

## 45mm-50mm silicone collimators Competition performances survey

### 1. INTRODUCTION

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This document describes the results obtained on two different brands of 45 to 50 mm silicone collimators:

- GAGGIONE's LLC79x7 45mm range
- COMPETITOR's 50mm range

Results described in this document have been obtained using a CITIZEN CLU701 6mm COB. Measurements have been made using a LEDGON100 photogoniometer, as we know by experience that the claimed performances obtained thru simulation are rarely relevant of the product's actual behavior.

Both Competitor and GAGGIONE products are available with optional cage holders for COB interfaces. Competitor product has been evaluated in the best focus position as described by the datasheet. This is the best case for it. GAGGIONE's product has been evaluated using both best focus position and combined with an integration ecosystem using B+W COB holder.

As an addition to the usual FWHM, FWTM and Efficacy measurement, a calculation of the FWHM/FTWM is also provided. This a very good indicator of the beam homogeneity and consistency. The bigger the better as it means that there is less differences in between 50% and 10% angles, thus indicating a more consistent beam with less "hot spot" effect.

### 2. NARROW VERSION

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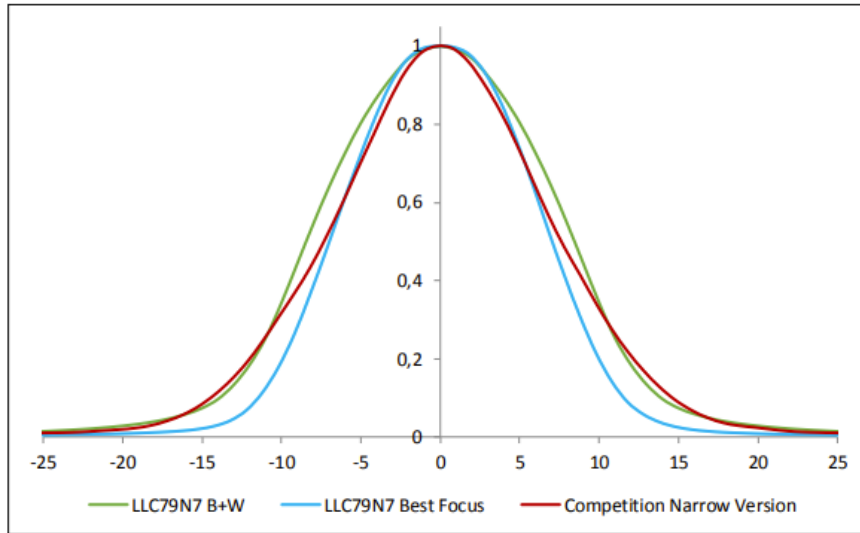
#### Measurements

Product (mechanical context)	FWHM (°)	FWTM (°)	FWHM/ FWTM	Efficacy (cd/lm)
LLC79N7 (B+W holder)	16.9	27.7	0.61	9.3
LLC79N7 (best focus)	14	22.9	0.61	14.1
Competition narrow version (best focus)	14.5	28.5	0.51	7.8

Beam angles and efficacy measurements show that:

- Even with a larger diameter, the Competitor product is not capable of achieving a narrower beam than the LLC79N7;
- The FWHM/FTWM obtained with the GAGGIONE product is 20% better in best focus position and is consistent when measured with Ecosystem;
- As a consequence, the efficacy of the GAGGIONE product is 80% better in best focus position

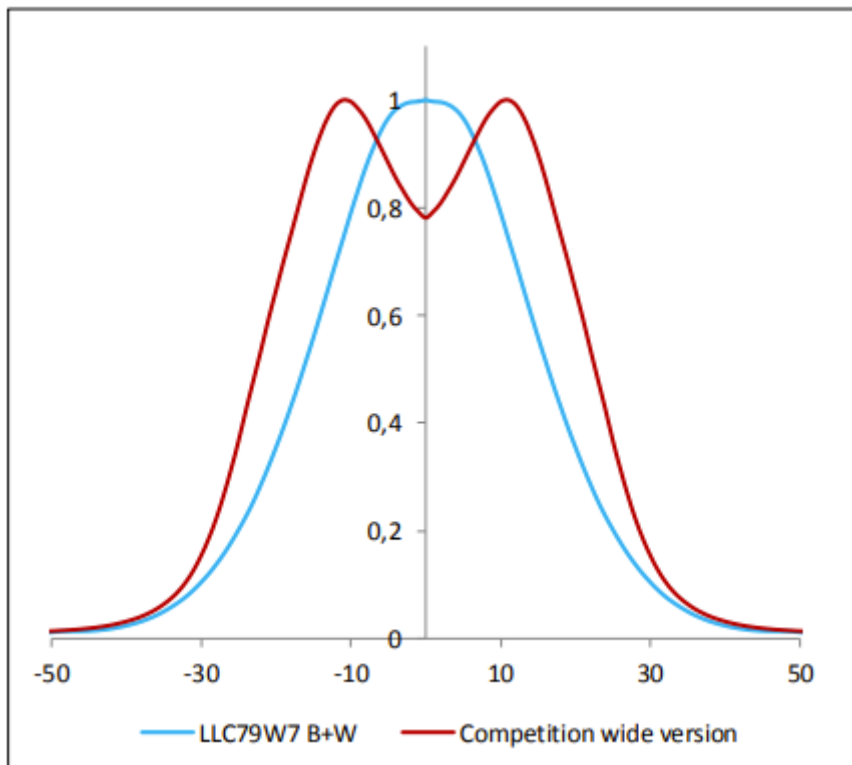
## Beam pattern



Beam pattern diagram show same results:

A clear accident in the curve's verticality results in a perturbed beam homogeneity behavior for the Competitor product.

### 3. WIDE VERSION



Competitor's wide beam version does not look applicable, as black spot will appear in the middle of the resulting beam.