

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: P646646

Luminaire Tested: S123DRP-S560D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646646
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S560D935-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

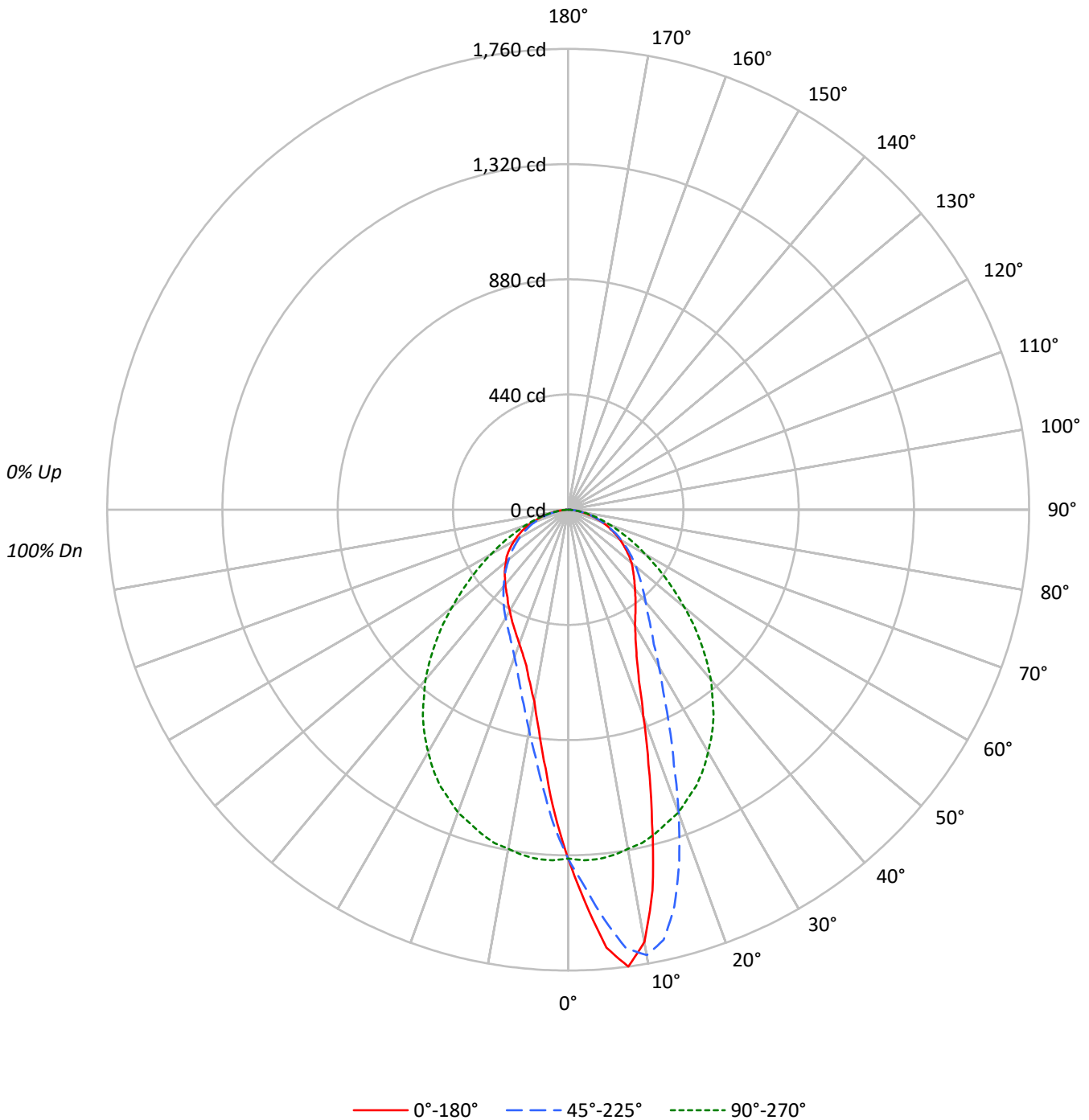
Lumens per Lamp: N/A
Luminaire Lumens: 2140.6 lumens
Efficiency: N/A
Efficacy: 115.1 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 18.6
Input Voltage (V): 120
Input Current (Ain): 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	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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86					86			
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64					64			
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56					56			
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50					50			
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45					45			
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40					40			
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37					37			
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34					34			
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31					31			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	16053	16053	16053	16053	16053
5°	20302	18986	16197	12988	11994
10°	20499	21134	16089	10492	9092
15°	15439	19557	15979	8792	7689
20°	10757	15814	15775	7665	6984
25°	8203	12132	15427	7028	6550
30°	7096	9642	14872	6641	6201
35°	6584	8075	14231	6329	5956
40°	6233	7224	13332	6038	5873
45°	6025	6710	12189	5783	5836
50°	5922	6340	10835	5562	5805
55°	5701	5987	9506	5363	5832
60°	5497	5661	8193	5169	5735
65°	5163	5306	7068	4952	5622
70°	4770	4922	6010	4682	5291
75°	4316	4460	5154	4288	4837
80°	3560	3816	4073	3733	4073
85°	2820	3083	2986	3249	3249

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 13917 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.0	5.9
10°-20°	313.4	14.6
20°-30°	371.0	17.3
30°-40°	372.8	17.4
40°-50°	341.9	16.0
50°-60°	282.2	13.2
60°-70°	199.7	9.3
70°-80°	106.6	5.0
80°-90°	27.1	1.3
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°	810.3	37.9
0°-40°	1183.1	55.3
0°-60°	1807.2	84.4
0°-90°	2140.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2140.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1332	1332	1332	1332	1332	
5°	1678	1570	1339	1074	992	160
15°	1238	1568	1281	705	616	342
25°	617	912	1160	529	493	291
35°	448	549	968	430	405	281
45°	354	394	715	339	342	274
55°	271	285	452	255	278	243
65°	181	186	248	174	197	180
75°	93	96	111	92	104	97
85°	20	22	22	24	24	24
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°	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3
2.5°	1501.7	1498.6	1483.1	1473.2	1475.7	1453.4	1439.8	1428.7	1421.3	1403.4	1394.1
5°	1678.5	1687.1	1677.2	1672.3	1646.9	1606.8	1569.7	1561.6	1527.0	1484.3	1469.5
7.5°	1760.1	1765.0	1758.8	1758.8	1750.8	1714.9	1689.0	1668.6	1609.2	1554.2	1528.9
10°	1675.4	1686.5	1710.6	1721.7	1737.8	1732.9	1727.3	1719.3	1679.1	1615.4	1586.4
12.5°	1489.3	1502.9	1551.1	1557.9	1612.9	1666.1	1683.4	1703.2	1706.9	1653.1	1621.6
15°	1237.7	1275.4	1319.3	1340.3	1410.2	1522.1	1567.8	1621.6	1685.3	1663.0	1638.3
17.5°	1019.4	1033.7	1080.6	1125.2	1195.0	1324.2	1408.9	1489.3	1625.9	1648.2	1632.7
20°	838.9	851.9	913.7	910.6	1003.4	1148.7	1233.3	1326.1	1527.6	1600.0	1596.9
22.5°	704.8	725.2	759.8	779.0	845.7	974.9	1055.3	1170.9	1415.7	1530.1	1542.5
25°	617.0	631.8	652.8	669.5	721.5	827.8	912.5	1007.7	1274.8	1438.6	1469.5
27.5°	557.0	563.2	584.2	594.1	628.7	720.2	785.8	872.9	1144.3	1336.0	1379.2
30°	510.0	514.4	532.9	536.0	563.2	629.3	693.0	764.1	1017.0	1230.3	1279.7
32.5°	477.3	480.4	494.6	495.8	516.2	564.4	608.9	675.7	896.4	1117.1	1178.3
35°	447.6	449.4	460.0	463.0	476.0	512.5	549.0	600.3	800.6	1015.1	1082.5
37.5°	421.6	424.1	430.3	434.0	444.5	473.6	498.3	540.9	708.5	908.8	983.6
40°	396.3	400.6	404.9	404.9	416.7	438.9	459.3	494.6	629.3	816.0	882.2
42.5°	374.6	379.0	380.8	381.4	387.6	408.0	425.3	449.4	569.4	733.8	798.7
45°	353.6	355.5	357.3	358.6	362.9	380.8	393.8	416.7	512.5	657.8	720.8
47.5°	334.5	334.5	335.7	337.5	340.6	353.6	364.7	381.4	463.7	589.8	641.7
50°	315.9	315.9	314.1	315.3	317.1	327.0	338.2	351.8	417.9	527.3	573.7
52.5°	293.7	293.7	294.3	292.4	294.3	302.9	311.6	325.2	379.0	469.8	509.4
55°	271.4	273.9	272.0	270.8	273.3	278.8	285.0	296.7	342.5	424.1	455.6
57.5°	249.1	250.4	249.8	251.6	250.4	255.3	260.9	268.9	309.7	372.8	402.5
60°	228.1	228.1	226.9	228.1	228.1	230.6	234.9	243.0	276.3	328.9	353.6
62.5°	204.6	205.2	205.9	205.2	204.6	207.7	211.4	217.0	247.3	286.2	304.8
65°	181.1	181.8	183.6	183.0	182.4	185.5	186.1	192.3	215.1	248.5	262.1
67.5°	160.1	158.9	159.5	160.7	161.4	162.0	163.2	169.4	185.5	212.7	223.8
70°	135.4	136.6	136.0	137.9	136.6	138.5	139.7	144.0	159.5	177.4	184.8
72.5°	113.1	113.8	113.8	115.6	115.0	116.8	118.1	119.9	131.1	147.1	150.2
75°	92.7	92.7	94.0	94.6	94.6	94.6	95.8	97.1	106.3	116.2	119.3
77.5°	70.5	73.6	72.9	73.6	74.2	76.0	74.8	77.3	82.8	88.4	90.3
80°	51.3	51.3	51.9	52.5	53.8	55.0	55.0	57.5	60.0	63.1	64.9
82.5°	32.8	33.4	35.2	35.9	36.5	38.3	38.3	38.3	41.4	42.7	42.7
85°	20.4	19.2	20.4	21.0	21.6	22.3	22.3	23.5	24.1	24.7	24.7
87.5°	9.9	9.9	9.9	9.9	10.5	10.5	10.5	10.5	11.1	11.1	11.1
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°	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3	1332.3
2.5°	1363.2	1340.3	1306.3	1278.5	1279.7	1254.4	1235.8	1211.7	1204.3	1196.9	1187.0
5°	1391.6	1339.1	1268.6	1212.3	1195.0	1153.0	1099.8	1073.8	1058.4	1031.2	1020.7
7.5°	1426.9	1330.4	1222.8	1135.1	1115.9	1046.0	983.0	952.1	923.0	903.8	880.3
10°	1449.7	1315.0	1176.5	1060.2	1041.7	961.9	879.7	857.5	821.0	797.5	775.2
12.5°	1467.0	1303.2	1128.9	993.5	963.2	885.9	803.1	772.8	746.2	712.2	696.1
15°	1482.5	1281.0	1080.0	923.6	892.1	808.6	732.0	704.8	680.7	651.0	636.8
17.5°	1476.9	1253.7	1026.2	861.8	830.3	748.0	674.5	643.6	627.5	601.5	591.6
20°	1470.1	1230.3	975.6	803.1	768.4	691.8	620.1	597.8	581.7	565.1	556.4
22.5°	1448.5	1193.2	924.2	749.3	716.5	639.9	578.7	560.1	547.7	536.0	528.6
25°	1412.0	1160.4	874.2	695.5	669.5	597.8	545.9	528.6	520.5	508.8	502.0
27.5°	1366.9	1117.1	824.1	651.6	621.9	558.3	513.7	502.6	494.0	484.7	477.9
30°	1310.0	1068.9	775.2	608.9	581.7	525.5	487.2	477.3	469.2	460.0	451.9
32.5°	1237.7	1020.1	729.5	569.4	546.5	497.7	462.4	454.4	447.6	436.5	432.1
35°	1156.7	967.5	684.4	531.7	510.0	467.4	438.3	430.3	423.5	414.2	410.5
37.5°	1074.5	905.1	639.9	499.5	480.4	442.0	414.2	406.2	400.0	392.0	390.1
40°	987.3	847.6	596.0	466.8	450.1	417.3	390.1	383.9	377.7	372.8	371.5
42.5°	899.5	781.4	557.6	439.6	421.6	391.3	366.6	359.8	356.1	353.6	354.2
45°	816.7	715.3	518.1	408.0	395.7	367.8	345.0	339.4	336.3	334.5	336.9
47.5°	727.0	647.9	481.0	381.4	369.1	344.3	322.7	317.8	316.5	315.9	320.2
50°	647.9	578.0	440.8	354.2	343.7	318.4	301.1	296.7	295.5	297.4	303.5
52.5°	573.1	513.1	404.3	328.9	318.4	295.5	279.4	276.3	275.7	280.1	286.2
55°	498.9	452.5	364.7	301.1	290.6	270.8	258.4	255.3	254.7	263.4	268.9
57.5°	435.8	393.8	327.7	274.5	266.5	247.9	236.8	234.3	236.2	244.2	249.8
60°	374.0	340.0	293.7	246.1	239.9	223.8	215.1	214.5	216.4	225.7	231.2
62.5°	318.4	292.4	257.2	220.1	215.8	201.5	193.5	194.7	196.6	205.9	210.8
65°	270.8	247.9	221.3	194.1	188.6	178.7	173.1	173.7	177.4	185.5	190.4
67.5°	224.4	205.9	191.0	169.4	165.1	156.4	152.1	154.6	156.4	164.4	169.4
70°	185.5	170.6	159.5	143.4	140.3	132.9	129.8	132.9	134.8	141.6	147.8
72.5°	149.0	139.7	131.1	119.3	116.2	111.3	110.7	111.9	115.0	121.8	124.3
75°	115.6	110.7	103.2	95.8	94.0	91.5	90.9	92.1	95.2	98.9	101.4
77.5°	87.8	83.5	77.9	74.8	72.3	71.1	71.7	73.6	74.8	78.5	80.4
80°	63.7	58.7	57.5	53.2	52.5	51.9	53.2	53.8	55.6	58.1	59.3
82.5°	42.0	38.3	37.1	36.5	35.9	35.2	37.1	37.7	38.9	40.8	41.4
85°	22.9	21.6	21.6	21.0	21.6	22.9	22.9	23.5	23.5	24.1	23.5
87.5°	10.5	9.3	9.9	9.9	9.9	10.5	10.5	11.1	11.1	11.1	10.5
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°	1332.3	1332.3	1332.3
2.5°	1186.4	1182.0	1164.7
5°	1011.4	996.6	991.6
7.5°	877.9	876.6	850.7
10°	764.7	766.6	743.1
12.5°	693.6	678.2	676.3
15°	633.1	618.8	616.4
17.5°	587.9	579.3	576.8
20°	553.9	549.0	544.7
22.5°	526.7	520.5	516.8
25°	499.5	494.0	492.7
27.5°	476.0	469.2	469.2
30°	451.9	447.6	445.7
32.5°	430.3	426.6	426.6
35°	409.3	407.4	404.9
37.5°	390.1	390.1	388.9
40°	371.5	373.4	373.4
42.5°	355.5	357.3	357.3
45°	338.2	341.3	342.5
47.5°	320.9	325.8	327.0
50°	305.4	309.1	309.7
52.5°	288.7	293.0	296.1
55°	271.4	275.7	277.6
57.5°	252.9	257.2	257.8
60°	232.5	236.8	238.0
62.5°	213.9	216.4	217.6
65°	191.0	194.7	197.2
67.5°	170.0	173.1	173.1
70°	147.1	148.4	150.2
72.5°	125.5	126.1	126.1
75°	102.0	103.2	103.9
77.5°	80.4	81.0	81.0
80°	59.3	58.7	58.7
82.5°	41.4	39.6	39.6
85°	23.5	22.9	23.5
87.5°	10.5	10.5	10.5
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	17.13	18.64	17.50	18.96	19.27	19.59	21.10	19.95	21.41	21.72
	3H	18.83	20.18	19.20	20.51	20.87	20.80	22.16	21.18	22.48	22.85
	4H	19.43	20.70	19.83	21.05	21.43	21.22	22.49	21.62	22.84	23.22
	6H	19.83	21.01	20.24	21.37	21.77	21.49	22.67	21.91	23.04	23.43
	8H	19.93	21.05	20.36	21.44	21.84	21.56	22.68	21.99	23.07	23.47
	12H	19.99	21.06	20.42	21.44	21.87	21.60	22.67	22.03	23.05	23.48
4H	2H	17.78	19.05	18.18	19.40	19.78	19.81	21.08	20.21	21.43	21.81
	3H	19.67	20.72	20.08	21.12	21.53	21.29	22.35	21.70	22.75	23.15
	4H	20.39	21.34	20.82	21.76	22.19	21.86	22.81	22.29	23.22	23.66
	6H	20.90	21.73	21.36	22.17	22.63	22.25	23.08	22.71	23.52	23.98
	8H	21.04	21.81	21.50	22.25	22.72	22.36	23.13	22.82	23.57	24.04
	12H	21.12	21.81	21.61	22.29	22.76	22.42	23.11	22.90	23.59	24.06
8H	4H	20.71	21.49	21.18	21.93	22.40	22.02	22.80	22.48	23.24	23.71
	6H	21.33	21.97	21.82	22.46	22.93	22.51	23.15	23.01	23.64	24.12
	8H	21.52	22.10	22.04	22.61	23.09	22.68	23.25	23.19	23.76	24.25
	12H	21.67	22.17	22.18	22.66	23.23	22.79	23.30	23.30	23.79	24.36
12H	4H	20.74	21.44	21.23	21.91	22.39	22.03	22.72	22.51	23.20	23.67
	6H	21.38	21.95	21.89	22.46	22.95	22.53	23.11	23.05	23.62	24.10
	8H	21.63	22.13	22.14	22.63	23.19	22.74	23.25	23.25	23.74	24.31