

Test Report

Report Number: L20101

Date: Jan 21, 2021

Issued by:

Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one High Bay

Unit manufacturer: Dialight Corporation

Unit model number: L[C,E,F,W][D,U]-[L,Z]UN-[2,8]Cx-xxx-xx

Issued to:

Dialight Corporation
1501 Route 34 South, Farmingdale, NJ 07727

Tests performed: Photometric characterization and temperature measurement per the described standards.

Dates of test: November 23, 2020 through November 24, 2020

Standards used: All tests are performed in accordance with procedures and guidelines prescribed by the American National Standards Institute (ANSI) or Illuminating Engineering Society of North America (IES):

- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

Description of sample:

Sample Number: L20101

Manufacturer: Dialight Corporation

Product Name: High Bay

Description: High Bay

Model Number: L[C,E,F,W][D,U]-[L,Z]UN-[2,8]Cx-xxx-xx

Report Summary

Sample number L20101

Dialight unit model number L[C,E,F,W][D,U]-[L,Z]UN-[2,8]Cx-xxx-xx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	17255 (lumens)	16816 (lumens)
Electrical Power:	151.4 (W)	150.8 (W)
Luminous Efficacy:	114 (lumens/W)	111.5 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 151.4 (W)
 Power Factor (120VAC): 0.994993
 Current ATHD % (120VAC): 5.18547
 Input Power (277VAC): 146.8 (W)
 Power Factor (277VAC): 0.9472
 Current ATHD % (277VAC): 9.72

Color Measurements:

Correlated Color Temperature (CCT): 3921
 Color Rendering Index (CRI): 84.1681
 Chromaticity Coordinate (x): 0.384
 Chromaticity Coordinate (y): 0.379
 Chromaticity Coordinate (u'): 0.226
 Chromaticity Coordinate (v'): 0.336
 DUV: 0.0002

Temperature Measurements:

In Situ LED Source Temperature: 55.9 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L20101.

Dialight unit model number L[C,E,F,W][D,U]-[L,Z]UN-[2,8]Cx-xxx-xx

Test Conditions:

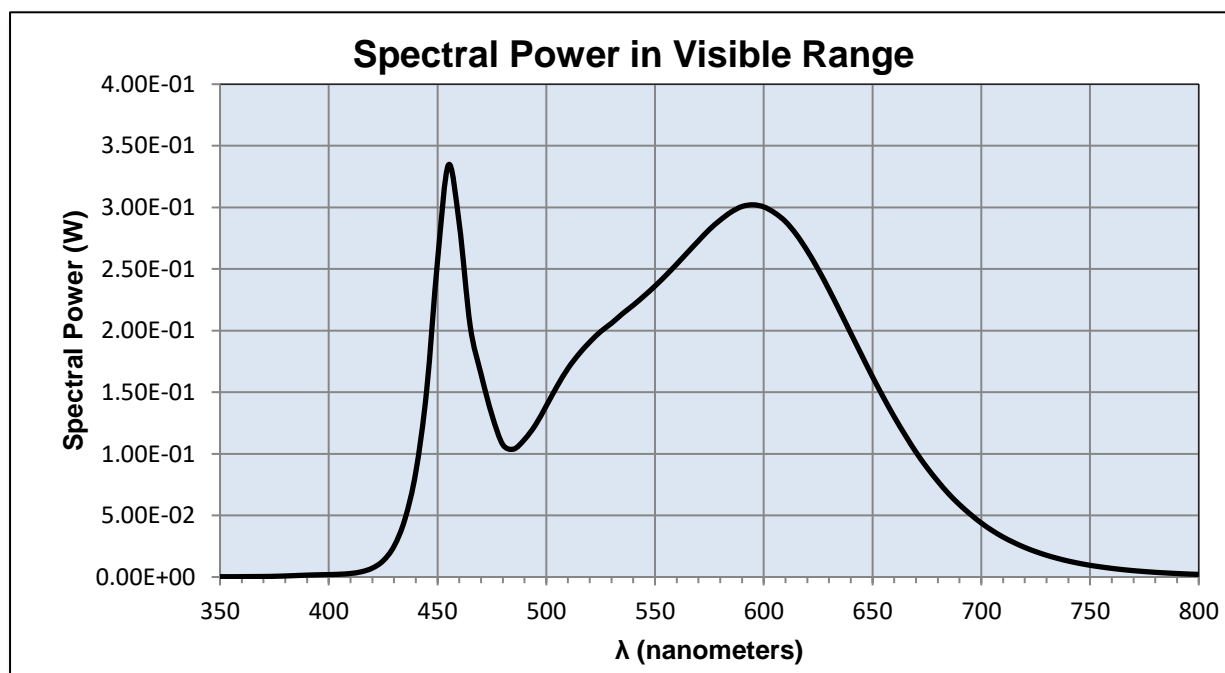
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 119.651 (VAC)
Input Current: 1.27189 (A)
Input Power: 151.4 (W)
Input Power Factor: 0.994993
Current ATHD: 5.18547 (%)

Photometric measurements:

Luminous Flux: 17255.28 (lumens)
Luminous Efficacy: 114.0 (lumens/W)
Correlated Color Temperature (CCT): 3921 (K)
CRI -Ra: 84.1681
CRI -R9: 14.7485
DUV: 0.0002
CIE Coordinate (x): 0.384
CIE Coordinate (y): 0.379
CIE Coordinate (u'): 0.226
CIE Coordinate (v'): 0.336
TM30_Rf: 81.8
TM30_Rg: 93.5
TM30_Rcs_hue1: -11.46 %



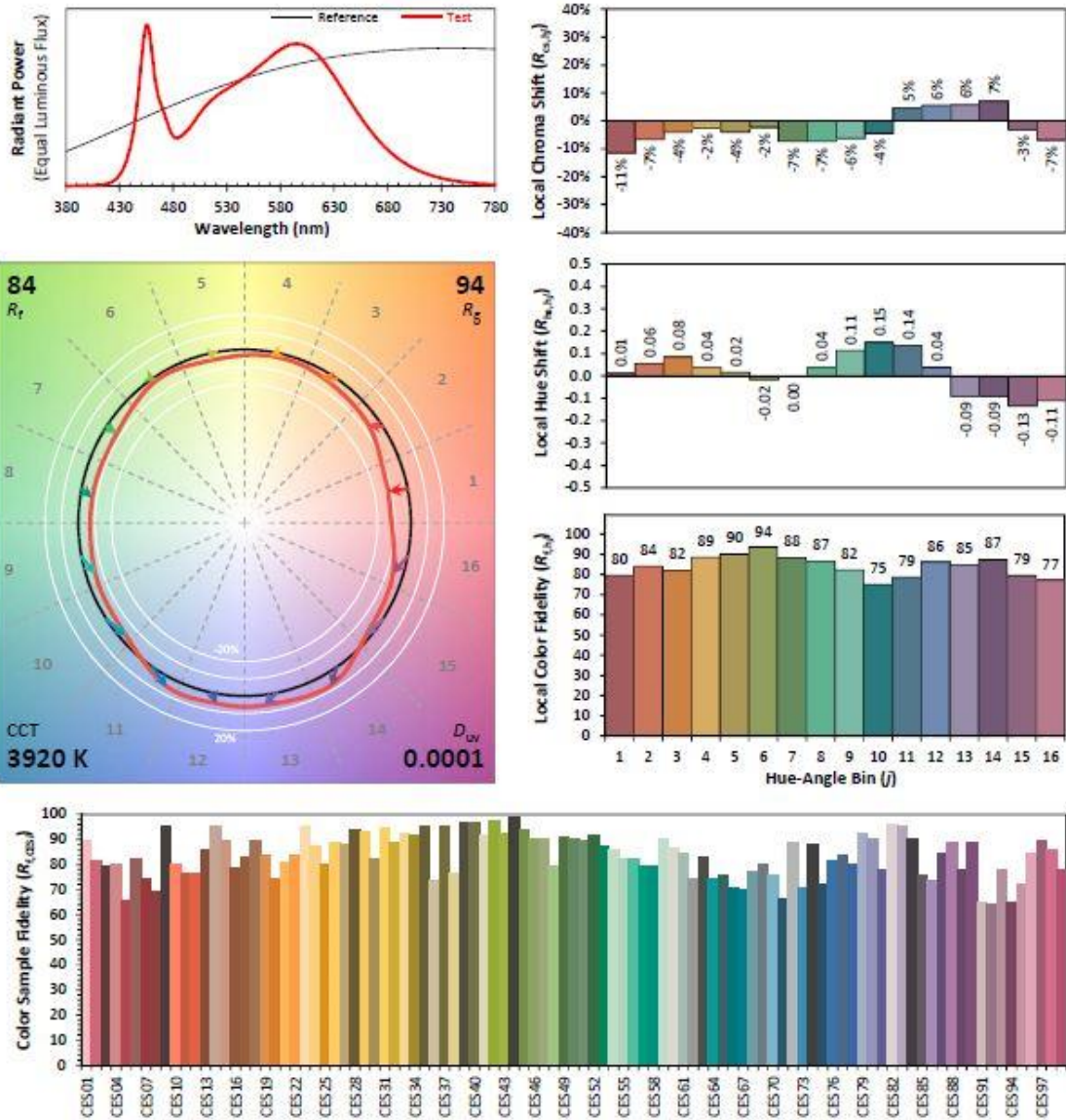
Test Results: Integrating Sphere

Results continued from previous page.

Tabulated Spectral Power in Visible Range:

$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)
350	0.00027	490	0.11166	630	0.23320	770	0.00517
355	0.00025	495	0.12335	635	0.21570	775	0.00445
360	0.00031	500	0.13895	640	0.19781	780	0.00383
365	0.00039	505	0.15496	645	0.18010	785	0.00330
370	0.00044	510	0.16938	650	0.16252	790	0.00284
375	0.00061	515	0.18097	655	0.14586	795	0.00245
380	0.00086	520	0.19072	660	0.12996	800	0.00212
385	0.00121	525	0.19924	665	0.11523		
390	0.00154	530	0.20599	670	0.10133		
395	0.00181	535	0.21368	675	0.08895		
400	0.00200	540	0.22063	680	0.07777		
405	0.00227	545	0.22818	685	0.06757		
410	0.00288	550	0.23619	690	0.05873		
415	0.00426	555	0.24483	695	0.05091		
420	0.00721	560	0.25402	700	0.04387		
425	0.01321	565	0.26353	705	0.03777		
430	0.02500	570	0.27291	710	0.03248		
435	0.04696	575	0.28208	715	0.02798		
440	0.08506	580	0.28974	720	0.02402		
445	0.15135	585	0.29626	725	0.02064		
450	0.25658	590	0.30073	730	0.01769		
455	0.33447	595	0.30211	735	0.01516		
460	0.28647	600	0.30042	740	0.01296		
465	0.20409	605	0.29561	745	0.01112		
470	0.16481	610	0.28848	750	0.00952		
475	0.13160	615	0.27797	755	0.00820		
480	0.10749	620	0.26481	760	0.00703		
485	0.10387	625	0.24978	765	0.00602		

IES TM-30-18 Color Rendition Report



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

x **0.3841**
y **0.3793**
u' **0.2265**
v' **0.5032**

CIE 13.3-1995	
(CRI)	
R_a	84
R_g	15

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20101.
Dialight unit model number L[C,E,F,W][D,U]-[L,Z]UN-[2,8]Cx-xxx-xx

Electrical Measurements:

Input Voltage: 120.1 (VAC)
Input current: 1.2638 (A)
Input Power: 150.8 (W)
Power Factor: 0.9933

Photometric measurements:

Absolute Luminous Flux: 16815.6 (lumens)
Luminous Efficacy: 111.5 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	3178	3177	3175	3176	3178	
5.00	3172	3182	3182	3186	3192	323
15.00	3159	3185	3167	3188	3253	906
25.00	3158	3162	3115	3192	3312	1484
35.00	3245	3212	3175	3326	3419	2071
45.00	3511	3468	3483	3637	3645	2757
55.00	3803	3804	3917	3881	3806	3434
65.00	3528	3567	3538	3424	3399	3455
75.00	2054	1933	1724	1790	1908	2030
85.00	512	453	390	425	443	304
90.00	217	201	188	196	190	

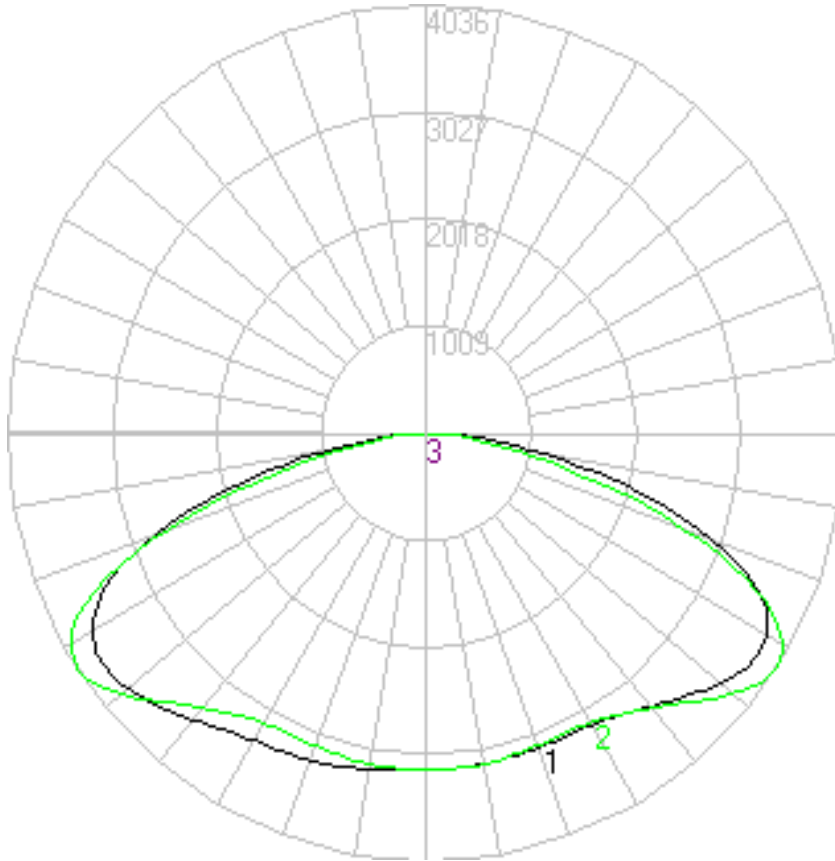
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	2682.37	15.95	15.95
0 to 40	4759.95	28.31	28.31
0 to 60	11041.34	65.66	65.66
0 to 90	16815.56	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	16815.56	100.00	100.00

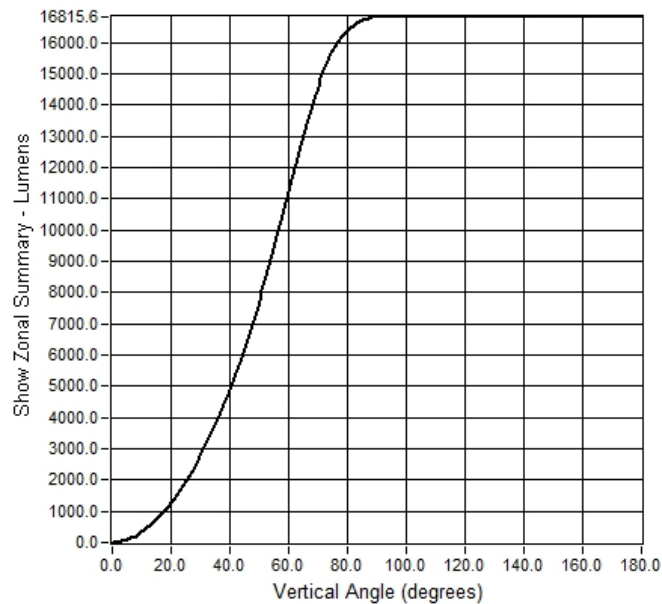
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



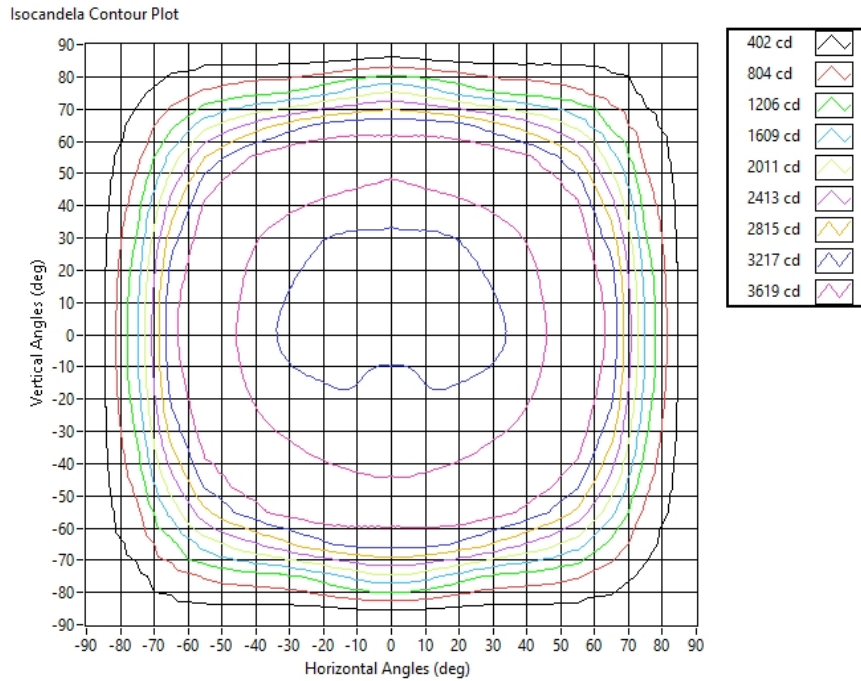
Zonal Flux Graph



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (ft)	Beam Cone Width (ft)	Orthogonal Beam Cone Width (ft)	Projected Illuminance (fc)
2	17.16	13.98	794.0
4	34.31	27.96	198.5
6	51.47	41.94	88.2
8	68.62	55.93	49.6
10	85.78	69.91	31.8
12	102.93	83.89	22.1
14	120.09	97.87	16.2
16	137.25	111.85	12.4
18	154.40	125.83	9.8
20	171.56	139.81	7.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20101.

Dialight unit model number L[C,E,F,W][D,U]-[L,Z]UN-[2,8]Cx-xxx-xx

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 0.075 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If):	250	(mA)
Maximum Rated Power Dissipation:	1.5	(W)
Maximum Junction Temp. (Tj):	125	(°C)
Thermal Resistance (Rth):	17	(°C/W)

Derived Specifications:

Maximum Power at Indicated Current: 0.00045 (W)

Maximum Source Temperature: 124.9924 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below

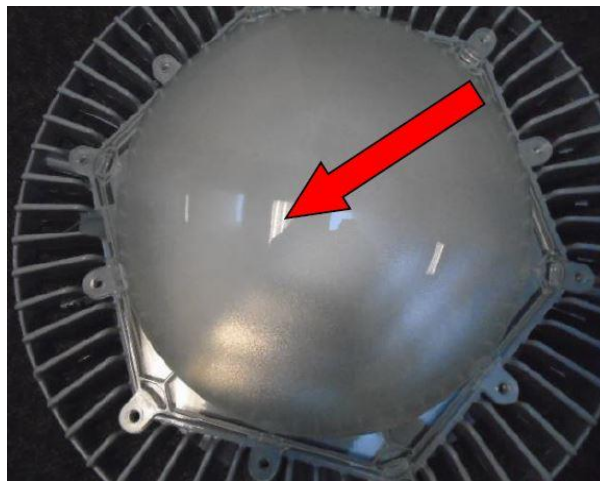
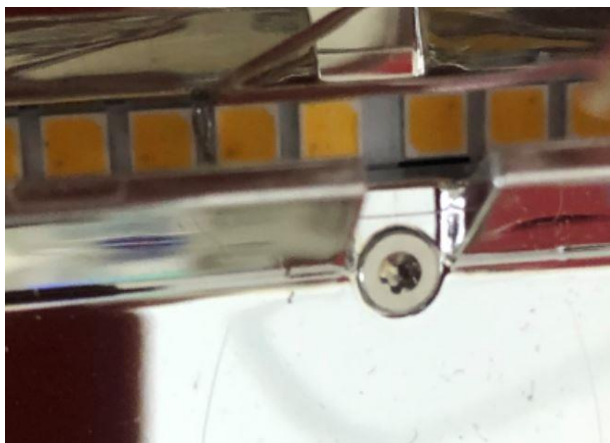
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)

Ambient temperature at time of measurement: 23.6 (°C)

Relative humidity at time of measurement: 35%

Results:

Measured LED source temperature: 55.9 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	DPI8
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Elgar AC Power Supply	CW1251P
Sorensen DC Power Supply	XHR150-7
Dialight Confirmation Sample	HB1N4N
Dialight Confirmation Sample	HB1N4J
Fluke 8808A Digit Multimeter	8808A
Step-Up Transformer	
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Fluke 971 Humidity Meter	8/28/1902
GwINSTEK DC Power Supply	GEP172679
Dialight Confirmation Sample	1/0/1900
Labsphere calibration lamp for 2M sphere	SCL-1400
Labshere 2M sphere	Illumia Plus 2600-1
Labshere Controller	PM-150-140
Labshere Spectrometer- CDS 2600 Spectrometer	CDS-2600
Xitron Power Analyzer	9/1/1907
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo

Additional Notes:

Samples are received and tested in new and undamaged condition, unless otherwise noted. The results shown in this report are representative only of the test samples submitted. This data has been issued to the assignee for further evaluation. This report shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This report shall not be reproduced, except in full, without the express written permission of Dialight Optics Laboratory.

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 Optical Engineer
 Approved Signatory