



Photometric Test Report

Relevant Standards

- IES LM-79-2008
- ANSI C82.77:2014

Prepared For RAB Lighting Inc.

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Test Date

2024/8/26

Issue Date

2024/9/3

Prepared By

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Approved By

Kevin Jia

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1.0 Test Summary

DLC Technical Requirements v5.1

Outdoor - Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires				
Requirement Category	Test Method	Requirements		Test value
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	300		139
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-180° zones)	IES LM-79-2008	Standard 105	Premium 120	34.7
Luminaire Output (lm) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	300		69
Minimum Luminaire Efficacy (lm/W) (Goniophotometer - Section 4.2) (0°-90° zones)	IES LM-79-2008	Standard 105	Premium 120	17.2
Power (Input Wattage) (W) (Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		4.01
Total Harmonic Distortion (A%) (THD & PF - section 4.3)	ANSI C82.77:2014	20.00%		14.01%
Power Factor (THD & PF - section 4.3)	ANSI C82.77:2014	0.9		0.989
Allowable CCTs* (K) (Integrating Sphere - Section 4.1)	IES LM-79-2008	7 step	3045±175	2985
		4 step	3045±100	
Minimum CRI (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	≥70		85
Minimum R9 (Integrating Sphere - Section 4.1)	IES LM-79-2008 CIE 13.3-1995	-		15
Minimum Rf (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥70		87
Minimum Rg (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	≥89		96
IES Rcs,h1 (Integrating Sphere - Section 4.1)	ANSI/IES TM-30-18	-18% ≤ IES Rcs,h1 ≤ +23%		-10%
Zonal Lumen Requirement (80°-90°) (Goniophotometer - Section 4.2)	IES LM-79-2008	≤10%		23.09%
Input Voltage (V)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		120
Input Current (A)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		0.034
Power (Input Wattage - W)				
(Goniophotometer - Section 4.2)	IES LM-79-2008	Worst Case		4.01

2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2024/8/26	SA-DASHL	ES1-02	I1
2	Goniophotometer Test	2024/8/26	SA-DASHL	ES1-02	I1
3	THD and PF Test	2024/8/26	SA-DASHL	ES1-02	I1

Remark(If any)

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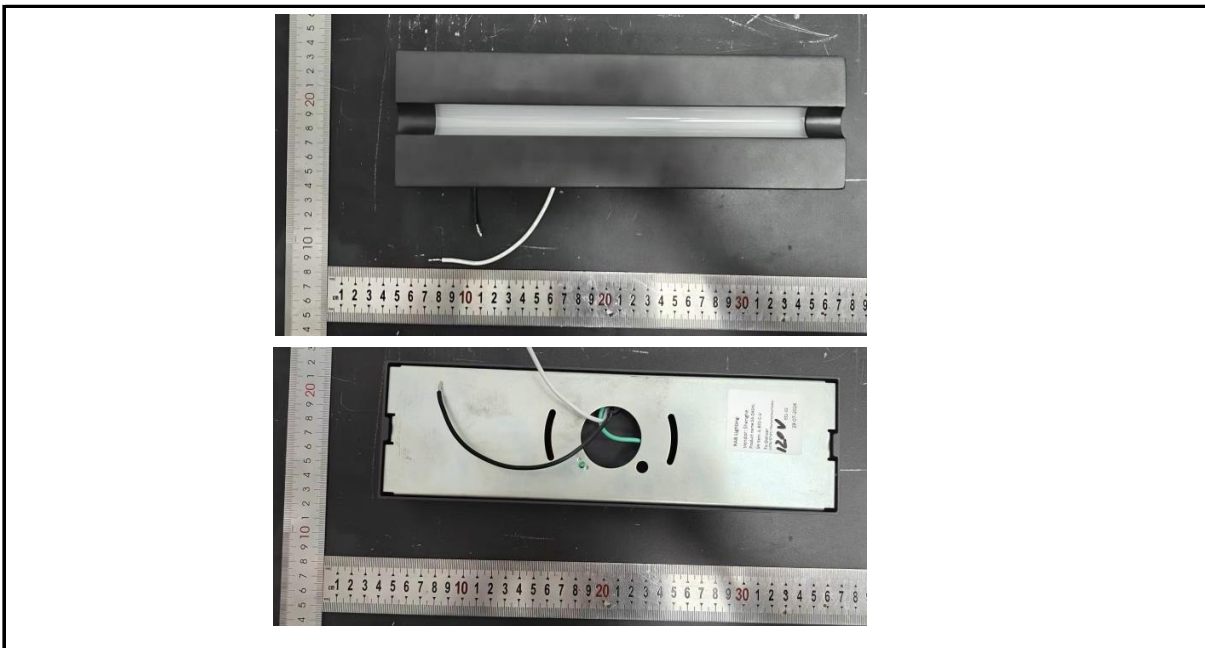
2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

3.0 Production Description

Luminaire Description: SA-DASHL

Electrical Specification: 120V,50/60HZ

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test

Model No.	SA-DASHL	Sample ID.	I1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.1	Humidity (%RH)	57.0

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 ± 0.2 percent under load.

The sample was measured using 4π 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
120.06	60	0.034	4.02	0.989

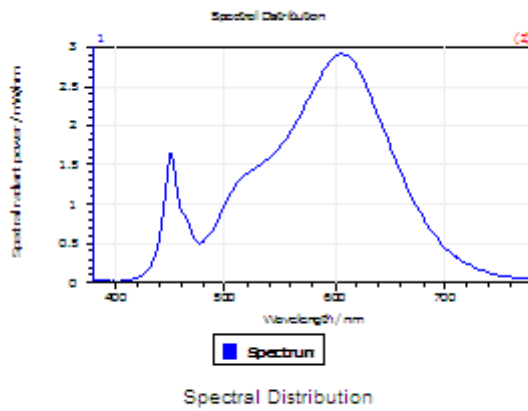
Test Result

CCT (K)	CRI	R9	Duv
2985	85	15	0.00055

Rf	Rg	IES Rcs,h1
87	96	-10%

4.1 Integrating Sphere Test

Results



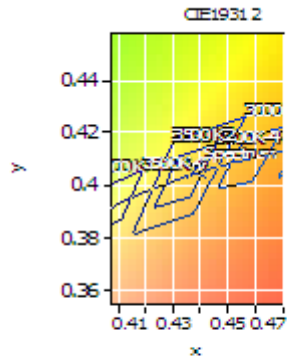
Spectral values

DominantWavelength 582.69 nm
Purity 0.536
PeakWavelength 605.98 nm
Radiant Power 0.432 W
Width50%:

Color Coordinates

Correlated Color Temperat 2985 K
x: 0.4388 u: 0.2509 u': 0.2509
y: 0.4081 v: 0.3483 v': 0.5225

CRI01	83.7	CRI09	15.0
CRI02	92.2	CRI10	82.6
CRI03	97.2	CRI11	85.3
CRI04	84.5	CRI12	73.8
CRI05	84.4	CRI13	85.7
CRI06	91.4	CRI14	99.2
CRI07	84.4	CRI15	76.1
CRI08	62.6	CRI16	73.4
ResultsCRI	85.0		



PlanckDistance 5.5E-004

4.1 Integrating Sphere Test

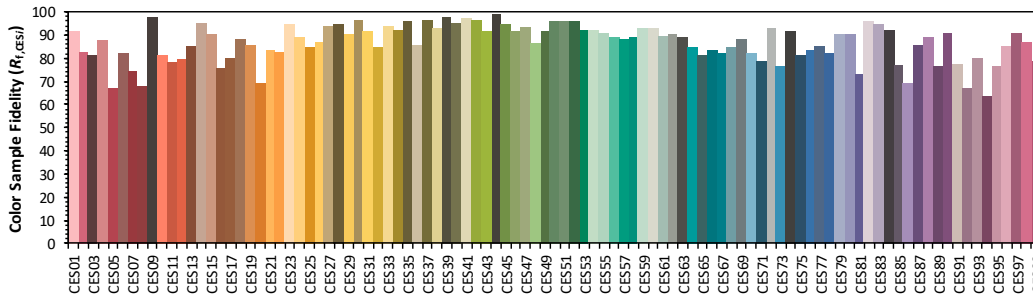
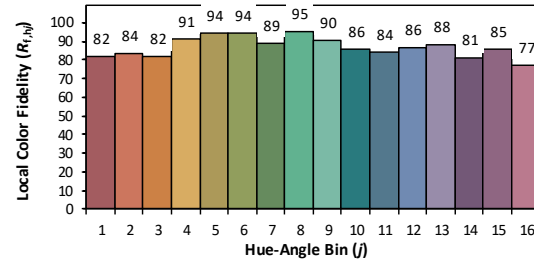
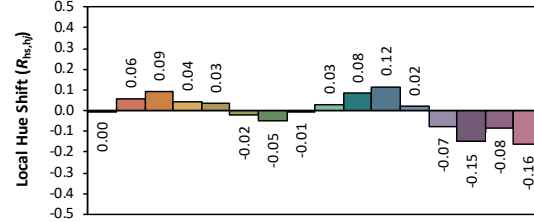
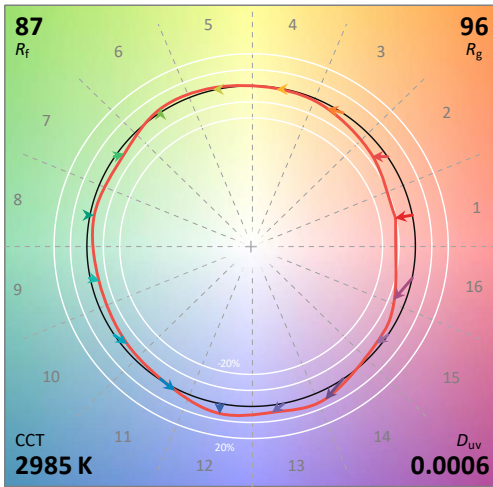
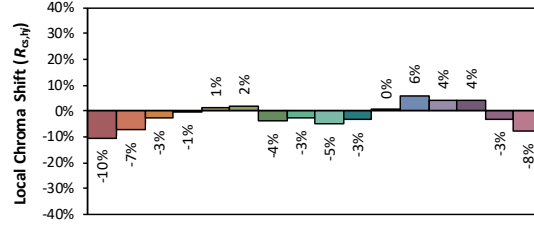
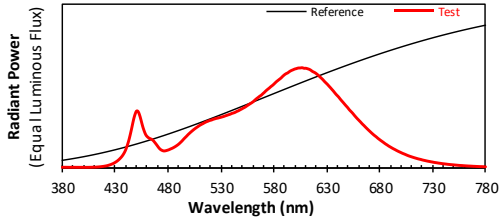
IES TM-30-18 Color Rendition Report

Source: DLF2408110-8a

Manufacturer: RAB Lighting Inc.

Date: 2024/8/26

Model: SA-DASHL



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

x 0.4388
 y 0.4061
 u' 0.2509
 v' 0.5225

CIE 13.3-1995 (CRI)	
R_a	85
R_g	17

4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength							
WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)	WL (nm)	Radiant (Watts/nm)
380	2.32E-05	485	5.93E-04	590	2.71E-03	695	5.29E-04
385	2.33E-05	490	6.95E-04	595	2.81E-03	700	4.52E-04
390	2.26E-05	495	8.49E-04	600	2.88E-03	705	3.86E-04
395	2.25E-05	500	1.00E-03	605	2.91E-03	710	3.28E-04
400	2.13E-05	505	1.14E-03	610	2.90E-03	715	2.81E-04
405	2.24E-05	510	1.24E-03	615	2.84E-03	720	2.40E-04
410	2.65E-05	515	1.33E-03	620	2.75E-03	725	2.04E-04
415	3.62E-05	520	1.39E-03	625	2.61E-03	730	1.75E-04
420	5.55E-05	525	1.44E-03	630	2.45E-03	735	1.48E-04
425	9.41E-05	530	1.48E-03	635	2.28E-03	740	1.26E-04
430	1.65E-04	535	1.53E-03	640	2.10E-03	745	1.08E-04
435	2.91E-04	540	1.58E-03	645	1.92E-03	750	9.32E-05
440	5.36E-04	545	1.65E-03	650	1.75E-03	755	7.87E-05
445	1.07E-03	550	1.72E-03	655	1.57E-03	760	6.80E-05
450	1.65E-03	555	1.82E-03	660	1.40E-03	765	5.86E-05
455	1.33E-03	560	1.92E-03	665	1.24E-03	770	5.04E-05
460	9.24E-04	565	2.05E-03	670	1.09E-03	775	4.32E-05
465	8.25E-04	570	2.17E-03	675	9.49E-04	780	3.75E-05
470	6.43E-04	575	2.31E-03	680	8.26E-04		
475	5.06E-04	580	2.44E-03	685	7.13E-04		
480	5.25E-04	585	2.57E-03	690	6.14E-04		

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	SA-DASHL	Sample ID.	I1
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° C ± 1° 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 ±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° vertical intervals and 10° horizontal intervals.

Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WORST CASE	120.00	60	0.034	4.01	0.989

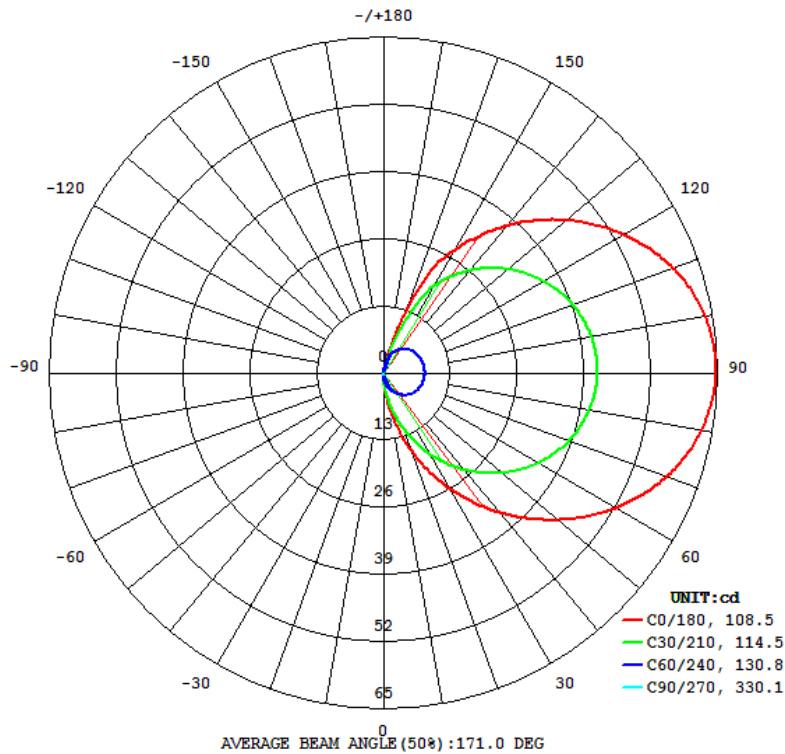
Test Result

Result type	Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
		C0-180	C90-270	C0-180	C90-270	
0°-180° zones	139	153.5	346.9	108.5	330.1	34.7
0°-90° zones	69	79.5	160.1	53.0	47.0	17.2

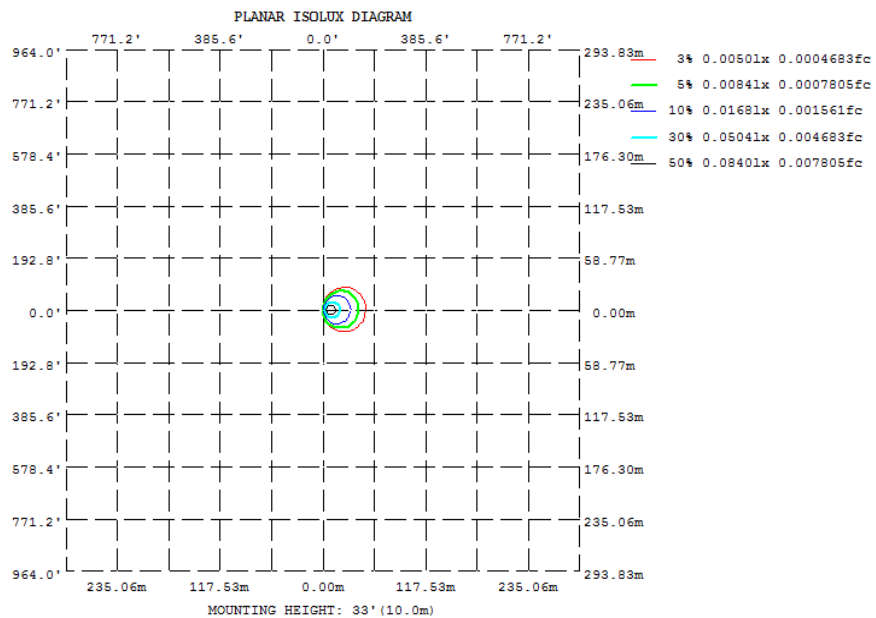
Zonal Lumen Requirement (80°-90°)	BUG rating
23.09%	B0-U3-G1

4.2 Goniophotometer Test

Light Distribution Curve



Isolux Plot



4.2 Goniophotometer Test

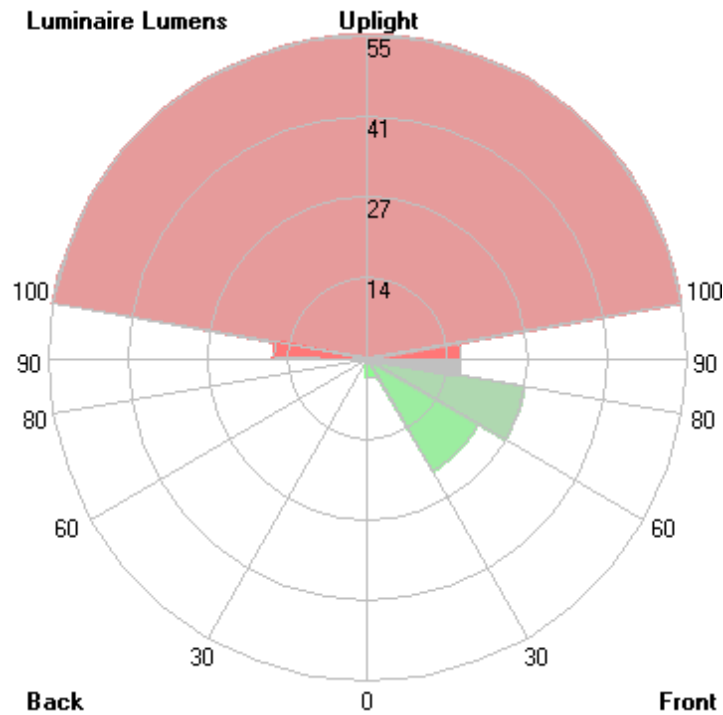
Zonal Lumen Summary

γ	C0	C45	C90	C135	C180	C225	C270	C315
10	6.093	2.911	0.2964	0.0667	0.0416	0.0785	0.3240	3.231
20	15.87	6.958	0.2099	0.0569	0.0558	0.0767	0.2124	8.048
30	25.81	10.79	0.1079	0.0554	0.0480	0.0547	0.0980	12.89
40	35.32	14.06	0.0681	0.0543	0.0447	0.0516	0.0642	17.27
50	44.22	16.74	0.0578	0.0567	0.0514	0.0503	0.0538	21.08
60	52.15	18.83	0.0512	0.0625	0.0565	0.0496	0.0458	24.20
70	58.55	20.33	0.0418	0.0501	0.0569	0.0469	0.0389	26.62
80	62.87	21.27	0.0349	0.0454	0.0423	0.0427	0.0320	28.24
90	64.67	21.67	0.0276	0.0436	0.0425	0.0398	0.0249	29.05
100	63.60	21.53	0.0200	0.0400	0.0483	0.0376	0.0167	28.98
110	59.88	20.89	0.0129	0.0318	0.0507	0.0332	0.0096	28.03
120	53.89	19.64	0.0118	0.0280	0.0454	0.0312	0.0102	26.18
130	46.21	17.77	0.0136	0.0240	0.0387	0.0309	0.0131	23.44
140	37.35	15.26	0.0233	0.0202	0.0294	0.0293	0.0198	19.82
150	27.74	12.07	0.0568	0.0171	0.0169	0.0205	0.0640	14.78
160	12.89	6.558	0.1796	0.0131	0.0067	0.0120	0.1807	8.143
170	0.8122	0.0142	0.0567	0.0102	0.0058	0.0096	0.0160	1.204
180	0.0049	0.0109	0.0125	0.0082	0.0053	0.0080	0.0129	0.0096
DEG	LUMINOUS INTENSITY:cd							

	Zonal (lm)	Total (lm)	Percent	
0-10	0.09	0 - 10	0.09	0.06%
10-20	0.82	0 - 20	0.91	0.65%
20-30	2.40	0 - 30	3.31	2.38%
30-40	4.65	0 - 40	7.96	5.72%
40-50	7.33	0 - 50	15.29	10.98%
50-60	10.12	0 - 60	25.41	18.24%
60-70	12.69	0 - 70	38.10	27.35%
70-80	14.70	0 - 80	52.80	37.91%
80-90	15.85	0 - 90	68.65	49.29%
90-100	15.96	0 - 100	84.61	60.75%
100-110	15.02	0 - 110	99.63	71.53%
110-120	13.16	0 - 120	112.79	80.98%
120-130	10.66	0 - 130	123.45	88.63%
130-140	7.86	0 - 140	131.31	94.28%
140-150	5.08	0 - 150	136.39	97.93%
150-160	2.45	0 - 160	138.84	99.68%
160-170	0.44	0 - 170	139.28	100.00%
170-180	0.00	0 - 180	139.28	100.00%

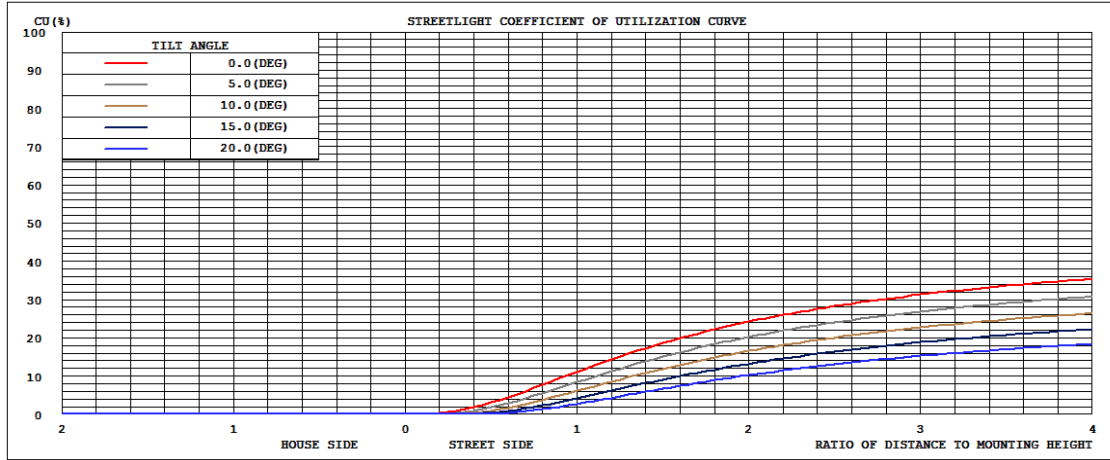
4.2 Goniophotometer Test

LCS/BUG

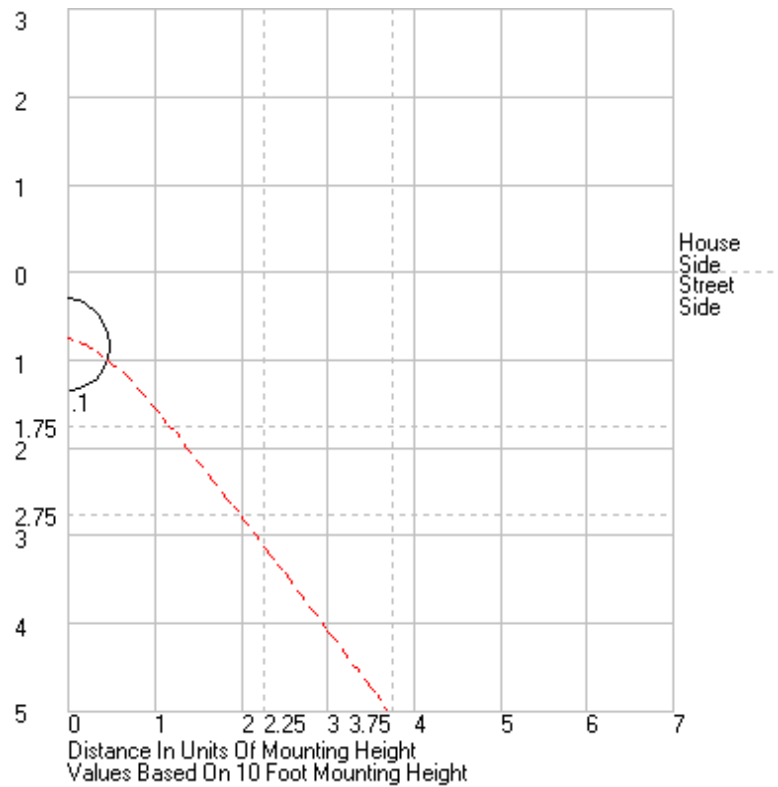


	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	3.3	N.A.	2.4
FM - Front-Medium (30-60)	22.0	N.A.	15.8
FH - Front-High (60-80)	27.3	N.A.	19.6
FVH - Front-Very High (80-90)	15.8	N.A.	11.4
BL - Back-Low (0-30)	< 0.05	N.A.	0.0
BM - Back-Medium (30-60)	0.1	N.A.	0.0
BH - Back-High (60-80)	0.1	N.A.	0.0
BVH - Back-Very High (80-90)	< 0.05	N.A.	0.0
UL - Uplight-Low (90-100)	16.0	N.A.	11.5
UH - Uplight-High (100-180)	54.7	N.A.	39.3
Total	139.3	N.A.	100.0
BUG Rating	B0-U3-G1		

Coefficients of Utilization



Isolines





4.2 Goniophotometer Test

	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	
0	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	0.116	
1	0.28	0.27	0.26	0.24	0.21	0.17	0.15	0.13	0.1	0.08	0.06	0.05	0.05	0.06	0.08	0.11	0.15	0.18	0.21	0.23	0.25	0.25	0.26	0.26	0.26	0.28
2	0.57	0.54	0.48	0.41	0.32	0.25	0.19	0.16	0.12	0.08	0.05	0.05	0.04	0.05	0.07	0.11	0.16	0.21	0.26	0.33	0.4	0.46	0.51	0.53	0.57	
3	0.96	0.9	0.77	0.61	0.46	0.33	0.24	0.18	0.12	0.08	0.05	0.04	0.04	0.04	0.06	0.1	0.16	0.22	0.31	0.43	0.56	0.69	0.82	0.9	0.96	
4	1.48	1.38	1.14	0.85	0.6	0.41	0.28	0.2	0.13	0.07	0.05	0.04	0.03	0.04	0.06	0.09	0.15	0.23	0.33	0.48	0.69	0.95	1.21	1.38	1.48	
5	2.1	1.96	1.61	1.14	0.72	0.46	0.3	0.2	0.13	0.07	0.04	0.04	0.03	0.04	0.05	0.09	0.15	0.23	0.33	0.52	0.83	1.26	1.68	1.96	2.1	
6	2.8	2.61	2.12	1.46	0.86	0.5	0.3	0.2	0.12	0.07	0.04	0.04	0.03	0.04	0.05	0.09	0.14	0.22	0.33	0.57	0.98	1.6	2.21	2.62	2.8	
7	3.56	3.31	2.67	1.8	0.99	0.54	0.3	0.2	0.12	0.07	0.04	0.03	0.03	0.04	0.05	0.08	0.14	0.22	0.33	0.61	1.14	1.98	2.79	3.34	3.56	
8	4.36	4.05	3.25	2.16	1.14	0.59	0.3	0.2	0.12	0.07	0.04	0.03	0.04	0.04	0.05	0.08	0.13	0.22	0.33	0.66	1.31	2.37	3.42	4.1	4.36	
9	5.21	4.82	3.87	2.52	1.29	0.63	0.3	0.2	0.12	0.07	0.04	0.03	0.04	0.04	0.05	0.08	0.13	0.21	0.33	0.7	1.49	2.79	4.08	4.91	5.21	
10	6.09	5.64	4.5	2.91	1.44	0.67	0.3	0.19	0.12	0.07	0.04	0.03	0.04	0.04	0.05	0.08	0.13	0.21	0.32	0.75	1.68	3.23	4.77	5.75	6.09	
11	7.01	6.47	5.17	3.3	1.59	0.71	0.29	0.19	0.12	0.07	0.04	0.03	0.04	0.04	0.05	0.08	0.12	0.2	0.32	0.79	1.87	3.69	5.48	6.59	7.01	
12	7.95	7.34	5.82	3.7	1.75	0.75	0.29	0.19	0.11	0.07	0.04	0.03	0.05	0.05	0.05	0.08	0.12	0.19	0.31	0.83	2.06	4.16	6.19	7.48	7.95	
13	8.91	8.2	6.51	4.11	1.91	0.79	0.28	0.18	0.11	0.06	0.04	0.03	0.05	0.05	0.06	0.08	0.12	0.19	0.3	0.88	2.26	4.63	6.93	8.41	8.91	
14	9.88	9.1	7.21	4.52	2.07	0.83	0.27	0.18	0.11	0.06	0.04	0.03	0.05	0.05	0.06	0.08	0.12	0.18	0.29	0.93	2.46	5.12	7.7	9.34	9.88	
15	10.87	9.99	7.9	4.92	2.23	0.87	0.27	0.17	0.11	0.06	0.04	0.03	0.05	0.05	0.06	0.08	0.11	0.18	0.28	0.97	2.66	5.6	8.46	10.29	10.87	
16	11.85	10.9	8.61	5.34	2.39	0.9	0.25	0.16	0.1	0.06	0.04	0.03	0.05	0.05	0.06	0.08	0.11	0.17	0.27	1.01	2.86	6.08	9.25	11.24	11.85	
17	12.86	11.81	9.31	5.74	2.55	0.94	0.24	0.16	0.1	0.06	0.04	0.03	0.05	0.06	0.06	0.08	0.11	0.16	0.25	1.05	3.06	6.56	10.05	12.21	12.86	
18	13.87	12.73	10.01	6.15	2.7	0.97	0.23	0.15	0.1	0.06	0.04	0.03	0.05	0.06	0.06	0.08	0.1	0.15	0.24	1.09	3.25	7.05	10.85	13.17	13.87	
19	14.86	13.65	10.72	6.55	2.85	1.01	0.22	0.15	0.09	0.06	0.04	0.03	0.05	0.06	0.06	0.08	0.1	0.15	0.23	1.13	3.45	7.55	11.64	14.15	14.86	
20	15.87	14.57	11.42	6.96	3	1.04	0.21	0.14	0.09	0.06	0.04	0.03	0.06	0.06	0.06	0.08	0.1	0.14	0.21	1.17	3.65	8.05	12.44	15.12	15.87	
21	16.88	15.48	12.13	7.36	3.15	1.08	0.2	0.13	0.09	0.06	0.04	0.03	0.06	0.06	0.06	0.08	0.09	0.13	0.2	1.21	3.84	8.54	13.23	16.1	16.88	
22	17.88	16.37	12.81	7.75	3.3	1.11	0.19	0.13	0.08	0.06	0.04	0.03	0.06	0.06	0.06	0.07	0.09	0.12	0.18	1.25	4.03	9.04	14.04	17.06	17.88	
23	18.88	17.31	13.52	8.15	3.44	1.14	0.18	0.12	0.08	0.06	0.04	0.03	0.05	0.06	0.06	0.07	0.08	0.11	0.17	1.29	4.22	9.53	14.83	18.04	18.88	
24	19.87	18.22	14.22	8.54	3.59	1.18	0.16	0.11	0.08	0.06	0.04	0.03	0.05	0.05	0.06	0.07	0.08	0.11	0.16	1.33	4.41	10.02	15.62	19	19.87	
25	20.87	19.12	14.91	8.92	3.73	1.21	0.15	0.11	0.08	0.05	0.04	0.03	0.05	0.05	0.05	0.07	0.08	0.1	0.15	1.37	4.6	10.5	16.42	19.96	20.87	
26	21.87	20.02	15.58	9.31	3.87	1.24	0.14	0.1	0.07	0.06	0.04	0.03	0.05	0.05	0.05	0.06	0.07	0.09	0.14	1.41	4.78	10.99	17.22	20.94	21.87	
27	22.86	20.92	16.27	9.68	4.01	1.27	0.13	0.1	0.07	0.05	0.04	0.03	0.05	0.05	0.05	0.06	0.07	0.09	0.13	1.45	4.96	11.47	18	21.88	22.86	
28	23.84	21.82	16.94	10.05	4.14	1.31	0.12	0.09	0.07	0.06	0.04	0.03	0.05	0.05	0.05	0.06	0.07	0.08	0.12	1.49	5.15	11.95	18.79	22.84	23.84	
29	24.83	22.69	17.6	10.41	4.28	1.34	0.12	0.09	0.07	0.06	0.04	0.03	0.05	0.04	0.04	0.06	0.07	0.08	0.11	1.53	5.33	12.42	19.57	23.79	24.83	
30	25.81	23.59	18.27	10.79	4.41	1.38	0.11	0.08	0.07	0.06	0.04	0.03	0.05	0.04	0.04	0.05	0.07	0.08	0.1	1.58	5.51	12.89	20.34	24.73	25.81	
31	26.78	24.48	18.93	11.13	4.54	1.41	0.1	0.08	0.07	0.06	0.04	0.04	0.05	0.04	0.04	0.05	0.07	0.07	0.09	1.62	5.68	13.34	21.11	25.69	26.78	
32	27.75	25.33	19.57	11.49	4.67	1.45	0.09	0.08	0.07	0.05	0.04	0.04	0.05	0.04	0.04	0.05	0.06	0.07	0.08	1.66	5.86	13.81	21.87	26.62	27.75	
33	28.72	26.22	20.21	11.83	4.8	1.48	0.09	0.08	0.07	0.05	0.04	0.04	0.05	0.04	0.04	0.05	0.06	0.07	0.08	1.71	6.03	14.26	22.64	27.56	28.72	
34	29.65	27.07	20.85	12.17	4.92	1.51	0.08	0.07	0.07	0.05	0.04	0.04	0.05	0.04	0.04	0.05	0.06	0.07	0.07	1.75	6.2	14.71	23.39	28.47	29.65	
35	30.63	27.94	21.47	12.5	5.05	1.55	0.08	0.07	0.07	0.05	0.04	0.04	0.05	0.04	0.04	0.05	0.06	0.07	0.07	1.79	6.37	15.15	24.15	29.4	30.63	
36	31.59	28.8	22.1	12.82	5.17	1.59	0.07	0.07	0.06	0.05	0.04	0.04	0.05	0.04	0.04	0.05	0.06	0.07	0.07	1.84	6.54	15.58	24.88	30.32	31.59	
37	32.54	29.65	22.72	13.15	5.29	1.62	0.07	0.07	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.06	0.07	0.07	1.88	6.7	16.01	25.63	31.23	32.54	
38	33.46	30.49	23.33	13.47	5.4	1.66	0.07	0.07	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.05	0.06	0.07	0.07	1.93	6.86	16.44	26.36	32.14	33.46	
39	34.38	31.32	23.93	13.76	5.52	1.69	0.07	0.07	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.06	0.06	0.07	1.97	7.02	16.86	27.08	33.05	34.38	
40	35.32	32.16	24.54	14.06	5.63	1.73	0.07	0.07	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.06	0.06	0.06	2.02	7.17	17.27	27.8	33.96	35.32	
41	36.23	32.96	25.12	14.36	5.73	1.77	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.05	0.06	0.06	0.06	2.06	7.31	17.67	28.51	34.84	36.23	
42	37.14	33.79	25.7	14.64	5.84	1.8	0.07	0.07	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.05	0.06	0.06	0.06	2.1	7.46	18.08	29.22	35.74	37.14	
43	38.06	34.6	26.27	14.92	5.94	1.83	0.06	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.05	0.06	0.06	0.06	2.14	7.6	18.47	29.91	36.61	38.06	
44	38.96	35.41	26.84	15.2	6.04	1.87	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.05	0.06	0.06	0.06	2.18	7.74	18.86	30.6	37.46	38.96	
45	39.86	36.2	27.39	15.47	6.14	1.9	0.06	0.06	0.06	0.06	0.05	0.06	0.05	0.04	0.04	0.05	0.06	0.06	0.06	2.22	7.88	19.25	31.29	38.34	39.86	
46	40.74	36.98	27.95	15.74	6.23	1.93	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.05	0.06	0.06	0.06	2.26	8.01	19.62	31.96	39.18	40.74	
47	41.62	37.76	28.48	15.99	6.32	1.96	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.05	0.06	0.06	0.06	2.3	8.14	19.99	32.64	40.04	41.62	
48	42.51	38.53	29.02	16.25	6.41	1.99	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.06	0.06	0.06	2.33	8.26	20.37	33.29	40.87	42.51	
49	43.37	39.3	29.55	16.5	6.5	2.02	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.05							



50	44.22	40.05	30.06	16.74	6.58	2.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.05	2.4	8.5	21.08	34.58	42.51	44.22
51	45.07	40.79	30.58	16.98	6.66	2.08	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.05	2.44	8.62	21.42	35.21	43.33	45.07
52	45.9	41.5	31.09	17.21	6.74	2.11	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.47	8.73	21.75	35.85	44.14	45.9
53	46.73	42.23	31.57	17.43	6.81	2.14	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.5	8.84	22.08	36.47	44.93	46.73
54	47.54	42.94	32.06	17.65	6.89	2.16	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.54	8.95	22.42	37.07	45.7	47.54
55	48.34	43.62	32.52	17.86	6.96	2.19	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.57	9.05	22.72	37.66	46.47	48.34
56	49.14	44.3	33	18.07	7.02	2.21	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.6	9.15	23.04	38.25	47.24	49.14
57	49.92	44.98	33.45	18.27	7.09	2.24	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05	2.63	9.25	23.34	38.82	47.98	49.92
58	50.67	45.64	33.89	18.46	7.15	2.26	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	2.66	9.34	23.64	39.39	48.71	50.67
59	51.42	46.3	34.33	18.65	7.21	2.28	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	2.68	9.44	23.92	39.93	49.43	51.42
60	52.15	46.93	34.74	18.83	7.27	2.3	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	2.71	9.52	24.2	40.47	50.13	52.15
61	52.88	47.56	35.16	19.01	7.33	2.33	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.05	2.74	9.61	24.48	41.01	50.83	52.88
62	53.58	48.16	35.55	19.18	7.38	2.35	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.04	2.76	9.69	24.75	41.52	51.49	53.58
63	54.27	48.76	35.95	19.34	7.43	2.37	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05	0.05	0.04	2.79	9.78	25	42.01	52.16	54.27
64	54.94	49.34	36.33	19.5	7.48	2.39	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.04	2.81	9.85	25.25	42.5	52.79	54.94
65	55.6	49.89	36.68	19.65	7.53	2.41	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.05	0.05	0.05	0.05	0.04	2.83	9.93	25.5	42.99	53.42	55.6
66	56.22	50.45	37.04	19.81	7.57	2.42	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.04	2.86	10	25.73	43.46	54.02	56.22
67	56.83	50.97	37.38	19.94	7.62	2.44	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	2.88	10.07	25.97	43.89	54.63	56.83
68	57.41	51.49	37.71	20.08	7.66	2.46	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	2.9	10.14	26.19	44.33	55.18	57.41
69	57.99	51.98	38.03	20.21	7.7	2.47	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	2.92	10.2	26.4	44.73	55.73	57.99
70	58.55	52.46	38.34	20.33	7.74	2.49	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	2.94	10.27	26.62	45.14	56.26	58.55
71	59.08	52.93	38.63	20.46	7.77	2.5	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	2.96	10.33	26.8	45.52	56.78	59.08
72	59.6	53.36	38.9	20.57	7.81	2.52	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	2.98	10.38	27	45.9	57.28	59.6
73	60.08	53.78	39.17	20.67	7.84	2.53	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	3	10.44	27.19	46.27	57.75	60.08
74	60.56	54.18	39.43	20.77	7.87	2.54	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	3.01	10.49	27.36	46.61	58.22	60.56
75	61	54.56	39.66	20.87	7.9	2.56	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	3.03	10.54	27.54	46.93	58.63	61
76	61.42	54.92	39.9	20.97	7.92	2.57	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	3.05	10.59	27.7	47.24	59.06	61.42
77	61.81	55.26	40.11	21.05	7.95	2.58	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	3.06	10.64	27.84	47.54	59.45	61.81
78	62.19	55.59	40.31	21.13	7.97	2.59	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.03	3.07	10.68	27.99	47.82	59.8	62.19
79	62.54	55.88	40.5	21.2	8	2.6	0.04	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	3.09	10.73	28.12	48.09	60.15	62.54	
80	62.87	56.15	40.68	21.27	8.02	2.61	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	3.1	10.76	28.24	48.32	60.47	62.87	
81	63.17	56.4	40.84	21.34	8.04	2.62	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	3.11	10.8	28.36	48.54	60.75	63.17	
82	63.44	56.64	40.99	21.4	8.05	2.63	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.12	10.83	28.47	48.74	61.01	63.44	
83	63.69	56.84	41.12	21.45	8.07	2.63	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.13	10.87	28.57	48.93	61.25	63.69	
84	63.91	57.03	41.23	21.5	8.08	2.64	0.03	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.14	10.9	28.66	49.09	61.47	63.91	
85	64.11	57.18	41.34	21.55	8.1	2.65	0.03	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.15	10.93	28.75	49.24	61.65	64.11	
86	64.28	57.33	41.42	21.58	8.11	2.65	0.03	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.16	10.95	28.83	49.37	61.8	64.28	
87	64.42	57.44	41.5	21.61	8.12	2.66	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	3.17	10.98	28.91	49.48	61.94	64.42	
88	64.53	57.52	41.55	21.63	8.13	2.66	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.18	11	28.96	49.56	62.06	64.53	
89	64.62	57.59	41.59	21.66	8.14	2.67	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.03	3.19	11.03	29.01	49.64	62.14	64.62	
90	64.67	57.64	41.62	21.67	8.15	2.67	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.02	3.19	11.04	29.05	49.69	62.19	64.67	
91	64.7	57.65	41.63	21.68	8.15	2.67	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03	0.02	3.2	11.06	29.09	49.72	62.23	64.7	
92	64.68	57.65	41.63	21.68	8.15	2.68	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.05	0.04	0.04	0.03	0.03	0.02	3.2	11.07	29.12	49.74	62.23	64.68	
93	64.65	57.63	41.61	21.68	8.16	2.68	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.02	3.21	11.09	29.13	49.74	62.21	64.65	
94	64.58	57.59	41.58	21.68	8.16	2.68	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.05	0.04	0.04	0.03	0.03	0.02	3.21	11.1	29.13	49.71	62.16	64.58	
95	64.5	57.5	41.54	21.67	8.16	2.68	0.02	0.03	0.04	0.04	0.05	0.05	0.04	0.05	0.04	0.04	0.03	0.03	0.02	3.21	11.11	29.14	49.66	62.08	64.5	
96	64.37	57.4	41.48	21.65	8.16	2.68	0.02	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	3.22	11.11	29.12	49.61	62	64.37	
97	64.22	57.28	41.41	21.63	8.16	2.68	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.02	0.02	3.22	11.12	29.1	49.53	61.84	64.22	
98	64.04	57.14	41.32	21.61	8.15	2.68	0.02	0.03	0.03	0.04	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.02	0.02	3.22	11.12	29.08	49.43	61.69	64.04	
99	63.82	56.97	41.21	21.57																						



104	62.42	55.76	40.5	21.35	8.1	2.66	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.02	0.01	3.21	11.09	28.71	48.42	60.2	62.42
105	62.04	55.47	40.32	21.28	8.08	2.66	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.03	0.02	0.01	3.21	11.08	28.61	48.18	59.85	62.04
106	61.66	55.14	40.13	21.21	8.07	2.65	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.05	0.04	0.03	0.03	0.02	0.01	3.21	11.06	28.52	47.93	59.48	61.66
107	61.26	54.79	39.9	21.14	8.05	2.65	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.03	0.02	0.01	3.2	11.04	28.41	47.65	59.12	61.26
108	60.83	54.43	39.68	21.07	8.03	2.64	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.2	11.02	28.28	47.37	58.7	60.83
109	60.37	54.03	39.44	20.98	8.01	2.63	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.19	11	28.17	47.08	58.26	60.37
110	59.88	53.62	39.19	20.89	7.99	2.62	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.19	10.98	28.03	46.76	57.81	59.88
111	59.38	53.18	38.92	20.79	7.97	2.62	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.18	10.95	27.89	46.42	57.32	59.38
112	58.85	52.73	38.64	20.69	7.94	2.61	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.17	10.92	27.73	46.06	56.83	58.85
113	58.3	52.27	38.34	20.58	7.91	2.6	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.16	10.89	27.57	45.69	56.3	58.3
114	57.73	51.77	38.04	20.47	7.88	2.59	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.15	10.85	27.4	45.31	55.79	57.73
115	57.15	51.28	37.71	20.35	7.85	2.58	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.14	10.81	27.21	44.9	55.22	57.15
116	56.54	50.73	37.37	20.22	7.82	2.57	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.13	10.77	27.03	44.48	54.64	56.54
117	55.92	50.2	37.02	20.09	7.78	2.56	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.12	10.73	26.83	44.05	54.06	55.92
118	55.27	49.64	36.66	19.95	7.75	2.55	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.04	0.03	0.02	0.02	0.01	3.11	10.68	26.63	43.6	53.44	55.27
119	54.59	49.07	36.29	19.8	7.71	2.53	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.04	0.04	0.03	0.02	0.02	0.01	3.1	10.63	26.4	43.14	52.8	54.59
120	53.89	48.47	35.9	19.64	7.67	2.52	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.04	0.04	0.03	0.02	0.02	0.01	3.09	10.58	26.18	42.65	52.16	53.89
121	53.18	47.87	35.5	19.48	7.63	2.51	0.01	0.02	0.02	0.03	0.03	0.03	0.05	0.04	0.04	0.03	0.02	0.02	0.01	3.07	10.52	25.94	42.16	51.49	53.18
122	52.49	47.26	35.09	19.32	7.58	2.49	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	3.06	10.46	25.69	41.66	50.8	52.49
123	51.75	46.63	34.68	19.15	7.53	2.48	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	3.04	10.4	25.44	41.12	50.11	51.75
124	51.02	45.97	34.26	18.96	7.48	2.46	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	3.02	10.33	25.18	40.58	49.4	51.02
125	50.24	45.31	33.82	18.78	7.43	2.44	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	3.01	10.27	24.92	40.03	48.66	50.24
126	49.45	44.64	33.37	18.6	7.37	2.42	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	2.99	10.19	24.64	39.47	47.91	49.45
127	48.65	43.94	32.91	18.4	7.32	2.41	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	2.97	10.12	24.35	38.88	47.16	48.65
128	47.85	43.25	32.44	18.19	7.26	2.39	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	2.95	10.04	24.05	38.3	46.39	47.85
129	47.05	42.54	31.96	17.99	7.19	2.37	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	2.93	9.95	23.75	37.7	45.61	47.05
130	46.21	41.81	31.48	17.77	7.13	2.35	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	2.9	9.87	23.44	37.09	44.81	46.21
131	45.37	41.07	30.98	17.55	7.06	2.33	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.01	2.88	9.78	23.12	36.47	44.01	45.37
132	44.53	40.32	30.46	17.32	6.99	2.3	0.01	0.02	0.02	0.02	0.02	0.03	0.04	0.04	0.03	0.03	0.02	0.02	0.01	2.86	9.68	22.78	35.83	43.2	44.53
133	43.65	39.56	29.94	17.09	6.92	2.28	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.04	0.03	0.03	0.03	0.02	0.01	2.83	9.58	22.45	35.19	42.37	43.65
134	42.79	38.81	29.42	16.85	6.84	2.26	0.02	0.02	0.02	0.02	0.02	0.04	0.04	0.04	0.03	0.03	0.03	0.02	0.02	2.81	9.48	22.11	34.55	41.52	42.79
135	41.89	38.02	28.88	16.6	6.76	2.23	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.03	0.03	0.03	0.02	0.02	2.78	9.38	21.76	33.88	40.68	41.89
136	41.01	37.22	28.34	16.34	6.68	2.21	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	2.75	9.26	21.4	33.22	39.83	41.01
137	40.11	36.42	27.79	16.08	6.59	2.18	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	2.72	9.15	21.03	32.53	38.97	40.11
138	39.21	35.63	27.22	15.81	6.51	2.15	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	2.69	9.02	20.63	31.83	38.09	39.21
139	38.29	34.8	26.65	15.54	6.42	2.13	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	2.65	8.88	20.22	31.12	37.19	38.29
140	37.35	33.98	26.07	15.26	6.32	2.1	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	2.61	8.74	19.82	30.39	36.3	37.35
141	36.42	33.16	25.49	14.97	6.22	2.07	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	2.57	8.59	19.4	29.67	35.4	36.42
142	35.48	32.32	24.89	14.67	6.12	2.04	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	2.53	8.43	18.96	28.92	34.49	35.48
143	34.53	31.48	24.29	14.37	6.02	2.01	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	2.47	8.24	18.48	28.16	33.56	34.53
144	33.57	30.63	23.67	14.06	5.91	1.97	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	2.41	8.04	17.99	27.36	32.62	33.57
145	32.63	29.77	23.05	13.74	5.8	1.94	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.03	2.35	7.84	17.49	26.57	31.67	32.63
146	31.65	28.91	22.41	13.42	5.69	1.91	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	2.29	7.64	17	25.77	30.73	31.65
147	30.7	28.03	21.78	13.09	5.58	1.88	0.04	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.04	2.23	7.42	16.48	24.97	29.76	30.7
148	29.72	27.16	21.13	12.76	5.46	1.84	0.04	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.05	2.16	7.19	15.94	24.13	28.79	29.72
149	28.74	26.27	20.47	12.42	5.33	1.81	0.05	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.05	2.09	6.93	15.37	23.28	27.79	28.74
150	27.74	25.38	19.75	12.07	5.21	1.78	0.06	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.06	2	6.66	14.78	22.41	26.77	27.74
151	26.75	24.46	18.89	11.71	5.08	1.75	0.07	0.03	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.07	1.91	6.37	14.16	21.5	25.56	26.75
152	25.75	23.34	17.91	11.34	4.95	1.72	0.07	0.03	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.04	0.09	1.82	6.07	13.54	20.6	23.89	25.75
153	24.74	22.1	16.79	10.96	4.82	1.68	0.08	0.04	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.04	0.1	1.73	5.75	12.88	19.67	22	24.74



158	16.44	13.69	10.25	8.15	4.13	1.53	0.15	0.07	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.07	0.16	1.23	4.13	9.48	14.31	12.41	16.44
159	14.56	11.95	8.93	7.36	3.97	1.5	0.16	0.07	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.07	0.17	1.14	3.83	8.81	12.96	10.61	14.56
160	12.89	10.23	7.63	6.56	3.76	1.46	0.18	0.08	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.08	0.18	1.05	3.53	8.14	11.61	8.89	12.89
161	11.27	8.53	6.33	5.77	3.46	1.42	0.17	0.08	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.08	0.19	0.97	3.24	7.49	10.15	7.31	11.27
162	9.63	6.89	5.13	4.99	3.08	1.31	0.11	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.09	0.2	0.9	2.98	6.85	8.76	5.88	9.63
163	7.92	5.44	3.94	4.2	2.71	1.15	0.08	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.09	0.21	0.83	2.72	6.18	7.43	4.56	7.92
164	6.28	4.04	2.85	3.41	2.37	0.97	0.07	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.2	0.78	2.5	5.48	6.15	3.32	6.28
165	4.84	2.68	1.84	2.64	2.02	0.84	0.06	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07	0.18	0.74	2.25	4.72	4.9	2.17	4.84
166	3.41	1.5	0.98	1.93	1.68	0.73	0.07	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.14	0.62	1.95	3.96	3.74	1.16	3.41
167	2.17	0.53	0.34	1.29	1.34	0.6	0.07	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.07	0.46	1.6	3.18	2.67	0.49	2.17
168	1.2	0.08	0.06	0.7	0.99	0.48	0.07	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.33	1.22	2.47	1.69	0.15	1.2
169	0.97	0.05	0.01	0.22	0.67	0.36	0.06	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.23	0.88	1.81	0.86	0.02	0.97
170	0.81	0.04	0.01	0.01	0.38	0.24	0.06	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.15	0.63	1.2	0.21	0.01	0.81
171	0.38	0.02	0.01	0.01	0.14	0.13	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.11	0.41	0.68	0.03	0.01	0.38
172	0.04	0.01	0.01	0.01	0.02	0.03	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.07	0.21	0.24	0.01	0.01	0.04
173	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.04	0.03	0.01	0.01	0.01
174	0.01	0.01	0.01	0.01	0.01	0.02	0.02	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	0.01	0.01	0.01	0.01	0.01
175	0	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	0.01	0.01	0.01	0.01	0.01	0.01	0
176	0	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	0.01	0.01	0.01	0.01	0.01	0.01	0
177	0	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	0.01	0.01	0.01	0.01	0.01	0.01	0
178	0	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	0.01	0.01	0.01	0.01	0.01	0.01	0
179	0	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	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	SA-DASHL	Sample ID.	I1
Temperature (°C)	25.1	Humidity (%RH)	57.0

Test Method

The samples were tested according to the ANSI C82.77:2014.

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

The ambient temperature condition was maintained at 25° C ± 1° 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
120.06	60	0.034	4.02	0.989	14.01%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2023/12/24	2024/12/23
DLF108	Auxiliary Lamp	2023/12/24	2024/12/23
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2023/12/24	2024/12/23
DLF116	AC Power Source	2023/12/16	2024/12/15
DLF516	Power Meter	2023/12/16	2024/12/15
DLF112	Temperature Recorder	2023/12/28	2024/12/27
DLF114	Temperature & Humidity Datalogger	2023/12/28	2024/12/27
DLF101	Goniophotometer	2023/12/24	2024/12/23
DLF511	AC Power Source	2023/12/16	2024/12/15
DLF512	AC Power Source	2023/12/16	2024/12/15
DLF513	AC Power Source	2023/12/16	2024/12/15
DLF507	DC Power Source	2023/12/16	2024/12/15
DLF111	Temperature & Humidity Datalogger	2023/12/28	2024/12/27
DLF119	Power Meter	2023/12/16	2024/12/15
DLF031	Temperature data logger	2024/6/20	2025/6/19
DLF073	Power Analyzer	2024/6/20	2025/6/19
DLF003	Temperature & Humidity Datalogger	2024/6/20	2025/6/19

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