



Les Industries Spectralux Inc. Spectralux Industries Inc.

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

ISO/IEC 17025
NVLAP[®]
NVLAP LAB CODE: 200899-0

Moving Mirror Goniophotometer Test Report

Standard(s): IESNA LM-15-03, IES LM-79-08, ANSI C82.77-2002

Customer Artemide Canada Ltd., 11105 Renaude-Lapointe, Montreal, Québec, Canada, H1J2T4

General Information		SSL Details		Driver Details	
Test Report	S1706192-R1	Description	(1) Bridgelux Array BXRC30E4000B72SE	Type	Commercial
Test Date	19 June 2017	Serial Number	SRIS 2763	Description	31SSL-CY1310
Report Date	17 July 2017	Photometric Method	Absolute	Manufacturer	Advance
Ambient	24.3 °C	Lamp Lumens	-1	Catalog No.	XI050C105V052DNM1
Humidity	40.4 %	Test Position	Axial	Voltage	120.00 V
Lamp Type	SSL	Color Temperature	3000K	Power Factor	0.9000

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	Artemide	Reflector	Spun Aluminum c/w Auxiliary Optics	X	-0.8958
Name	TAGORA 270 LED	Housing	Cylindrical Spun Aluminum Shape	Y	-0.8958
Catalog No.	MTA2_830FLH	Lens	Acrylic	Z	0.0000

Lamp Stabilization Time: 1 hour 15 minutes

Tested By: JWE i Yg'8 i [Ug] **Approved Signatory:** Chrisnel Blot

Signature:



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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).





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Electrical Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Power Supply	KIKUSUI	SPEC 77766A	1450001	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	91L236539	2017/05/05	2018/05/05
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	2016/10/05	2017/10/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	051202970	2016/10/20	2017/10/20

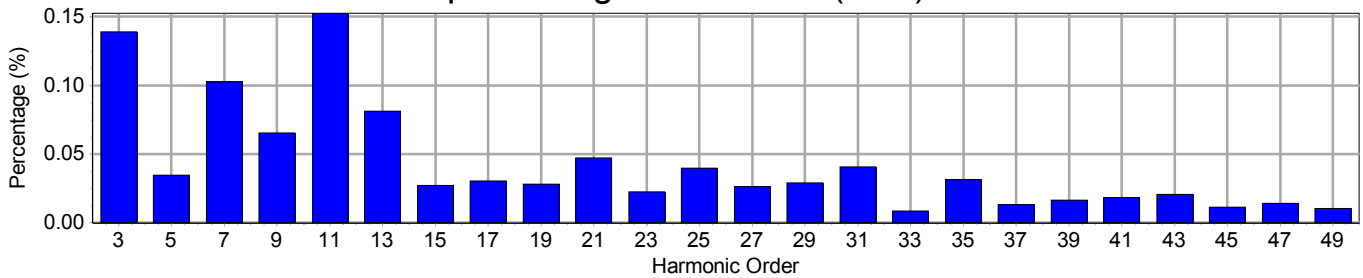


Electrical Measurements

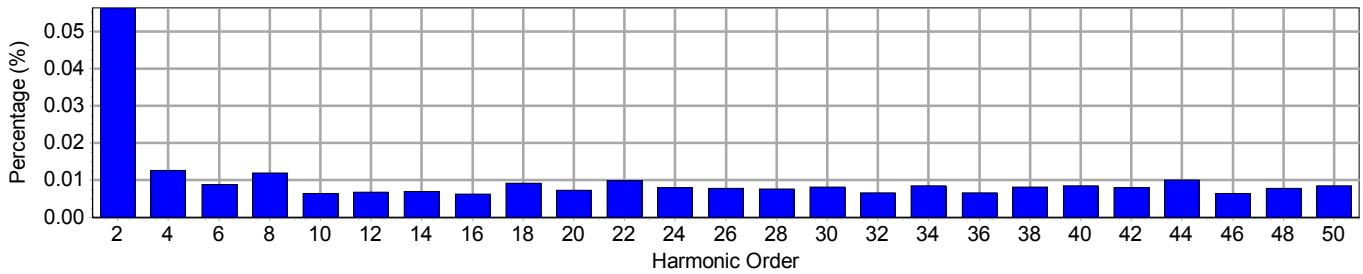
Input

Frequency	60 Hz	Active Power	35.87 W	THDV [ANSI]	0.29 %
Voltage	120.0 V(rms)	Apparent Power	36.08 VA	THDA [ANSI]	9.11 %
Current	0.3007 A(rms)	Power Factor	0.994	Max. Harmonic At	3rd order

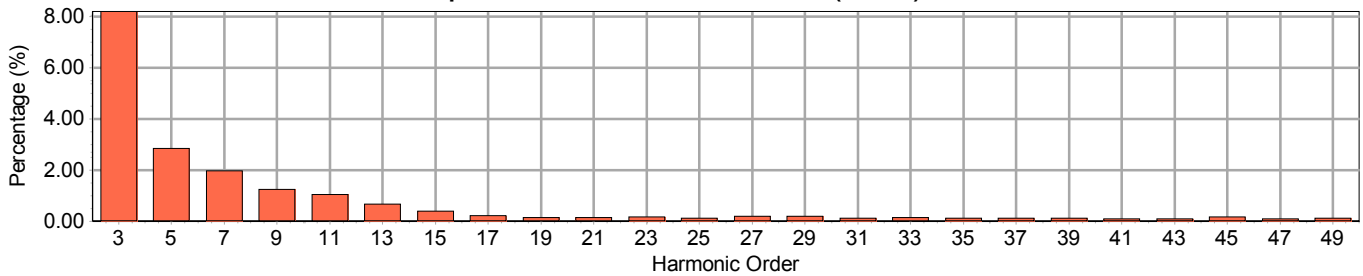
Input Voltage Harmonics (Odd)



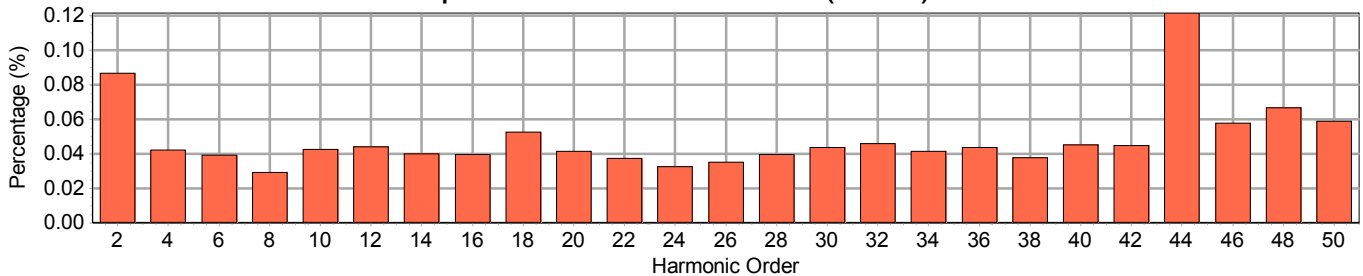
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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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	0.057	0.087
3	180	0.139	8.215	4	240	0.013	0.042
5	300	0.035	2.851	6	360	0.009	0.039
7	420	0.103	1.976	8	480	0.012	0.029
9	540	0.065	1.233	10	600	0.007	0.043
11	660	0.153	1.034	12	720	0.007	0.044
13	780	0.081	0.663	14	840	0.007	0.040
15	900	0.027	0.376	16	960	0.006	0.039
17	1020	0.031	0.224	18	1080	0.009	0.053
19	1140	0.028	0.133	20	1200	0.007	0.041
21	1260	0.047	0.145	22	1320	0.010	0.037
23	1380	0.022	0.158	24	1440	0.008	0.032
25	1500	0.040	0.105	26	1560	0.008	0.035
27	1620	0.026	0.195	28	1680	0.008	0.040
29	1740	0.029	0.178	30	1800	0.008	0.044
31	1860	0.041	0.122	32	1920	0.007	0.046
33	1980	0.009	0.145	34	2040	0.009	0.041
35	2100	0.031	0.106	36	2160	0.007	0.044
37	2220	0.013	0.114	38	2280	0.008	0.038
39	2340	0.016	0.109	40	2400	0.008	0.045
41	2460	0.018	0.086	42	2520	0.008	0.045
43	2580	0.021	0.080	44	2640	0.010	0.122
45	2700	0.012	0.174	46	2760	0.006	0.058
47	2820	0.014	0.093	48	2880	0.008	0.067
49	2940	0.011	0.114	50	3000	0.009	0.059



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Photometric Report: S1706192-R1

Prepared for: Artemide Canada Ltd. · Test Date: 19 June 2017

Luminaire: TAGORA 270 LED · Lumcat: MTA2_830FLH

Coefficients of Utilization - Zonal Cavity Method

RCR	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
0	122	122	122	122	119	119	119	119	116	116	116	116	111	111	111	102	102	102	100	100
1	117	114	112	110	114	112	110	108	112	110	108	106	106	104	103	99	98	97	95	95
2	112	108	104	101	110	106	103	100	108	104	101	99	101	99	97	96	94	93	91	91
3	108	102	98	94	106	101	97	93	104	99	96	93	97	94	91	92	90	88	87	87
4	104	97	92	88	102	96	91	88	100	95	91	87	93	89	86	89	87	84	83	83
5	100	92	87	84	98	91	87	83	97	91	86	83	89	85	82	86	83	81	80	80
6	96	88	83	80	95	88	83	79	93	87	82	79	85	81	79	83	80	78	76	76
7	93	85	79	76	91	84	79	76	90	83	79	76	82	78	75	80	77	74	73	73
8	89	81	76	73	88	81	76	73	87	80	76	72	79	75	72	77	74	72	70	70
9	86	78	73	70	85	77	73	70	84	77	73	69	76	72	69	75	71	69	68	68
10	83	75	70	67	82	75	70	67	81	74	70	67	73	69	67	72	69	66	65	65

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	462	20.62	20.62
10 - 20	1035	46.26	46.26
20 - 30	588	26.29	26.29
30 - 40	104	4.66	4.66
40 - 50	19	0.86	0.86
50 - 60	12	0.54	0.54
60 - 70	10	0.45	0.45
70 - 80	7	0.33	0.33
80 - 90	0	0.00	0.00
90 - 120	0	0.00	0.00
90 - 130	0	0.00	0.00
90 - 150	0	0.00	0.00
90 - 180	0	0.00	0.00
0 - 180	2238	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	512	512	512
55.0	397	397	397
65.0	412	412	412
75.0	515	515	515
85.0	0	0	0

Luminaire Luminous Flux: 2238

Measured Input Power: 35.87 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 62.4 lm/W

Luminaire Spacing Criterion (0 Degree): 0.6621

Luminaire Spacing Criterion (90 Degree): 0.6621

CIE Type: Direct



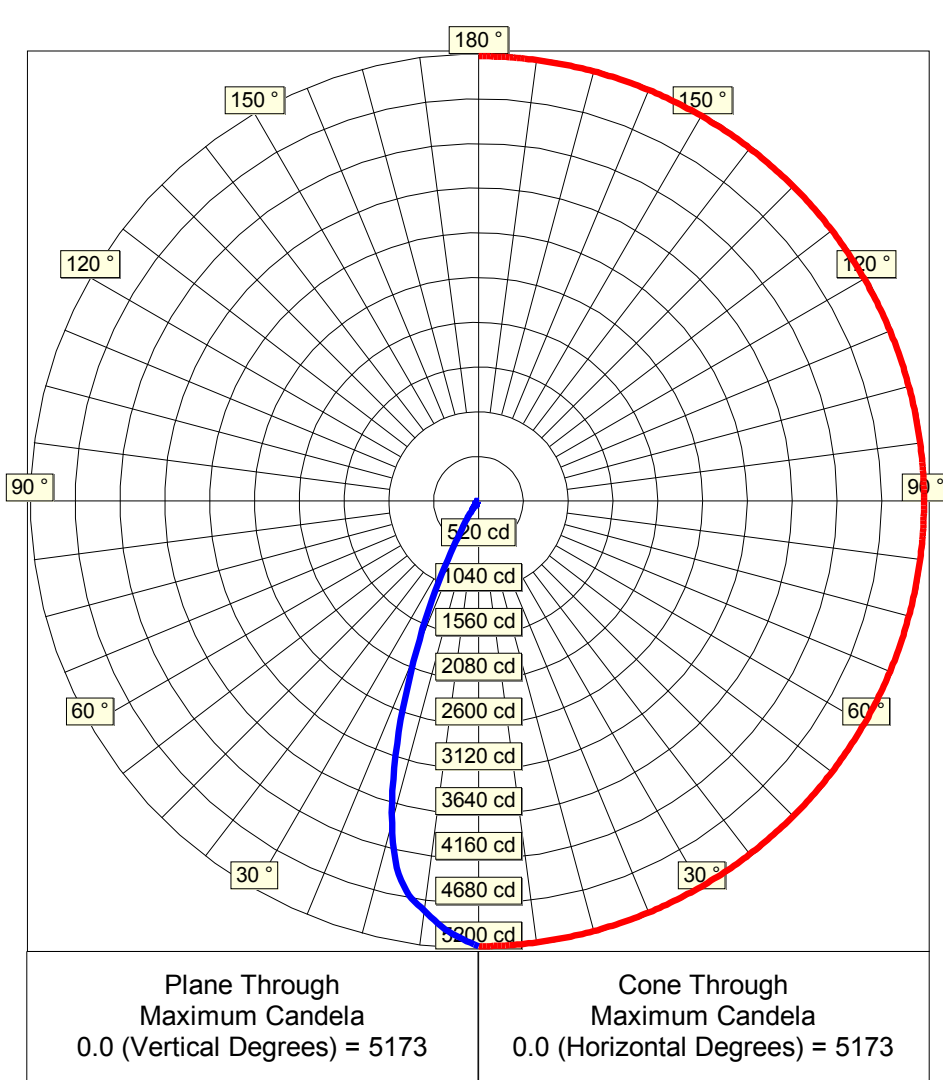
Photometric Report: S1706192-R1

Prepared for: Artemide Canada Ltd. · Test Date: 19 June 2017

Luminaire: TAGORA 270 LED · Lumcat: MTA2_830FLH

Luminous Intensity - Polar Curve for each Plane(1)

Plane Angles	Candela Values
0.0	5173
2.5	5074
5.0	4958
7.5	4798
10.0	4646
12.5	4359
15.0	3873
17.5	3245
20.0	2556
22.5	1877
25.0	1268
27.5	771
30.0	426
32.5	244
35.0	141
37.5	89
40.0	52
42.5	31
45.0	21
47.5	17
50.0	16
52.5	14
55.0	13
57.5	13
60.0	11
62.5	11
65.0	10
67.5	9
70.0	9
72.5	8
75.0	8
77.5	7
80.0	0
82.5	0
85.0	0
87.5	0
90.0	0
92.5	0
95.0	0
97.5	0



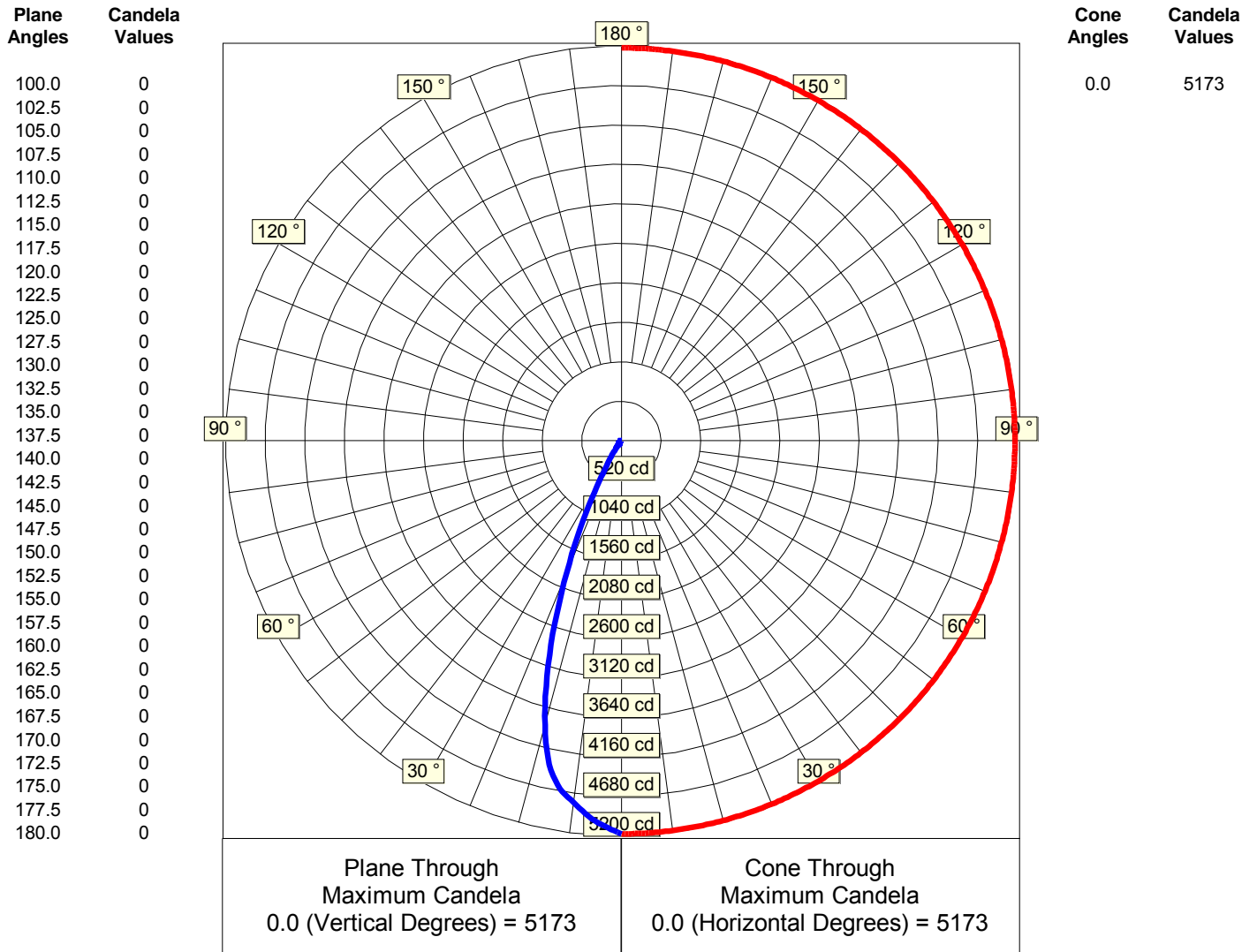


Photometric Report: S1706192-R1

Prepared for: Artemide Canada Ltd. · Test Date: 19 June 2017

Luminaire: TAGORA 270 LED · Lumcat: MTA2_830FLH

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

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IESNA:LM-63-2002
[ISSUEDATE] 19 June 2017
[TESTLAB] Spectra Lux Industries Inc.
[TEST] S1706192-R1
[MANUFAC] Artemide
[LUMCAT] MTA2_830FLH
[LUMINAIRE] TAGORA 270 LED
[LAMP] (1) Bridgelux Array BXRC30E4000B72SE c/w Advance Driver XI050C105V052DNM1 @ 120.00V
[_BURNING] Axial (2,238 Luminaire Lumens)
[_REFLECTOR] Spun Aluminum c/w Auxiliary Optics
[_LENS] Acrylic
[_HOUSING] Cylindrical Spun Aluminum Shape
[DISTRIBUTION] Direct Type - Downlight
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Candela Table

Lateral Angles

	0.0
	0.0
	2.5
	5.0
	7.5
	10.0
	12.5
	15.0
	17.5
	20.0
V	22.5
e	25.0
r	27.5
t	30.0
i	32.5
c	35.0
a	37.5
l	40.0
	42.5
	45.0
	47.5
A	50.0
n	52.5
g	55.0
l	57.5
e	60.0
s	62.5
	65.0
	67.5
	70.0
	72.5
	75.0
	77.5
	80.0
	82.5
	85.0
	87.5
	90.0



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Lateral Angles

	0.0
	92.5
	95.0
	97.5
	100.0
	102.5
	105.0
	107.5
	110.0
	112.5
V	115.0
e	117.5
r	120.0
t	122.5
i	125.0
c	127.5
a	130.0
l	132.5
	135.0
	137.5
	140.0
A	142.5
n	145.0
g	147.5
l	150.0
e	152.5
s	155.0
	157.5
	160.0
	162.5
	165.0
	167.5
	170.0
	172.5
	175.0
	177.5
	180.0