Spectra Lux

2750 Sabourin, Saint-Laurent (Quebec) H4S 1M2 Canada
Tel.: (514) 332-0082 Fax: (514) 332-3590 www.spectralux.ca

Lab Code: 200899-0

Moving Mirror Goniophotometer Test Report

Standard(s): IES LM-79:2019, ANSI C82.2:2002, ANSI C82.77-10:2021

Customer Luminaire Authentik, 1122 rue du sud, Cowansville, Quebec, Canada, J2K 2Y3

General Information		Lamp Details: CY5137		Driver Details: CY2401	
DUT Lab ID	SRIS 3131-1	**Seasoning**	0 Hour	**Type**	LED Power Supply
Lamp Type	LED/SSL	**Test Product**	Norvegienne 24	**Manufacturer**	Tala
Current Mode	AC	**Manufacturer**	Tala	**Catalog No.**	Integrated
Test Report	S2205093-R1	**Lamp Catalog No.**	(1) 8 Watts E26 Coated LED Bulb Tala Sphere II	**Maximum Power**	6 W
Test Date	9 May 2022	**Drive Current**	N.K.	**Input Voltage**	120.00 V
Report Date	20 May 2022	**Nominal Color**	2800 K	**Operating Frequency**	60 Hz
Ambient	24.4 °C	**Burning Position**	Junction Vertical Base Up	**Input Power**	6.00 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	Luminaire Authentik	**Optics**	White Painted Dome 24 Shade	**X**	-2.0000
Name	Norvegienne 24	**Housing**	White Painted Aluminum Dome Shade (24"Dx12"H)	**Y**	-2.0000
Catalog No.	Norvegienne 24	**Lens**	GB 10WN Opalin Globe	**Z**	0.3333

Stabilization Time: 1 hour

Approved Signatory: Chrisnel Blot

Signature:

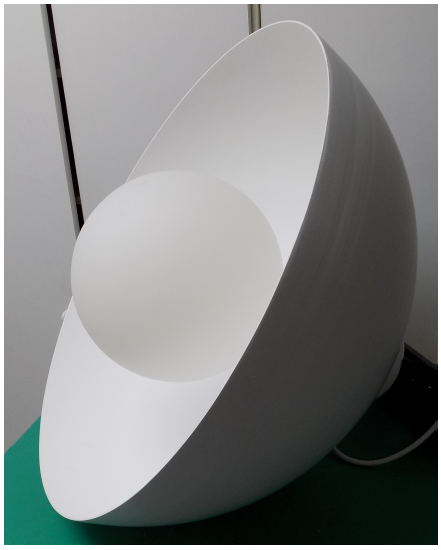
Luminaire Test Method

Precise installation and alignment of the luminaire to the rotation axis of the photometer is governed by a servomotor controlled via a microcontroller. A laser is used to validate the luminaire positioning. Before photometric measurements are taken, luminaire is operated long enough to reach stabilization and temperature equilibrium.

All movement commands issued to the photometer axes are mediated by the software to ensure the motion is within the limits of operation. The photometric detector used is a silicon detector corrected to closely match the spectral luminous efficiency photopic curve with a quality index less than 1.5%. Proper shielding is incorporated to the photometric test bench such that only the light from the unit under test is measured.

Luminous intensity measurements are performed at a distance great enough so that the inverse-square law applies. During each measurement the computer records the luminous intensity associated to the corresponding angles of radiation, as well as input electrical operational parameters and temperature measurements. Candela values are reported in IES format as per LM-63.

Equipment, reference standards are traceable to National Institute of Standards and Technology (NIST) and National Research Council of Canada (NRC).



Electrical Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Power Supply	Inventfine	CHP-500	GZBXD010148	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2021/09/20	2022/09/22
Output Power Meter	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.

Photometric Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Photometer	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.
Photodetector	INPHORA	IPR-PDET 19	110802	2021/09/05	2022/09/05

Environment Equipment

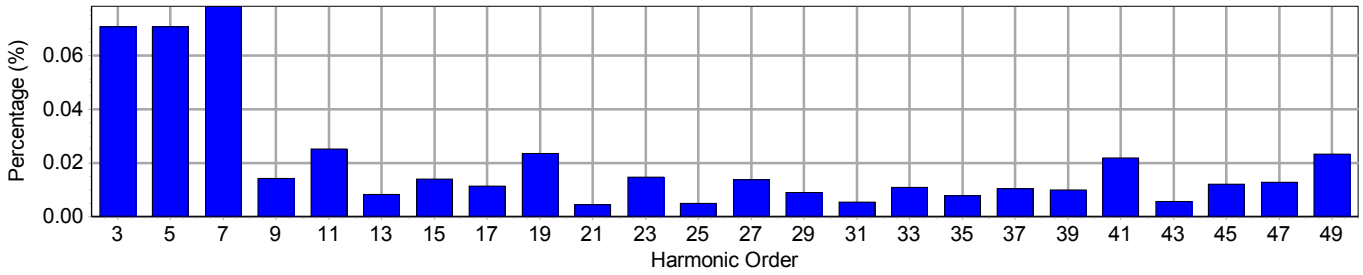
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2021/07/13	2022/07/13

Electrical Measurements

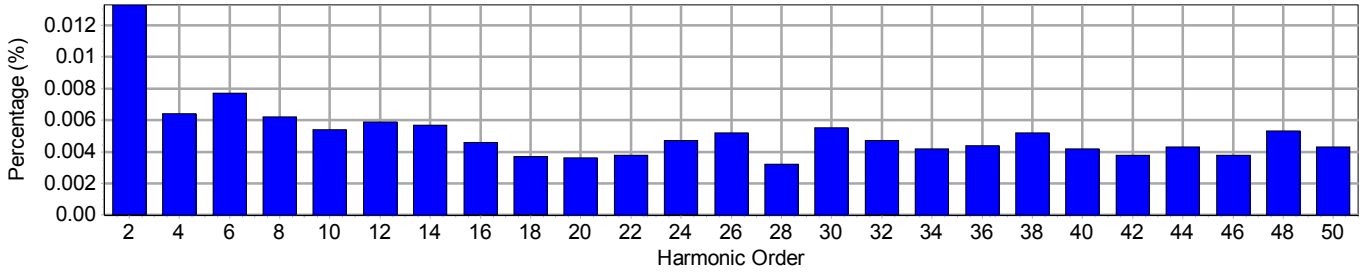
Input

Frequency	60 Hz	Active Power	6.00 W	THDV [ANSI]	0.14 %
Voltage	120.0 V(rms)	Apparent Power	6.60 VA	THDA [ANSI]	45.44 %
Current	0.0550 A(rms)	Power Factor	0.909	Max. Harmonic At	3rd order

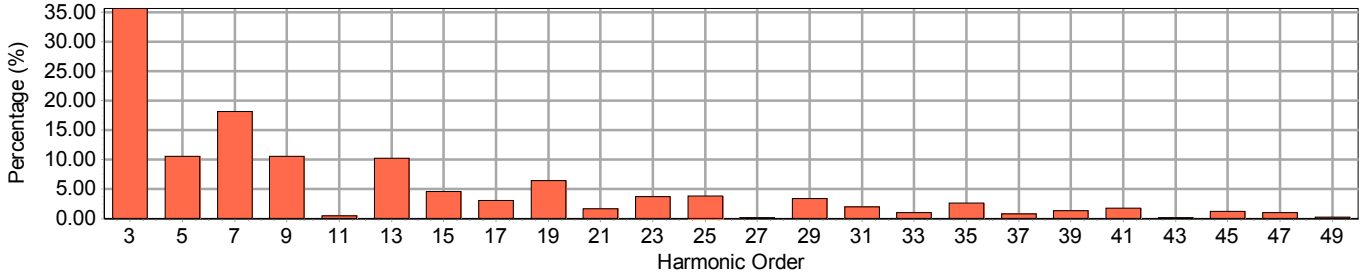
Input Voltage Harmonics (Odd)



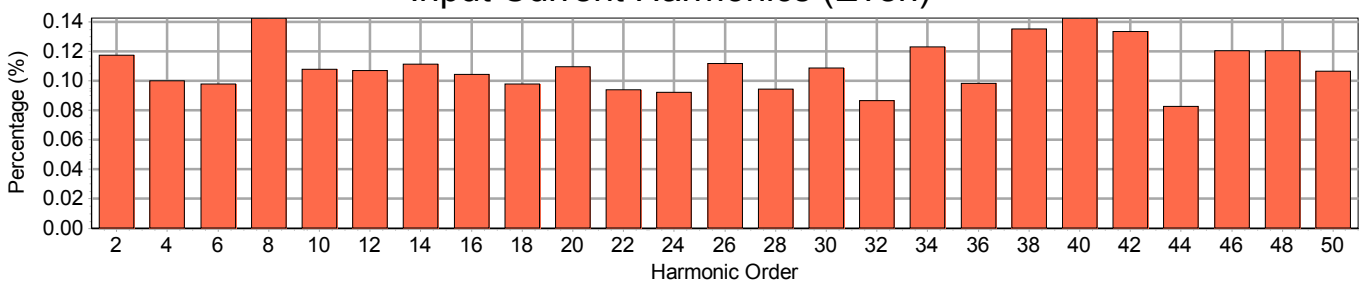
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)



Harmonic Measurements

Odd Harmonics				Even Harmonics			
Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)	Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)
1	60	100.000	100.000	2	120	0.013	0.117
3	180	0.071	35.695	4	240	0.006	0.100
5	300	0.071	10.537	6	360	0.008	0.098
7	420	0.078	18.219	8	480	0.006	0.143
9	540	0.014	10.540	10	600	0.005	0.108
11	660	0.025	0.464	12	720	0.006	0.107
13	780	0.008	10.300	14	840	0.006	0.112
15	900	0.014	4.594	16	960	0.005	0.105
17	1020	0.011	3.057	18	1080	0.004	0.098
19	1140	0.024	6.409	20	1200	0.004	0.110
21	1260	0.005	1.696	22	1320	0.004	0.094
23	1380	0.015	3.753	24	1440	0.005	0.092
25	1500	0.005	3.857	26	1560	0.005	0.112
27	1620	0.014	0.179	28	1680	0.003	0.095
29	1740	0.009	3.431	30	1800	0.006	0.109
31	1860	0.005	2.048	32	1920	0.005	0.087
33	1980	0.011	1.008	34	2040	0.004	0.123
35	2100	0.008	2.629	36	2160	0.004	0.099
37	2220	0.010	0.854	38	2280	0.005	0.135
39	2340	0.010	1.337	40	2400	0.004	0.143
41	2460	0.022	1.776	42	2520	0.004	0.134
43	2580	0.006	0.188	44	2640	0.004	0.083
45	2700	0.012	1.299	46	2760	0.004	0.120
47	2820	0.013	1.010	48	2880	0.005	0.120
49	2940	0.023	0.314	50	3000	0.004	0.107

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Lab Code: 200899-0

Photometric Report: S2205093-R1

Prepared for: Luminaire Authentik · Test Date: 09 May 2022

Luminaire: Norvegienne 24 · Lumcat: Norvegienne 24

Coefficients of Utilization - Zonal Cavity Method

RC	0.9				0.8				0.7				0.5			0.1			0
RW	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0
RCR																			
0	122	122	122	122	118	118	118	118	115	115	115	115	110	110	110	100	100	100	98
1	109	102	96	91	105	99	94	89	102	97	92	87	92	88	84	83	81	78	76
2	97	87	78	71	94	84	76	70	91	82	75	68	78	72	66	71	67	63	60
3	88	75	65	57	85	73	64	56	82	71	62	55	68	60	54	61	56	51	49
4	80	65	55	47	77	64	54	46	75	62	53	46	59	51	45	54	48	43	41
5	73	58	47	40	71	56	47	39	68	55	46	39	53	44	38	48	42	37	34
6	67	52	41	34	65	50	41	34	63	49	40	33	47	39	33	43	37	32	30
7	62	46	36	30	60	45	36	29	58	44	36	29	43	35	29	39	33	28	26
8	58	42	33	26	56	41	32	26	54	40	32	26	39	31	25	36	30	25	23
9	54	38	29	23	52	38	29	23	50	37	29	23	36	28	23	33	27	22	20
10	50	35	27	21	49	35	26	21	47	34	26	21	33	26	20	31	25	20	18

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	10	2.32	2.32
10 - 20	28	6.77	6.77
20 - 30	44	10.65	10.65
30 - 40	56	13.62	13.62
40 - 50	64	15.45	15.45
50 - 60	67	16.07	16.07
60 - 70	63	15.08	15.08
70 - 80	47	11.40	11.40
80 - 90	26	6.22	6.22
90 - 120	9	2.18	2.18
90 - 130	9	2.24	2.24
90 - 150	10	2.35	2.35
90 - 180	10	2.41	2.41
0 - 180	415	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	403	403	403
55.0	446	446	446
65.0	517	517	517
75.0	596	596	596
85.0	931	931	931

Luminaire Luminous Flux: 415

Measured Input Power: 6.00 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 69.2 lm/W

Luminaire Spacing Criterion (0 Degree): 1.3722

Luminaire Spacing Criterion (90 Degree): 1.3722

Category: Up and Down

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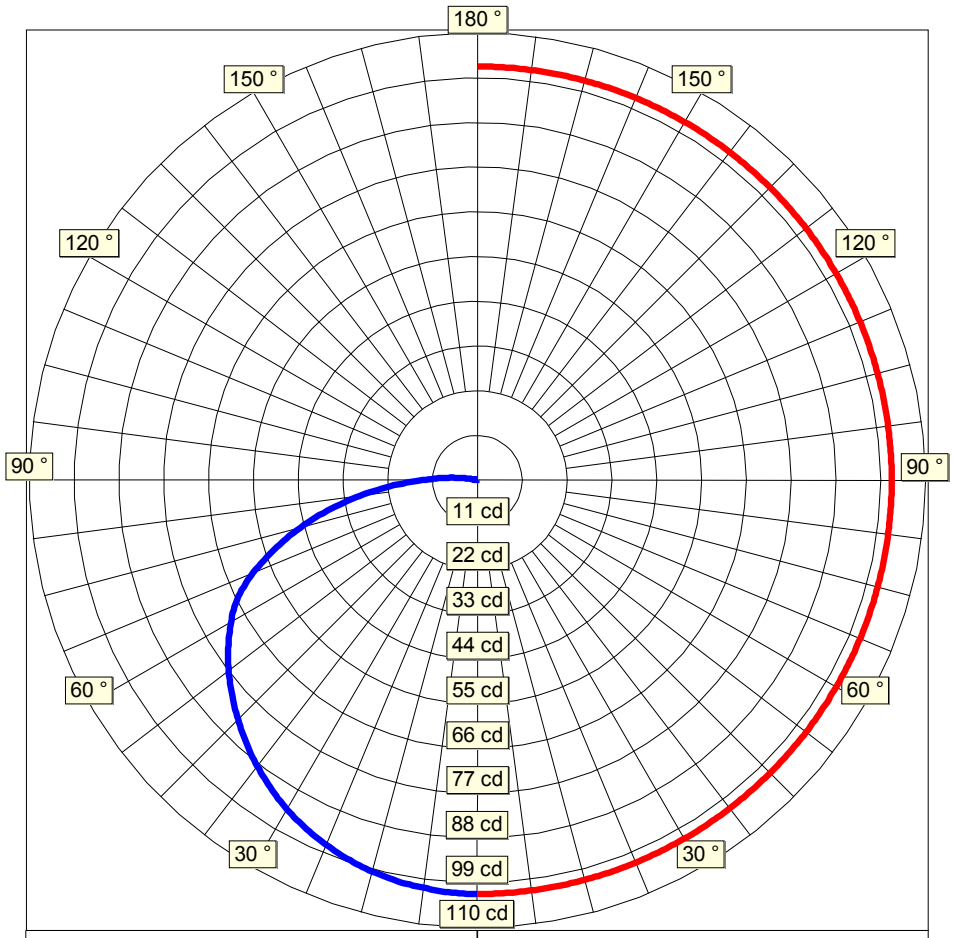
Prepared for: Luminaire Authentik · Test Date: 09 May 2022

Luminaire: Norvegienne 24 · Lumcat: Norvegienne 24

Luminous Intensity - Polar Curve for each Plane(1)

Plane Angles	Candela Values
0.0	102
2.5	102
5.0	101
7.5	101
10.0	101
12.5	100
15.0	100
17.5	99
20.0	98
22.5	97
25.0	96
27.5	95
30.0	93
32.5	92
35.0	90
37.5	89
40.0	87
42.5	85
45.0	83
47.5	81
50.0	79
52.5	77
55.0	75
57.5	72
60.0	70
62.5	67
65.0	64
67.5	60
70.0	55
72.5	50
75.0	45
77.5	40
80.0	34
82.5	29
85.0	24
87.5	18
90.0	13
92.5	10
95.0	7
97.5	5



Cone Angles	Candela Values
0.0	102

Plane Through Maximum Candela	Cone Through Maximum Candela
0.0 (Vertical Degrees) = 102	0.0 (Horizontal Degrees) = 102

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NVLAP TESTING Lab Code: 200899-0

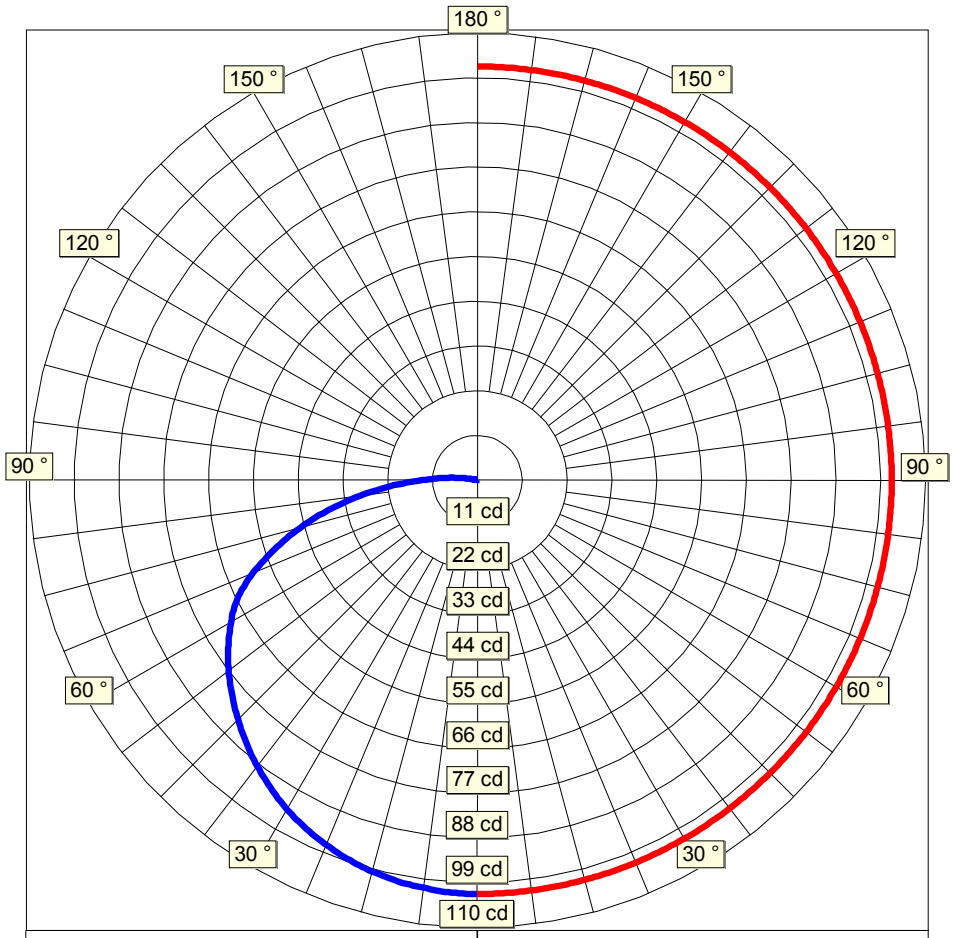
Photometric Report: S2205093-R1

Prepared for: Luminaire Authentik · Test Date: 09 May 2022

Luminaire: Norvegienne 24 · Lumcat: Norvegienne 24

Luminous Intensity - Polar Curve for each Plane(2)

Plane Angles	Candela Values
100.0	2
102.5	1
105.0	0
107.5	0
110.0	0
112.5	0
115.0	0
117.5	0
120.0	0
122.5	0
125.0	0
127.5	0
130.0	0
132.5	0
135.0	0
137.5	0
140.0	0
142.5	0
145.0	0
147.5	0
150.0	0
152.5	0
155.0	0
157.5	0
160.0	0
162.5	0
165.0	0
167.5	0
170.0	0
172.5	0
175.0	0
177.5	0
180.0	0



Cone Angles	Candela Values
0.0	102

Plane Through Maximum Candela	Cone Through Maximum Candela
0.0 (Vertical Degrees) = 102	0.0 (Horizontal Degrees) = 102

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IES File Headers

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IESNA:LM-63
[ISSUEDATE]       09 May 2022
[TESTLAB]         Spectra Lux
[TEST]            S2205093-R1
[MANUFAC]         Luminaire Authentik
[LUMCAT]          Norvegienne 24
[LUMINAIRE]       Norvegienne 24
[LAMP]            (1)8 Watts E26 Coated LED Bulb Tala Sphere II c/w Integrated LED Driver @ 120.00V
[_BURNING]        Vertical Base Up (415 Luminaire Lumens)
[_OPTICS]         White Painted Dome 24 Shade
[_LENS]           GB 10WN Opalin Globe
[_HOUSING]        White Painted Aluminum Dome Shade (24"Dx12"H)
[_NOMINAL COLOR] 2800 K
[_DRIVE CURRENT] N.K.
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Candela Table

Lateral Angles

Vertical Angles	0.0
0.0	102
2.5	102
5.0	101
7.5	101
10.0	101
12.5	100
15.0	100
17.5	99
20.0	98
22.5	97
25.0	96
27.5	95
30.0	93
32.5	92
35.0	90
37.5	89
40.0	87
42.5	85
45.0	83
47.5	81
50.0	79
52.5	77
55.0	75
57.5	72
60.0	70
62.5	67
65.0	64
67.5	60
70.0	55
72.5	50
75.0	45
77.5	40
80.0	34
82.5	29
85.0	24
87.5	18
90.0	13

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Lateral Angles

Vertical Angles	0.0
92.5	10
95.0	7
97.5	5
100.0	2
102.5	1
105.0	0
107.5	0
110.0	0
112.5	0
115.0	0
117.5	0
120.0	0
122.5	0
125.0	0
127.5	0
130.0	0
132.5	0
135.0	0
137.5	0
140.0	0
142.5	0
145.0	0
147.5	0
150.0	0
152.5	0
155.0	0
157.5	0
160.0	0
162.5	0
165.0	0
167.5	0
170.0	0
172.5	0
175.0	0
177.5	0
180.0	0