



**IES INDOOR REPORT**

**PHOTOMETRIC FILENAME : PANEL2X2-41YN-D10 - PROPRATED FROM ITL80217.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST]SCALED FROM ITL80217  
 [TESTLAB]SCALED PHOTOMETRY  
 [ISSUE DATE]12/19/13  
 [MANUFAC]RAB LIGHTING, INC.  
 [LUMCAT]PANEL2X2-41YN/D10(0-10V DIMMING DRIVER)  
 [LUMINAIRE]FABRICATED WHITE PAINTED METAL HOUSING, 2 WHITE CIRCUIT  
 [MORE]BOARDS EACH WITH 120 LEDS, FROSTED HOLOGRAPHIC PLASTIC  
 [MORE]DIFFUSER. DIFFUSER FROSTED SIDE UP.  
 [LAMP]TWO HUNDRED FORTY WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL  
 [MORE]BASE-UP POSITION.  
 [OTHER]TOTAL INPUT WATTS = 41.1 AT 120.0 VOLTS  
 [\_ MOUNTING]RECESSED  
 [\_ LEDDRIVER]RAB RD-052-A1050-C-080C  
 [\_ NOTE]DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT  
 [MORE]VOLTAGE (120VAC, 60Hz) TO THE LED DRIVER.  
 [OTHER]TEST PROCEDURE: IESNA LM-79-08  
 [OTHER]TEST DISTANCE = 35.0 FEET  
 [\_ ABSOLUTE LUMENS]3768

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3768
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	92
Total Luminaire Watts	41.1
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.84 ft
Luminous Width (90-270)	1.84 ft
Luminous Height	0.00 ft

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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3943	3948	3939
55	3670	3676	3693
65	3326	3350	3357
75	2779	2805	2818
85	1628	1628	1628

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**CANDELA TABULATION**

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
<b>0.0</b>	1426.150	1426.150	1426.150	1426.150	1426.150
<b>2.5</b>	1424.076	1425.113	1425.113	1425.113	1424.076
<b>5.0</b>	1418.890	1419.927	1419.927	1419.927	1418.890
<b>7.5</b>	1409.555	1410.592	1410.592	1410.592	1410.592
<b>10.0</b>	1397.108	1398.146	1398.146	1398.146	1397.108
<b>12.5</b>	1379.476	1380.513	1380.513	1380.513	1379.476
<b>15.0</b>	1357.695	1359.769	1359.769	1359.769	1358.732
<b>17.5</b>	1333.839	1334.876	1334.876	1334.876	1333.839
<b>20.0</b>	1306.872	1306.872	1307.909	1307.909	1306.872
<b>22.5</b>	1276.793	1275.756	1275.756	1275.756	1274.719
<b>25.0</b>	1241.528	1241.528	1241.528	1241.528	1240.491
<b>27.5</b>	1204.189	1203.152	1203.152	1204.189	1203.152
<b>30.0</b>	1163.738	1162.701	1162.701	1163.738	1161.664
<b>32.5</b>	1120.176	1119.139	1119.139	1121.213	1119.139
<b>35.0</b>	1074.539	1073.502	1073.502	1075.576	1073.502
<b>37.5</b>	1027.865	1025.791	1026.828	1027.865	1026.828
<b>40.0</b>	978.080	978.080	978.080	979.117	978.080
<b>42.5</b>	928.294	927.257	929.331	929.331	927.257
<b>45.0</b>	876.434	877.471	877.471	878.508	875.397
<b>47.5</b>	823.537	823.537	824.574	824.574	822.500
<b>50.0</b>	770.640	770.640	771.677	771.677	771.677
<b>52.5</b>	715.668	716.705	716.705	717.742	719.817
<b>55.0</b>	661.734	663.808	662.771	662.771	665.882
<b>57.5</b>	606.762	608.836	608.836	608.836	610.911
<b>60.0</b>	551.790	553.865	553.865	553.865	555.939
<b>62.5</b>	496.819	498.893	499.930	498.893	500.968
<b>65.0</b>	441.847	443.922	444.959	443.922	445.996
<b>67.5</b>	386.876	388.950	388.950	387.913	391.024
<b>70.0</b>	332.941	335.016	335.016	333.978	337.090
<b>72.5</b>	279.007	281.081	281.081	280.044	283.156
<b>75.0</b>	226.110	228.184	228.184	227.147	229.221
<b>77.5</b>	175.287	176.324	177.361	177.361	178.398
<b>80.0</b>	127.576	127.576	128.613	129.650	129.650
<b>82.5</b>	84.013	82.976	82.976	84.013	84.013
<b>85.0</b>	44.600	43.562	44.600	44.600	44.600
<b>87.5</b>	15.558	15.558	15.558	15.558	15.558
<b>90.0</b>	0.000	0.000	0.000	0.000	0.000

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : PANEL2X2-41YN-D10 - PROPRATED FROM ITL80217.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	518.09	N.A.	13.70
0-30	1089.61	N.A.	28.90
0-40	1761.33	N.A.	46.70
0-60	3030.59	N.A.	80.40
0-80	3711.8	N.A.	98.50
0-90	3768.28	N.A.	100.00
10-90	3633.46	N.A.	96.40
20-40	1243.24	N.A.	33.00
20-50	1919.56	N.A.	50.90
40-70	1708.67	N.A.	45.30
60-80	681.21	N.A.	18.10
70-80	241.80	N.A.	6.40
80-90	56.48	N.A.	1.50
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	3768.28	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	134.81
10-20	383.28
20-30	571.52
30-40	671.72
40-50	676.32
50-60	592.94
60-70	439.42
70-80	241.80
80-90	56.48
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

**IES INDOOR REPORT**

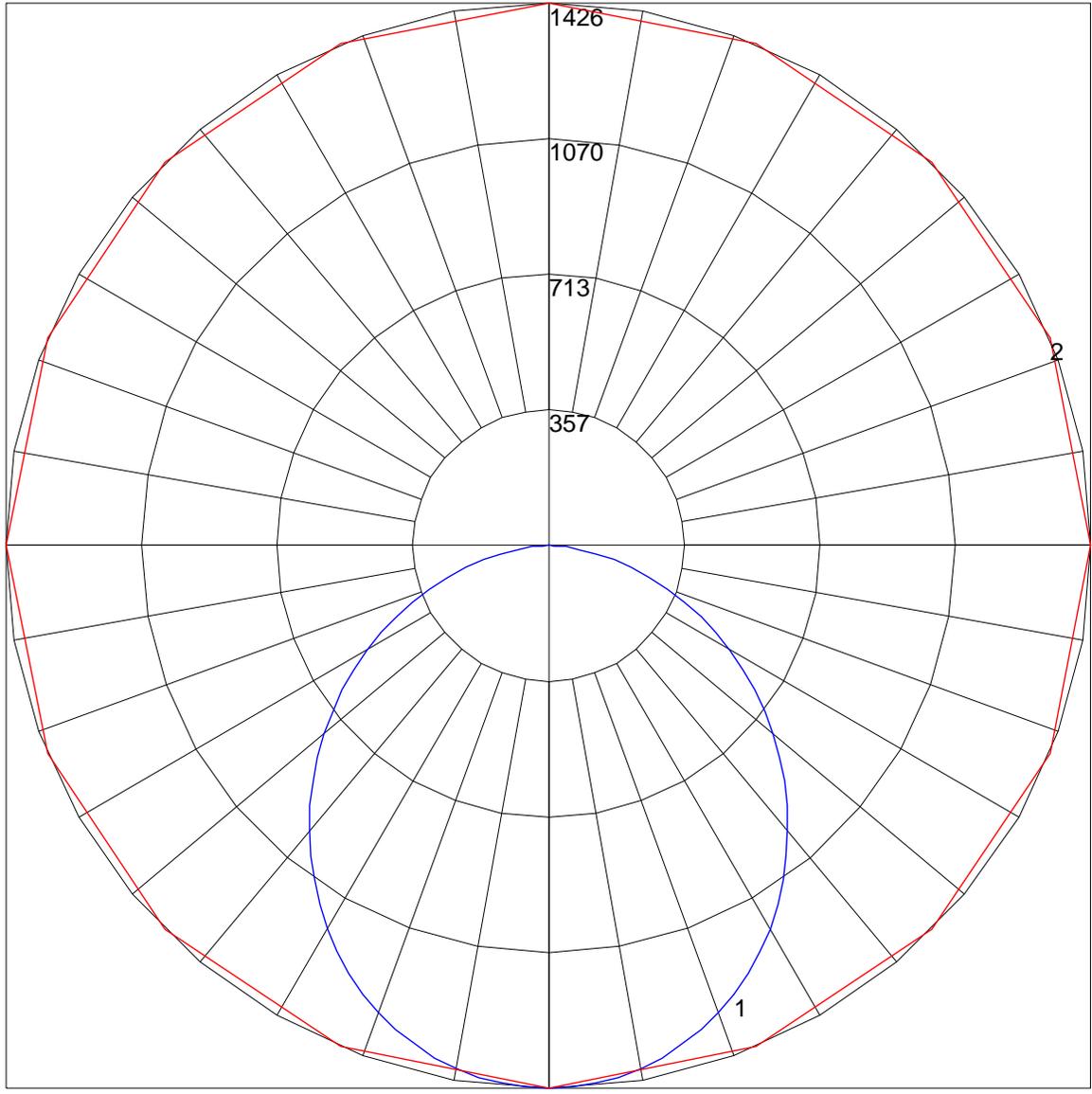
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	85	79	97	89	83	78	86	81	76	83	78	74	80	76	73	71
3	91	80	72	66	88	79	71	65	76	69	64	73	68	63	70	66	62	60
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	58	53	51
5	77	64	55	48	74	63	54	48	61	53	48	59	52	47	57	51	47	44
6	71	58	49	42	69	57	48	42	55	47	42	53	46	41	52	46	41	39
7	66	52	44	37	64	51	43	37	50	42	37	48	42	37	47	41	37	35
8	61	48	39	33	60	47	39	33	46	38	33	44	38	33	43	37	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	34	30	40	34	30	28
10	54	40	33	27	52	40	32	27	39	32	27	38	32	27	37	31	27	25

POLAR GRAPH



Maximum Candela = 1426.15 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)



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REPORT NUMBER: ITL80220  
DATE: 12/27/13  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: PANEL2X2-41YN

ADDRESS: 170 LUDLOW AVE  
NORTHVALE, NJ 07647

LUMINAIRE: FABRICATED WHITE PAINTED METAL HOUSING, 2 WHITE CIRCUIT BOARDS EACH WITH 120 LEDS, FROSTED HOLOGRAPHIC PLASTIC DIFFUSER. DIFFUSER FROSTED SIDE UP.

LAMP: TWO HUNDRED FORTY WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: RAB RD-052-A1050-R-080C

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120.0 AND 277.0 VAC, 60Hz) TO THE LED DRIVER.

INSTRUMENTS: Associated Power Technologies APT5010 AC Power Source Calibration Due: N/A  
Yokogawa WT210 Digital Power Meter #6 10/31/14  
Ocean Optics QE65000 Spectroradiometer 10/17/14  
ITL 1.5m Diameter Integrating Sphere S15-2, 4PI Geometry 10/17/14

OBJECT OF TEST: Measure the Total Radiant Flux\*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI<sub>a</sub>,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample. Report Off-State Power. Measure electrical data including Total Harmonic Distortion (THD) at maximum rated voltage.

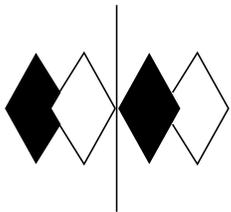
PROCEDURE: The test sample was provided by the customer and had an unknown number of operating hours. The test sample was mounted inside the integrating sphere and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 120.0 VAC input. Electrical data was also recorded at maximum nominal rated input voltage (277.0 VAC). All testing performed in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology. Off-State Power was reported with no voltage applied to the sample.

\*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

RESULTS: (continued subsequent pages)

THIS ITL REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.

Checked	<i>N THOMAS</i>
Approved	<i>L GRABA</i>
	Lighting Engineer

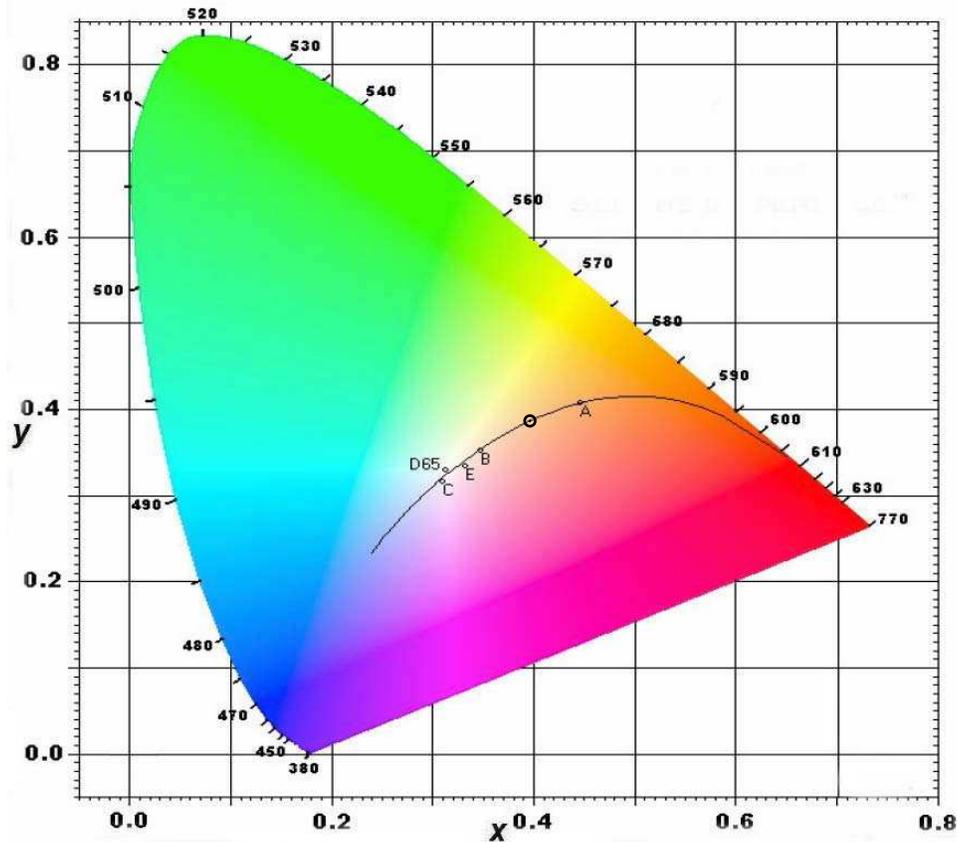


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## CIE Chromaticity Diagram





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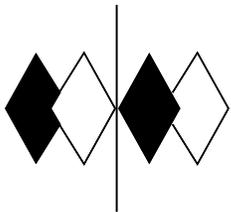
RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3961
Chromaticity Ordinate y	0.3862
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2316
Chromaticity Ordinate v'	0.5080
Correlated Color Temp CCT (K)	3673
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	11745 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.331
Input Power (Watts)	39.5
Input Power Factor (%)	99.4
Input Current THD (%)	6.5
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.157
Input Power (Watts)	40.3
Input Power Factor (%)	92.7
Input Current THD (%)	9.4
Input Voltage THD (%)	0.3

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	84
R1 Light greyish red	83
R2 Dark greyish yellow	89
R3 Strong yellowish green	92
R4 Moderate yellowish green	84
R5 Light bluish green	83
R6 Light blue	84
R7 Light violet	89
R8 Light reddish purple	72
R9 Strong red	29
R10 Strong yellow	73
R11 Strong green	82
R12 Strong blue	63
R13 Light yellowish pink (skin)	84
R14 Moderate olive green (leaf)	95

\*NOTE:

Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.



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### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.406	515	37.188	650	42.688
385	0.431	520	39.932	655	39.590
390	0.488	525	42.164	660	36.522
395	0.578	530	44.138	665	33.440
400	0.696	535	45.949	670	30.487
405	1.027	540	47.685	675	27.645
410	1.511	545	49.415	680	24.956
415	2.296	550	51.197	685	22.450
420	3.955	555	52.925	690	20.143
425	6.796	560	54.637	695	18.023
430	11.472	565	56.151	700	16.075
435	18.496	570	57.623	705	14.271
440	30.447	575	58.894	710	12.612
445	48.746	580	59.983	715	11.154
450	58.238	585	60.839	720	9.807
455	47.424	590	61.419	725	8.635
460	34.112	595	61.705	730	7.584
465	26.695	600	61.654	735	6.656
470	20.834	605	61.328	740	5.830
475	16.865	610	60.555	745	5.114
480	15.744	615	59.384	750	4.480
485	16.436	620	57.880	755	3.930
490	18.561	625	55.980	760	3.453
495	22.045	630	53.874	765	3.033
500	26.130	635	51.356	770	2.658
505	30.234	640	48.611	775	2.335
510	33.946	645	45.673	780	2.051

