

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P646668

Luminaire Tested: S123RDRP-S1165D835-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646668
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-S1165D835-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

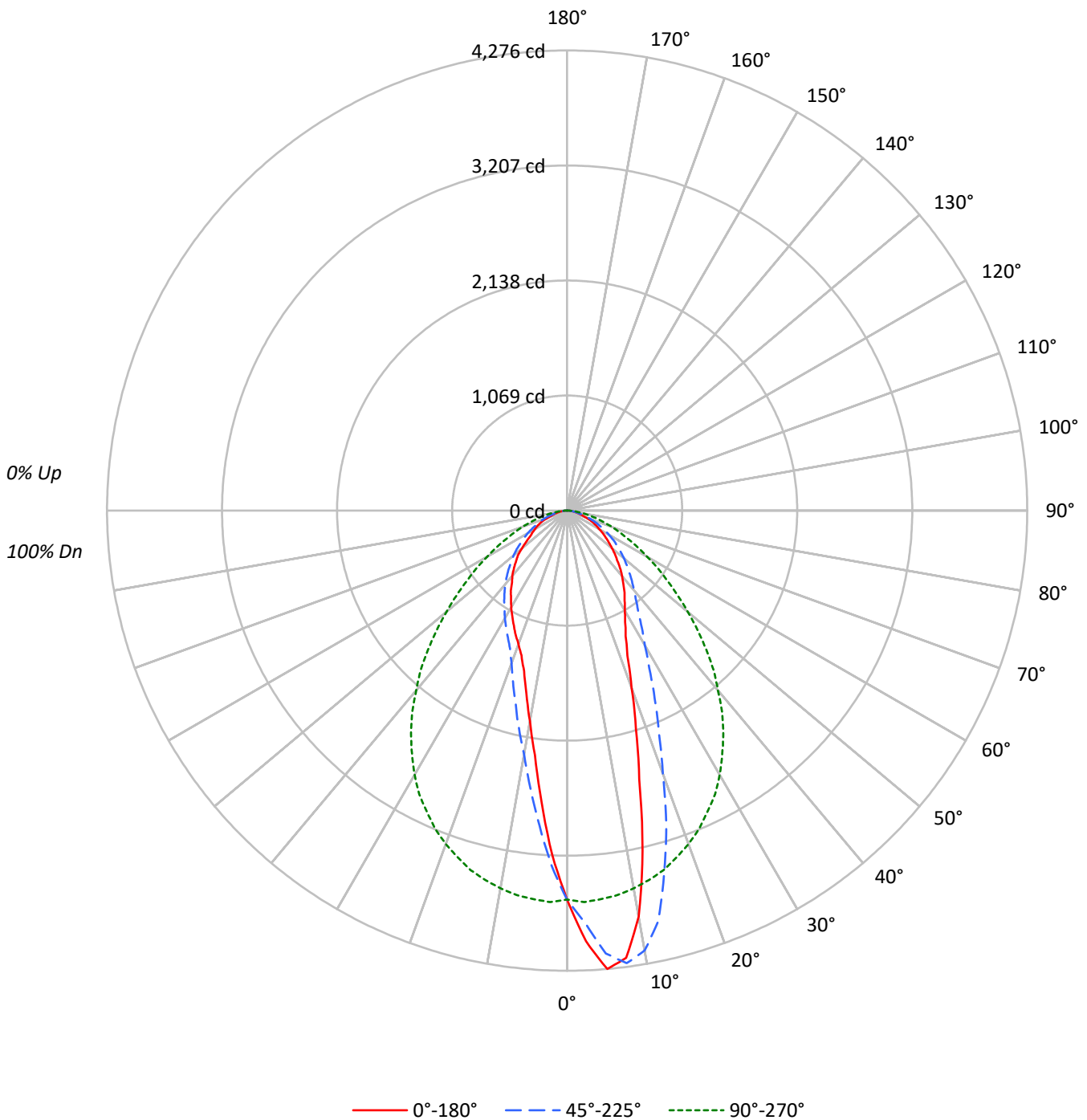
Lumens per Lamp: N/A
Luminaire Lumens: 4789.0 lumens
Efficiency: N/A
Efficacy: 119.4 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89				87	
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78				76	
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69				67	
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61				59	
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54				53	
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49				47	
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45				43	
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41				39	
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38				36	
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35				33	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	43555	43555	43555	43555	43555
5°	51717	49960	43829	35548	32894
10°	46857	50773	43611	28143	24353
15°	32261	43483	43151	23110	19264
20°	22443	33351	42283	19364	16932
25°	17102	25595	41024	17301	15605
30°	14889	20125	39447	16084	14454
35°	13669	16939	37213	14999	13408
40°	12472	15199	34291	14081	12448
45°	11264	13915	31139	13082	11490
50°	10224	12919	27420	12169	10308
55°	9247	11863	23849	11115	8842
60°	8285	10786	20715	10179	8357
65°	7649	9591	17831	9044	7900
70°	6214	8198	15561	8198	6422
75°	5452	6625	13180	6830	5656
80°	4934	5551	10797	5759	5350
85°	4507	4714	8198	5129	4922

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 32857 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	329.4	6.9
10°-20°	762.2	15.9
20°-30°	874.5	18.3
30°-40°	861.4	18.0
40°-50°	759.3	15.9
50°-60°	584.3	12.2
60°-70°	384.2	8.0
70°-80°	186.6	3.9
80°-90°	47.1	1.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1966.2	41.1
0°-40°	2827.6	59.0
0°-60°	4171.2	87.1
0°-90°	4789.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4789.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3615	3615	3615	3615	3615	
5°	4276	4131	3624	2939	2720	391
15°	2586	3486	3459	1853	1544	730
25°	1286	1925	3086	1301	1174	608
35°	929	1152	2530	1020	912	579
45°	661	817	1827	768	674	513
55°	440	565	1135	529	421	395
65°	268	336	625	317	277	263
75°	117	142	283	147	122	126
85°	33	34	59	37	36	37
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8
2.5°	4006.1	3980.9	3973.5	3964.6	3949.7	3896.4	3835.6	3841.5	3834.1	3788.2	3763.0
5°	4275.8	4278.8	4271.4	4265.4	4240.2	4175.0	4130.6	4103.9	4047.6	3961.6	3934.9
7.5°	4192.8	4240.2	4249.1	4259.5	4272.8	4258.0	4241.7	4231.3	4185.4	4092.0	4049.0
10°	3829.7	3826.7	3880.1	3923.1	4038.7	4120.2	4149.8	4192.8	4231.3	4166.1	4118.7
12.5°	3236.9	3241.3	3416.2	3416.2	3565.9	3773.4	3906.8	3997.2	4163.2	4167.6	4139.4
15°	2586.2	2658.8	2814.5	2847.1	3039.7	3318.4	3485.8	3672.6	3994.2	4095.0	4089.1
17.5°	2123.8	2154.9	2304.6	2347.6	2518.1	2833.7	3064.9	3290.2	3740.8	3952.7	3991.2
20°	1750.3	1778.5	1886.7	1919.3	2091.2	2392.1	2601.0	2844.1	3434.0	3758.6	3826.7
22.5°	1461.3	1516.2	1588.8	1639.2	1737.0	2043.8	2223.1	2455.8	3078.3	3540.7	3620.7
25°	1286.4	1311.6	1373.9	1397.6	1516.2	1719.2	1925.2	2129.7	2762.6	3268.0	3408.8
27.5°	1167.9	1175.3	1221.2	1242.0	1313.1	1501.3	1649.6	1839.3	2441.0	2987.9	3152.4
30°	1070.1	1083.4	1119.0	1123.4	1185.7	1319.0	1446.5	1621.4	2159.4	2716.7	2885.6
32.5°	994.5	1001.9	1031.5	1040.4	1080.4	1185.7	1289.4	1416.9	1898.5	2433.6	2627.7
35°	929.3	930.7	953.0	964.8	1000.4	1087.8	1151.6	1258.3	1689.6	2199.4	2369.8
37.5°	855.2	865.5	881.8	892.2	923.3	994.5	1052.3	1135.3	1496.9	1977.1	2135.7
40°	792.9	801.8	821.1	825.5	853.7	918.9	966.3	1040.4	1330.9	1763.7	1925.2
42.5°	730.7	736.6	755.9	764.8	795.9	847.7	890.7	948.5	1199.0	1574.0	1732.5
45°	661.0	675.8	696.6	701.0	730.7	784.0	816.6	870.0	1080.4	1409.5	1550.3
47.5°	603.2	610.6	628.4	635.8	669.9	717.3	751.4	797.4	978.2	1259.8	1397.6
50°	545.4	548.4	564.7	575.0	601.7	656.6	689.2	730.7	884.8	1138.2	1234.6
52.5°	490.6	498.0	514.3	521.7	539.5	595.8	625.4	668.4	795.9	1013.7	1110.1
55°	440.2	444.6	456.5	465.4	486.1	535.0	564.7	601.7	718.8	899.6	984.1
57.5°	392.8	398.7	407.6	415.0	434.2	477.2	506.9	543.9	646.2	795.9	861.1
60°	343.8	351.3	361.6	364.6	382.4	420.9	447.6	480.2	572.1	699.5	757.3
62.5°	308.3	309.8	318.6	323.1	333.5	364.6	392.8	423.9	505.4	606.2	653.6
65°	268.3	272.7	277.1	280.1	289.0	315.7	336.4	360.1	440.2	527.6	560.2
67.5°	226.8	231.2	238.6	241.6	249.0	266.8	284.6	308.3	375.0	449.1	478.7
70°	176.4	176.4	188.2	194.2	206.0	219.3	232.7	253.4	311.2	375.0	397.2
72.5°	143.8	145.2	146.7	146.7	157.1	179.3	186.7	200.1	246.0	306.8	326.1
75°	117.1	118.6	120.0	121.5	123.0	130.4	142.3	154.1	188.2	232.7	250.5
77.5°	93.4	94.9	96.3	96.3	99.3	102.3	105.2	111.2	134.9	167.5	182.3
80°	71.1	72.6	74.1	74.1	75.6	78.6	80.0	83.0	90.4	112.6	120.0
82.5°	51.9	51.9	51.9	53.4	54.8	54.8	57.8	57.8	62.2	68.2	72.6
85°	32.6	32.6	34.1	34.1	34.1	35.6	34.1	35.6	37.1	38.5	41.5
87.5°	14.8	13.3	14.8	14.8	14.8	16.3	16.3	16.3	16.3	17.8	17.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8	3614.8
2.5°	3693.3	3641.5	3554.0	3499.2	3478.4	3414.7	3353.9	3303.6	3278.4	3275.4	3229.4
5°	3766.0	3623.7	3442.9	3291.7	3256.1	3145.0	3001.2	2939.0	2857.4	2824.8	2786.3
7.5°	3825.2	3602.9	3336.2	3107.9	3041.2	2873.8	2690.0	2608.5	2546.2	2448.4	2390.6
10°	3866.7	3564.4	3205.7	2910.8	2815.9	2620.3	2398.0	2300.2	2242.4	2129.7	2083.8
12.5°	3883.0	3515.5	3075.3	2706.3	2623.3	2390.6	2172.7	2071.9	1986.0	1883.7	1839.3
15°	3877.1	3459.2	2941.9	2518.1	2414.3	2178.7	1947.5	1852.6	1772.6	1670.3	1612.5
17.5°	3837.1	3379.1	2796.7	2335.8	2236.5	1993.4	1759.2	1671.8	1600.6	1501.3	1456.9
20°	3770.4	3297.6	2669.2	2169.8	2057.1	1824.4	1603.6	1510.2	1448.0	1394.6	1362.0
22.5°	3678.5	3201.3	2513.6	2005.3	1907.4	1673.3	1461.3	1385.7	1348.7	1305.7	1282.0
25°	3539.2	3085.7	2372.8	1867.4	1769.6	1536.9	1351.7	1301.3	1264.2	1236.1	1210.9
27.5°	3389.5	2974.5	2232.0	1728.1	1636.2	1413.9	1265.7	1227.2	1194.6	1159.0	1136.8
30°	3216.1	2835.2	2098.6	1605.1	1516.2	1314.6	1191.6	1156.0	1129.3	1090.8	1068.6
32.5°	3011.6	2682.6	1974.1	1486.5	1403.5	1228.6	1123.4	1084.9	1062.7	1025.6	1003.4
35°	2799.6	2529.9	1837.8	1376.9	1301.3	1153.1	1056.7	1019.7	996.0	958.9	936.7
37.5°	2592.2	2366.9	1716.2	1280.5	1212.3	1077.5	987.1	955.9	933.7	895.2	868.5
40°	2372.8	2180.1	1597.7	1190.1	1126.4	1010.8	923.3	895.2	865.5	831.4	804.8
42.5°	2143.1	2015.6	1488.0	1110.1	1050.8	945.6	859.6	830.0	804.8	764.8	752.9
45°	1928.2	1827.4	1372.4	1025.6	978.2	880.4	797.4	767.7	739.6	705.5	693.6
47.5°	1737.0	1643.6	1267.2	951.5	904.1	816.6	735.1	704.0	683.2	656.6	638.8
50°	1539.9	1462.8	1151.6	878.9	834.4	748.4	669.9	649.2	625.4	592.8	579.5
52.5°	1356.1	1296.8	1056.7	809.2	767.7	690.6	610.6	589.9	567.6	539.5	520.2
55°	1194.6	1135.3	948.5	730.7	699.5	626.9	555.8	529.1	511.3	478.7	455.0
57.5°	1028.6	1000.4	844.8	665.5	635.8	563.2	499.5	478.7	456.5	420.9	397.2
60°	892.2	859.6	748.4	594.3	566.2	505.4	443.1	422.4	401.6	367.6	357.2
62.5°	763.3	739.6	655.1	527.6	503.9	444.6	389.8	370.5	349.8	327.5	320.1
65°	646.2	625.4	561.7	459.4	440.2	388.3	337.9	317.2	303.8	293.5	286.0
67.5°	536.5	524.7	475.7	395.7	380.9	334.9	290.5	274.2	266.8	254.9	249.0
70°	437.2	441.7	397.2	337.9	321.6	284.6	246.0	232.7	223.8	213.4	201.6
72.5°	357.2	355.7	329.0	275.7	263.8	234.2	204.5	195.6	185.3	164.5	151.2
75°	277.1	283.1	257.9	228.2	216.4	186.7	158.6	146.7	136.4	128.9	124.5
77.5°	211.9	214.9	203.0	174.9	164.5	139.3	117.1	111.2	106.7	102.3	100.8
80°	151.2	155.6	143.8	126.0	117.1	96.3	84.5	83.0	81.5	78.6	77.1
82.5°	97.8	103.7	97.8	78.6	74.1	63.7	60.8	60.8	59.3	57.8	56.3
85°	53.4	59.3	56.3	45.9	43.0	40.0	38.5	37.1	37.1	37.1	37.1
87.5°	20.7	28.2	23.7	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	3614.8	3614.8	3614.8
2.5°	3219.1	3204.3	3198.3
5°	2775.9	2730.0	2719.6
7.5°	2372.8	2353.5	2289.8
10°	2076.4	2017.1	1990.4
12.5°	1809.6	1754.8	1745.9
15°	1596.2	1557.7	1544.3
17.5°	1455.4	1428.7	1412.4
20°	1351.7	1332.4	1320.5
22.5°	1273.1	1258.3	1249.4
25°	1203.4	1181.2	1173.8
27.5°	1132.3	1113.0	1105.6
30°	1065.6	1049.3	1038.9
32.5°	996.0	976.7	970.8
35°	929.3	917.4	911.5
37.5°	864.1	849.2	840.3
40°	803.3	795.9	791.4
42.5°	748.4	735.1	733.6
45°	690.6	677.3	674.3
47.5°	635.8	624.0	622.5
50°	578.0	561.7	549.9
52.5°	508.4	493.5	483.2
55°	446.1	429.8	420.9
57.5°	394.2	386.8	382.4
60°	354.2	349.8	346.8
62.5°	318.6	314.2	314.2
65°	286.0	281.6	277.1
67.5°	246.0	237.1	235.7
70°	197.1	183.8	182.3
72.5°	149.7	148.2	145.2
75°	124.5	121.5	121.5
77.5°	100.8	97.8	97.8
80°	77.1	75.6	77.1
82.5°	56.3	56.3	54.8
85°	37.1	35.6	35.6
87.5°	17.8	17.8	17.8
90°	0.0	0.0	0.0



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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	17.81	19.27	18.18	19.58	19.90	22.91	24.36	23.27	24.67	24.99
	3H	19.15	20.45	19.52	20.78	21.14	24.18	25.49	24.56	25.82	26.18
	4H	19.54	20.76	19.94	21.11	21.49	24.63	25.85	25.03	26.20	26.58
	6H	19.85	20.98	20.26	21.34	21.74	24.92	26.05	25.34	26.42	26.81
	8H	19.95	21.02	20.38	21.41	21.81	25.00	26.07	25.43	26.46	26.86
	12H	20.02	21.04	20.45	21.43	21.86	25.04	26.06	25.47	26.45	26.88
4H	2H	18.66	19.88	19.06	20.23	20.61	22.95	24.17	23.35	24.51	24.89
	3H	20.13	21.14	20.55	21.55	21.95	24.43	25.44	24.85	25.85	26.25
	4H	20.60	21.51	21.03	21.92	22.36	24.99	25.90	25.42	26.32	26.76
	6H	20.99	21.77	21.45	22.22	22.68	25.43	26.22	25.89	26.66	27.12
	8H	21.12	21.85	21.58	22.30	22.76	25.55	26.29	26.02	26.73	27.20
	12H	21.21	21.87	21.70	22.35	22.82	25.63	26.28	26.11	26.76	27.23
8H	4H	20.99	21.72	21.45	22.17	22.64	25.00	25.73	25.46	26.18	26.65
	6H	21.46	22.06	21.95	22.55	23.03	25.49	26.09	25.98	26.58	27.06
	8H	21.64	22.18	22.16	22.69	23.18	25.65	26.19	26.17	26.70	27.19
	12H	21.80	22.28	22.31	22.77	23.34	25.78	26.26	26.29	26.75	27.32
12H	4H	21.03	21.69	21.52	22.17	22.64	24.97	25.63	25.46	26.11	26.58
	6H	21.52	22.06	22.04	22.57	23.06	25.46	26.00	25.98	26.51	27.00
	8H	21.75	22.23	22.27	22.73	23.29	25.66	26.13	26.17	26.63	27.19