

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: P646671

Luminaire Tested: S123RDRP-S1165D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646671  
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-S1165D927-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: -

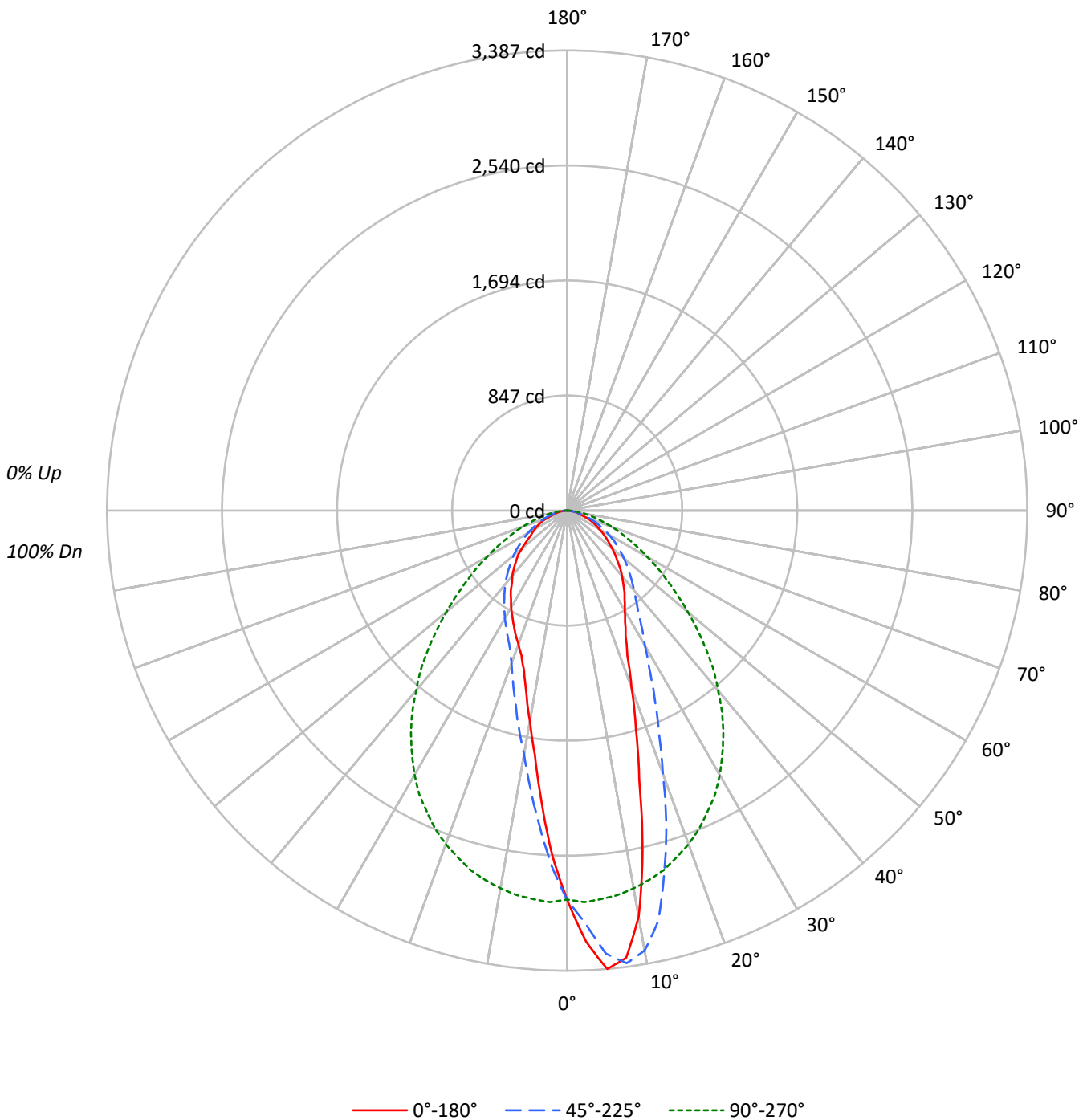
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3793.8 lumens  
Efficiency: N/A  
Efficacy: 94.6 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 (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°	34504	34504	34504	34504	34504
5°	40969	39577	34720	28160	26058
10°	37119	40222	34547	22295	19292
15°	25557	34446	34183	18307	15261
20°	17780	26421	33496	15341	13414
25°	13549	20276	32498	13704	12363
30°	11794	15943	31249	12742	11451
35°	10828	13419	29479	11882	10622
40°	9879	12041	27166	11153	9862
45°	8922	11023	24667	10364	9103
50°	8100	10233	21722	9639	8165
55°	7325	9396	18892	8804	7004
60°	6564	8545	16411	8063	6620
65°	6059	7598	14127	7165	6261
70°	4922	6493	12327	6493	5087
75°	4320	5247	10438	5410	4483
80°	3914	4399	8556	4559	4240
85°	3567	3733	6498	4065	3899

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 26029 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	261.0	6.9
10°-20°	603.8	15.9
20°-30°	692.8	18.3
30°-40°	682.4	18.0
40°-50°	601.5	15.9
50°-60°	462.9	12.2
60°-70°	304.4	8.0
70°-80°	147.8	3.9
80°-90°	37.3	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°	1557.6	41.1
0°-40°	2240.0	59.0
0°-60°	3304.3	87.1
0°-90°	3793.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3793.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2864	2864	2864	2864	2864	
5°	3387	3272	2871	2328	2154	309
15°	2049	2761	2740	1468	1223	578
25°	1019	1525	2444	1031	930	481
35°	736	912	2004	808	722	459
45°	524	647	1448	608	534	406
55°	349	447	899	419	333	313
65°	212	266	496	251	220	208
75°	93	113	224	116	96	100
85°	26	27	47	29	28	29
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°	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6
2.5°	3173.5	3153.6	3147.7	3140.6	3128.9	3086.6	3038.5	3043.2	3037.3	3000.9	2981.0
5°	3387.2	3389.6	3383.7	3379.0	3359.0	3307.4	3272.1	3251.0	3206.4	3138.3	3117.2
7.5°	3321.5	3359.0	3366.1	3374.3	3384.9	3373.1	3360.2	3352.0	3315.6	3241.6	3207.6
10°	3033.8	3031.5	3073.7	3107.8	3199.4	3263.9	3287.4	3321.5	3352.0	3300.3	3262.8
12.5°	2564.2	2567.7	2706.2	2706.2	2824.8	2989.2	3094.9	3166.5	3298.0	3301.5	3279.2
15°	2048.8	2106.3	2229.6	2255.4	2408.0	2628.8	2761.4	2909.4	3164.1	3244.0	3239.3
17.5°	1682.4	1707.1	1825.7	1859.7	1994.8	2244.8	2428.0	2606.4	2963.4	3131.3	3161.8
20°	1386.6	1408.9	1494.6	1520.4	1656.6	1895.0	2060.5	2253.0	2720.3	2977.5	3031.5
22.5°	1157.6	1201.1	1258.6	1298.5	1376.0	1619.0	1761.1	1945.4	2438.6	2804.9	2868.3
25°	1019.1	1039.1	1088.4	1107.2	1201.1	1361.9	1525.1	1687.1	2188.5	2588.8	2700.4
27.5°	925.2	931.0	967.4	983.9	1040.2	1189.3	1306.7	1457.0	1933.7	2366.9	2497.3
30°	847.7	858.2	886.4	889.9	939.3	1044.9	1145.9	1284.4	1710.6	2152.1	2285.9
32.5°	787.8	793.7	817.2	824.2	855.9	939.3	1021.4	1122.4	1504.0	1927.8	2081.6
35°	736.1	737.3	754.9	764.3	792.5	861.8	912.3	996.8	1338.4	1742.3	1877.3
37.5°	677.4	685.7	698.6	706.8	731.4	787.8	833.6	899.3	1185.8	1566.2	1691.8
40°	628.1	635.2	650.4	654.0	676.3	727.9	765.5	824.2	1054.3	1397.1	1525.1
42.5°	578.8	583.5	598.8	605.8	630.5	671.6	705.6	751.4	949.8	1246.9	1372.5
45°	523.6	535.4	551.8	555.3	578.8	621.1	646.9	689.2	855.9	1116.5	1228.1
47.5°	477.8	483.7	497.8	503.7	530.7	568.3	595.3	631.7	774.9	998.0	1107.2
50°	432.1	434.4	447.3	455.5	476.7	520.1	545.9	578.8	700.9	901.7	978.0
52.5°	388.6	394.5	407.4	413.3	427.4	472.0	495.5	529.5	630.5	803.1	879.4
55°	348.7	352.2	361.6	368.7	385.1	423.8	447.3	476.7	569.4	712.7	779.6
57.5°	311.1	315.8	322.9	328.7	344.0	378.1	401.5	430.9	511.9	630.5	682.1
60°	272.4	278.3	286.5	288.8	302.9	333.4	354.6	380.4	453.2	554.2	600.0
62.5°	244.2	245.4	252.4	255.9	264.2	288.8	311.1	335.8	400.4	480.2	517.8
65°	212.5	216.0	219.6	221.9	228.9	250.1	266.5	285.3	348.7	418.0	443.8
67.5°	179.6	183.2	189.0	191.4	197.2	211.3	225.4	244.2	297.0	355.7	379.2
70°	139.7	139.7	149.1	153.8	163.2	173.8	184.3	200.8	246.6	297.0	314.7
72.5°	113.9	115.1	116.2	116.2	124.5	142.1	147.9	158.5	194.9	243.0	258.3
75°	92.8	93.9	95.1	96.3	97.4	103.3	112.7	122.1	149.1	184.3	198.4
77.5°	74.0	75.1	76.3	76.3	78.7	81.0	83.4	88.1	106.8	132.7	144.4
80°	56.4	57.5	58.7	58.7	59.9	62.2	63.4	65.7	71.6	89.2	95.1
82.5°	41.1	41.1	41.1	42.3	43.4	43.4	45.8	45.8	49.3	54.0	57.5
85°	25.8	25.8	27.0	27.0	27.0	28.2	27.0	28.2	29.4	30.5	32.9
87.5°	11.7	10.6	11.7	11.7	11.7	12.9	12.9	12.9	12.9	14.1	14.1
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°	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6	2863.6
2.5°	2925.8	2884.7	2815.4	2772.0	2755.6	2705.1	2656.9	2617.0	2597.1	2594.7	2558.3
5°	2983.3	2870.6	2727.4	2607.6	2579.4	2491.4	2377.5	2328.2	2263.6	2237.8	2207.3
7.5°	3030.3	2854.2	2642.8	2462.0	2409.2	2276.5	2130.9	2066.4	2017.1	1939.6	1893.8
10°	3063.2	2823.6	2539.5	2305.9	2230.7	2075.8	1899.7	1822.2	1776.4	1687.1	1650.7
12.5°	3076.1	2784.9	2436.2	2143.9	2078.1	1893.8	1721.2	1641.4	1573.3	1492.2	1457.0
15°	3071.4	2740.3	2330.5	1994.8	1912.6	1725.9	1542.7	1467.6	1404.2	1323.2	1277.4
17.5°	3039.7	2676.9	2215.5	1850.3	1771.7	1579.1	1393.6	1324.4	1268.0	1189.3	1154.1
20°	2986.8	2612.3	2114.5	1718.8	1629.6	1445.3	1270.3	1196.4	1147.1	1104.8	1079.0
22.5°	2914.1	2536.0	1991.2	1588.5	1511.0	1325.5	1157.6	1097.8	1068.4	1034.4	1015.6
25°	2803.7	2444.4	1879.7	1479.3	1401.8	1217.5	1070.8	1030.8	1001.5	979.2	959.2
27.5°	2685.1	2356.4	1768.2	1369.0	1296.2	1120.1	1002.7	972.1	946.3	918.1	900.5
30°	2547.7	2246.0	1662.5	1271.5	1201.1	1041.4	944.0	915.8	894.6	864.1	846.5
32.5°	2385.7	2125.1	1563.9	1177.6	1111.8	973.3	889.9	859.4	841.8	812.5	794.8
35°	2217.8	2004.1	1455.9	1090.7	1030.8	913.4	837.1	807.8	789.0	759.6	742.0
37.5°	2053.5	1875.0	1359.6	1014.4	960.4	853.6	781.9	757.3	739.7	709.1	688.0
40°	1879.7	1727.1	1265.7	942.8	892.3	800.7	731.4	709.1	685.7	658.7	637.5
42.5°	1697.7	1596.7	1178.8	879.4	832.4	749.1	681.0	657.5	637.5	605.8	596.4
45°	1527.5	1447.6	1087.2	812.5	774.9	697.4	631.7	608.2	585.9	558.9	549.5
47.5°	1376.0	1302.0	1003.8	753.8	716.2	646.9	582.3	557.7	541.2	520.1	506.0
50°	1219.9	1158.8	912.3	696.2	661.0	592.9	530.7	514.2	495.5	469.6	459.1
52.5°	1074.3	1027.3	837.1	641.0	608.2	547.1	483.7	467.3	449.7	427.4	412.1
55°	946.3	899.3	751.4	578.8	554.2	496.6	440.3	419.1	405.1	379.2	360.4
57.5°	814.8	792.5	669.2	527.2	503.7	446.1	395.7	379.2	361.6	333.4	314.7
60°	706.8	681.0	592.9	470.8	448.5	400.4	351.0	334.6	318.2	291.2	283.0
62.5°	604.6	585.9	518.9	418.0	399.2	352.2	308.8	293.5	277.1	259.5	253.6
65°	511.9	495.5	445.0	364.0	348.7	307.6	267.7	251.3	240.7	232.5	226.6
67.5°	425.0	415.6	376.9	313.5	301.7	265.3	230.1	217.2	211.3	201.9	197.2
70°	346.4	349.9	314.7	267.7	254.8	225.4	194.9	184.3	177.3	169.1	159.7
72.5°	283.0	281.8	260.6	218.4	209.0	185.5	162.0	155.0	146.8	130.3	119.8
75°	219.6	224.2	204.3	180.8	171.4	147.9	125.6	116.2	108.0	102.1	98.6
77.5°	167.9	170.2	160.8	138.5	130.3	110.4	92.8	88.1	84.5	81.0	79.8
80°	119.8	123.3	113.9	99.8	92.8	76.3	66.9	65.7	64.6	62.2	61.1
82.5°	77.5	82.2	77.5	62.2	58.7	50.5	48.1	48.1	47.0	45.8	44.6
85°	42.3	47.0	44.6	36.4	34.0	31.7	30.5	29.4	29.4	29.4	29.4
87.5°	16.4	22.3	18.8	15.3	15.3	15.3	15.3	15.3	15.3	15.3	15.3
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°	2863.6	2863.6	2863.6
2.5°	2550.1	2538.3	2533.7
5°	2199.0	2162.6	2154.4
7.5°	1879.7	1864.4	1813.9
10°	1644.9	1597.9	1576.8
12.5°	1433.5	1390.1	1383.1
15°	1264.5	1234.0	1223.4
17.5°	1152.9	1131.8	1118.9
20°	1070.8	1055.5	1046.1
22.5°	1008.5	996.8	989.7
25°	953.3	935.7	929.9
27.5°	897.0	881.7	875.9
30°	844.2	831.2	823.0
32.5°	789.0	773.7	769.0
35°	736.1	726.8	722.1
37.5°	684.5	672.7	665.7
40°	636.3	630.5	627.0
42.5°	592.9	582.3	581.2
45°	547.1	536.6	534.2
47.5°	503.7	494.3	493.1
50°	457.9	445.0	435.6
52.5°	402.7	391.0	382.7
55°	353.4	340.5	333.4
57.5°	312.3	306.4	302.9
60°	280.6	277.1	274.7
62.5°	252.4	248.9	248.9
65°	226.6	223.1	219.6
67.5°	194.9	187.9	186.7
70°	156.2	145.6	144.4
72.5°	118.6	117.4	115.1
75°	98.6	96.3	96.3
77.5°	79.8	77.5	77.5
80°	61.1	59.9	61.1
82.5°	44.6	44.6	43.4
85°	29.4	28.2	28.2
87.5°	14.1	14.1	14.1
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	17.00	18.46	17.37	18.77	19.09	22.10	23.55	22.46	23.87	24.18
	3H	18.34	19.64	18.71	19.97	20.33	23.37	24.68	23.75	25.01	25.37
	4H	18.73	19.95	19.13	20.30	20.68	23.82	25.04	24.22	25.39	25.77
	6H	19.04	20.17	19.45	20.53	20.93	24.11	25.24	24.53	25.61	26.00
	8H	19.14	20.21	19.57	20.60	21.00	24.19	25.26	24.62	25.65	26.05
	12H	19.21	20.23	19.64	20.62	21.05	24.23	25.25	24.66	25.64	26.07
4H	2H	17.85	19.07	18.25	19.42	19.80	22.14	23.36	22.54	23.71	24.09
	3H	19.33	20.34	19.74	20.74	21.14	23.63	24.64	24.04	25.04	25.44
	4H	19.79	20.70	20.22	21.11	21.55	24.18	25.09	24.62	25.51	25.95
	6H	20.18	20.96	20.64	21.41	21.87	24.62	25.41	25.08	25.85	26.31
	8H	20.31	21.04	20.77	21.49	21.95	24.74	25.48	25.21	25.92	26.39
	12H	20.41	21.06	20.89	21.54	22.01	24.82	25.47	25.30	25.95	26.42
8H	4H	20.18	20.91	20.64	21.36	21.83	24.19	24.92	24.65	25.37	25.84
	6H	20.65	21.25	21.15	21.74	22.22	24.68	25.28	25.17	25.77	26.25
	8H	20.83	21.37	21.35	21.88	22.37	24.84	25.38	25.36	25.89	26.38
	12H	20.99	21.47	21.50	21.96	22.53	24.97	25.45	25.48	25.94	26.51
12H	4H	20.22	20.88	20.71	21.36	21.83	24.16	24.82	24.65	25.30	25.77
	6H	20.71	21.25	21.23	21.76	22.25	24.65	25.19	25.17	25.70	26.19
	8H	20.94	21.42	21.46	21.92	22.48	24.85	25.32	25.36	25.82	26.38