



Report Number: REP-020325-01

LM-79-08 Luminaire Photometric Report

Device Under Test

Finelite, Inc.
HP3-P-D-4ft-V-835-DAO
HP3 Series

Report Date

2/3/2025

Goniophotometric Examination

KPL2008-115
1/29/2025

Examined By:
Laura Robertson

Approved By:
Joe Guarino

Spectroradiometric Examination

CCT5861
01-29-2025

Examined By:
Laura Robertson

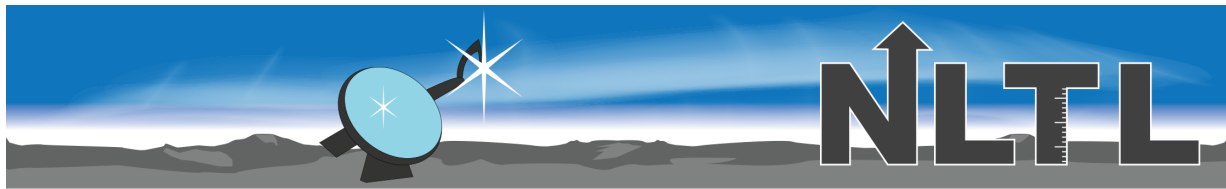
Approved By:
Joe Guarino

Northern Lights Testing Laboratories certifies that the attached reports have been independently produced in accordance with IESNA LM-79-08, Approved Method: Electric and Photometric Measurement of Solid-State Lighting Products. Photometric measurements are taken using an Integrating Sphere system and Type C goniophotometer for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. Products tested are operated in the intended orientation in application. All test equipment is calibrated regularly with standards traceable to NIST, and in accordance with ISO17025-2005 procedures. Northern Lights Testing Laboratories is an Accredited Organization, accredited by the International Accreditation Service, Inc. (IAS) to ISO/IEC 17025-2005. IAS is an ILAC-MRA Signatory Testing, Calibration, Inspection. Northern Lights Testing Laboratories is an Approved Lab Partner and is on the LED Lighting Facts Approved Labs List.



IAS Accreditation No. TL-479





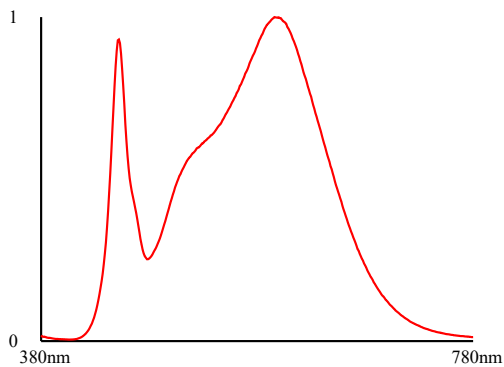
NORTHERN LIGHTS TESTING LABORATORIES

Spectral Results

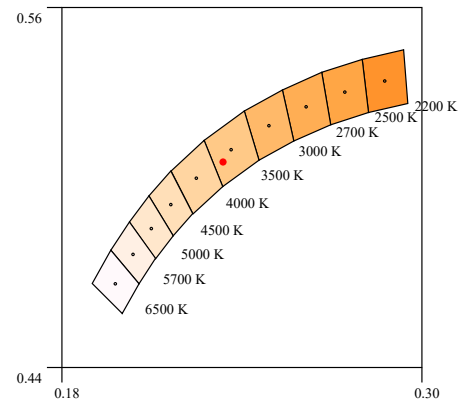
CCT: 3597 K
xy Coordinates: 0.3994 , 0.3862
u'v' Coordinates: 0.2337, 0.5085
Delta u'v': -0.00065

Luminous Flux: 4425.3 lm
Radiant Flux: 10.21834 W
Electrical Power: 34.465 W
Efficacy: 128.4 lm/W
Melanopic Flux: 2817 mel lm
Melanopic Ratio: 0.64

Spectral Power Distribution

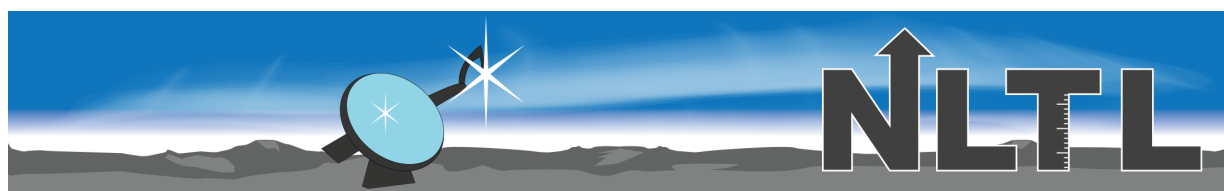


CIE u'v' (1976)



Color Rendering Index

Ra	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
84	83	92	96	82	83	89	84	62	8	80	82	67	86	98	75



NORTHERN LIGHTS TESTING LABORATORIES

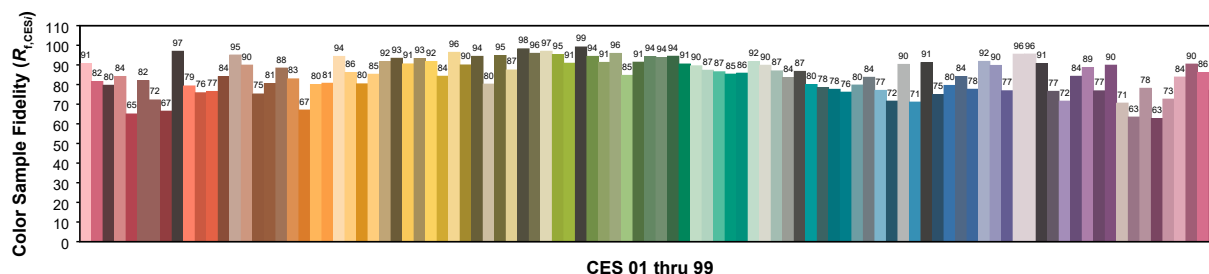
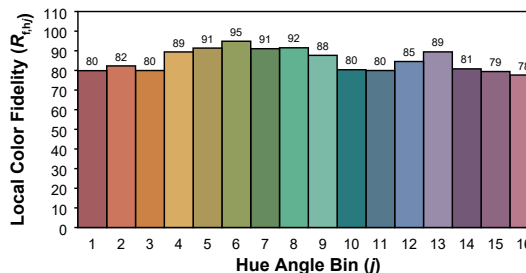
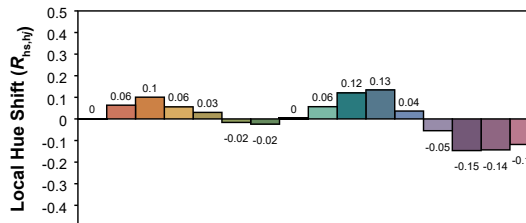
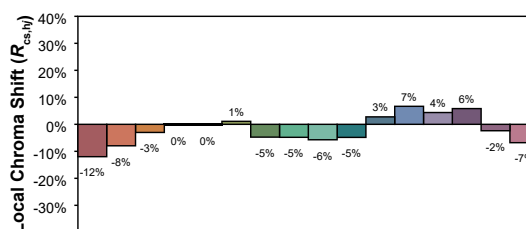
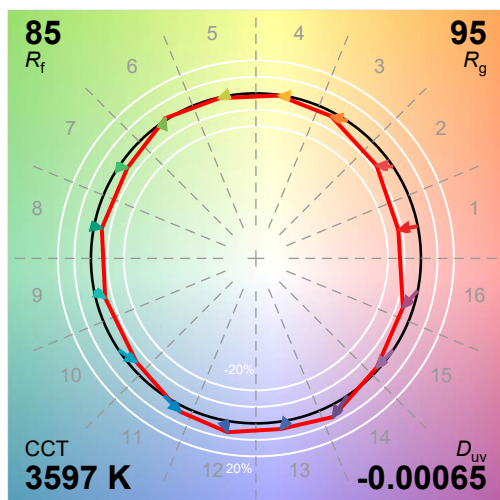
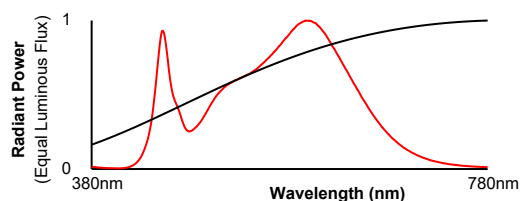
IES TM-30-18 Color Rendition Report

Source: HP3-P-D-4ft-V-835-DAO

Date: 01-29-2025

Manufacturer: Kenall Manufacturing

Model: HP3 (REF# 23178235)



CES 01 thru 99

x: 0.3994
y: 0.3862
u': 0.2337
v': 0.5085

CIE 13.3 1995

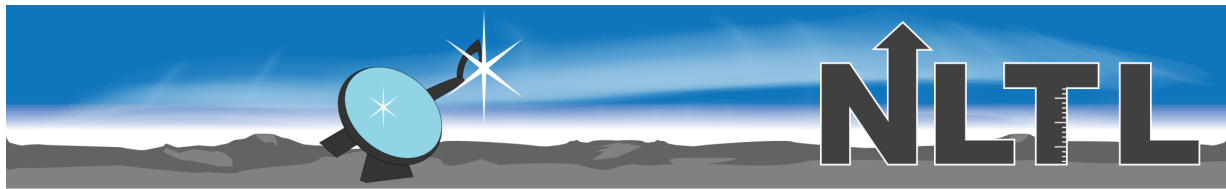
CRI Ra: 84
CRI R9: 8

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NORTHERN LIGHTS TESTING LABORATORIES

Performance Summary

Input

Watts	34.47 W
Number of Lamps	160
Lumens per Lamp	N/A
Total Lamp Lumens	N/A

Output

Output Lumens	4425.3 lm
Efficiency	N/A %
Efficacy	128.4 lm/W

Luminous Dimensions

Length	0.1 ft
Width	1.22 ft
Height	0 ft

Roadway CU

Mounting Heights	1	2	4	6	8	10
House Side CU	0.32	0.39	0.42	0.42	0.43	0.43
Street Side CU	0.44	0.53	0.56	0.56	0.56	0.57

Spacing Criterion

Two luminaires, 0°-180° plane	1.43
Two luminaires, 90°-270° plane	1.17
Four luminaires, diagonal	1.33

Full Beam Angle

0°-180° plane	88.58°
90°-270° plane	88.08°

Roadway Summary

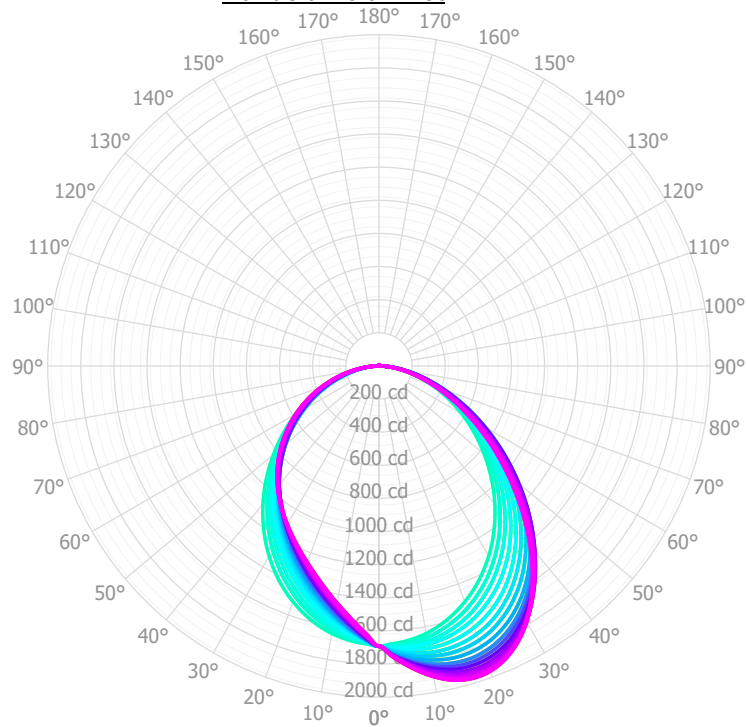
IESNA lateral classification	Type II
IESNA vertical classification	Undefined (Very Short)
Cutoff classification	Cutoff
IESNA TM-15-11 BUG Rating	B2 U2 G1
Maximum Candela	1970.46 cd 10° horizontal 17.5° vertical
Street side total	56.7%
House side total	42.9%

Luminaire Luminance

	0.00°	45.00°	90.00°
0.00°	13614	13614	13614
45.00°	13771	14620	10924
55.00°	11458	12877	9852
65.00°	9329	10887	8680
75.00°	7402	8741	7346
85.00°	5597	6567	5942



Candela Polar Plot



Zonal Lumen Summary

Zone	Lumens	% Fixture	Zone	Lumens	% Fixture
0.00° - 20.00°	623	14%	60.00° - 80.00°	746	17%
0.00° - 30.00°	1314	30%	70.00° - 80.00°	266	6%
0.00° - 40.00°	2121	48%	80.00° - 90.00°	75	2%
0.00° - 60.00°	3589	81%	90.00° - 110.00°	3	0%
0.00° - 80.00°	4335	98%	90.00° - 120.00°	5	0%
0.00° - 90.00°	4410	100%	90.00° - 130.00°	6	0%
10.00° - 90.00°	4247	96%	90.00° - 150.00°	11	0%
20.00° - 40.00°	1498	34%	90.00° - 180.00°	16	0%
20.00° - 50.00°	2293	52%	110.00° - 180.00°	12	0%
40.00° - 70.00°	1948	44%	0.00° - 180.00°	4425	100%



NORTHERN LIGHTS TESTING LABORATORIES

	0.00°	5.00°	10.00°	15.00°	20.00°	25.00°	30.00°	35.00°	40.00°	45.00°	50.00°	55.00°	60.00°	65.00°	70.00°	75.00°	80.
0.00°	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69	1692.69
2.50°	1747.57	1746.84	1750.67	1753.23	1752.41	1748.48	1747.66	1747.30	1743.74	1743.10	1742.10	1732.71	1723.22	1716.47	1705.80	1697.96	1692.69
5.00°	1805.03	1804.30	1807.76	1808.68	1806.76	1800.56	1796.64	1792.99	1785.60	1780.77	1775.66	1761.62	1747.66	1735.53	1719.85	1706.08	1692.69
7.50°	1857.74	1856.74	1859.84	1859.84	1856.28	1847.80	1841.23	1833.66	1822.72	1814.33	1804.39	1785.88	1766.72	1749.12	1728.33	1708.90	1692.69
10.00°	1903.52	1902.70	1905.44	1903.43	1899.33	1888.29	1878.72	1868.32	1853.55	1840.87	1827.10	1803.66	1779.58	1757.33	1730.97	1706.44	1688.29
12.50°	1939.46	1938.45	1940.55	1938.64	1932.34	1920.76	1908.36	1895.50	1877.08	1860.29	1842.79	1815.33	1786.15	1759.25	1727.69	1697.32	1678.72
15.00°	1961.34	1960.07	1962.71	1959.43	1953.32	1940.46	1926.51	1912.37	1892.21	1872.42	1850.90	1820.08	1785.78	1753.96	1718.11	1682.73	1659.46
17.50°	1968.82	1967.27	1970.46	1966.82	1960.25	1948.03	1932.80	1917.39	1895.13	1873.88	1850.99	1816.43	1778.49	1742.28	1702.34	1662.39	1628.82
20.00°	1960.98	1959.16	1962.71	1959.43	1953.50	1941.92	1926.42	1910.82	1887.93	1864.67	1840.50	1804.75	1763.99	1723.86	1680.45	1636.31	1592.69
22.50°	1936.36	1935.72	1939.09	1936.99	1931.98	1922.58	1907.63	1891.85	1869.78	1845.52	1821.08	1784.51	1741.55	1699.14	1652.45	1604.21	1562.69
25.00°	1896.96	1896.41	1900.61	1899.88	1896.41	1888.57	1876.07	1861.39	1840.78	1816.15	1791.80	1755.51	1710.18	1666.68	1618.43	1566.27	1518.82
27.50°	1843.51	1843.06	1847.98	1848.80	1846.52	1841.23	1831.84	1819.26	1800.92	1777.03	1753.59	1718.30	1672.51	1626.82	1578.03	1524.13	1477.57
30.00°	1776.76	1776.39	1782.14	1785.05	1783.69	1782.59	1775.75	1765.90	1750.40	1729.24	1706.53	1672.61	1627.19	1579.95	1531.25	1476.16	1428.82
32.50°	1698.69	1699.60	1705.35	1709.54	1710.91	1712.28	1710.00	1702.52	1690.85	1672.06	1651.08	1620.35	1575.57	1526.69	1477.71	1423.45	1377.57
35.00°	1609.86	1612.32	1619.35	1625.00	1628.83	1633.85	1635.03	1630.56	1622.90	1607.03	1587.15	1559.70	1517.29	1467.77	1418.89	1366.27	1318.82
37.50°	1515.19	1518.39	1524.22	1533.62	1538.63	1547.48	1552.22	1550.85	1546.48	1533.98	1517.57	1492.94	1451.72	1404.57	1355.32	1303.70	1258.82
40.00°	1415.97	1419.80	1425.64	1437.04	1444.42	1455.46	1463.39	1465.67	1463.58	1455.37	1441.14	1420.26	1382.22	1335.62	1287.65	1238.13	1188.82
42.50°	1313.64	1316.74	1323.86	1336.72	1344.01	1357.69	1368.00	1376.30	1376.75	1372.47	1360.34	1341.64	1308.44	1263.76	1215.79	1168.64	1118.82
45.00°	1210.77	1213.96	1220.89	1234.75	1243.60	1257.37	1271.42	1282.36	1286.46	1285.37	1276.16	1258.74	1231.02	1188.79	1141.64	1096.95	1048.82
47.50°	1106.44	1110.91	1119.02	1130.79	1143.37	1157.33	1173.74	1186.78	1193.53	1195.36	1187.88	1173.83	1149.21	1110.81	1066.77	1024.27	982.69
50.00°	1006.12	1011.13	1016.97	1030.10	1044.24	1058.01	1075.43	1090.48	1099.05	1101.79	1098.69	1087.19	1066.04	1031.65	990.70	950.30	910.69
52.50°	909.81	914.83	920.48	932.70	947.20	960.79	978.76	993.62	1005.48	1009.95	1008.67	999.19	980.40	951.67	913.73	876.25	839.69
55.00°	817.15	821.98	827.18	838.77	852.54	865.94	882.54	898.41	912.73	918.38	919.20	910.27	894.94	870.05	836.76	801.28	767.69
57.50°	729.42	733.43	737.99	748.57	761.34	774.74	789.79	807.57	820.43	828.64	829.55	823.08	809.49	788.97	759.60	728.23	696.69
60.00°	644.24	648.16	653.26	663.02	674.61	688.56	702.33	717.65	731.61	740.73	742.73	737.81	726.04	708.44	683.63	656.00	628.69
62.50°	565.07	567.99	573.46	580.76	592.53	605.93	619.16	632.38	645.51	655.09	657.28	653.72	644.24	628.64	608.30	585.14	562.69
65.00°	490.24	493.15	496.45	504.12	514.20	526.65	539.08	550.81	562.36	572.10	575.56	573.28	563.68	550.73	534.84	515.26	496.69
67.50°	420.94	423.32	426.59	433.10	441.73	451.97	463.40	474.94	483.56	492.04	496.03	495.31	487.78	477.01	463.61	448.00	432.69
70.00°	354.49	358.20	361.07	366.20	373.09	382.53	392.35	402.37	410.70	417.19	420.71	420.21	415.90	405.93	395.67	383.09	370.69
72.50°	294.03	297.78	299.00	302.67	309.49	316.24	326.07	333.64	341.44	347.74	350.95	350.34	347.01	339.29	330.64	321.86	311.69
75.00°	238.20	240.53	243.08	245.37	250.84	256.58	263.08	270.79	276.76	281.28	284.72	285.39	282.26	277.09	269.26	262.91	256.69
77.50°	186.19	188.25	191.61	193.75	196.15	201.77	206.85	211.89	217.03	220.98	223.18	223.83	222.39	218.22	213.22	207.48	203.69
80.00°	139.81	140.51	142.97	145.47	147.32	150.38	154.93	159.05	162.86	165.90	167.18	167.67	167.43	164.61	161.03	157.31	154.69
82.50°	98.26	98.51	99.34	101.76	104.13	105.60	107.46	110.73	113.81	115.54	117.40	117.80	116.75	115.35	113.80	111.49	109.69
85.00°	60.65	60.78	61.79	62.80	63.86	66.07	67.67	68.98	70.00	71.16	72.19	72.84	72.98	72.03	71.20	70.08	69.69

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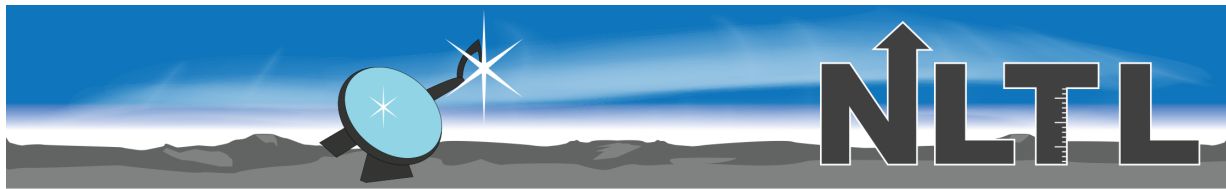
Coefficients of Utilization – Zonal Cavity Method

Values are lumens delivered to the workplane.

	pfc	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	0.00%
	pcc	80.00%	80.00%	80.00%	70.00%	70.00%	70.00%	50.00%	50.00%	30.00%	30.00%	30.00%	10.00%	10.00%	10.00%	0.00%
	pw	70.00%	50.00%	30.00%	70.00%	50.00%	30.00%	50.00%	30.00%	50.00%	30.00%	0.00%	50.00%	30.00%	10.00%	0.00%
	0.00	5265	5265	5265	5140	5140	5140	4908	4908	4696	4696	4696	4501	4501	4501	4410
	1.00	4827	4623	4440	4706	4521	4355	4331	4194	4156	4044	3893	3994	3905	3822	3729
	2.00	4404	4050	3758	4287	3966	3697	3807	3581	3660	3472	3232	3525	3370	3231	3136
	3.00	4027	3573	3222	3917	3502	3177	3369	3091	3246	3009	2722	3131	2931	2760	2664
	4.00	3696	3178	2799	3594	3118	2764	3006	2698	2902	2636	2327	2805	2576	2386	2291
RCR	5.00	3405	2848	2459	3312	2798	2433	2703	2381	2615	2332	2016	2532	2285	2086	1993
	6.00	3150	2571	2183	3065	2529	2162	2448	2121	2373	2082	1767	2302	2044	1843	1752
	7.00	2925	2337	1956	2848	2301	1939	2231	1906	2167	1874	1566	2106	1843	1642	1555
	8.00	2726	2136	1766	2656	2105	1752	2046	1725	1990	1699	1400	1938	1674	1476	1392
	9.00	2549	1964	1606	2486	1937	1594	1886	1572	1837	1550	1261	1792	1529	1336	1256
	10.00	2392	1814	1469	2335	1791	1459	1747	1441	1704	1423	1145	1665	1405	1218	1141

Cone of Light

Mounting Height	Beam Center Light Level	0°-180° Beam Width	90°-270° Beam Width
8 m	26 lx	16 m	15 m
10 m	17 lx	20 m	19 m
12 m	12 lx	24 m	23 m
14 m	9 lx	28 m	27 m
20 m	4 lx	40 m	39 m
25 m	3 lx	50 m	48 m
30 m	2 lx	60 m	58 m



NORTHERN LIGHTS TESTING LABORATORIES

Integrating Sphere Information:

Sphere Equipment:

SL-300 Integrating Sphere

Yokogawa WT210 - Power Meter

Thermo Recorder TR-71W

Chroma 6408, AC power source

Calibration Due: 2/3/2025

Sphere Test:

Output test: HP3-P-D-4ft-V-835-DAO

24.6°C, 22RH%

119.98 Vac, 34.465W

Stable per LM-79 Standard

Spectrum Range: 380-780 nm

Scan Step: 1 nm

Test Info

Manufacturer - Kenall Manufacturing

Model: HP3-P-D-4ft-V-835-DAO

Sample: HP3-P-D-4ft-V-835-DAO

Test Info

Model: HP3 (REF# 23178235)

Sample: HP3-P-D-4ft-V-835-DAO

Manufacturer: Kenall Manufacturing

Test Date: 01-29-2025

Temperature: 24.6° C

Humidity: 22%

Spectrum Range: 380 - 780 nm

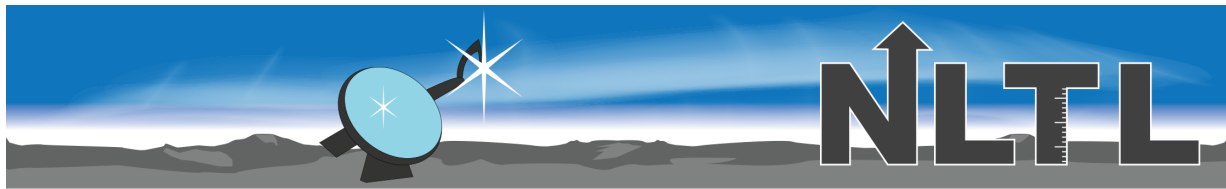
Scan Step: 1 nm

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NORTHERN LIGHTS TESTING LABORATORIES

Goniometry Information:

Goniometer Equipment:

GMS2000 Type C Goniophotometer

Yokogawa WT210 - Power meter

(x3) J Type Thermocouples/Agilent 34970A data acquisition unit

GW Instek APS-7100E - AC power source

Calibration Check Due: 3/5/2025

Goniometer Test:

Distribution Test: HP3-P-D-4ft-V-835-DAO

24.2 °C, 22RH%

119.98 Vac, 34.465W

Stable per LM-79 Standard