

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: P646691

Luminaire Tested: S123RDRP-S560D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646691
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-S560D935-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

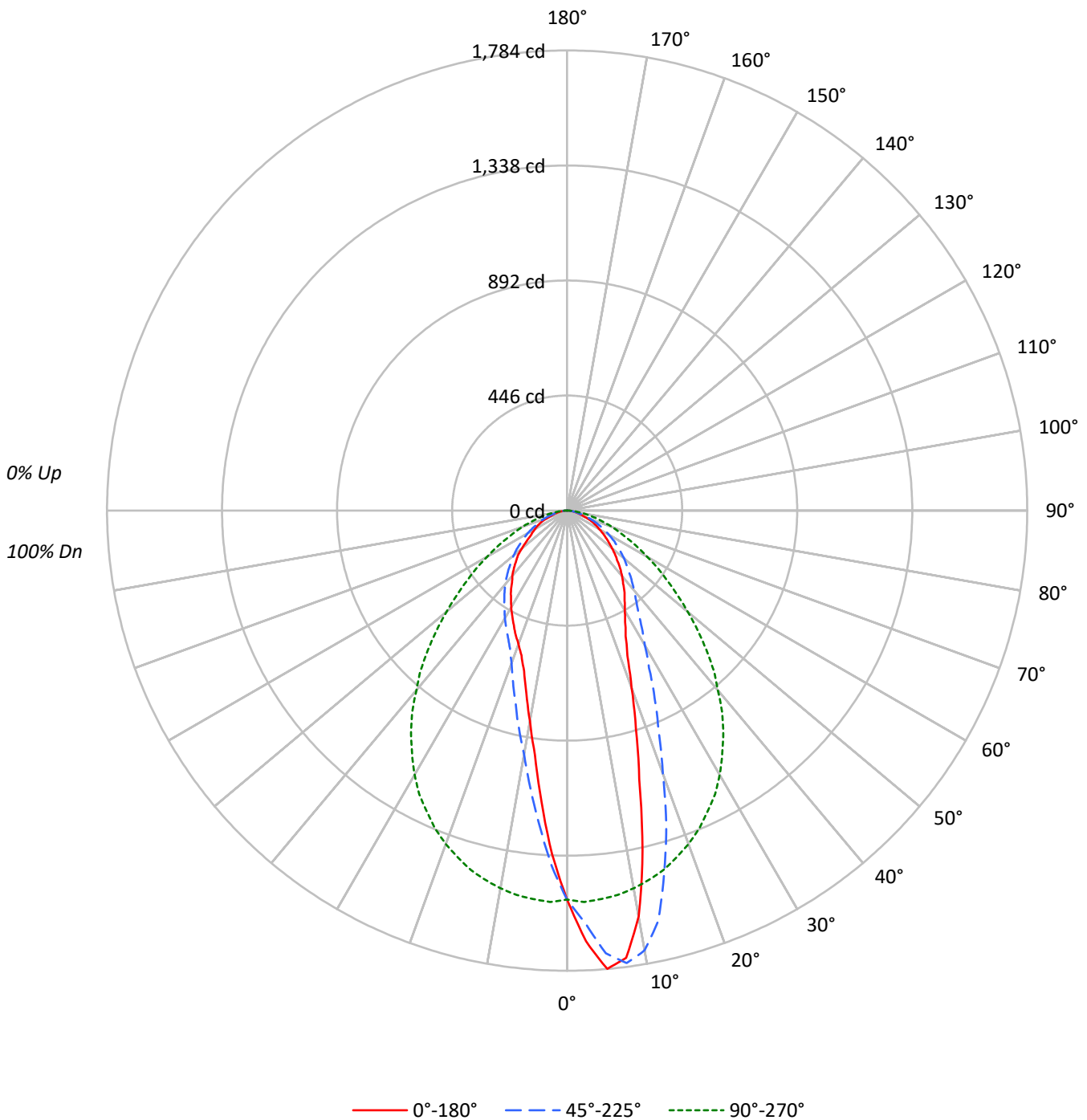
Lumens per Lamp: N/A
Luminaire Lumens: 1997.6 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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	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°	18168	18168	18168	18168	18168
5°	21573	20840	18282	14828	13721
10°	19545	21179	18191	11740	10159
15°	13457	18139	17999	9640	8036
20°	9362	13912	17637	8078	7063
25°	7134	10677	17112	7216	6509
30°	6211	8395	16455	6709	6030
35°	5701	7066	15523	6256	5592
40°	5202	6340	14304	5873	5192
45°	4698	5804	12990	5456	4793
50°	4265	5389	11438	5076	4300
55°	3857	4947	9949	4636	3689
60°	3456	4499	8642	4246	3487
65°	3190	4000	7438	3772	3296
70°	2593	3421	6489	3421	2677
75°	2272	2761	5498	2849	2360
80°	2061	2318	4503	2401	2227
85°	1880	1963	3415	2143	2046

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 13705 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	137.4	6.9
10°-20°	318.0	15.9
20°-30°	364.8	18.3
30°-40°	359.3	18.0
40°-50°	316.7	15.9
50°-60°	243.7	12.2
60°-70°	160.3	8.0
70°-80°	77.8	3.9
80°-90°	19.6	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°	820.2	41.1
0°-40°	1179.5	59.0
0°-60°	1739.9	87.1
0°-90°	1997.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1997.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1508	1508	1508	1508	1508	
5°	1784	1723	1512	1226	1134	163
15°	1079	1454	1443	773	644	305
25°	537	803	1287	543	490	253
35°	388	480	1055	425	380	242
45°	276	341	762	320	281	214
55°	184	236	474	221	176	165
65°	112	140	261	132	116	110
75°	49	59	118	61	51	53
85°	14	14	25	16	15	15
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°	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8
2.5°	1671.0	1660.5	1657.4	1653.7	1647.6	1625.3	1600.0	1602.4	1599.3	1580.2	1569.7
5°	1783.6	1784.8	1781.7	1779.2	1768.7	1741.5	1723.0	1711.8	1688.4	1652.5	1641.4
7.5°	1748.9	1768.7	1772.4	1776.8	1782.3	1776.1	1769.3	1765.0	1745.9	1706.9	1689.0
10°	1597.5	1596.2	1618.5	1636.4	1684.6	1718.6	1731.0	1748.9	1765.0	1737.8	1718.0
12.5°	1350.2	1352.0	1425.0	1425.0	1487.4	1574.0	1629.6	1667.3	1736.6	1738.4	1726.7
15°	1078.8	1109.1	1174.0	1187.6	1268.0	1384.2	1454.1	1531.9	1666.1	1708.1	1705.7
17.5°	885.9	898.9	961.3	979.3	1050.4	1182.0	1278.5	1372.4	1560.4	1648.8	1664.9
20°	730.1	741.9	787.0	800.6	872.3	997.8	1085.0	1186.4	1432.4	1567.8	1596.2
22.5°	609.6	632.4	662.7	683.8	724.6	852.5	927.3	1024.4	1284.0	1476.9	1510.3
25°	536.6	547.1	573.1	583.0	632.4	717.1	803.1	888.4	1152.4	1363.2	1421.9
27.5°	487.2	490.2	509.4	518.1	547.7	626.3	688.1	767.2	1018.2	1246.3	1315.0
30°	446.4	451.9	466.8	468.6	494.6	550.2	603.4	676.3	900.7	1133.2	1203.7
32.5°	414.8	417.9	430.3	434.0	450.7	494.6	537.9	591.0	791.9	1015.1	1096.1
35°	387.6	388.2	397.5	402.5	417.3	453.8	480.4	524.9	704.8	917.4	988.5
37.5°	356.7	361.0	367.8	372.2	385.2	414.8	438.9	473.6	624.4	824.7	890.9
40°	330.7	334.5	342.5	344.3	356.1	383.3	403.1	434.0	555.2	735.7	803.1
42.5°	304.8	307.3	315.3	319.0	332.0	353.6	371.5	395.7	500.1	656.5	722.7
45°	275.7	281.9	290.6	292.4	304.8	327.0	340.6	362.9	450.7	587.9	646.7
47.5°	251.6	254.7	262.1	265.2	279.4	299.2	313.4	332.6	408.0	525.5	583.0
50°	227.5	228.7	235.5	239.9	251.0	273.9	287.5	304.8	369.1	474.8	515.0
52.5°	204.6	207.7	214.5	217.6	225.0	248.5	260.9	278.8	332.0	422.9	463.0
55°	183.6	185.5	190.4	194.1	202.8	223.2	235.5	251.0	299.8	375.3	410.5
57.5°	163.8	166.3	170.0	173.1	181.1	199.1	211.4	226.9	269.5	332.0	359.2
60°	143.4	146.5	150.8	152.1	159.5	175.6	186.7	200.3	238.6	291.8	315.9
62.5°	128.6	129.2	132.9	134.8	139.1	152.1	163.8	176.8	210.8	252.9	272.6
65°	111.9	113.8	115.6	116.8	120.6	131.7	140.3	150.2	183.6	220.1	233.7
67.5°	94.6	96.4	99.5	100.8	103.9	111.3	118.7	128.6	156.4	187.3	199.7
70°	73.6	73.6	78.5	81.0	85.9	91.5	97.1	105.7	129.8	156.4	165.7
72.5°	60.0	60.6	61.2	61.2	65.5	74.8	77.9	83.5	102.6	128.0	136.0
75°	48.8	49.5	50.1	50.7	51.3	54.4	59.3	64.3	78.5	97.1	104.5
77.5°	38.9	39.6	40.2	40.2	41.4	42.7	43.9	46.4	56.3	69.9	76.0
80°	29.7	30.3	30.9	30.9	31.5	32.8	33.4	34.6	37.7	47.0	50.1
82.5°	21.6	21.6	21.6	22.3	22.9	22.9	24.1	24.1	26.0	28.4	30.3
85°	13.6	13.6	14.2	14.2	14.2	14.8	14.2	14.8	15.5	16.1	17.3
87.5°	6.2	5.6	6.2	6.2	6.2	6.8	6.8	6.8	6.8	7.4	7.4
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°	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8	1507.8
2.5°	1540.6	1519.0	1482.5	1459.6	1451.0	1424.4	1399.0	1378.0	1367.5	1366.3	1347.1
5°	1570.9	1511.5	1436.1	1373.1	1358.2	1311.9	1251.9	1225.9	1191.9	1178.3	1162.3
7.5°	1595.6	1502.9	1391.6	1296.4	1268.6	1198.7	1122.1	1088.1	1062.1	1021.3	997.2
10°	1612.9	1486.8	1337.2	1214.2	1174.6	1093.0	1000.3	959.5	935.4	888.4	869.2
12.5°	1619.7	1466.4	1282.8	1128.9	1094.2	997.2	906.3	864.3	828.4	785.8	767.2
15°	1617.3	1442.9	1227.2	1050.4	1007.1	908.8	812.3	772.8	739.4	696.7	672.6
17.5°	1600.6	1409.5	1166.6	974.3	932.9	831.5	733.8	697.4	667.7	626.3	607.7
20°	1572.8	1375.5	1113.4	905.1	858.1	761.0	668.9	630.0	604.0	581.7	568.1
22.5°	1534.4	1335.4	1048.5	836.5	795.6	698.0	609.6	578.0	562.6	544.7	534.8
25°	1476.3	1287.1	989.8	779.0	738.2	641.1	563.8	542.8	527.3	515.6	505.1
27.5°	1413.9	1240.8	931.0	720.8	682.5	589.8	528.0	511.9	498.3	483.4	474.2
30°	1341.5	1182.7	875.4	669.5	632.4	548.4	497.0	482.2	471.1	455.0	445.7
32.5°	1256.2	1119.0	823.5	620.1	585.5	512.5	468.6	452.5	443.3	427.8	418.5
35°	1167.8	1055.3	766.6	574.3	542.8	481.0	440.8	425.3	415.4	400.0	390.7
37.5°	1081.3	987.3	715.9	534.1	505.7	449.4	411.7	398.8	389.5	373.4	362.3
40°	989.8	909.4	666.4	496.4	469.8	421.6	385.2	373.4	361.0	346.8	335.7
42.5°	893.9	840.8	620.7	463.0	438.3	394.4	358.6	346.2	335.7	319.0	314.1
45°	804.3	762.3	572.5	427.8	408.0	367.2	332.6	320.2	308.5	294.3	289.3
47.5°	724.6	685.6	528.6	396.9	377.1	340.6	306.6	293.7	285.0	273.9	266.5
50°	642.3	610.2	480.4	366.6	348.1	312.2	279.4	270.8	260.9	247.3	241.7
52.5°	565.7	540.9	440.8	337.5	320.2	288.1	254.7	246.1	236.8	225.0	217.0
55°	498.3	473.6	395.7	304.8	291.8	261.5	231.8	220.7	213.3	199.7	189.8
57.5°	429.0	417.3	352.4	277.6	265.2	234.9	208.3	199.7	190.4	175.6	165.7
60°	372.2	358.6	312.2	247.9	236.2	210.8	184.8	176.2	167.5	153.3	149.0
62.5°	318.4	308.5	273.3	220.1	210.2	185.5	162.6	154.6	145.9	136.6	133.5
65°	269.5	260.9	234.3	191.6	183.6	162.0	141.0	132.3	126.7	122.4	119.3
67.5°	223.8	218.8	198.4	165.1	158.9	139.7	121.2	114.4	111.3	106.3	103.9
70°	182.4	184.2	165.7	141.0	134.2	118.7	102.6	97.1	93.4	89.0	84.1
72.5°	149.0	148.4	137.2	115.0	110.0	97.7	85.3	81.6	77.3	68.6	63.1
75°	115.6	118.1	107.6	95.2	90.3	77.9	66.1	61.2	56.9	53.8	51.9
77.5°	88.4	89.6	84.7	72.9	68.6	58.1	48.8	46.4	44.5	42.7	42.0
80°	63.1	64.9	60.0	52.5	48.8	40.2	35.2	34.6	34.0	32.8	32.1
82.5°	40.8	43.3	40.8	32.8	30.9	26.6	25.3	25.3	24.7	24.1	23.5
85°	22.3	24.7	23.5	19.2	17.9	16.7	16.1	15.5	15.5	15.5	15.5
87.5°	8.7	11.7	9.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
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°	1507.8	1507.8	1507.8
2.5°	1342.8	1336.6	1334.1
5°	1157.9	1138.8	1134.4
7.5°	989.8	981.7	955.1
10°	866.1	841.4	830.3
12.5°	754.8	732.0	728.3
15°	665.8	649.7	644.2
17.5°	607.1	596.0	589.2
20°	563.8	555.8	550.8
22.5°	531.1	524.9	521.2
25°	502.0	492.7	489.6
27.5°	472.3	464.3	461.2
30°	444.5	437.7	433.4
32.5°	415.4	407.4	404.9
35°	387.6	382.7	380.2
37.5°	360.4	354.2	350.5
40°	335.1	332.0	330.1
42.5°	312.2	306.6	306.0
45°	288.1	282.5	281.3
47.5°	265.2	260.3	259.7
50°	241.1	234.3	229.4
52.5°	212.0	205.9	201.5
55°	186.1	179.3	175.6
57.5°	164.4	161.4	159.5
60°	147.8	145.9	144.7
62.5°	132.9	131.1	131.1
65°	119.3	117.5	115.6
67.5°	102.6	98.9	98.3
70°	82.2	76.7	76.0
72.5°	62.4	61.8	60.6
75°	51.9	50.7	50.7
77.5°	42.0	40.8	40.8
80°	32.1	31.5	32.1
82.5°	23.5	23.5	22.9
85°	15.5	14.8	14.8
87.5°	7.4	7.4	7.4
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	14.77	16.23	15.14	16.54	16.86	19.87	21.32	20.23	21.64	21.95
	3H	16.11	17.41	16.49	17.74	18.10	21.15	22.45	21.52	22.78	23.14
	4H	16.51	17.73	16.91	18.07	18.45	21.59	22.81	21.99	23.16	23.54
	6H	16.81	17.94	17.23	18.31	18.70	21.89	23.01	22.30	23.38	23.77
	8H	16.91	17.98	17.34	18.37	18.78	21.96	23.03	22.39	23.42	23.82
	12H	16.98	18.00	17.41	18.39	18.82	22.00	23.03	22.43	23.41	23.84
4H	2H	15.62	16.84	16.02	17.19	17.57	19.91	21.13	20.31	21.48	21.86
	3H	17.10	18.11	17.51	18.51	18.91	21.40	22.41	21.81	22.81	23.21
	4H	17.56	18.47	17.99	18.88	19.32	21.95	22.86	22.39	23.28	23.72
	6H	17.95	18.74	18.41	19.18	19.64	22.39	23.18	22.85	23.62	24.09
	8H	18.08	18.81	18.54	19.26	19.73	22.51	23.25	22.98	23.69	24.16
	12H	18.18	18.83	18.66	19.31	19.78	22.59	23.24	23.07	23.72	24.20
8H	4H	17.95	18.68	18.41	19.13	19.60	21.96	22.69	22.42	23.14	23.61
	6H	18.42	19.02	18.92	19.52	19.99	22.45	23.05	22.95	23.55	24.02
	8H	18.60	19.14	19.12	19.66	20.14	22.61	23.15	23.13	23.66	24.15
	12H	18.76	19.24	19.27	19.73	20.30	22.74	23.22	23.25	23.71	24.28
12H	4H	17.99	18.65	18.48	19.13	19.60	21.94	22.59	22.42	23.07	23.54
	6H	18.48	19.03	19.00	19.54	20.03	22.42	22.96	22.94	23.48	23.96
	8H	18.72	19.19	19.23	19.69	20.25	22.62	23.10	23.13	23.59	24.16