	266	259	257	266	272	276	275	269	258	245	230	223	224	227	230	229	221
115	221	220	217	211	210	216	222	225	223	220	213	204	194	189	189	191	193	193	185
120	186	185	182	179	179	184	187	189	190	188	184	177	171	166	166	166	166	165	157
125	158	158	157	156	157	161	164	165	166	165	163	158	150	144	143	143	141	138	131
130	132	133	132	132	134	138	140	141	140	139	137	131	125	120	119	119	117	114	108
135	110	112	112	112	113	115	117	117	118	117	113	108	104	99.2	98.5	97.9	96.2	93.7	88.1
140	88.7	90.5	90.7	90.9	91.5	93.0	94.2	94.6	94.7	92.9	90.2	86.5	82.8	79.3	78.8	78.5	77.1	74.6	70.5
145	68.8	69.7	70.0	69.8	70.5	72.0	72.9	72.7	72.2	70.6	68.4	65.9	62.7	59.6	59.3	59.5	58.1	56.5	54.0
150	53.5	53.7	52.8	51.9	52.3	53.5	54.2	53.8	53.1	51.6	49.9	48.0	45.2	42.6	41.5	41.5	41.1	40.8	39.6
155	38.3	38.8	38.4	37.6	37.7	38.1	38.4	37.6	36.6	35.3	33.9	32.3	29.9	28.1	27.2	26.6	26.2	25.8	24.9
160	24.4	24.9	25.3	25.3	25.3	25.0	24.6	23.7	22.6	21.4	20.0	18.9	18.1	17.8	16.8	15.4	14.4	13.7	13.3
165	12.6	13.3	14.2	14.9	15.1	14.6	13.5	12.2	11.1	10.1	9.60	9.50	9.54	9.32	8.76	8.24	7.71	7.25	6.92
170	6.09	6.36	6.63	6.74	6.68	6.45	6.12	5.89	5.86	6.04	6.30	6.45	6.43	6.38	6.21	6.21	6.12	6.05	5.96
175	3.92	4.07	4.17	4.32	4.42	4.57	4.70	4.89	5.18	5.56	5.55	5.29	4.85	4.31	3.89	3.49	3.07	2.77	2.29
180	2.62	2.70	3.10	2.70	2.72	2.47	2.13	1.09	0.52	0.40	0.45	0.67	0.58	0.63	0.80	1.17	1.64	2.01	2.18

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-09-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:120.0V I:0.6812A P:81.08W PF:0.9918 Lamp Flux:8636.76x1 lm		
NAME: Outdoor Pole/Arm-mounted Decorative Luminaire	TYPE:CL03C-80-40k-lv-01	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Supertek	SUR.:0.19*0.19*3.14	PROTECTION ANGLE:

Table--2 UNIT: cd

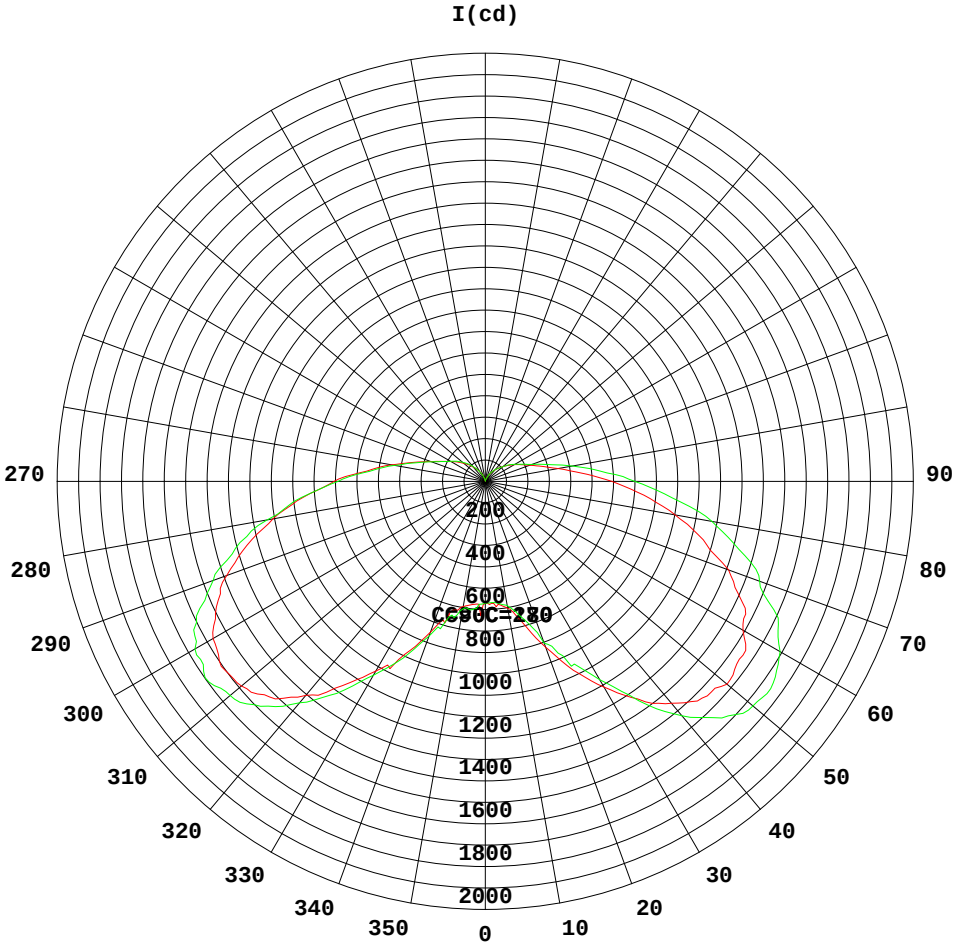
γ (DEG) \ C(DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350		
0	571	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570	570		
5	604	570	569	567	566	569	566	568	569	571	572	577	574	574	576	603	621		
10	597	587	581	608	576	575	588	582	589	612	593	590	595	601	606	602	624		
15	690	669	670	653	652	664	647	669	658	678	671	676	665	652	649	655	657		
20	817	802	783	788	771	783	766	792	804	780	787	800	779	784	766	759	771		
25	941	940	907	909	910	938	917	933	953	916	945	930	930	936	909	909	897		
30	1063	1054	1034	1043	1045	1041	1058	1074	1070	1078	1103	1083	1092	1090	1041	1051	1038		
35	1184	1163	1160	1171	1176	1182	1203	1239	1252	1242	1263	1246	1249	1224	1175	1191	1181		
40	1282	1256	1254	1276	1286	1298	1335	1400	1429	1402	1407	1379	1376	1340	1296	1331	1325		
45	1346	1314	1307	1350	1362	1372	1439	1547	1563	1526	1535	1505	1488	1459	1411	1451	1444		
50	1377	1326	1321	1366	1390	1433	1524	1630	1632	1587	1602	1556	1536	1506	1489	1514	1511		
55	1373	1307	1299	1346	1382	1443	1524	1626	1642	1611	1612	1565	1541	1516	1505	1529	1523		
60	1321	1256	1235	1295	1341	1404	1493	1562	1591	1578	1553	1517	1484	1481	1462	1483	1486		
65	1235	1188	1168	1204	1269	1340	1416	1486	1510	1484	1463	1414	1399	1390	1379	1405	1406		
70	1124	1072	1066	1109	1175	1221	1291	1337	1364	1339	1339	1272	1261	1255	1254	1288	1288		
75	1008	966	962	991	1038	1080	1167	1198	1226	1206	1179	1131	1108	1136	1109	1176	1163		
80	872	841	847	872	920	952	1006	1036	1074	1068	1024	986	953	984	963	1012	1017		
85	726	702	702	723	760	799	851	880	875	854	833	809	797	830	820	856	858		
90	589	569	565	578	614	651	694	703	698	685	678	646	647	664	660	688	697		
95	454	446	437	449	474	501	539	543	543	543	539	518	516	528	524	546	556		
100	345	341	335	343	361	381	403	409	414	407	406	395	397	410	419	430	434		
105	270	264	257	260	272	286	302	305	306	304	300	297	301	310	320	331	337		
110	218	210	203	202	211	221	230	233	234	231	230	229	233	246	254	262	264		
115	181	174	169	168	174	181	187	189	189	189	186	184	189	198	206	211	214		
120	153	149	146	145	149	155	158	160	160	160	158	156	160	166	172	177	180		
125	127	123	121	121	124	128	131	133	135	137	136	135	139	143	147	150	152		
130	105	102	99.9	100	102	104	106	107	107	108	108	108	111	115	119	123	126		
135	85.6	83.1	81.7	81.8	83.2	85.3	86.7	87.6	87.6	87.9	87.7	87.4	90.9	94.2	97.8	102	104		
140	68.4	67.3	66.1	66.4	68.3	69.8	70.9	71.3	71.7	71.8	71.4	70.5	73.3	76.5	79.4	81.6	83.7		
145	52.9	52.4	51.5	51.8	53.9	55.4	56.0	56.0	56.1	56.8	55.7	55.0	57.9	61.3	63.9	65.2	66.0		
150	39.3	39.3	39.0	39.2	40.0	40.3	40.4	40.3	40.9	41.7	41.3	42.0	44.9	47.4	49.2	50.5	51.3		
155	24.8	25.0	25.4	25.9	25.4	24.9	24.5	24.6	25.0	26.4	27.5	28.8	30.8	32.7	34.4	35.5	36.6		
160	13.2	13.7	14.4	14.8	14.2	13.3	12.7	12.8	12.9	14.2	16.0	17.3	17.8	18.7	20.0	21.4	22.5		
165	7.07	7.22	7.32	7.57	7.83	7.93	8.64	8.67	8.90	7.97	7.47	8.32	9.10	9.46	10.1	10.6	11.4		
170	5.98	6.00	6.17	6.51	6.85	7.00	7.03	7.20	7.38	7.64	7.17	6.79	6.60	6.31	6.20	6.05	6.11		
175	2.29	2.20	2.27	2.26	2.28	2.35	2.35	2.35	2.31	2.30	2.61	3.11	3.50	3.71	3.77	3.81	3.85		
180	2.23	2.23	2.20	2.22	2.30	2.37	2.37	2.33	2.34	2.32	2.34	2.37	2.37	2.35	2.37	2.33	2.31		

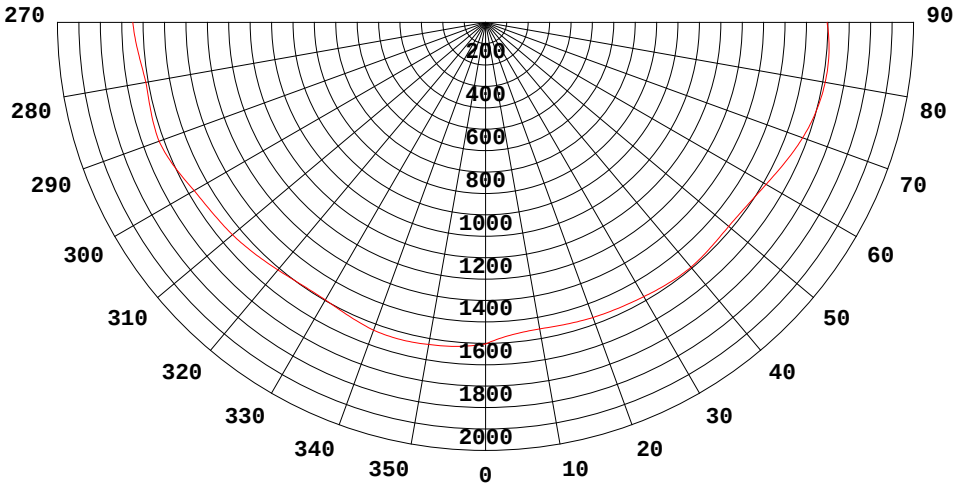
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.6DEG
Operators:David
Test Date:2017-09-26

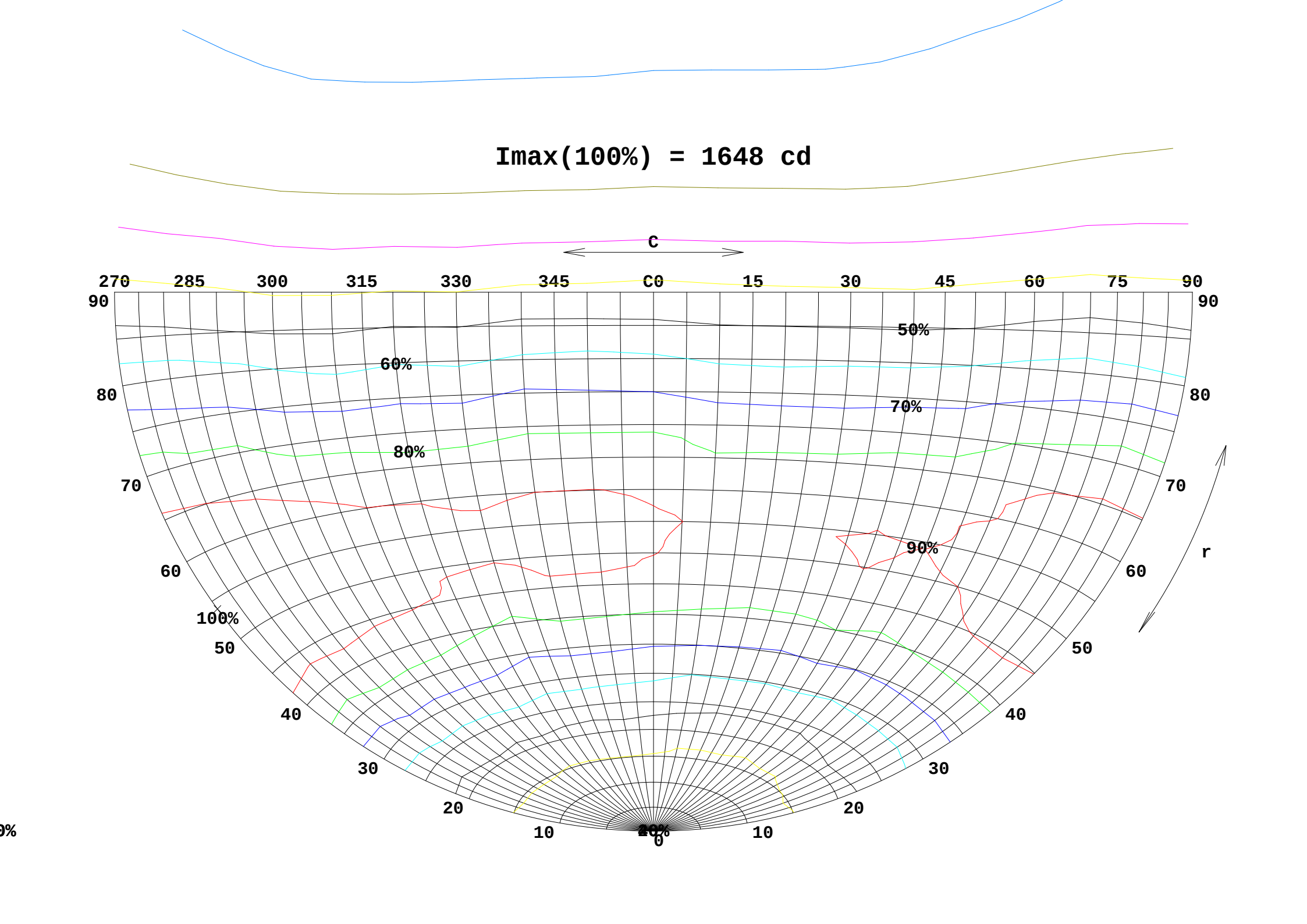
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.287
Humidity:67.1%
Test Distance:26.000m [K=1.0000]
Remarks:

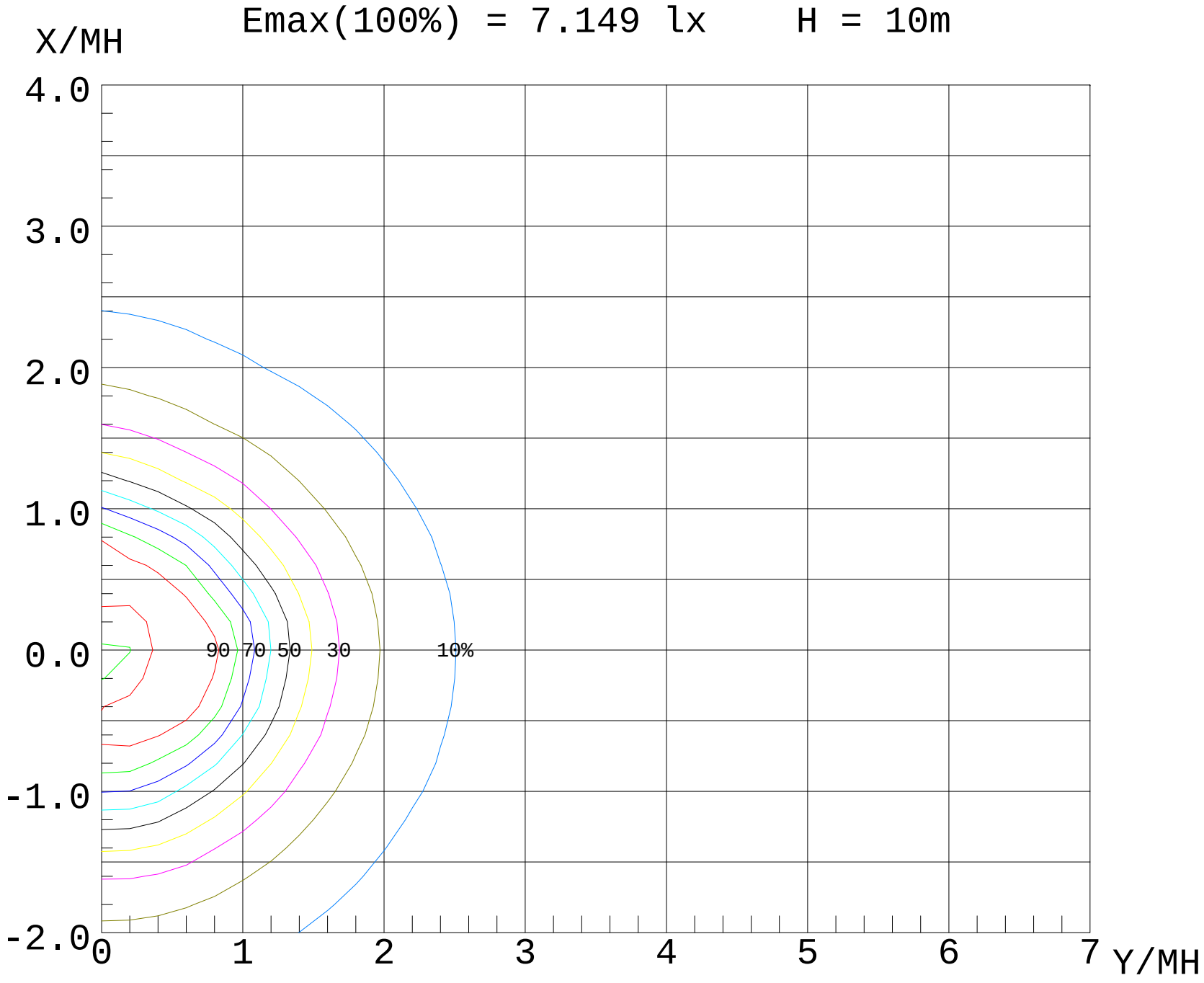
FLUX DATA:

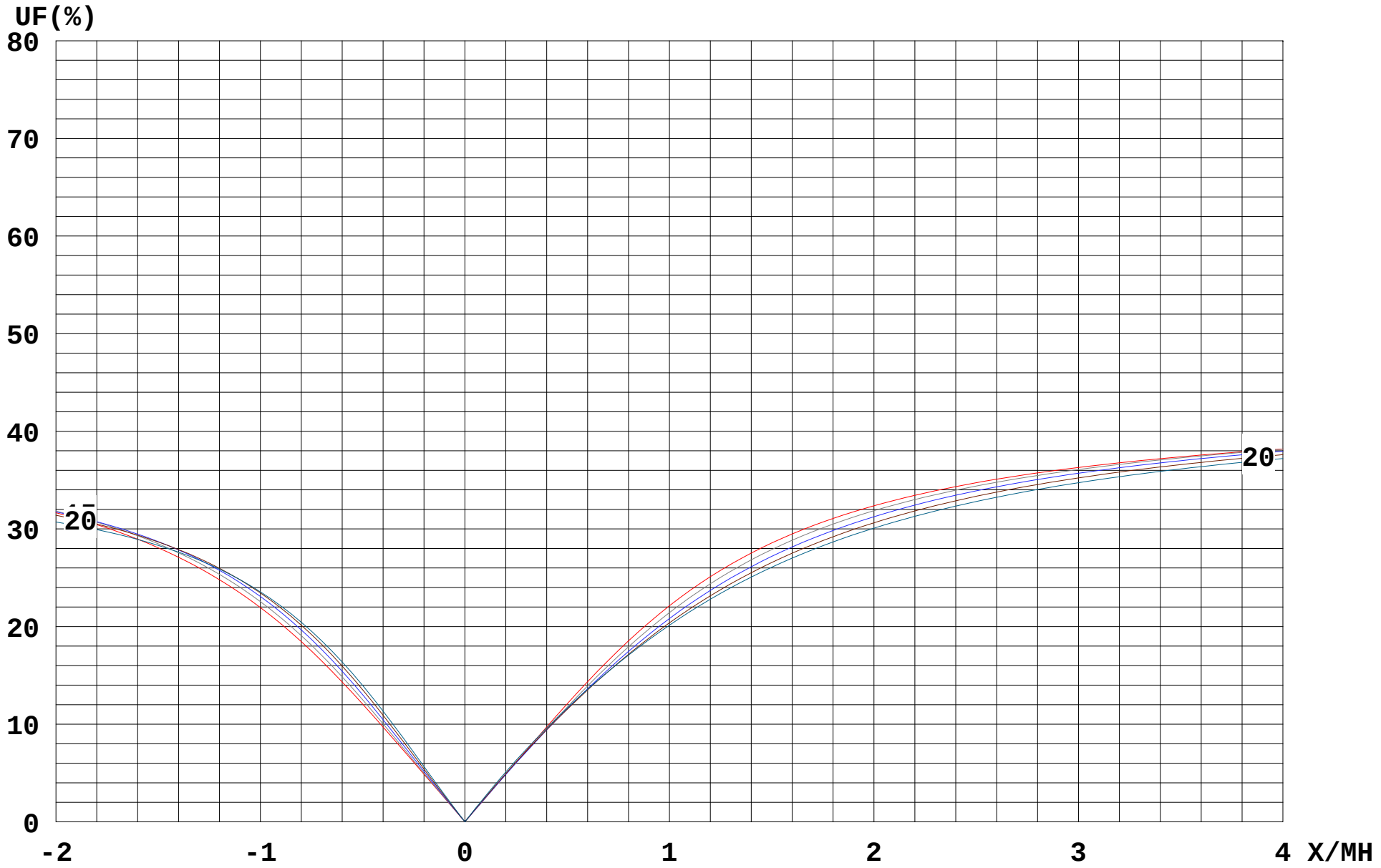
LOR:	**100.0 %**
STREET DOWN:	**3929 lm**
STREET UP:	**761.2 lm**
HOUSE DOWN:	**3353 lm**
HOUSE UP:	**592.9 lm**






Imax(100%) = 1648 cd
C
270
285
300
315
330
345
C0
15
30
45
60
75
90
90
80
70
60
50
40
30
20
10
0
50%
60%
70%
80%
90%
100%
r


Emax(100%) = 7.149 lx
H = 10m
X/MH
Y/MH
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
0
1
2
3
4
5
6
7
90 70 50 30
10%


UF(%)
80
70
60
50
40
30
20
10
0
-2
-1
0
1
2
3
4 X/MH
20
20