

# Photometric Test Report

## Relevant Standards

- ☒ IES LM-79-2008
- ☒ ANSI C82.77:2017

## Prepared For

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## Project Number

**DLF2208102**

## Report Number

**DLF2208102-5a**

## Test Date

**2022/8/2**

## Issue Date

**2022/8/3**

## Prepared By



Wangzun Zhu

## Approved By



Kevin Jia

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## 1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Architectural Flood and Spot Luminaires				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2)	IES LM-79-2008	1000		1844
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Standard 105	Premium 120	144.1
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		12.8
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%	120V	5.16%
		20.00%	277V	10.06%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9	120V	0.991
		0.9	277V	0.927
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3985±275	4029
		4 step	3985±154	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		83
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		8
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		84
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		93
Minimum IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	85%		100.00%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		277
(Goniophotometer - Section 4.2)		Non-Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.050
(Goniophotometer - Section 4.2)		Non-Worst Case		0.099
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		12.8
(Goniophotometer - Section 4.2)		Non-Worst Case		11.7

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2022/8/2	FFLEDXS @ 13W / 4000K	E1
2	Goniophotometer Test	2022/8/2	FFLEDXS @ 13W / 4000K	E1
3	THD and PF Test	2022/8/2	FFLEDXS @ 13W / 4000K	E1

### Remark(If any)

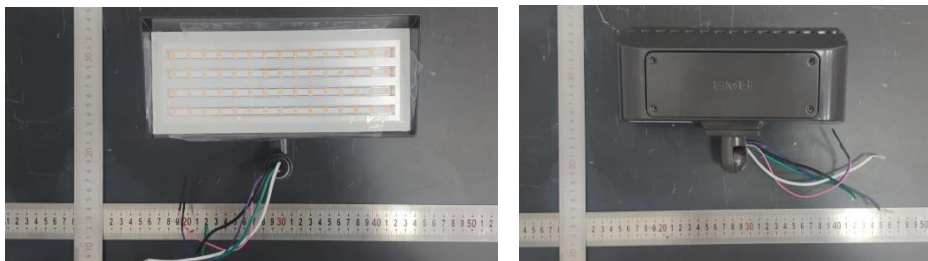
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## 3.0 Production Description

**Luminaire Description:** FFLEDXS @ 13W / 4000K

**Electrical Specification:** 120V-277V,50/60HZ

### Photos of Luminaire Characteristics



## 4.0 LM-79 Measurement and Test Results

### 4.1 Integrating Sphere Test

Model No.	FFLEDXS @ 13W / 4000K	Sample ID.	E1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.4	Humidity (%RH)	54.0

#### Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ .

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within  $\pm 0.2$  percent under load.

The sample was measured using  $4\pi$  geometry and operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

#### Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.03	60	0.099	11.8	0.991
277.00	60	0.049	12.7	0.927

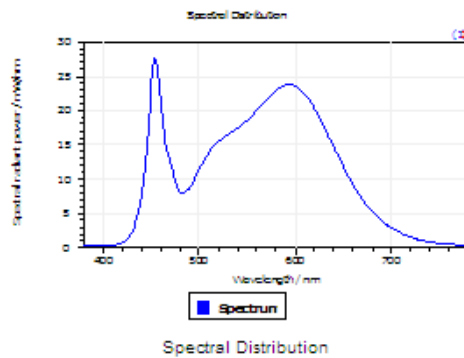
#### Test Result

CCT (K)	CRI	R9	Duv
4029	83	8	0.00046

Rf	Rg	IES Rcs,h1
84	93	-12%

## 4.1 Integrating Sphere Test

### Results

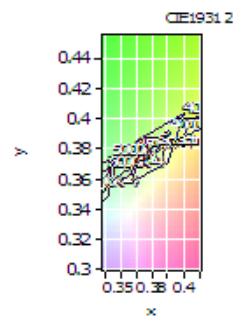


#### Spectral values

DominantWavelength 578.71 nm  
Purity 0.271  
PeakWavelength 454.30 nm  
Radiant Power 4.124 W  
Width50%:

#### Color Coordinates

Correlated Color Temperat 4029 K  
x: 0.3795 u: 0.2243 u': 0.2243  
y: 0.3771 v: 0.3344 v': 0.5016  
CRI01 81.8 CRI09 7.5  
CRI02 91.5 CRI10 79.5  
CRI03 95.6 CRI11 79.1  
CRI04 80.1 CRI12 61.7  
CRI05 81.5 CRI13 84.6  
CRI06 87.6 CRI14 98.2  
CRI07 84.4 CRI15 75.1  
CRI08 62.8 CRI16 71.4  
ResultsCRI 83.2



PlanckDistance 4.6E-004

## 4.1 Integrating Sphere Test

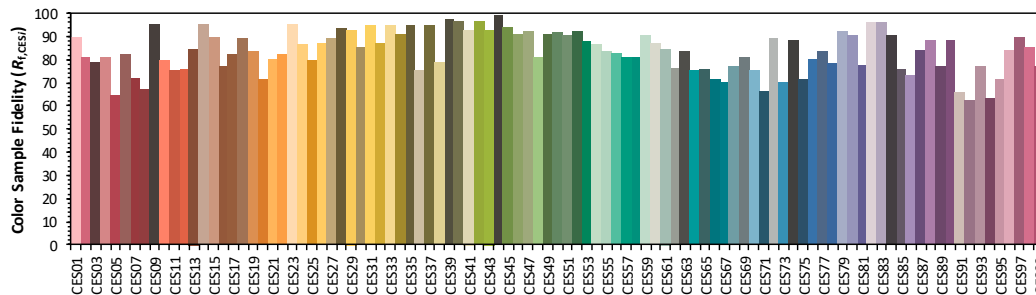
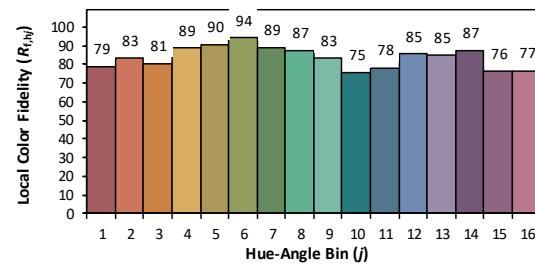
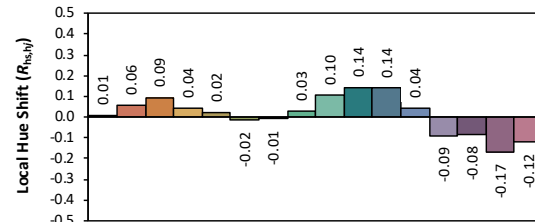
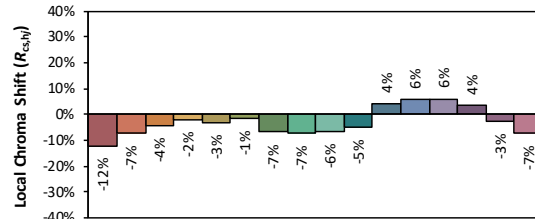
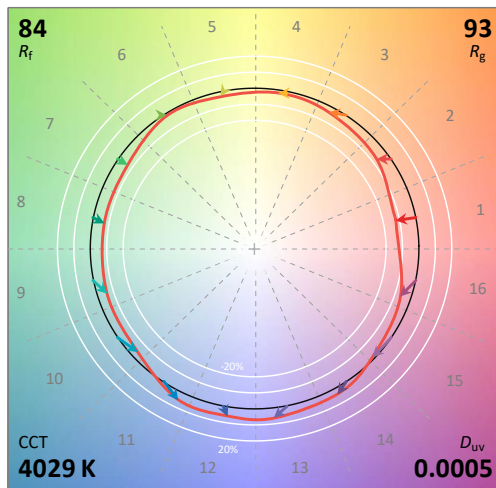
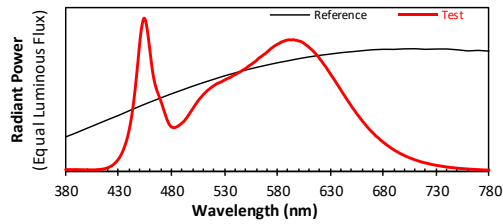
### IES TM-30-18 Color Rendition Report

Source: DLF2208102-5a

Manufacturer: RAB Lighting Inc.

Date: 2022/8/2

Model: FFLEDXS @ 13W / 4000K



Notes: This is a recommended method for displaying IES TM-30-18 information.

$x$  0.3795  
 $y$  0.3771  
 $u'$  0.2243  
 $v'$  0.5016

CIE 13.3-1995  
(CRI)

$R_a$  84  
 $R_g$  13

## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

Model No.	FFLEDXS @ 13W / 4000K	Sample ID.	E1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

#### Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using a type C goniophotometer and software.

The ambient temperature shall be maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , measured at a point not more than 1 m from the sample and at the same height as the sample.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within  $\pm 0.2$  percent under load.

The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at  $0.5^{\circ}$  vertical intervals and  $10^{\circ}$  horizontal intervals.

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	276.94	60	0.050	12.8	0.922
NON-WORST CASE	120.03	60	0.099	11.7	0.986

#### Test Result

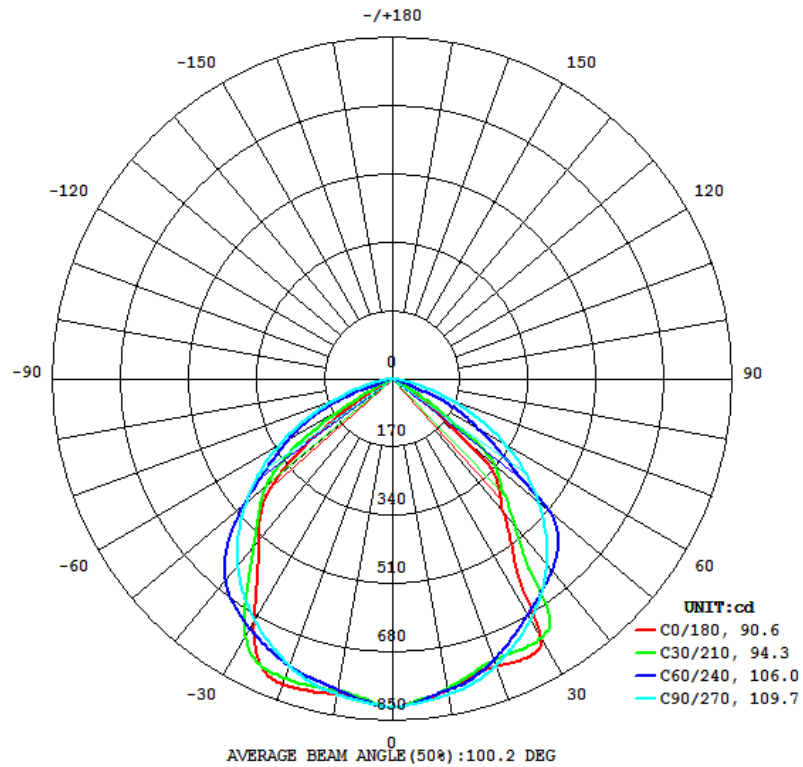
Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
1844	114.5	150.6	90.6	109.7	144.1

Zonal Lumen Requirement  
( $0^{\circ}$ - $90^{\circ}$ )

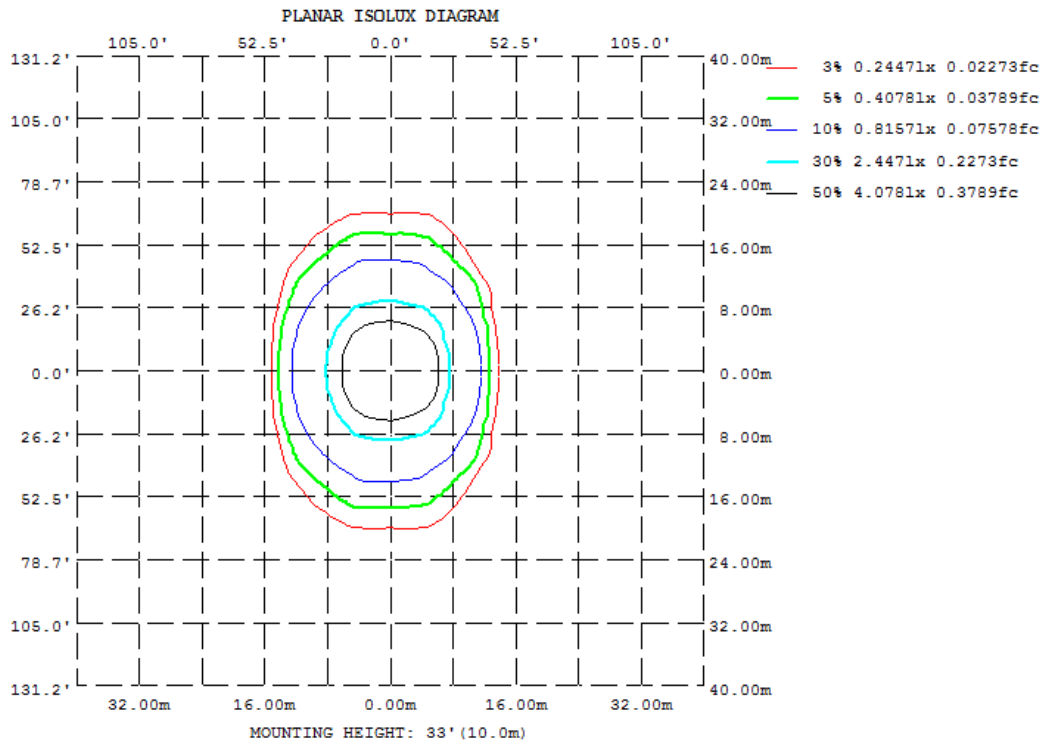
100.00%

## 4.2 Goniophotometer Test

### Light Distrubtion Curve



### Isolux Plot





## 4.2 Goniophotometer Test

### Zonal Lumen Summary

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315
10	784.5	786.7	797.3	784.9	797.6	784.9	797.3	786.7
20	760.0	740.6	758.5	778.9	808.8	778.9	758.5	740.6
30	742.1	708.1	691.9	744.6	693.8	744.6	691.9	708.1
40	434.2	628.0	602.8	597.2	519.3	597.2	602.8	628.0
50	213.5	358.6	479.9	426.2	373.3	426.2	479.9	358.6
60	30.18	143.0	325.1	260.1	53.66	260.1	325.1	143.0
70	0.8360	7.533	160.9	19.79	12.42	19.79	160.9	7.533
80	0.0237	0.0327	30.53	4.809	4.195	4.809	30.53	0.0327
90	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)		Total (lm)	Percent
0-10	76.53	0 - 10	76.53	4.15%
10-20	220.54	0 - 20	297.07	16.11%
20-30	344.99	0 - 30	642.06	34.82%
30-40	400.76	0 - 40	1042.81	56.55%
40-50	380.53	0 - 50	1423.35	77.19%
50-60	270.60	0 - 60	1693.95	91.87%
60-70	118.69	0 - 70	1812.64	98.30%
70-80	29.03	0 - 80	1841.67	99.88%
80-90	2.23	0 - 90	1843.90	100.00%
90-100	0.00	0 - 100	1843.90	100.00%
100-110	0.00	0 - 110	1843.90	100.00%
110-120	0.00	0 - 120	1843.90	100.00%
120-130	0.00	0 - 130	1843.90	100.00%
130-140	0.00	0 - 140	1843.90	100.00%
140-150	0.00	0 - 150	1843.90	100.00%
150-160	0.00	0 - 160	1843.90	100.00%
160-170	0.00	0 - 170	1843.90	100.00%
170-180	0.00	0 - 180	1843.90	100.00%

## 4.2 Goniophotometer Test

### Axial Candela

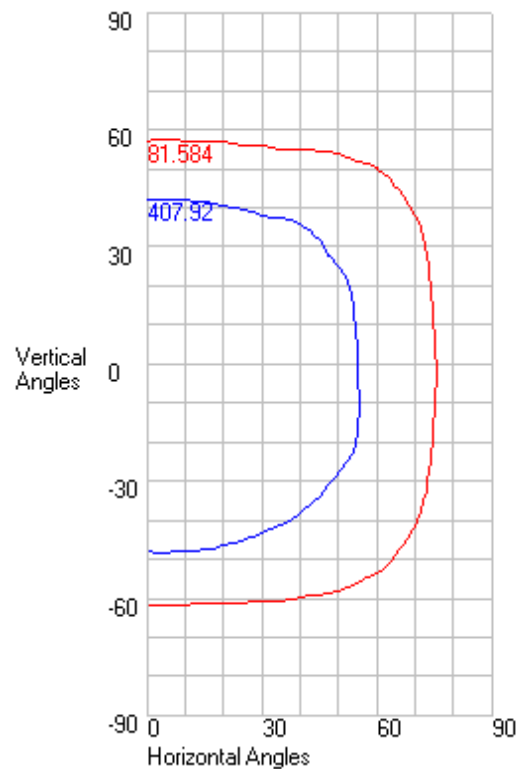
DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	2.98	85	0.02
75	85.62	75	0.04
65	244.54	65	6.17
55	405.78	55	101.98
47.5	512.01	47.5	341.22
42.5	574.91	42.5	404.64
37.5	627.79	37.5	480.69
33	667.88	33	577.32
29	699.82	29	762.04
25.5	723.84	25.5	770.02
22.5	742.71	22.5	765.32
19.5	761.43	19.5	759.42
17	774.66	17	759
15	783.29	15	763.42
13	789.81	13	771.41
11	794.78	11	779.84
9	799.47	9	789.12
7	803.69	7	799.4
5	807.4	5	800.63
3	812.03	3	808.43
1	815.84	1	815.03
0	815.65	0	815.65
-1	815.84	-1	815.78
-3	812.03	-3	809.27
-5	807.4	-5	799.52
-7	803.69	-7	795.69
-9	799.47	-9	795.95
-11	794.78	-11	798.7
-13	789.81	-13	801.99
-15	783.29	-15	804.49
-17	774.66	-17	806.07
-19.5	761.43	-19.5	808.6
-22.5	742.71	-22.5	803.04
-25.5	723.84	-25.5	776.7
-29	699.82	-29	716.69
-33	667.88	-33	625.87
-37.5	627.79	-37.5	550.48
-42.5	574.91	-42.5	493.57
-47.5	512.01	-47.5	427.2
-55	405.78	-55	200.19
-65	244.54	-65	19.56
-75	85.62	-75	7.08
-85	2.98	-85	2.25
-90	0	-90	0

## 4.2 Goniophotometer Test

### Characteristics

NEMA Type	7 H x 6 V
Maximum Candela	815.84
Maximum Candela Angle	-1 H 0 V
Horizontal Beam Angle (50%)	109.7
Vertical Beam Angle (50%)	90.5
Horizontal Field Angle (10%)	151
Vertical Field Angle (10%)	118.8
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1448
Beam Efficiency	N.A.
Field Lumens	1808
Field Efficiency	N.A.
Spill Lumens	36
Luminaire Lumens	1844
Total Efficiency	N.A.
Total Luminaire Watts	12.8
Ballast Factor	1

### ISOCANDELA CURVES





## LUMEN TABULATION

	0	1	3	5	7	9	11	13	15	17	20	23	26	29	33	38	43	48	55	65	75	85	90 Total
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0
65	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.1	0	0	0
55	0.51 *	1.02 *	1.02 *	1.01 *	1.00 *	0.99 *	0.97 *	0.95 *	0.92 *	1.11 *	1.29 *	1.23 *	1.30 *	1.35 *	1.40 *	1.29 *	1.03 *	1.16 *	0.8	0.3	0	0	0
47.5	0.57 *	1.14 *	1.13 *	1.13 *	1.12 *	1.10 *	1.09 *	1.07 *	1.04 *	1.25 *	1.45 *	1.40 *	1.50 *	1.56 *	1.61 *	1.51 *	1.18 *	1.34 *	0.96 *	0.3	0	0	0
42.5	0.67 *	1.35 *	1.35 *	1.34 *	1.33 *	1.31 *	1.30 *	1.28 *	1.25 *	1.52 *	1.76 *	1.69 *	1.87 *	1.97 *	2.03 *	1.97 *	1.57 *	1.76 *	1.30 *	0.4	0	0	0
37.5	0.73 *	1.46 *	1.46 *	1.45 *	1.43 *	1.43 *	1.42 *	1.40 *	1.35 *	1.65 *	1.95 *	1.89 *	2.04 *	2.14 *	2.25 *	2.18 *	1.72 *	1.91 *	1.43 *	0.45 *	0.1	0	0
33	0.82 *	1.64 *	1.63 *	1.62 *	1.60 *	1.59 *	1.57 *	1.55 *	1.51 *	1.82 *	2.11 *	2.05 *	2.23 *	2.27 *	2.34 *	2.32 *	1.81 *	1.94 *	1.48 *	0.48 *	0.1	0	0
29	0.82 *	1.63 *	1.62 *	1.61 *	1.59 *	1.57 *	1.54 *	1.52 *	1.49 *	1.80 *	2.06 *	1.98 *	2.19 *	2.24 *	2.27 *	2.24 *	1.76 *	1.87 *	1.43 *	0.47 *	0.1	0	0
25.5	0.70 *	1.40 *	1.39 *	1.38 *	1.37 *	1.35 *	1.34 *	1.32 *	1.29 *	1.57 *	1.81 *	1.73 *	1.90 *	2.00 *	2.03 *	1.97 *	1.58 *	1.73 *	1.32 *	0.43 *	0.1	0	0
22.5	0.70 *	1.39 *	1.38 *	1.37 *	1.36 *	1.34 *	1.33 *	1.31 *	1.28 *	1.56 *	1.81 *	1.73 *	1.90 *	2.01 *	2.05 *	1.99 *	1.63 *	1.81 *	1.38 *	0.45 *	0.1	0	0
19.5	0.58 *	1.15 *	1.15 *	1.14 *	1.13 *	1.12 *	1.10 *	1.09 *	1.07 *	1.30 *	1.50 *	1.44 *	1.58 *	1.68 *	1.72 *	1.66 *	1.37 *	1.54 *	1.18 *	0.39 *	0.1	0	0
17	0.46 *	0.92 *	0.92 *	0.91 *	0.90 *	0.90 *	0.89 *	0.87 *	0.86 *	1.04 *	1.21 *	1.15 *	1.27 *	1.35 *	1.38 *	1.33 *	1.10 *	1.25 *	0.95 *	0.32 *	0	0	0
15	0.47 *	0.93 *	0.93 *	0.92 *	0.91 *	0.90 *	0.89 *	0.88 *	0.86 *	1.05 *	1.21 *	1.16 *	1.28 *	1.36 *	1.38 *	1.33 *	1.11 *	1.26 *	0.97 *	0.33 *	0	0	0
13	0.47 *	0.94 *	0.94 *	0.93 *	0.92 *	0.91 *	0.90 *	0.89 *	0.87 *	1.06 *	1.23 *	1.17 *	1.29 *	1.37 *	1.39 *	1.34 *	1.13 *	1.27 *	0.97 *	0.33 *	0	0	0
11	0.48 *	0.95 *	0.95 *	0.94 *	0.93 *	0.92 *	0.91 *	0.90 *	0.88 *	1.07 *	1.24 *	1.18 *	1.31 *	1.38 *	1.40 *	1.36 *	1.14 *	1.29 *	0.98 *	0.34 *	0	0	0
9	0.48 *	0.96 *	0.96 *	0.95 *	0.94 *	0.93 *	0.92 *	0.90 *	0.89 *	1.08 *	1.25 *	1.20 *	1.32 *	1.39 *	1.41 *	1.37 *	1.15 *	1.29 *	0.99 *	0.34 *	0	0	0
7	0.49 *	0.97 *	0.96 *	0.96 *	0.95 *	0.94 *	0.93 *	0.91 *	0.89 *	1.09 *	1.26 *	1.20 *	1.33 *	1.40 *	1.43 *	1.38 *	1.15 *	1.30 *	0.99 *	0.34 *	0.1	0	0
5	0.49 *	0.98 *	0.97 *	0.96 *	0.95 *	0.94 *	0.93 *	0.92 *	0.90 *	1.10 *	1.27 *	1.21 *	1.34 *	1.41 *	1.44 *	1.39 *	1.16 *	1.31 *	0.99 *	0.34 *	0.1	0	0
3	0.49 *	0.99 *	0.98 *	0.97 *	0.96 *	0.95 *	0.94 *	0.92 *	0.91 *	1.10 *	1.28 *	1.22 *	1.34 *	1.42 *	1.44 *	1.40 *	1.17 *	1.31 *	0.99 *	0.34 *	0.1	0	0
1	0.25 *	0.50 *	0.49 *	0.49 *	0.48 *	0.48 *	0.47 *	0.46 *	0.46 *	0.55 *	0.64 *	0.61 *	0.67 *	0.71 *	0.72 *	0.70 *	0.58 *	0.66 *	0.49 *	0.17 *	0	0	0
0	0.25 *	0.50 *	0.49 *	0.49 *	0.48 *	0.48 *	0.47 *	0.46 *	0.46 *	0.55 *	0.64 *	0.61 *	0.67 *	0.71 *	0.73 *	0.70 *	0.59 *	0.66 *	0.50 *	0.17 *	0	0	0

-1	0.49 *	0.99 *	0.98 *	0.97 *	0.96 *	0.95 *	0.94 *	0.92 *	0.91 *	1.10 *	1.28 *	1.22 *	1.34 *	1.43 *	1.45 *	1.40 *	1.17 *	1.32 *	1.00 *	0.34 *	0.1	0	0
-3	0.49 *	0.98 *	0.97 *	0.96 *	0.96 *	0.95 *	0.93 *	0.92 *	0.90 *	1.10 *	1.27 *	1.21 *	1.34 *	1.42 *	1.45 *	1.41 *	1.18 *	1.33 *	1.00 *	0.35 *	0.1	0	0
-5	0.49 *	0.97 *	0.96 *	0.96 *	0.95 *	0.94 *	0.93 *	0.91 *	0.90 *	1.09 *	1.26 *	1.21 *	1.33 *	1.41 *	1.44 *	1.40 *	1.18 *	1.33 *	1.00 *	0.34 *	0.1	0	0
-7	0.48 *	0.97 *	0.96 *	0.95 *	0.95 *	0.94 *	0.92 *	0.91 *	0.90 *	1.09 *	1.26 *	1.20 *	1.33 *	1.41 *	1.44 *	1.40 *	1.18 *	1.33 *	1.00 *	0.34 *	0.1	0	0
-9	0.49 *	0.97 *	0.96 *	0.96 *	0.95 *	0.94 *	0.93 *	0.91 *	0.90 *	1.09 *	1.26 *	1.21 *	1.33 *	1.41 *	1.43 *	1.40 *	1.18 *	1.33 *	1.00 *	0.34 *	0.1	0	0
-11	0.49 *	0.97 *	0.97 *	0.96 *	0.95 *	0.94 *	0.93 *	0.92 *	0.90 *	1.09 *	1.27 *	1.21 *	1.33 *	1.41 *	1.43 *	1.39 *	1.17 *	1.33 *	1.00 *	0.34 *	0	0	0
-13	0.49 *	0.97 *	0.97 *	0.96 *	0.95 *	0.94 *	0.93 *	0.92 *	0.90 *	1.10 *	1.27 *	1.21 *	1.34 *	1.41 *	1.44 *	1.39 *	1.17 *	1.32 *	0.99 *	0.33 *	0	0	0
-15	0.49 *	0.98 *	0.97 *	0.97 *	0.96 *	0.95 *	0.94 *	0.92 *	0.90 *	1.10 *	1.27 *	1.21 *	1.34 *	1.42 *	1.44 *	1.39 *	1.16 *	1.31 *	0.98 *	0.32 *	0	0	0
-17	0.61 *	1.22 *	1.22 *	1.21 *	1.20 *	1.19 *	1.17 *	1.15 *	1.13 *	1.38 *	1.59 *	1.52 *	1.67 *	1.77 *	1.79 *	1.72 *	1.43 *	1.62 *	1.21 *	0.40 *	0.1	0	0
-20	0.74 *	1.47 *	1.46 *	1.45 *	1.44 *	1.42 *	1.40 *	1.38 *	1.35 *	1.64 *	1.90 *	1.81 *	1.99 *	2.11 *	2.14 *	2.04 *	1.68 *	1.90 *	1.42 *	0.46 *	0.1	0	0
-23	0.72 *	1.44 *	1.43 *	1.42 *	1.41 *	1.39 *	1.38 *	1.35 *	1.32 *	1.61 *	1.86 *	1.77 *	1.94 *	2.05 *	2.09 *	1.99 *	1.62 *	1.83 *	1.37 *	0.44 *	0.1	0	0
-26	0.80 *	1.59 *	1.58 *	1.57 *	1.56 *	1.54 *	1.52 *	1.50 *	1.46 *	1.77 *	2.05 *	1.96 *	2.15 *	2.26 *	2.31 *	2.21 *	1.79 *	2.01 *	1.50 *	0.48 *	0.1	0	0
-29	0.82 *	1.64 *	1.63 *	1.62 *	1.60 *	1.59 *	1.57 *	1.54 *	1.51 *	1.83 *	2.13 *	2.04 *	2.24 *	2.36 *	2.42 *	2.32 *	1.89 *	2.12 *	1.58 *	0.51 *	0.1	0	0
-33	0.81 *	1.61 *	1.61 *	1.60 *	1.58 *	1.57 *	1.55 *	1.52 *	1.49 *	1.82 *	2.11 *	2.03 *	2.22 *	2.35 *	2.41 *	2.32 *	1.90 *	2.13 *	1.58 *	0.50 *	0.1	0	0
-38	0.80 *	1.59 *	1.59 *	1.58 *	1.56 *	1.54 *	1.52 *	1.50 *	1.47 *	1.79 *	2.07 *	1.99 *	2.18 *	2.30 *	2.34 *	2.26 *	1.84 *	2.06 *	1.49 *	0.46 *	0.1	0	0
-43	0.70 *	1.40 *	1.40 *	1.39 *	1.38 *	1.36 *	1.34 *	1.32 *	1.29 *	1.57 *	1.81 *	1.73 *	1.89 *	1.99 *	2.01 *	1.91 *	1.54 *	1.70 *	1.19 *	0.4	0	0	0
-48	0.72 *	1.45 *	1.45 *	1.44 *	1.42 *	1.40 *	1.37 *	1.35 *	1.33 *	1.62 *	1.87 *	1.77 *	1.92 *	2.03 *	2.05 *	1.91 *	1.52 *	1.68 *	1.17 *	0.3	0	0	0
-55	0.34 *	0.68 *	0.69 *	0.69 *	0.68 *	0.66 *	0.65 *	0.64 *	0.63 *	0.78 *	0.90 *	0.84 *	0.92 *	0.98 *	1.00 *	0.9	0.8	0.9	0.6	0.2	0	0	0
-65	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0	0	0
-75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0
-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21.6	43.2	43	42.7	42.3	41.8	41.3	40.6	39.8	48.4	56	53.6	58.8	62	63.3	60.9	50	55.9	41.8	13.7	1.71	0.01	922.23

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

Model No.	FFLEDXS @ 13W / 4000K	Sample ID.	E1
Temperature (°C)	25.4	Humidity (%RH)	54.0

#### Test Method

The samples were tested according to the ANSI C82.77:2002.

The total harmonic distortion shall be measured to the 40th order.

The ambient temperature condition was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.

#### Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD
120.03	60	0.099	11.8	0.991	5.16%
277.00	60	0.049	12.7	0.927	10.06%

## 5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2021/12/26	2022/12/25
DLF108	Auxiliary Lamp	2021/12/26	2022/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2021/12/26	2022/12/25
DLF116	AC Power Source	2021/12/26	2022/12/25
DLF113	Power Meter	2021/12/26	2022/12/25
DLF112	Temperature Recorder	2021/12/26	2022/12/25
DLF114	Temperature & Humidity Datalogger	2021/12/26	2022/12/25
DLF101	Goniophotometer	2021/12/26	2022/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2021/12/26	2022/12/25
DLF104	AC Power Source	2021/12/26	2022/12/25
DLF507	DC Power Source	2021/12/26	2022/12/25
DLF102	Power Meter	2021/12/26	2022/12/25
DLF111	Temperature & Humidity Datalogger	2021/12/26	2022/12/25
DLF119	Power Meter	2021/12/26	2022/12/25
DLF031	Temperature data logger	2021/12/26	2022/12/25
DLF022	Digital power meter	2021/12/26	2022/12/25
DLF003	Temperature & Humidity Datalogger	2021/12/26	2022/12/25

\*\*\*\*\* End of Test Report\*\*\*\*\*