LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
f. 714.676.5558

Report No: L041608806R01
Date: 5/20/2016

NVLAP LAB CODE 200927-0

Report No: L041608806R01

Prepared For: Number Eight Lighting Company
526 Portal Street, Cotati, CA 94931

Model Number: 400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB)

Test: Photometric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is 400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB). Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 5/9/16

Date of Tests: 5/19/16 - 5/19/16

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Test Summary	
Manufacturer:	Number Eight Lighting Company
Model Number:	400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB)
Driver Model Number:	INTUITIVE SYSTEMS ISD-601-1050-15-D
Total Lumens:	778.52
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.13
Input Power (W):	14.72
Input Power Factor:	0.97
Current ATHD @ 120V(%):	14%
Current ATHD @ 277V(%):	N/A
Efficacy:	53
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:45
Off State Power(W):	0.00

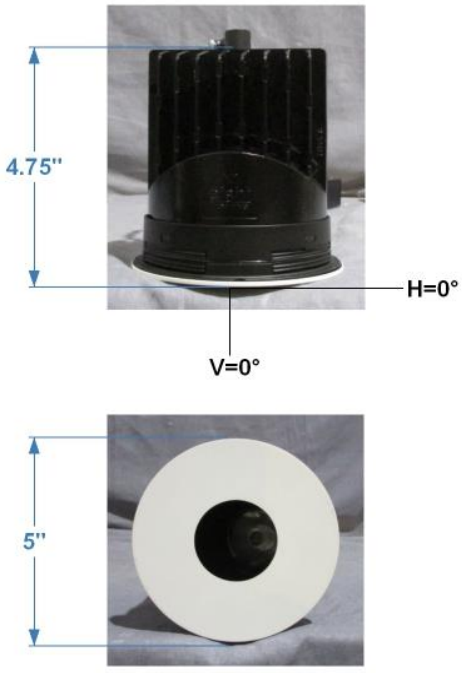

FIG.1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Dennis Malonzo

Test Report Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 11*

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L41608806R01
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 05/20/2016
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 400-HI-15/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB)
[LUMINAIRE] 5"DI. X 4.75"H LED Recessed Adjustable Downlight, 90+ CRI,
[MORE] 15° Beam Spread, 35° Aiming Angle, 2" Aperture Trim LUMINAIRE
[BALLASTCAT] INTUITIVE SYSTEMS ISD-601-1050-15-D
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 14.72W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	779
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	53
Total Luminaire Watts	14.72
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.18
Spacing Criterion (90-270)	0.64
Spacing Criterion (Diagonal)	1.42
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.17 ft (Diameter)
Luminous Width (90-270)	0.17 ft (Diameter)
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	670	1340	3015
55	826	1652	2891
65	1121	2242	3363
75	1831	3661	5492
85	5436	5436	16308

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	71	71	71	71	71	71	71	71	71	71
2	54	54	55	55	56	56	57	58	59	60
4	39	39	39	40	41	42	43	44	46	48
6	28	28	29	29	30	31	32	34	36	38
8	20	20	20	21	22	23	24	25	27	29
10	14	14	14	14	15	16	17	19	20	22
12	10	10	10	10	11	11	12	13	14	16
14	7	7	7	7	8	8	9	10	11	12
16	5	5	5	5	6	6	7	7	9	9
18	4	4	4	4	5	5	5	6	6	7
20	3	3	3	3	4	4	4	5	5	6
22	3	3	3	3	3	3	4	4	4	5
24	2	2	2	2	3	3	3	3	4	4
26	2	2	2	2	2	2	3	3	3	4
28	2	2	2	2	2	2	2	3	3	3
30	2	2	2	2	2	2	2	2	3	3
32	2	2	2	2	2	2	2	2	2	3
34	2	2	2	2	2	2	2	2	2	3
35	2	2	2	2	2	2	2	2	2	3
36	1	1	1	1	1	2	2	2	2	2
38	1	1	1	1	1	1	1	2	2	2
40	1	1	1	1	1	1	1	1	2	2
42	1	1	1	1	1	1	1	1	1	2
44	1	1	1	1	1	1	1	1	1	2
46	1	1	1	1	1	1	1	1	1	2
48	1	1	1	1	1	1	1	1	1	2
50	1	1	1	1	1	1	1	1	1	2
52	1	1	1	1	1	1	1	1	1	2
54	1	1	1	1	1	1	1	1	1	2
56	1	1	1	1	1	1	1	1	1	2
58	1	1	1	1	1	1	1	1	1	2
60	1	1	1	1	1	1	1	1	1	2
62	1	1	1	1	1	1	1	1	1	2
64	1	1	1	1	1	1	1	1	1	2
66	1	1	1	1	1	1	1	1	1	2
68	1	1	1	1	1	1	1	1	1	2
70	1	1	1	1	1	1	1	1	1	2
75	1	1	1	1	1	1	1	1	1	2
80	1	1	1	1	1	1	1	1	1	2
85	1	1	1	1	1	1	1	1	1	1
90	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

	50	55	60	65	70	75	80	85	90	95
0	71	71	71	71	71	71	71	71	71	71
2	61	62	63	65	66	67	69	70	72	73
4	50	52	54	57	59	61	64	67	70	73
6	40	43	45	48	52	55	59	63	68	72
8	31	34	37	41	45	49	54	60	65	72
10	25	27	30	33	37	42	48	54	61	69
12	18	21	24	27	31	36	42	49	57	65
14	14	17	19	22	26	30	36	43	51	62
16	11	13	15	18	21	25	31	37	46	56

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

CANDELA TABULATION - (Cont.)

18	8	10	12	14	17	21	25	32	40	51
20	7	8	9	11	14	17	21	26	34	44
22	6	6	7	9	11	13	17	22	28	38
24	5	5	6	7	9	11	13	18	23	32
26	4	5	5	6	7	9	11	14	19	26
28	4	4	5	6	6	7	9	11	17	21
30	3	4	4	5	6	6	7	9	12	18
32	3	3	4	4	5	6	6	8	10	13
34	3	3	4	4	4	5	6	7	8	10
35	3	3	3	4	4	5	5	6	7	9
36	3	3	3	4	4	5	5	6	7	9
38	3	3	3	3	4	4	5	5	6	7
40	2	3	3	3	4	4	4	5	5	7
42	2	2	3	3	3	4	4	4	5	6
44	2	2	3	3	3	4	4	4	5	5
46	2	2	2	3	3	3	4	4	4	5
48	2	2	2	3	3	3	4	4	4	4
50	2	2	2	3	3	3	3	4	4	4
52	2	2	2	2	3	3	3	4	4	4
54	2	2	2	2	3	3	3	3	4	4
56	2	2	2	2	3	3	3	3	3	4
58	2	2	2	2	3	3	3	3	3	3
60	2	2	2	2	3	3	3	3	3	3
62	2	2	2	3	3	3	3	3	3	3
64	2	2	2	3	3	3	3	3	3	3
66	2	2	2	3	3	3	3	3	3	3
68	2	2	2	3	3	3	3	3	3	3
70	2	2	2	3	3	3	3	3	3	3
75	2	2	2	3	3	3	3	3	3	3
80	2	2	2	2	3	3	3	3	3	3
85	2	2	2	2	3	3	3	3	3	3
90	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**									
	100	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**145**
0	71	71	71	71	71	71	71	71	71	71
2	75	76	78	79	81	82	84	85	86	87
4	76	80	83	87	91	94	97	101	104	107
6	78	83	89	95	101	107	113	119	125	130
8	79	87	95	104	113	122	132	142	151	160
10	77	87	98	109	122	136	150	164	180	196
12	77	88	100	115	131	148	168	189	212	237
14	70	87	102	120	139	162	188	216	251	288
16	67	84	100	121	145	173	205	245	291	346
18	64	80	99	121	147	190	225	278	340	417
20	58	69	93	118	150	197	240	307	388	485
22	51	65	87	113	148	200	251	332	431	555
24	44	60	82	108	142	199	254	341	463	621
26	37	52	67	100	137	196	250	350	481	632
28	31	44	63	90	124	190	241	339	482	638
30	25	36	53	69	114	160	224	325	470	634
32	20	29	45	63	99	144	212	297	447	623
34	15	23	36	55	84	126	203	269	413	597
35	13	20	31	49	68	117	191	258	394	587
36	12	19	27	44	64	105	164	245	380	565

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

CANDELA TABULATION - (Cont.)

38	10	13	21	35	55	89	139	216	330	519
40	8	11	18	26	43	62	111	199	290	442
42	7	9	12	21	32	53	88	136	233	379
44	6	7	10	14	23	38	60	107	206	295
46	5	6	8	11	18	28	49	89	131	234
48	5	5	6	8	12	21	33	56	99	159
50	4	5	6	7	9	13	24	40	61	119
52	4	4	5	6	7	10	15	26	48	84
54	4	4	4	5	6	7	10	20	30	52
56	4	4	4	4	5	5	7	11	20	30
58	3	4	4	4	4	4	5	7	11	20
60	3	3	3	3	3	4	4	5	7	10
62	3	3	3	3	3	3	3	4	4	6
64	3	3	3	3	3	3	3	3	3	4
66	3	3	3	3	3	2	2	2	2	3
68	3	3	3	3	2	2	2	2	2	2
70	3	3	3	3	2	2	2	2	2	2
75	3	3	3	3	2	2	2	2	1	1
80	3	3	3	3	2	2	2	2	1	1
85	3	3	3	3	2	2	2	2	1	1
90	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**						
	150	**155**	**160**	**165**	**170**	**175**	**180**
0	71	71	71	71	71	71	71
2	88	88	89	89	89	89	89
4	109	112	114	115	116	116	116
6	135	140	144	146	149	150	150
8	169	177	184	190	194	197	197
10	211	226	240	252	261	266	268
12	264	289	314	338	355	364	367
14	329	370	412	447	476	494	501
16	408	470	530	579	620	645	655
18	501	589	668	750	806	846	859
20	602	678	849	958	1046	1100	1120
22	667	878	1038	1209	1347	1429	1459
24	808	1013	1256	1497	1713	1859	1912
26	882	1160	1456	1815	2151	2382	2473
28	939	1257	1674	2136	2614	3017	3172
30	963	1351	1807	2431	3147	3707	3938
32	954	1349	1922	2695	3541	4345	4660
34	906	1306	1906	2713	3728	4639	4996
35	874	1266	1864	2679	3754	4625	4973
36	843	1239	1768	2609	3661	4549	4829
38	653	1111	1645	2419	3262	4041	4324
40	625	1013	1445	2088	2829	3419	3608
42	569	873	1282	1810	2327	2767	2920
44	475	653	1065	1484	1916	2220	2313
46	356	568	877	1216	1515	1740	1810
48	273	448	610	929	1182	1333	1385
50	225	320	491	637	845	962	1001
52	137	236	354	486	593	668	708
54	88	149	226	328	418	482	509
56	53	86	135	195	259	314	333
58	29	46	62	103	135	161	170

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

CANDELA TABULATION - (Cont.)

60	16	25	36	49	62	72	76
62	9	13	19	25	32	36	37
64	5	7	10	13	17	19	20
66	3	4	5	7	8	9	10
68	2	2	3	4	4	5	5
70	2	2	2	2	2	3	3
75	1	1	1	1	1	1	1
80	1	1	1	1	0	0	0
85	1	1	1	1	0	0	0
90	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	52.63	N.A.	6.80
0-30	218.94	N.A.	28.10
0-40	533.37	N.A.	68.50
0-60	770.82	N.A.	99.00
0-80	777.12	N.A.	99.80
0-90	778.52	N.A.	100.00
10-90	770.61	N.A.	99.00
20-40	480.75	N.A.	61.80
20-50	671.25	N.A.	86.20
40-70	241.76	N.A.	31.10
60-80	6.30	N.A.	0.80
70-80	1.99	N.A.	0.30
80-90	1.40	N.A.	0.20
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	778.52	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	7.92
10-20	44.71
20-30	166.31
30-40	314.43
40-50	190.51
50-60	46.94
60-70	4.31
70-80	1.99
80-90	1.40
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

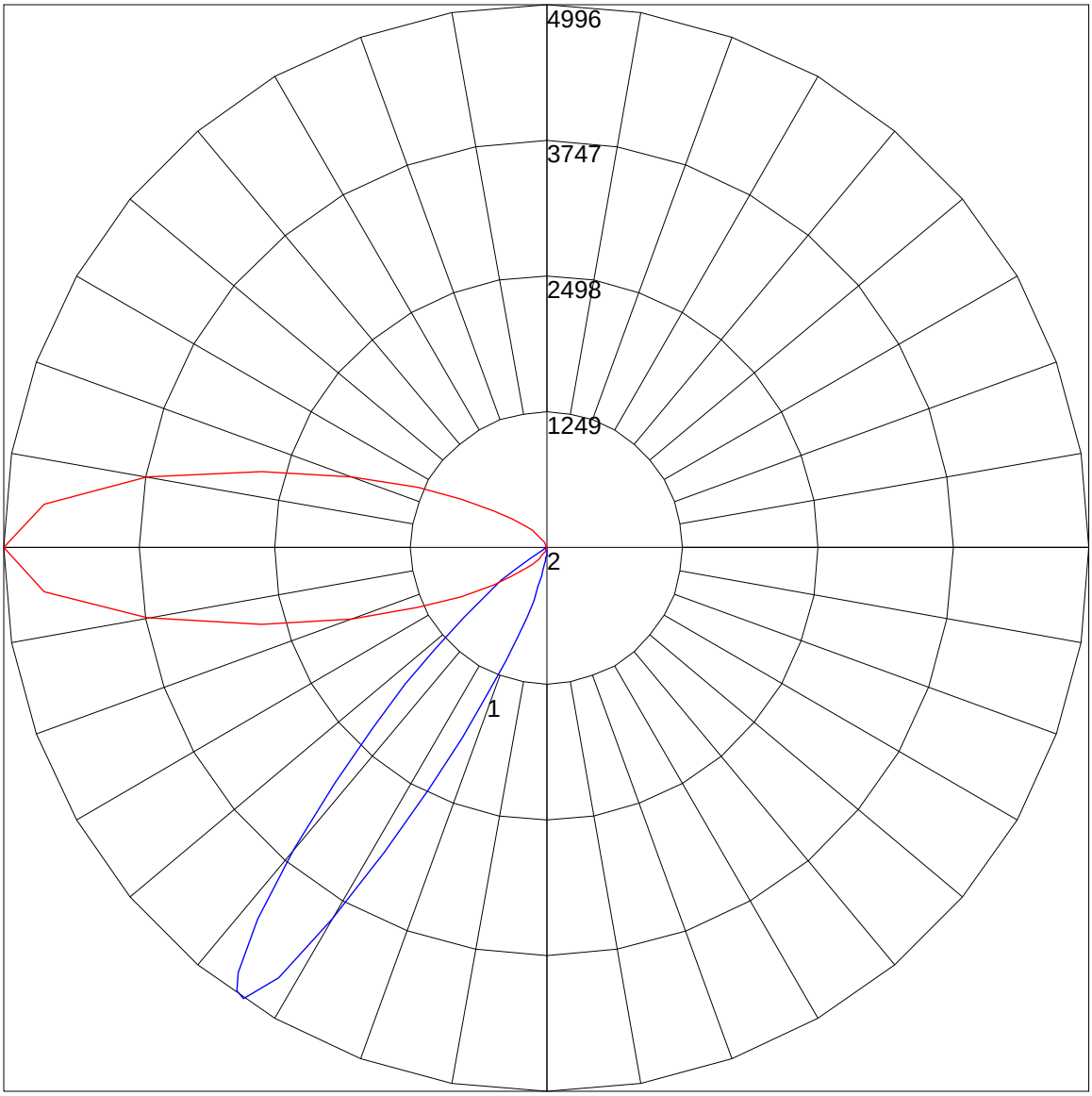
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

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	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	102	109	106	103	101	102	100	97	98	96	94	95	93	92	90
2	104	98	92	88	102	96	91	87	92	88	85	89	86	83	86	84	81	79
3	96	88	81	76	94	86	80	75	84	78	74	81	77	73	79	75	72	70
4	89	79	72	66	87	78	71	66	76	70	65	73	68	64	71	67	63	61
5	82	71	64	58	80	70	63	58	68	62	57	66	61	56	65	60	56	54
6	76	64	56	51	74	63	56	51	62	55	50	60	54	50	59	53	49	48
7	70	58	50	45	69	57	50	45	56	49	44	55	49	44	53	48	44	42
8	65	53	45	40	64	52	45	39	51	44	39	50	43	39	49	43	39	37
9	61	48	40	35	59	47	40	35	46	40	35	45	39	35	44	39	34	33
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	40	35	31	29

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L041608806R01.IES

POLAR GRAPH



Maximum Candela = 4996 Located At Horizontal Angle = 180, Vertical Angle = 34
1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (34) (Through Max. Cd.)