Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled data based on original data using

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P821165

Luminaire Tested: **TT-D4-830-24VDC-MQ-HSS**

Issue Date: 12/2/2020

Report Generated By 670245763

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P821165
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-017-1)
Test Lab:	INNOVATION CENTER
Issue Date:	12/2/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D4-830-24VDC-MQ-HSS
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3000K, 80 CRI LEDS AND MEDIUM DISTRIBUTION WITH HOUSE SIDE SHIELD
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5998.1 lumens
Efficiency:	N/A
Efficacy:	105.2 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type IV - Short
BUG Rating:	B2 - U2 - G2

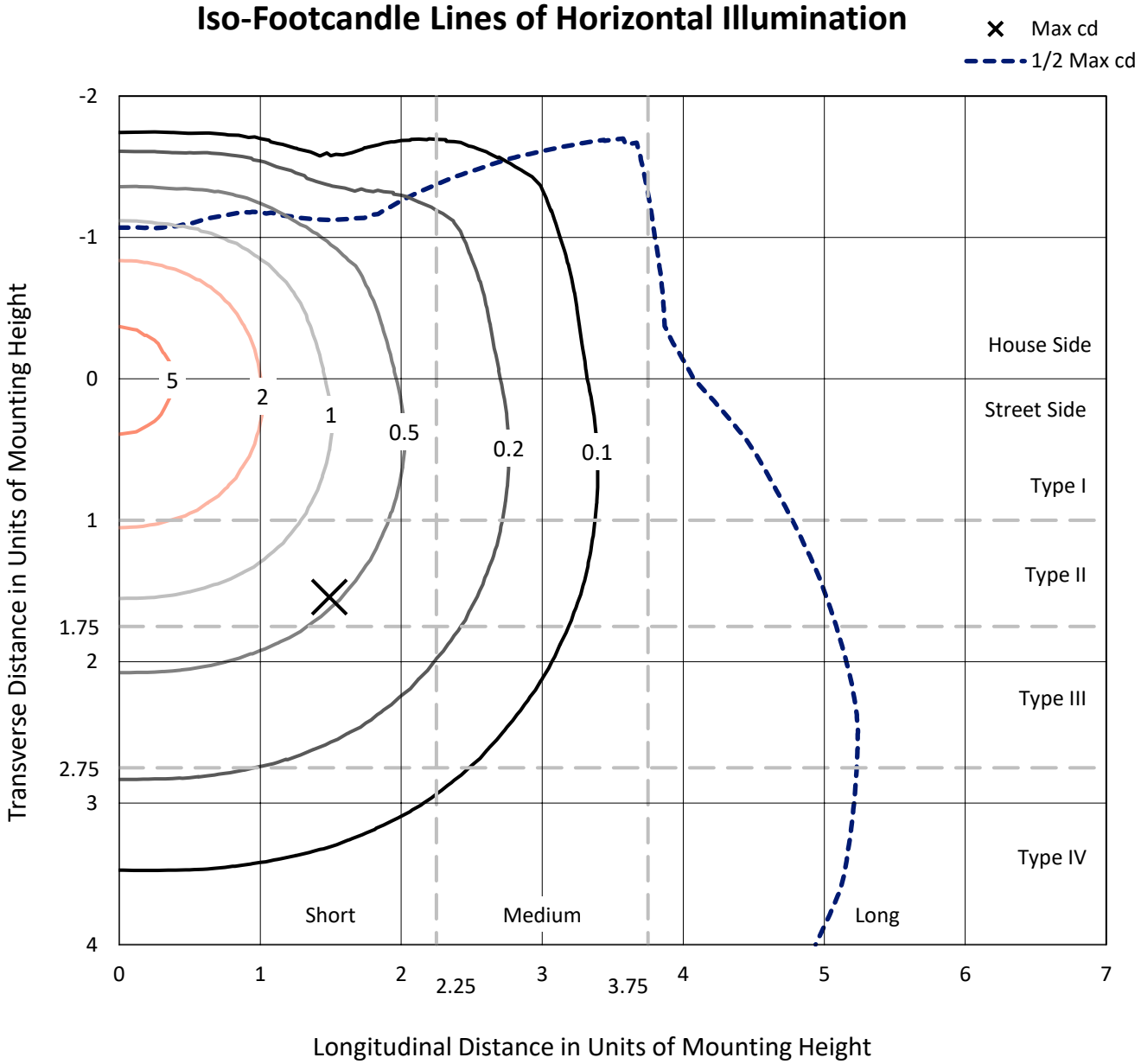
Input Watts (W):	57
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

Iso-Footcandle Lines of Horizontal Illumination



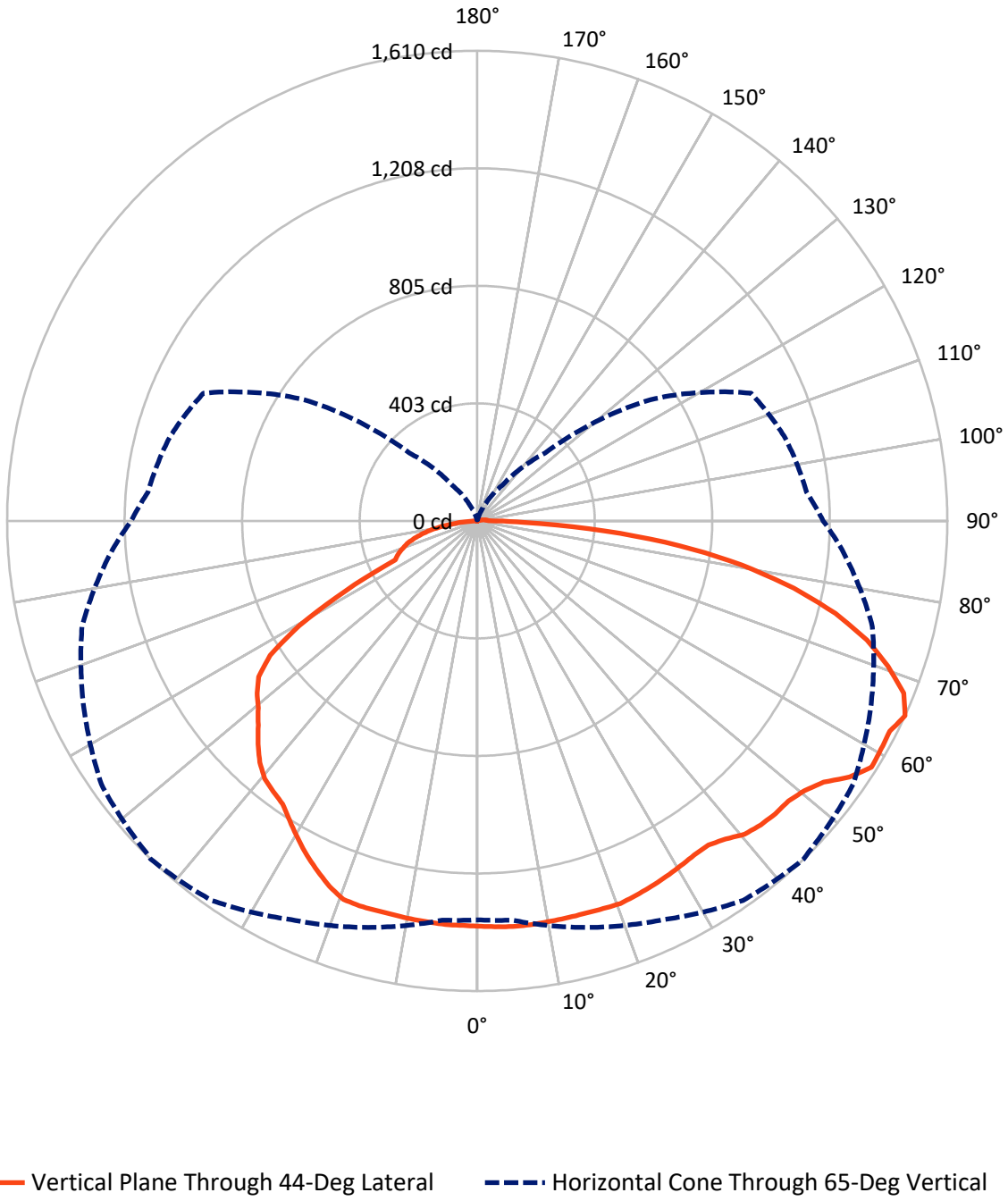
Based on 15 foot mounting height. Maximum calculated value = 6.2 fc
Type IV - Short - N/A

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

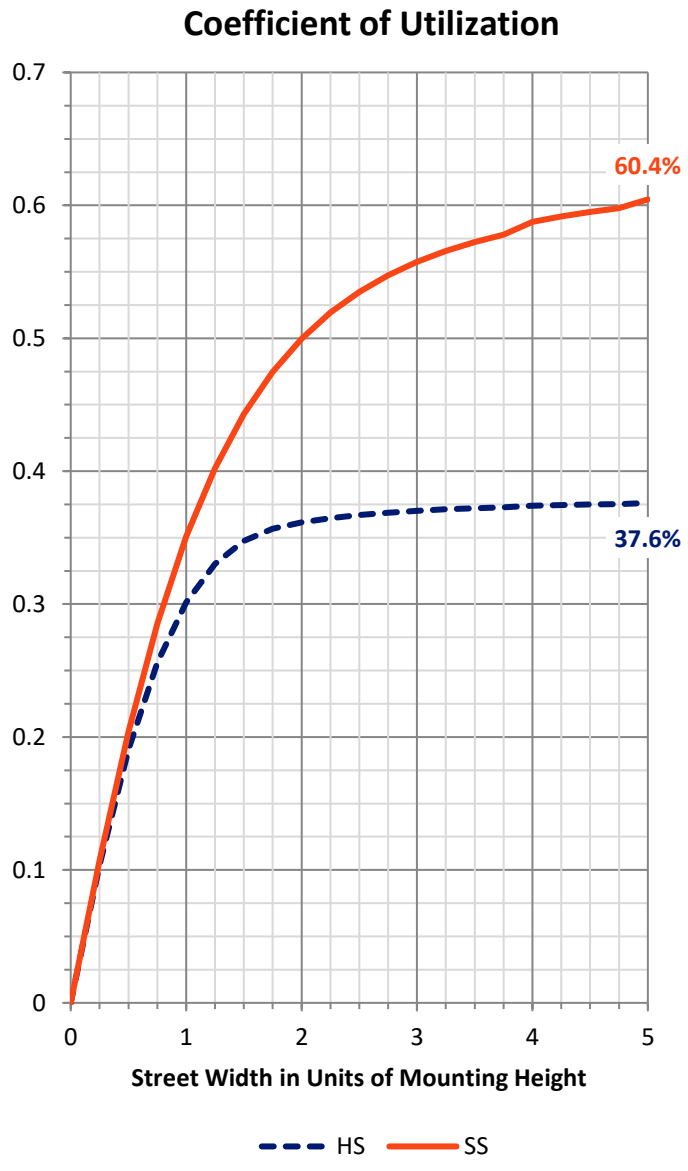
REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2271.1	1.6	2272.8
	% Fixture	37.9	0.0	37.9
Street Side	Lumens	3705.0	20.4	3725.4
	% Fixture	61.8	0.3	62.1
Total	Lumens	5976.1	22.1	5998.1
	% Fixture	99.6	0.4	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	132.6	2.2
10°-20°	392.5	6.5
20°-30°	624.6	10.4
30°-40°	800.3	13.3
40°-50°	948.1	15.8
50°-60°	1038.3	17.3
60°-70°	987.0	16.5
70°-80°	785.8	13.1
80°-90°	267.0	4.5
90°-100°	14.1	0.2
100°-110°	4.6	0.1
110°-120°	1.0	0.0
120°-130°	0.7	0.0
130°-140°	0.5	0.0
140°-150°	0.5	0.0
150°-160°	0.4	0.0
160°-170°	0.2	0.0
170°-180°	0.1	0.0
0°-90°	5976.1	99.6
0°-180°	5998.1	100.0



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

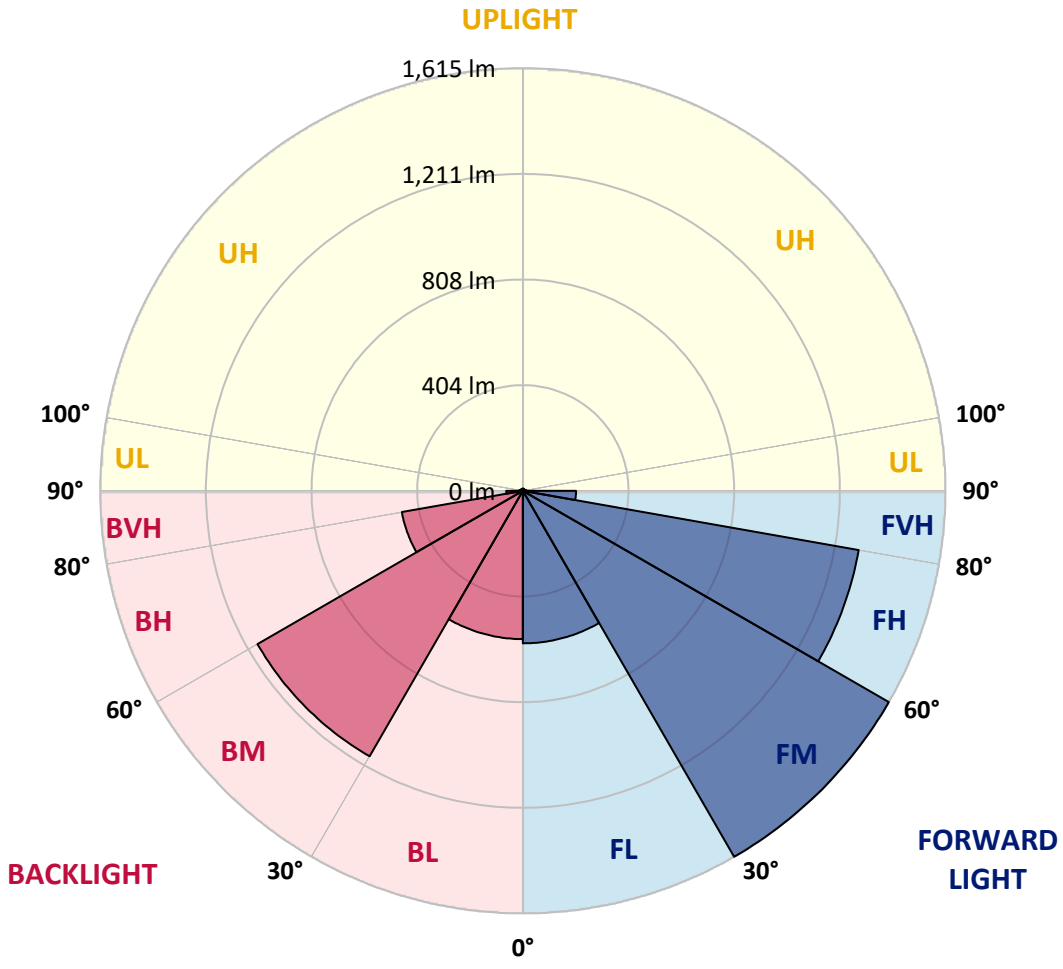
Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	583.0	9.7			
FM	(30°-60°)	1615.2	26.9			
FH	(60°-80°)	1303.4	21.7			G1/1800
FVH	(80°-90°)	203.3	3.4			G2/225
BL	(0°-30°)	566.7	9.4	B2/1000		
BM	(30°-60°)	1171.5	19.5	B2/2500		
BH	(60°-80°)	469.3	7.8	B1/500		G1/500
BVH	(80°-90°)	63.6	1.1			G1/100
UL	(90°-100°)	14.1	0.2		U2/50	
UH	(100°-180°)	8.0	0.1		U1/10	

BUG Rating: B2-U2-G2
Type IV Short



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
0°	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5
2.5°	1393.8	1392.7	1392.7	1392.7	1392.7	1391.7	1392.7	1390.6	1391.7	1388.5	1388.5
5°	1397.0	1394.9	1395.9	1395.9	1395.9	1394.9	1395.9	1392.7	1393.8	1389.6	1388.5
7.5°	1398.0	1397.0	1397.0	1397.0	1397.0	1394.9	1395.9	1393.8	1392.7	1389.6	1387.4
10°	1398.0	1397.0	1397.0	1397.0	1395.9	1393.8	1394.9	1391.7	1391.7	1387.4	1385.3
12.5°	1398.0	1397.0	1398.0	1395.9	1395.9	1393.8	1393.8	1390.6	1390.6	1385.3	1383.2
15°	1397.0	1395.9	1395.9	1397.0	1395.9	1393.8	1393.8	1390.6	1389.6	1383.2	1381.1
17.5°	1395.9	1394.9	1395.9	1397.0	1398.0	1395.9	1397.0	1391.7	1389.6	1383.2	1380.0
20°	1397.0	1395.9	1397.0	1399.1	1399.1	1399.1	1399.1	1393.8	1389.6	1383.2	1377.9
22.5°	1393.8	1393.8	1393.8	1393.8	1395.9	1392.7	1392.7	1389.6	1384.3	1379.0	1373.7
25°	1386.4	1386.4	1387.4	1388.5	1388.5	1386.4	1385.3	1382.1	1377.9	1371.5	1365.2
27.5°	1377.9	1377.9	1379.0	1379.0	1381.1	1379.0	1377.9	1373.7	1369.4	1362.0	1354.6
30°	1368.4	1368.4	1368.4	1370.5	1371.5	1371.5	1370.5	1365.2	1359.9	1351.4	1341.9
32.5°	1357.8	1357.8	1360.9	1363.1	1364.1	1364.1	1364.1	1357.8	1351.4	1340.8	1327.0
35°	1349.3	1349.3	1353.5	1360.9	1365.2	1363.1	1362.0	1357.8	1348.2	1336.6	1314.3
37.5°	1354.6	1354.6	1364.1	1374.7	1384.3	1382.1	1382.1	1374.7	1362.0	1342.9	1315.4
40°	1367.3	1368.4	1383.2	1397.0	1408.6	1410.8	1410.8	1402.3	1383.2	1358.8	1320.7
42.5°	1370.5	1372.6	1387.4	1407.6	1418.2	1423.5	1423.5	1411.8	1391.7	1363.1	1318.5
45°	1370.5	1371.5	1388.5	1409.7	1426.7	1430.9	1430.9	1418.2	1392.7	1365.2	1311.1
47.5°	1370.5	1369.4	1384.3	1413.9	1430.9	1434.1	1434.1	1420.3	1395.9	1360.9	1300.5
50°	1367.3	1372.6	1394.9	1418.2	1447.9	1452.1	1451.0	1436.2	1402.3	1366.2	1292.0
52.5°	1374.7	1373.7	1403.3	1450.0	1476.5	1486.0	1487.1	1468.0	1433.0	1381.1	1286.7
55°	1405.5	1406.5	1435.1	1489.2	1529.5	1547.5	1545.4	1521.0	1471.2	1410.8	1301.6
57.5°	1416.1	1426.7	1468.0	1514.6	1576.1	1592.0	1592.0	1562.3	1501.9	1434.1	1312.2
60°	1394.9	1399.1	1450.0	1529.5	1585.6	1588.8	1589.9	1568.7	1505.1	1421.4	1291.0
62.5°	1389.6	1398.0	1437.3	1526.3	1562.3	1585.6	1584.6	1556.0	1501.9	1411.8	1283.6
65°	1366.2	1372.6	1441.5	1507.2	1586.7	1610.0	1604.7	1571.9	1488.1	1401.2	1260.2
67.5°	1318.5	1324.9	1388.5	1480.7	1552.8	1575.0	1580.3	1542.2	1455.3	1351.4	1210.4
70°	1239.0	1248.6	1313.2	1403.3	1479.6	1492.4	1490.2	1466.9	1380.0	1268.7	1137.3
72.5°	1127.8	1142.6	1224.2	1310.1	1375.8	1394.9	1386.4	1359.9	1288.9	1169.1	1037.7
75°	1010.1	1023.9	1088.5	1185.0	1253.9	1266.6	1260.2	1228.4	1156.4	1038.7	920.0
77.5°	881.9	893.5	948.6	1047.2	1098.1	1108.7	1111.9	1069.5	1001.6	895.6	789.6
80°	709.1	714.4	788.6	853.2	897.8	919.0	916.8	885.0	817.2	729.2	623.2
82.5°	523.6	527.8	585.1	640.2	680.5	699.5	688.9	657.2	603.1	527.8	447.3
85°	321.2	313.7	360.4	401.7	426.1	438.8	428.2	410.2	362.5	303.1	247.0
87.5°	115.5	109.2	130.4	136.7	164.3	160.0	169.6	136.7	110.2	78.4	55.1
90°	50.9	50.9	49.8	47.7	43.5	39.2	38.2	31.8	23.3	14.8	5.3
92.5°	46.6	46.6	45.6	43.5	39.2	35.0	35.0	28.6	21.2	13.8	5.3
95°	39.2	39.2	38.2	36.0	32.9	29.7	29.7	23.3	18.0	11.7	4.2
97.5°	30.7	30.7	29.7	28.6	25.4	23.3	23.3	19.1	13.8	8.5	3.2
100°	23.3	23.3	22.3	21.2	20.1	18.0	17.0	13.8	10.6	6.4	2.1
102.5°	17.0	17.0	17.0	15.9	13.8	12.7	12.7	10.6	7.4	5.3	2.1
105°	11.7	11.7	11.7	10.6	9.5	8.5	8.5	7.4	5.3	3.2	1.1
107.5°	7.4	7.4	7.4	7.4	6.4	5.3	5.3	4.2	3.2	2.1	1.1
110°	4.2	3.2	4.2	4.2	4.2	3.2	3.2	2.1	2.1	1.1	1.1

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	44°	45°	55°	65°	75°	85°
112.5°	2.1	2.1	2.1	2.1	2.1	*2.1*	2.1	1.1	1.1	1.1	1.1
115°	1.1	1.1	1.1	2.1	2.1	*1.1*	1.1	1.1	1.1	1.1	1.1
117.5°	0.0	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
120°	0.0	0.0	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
122.5°	0.0	0.0	0.0	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
125°	0.0	0.0	0.0	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
127.5°	0.0	0.0	0.0	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
130°	0.0	0.0	0.0	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
132.5°	0.0	0.0	0.0	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
135°	0.0	0.0	0.0	0.0	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
137.5°	0.0	0.0	0.0	0.0	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
140°	0.0	1.1	1.1	0.0	0.0	*1.1*	1.1	1.1	1.1	1.1	1.1
142.5°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
145°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
147.5°	1.1	1.1	0.0	0.0	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
150°	1.1	1.1	1.1	0.0	0.0	*1.1*	1.1	1.1	1.1	1.1	1.1
152.5°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
155°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
157.5°	1.1	1.1	1.1	0.0	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
160°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
162.5°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
165°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
167.5°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
170°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
172.5°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
175°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
177.5°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1
180°	1.1	1.1	1.1	1.1	1.1	*1.1*	1.1	1.1	1.1	1.1	1.1

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5	1388.5
2.5°	1388.5	1387.4	1386.4	1387.4	1386.4	1386.4	1385.3	1385.3	1384.3	1384.3	1383.2
5°	1388.5	1387.4	1386.4	1387.4	1385.3	1386.4	1386.4	1385.3	1384.3	1383.2	1382.1
7.5°	1387.4	1387.4	1385.3	1386.4	1384.3	1384.3	1383.2	1383.2	1382.1	1382.1	1381.1
10°	1385.3	1384.3	1384.3	1384.3	1382.1	1382.1	1381.1	1380.0	1380.0	1379.0	1377.9
12.5°	1383.2	1382.1	1381.1	1381.1	1380.0	1379.0	1377.9	1377.9	1376.8	1375.8	1374.7
15°	1380.0	1379.0	1379.0	1379.0	1377.9	1377.9	1376.8	1375.8	1373.7	1372.6	1371.5
17.5°	1379.0	1377.9	1379.0	1379.0	1377.9	1379.0	1376.8	1374.7	1372.6	1371.5	1370.5
20°	1377.9	1377.9	1377.9	1376.8	1375.8	1374.7	1373.7	1372.6	1371.5	1370.5	1369.4
22.5°	1372.6	1371.5	1369.4	1363.1	1355.6	1350.3	1349.3	1351.4	1351.4	1351.4	1348.2
25°	1363.1	1359.9	1351.4	1339.7	1327.0	1318.5	1313.2	1313.2	1312.2	1310.1	1309.0
27.5°	1351.4	1345.0	1330.2	1315.4	1297.3	1286.7	1274.0	1266.6	1263.4	1262.4	1260.2
30°	1335.5	1326.0	1306.9	1287.8	1265.5	1250.7	1230.6	1217.8	1210.4	1207.2	1205.1
32.5°	1316.4	1306.9	1284.6	1261.3	1234.8	1213.6	1188.2	1168.0	1154.3	1147.9	1144.7
35°	1303.7	1289.9	1264.5	1236.9	1210.4	1179.7	1149.0	1121.4	1100.2	1092.8	1088.5
37.5°	1298.4	1285.7	1258.1	1230.6	1200.9	1163.8	1127.8	1088.5	1059.9	1047.2	1043.0
40°	1301.6	1285.7	1254.9	1225.3	1190.3	1149.0	1101.3	1052.5	1015.4	997.4	993.1
42.5°	1294.2	1276.1	1240.1	1208.3	1164.9	1118.2	1059.9	1003.7	953.9	939.1	932.7
45°	1281.4	1259.2	1220.0	1179.7	1134.1	1076.9	1016.5	944.4	885.0	867.0	861.7
47.5°	1268.7	1238.0	1191.4	1154.3	1099.1	1032.4	961.3	880.8	806.6	788.6	785.4
50°	1249.6	1221.0	1171.2	1127.8	1071.6	994.2	913.7	813.0	729.2	698.5	690.0
52.5°	1241.2	1204.1	1156.4	1122.5	1054.6	966.6	864.9	756.8	636.0	597.8	589.3
55°	1249.6	1203.0	1152.1	1119.3	1040.8	931.7	806.6	668.8	528.9	488.6	477.0
57.5°	1234.8	1194.5	1143.7	1106.6	1004.8	859.6	721.8	544.8	399.6	347.7	343.4
60°	1215.7	1158.5	1110.8	1076.9	929.6	723.9	561.8	387.9	240.6	196.1	187.6
62.5°	1208.3	1149.0	1093.8	1052.5	828.9	532.1	342.4	196.1	99.6	70.0	63.6
65°	*1185.0*	*1132.0*	*1092.8*	*1034.5*	*723.9*	*328.6*	*147.3*	*58.3*	*4.2*	*3.2*	*3.2*
67.5°	1140.5	1086.4	1059.9	1026.0	713.3	313.7	133.5	53.0	2.1	0.0	0.0
70°	1064.2	1021.8	1003.7	985.7	682.6	290.4	121.9	47.7	1.1	0.0	0.0
72.5°	963.5	934.8	931.7	929.6	638.1	268.2	109.2	42.4	1.1	0.0	0.0
75°	862.8	827.8	833.1	845.8	583.0	237.4	94.3	37.1	1.1	0.0	0.0
77.5°	735.6	710.1	722.9	744.1	510.9	201.4	77.4	29.7	1.1	0.0	0.0
80°	578.7	561.8	590.4	609.5	417.6	160.0	58.3	21.2	0.0	0.0	0.0
82.5°	411.2	401.7	428.2	452.6	310.6	113.4	40.3	13.8	0.0	0.0	0.0
85°	221.5	216.2	241.7	268.2	186.5	64.7	20.1	6.4	0.0	0.0	0.0
87.5°	55.1	50.9	51.9	62.5	45.6	13.8	3.2	1.1	0.0	0.0	0.0
90°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.5°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
100°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
102.5°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105°	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
110°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821165
CATALOG NUMBER: TT-D4-830-24VDC-MQ-HSS

CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
112.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
115°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
117.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
120°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
122.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
125°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
127.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
130°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
135°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
140°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
145°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
147.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
150°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
155°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
160°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
162.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
165°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
167.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
170°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
172.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
175°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
177.5°	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0	0.0
180°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

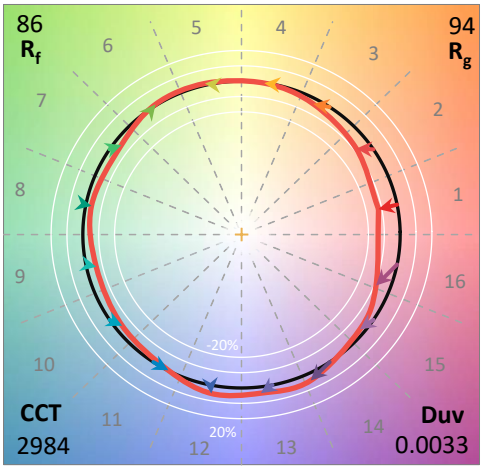
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-7
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/27/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-VA-30-830-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	2984	CRI (Ra):	81.8		
CIE u':	0.2500	R1:	79.4	R9:	-1.1
CIE v':	0.5264	R2:	89.9	R10:	78.4
Duv:	0.0033	R3:	96.6	R11:	80.8
CIE x:	0.4431	R4:	80.6	R12:	72.8
CIE y:	0.4147	R5:	80.1	R13:	81.7
CIE z:	0.1422	R6:	88.9	R14:	98.5
Peak Wavelength (nm):	601	R7:	82.6	R15:	70.2
Dominant Wavelength (nm):	581	R8:	56.0		
Purity:	57.4798				

Rf:	85.8
Rg:	94.1



Test Conditions

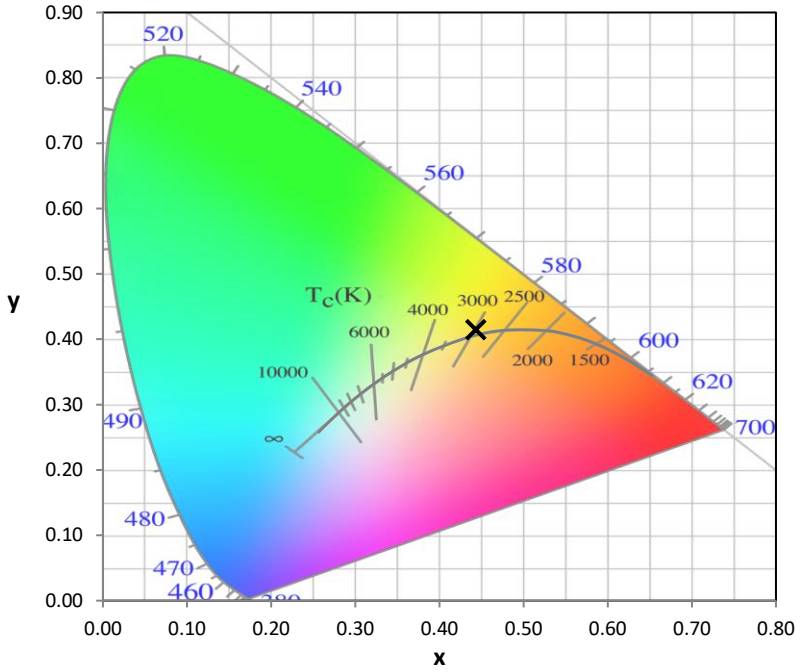
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

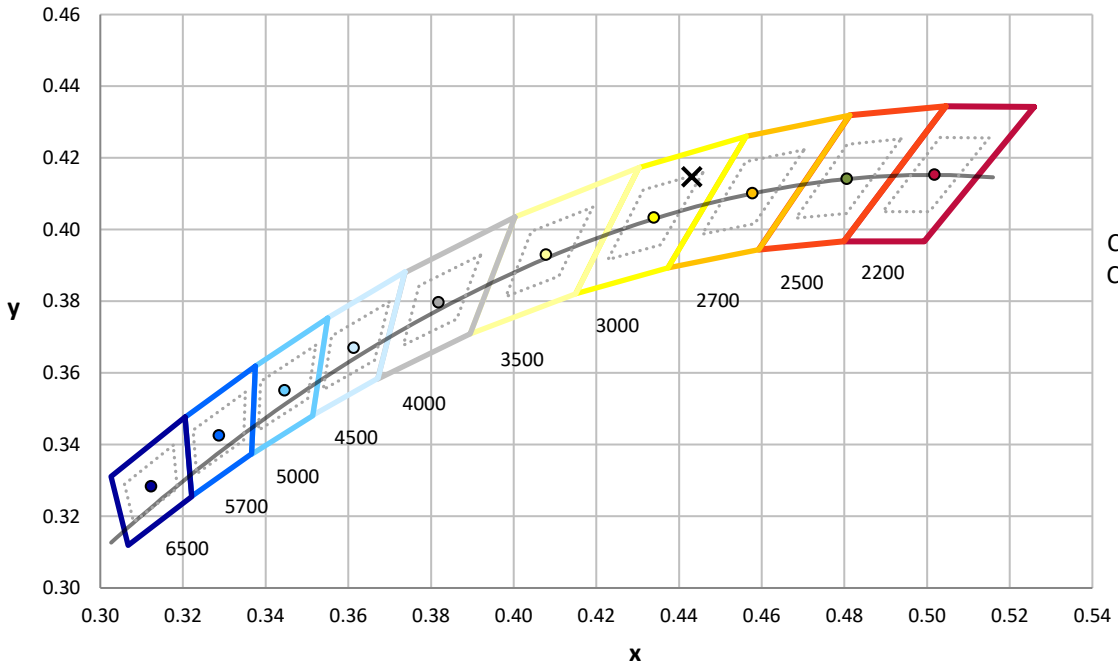
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-176-7

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles

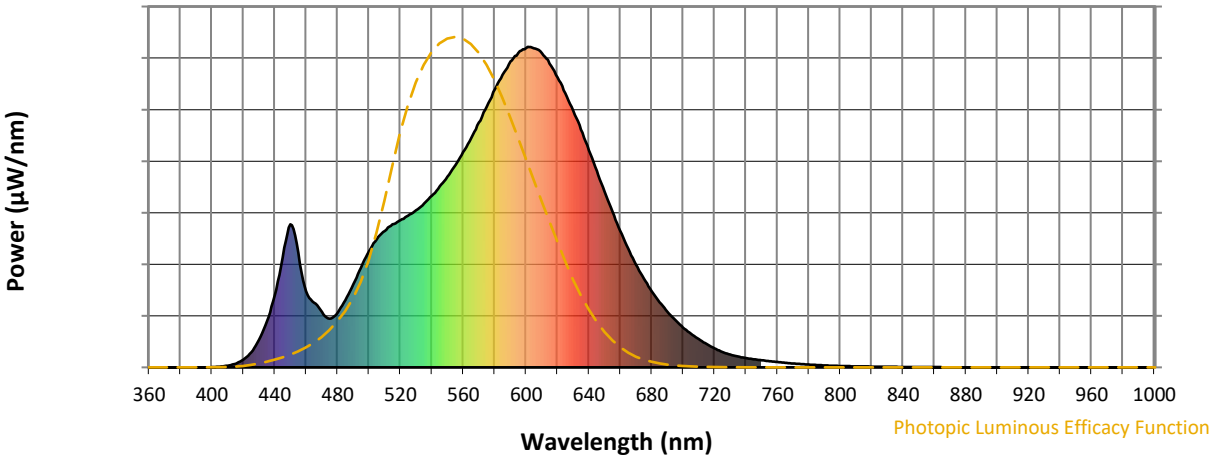


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

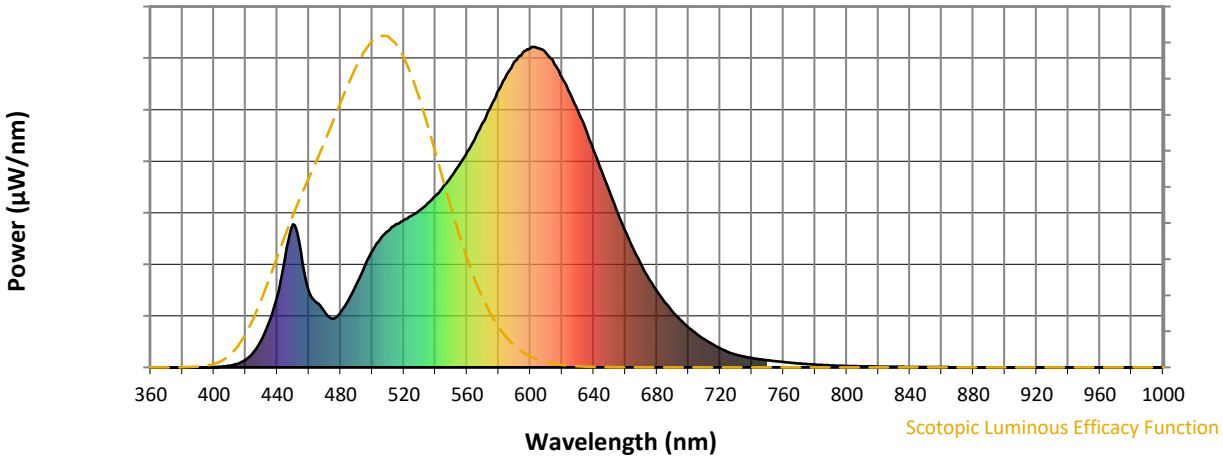


Photopic Lumens: NR

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Scotopic Flux vs. Wavelength

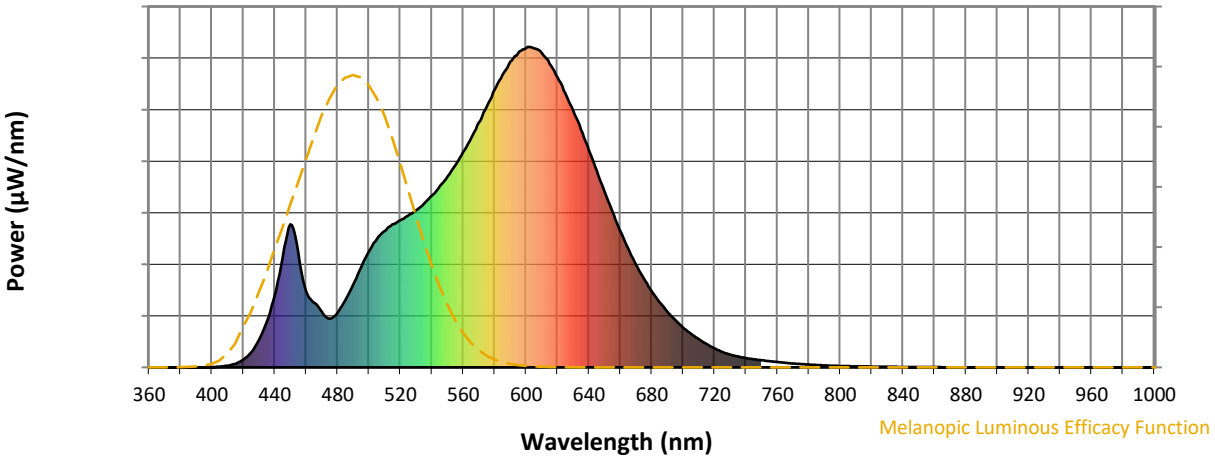


Scotopic Lumens: NR **S/P: 1.32**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.51**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

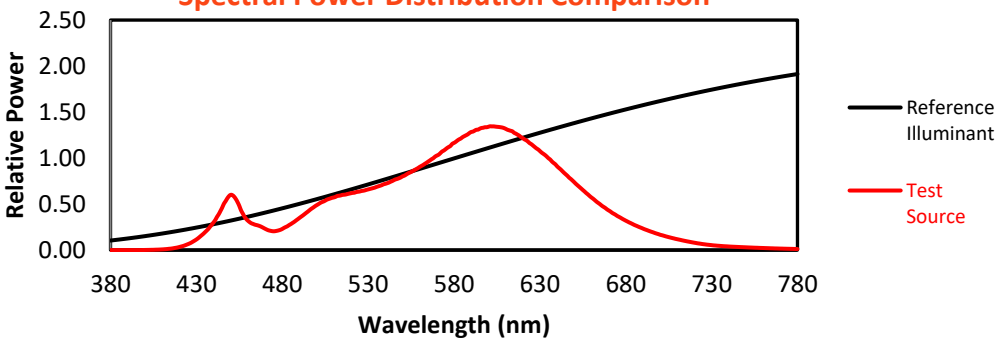
REPORT NUMBER: SP1-2407-176-7

TM-30-18

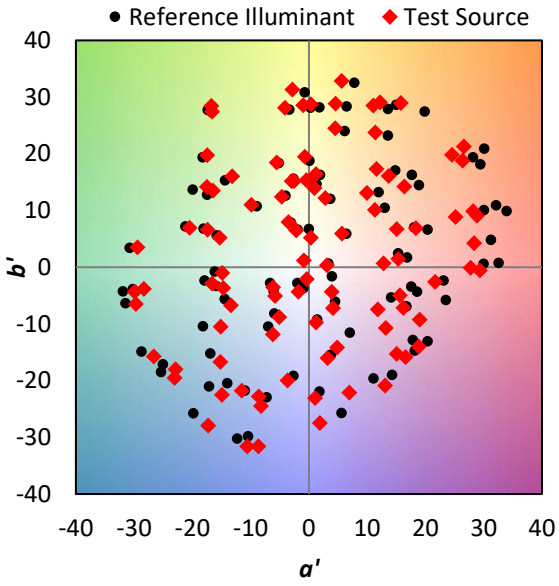
Summary

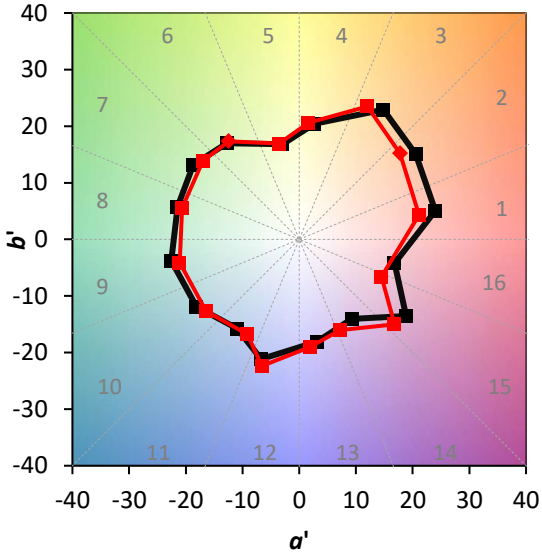
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

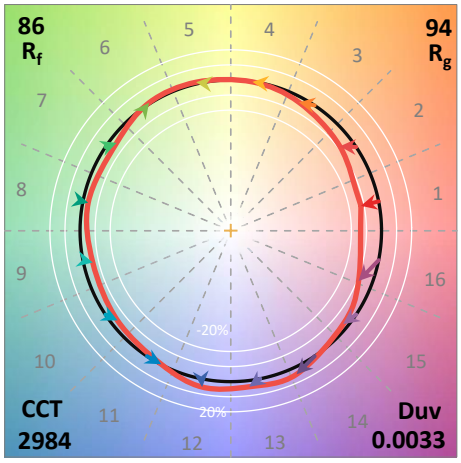
Spectral Power Distribution Comparison

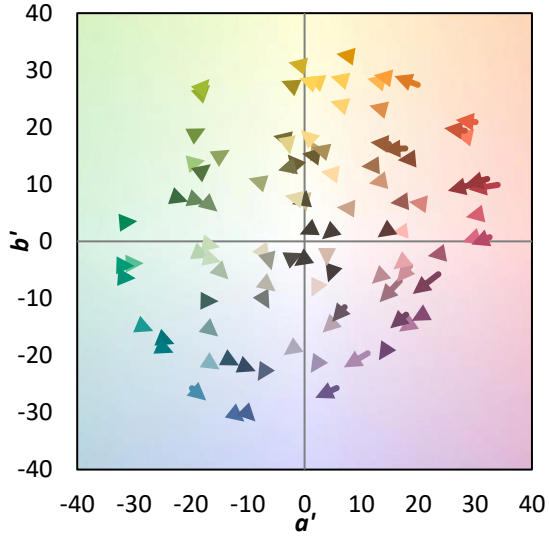


Color Vector Graphics







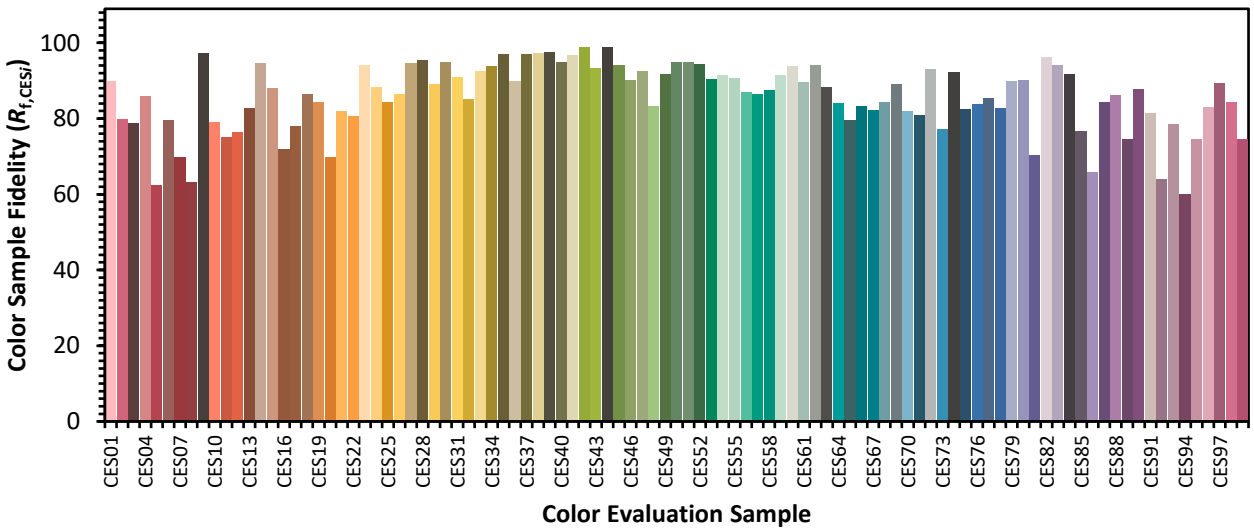


REPORT NUMBER: SP1-2407-176-7

TM-30-18

Individual Sample Fidelity Index ($R_{f,i}$)

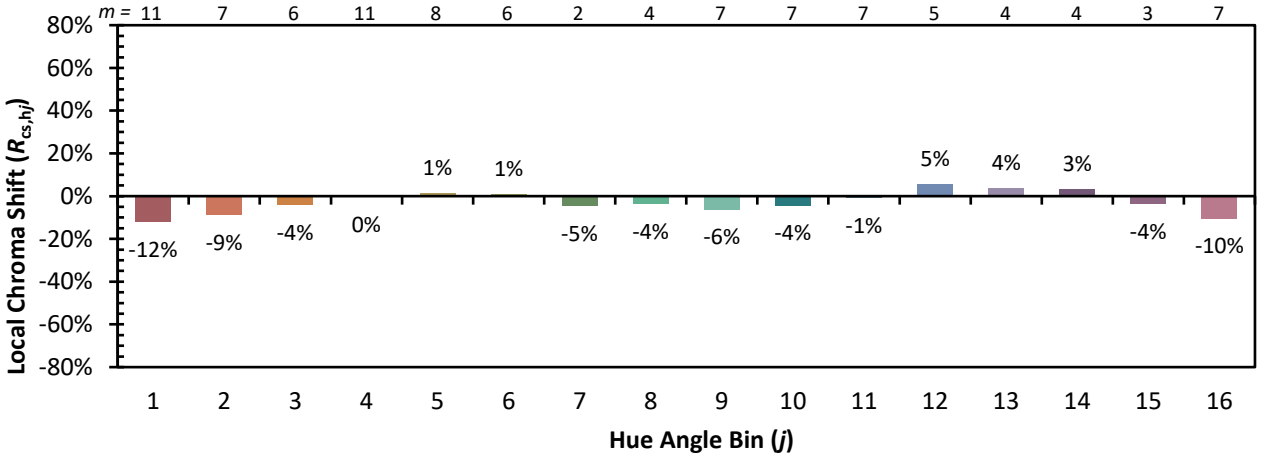
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 93	CES58 = 87	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 94	CES85 = 77
CES11 = 59	CES36 = 90	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 97	CES62 = 94	CES87 = 84
CES13 = 43	CES38 = 97	CES63 = 88	CES88 = 86
CES14 = 74	CES39 = 98	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 80	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 83	CES91 = 81
CES17 = 50	CES42 = 99	CES67 = 82	CES92 = 64
CES18 = 56	CES43 = 93	CES68 = 84	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 60
CES20 = 67	CES45 = 94	CES70 = 82	CES95 = 74
CES21 = 87	CES46 = 90	CES71 = 81	CES96 = 83
CES22 = 79	CES47 = 93	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 84
CES24 = 91	CES49 = 92	CES74 = 92	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 83	

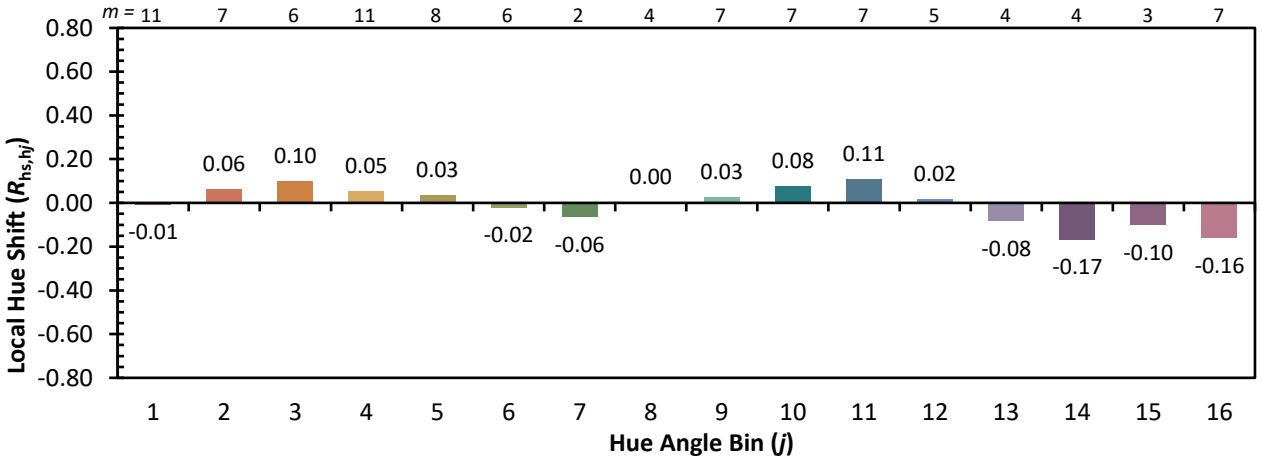


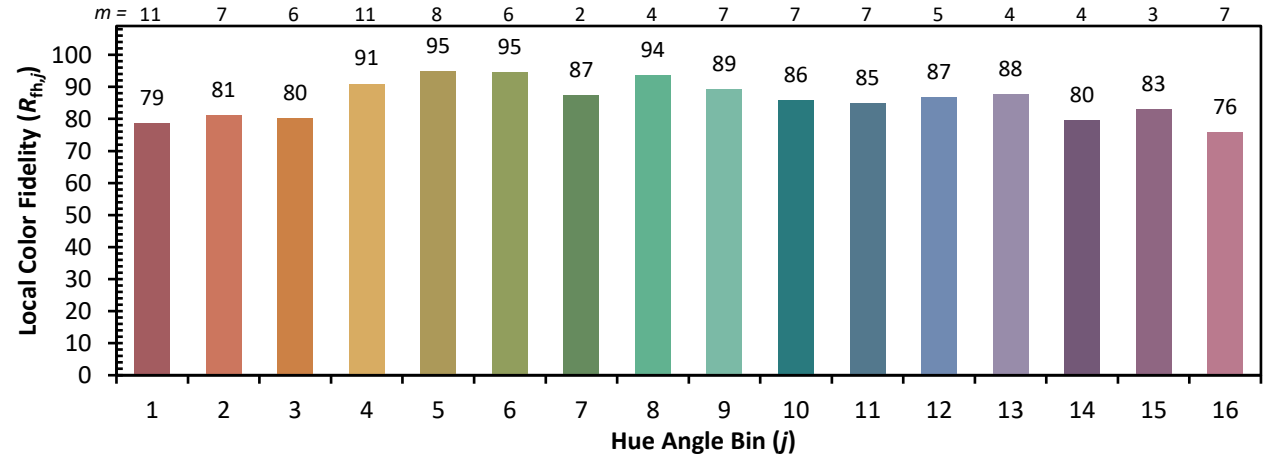
REPORT NUMBER: SP1-2407-176-7

TM-30-18

Color Rendition by Hue-Angle Bin



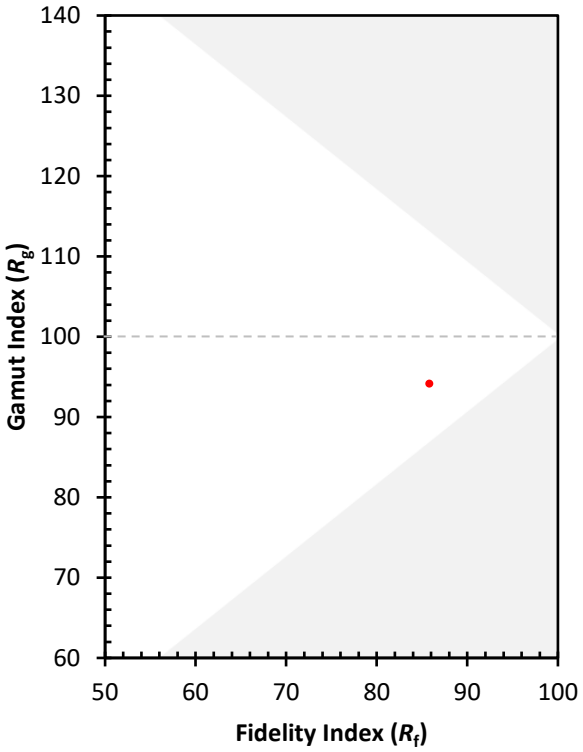


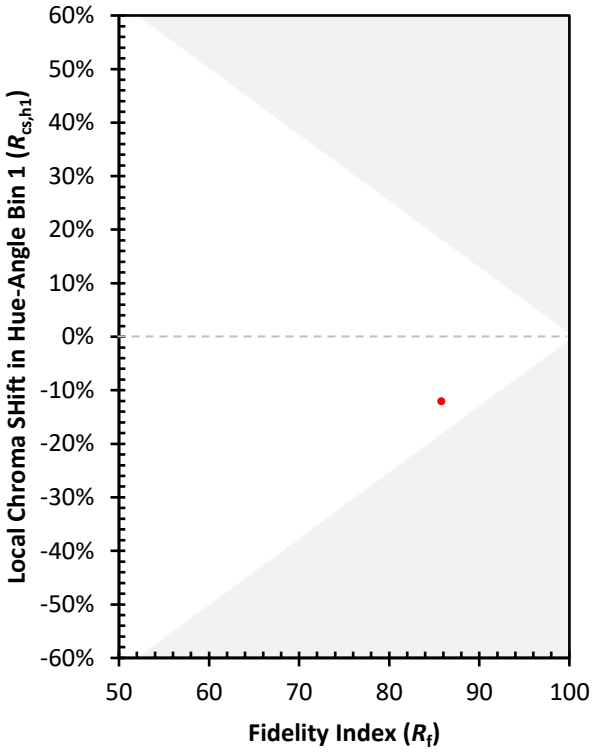


REPORT NUMBER: SP1-2407-176-7

TM-30-18

Measure Comparisons





(END OF REPORT)