

customer:

date: 29.10.2024

Harman Professional Denmark ApS.
Olof Palmes Allé 44

8200 Aarhus N
Denmark

project No: 24000108-1

inspection order: Photometric measurement according DIN EN 13032-1,
EN 13032-4:2015 and IES LM-79-08

- measurement of intensity distribution
- measurement of luminous flux

measurement procedure: - measurement with goniophotometer according DIN EN 13032

test sample specification:

luminaire: LED fixture for stage and studio, direct beam

description: MAC Viper XIP - narrow beam

Serial No.: 15077051976

DMX settings: dimmer: 65535
zoom: 62720
focus: 0
fans: full fan

test sample dimensions:

luminaire dimensions:

length:	430 mm
width:	270 mm
height:	760 mm
diameter:	- mm

dimensions of luminant areas:

length:	- mm
width:	- mm
height:	- mm
diameter:	215 mm

measurement configuration:

	area	step size
C- planes	0 - 360°	1°
γ- angle	0 - 5°	0.2°
	5 - 90°	5°

luminaire position: hanging, light beam vertical

light center: central, bottom of light output

test results:

stabilization time: 30 min.

stability of luminous flux: < 1%

luminous flux:

upper half space	lower half space	overall
-	16144,94 lm	16144,94 lm
-	100 %	100 %

max. luminous intensity: 2491949,0 cd @ ($\gamma=0^\circ/C=0^\circ$)
 beam angles:

half beam 50 % :	5,4°
field angle 10% :	5,9°
cutoff angel 3% :	6,1°

symmetry condition: rotational symmetric

luminous efficiency: 17,26 lm/W

electrical operating conditions:

voltage:	230,0 V (const. < 0.1%)
current:	4,113 A
system power:	935,60 W
power factor:	0,989

ambient temperature:

T= 25° C ± 1° C

The company ILUmetriX insures that all statements are made by the best of knowledge, according to European standards.

Meschede, 28.10.2024



F. Siepe (Management Board)



annex:	page 3-10	testreport
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	page 12	testequipment

PHOTOMETRIC RESULTS

Manufacturer:	Harman Professional ApS	Voltage:	230,03 V
Name:	MAC VIPER XIP narrow beam	Current:	4,111 A
Report:	24000108-1	System Power:	935,6 W
Date:	25.10.2024 11:40:15		
Operator:	F. Siepe	No. of lamps:	1
		MAC VIPER XIP narrow beam	
Luminaire dimensions:			
Length:	430 mm		
Height:	760 mm		
Width:	270 mm		
Diameter:	0 mm		

Luminaire data

LiTG-class:	A60		
UTE-class:	Not available		
IES-class:	100 - 100 - 100 - 100 - 100		
TM5-class:	Not available		
Divergences in the plane through maximum intensity:	Horizontal	Vertical	
One half peak divergence:	5,4°	5,4°	
Half peak side angle (left):	-2,7°	-2,7°	
Half peak side angle (right):	2,7°	2,7°	
One tenth peak divergence:	5,9°	5,9°	
Tenth peak side angle (left):	-3,0°	-3,0°	
Tenth peak side angle (right):	3,0°	3,0°	

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Intensity [cd] MAC VIPER XIP narrow beam

G/C [cd]	0,0
0,0	2491949,0
0,2	2488389,0
0,4	2483381,0
0,6	2479415,0
0,8	2468452,0
1,0	2447150,0
1,2	2418028,0
1,4	2392654,0
1,6	2338092,0
1,8	2238775,0
2,0	2170715,0
2,2	1944053,0
2,4	1876623,0
2,6	1657953,0
2,8	900296,0
3,0	93886,8
3,2	4382,0
3,4	3334,7
3,6	2276,5
3,8	2073,9
4,0	1495,3
4,2	1384,0
4,4	1152,1
4,6	1003,7
4,8	854,3
5,0	767,8
10,0	104,3
15,0	46,8
20,0	30,4
25,0	21,6
30,0	15,9
35,0	13,8
40,0	24,2
45,0	37,1
50,0	35,8
55,0	28,7
60,0	18,6
65,0	8,4
70,0	0,2
75,0	0,1
80,0	0,1
85,0	0,1
90,0	0,0

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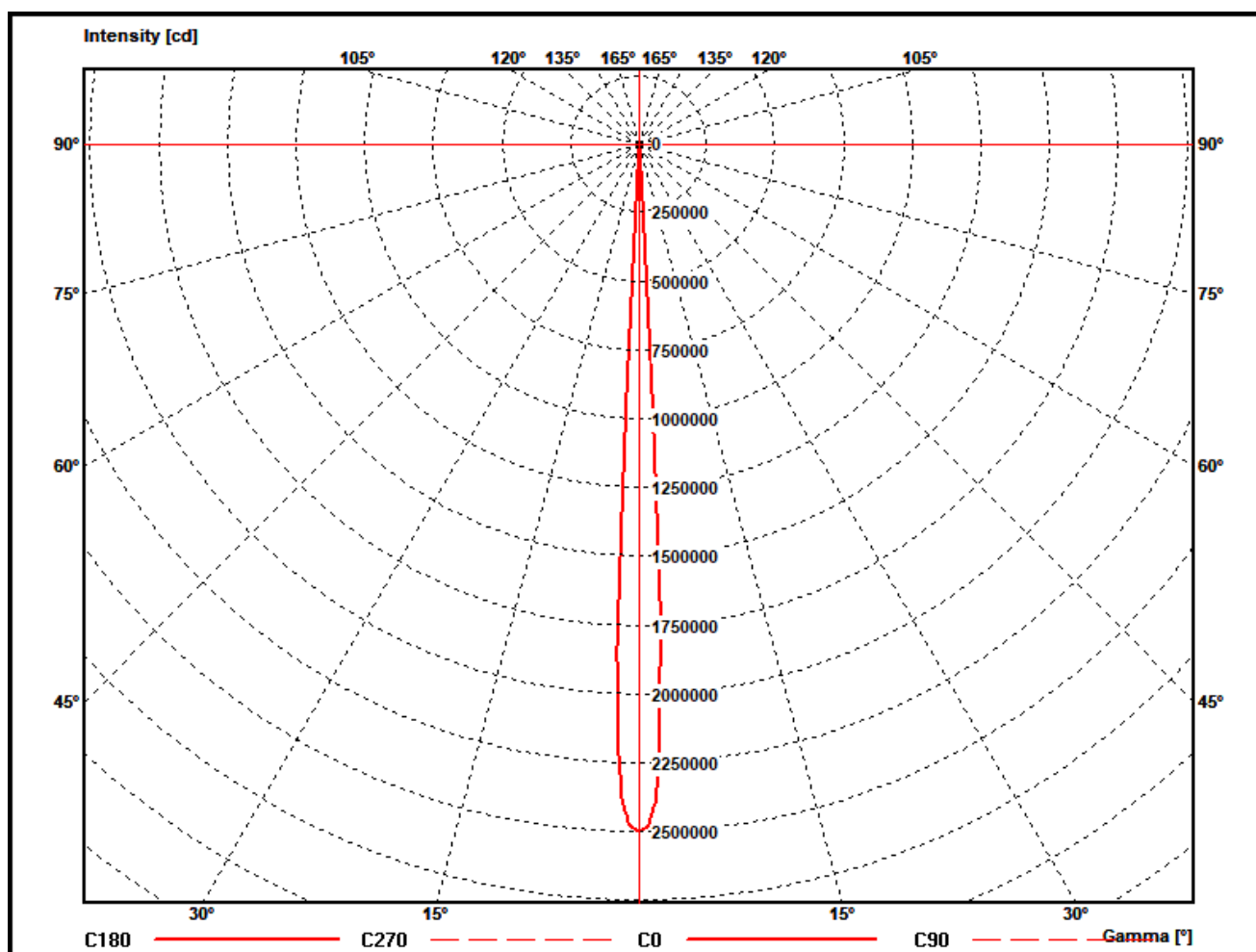
Zonal flux MAC VIPER XIP narrow beam

Gamma [°]	Imin [cd]	Imax [cd]	Imean [cd]	Zonal flux [lm]	Sum. zonal flux [lm]	Rel. zonal flux [%]	Sum. rel. zonal flux [%]
0,0	2491949,0	2491949,0	2491949,0	0,0	0,00	0,00	0,00
0,2	2488389,0	2488389,0	2488389,0	95,3	95,32	0,59	0,59
0,4	2483381,0	2483381,0	2483381,0	285,5	380,79	1,77	2,36
0,6	2479415,0	2479415,0	2479415,0	474,9	855,72	2,94	5,30
0,8	2468452,0	2468452,0	2468452,0	662,9	1518,61	4,11	9,41
1,0	2447150,0	2447150,0	2447150,0	846,7	2365,32	5,24	14,65
1,2	2418028,0	2418028,0	2418028,0	1024,2	3389,55	6,34	20,99
1,4	2392654,0	2392654,0	2392654,0	1196,9	4586,42	7,41	28,41
1,6	2338092,0	2338092,0	2338092,0	1358,0	5944,44	8,41	36,82
1,8	2238775,0	2238775,0	2238775,0	1489,0	7433,42	9,22	46,04
2,0	2170715,0	2170715,0	2170715,0	1603,2	9036,65	9,93	55,97
2,2	1944053,0	1944053,0	1944053,0	1653,5	10690,14	10,24	66,21
2,4	1876623,0	1876623,0	1876623,0	1681,5	12371,60	10,41	76,63
2,6	1657953,0	1657953,0	1657953,0	1690,7	14062,33	10,47	87,10
2,8	900296,0	900296,0	900296,0	1321,5	15383,87	8,19	95,29
3,0	93886,8	93886,8	93886,8	551,6	15935,45	3,42	98,70
3,2	4382,0	4382,0	4382,0	58,3	15993,73	0,36	99,06
3,4	3334,7	3334,7	3334,7	4,9	15998,60	0,03	99,09
3,6	2276,5	2276,5	2276,5	3,8	16002,36	0,02	99,12
3,8	2073,9	2073,9	2073,9	3,1	16005,44	0,02	99,14
4,0	1495,3	1495,3	1495,3	2,7	16008,10	0,02	99,15
4,2	1384,0	1384,0	1384,0	2,3	16010,36	0,01	99,17
4,4	1152,1	1152,1	1152,1	2,1	16012,44	0,01	99,18
4,6	1003,7	1003,7	1003,7	1,9	16014,30	0,01	99,19
4,8	854,3	854,3	854,3	1,7	16015,97	0,01	99,20
5,0	767,8	767,8	767,8	1,5	16017,49	0,01	99,21
10,0	104,3	104,3	104,3	31,2	16048,68	0,19	99,40
15,0	46,8	46,8	46,8	9,0	16057,65	0,06	99,46
20,0	30,4	30,4	30,4	6,4	16064,01	0,04	99,50
25,0	21,6	21,6	21,6	5,5	16069,47	0,03	99,53
30,0	15,9	15,9	15,9	4,7	16074,21	0,03	99,56
35,0	13,8	13,8	13,8	4,4	16078,59	0,03	99,59
40,0	24,2	24,2	24,2	6,3	16084,93	0,04	99,63
45,0	37,1	37,1	37,1	11,3	16096,28	0,07	99,70
50,0	35,8	35,8	35,8	14,7	16111,00	0,09	99,79
55,0	28,7	28,7	28,7	14,0	16125,02	0,09	99,88
60,0	18,6	18,6	18,6	10,9	16135,96	0,07	99,94
65,0	8,4	8,4	8,4	6,6	16142,53	0,04	99,99
70,0	0,2	0,2	0,2	2,2	16144,72	0,01	100,00
75,0	0,1	0,1	0,1	0,1	16144,82	0,00	100,00
80,0	0,1	0,1	0,1	0,1	16144,89	0,00	100,00
85,0	0,1	0,1	0,1	0,0	16144,93	0,00	100,00
90,0	0,0	0,0	0,0	0,0	16144,95	0,00	100,00

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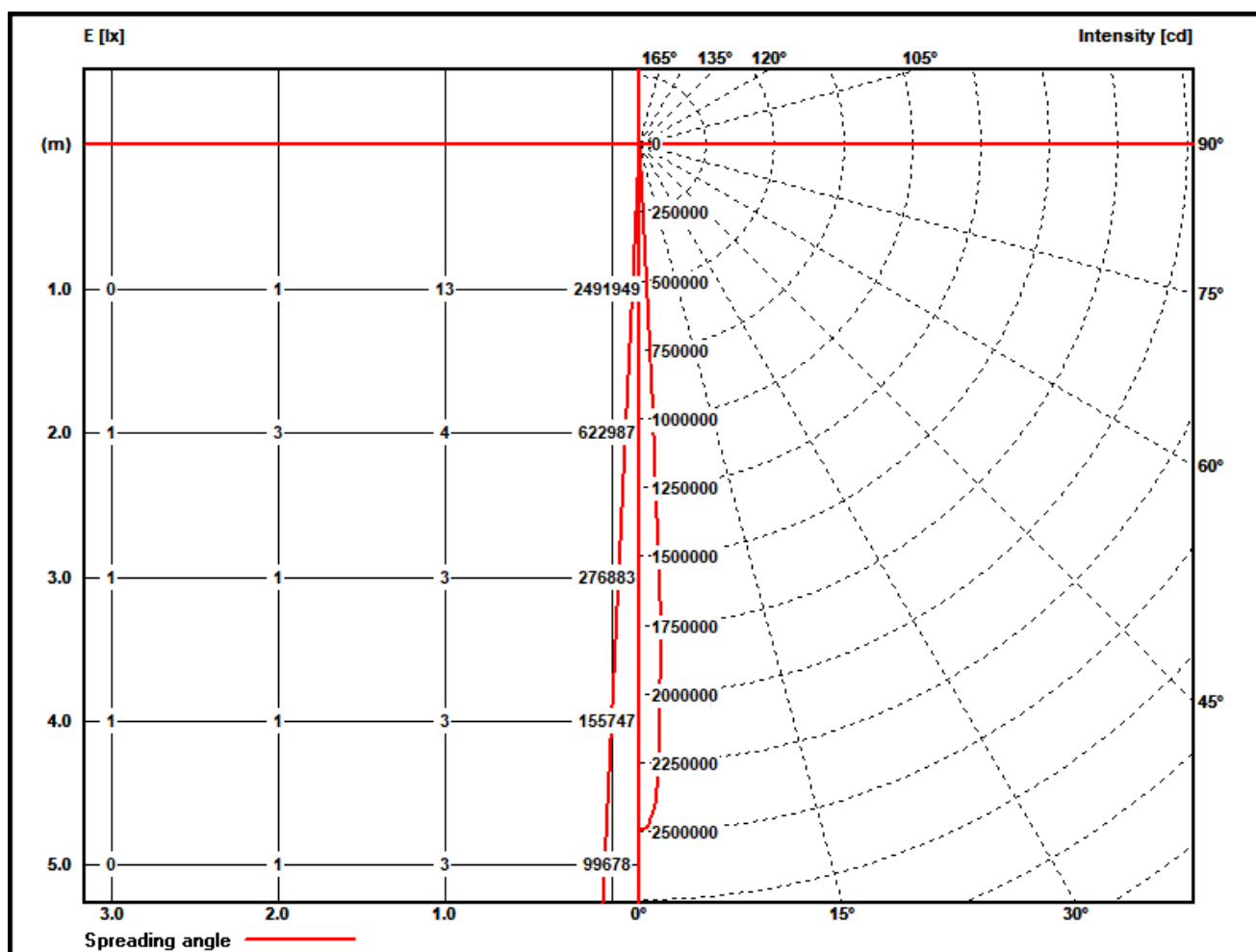
Polar diagram MAC VIPER XIP narrow beam



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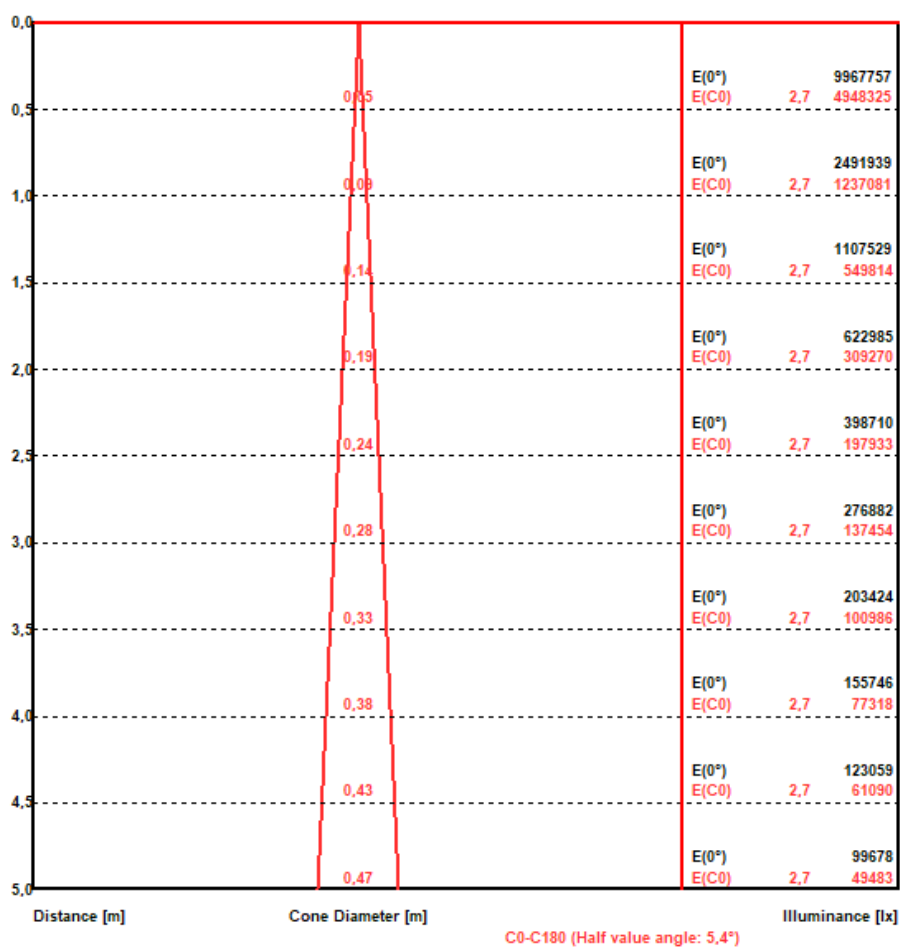
Illuminance and Intensity diagram MAC VIPER XIP narrow beam



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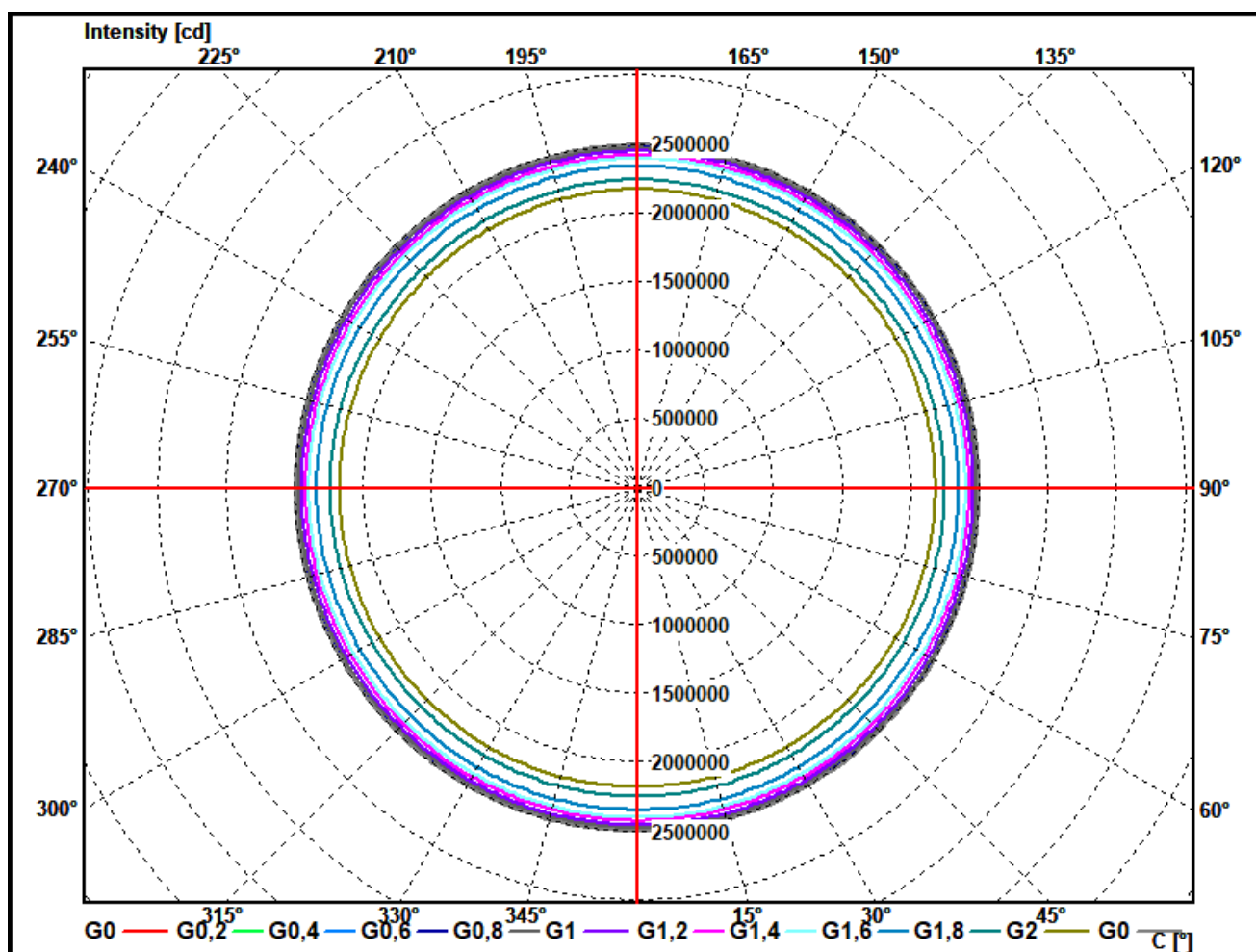
Illuminance cone diagram MAC VIPER XIP narrow beam



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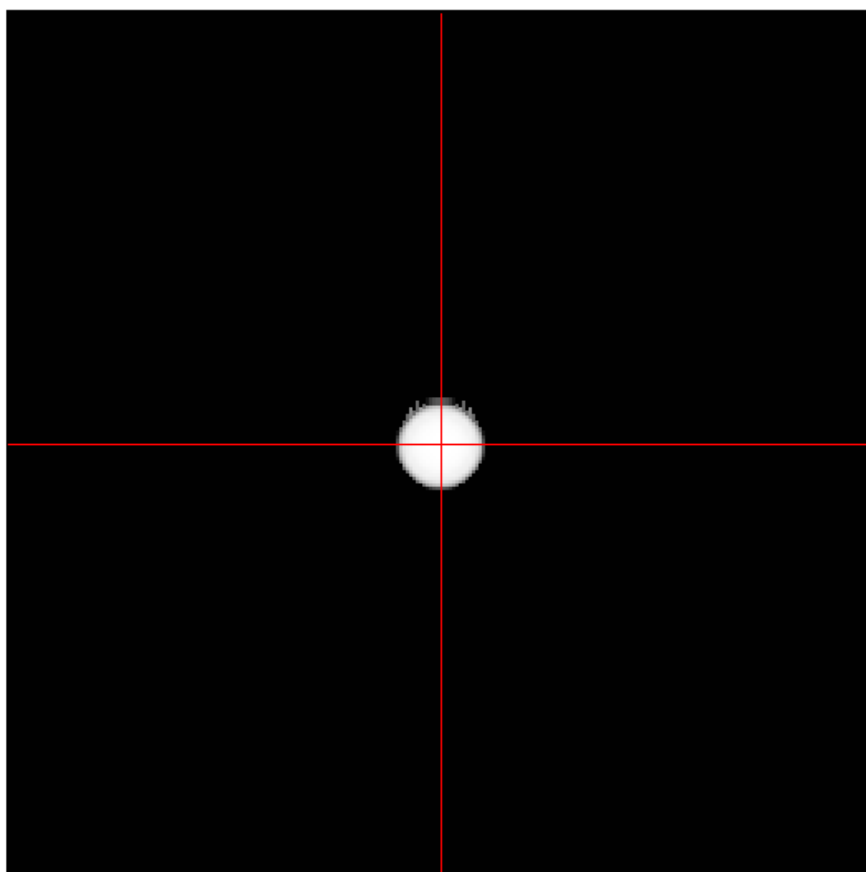
Cone diagram MAC VIPER XIP narrow beam



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Isoline diagram MAC VIPER XIP narrow beam



Luminaire mounting height above ground: 15 m
Luminaire rotation angle: 0 °

testsample:

dimensions [L x W x H]: 430 x 270 x 760 mm



test equipment - ILUmetriX GmbH

- goniophotometer with mirror arrangement GO-DS 2000 No.: 09A84831	Manufacturer: LMT GmbH, Berlin
- Photometer head GO-DS 2000, Nr.: 09A84812	Manufacturer: LMT GmbH, Berlin
- integrating sphere UL 1650/2250, Nr.: 09A8482	Manufacturer: LMT GmbH, Berlin
- colormeter C 1210 with colorimeterhead CH60	Manufacturer: LMT GmbH, Berlin
- power supply, Chroma 6415	Manufacturer: Chroma ATE INC.
- powermeter, Yokogawa WT 2010	Manufacturer: Yokogawa, Japan