



Moving Mirror Goniophotometer Test Report

Standard(s): IES LM-63, IES LM-79, ANSI C82.77

Customer ANDlight, 505B Railway Street, Vancouver, BC, Canada, V6A 1A7

General Information		Lamp Details: CY4435		Driver Details: CY2023	
DUT Lab ID	SRIS 2823-11	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SPO-P-A-B-VA-120	Manufacturer	Bulbrite
Current Mode	AC	Manufacturer	Bulbrite	Catalog No.	Integrated LED Driver
Test Report	S2008132-R1	Lamp Catalog No.	(2) G25 Frosted LED 7W	Nominal Power	14 W
Test Date	13 August 2020	Drive Current	116.7 mA	Input Voltage	120.00 V
Report Date	15 October 2020	Nominal Color	2700 K	Operating Frequency	60 Hz
Ambient	24.7 °C	Burning Position	Vertical Base Up & Down	Input Power	14.69 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	Vanilla Spun Aluminum	X	-0.8750
Name	SPOT LIGHT VOLUMES	Housing	Shades (A-B) - Aluminum Profile	Y	-0.8750
Catalog No.	SPO-P-A-B-VA-120	Lens	None	Z	0.0000

Stabilization Time: 1 hour 15 minutes

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	iRDC	CIF-3000A	974998	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2020/07/22	2021/09/22
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	2019/09/05	2020/09/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2020/07/16	2021/07/16

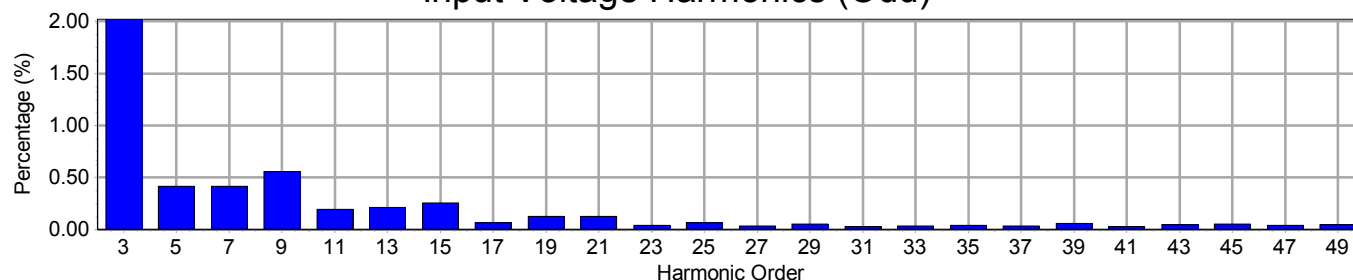


Electrical Measurements

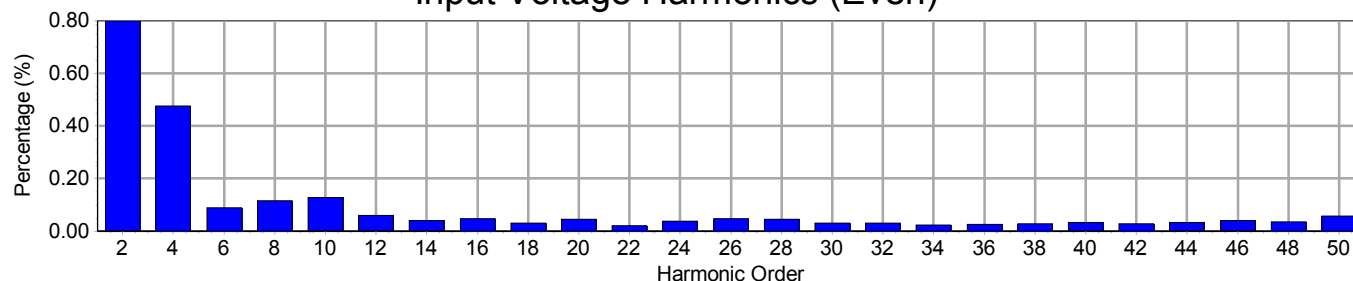
Input

Frequency	60 Hz	Active Power	14.69 W	THDV [ANSI]	2.42 %
Voltage	119.9 V(rms)	Apparent Power	15.87 VA	THDA [ANSI]	38.04 %
Current	0.1323 A(rms)	Power Factor	0.925	Max. Harmonic At	3rd order

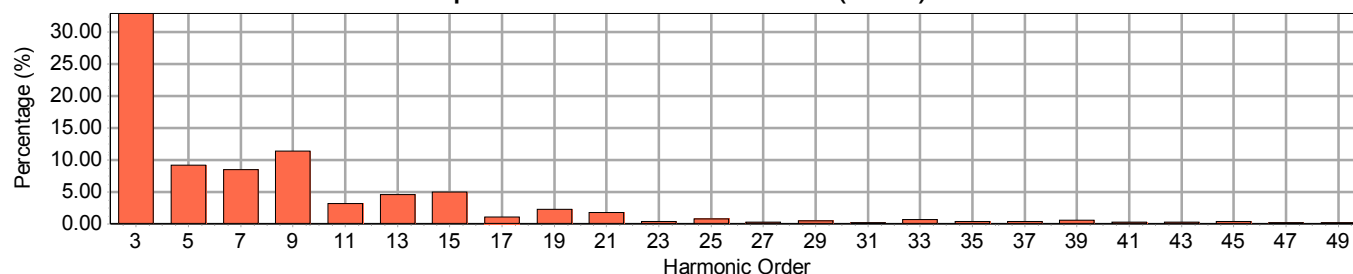
Input Voltage Harmonics (Odd)



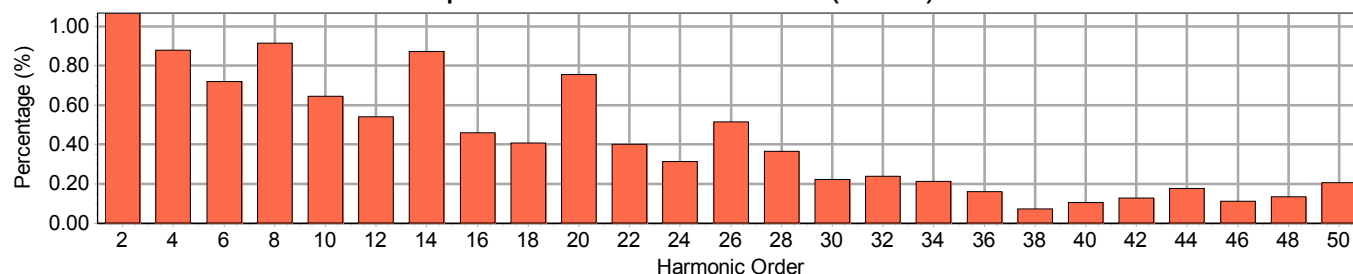
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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Lab Code: 200899-0



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	0.801	1.069
3	180	2.023	33.001	4	240	0.476	0.878
5	300	0.417	9.151	6	360	0.089	0.720
7	420	0.415	8.480	8	480	0.116	0.915
9	540	0.560	11.345	10	600	0.129	0.645
11	660	0.193	3.148	12	720	0.061	0.541
13	780	0.213	4.582	14	840	0.040	0.873
15	900	0.253	4.964	16	960	0.048	0.460
17	1020	0.064	1.058	18	1080	0.031	0.408
19	1140	0.126	2.285	20	1200	0.045	0.754
21	1260	0.126	1.742	22	1320	0.022	0.402
23	1380	0.037	0.356	24	1440	0.039	0.315
25	1500	0.065	0.797	26	1560	0.047	0.515
27	1620	0.032	0.289	28	1680	0.045	0.367
29	1740	0.055	0.420	30	1800	0.030	0.223
31	1860	0.026	0.156	32	1920	0.029	0.238
33	1980	0.033	0.654	34	2040	0.024	0.211
35	2100	0.040	0.378	36	2160	0.026	0.160
37	2220	0.034	0.350	38	2280	0.027	0.072
39	2340	0.059	0.571	40	2400	0.033	0.105
41	2460	0.026	0.209	42	2520	0.029	0.129
43	2580	0.046	0.287	44	2640	0.032	0.178
45	2700	0.052	0.354	46	2760	0.040	0.113
47	2820	0.038	0.113	48	2880	0.035	0.135
49	2940	0.043	0.163	50	3000	0.057	0.207



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Photometric Report: S2008132-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-A-B-VA-120

Coefficients of Utilization - Zonal Cavity Method

RCR	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			
0		116	116	116	116	107	107	107	107	99	99	99	99	84	84	84	57	57	57	51			
1		106	101	96	92	98	93	89	86	90	86	83	80	73	71	68	50	49	48	43			
2		96	87	80	74	89	81	74	69	81	75	69	64	64	59	56	44	41	39	35			
3		87	76	67	60	80	70	63	57	74	65	59	53	55	50	46	38	35	33	29			
4		80	67	57	50	73	62	54	47	67	57	50	44	49	43	39	34	30	28	24			
5		73	59	50	43	67	55	46	40	61	51	43	38	43	38	33	30	27	24	21			
6		67	53	43	37	62	49	41	35	56	46	38	33	39	33	28	27	23	21	18			
7		62	47	38	32	57	44	36	30	52	41	34	28	35	29	25	24	21	18	15			
8		57	43	34	28	53	40	32	26	48	37	30	25	32	26	22	22	19	16	14			
9		53	39	30	25	49	36	29	23	45	34	27	22	29	23	19	21	17	14	12			
10		49	35	27	22	46	33	26	21	42	31	24	20	27	21	17	19	15	13	11			

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	13	1.49	1.49
10 - 20	36	4.18	4.18
20 - 30	55	6.32	6.32
30 - 40	69	7.98	7.98
40 - 50	80	9.23	9.23
50 - 60	84	9.66	9.66
60 - 70	68	7.80	7.80
70 - 80	36	4.08	4.08
80 - 90	7	0.75	0.75
90 - 120	68	7.80	7.80
90 - 130	150	17.22	17.22
90 - 150	310	35.58	35.58
90 - 180	422	48.51	48.51
0 - 180	870	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	2647	2647	2647
55.0	2983	2983	2983
65.0	2912	2912	2912
75.0	2318	2318	2318
85.0	966	966	966

Luminaire Luminous Flux: 870

Measured Input Power: 14.69 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 59.3 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2261

Luminaire Spacing Criterion (90 Degree): 1.2261

Category: Up and Down



Photometric Report: S2008132-R1

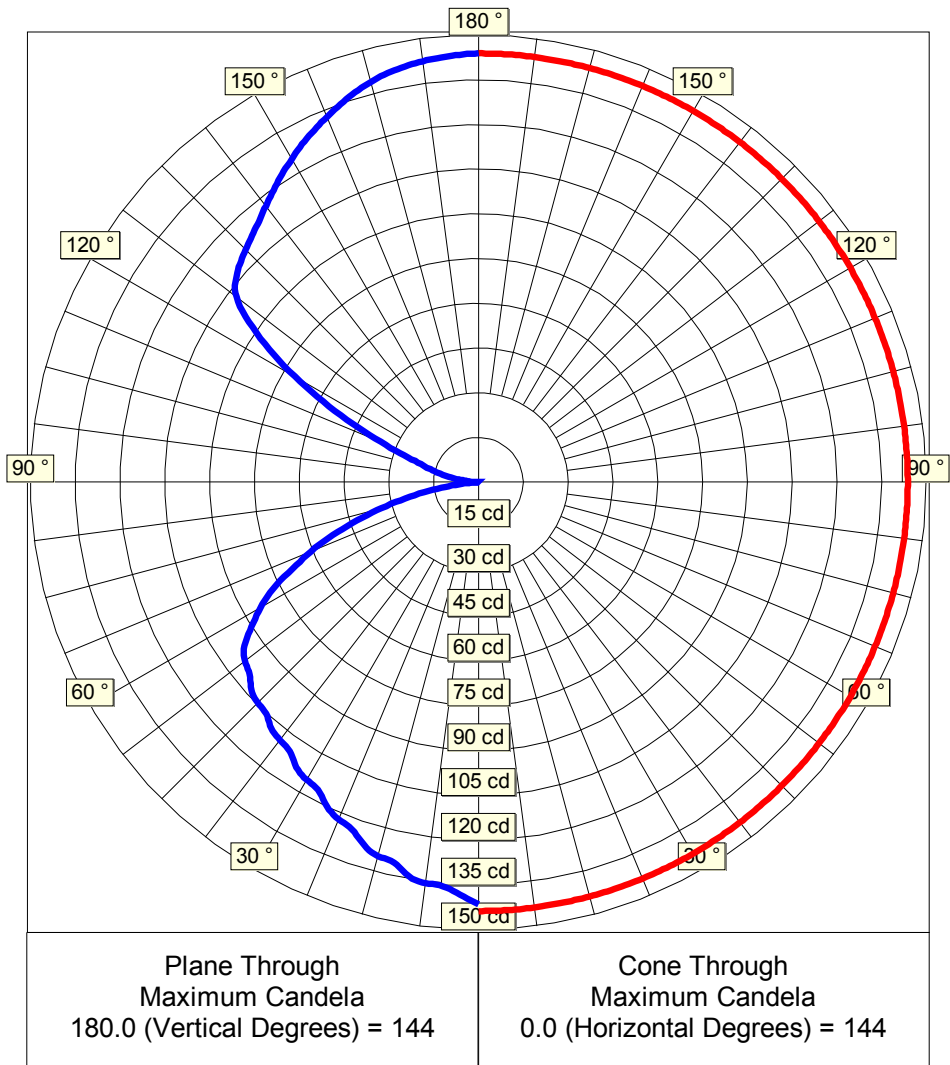
Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-A-B-VA-120

Luminous Intensity - Polar Curve for each Plane(1)

Plane
Angles

Plane Angles	Candela Values
0.0	142
2.5	138
5.0	136
7.5	136
10.0	134
12.5	131
15.0	130
17.5	128
20.0	124
22.5	122
25.0	120
27.5	116
30.0	115
32.5	113
35.0	110
37.5	109
40.0	108
42.5	105
45.0	105
47.5	103
50.0	100
52.5	99
55.0	96
57.5	90
60.0	84
62.5	77
65.0	69
67.5	61
70.0	52
72.5	42
75.0	34
77.5	25
80.0	17
82.5	10
85.0	5
87.5	1
90.0	0
92.5	0
95.0	3
97.5	6



Cone
Angles

Cone Angles	Candela Values
0.0	144

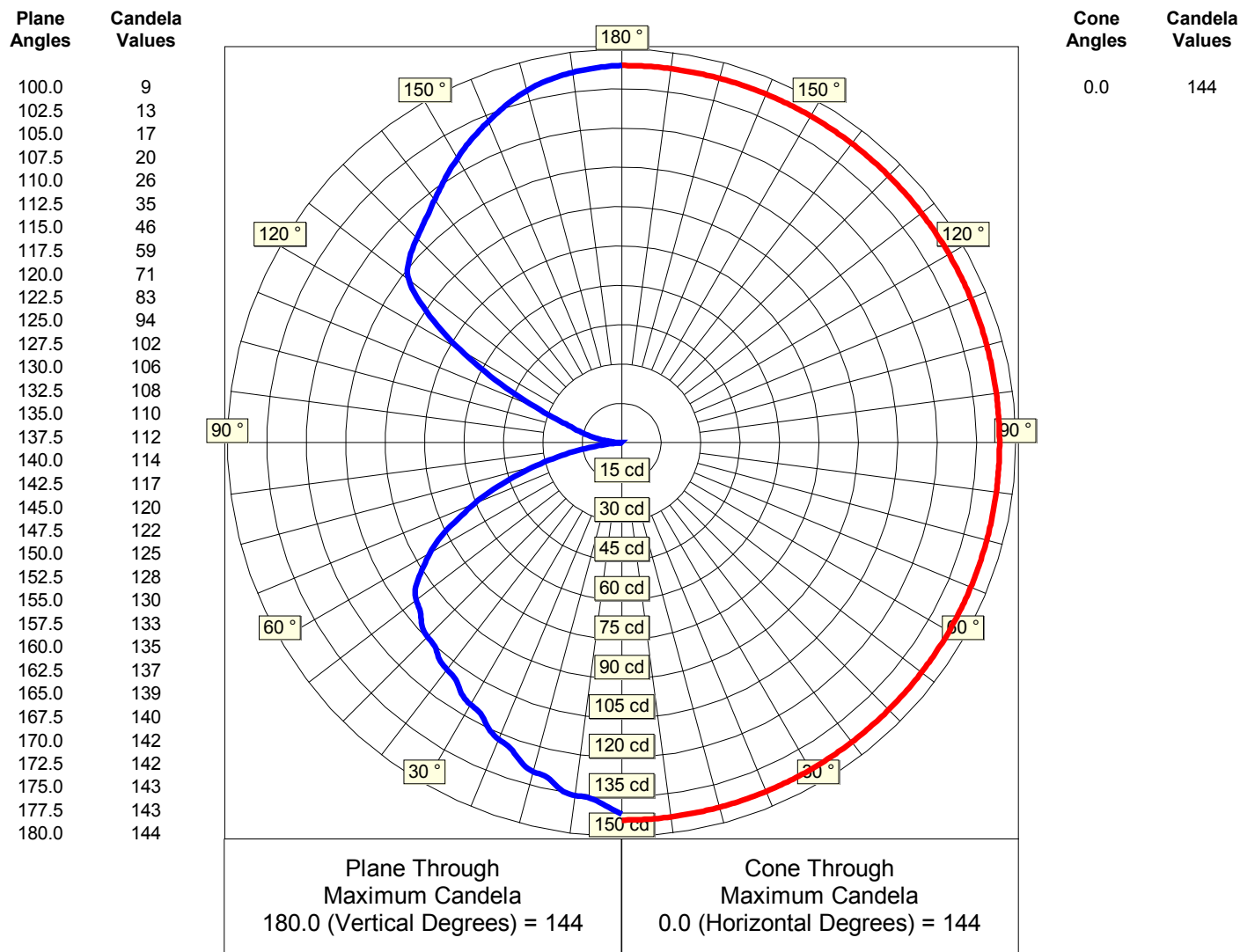


Photometric Report: S2008132-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-A-B-VA-120

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

IESNA:LM-63
[ISSUEDATE] 13 August 2020
[TESTLAB] Spectra Lux
[TEST] S2008132-R1
[MANUFAC] ANDlight
[LUMCAT] SPO-P-A-B-VA-120
[LUMINAIRE] SPOT LIGHT VOLUMES
[LAMP] (2)BulBrite G25 Frosted LEd 7W Bulb c/w Integrated LED Driver @ 120.00V
[_BURNING] Vertical Base Up & Down (870 Luminaire Lumens)
[_REFLECTOR] Vanilla Spun Aluminum
[_LENS] None
[_HOUSING] Shades (A-B) - Aluminum Profile
[_NOMINAL COLOR] 2700 K
[_DRIVE CURRENT] 116.7 mA

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
I	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 e r t i c a l	115.0
	117.5
	120.0
	122.5
	125.0
	127.5
	130.0
	132.5
	135.0
	137.5
A n g l e s	140.0
	142.5
	145.0
	147.5
	150.0
	152.5
	155.0
	157.5
	160.0
	162.5
	165.0
	167.5
	170.0
	172.5
	175.0
	177.5
	180.0