

Progress and Measurement Documentation

Measurement List: Length and ROC in meters, AOI in degrees

Parameter	Component(s)	Measurement	Source
Length	B:M4 - ZM4	1.08636	<i>aLog</i> 75749
	ZM4 - ZM5	1.68123	Yaml repo
(diverted path)	ZM5 - C:M1	1.18354	<i>aLog</i> 75749
	C:M1 - top Peri.	2.146	<i>aLog</i> 61755
	top Peri. - low Peri.	0.5743	<i>aLog</i> 85282
	ZM5 - ZM6	4.68061	<i>aLog</i> 75749
	ZM6 - OFI	1.140864	eDrawing
	To center OFI	0.1260	G2000808
	OFI - SRM	0.9046	Yaml repo
	SRM - OM1	3.440	Yaml repo
	OM1 - OM2	1.445	Yaml repo
	OM2 - OM3	0.667	Yaml repo
	OM3 - OMC	0.304	Yaml repo
ROC	ZM4	[-11,5075, -6.8729]	E2100289 + new preload**
	ZM5	[3.4896, 2.73514]	E2100291 + new preload**
	SRM	5.678*	Yaml repo
	OM1	4.6	Yaml repo
	OM2	1.7058	Yaml repo
AOI	ZM4	6.327	<i>aLog</i> 85339
	ZM5	4.261	<i>aLog</i> 85339
	OM1	2.251	Yaml repo
	OM2	4.399	Yaml repo

*Sign change as HRS is concave with respect to this beam path.

**From Camilla: increased the preload for ZM4 from 46 in lb to 75 in lb. (An estimated linear increase of 70mD). For ZM5, increased the preload from 20 in lb to 47 in lbs. (An estimated linear increase of 65mD).

Yaml repo = https://git.ligo.org/IFOSim/ligo-commissioning-modeling/-/blob/main/LHO/yaml/lho_O4.yaml

Current beamq.m parameters in use are from aLog 59333:

Waist radius approx. 0.694-0.708E-6 m.

Position of waist from B:M4 approx. -0.223E-3 m(i.e. closer to OPO).

Simulation current state: see email "New code version."

Notable change: GUI PZT voltage interface.