

## Features

- Light source: 1 piece 10W power LED
- Long LED life: More than 30,000 hours
- 111mm aluminum reflector bulb type
- Low heat, less than 65°C for 10W
- No UV or IR light radiation
- No mercury or other inorganics
- Highest optical efficiency: 45 lm/watt for white color
- Homogeneous flood illumination
- Machined aluminum heat fins with excellent thermal efficiencies
- The 10W AR111 bulb is available in the following white color temperatures:
  - 2600K – 3000K (Warm White)
  - 4000K – 5000K (Natural White)
  - 5000K – 6000K (Cool White)
- 10W AR111 LED bulb can achieve directional light output equal to 70W halogen AR111
- 2 year limited warranty (see page 6)
- Works with worldwide lighting systems



Note: Picture for illustration only



## Typical Applications

- Energy Saving Programs
- Sustainable Energy
- Landscape Accent/Spot lighting
- Retail Store Lighting
- Display Case Accent
- Commercial Lighting
- Mood Lighting/General lighting

**PRELIMINARY**

## PRODUCT SPECIFICATIONS

<b>LIGHT SOURCE</b>	1X10W Zenigata power LED
<b>OPTICS</b>	Optic with metalized coating aluminum reflector
<b>BULB TYPE</b>	AR111
<b>BEAM ANGLE</b>	10° (Narrow Spot), 15° (Spot), 35° (Extra Spot), or 45° (Flood)
<b>RENDERING INDEX (Ra)</b>	>85 (warm white) >75 (natural white) >70 (cool white)
<b>TOTAL LENGTH</b>	83 ± 1.5 mm (including pins)
<b>WEIGHT</b>	123 ± 2 g
<b>HEATSINK</b>	Machined pure aluminum with anodize finish
<b>BASE TYPE</b>	GX53
<b>DIMMABILITY</b>	Not Dimmable

## ENVIRONMENTAL SPECIFICATIONS

<b>TEMPERATURE RANGE</b>	Ambient: -20°C to 40°C; Surface of Lamp: 60°C to 70°C
<b>HUMIDITY RANGE</b>	0 to 95% non-condensing humidity

## ELECTRICAL SPECIFICATIONS

<b>VOLTAGE REQUIREMENT</b>	12V AC/DC
<b>POWER CONSUMPTION</b>	≤ 10W
<b>POWER FACTOR</b>	≥ 0.7

## PRODUCT DIMENSIONS (mm)

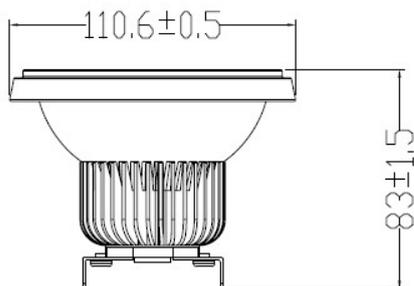


Fig 2. G53 Side View

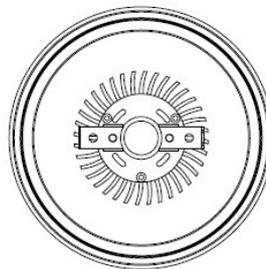


Fig 3. Rear View

**PRELIMINARY**

**PRODUCT ORDERING CODE**

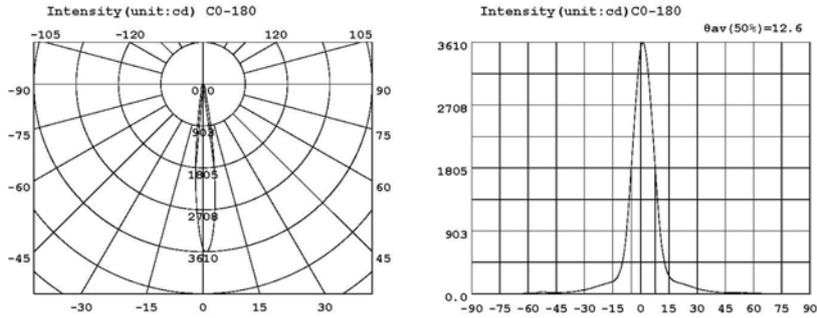
ORDER CODE	Color	BEAM ANGLE	CCT (°K)	Base Type	Operating Voltage	LED Power (W)	Typical Luminous Flux (lm)	Typical Illuminance @ 2m (Lux)
AR111VN-10-1/S	Warm White	10° ±2°	2600K~3000K	G53	12V AC/DC	1X10W optics	420	850
AR111NN-10-1/S	Natural White		4000K~5000K					
AR111WN-10-1/S	Cool White		5000K~6000K					
AR111VS-10-1/S	Warm White	15° ±2°	2600K~3000K	GX53	12V AC/DC	1X10W PC cover	450	360
AR111NS-10-1/S	Natural White		4000K~5000K					
AR111WS-10-1/S	Cool White		5000K~6000K					
AR111VE-10-1/S	Warm White	35° ±2°	2600K~3000K	GX53	12V AC/DC	1X10W optics	420	160
AR111NE-10-1/S	Natural White		4000K~5000K					
AR111WE-10-1/S	Cool White		5000K~6000K					
AR111VF-10-1/S	Warm White	45° ±2°	2600K~3000K	GX53	12V AC/DC	1X10W PC cover	450	110
AR111NF-10-1/S	Natural White		4000K~5000K					
AR111WF-10-1/S	Cool White		5000K~6000K					

**Typical Electrical Characteristics at T<sub>a</sub>=25°C**
**10W AR111 Model**

Parameter	Symbol	Min	Typ	Max	Unit
Input Voltage (AC)	V <sub>AC</sub>	10	12	14	V
Input Voltage (DC)	V <sub>DC</sub>	9	10	12	V
LED Forward Current	I <sub>F</sub>	—	600	—	mA
Estimated Life <sup>[1]</sup>		—	30,000	—	hours
Optimized Body Temperature (1X10W LED)	T	—	55	60	°C

Note[\*] – Manufacturer projects AR111 lamp made with Sharp LED to maintain an average of 70% lumens maintenance after 30,000 hours. This estimation is made based on data from LED manufacturer

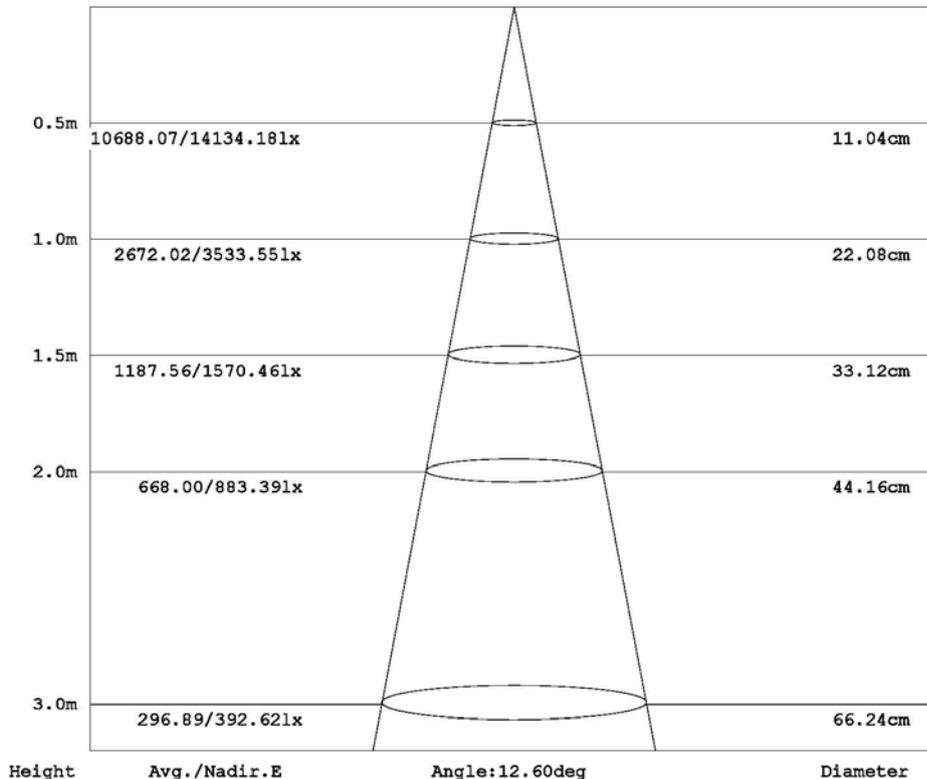
## 10° AR111 Intensity (C0-180 plane) Measurement



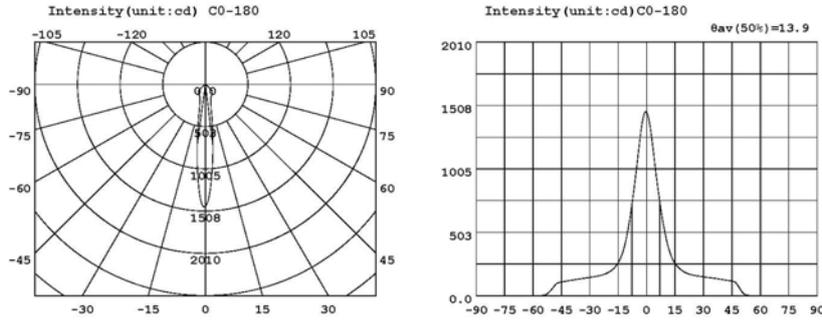
Intensity data: (deg , cd) C0-180

A	I A	I A	I A	I A	I A	I A	I A	I A	I A	I A	
-90.0	0.0168	-58.5	11.10	-27.0	75.53	4.5	3006	36.0	40.39	67.5	1.745
-88.5	0.0151	-57.0	11.19	-25.5	87.85	6.0	2471	37.5	34.69	69.0	1.319
-87.0	0.0168	-55.5	12.89	-24.0	100.8	7.5	1874	39.0	29.68	70.5	1.073
-85.5	0.0201	-54.0	22.70	-22.5	113.9	9.0	1312	40.5	25.51	72.0	0.7970
-84.0	0.0302	-52.5	30.08	-21.0	126.9	10.5	846.4	42.0	22.17	73.5	0.4305
-82.5	0.0436	-51.0	28.50	-19.5	139.3	12.0	544.7	43.5	19.57	75.0	0.2964
-81.0	0.0621	-49.5	18.29	-18.0	150.1	13.5	356.2	45.0	17.66	76.5	0.2438
-79.5	0.0810	-48.0	15.27	-16.5	162.3	15.0	258.0	46.5	16.36	78.0	0.1923
-78.0	0.1112	-46.5	15.59	-15.0	177.7	16.5	205.2	48.0	15.41	79.5	0.1514
-76.5	0.1417	-45.0	16.20	-13.5	204.1	18.0	180.0	49.5	14.67	81.0	0.1156
-75.0	0.1821	-43.5	17.10	-12.0	262.5	19.5	163.9	51.0	14.82	82.5	0.0851
-73.5	0.2272	-42.0	18.59	-10.5	369.5	21.0	153.3	52.5	16.54	84.0	0.0629
-72.0	0.2816	-40.5	20.83	-9.0	568.7	22.5	142.8	54.0	19.19	85.5	0.0454
-70.5	0.5621	-39.0	23.77	-7.5	923.0	24.0	129.5	55.5	16.37	87.0	0.0292
-69.0	0.8573	-37.5	27.51	-6.0	1436	25.5	115.8	57.0	12.83	88.5	0.0265
-67.5	1.085	-36.0	31.85	-4.5	2028	27.0	101.9	58.5	10.74	90.0	0.0406
-66.0	1.446	-34.5	37.30	-3.0	2628	28.5	88.16	60.0	10.55		
-64.5	2.386	-33.0	42.93	-1.5	3160	30.0	74.55	61.5	10.22		
-63.0	4.854	-31.5	48.97	0.0	3534	31.5	63.24	63.0	8.294		
-61.5	8.133	-30.0	55.96	1.5	3596	33.0	54.70	64.5	5.349		
-60.0	10.59	-28.5	64.53	3.0	3401	34.5	46.79	66.0	2.816		

## 10° AR111 Illuminance Measurement



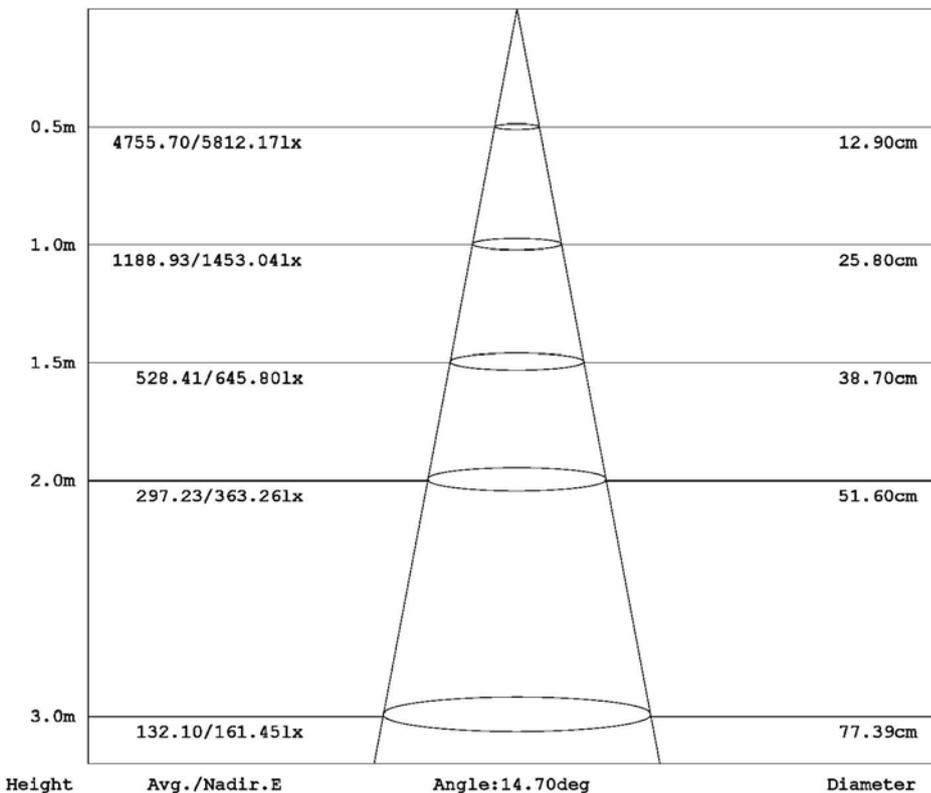
## 15° AR111 Intensity (C0-180 plane) Measurement



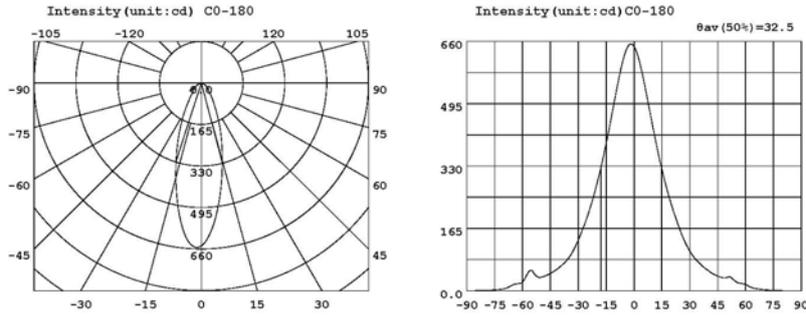
Intensity data:(deg , cd) C0-180

A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.0034	-58.5	0.9278	-27.0	152.9	4.5	1023	36.0	137.5	67.5	0.2363
-88.5	0.0000	-57.0	1.351	-25.5	157.3	6.0	844.2	37.5	134.0	69.0	0.2061
-87.0	0.0084	-55.5	2.235	-24.0	162.7	7.5	685.5	39.0	130.2	70.5	0.1782
-85.5	0.0203	-54.0	4.915	-22.5	169.6	9.0	551.3	40.5	126.6	72.0	0.1557
-84.0	0.0352	-52.5	15.36	-21.0	178.8	10.5	441.0	42.0	123.1	73.5	0.1353
-82.5	0.0505	-51.0	35.52	-19.5	191.0	12.0	355.8	43.5	119.5	75.0	0.1182
-81.0	0.0639	-49.5	62.39	-18.0	207.4	13.5	295.8	45.0	115.8	76.5	0.0997
-79.5	0.0809	-48.0	89.85	-16.5	230.1	15.0	256.4	46.5	108.6	78.0	0.0832
-78.0	0.0976	-46.5	103.6	-15.0	261.7	16.5	229.1	48.0	83.98	79.5	0.0673
-76.5	0.1176	-45.0	109.0	-13.5	308.9	18.0	208.1	49.5	47.83	81.0	0.0529
-75.0	0.1347	-43.5	113.0	-12.0	374.3	19.5	191.6	51.0	19.89	82.5	0.0378
-73.5	0.1568	-42.0	116.9	-10.5	472.5	21.0	179.7	52.5	5.773	84.0	0.0224
-72.0	0.1816	-40.5	120.7	-9.0	599.4	22.5	171.3	54.0	2.462	85.5	0.0132
-70.5	0.2086	-39.0	124.3	-7.5	751.8	24.0	165.2	55.5	1.579	87.0	0.0046
-69.0	0.2392	-37.5	128.0	-6.0	925.9	25.5	160.4	57.0	1.091	88.5	0.0060
-67.5	0.2730	-36.0	131.5	-4.5	1119	27.0	156.6	58.5	0.7617	90.0	0.0
-66.0	0.3116	-34.5	135.0	-3.0	1308	28.5	153.3	60.0	0.5222		
-64.5	0.3532	-33.0	138.5	-1.5	1432	30.0	149.8	61.5	0.3831		
-63.0	0.3925	-31.5	141.9	0.0	1453	31.5	146.6	63.0	0.3420		
-61.5	0.4677	-30.0	145.5	1.5	1371	33.0	143.6	64.5	0.3020		
-60.0	0.6536	-28.5	149.1	3.0	1213	34.5	140.6	66.0	0.2677		

## 15° AR111 Illuminance Measurement



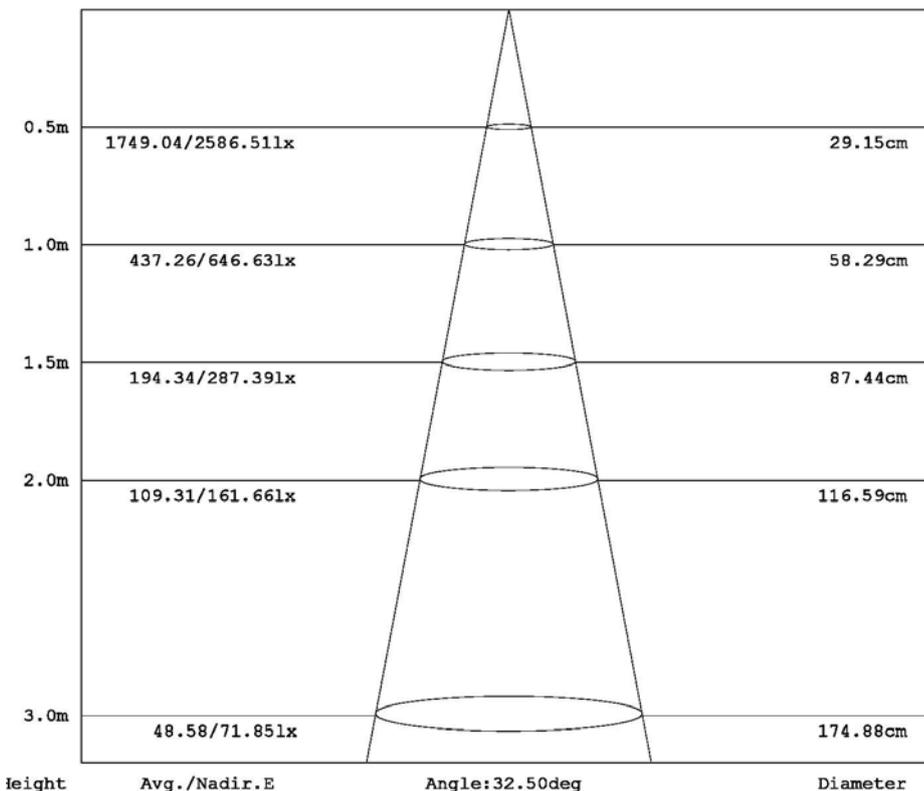
## 35° AR111 Intensity (C0-180 plane) Measurement



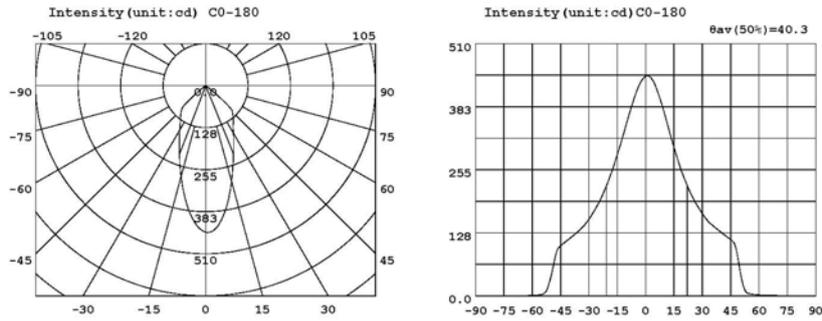
Intensity data:(deg , cd) C0-180

A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.0134	-58.5	34.68	-27.0	171.0	4.5	573.7	36.0	68.99	67.5	4.144
-88.5	0.0722	-57.0	47.85	-25.5	191.3	6.0	538.1	37.5	62.43	69.0	3.321
-87.0	0.1598	-55.5	54.76	-24.0	213.6	7.5	500.0	39.0	56.70	70.5	2.453
-85.5	0.2808	-54.0	47.01	-22.5	237.8	9.0	462.0	40.5	51.36	72.0	1.761
-84.0	0.4087	-52.5	38.63	-21.0	264.1	10.5	424.4	42.0	46.01	73.5	1.313
-82.5	0.5770	-51.0	35.16	-19.5	292.1	12.0	387.8	43.5	42.12	75.0	0.9494
-81.0	0.7673	-49.5	36.52	-18.0	322.7	13.5	353.2	45.0	38.83	76.5	0.6620
-79.5	1.006	-48.0	39.03	-16.5	355.0	15.0	321.3	46.5	35.98	78.0	0.4510
-78.0	1.288	-46.5	42.08	-15.0	389.8	16.5	291.5	48.0	34.21	79.5	0.2910
-76.5	1.635	-45.0	45.77	-13.5	426.1	18.0	263.6	49.5	34.45	81.0	0.1793
-75.0	2.245	-43.5	50.16	-12.0	464.6	19.5	237.7	51.0	37.03	82.5	0.0876
-73.5	2.928	-42.0	55.09	-10.5	503.6	21.0	213.8	52.5	33.94	84.0	0.0296
-72.0	3.638	-40.5	60.66	-9.0	542.3	22.5	191.9	54.0	27.26	85.5	0.0170
-70.5	4.621	-39.0	66.96	-7.5	577.5	24.0	171.0	55.5	21.70	87.0	0.0179
-69.0	6.294	-37.5	73.89	-6.0	609.2	25.5	151.4	57.0	20.12	88.5	0.0190
-67.5	9.684	-36.0	81.90	-4.5	634.0	27.0	133.8	58.5	18.81	90.0	0.0403
-66.0	13.74	-34.5	91.67	-3.0	648.7	28.5	118.1	60.0	16.58		
-64.5	17.03	-33.0	103.7	-1.5	653.3	30.0	104.6	61.5	12.83		
-63.0	18.42	-31.5	118.0	0.0	646.6	31.5	93.58	63.0	8.971		
-61.5	19.51	-30.0	134.2	1.5	630.3	33.0	84.32	64.5	6.517		
-60.0	22.07	-28.5	152.0	3.0	604.8	34.5	76.25	66.0	5.124		

## 35° AR111 Illuminance Measurement



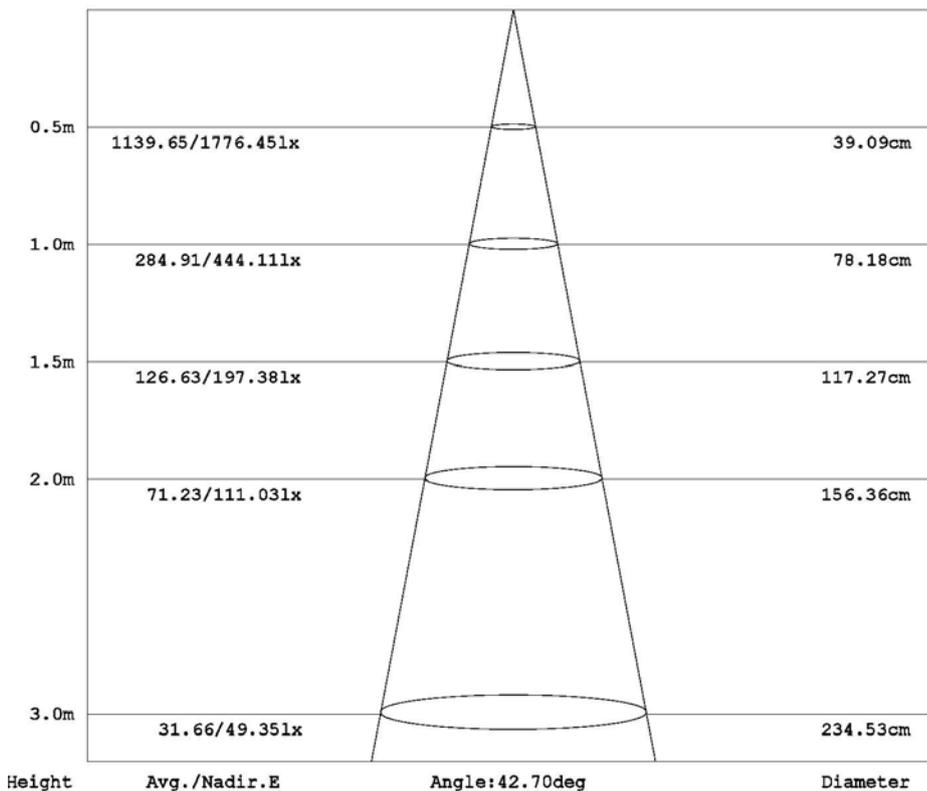
## 45° AR111 Intensity (C0-180 plane) Measurement



Intensity data: (deg , cd) C0-180

A	I	A	I	A	I	A	I	A	I	A	I
-90.0	0.0017	-58.5	1.503	-27.0	173.6	4.5	430.5	36.0	140.7	67.5	1.112
-88.5	0.0	-57.0	1.983	-25.5	183.5	6.0	416.6	37.5	136.0	69.0	0.9325
-87.0	0.0034	-55.5	2.716	-24.0	194.7	7.5	400.1	39.0	131.5	70.5	0.8005
-85.5	0.0169	-54.0	4.543	-22.5	207.1	9.0	381.6	40.5	127.0	72.0	0.6683
-84.0	0.0336	-52.5	10.94	-21.0	220.2	10.5	361.6	42.0	122.7	73.5	0.5564
-82.5	0.0540	-51.0	27.04	-19.5	234.7	12.0	340.8	43.5	118.2	75.0	0.4634
-81.0	0.0791	-49.5	49.45	-18.0	250.5	13.5	320.2	45.0	113.9	76.5	0.3728
-79.5	0.1012	-48.0	76.75	-16.5	267.4	15.0	300.2	46.5	108.8	78.0	0.2941
-78.0	0.1281	-46.5	94.78	-15.0	285.5	16.5	281.7	48.0	92.98	79.5	0.2326
-76.5	0.1548	-45.0	101.5	-13.5	304.0	18.0	263.9	49.5	61.37	81.0	0.1644
-75.0	0.1916	-43.5	106.2	-12.0	323.5	19.5	247.3	51.0	31.15	82.5	0.1148
-73.5	0.2289	-42.0	110.8	-10.5	343.7	21.0	232.4	52.5	11.98	84.0	0.0568
-72.0	0.2675	-40.5	115.2	-9.0	363.5	22.5	218.8	54.0	5.716	85.5	0.0253
-70.5	0.3163	-39.0	119.8	-7.5	382.5	24.0	206.3	55.5	4.149	87.0	0.0082
-69.0	0.3838	-37.5	124.4	-6.0	400.4	25.5	195.0	57.0	3.316	88.5	0.0132
-67.5	0.4510	-36.0	129.4	-4.5	416.3	27.0	184.7	58.5	2.728	90.0	0.0183
-66.0	0.5421	-34.5	134.5	-3.0	429.4	28.5	175.5	60.0	2.266		
-64.5	0.6572	-33.0	140.5	-1.5	438.7	30.0	166.5	61.5	1.920		
-63.0	0.7812	-31.5	147.3	0.0	444.1	31.5	158.3	63.0	1.693		
-61.5	0.9288	-30.0	155.1	1.5	444.5	33.0	151.2	64.5	1.487		
-60.0	1.147	-28.5	164.0	3.0	440.1	34.5	145.6	66.0	1.296		

## 45° AR111 Illuminance Measurement



## LIMITED WARRANTY

Manufacturer warrants to the Purchaser that each Product manufactured and sold by it will be free from defects in material and workmanship in its intended use (normal wear and tear excepted) for the period of two years from manufactured date. Manufacturer's warranty flows only to Purchaser. If any Product covered by this warranty is returned by Purchaser in accordance with Manufacturer's Products Return Policy, including without limitation its return authorization provisions, within the applicable warranty period set forth above, and upon examination Manufacturer determines to its satisfaction that such Product was defective in material or workmanship at the time of delivery to the Purchaser, Manufacturer will, at its option, repair or replace the Product or the defective part thereof, or reimburse Purchaser for the purchase price. For purposes of clarity, "repair or replace the Product or the defective part thereof" does not include any reinstallation costs or expenses. If Manufacturer chooses to replace the Product and is not able to do so because it has been discontinued or is not available, Manufacturer may replace it with a comparable product. The Products Return Policy is posted on Manufacturer's Internet web site at [http://www.brilliance-led.com/En\\_terms\\_conditions.asp](http://www.brilliance-led.com/En_terms_conditions.asp). The foregoing notwithstanding, Manufacturer will not be responsible for damage to any Product resulting from misuse, negligence, acts of God or accident or resulting from repairs or alterations made by any person or firm not duly authorized by Manufacturer in writing. Purchaser shall convey with each Product distributed to end users the MANUFACTURER'S LIMITED WARRANTY included by Manufacturer with such Product, and, if Manufacturer determines that the appropriate remedy for a defective product is refund of Purchaser's purchase price, Purchaser shall refund to the end user (or arrange for the refund to the end user of) the full purchase price paid by the end user for such defective Product.

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10W AR111/S Rev. 1.0d  
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**PRELIMINARY**