

## Photometric Test Report

### Relevant Standards

- ☒ ANSI/IES LM-79-2019
- ☒ ANSI C82.77-2017

Prepared For

**RAB Lighting Inc.**

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Prepared By

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Issue Date: 2025-01-06

Revised Date: N/A

## 1.0 Test Summary

DLC Technical Requirements V5.1

Direct Linear Ambient Luminaires					
Requirement Category		Test Method	Requirements		Test Value
Luminaire Output (lm) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	375 lm/ft		566
Minimum Luminaire Efficacy (lm/W) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Standard	Premium	149.9
			115	130	
Power (Input Wattage) (W) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Case		15.1
Total Harmonic Distortion (A%) (THD & PF – Section 4.3)		ANSI C82.77:2002	20.00%	120V	6.27
		ANSI C82-77-10:2020		277V	14.15
Power Factor (THD & PF – Section 4.3)		ANSI C82.77:2002	0.9	120V	0.993
		ANSI C82-77-10:2020		277V	0.914
Allowable CCTs* (K) (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019	7 steps	3465±245	3442
			4 steps	3465±124	
Minimum CRI (Integrating Sphere – Section 4.1)		ANSI/IES LM-79:2019 CIE13.3-1995	≥80		83.9
Minimum R9 (Integrating Sphere – Section 4.1)		ANSI/IES LM-79-2019 CIE13.3-1995	≥0		11
Minimum Rf (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	≥70		85
Minimum Rg (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	≥89		95
IES Rcs,h1 (Integrating Sphere – Section 4.1)		ANSI/IES TM-30-18	-12%≤IES Rcs,h1≤+23%		-12%
Zonal Lumen Requirement (0°-60°) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	≥40%		56.4%
Discomfort Glare (UGR) (Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Standard	Premium	29.2
			N/A	<22	
Input Voltage (V)					
(Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Cast		277.0
(Goniophotometer – Section 4.2)			Non-Worst Case		120.0
Input Current (A)					
(Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Case		0.060
(Goniophotometer – Section 4.2)			Non-Worst Case		0.124
Power (Input Wattage – W)					
(Goniophotometer – Section 4.2)		ANSI/IES LM-79:2019	Worst Case		15.1
(Goniophotometer – Section 4.2)			Non-Worst Case		14.8

## 2.0 Test List

Test Item	Test	Test Date	Model Number	Build Level	Sample No.
1	Integrating Sphere Test	2025-01-03	STRP4 @15W3500K	-	241225005-S1
2	Goniophotometer Test	2025-01-03	STRP4 @15W3500K	-	241225005-S1
3	THD and PF Test	2025-01-03	STRP4 @15W3500K	-	241225005-S1

### Remark (If any):

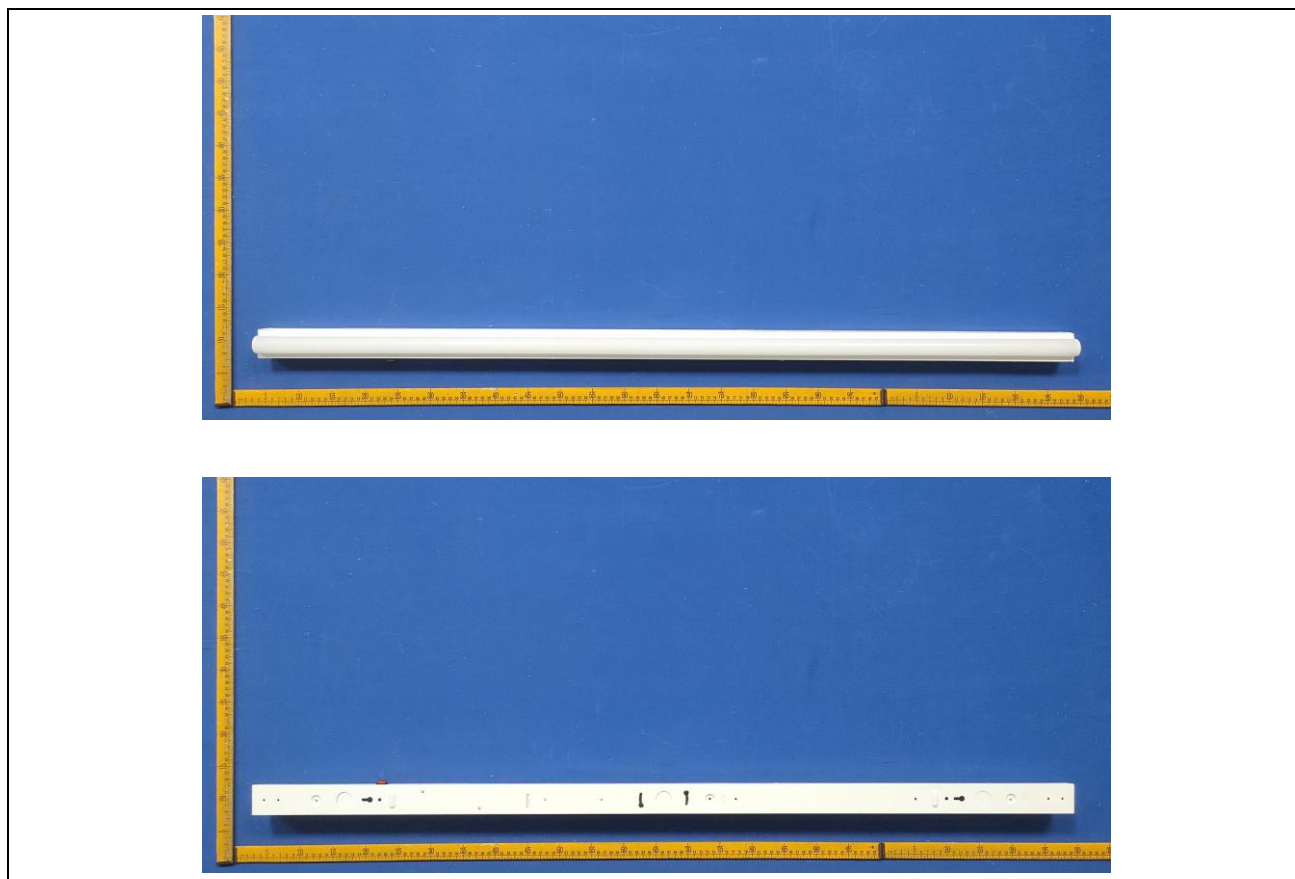
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3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

### 3.0 Product Description

Luminaire Description: Model No. STRP4 @15W3500K, color tunable from 3500K, 4000K and 5000K.

Electrical Specification: 120-277Vac, 50/60Hz

#### Photos of Luminaire Characteristics



## 4.0 LM-79 Measurement and Test Results

### 4.1 Integrating Sphere Test

<b>Model No.</b>	STRP4 @15W3500K	<b>Sample ID</b>	241225005-S1
<b>Operate time (Min.)</b>	10	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

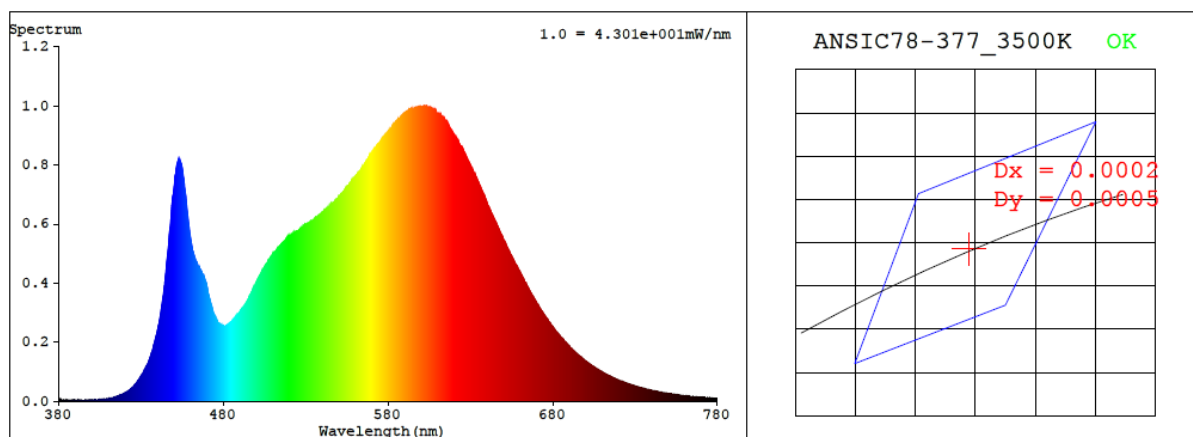
<b>Test Method</b>
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25±1°C.</p> <p>The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.</p> <p>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.</p> <p>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 780nm.</p>

### Test Result

<b>Voltage (Vac)</b>	<b>Frequency (Hz)</b>	<b>Current (A)</b>	<b>Power (W)</b>	<b>Power Factor</b>
120.0	60	0.124	14.8	0.993
277.0	60	0.060	15.1	0.914

<b>CCT (K)</b>	<b>CRI</b>	<b>R9</b>	<b>Duv</b>	<b>Rf</b>	<b>Rg</b>	<b>IES Rcs,h1</b>
3442	83.9	11	0.0002	85	95	-12%

## 4.1 Integrating Sphere Test



### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.4088$   $y = 0.3929$  /  $u' = 0.2371$   $v' = 0.5127$  ( $duv=1.85e-04$ )

CCT= 3442K Prcp WL:  $L_d=581.0nm$  Purity=40.6%

Peak WL:  $L_p=602nm$  FWHM:  $=144.1nm$  Ratio:  $R=20.7\%$   $G=76.1\%$   $B=3.2\%$

Render Index:  $R_a = 83.9$   $AvgR = 78.1$   $TM30:R_f=85$   $R_g=95$

EEL: 0.09053 A++ Highest

$R_1=83$   $R_2=92$   $R_3=96$   $R_4=82$   $R_5=83$   $R_6=89$   $R_7=84$

$R_8=63$   $R_9=11$   $R_{10}=81$   $R_{11}=81$   $R_{12}=67$   $R_{13}=85$   $R_{14}=99$   $R_{15}=76$

## 4.1 Integrating Sphere Test

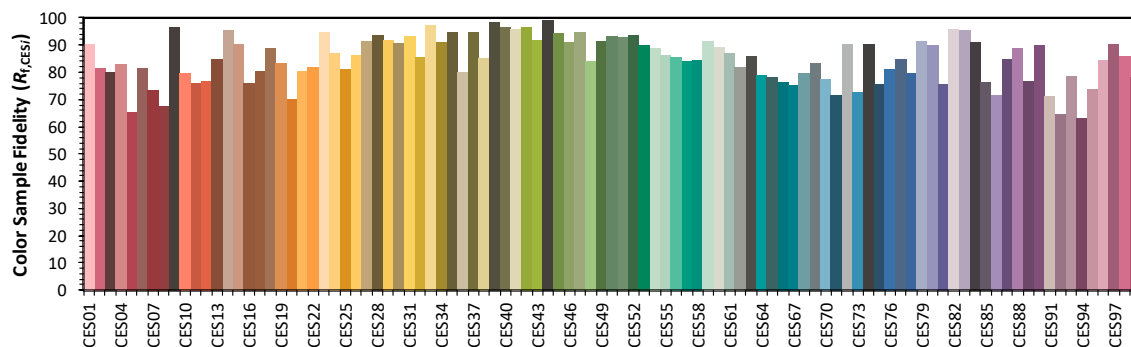
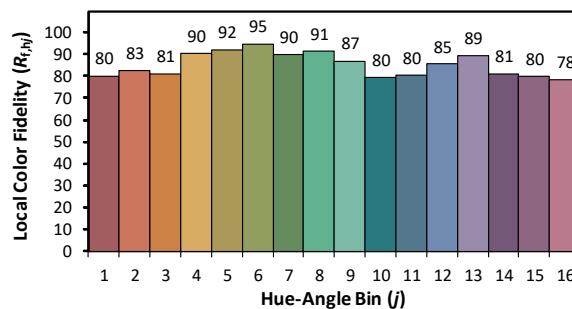
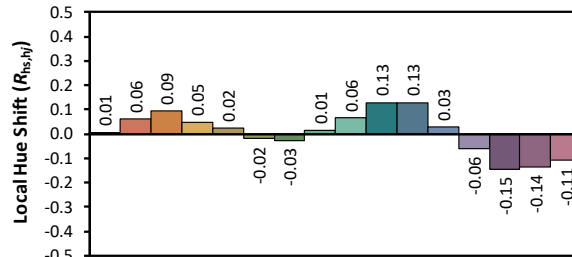
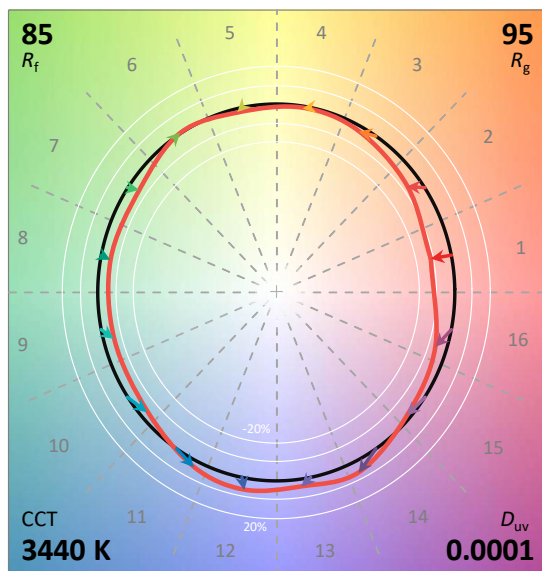
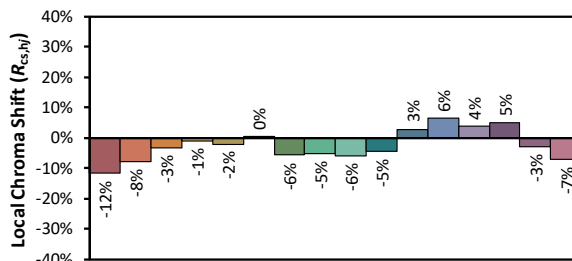
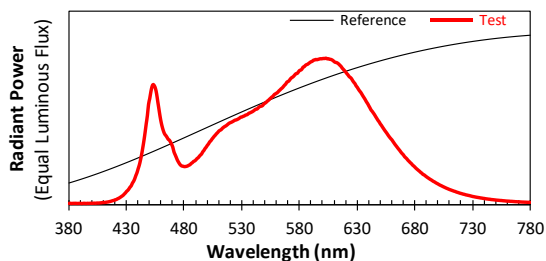
### ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1

Manufacturer: RAB Lighting Inc.

Date: 2025/1/6

Model: STRP4 @15W3500K



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

$x$  0.4089  
 $y$  0.3928  
 $u'$  0.2372  
 $v'$  0.5126

CIE 13.3-1995  
(CRI)

$R_a$  84  
 $R_g$  11



## 4.1 Integrating Sphere Test

Spectral Distribution over Visible Wavelength											
WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)	WL (nm)	Radiant (W/nm)
380	2.80E-06	447	5.50E-04	514	5.25E-04	581	9.18E-04	648	5.73E-04	715	8.52E-05
381	4.80E-06	448	6.06E-04	515	5.30E-04	582	9.24E-04	649	5.62E-04	716	8.16E-05
382	3.00E-06	449	6.83E-04	516	5.35E-04	583	9.37E-04	650	5.49E-04	717	7.93E-05
383	3.60E-06	450	7.21E-04	517	5.41E-04	584	9.41E-04	651	5.38E-04	718	7.66E-05
384	4.00E-06	451	7.68E-04	518	5.48E-04	585	9.50E-04	652	5.26E-04	719	7.38E-05
385	4.10E-06	452	8.04E-04	519	5.54E-04	586	9.55E-04	653	5.14E-04	720	7.17E-05
386	4.30E-06	453	8.19E-04	520	5.57E-04	587	9.58E-04	654	5.02E-04	721	6.95E-05
387	3.30E-06	454	8.10E-04	521	5.61E-04	588	9.64E-04	655	4.92E-04	722	6.70E-05
388	3.70E-06	455	7.91E-04	522	5.65E-04	589	9.70E-04	656	4.81E-04	723	6.54E-05
389	3.80E-06	456	7.54E-04	523	5.70E-04	590	9.75E-04	657	4.69E-04	724	6.27E-05
390	4.20E-06	457	7.01E-04	524	5.74E-04	591	9.78E-04	658	4.58E-04	725	6.11E-05
391	2.30E-06	458	6.51E-04	525	5.76E-04	592	9.85E-04	659	4.48E-04	726	5.92E-05
392	3.50E-06	459	6.00E-04	526	5.79E-04	593	9.87E-04	660	4.40E-04	727	5.76E-05
393	4.30E-06	460	5.57E-04	527	5.84E-04	594	9.90E-04	661	4.28E-04	728	5.56E-05
394	3.90E-06	461	5.24E-04	528	5.89E-04	595	9.89E-04	662	4.17E-04	729	5.35E-05
395	3.00E-06	462	4.98E-04	529	5.95E-04	596	9.91E-04	663	4.05E-04	730	5.12E-05
396	4.50E-06	463	4.79E-04	530	5.96E-04	597	9.93E-04	664	3.95E-04	731	4.99E-05
397	3.70E-06	464	4.69E-04	531	6.01E-04	598	9.95E-04	665	3.85E-04	732	4.82E-05
398	4.20E-06	465	4.57E-04	532	6.03E-04	599	9.95E-04	666	3.75E-04	733	4.67E-05
399	4.70E-06	466	4.44E-04	533	6.09E-04	600	9.96E-04	667	3.65E-04	734	4.52E-05
400	4.10E-06	467	4.38E-04	534	6.11E-04	601	9.97E-04	668	3.54E-04	735	4.40E-05
401	4.70E-06	468	4.25E-04	535	6.15E-04	602	9.97E-04	669	3.45E-04	736	4.27E-05
402	5.30E-06	469	4.08E-04	536	6.22E-04	603	9.99E-04	670	3.37E-04	737	4.10E-05
403	4.80E-06	470	3.90E-04	537	6.24E-04	604	9.95E-04	671	3.25E-04	738	4.01E-05
404	5.80E-06	471	3.58E-04	538	6.29E-04	605	9.95E-04	672	3.17E-04	739	3.85E-05
405	6.20E-06	472	3.39E-04	539	6.32E-04	606	9.92E-04	673	3.09E-04	740	3.75E-05
406	6.00E-06	473	3.20E-04	540	6.38E-04	607	9.91E-04	674	2.99E-04	741	3.60E-05
407	7.10E-06	474	3.01E-04	541	6.44E-04	608	9.88E-04	675	2.92E-04	742	3.48E-05
408	7.70E-06	475	2.86E-04	542	6.50E-04	609	9.83E-04	676	2.83E-04	743	3.38E-05
409	9.00E-06	476	2.74E-04	543	6.50E-04	610	9.76E-04	677	2.76E-04	744	3.25E-05
410	9.20E-06	477	2.65E-04	544	6.57E-04	611	9.71E-04	678	2.67E-04	745	3.20E-05
411	1.02E-05	478	2.60E-04	545	6.65E-04	612	9.69E-04	679	2.60E-04	746	3.04E-05
412	1.12E-05	479	2.58E-04	546	6.69E-04	613	9.65E-04	680	2.52E-04	747	2.96E-05
413	1.26E-05	480	2.56E-04	547	6.71E-04	614	9.58E-04	681	2.44E-04	748	2.88E-05
414	1.37E-05	481	2.57E-04	548	6.75E-04	615	9.50E-04	682	2.37E-04	749	2.79E-05
415	1.57E-05	482	2.58E-04	549	6.85E-04	616	9.42E-04	683	2.30E-04	750	2.69E-05
416	1.76E-05	483	2.61E-04	550	6.91E-04	617	9.31E-04	684	2.24E-04	751	2.59E-05
417	2.00E-05	484	2.65E-04	551	6.97E-04	618	9.22E-04	685	2.17E-04	752	2.54E-05
418	2.26E-05	485	2.69E-04	552	7.05E-04	619	9.13E-04	686	2.11E-04	753	2.46E-05
419	2.46E-05	486	2.78E-04	553	7.11E-04	620	9.04E-04	687	2.03E-04	754	2.37E-05
420	2.82E-05	487	2.83E-04	554	7.19E-04	621	8.93E-04	688	1.99E-04	755	2.34E-05
421	3.01E-05	488	2.91E-04	555	7.26E-04	622	8.84E-04	689	1.93E-04	756	2.24E-05
422	3.47E-05	489	2.95E-04	556	7.33E-04	623	8.73E-04	690	1.87E-04	757	2.16E-05
423	3.84E-05	490	3.01E-04	557	7.39E-04	624	8.67E-04	691	1.81E-04	758	2.09E-05
424	4.29E-05	491	3.11E-04	558	7.49E-04	625	8.59E-04	692	1.76E-04	759	2.00E-05
425	4.83E-05	492	3.17E-04	559	7.54E-04	626	8.46E-04	693	1.70E-04	760	1.95E-05
426	5.38E-05	493	3.26E-04	560	7.59E-04	627	8.34E-04	694	1.65E-04	761	1.90E-05
427	5.96E-05	494	3.35E-04	561	7.65E-04	628	8.25E-04	695	1.60E-04	762	1.86E-05
428	6.82E-05	495	3.43E-04	562	7.74E-04	629	8.10E-04	696	1.55E-04	763	1.77E-05
429	7.61E-05	496	3.57E-04	563	7.81E-04	630	8.00E-04	697	1.51E-04	764	1.76E-05
430	8.63E-05	497	3.66E-04	564	7.89E-04	631	7.87E-04	698	1.46E-04	765	1.68E-05
431	9.31E-05	498	3.80E-04	565	7.96E-04	632	7.75E-04	699	1.41E-04	766	1.63E-05
432	1.03E-04	499	3.89E-04	566	8.05E-04	633	7.65E-04	700	1.37E-04	767	1.55E-05
433	1.15E-04	500	4.02E-04	567	8.14E-04	634	7.53E-04	701	1.32E-04	768	1.53E-05
434	1.25E-04	501	4.11E-04	568	8.22E-04	635	7.39E-04	702	1.28E-04	769	1.47E-05
435	1.43E-04	502	4.25E-04	569	8.35E-04	636	7.27E-04	703	1.25E-04	770	1.44E-05
436	1.55E-04	503	4.33E-04	570	8.39E-04	637	7.14E-04	704	1.21E-04	771	1.38E-05
437	1.72E-04	504	4.44E-04	571	8.46E-04	638	7.00E-04	705	1.17E-04	772	1.34E-05
438	1.95E-04	505	4.54E-04	572	8.57E-04	639	6.88E-04	706	1.13E-04	773	1.28E-05
439	2.15E-04	506	4.64E-04	573	8.65E-04	640	6.73E-04	707	1.09E-04	774	1.26E-05
440	2.42E-04	507	4.73E-04	574	8.70E-04	641	6.59E-04	708	1.06E-04	775	1.22E-05
441	2.67E-04	508	4.82E-04	575	8.77E-04	642	6.44E-04	709	1.02E-04	776	1.19E-05
442	3.01E-04	509	4.90E-04	576	8.86E-04	643	6.34E-04	710	9.89E-05	777	1.15E-05
443	3.39E-04	510	4.99E-04	577	8.93E-04	644	6.23E-04	711	9.61E-05	778	1.11E-05
444	3.85E-04	511	5.05E-04	578	8.95E-04	645	6.12E-04	712	9.31E-05	779	1.11E-05
445	4.34E-04	512	5.09E-04	579	9.05E-04	646	5.98E-04	713	9.03E-05	780	1.11E-05
446	4.90E-04	513	5.18E-04	580	9.15E-04	647	5.86E-04	714	8.73E-05	N/A	N/A



## 4.0 LM-79 Measurement and Test Results

### 4.2 Goniophotometer Test

<b>Model No.</b>	STRP4 @15W3500K	<b>Sample ID</b>	241225005-S1
<b>Operate time (Min.)</b>	30	<b>Stabilization time (Min.)</b>	60
<b>Temperature (°C)</b>	24.8	<b>Humidity (%RH)</b>	41.3

<b>Test Method</b>
<p>The Samples were tested according to the ANSI/IES LM-79:2019.</p> <p>Photometric parameters were measured using a type C goniophotometer and software.</p> <p>The ambient temperature shall be maintained at <math>25 \pm 1^\circ\text{C}</math>, measured at a point not more than 1 m from the sample and at the same height as the sample.</p> <p>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 <math>\pm 0.2</math> percent under load.</p> <p>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 <math>1.0^\circ</math> vertical intervals and <math>15^\circ</math> horizontal intervals.</p>

#### Test Conditions

Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
<b>WORST CASE</b>	277.0	60	0.060	15.1	0.914
<b>NON-WORST CASE</b>	120.0	60	0.124	14.8	0.993

#### Test Result

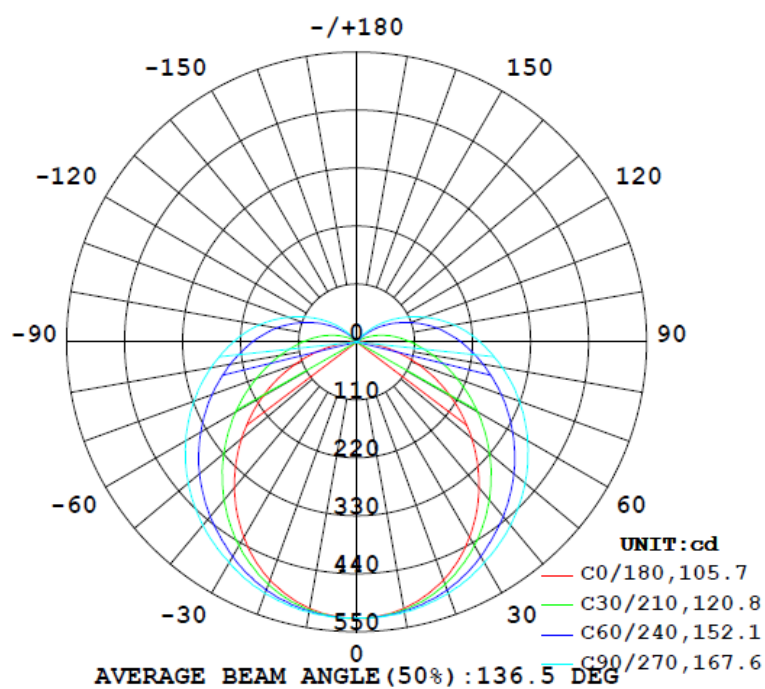
Flux (lm)	Flux per feet (lm/ft)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)
		C0-180	C90-270	C0-180	C90-270	
2264	566	160.0	160.0	105.6	167.8	149.9

Zonal Lumen Requirement (0°-60°)	UGR	
	Crosswise	Endwise
56.4%	21.0	29.2

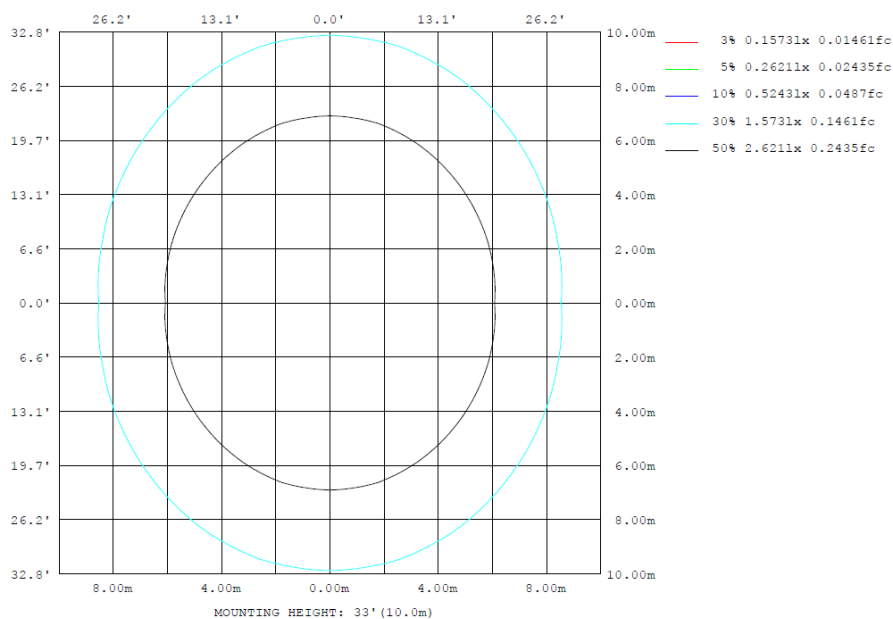
## 4.2 Goniophotometer Test

### Lighting Distribution Curve

#### LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



### Isolux Plot



## 4.2 Goniophotometer Test

### Zonal Lumen Summary

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	Φlum, lamp
10	513.7	516.8	520.4	516.8	513.7	516.8	520.4	516.8	0~ 10	49.76	49.76	2.2,2.2
20	480.8	494.8	507.8	494.8	480.8	494.8	507.8	494.8	10~ 20	143.6	193.4	8.54,8.54
30	427.9	457.9	483.4	457.9	427.9	457.9	483.4	457.9	20~ 30	220.6	414.0	18.3,18.3
40	360.8	410.7	453.8	410.7	360.8	410.7	453.8	410.7	30~ 40	272.7	686.7	30.3,30.3
50	284.9	359.2	417.1	359.2	284.9	359.2	417.1	359.2	40~ 50	297.0	983.6	43.5,43.5
60	205.3	305.0	374.3	305.0	205.3	305.0	374.3	305.0	50~ 60	293.9	1278	56.4,56.4
70	124.6	250.6	328.4	250.6	124.6	250.6	328.4	250.6	60~ 70	267.4	1545	68.2,68.2
80	48.81	199.6	280.7	199.6	48.81	199.6	280.7	199.6	70~ 80	224.9	1770	78.2,78.2
90	3.860	155.3	234.1	155.3	3.860	155.3	234.1	155.3	80~ 90	176.5	1946	86,86
100	2.558	114.8	187.6	114.8	2.558	114.8	187.6	114.8	90~100	133.4	2080	91.9,91.9
110	3.010	74.96	137.7	74.96	3.010	74.96	137.7	74.96	100~110	92.00	2172	95.9,95.9
120	3.194	39.38	90.12	39.38	3.194	39.38	90.12	39.38	110~120	55.20	2227	98.4,98.4
130	3.172	9.059	46.83	9.059	3.172	9.059	46.83	9.059	120~130	26.22	2253	99.5,99.5
140	3.145	1.529	9.831	1.529	3.145	1.529	9.831	1.529	130~140	7.846	2261	99.9,99.9
150	3.117	1.344	0.9367	1.344	3.117	1.344	0.9367	1.344	140~150	1.296	2262	99.9,99.9
160	2.953	1.305	0.9906	1.305	2.953	1.305	0.9906	1.305	150~160	0.7880	2263	100,100
170	3.467	1.293	1.198	1.293	3.467	1.293	1.198	1.293	160~170	0.4772	2264	100,100
180	4.015	1.284	1.218	1.284	4.015	1.284	1.218	1.284	170~180	0.1681	2264	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

	Zonal (lm)		Total (lm)	Percent
0-10	49.76	0-10	49.76	2.20%
10-20	143.60	0-20	193.36	8.54%
20-30	220.64	0-30	414.00	18.29%
30-40	272.69	0-40	686.69	30.33%
40-50	296.97	0-50	983.66	43.45%
50-60	293.91	0-60	1277.57	56.44%
60-70	267.44	0-70	1545.01	68.25%
70-80	224.90	0-80	1769.91	78.19%
80-90	176.49	0-90	1946.40	85.98%
90-100	133.45	0-100	2079.85	91.88%
100-110	92.00	0-110	2171.85	95.94%
110-120	55.20	0-120	2227.05	98.38%
120-130	26.22	0-130	2253.27	99.54%
130-140	7.85	0-140	2261.12	99.89%
140-150	1.30	0-150	2262.42	99.94%
150-160	0.79	0-160	2263.21	99.98%
160-170	0.48	0-170	2263.69	100.00%
170-180	0.17	0-180	2263.86	100.01%

## 4.2 Goniophotometer Test

UGR – Uncorrected Table:

**UGR TABLE - UNCORRECTED**

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size											
		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	14.2	15.6	14.7	16.2	16.8	18.4	19.8	18.9	20.4	21.0
	3H	15.5	16.8	16.1	17.4	18.1	21.4	22.7	22.0	23.3	24.0
	4H	15.9	17.2	16.5	17.8	18.5	22.9	24.2	23.5	24.8	25.5
	6H	16.2	17.4	16.8	18.0	18.7	24.6	25.8	25.2	26.4	27.1
	8H	16.2	17.4	16.9	18.0	18.7	25.4	26.6	26.1	27.2	27.9
	12H	16.3	17.3	16.9	18.0	18.7	26.4	27.5	27.1	28.2	28.9
4H	2H	15.5	16.8	16.1	17.4	18.0	18.7	19.9	19.3	20.5	21.2
	3H	17.2	18.3	17.8	18.9	19.6	21.9	23.0	22.5	23.6	24.3
	4H	17.8	18.8	18.4	19.4	20.1	23.6	24.6	24.2	25.2	26.0
	6H	18.1	19.0	18.8	19.7	20.5	25.4	26.3	26.1	27.0	27.8
	8H	18.2	19.1	18.9	19.7	20.5	26.4	27.3	27.1	28.0	28.7
	12H	18.3	19.1	19.0	19.7	20.5	27.6	28.3	28.2	29.0	29.8
8H	4H	18.9	19.8	19.6	20.5	21.2	23.8	24.6	24.4	25.3	26.0
	6H	19.6	20.3	20.3	21.0	21.8	25.8	26.5	26.4	27.2	28.0
	8H	19.8	20.5	20.5	21.2	22.0	26.9	27.5	27.6	28.3	29.0
	12H	20.0	20.5	20.7	21.2	22.1	28.2	28.8	28.9	29.5	30.3
12H	4H	19.3	20.1	20.0	20.8	21.5	23.8	24.5	24.4	25.2	26.0
	6H	20.1	20.8	20.8	21.5	22.3	25.8	26.5	26.5	27.1	28.0
	8H	20.5	21.1	21.2	21.8	22.6	27.0	27.6	27.7	28.3	29.1

Maximum UGR = 30.3

UGR – Corrected Table:

**UGR TABLE - CORRECTED**

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	17.0	18.4	17.5	19.0	19.6	21.2	22.6	21.7	23.2	23.8
	3H	18.3	19.6	18.9	20.2	20.9	24.2	25.5	24.8	26.1	26.8
	4H	18.7	20.0	19.3	20.6	21.3	25.7	27.0	26.3	27.6	28.3
	6H	19.0	20.2	19.6	20.8	21.5	27.4	28.6	28.0	29.2	29.9
	8H	19.0	20.2	19.7	20.8	21.5	28.2	29.4	28.9	30.0	30.7
	12H	19.1	20.1	19.7	20.8	21.5	29.2	30.3	29.9	31.0	31.7
4H	2H	18.3	19.6	18.9	20.2	20.8	21.5	22.7	22.1	23.3	24.0
	3H	20.0	21.1	20.6	21.7	22.4	24.7	25.8	25.3	26.4	27.1
	4H	20.6	21.6	21.2	22.2	22.9	26.4	27.4	27.0	28.0	28.8
	6H	20.9	21.8	21.6	22.5	23.3	28.2	29.1	28.9	29.8	30.6
	8H	21.0	21.9	21.7	22.5	23.3	29.2	30.1	29.9	30.8	31.5
	12H	21.1	21.9	21.8	22.5	23.3	30.4	31.1	31.0	31.8	32.6
8H	4H	21.7	22.6	22.4	23.3	24.0	26.6	27.4	27.2	28.1	28.8
	6H	22.4	23.1	23.1	23.8	24.6	28.6	29.3	29.2	30.0	30.8
	8H	22.6	23.3	23.3	24.0	24.8	29.7	30.3	30.4	31.1	31.8
	12H	22.8	23.3	23.5	24.0	24.9	31.0	31.6	31.7	32.3	33.1
12H	4H	22.1	22.9	22.8	23.6	24.3	26.6	27.3	27.2	28.0	28.8
	6H	22.9	23.6	23.6	24.3	25.1	28.6	29.3	29.3	29.9	30.8
	8H	23.3	23.9	24.0	24.6	25.4	29.8	30.4	30.5	31.1	31.9

Maximum UGR = 33.1

## 4.2 Goniophotometer Test

### Luminous Distribution Intensity Data

C (DEG)																			UNIT: cd									
y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270									
0	524	525	523	524	524	525	524	525	524	524	523	525	524	525	523	524	524	525	524									
5	521	524	523	523	523	524	524	524	523	523	523	524	521	524	523	523	523	524	524									
10	514	516	516	517	518	521	520	521	518	517	516	516	514	516	516	517	518	521	520									
15	499	504	505	508	511	515	515	515	511	508	505	504	499	504	505	508	511	515	515									
20	481	486	490	495	501	507	508	507	501	495	490	486	481	486	490	495	501	507	508									
25	457	464	469	478	487	495	497	495	487	478	469	464	457	464	469	478	487	495	497									
30	428	437	446	458	470	481	483	481	470	458	446	437	428	437	446	458	470	481	483									
35	396	407	420	435	451	466	470	466	451	435	420	407	396	407	420	435	451	466	470									
40	361	374	392	411	433	450	454	450	433	411	392	374	361	374	392	411	433	450	454									
45	324	339	361	385	411	430	436	430	411	385	361	339	324	339	361	385	411	430	436									
50	285	303	329	359	389	410	417	410	389	359	329	303	285	303	329	359	389	410	417									
55	245	265	297	333	366	389	396	389	366	333	297	265	245	265	297	333	366	389	396									
60	205	227	265	305	341	366	374	366	341	305	265	227	205	227	265	305	341	366	374									
65	165	189	233	277	317	343	352	343	317	277	233	189	165	189	233	277	317	343	352									
70	125	153	202	251	292	320	328	320	292	251	202	153	125	153	202	251	292	320	328									
75	85.6	119	174	225	267	295	305	295	267	225	174	119	85.6	119	174	225	267	295	305									
80	48.8	88.4	147	200	243	271	281	271	243	200	147	88.4	48.8	88.4	147	200	243	271	281									
85	19.4	62.4	123	177	220	247	257	247	220	177	123	62.4	19.4	62.4	123	177	220	247	257									
90	3.86	42.9	103	155	198	225	234	225	198	155	103	42.9	3.86	42.9	103	155	198	225	234									
95	2.51	29.4	84.4	135	175	202	211	202	175	135	84.4	29.4	2.51	29.4	84.4	135	175	202	211									
100	2.56	18.0	66.6	115	154	177	188	177	154	115	66.6	18.0	2.56	18.0	66.6	115	154	177	188									
105	2.86	8.35	50.2	94.7	131	153	163	153	131	94.7	50.2	8.35	2.86	8.35	50.2	94.7	131	153	163									
110	3.01	2.85	35.3	75.0	108	129	138	129	108	75.0	35.3	2.85	3.01	2.85	35.3	75.0	108	129	138									
115	3.15	2.76	21.5	56.5	86.6	106	113	106	86.6	56.5	21.5	2.76	3.15	2.76	21.5	56.5	86.6	106	113									
120	3.19	2.76	9.23	39.4	65.7	83.2	90.1	83.2	65.7	39.4	9.23	2.76	3.19	2.76	9.23	39.4	65.7	83.2	90.1									
125	3.19	2.76	2.48	23.4	46.4	61.4	67.8	61.4	46.4	23.4	2.48	2.76	3.19	2.76	2.48	23.4	46.4	61.4	67.8									
130	3.17	2.76	2.28	9.06	28.4	41.5	46.8	41.5	28.4	9.06	2.28	2.76	3.17	2.76	2.28	9.06	28.4	41.5	46.8									
135	3.16	2.76	2.13	1.93	11.9	23.2	27.5	23.2	11.9	1.93	2.13	2.76	3.16	2.76	2.13	1.93	11.9	23.2	27.5									
140	3.14	2.76	2.05	1.53	1.41	6.55	9.83	6.55	1.41	1.53	2.05	2.76	3.14	2.76	2.05	1.53	1.41	6.55	9.83									
145	3.13	2.76	1.93	1.42	1.21	1.50	1.12	1.50	1.21	1.42	1.93	2.76	3.13	2.76	1.93	1.42	1.21	1.50	1.12									
150	3.12	2.76	1.81	1.34	1.17	1.29	0.94	1.29	1.17	1.34	1.81	2.76	3.12	2.76	1.81	1.34	1.17	1.29	0.94									
155	3.07	2.76	1.74	1.31	1.20	1.27	0.96	1.27	1.20	1.31	1.74	2.76	3.07	2.76	1.74	1.31	1.20	1.27	0.96									
160	2.95	2.76	1.55	1.30	1.20	1.25	0.99	1.25	1.20	1.30	1.55	2.76	2.95	2.76	1.55	1.30	1.20	1.25	0.99									
165	3.10	2.76	1.53	1.30	1.20	1.23	1.02	1.23	1.20	1.30	1.53	2.76	3.10	2.76	1.53	1.30	1.20	1.23	1.02									
170	3.47	2.76	1.50	1.29	1.25	1.21	1.20	1.21	1.25	1.29	1.50	2.76	3.47	2.76	1.50	1.29	1.25	1.21	1.20									
175	4.02	2.76	1.48	1.29	1.28	1.21	1.22	1.21	1.28	1.29	1.48	2.76	4.02	2.76	1.48	1.29	1.28	1.21	1.22									
180	4.02	2.76	1.47	1.28	1.29	1.21	1.22	1.21	1.29	1.28	1.47	2.76	4.02	2.76	1.47	1.28	1.29	1.21	1.22									

Table--2

UNIT: cd

C (DEG)	285	300	315	330	345														
γ (DEG)	0	525	524	524	523	525													
5	524	523	523	523	524														
10	521	518	517	516	516														
15	515	511	508	505	504														
20	507	501	495	490	486														
25	495	487	478	469	464														
30	481	470	458	446	437														
35	466	451	435	420	407														
40	450	433	411	392	374														
45	430	411	385	361	339														
50	410	389	359	329	303														
55	389	366	333	297	265														
60	366	341	305	265	227														
65	343	317	277	233	189														
70	320	292	251	202	153														
75	295	267	225	174	119														
80	271	243	200	147	88.4														
85	247	220	177	123	62.4														
90	225	198	155	103	42.9														
95	202	175	135	84.4	29.4														
100	177	154	115	66.6	18.0														
105	153	131	94.7	50.2	8.35														
110	129	108	75.0	35.3	2.85														
115	106	86.6	56.5	21.5	2.76														
120	83.2	65.7	39.4	9.23	2.76														
125	61.4	46.4	23.4	2.48	2.76														
130	41.5	28.4	9.06	2.28	2.76														
135	23.2	11.9	1.93	2.13	2.76														
140	6.55	1.41	1.53	2.05	2.76														
145	1.50	1.21	1.42	1.93	2.76														
150	1.29	1.17	1.34	1.81	2.76														
155	1.27	1.20	1.31	1.74	2.76														
160	1.25	1.20	1.30	1.55	2.76														
165	1.23	1.20	1.30	1.53	2.76														
170	1.21	1.25	1.29	1.50	2.76														
175	1.21	1.28	1.29	1.48	2.76														
180	1.21	1.29	1.28	1.47	2.76														

## 4.0 LM-79 Measurement and Test Results

### 4.3 THD and PF Test

<b>Model No.</b>	STRP4 @15W3500K	<b>Sample ID</b>	241225005-S1
<b>Temperature (°C)</b>	25.4	<b>Humidity (%RH)</b>	41.0

<b>Test Method</b>
<p>The samples were tested according to the and ANSI C82.77: 2002 and ANSI C82.77-10:2020</p> <p>The total harmonic distortion shall be measured to the 40th order.</p> <p>The ambient temperature shall be maintained at <math>25 \pm 1^\circ\text{C}</math>. 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 was calculated.</p>

### Test Results

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	iTHD(%)
120.0	60	0.124	14.8	0.993	6.27
277.0	60	0.060	15.1	0.914	14.15

## 5.0 Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2024-11-07	2025-11-06
NTC-F01-006	2.0 meter Integrating Sphere	2024-11-07	2025-11-06
NTC-F01-012	Standard Lamp	2024-10-28	2025-10-27
NTC-F01-013	Standard Lamp	2024-10-28	2025-10-27
NTC-F01-031	Digital Power Meter	2024-08-06	2025-08-05
NTC-F01-019	Temperature & Humidity Meter	2024-10-29	2025-10-28

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