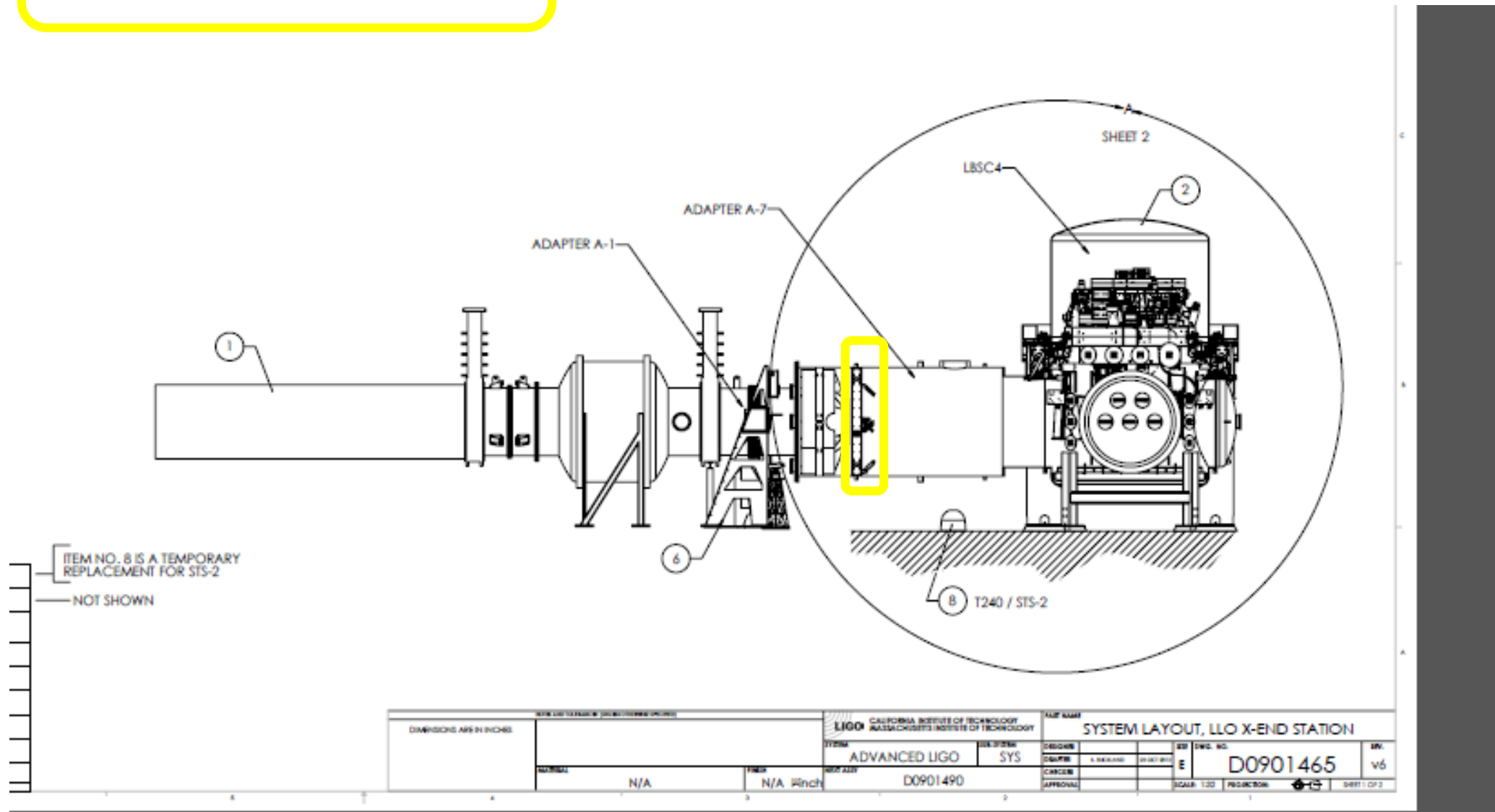


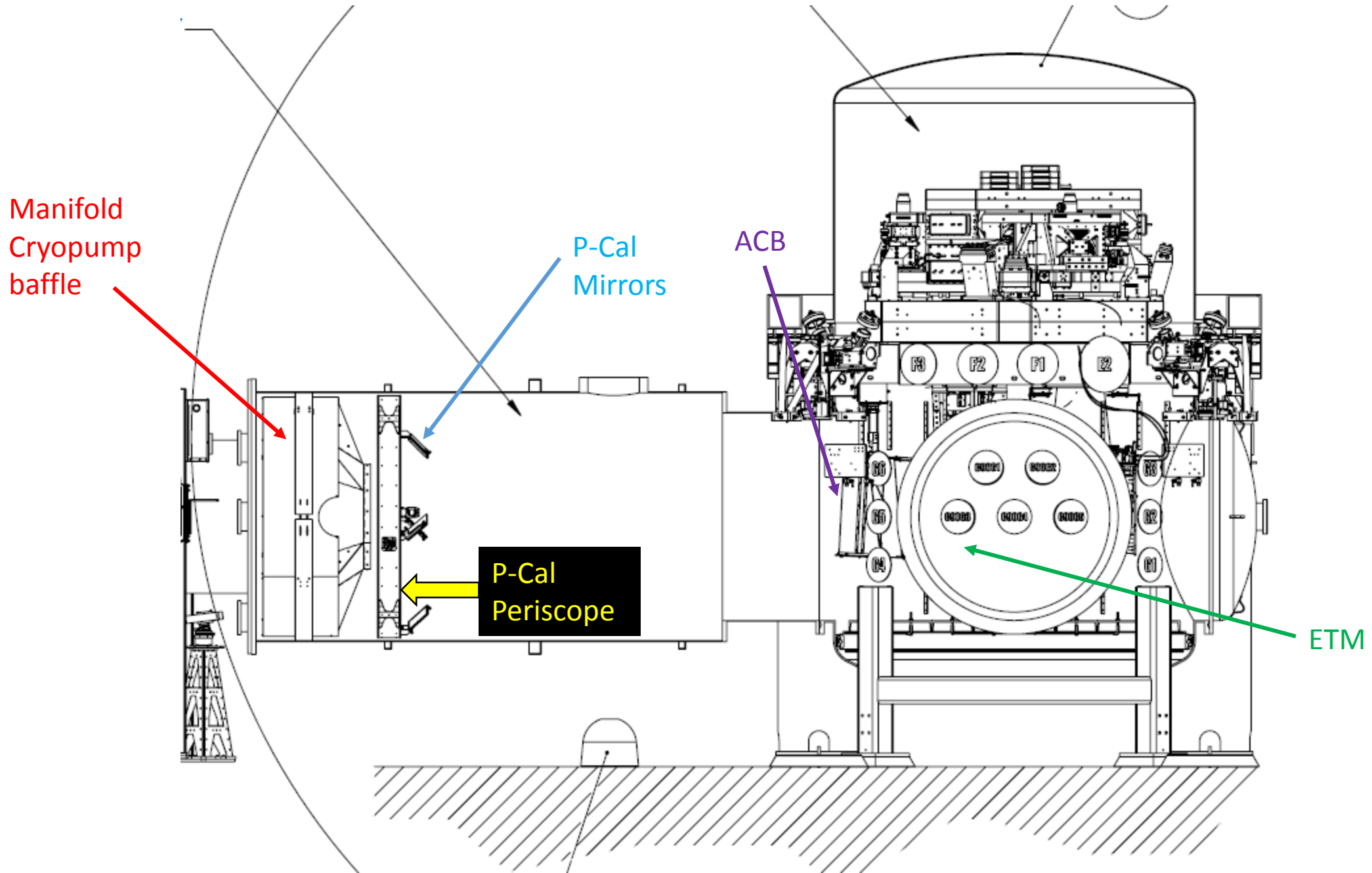
# P-Cal Periscope Shields Concept

LIGO-D1600453-v5

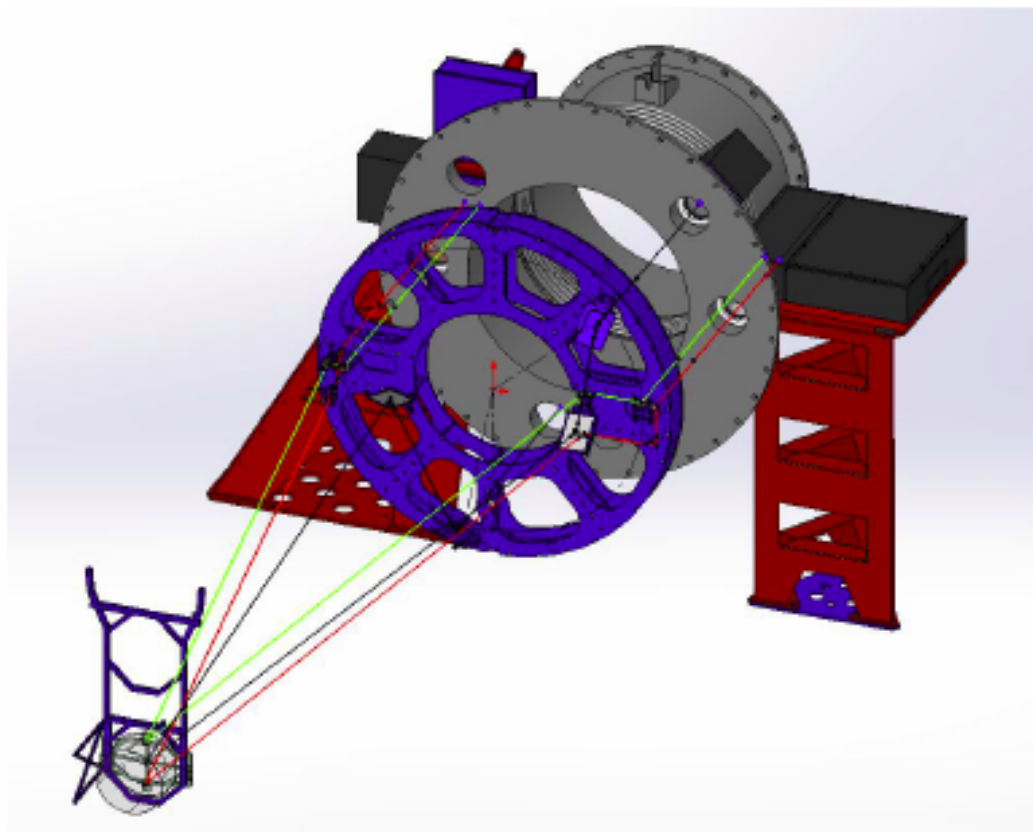
# P-Cal Periscope in end station (X end shown)



Refer to aLIGO Systems Layout LLO X-End Station (OR EQUIV) <https://dcc.ligo.org/LIGO-D0901465> if more detail required.



Refer to aLIGO Systems Layout LLO X-End Station (OR EQUIV) <https://dcc.ligo.org/LIGO-D0901465> if more detail required.

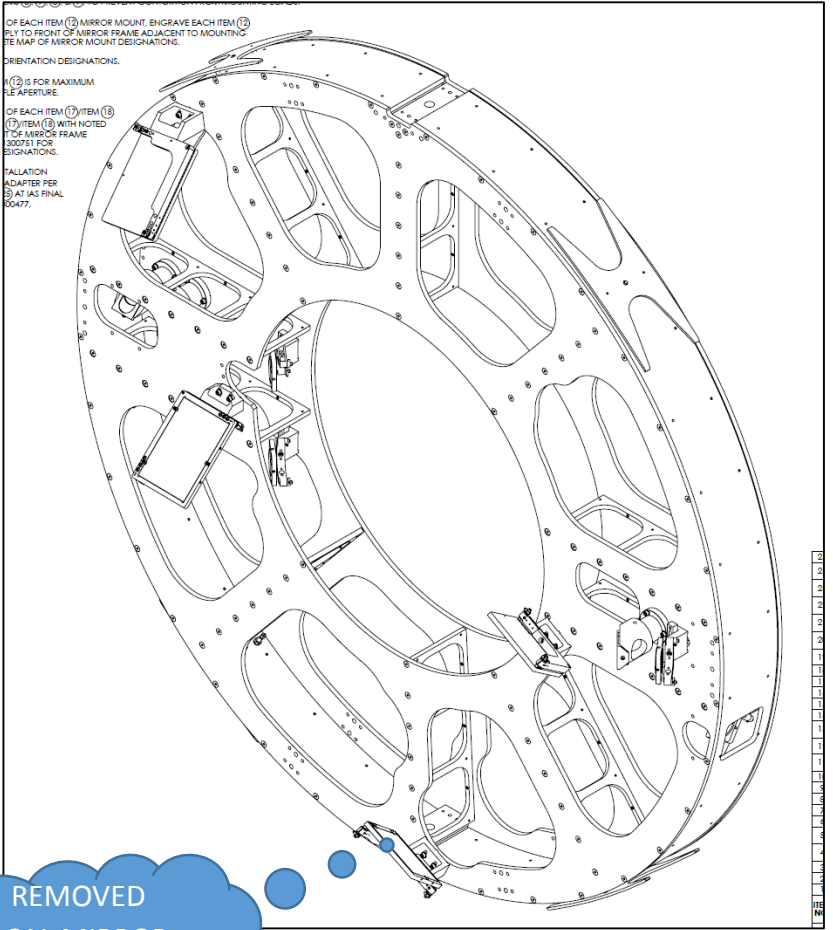


**Figure 16 – In-Vacuum optical Paths of Pcal beams (green and red) and Pcal camera and optical lever (black) of H1, L1 Photon Calibrator Beams through the Pcal in-vacuum periscope.**

*Laser beam (optical path): Also refer to the optical layout in figure 16, page 19 of PCal final design doc: <https://dcc.ligo.org/DocDB/0032/T1100068/023/PhotonCalibratorFinalDesign.pdf>.*

PROPOSED BAFFLES FOR PCAL Periscope:

As built (Weight: 222 lbs)

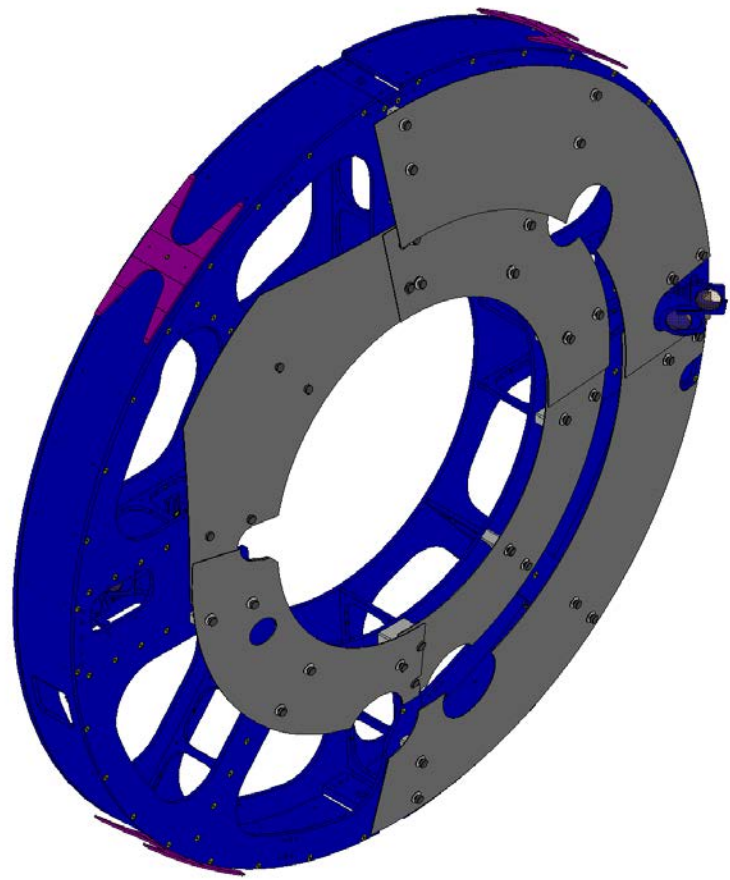


REMOVED  
 PCAL MIRROR  
 MOUNTS  
 ASSY.  
 4 PL.

-01 SHOWN  
 (Y-ARM)

Monday, May 01, 2017

Modified with SLC Shields  
 (Weight: 250.00 lbs Approx.)



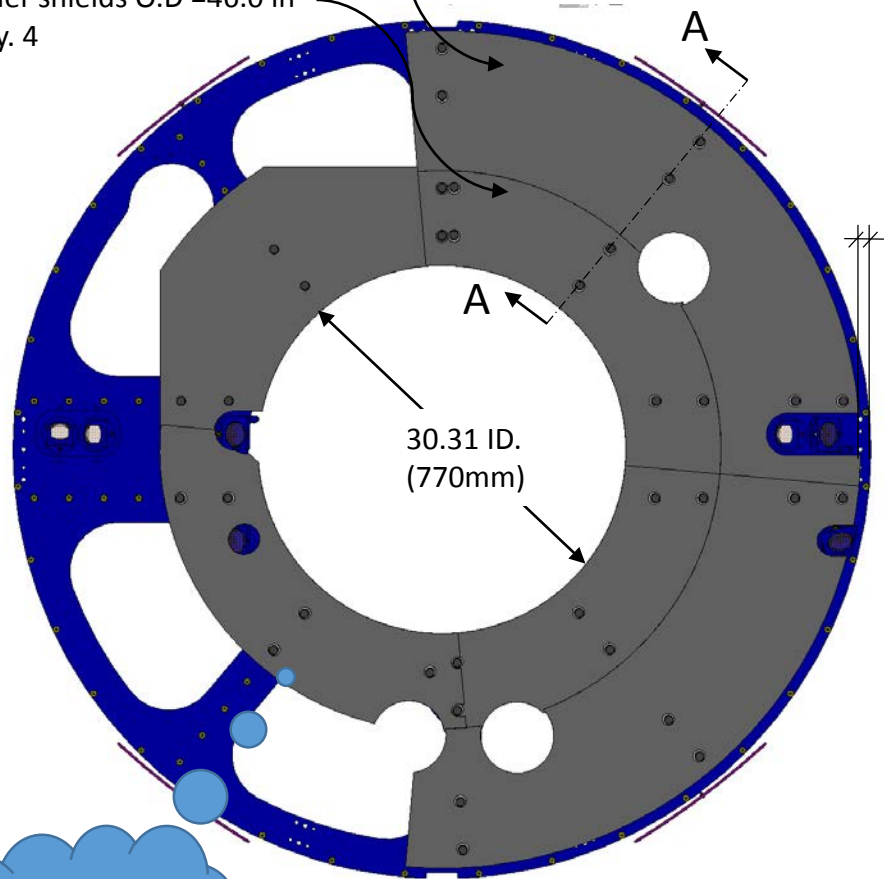
-01 SHOWN  
 (Y-ARM)

LIGO-D1600453-v5

# PROPOSED BAFFLES FOR PCAL Periscope:

Outer shields O.D =69.0 in  
Qty. 2

Inner shields O.D =46.0 in  
Qty. 4



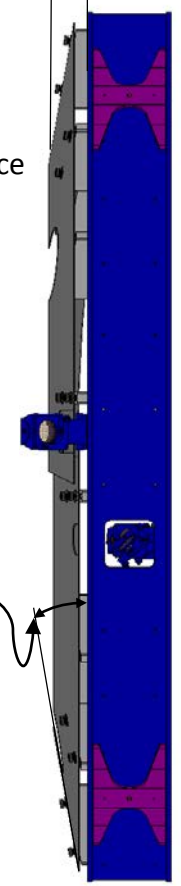
**FRONT VIEW**  
**-01 SHOWN**  
**(Y-ARM)**

OVERLAPPING  
PANELS  
FOR  
COMPLETE  
COVERAGE

SHIELDS PROTRUDE  
3 3/16 in

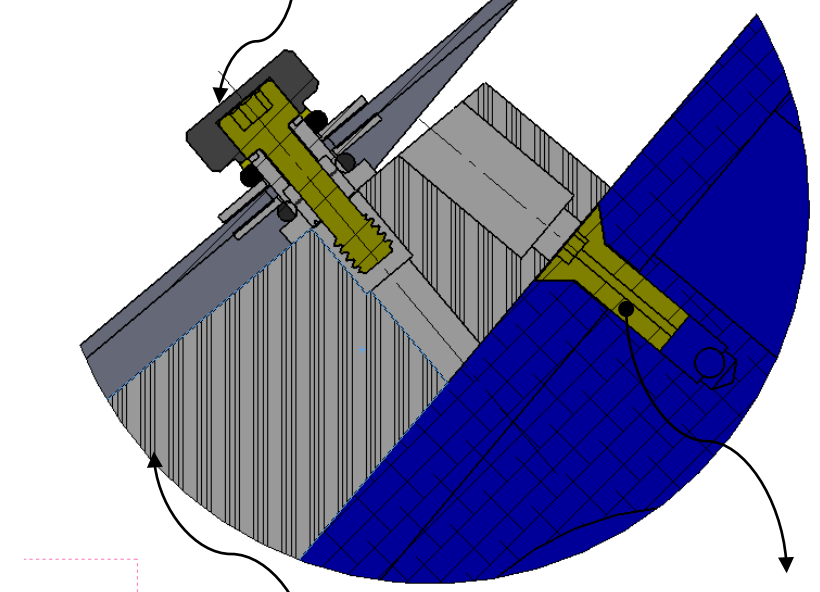
Radial Clearance  
=1.75 in

10 Deg.  
Typ.



LIGO D1500105-7 (NEW CONFIG.)  
QTY. 2 PER WEDGE  
QTY. 6 PER PANEL  
QTY. 36 TOTAL

.075 SUPER #8 304 SSSL



SHIELDS ATTACH TO PCAL PERISCOPE  
VIA WEDGE  
SUPPLIED WITH 1/4-20 HELICOIL TAPPED HOLES  
QTY. 16 TOTAL  
(10 USED FOR INNER PANELS)

EXISTING FLAT HEAD SCREWS  
WILL BE REPLACED WITH  
1/4-20 SHC SCREWS  
QTY/ 3 PER WEDGE

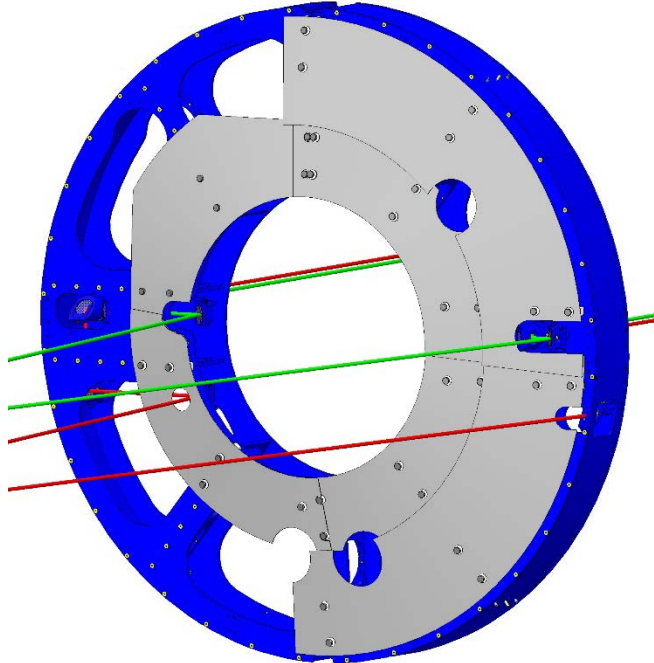
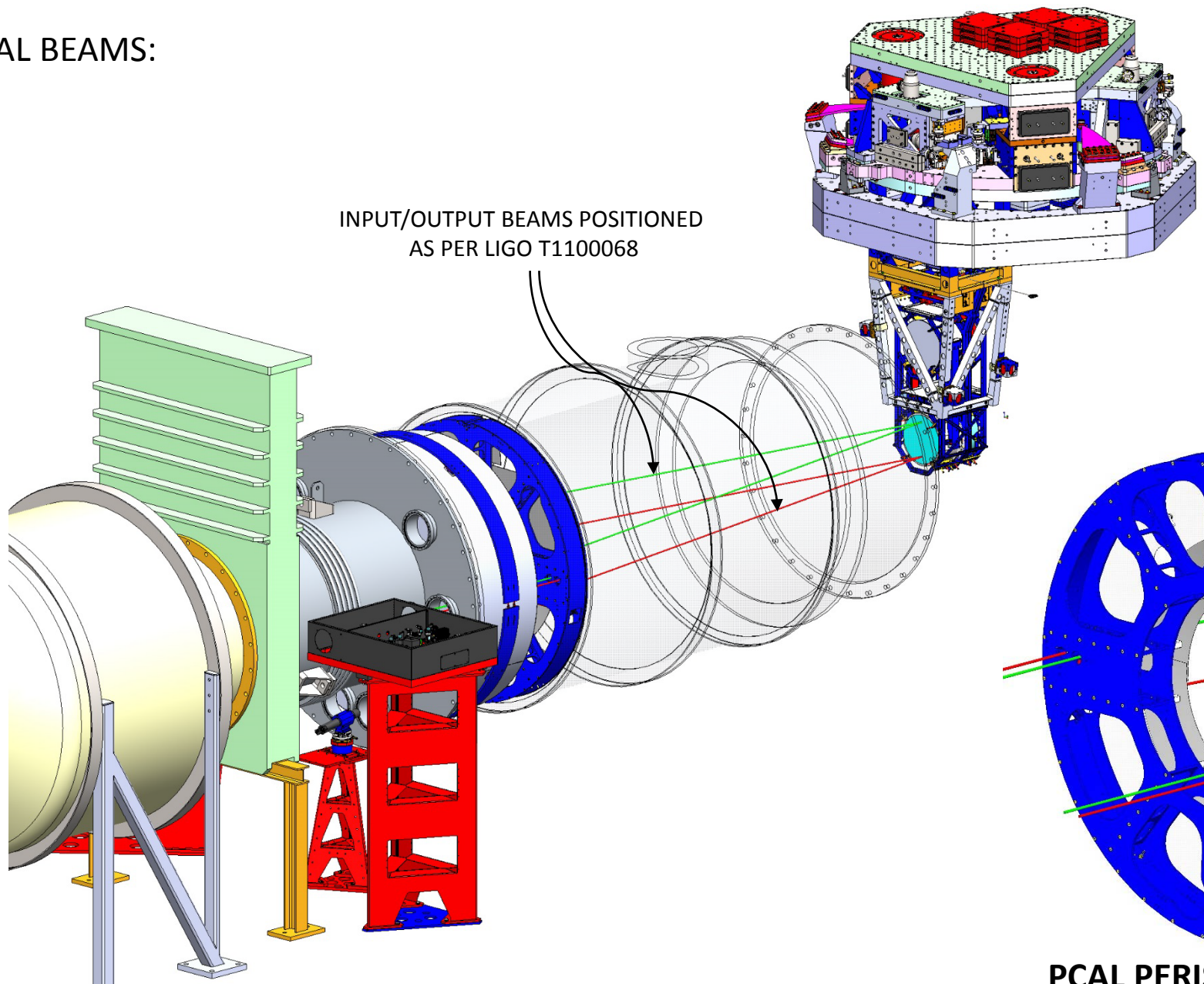
**SECTION A-A**  
**(PARTIAL VIEW)**



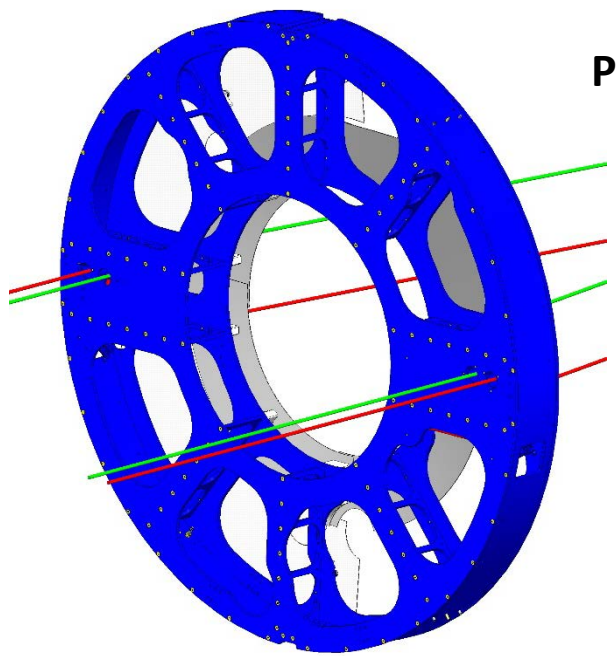
PROPOSED BAFFLES FOR PCAL Periscope:

PCAL BEAMS:

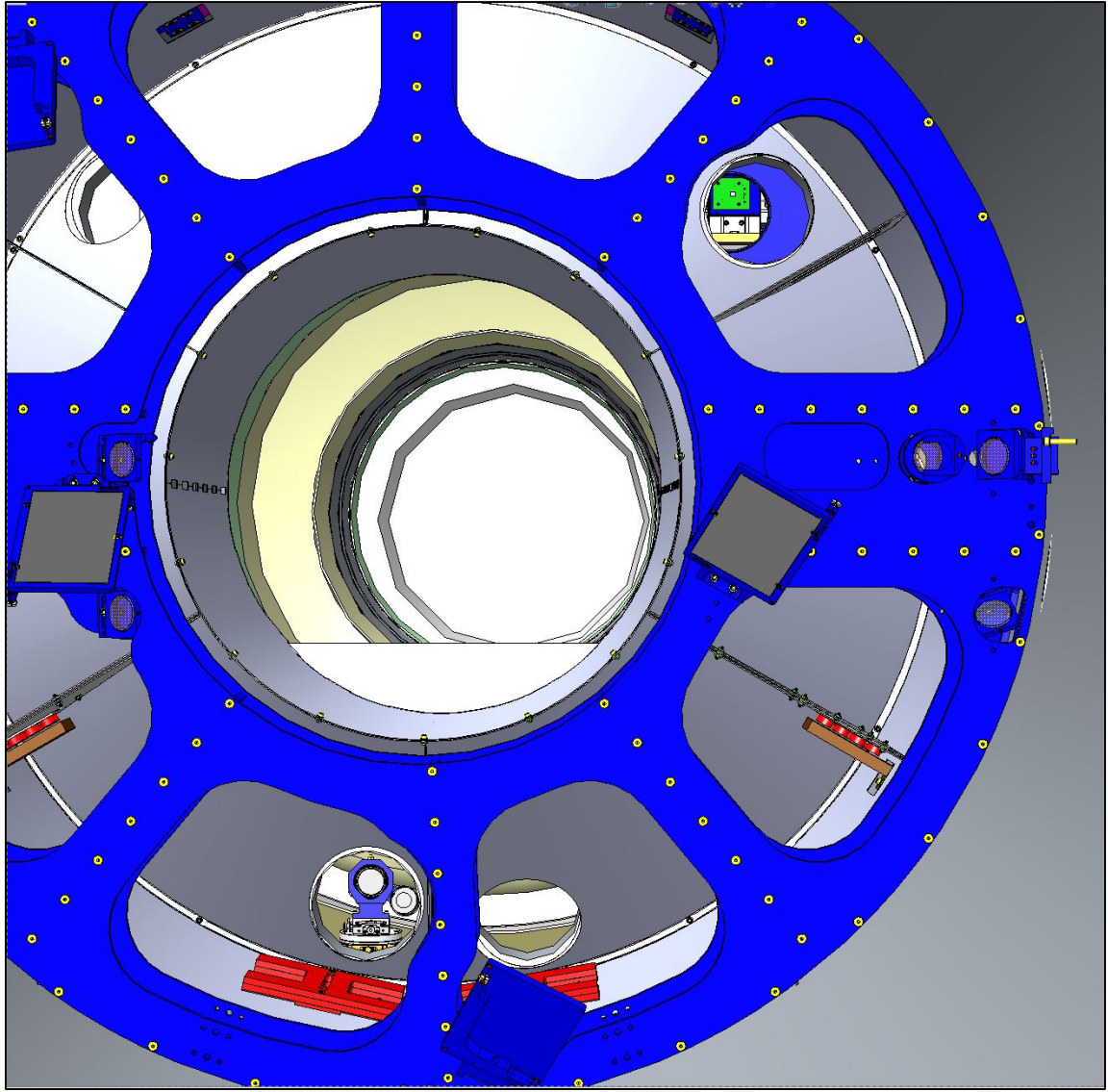
INPUT/OUTPUT BEAMS POSITIONED  
AS PER LIGO T1100068



**PCAL PERISCOPE, ISO VIEW  
(FRONT SIDE)**



**PCAL PERISCOPE, ISO VIEW  
(BACK SIDE)**



CAD image extracted from Solidworks of PCAL Periscope as viewed from a camera centered and perpendicular to the HR of ETMy face for a  $\pm 11$  deg field of regard (22 full Angle)

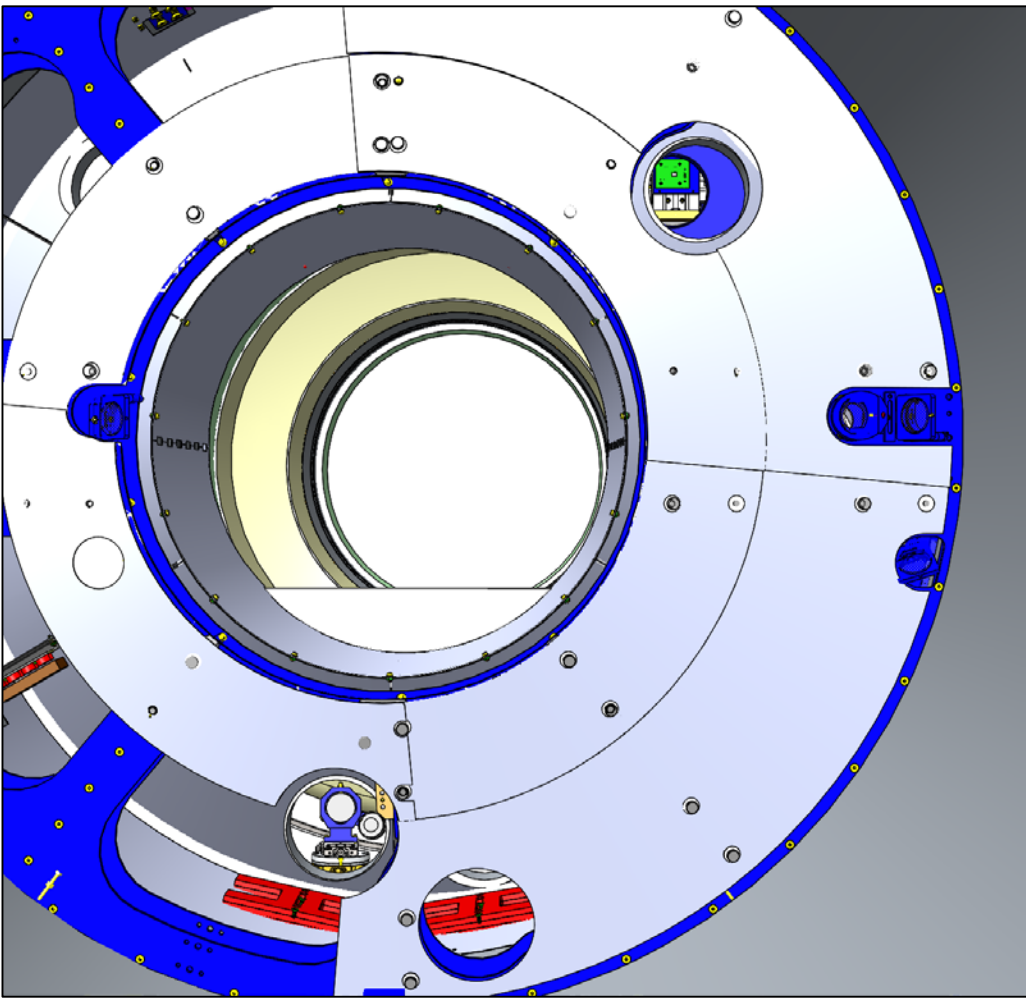
LIGO-D1600453-v5

Refer to LIGO G1602132



PROPOSED BAFFLES FOR PCAL Periscope:

WAS: With PCAL shields

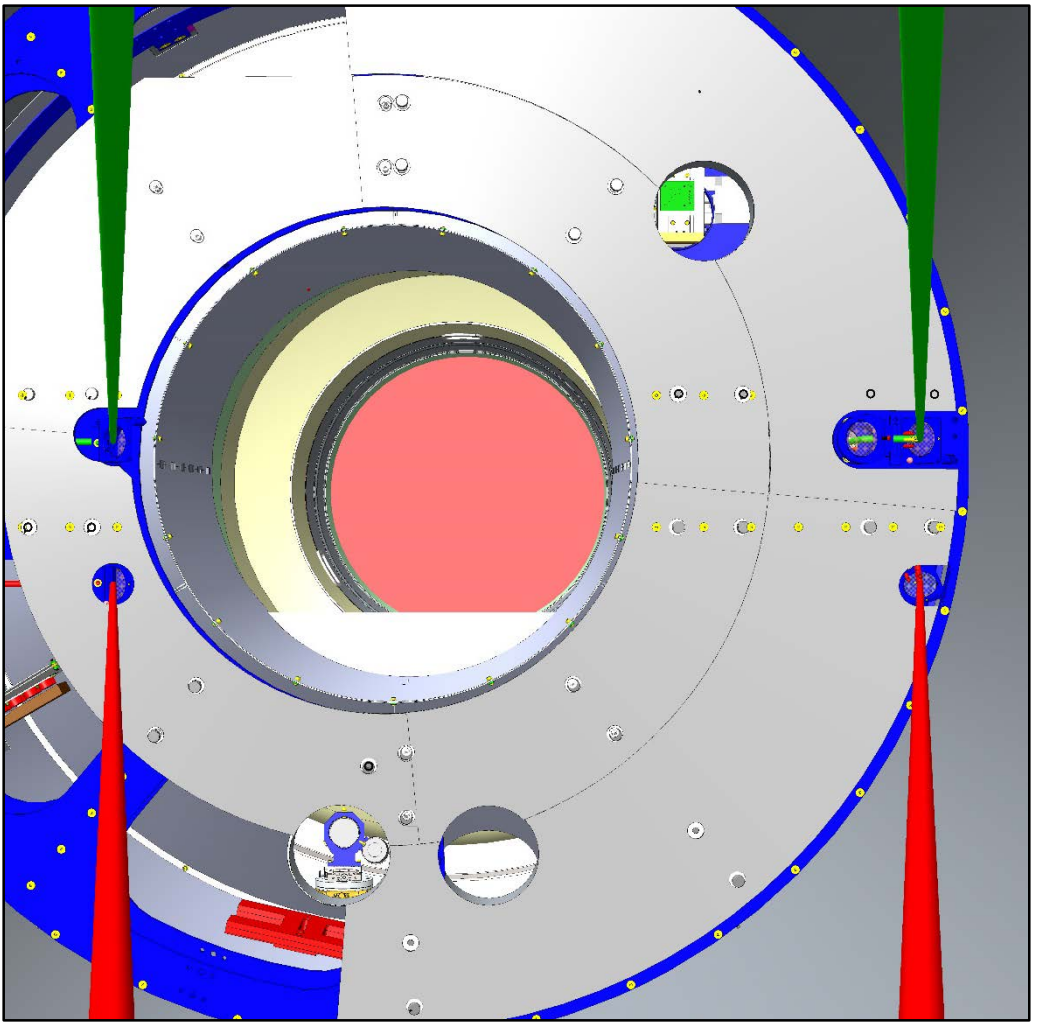


CAD image extracted from Solidworks of PCAL Periscope as viewed from a camera centered and perpendicular to the HR of ETMy face for a  $\pm 11$  deg field of regard (22 full Angle)

Monday, May 01, 2017

IS:

With PCAL shields

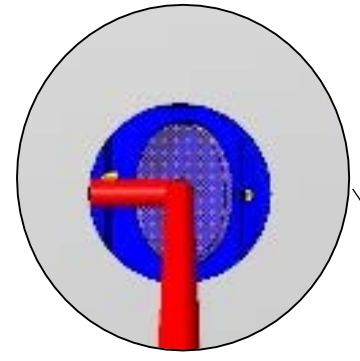


CAD image extracted from Solidworks of PCAL Periscope as viewed from a camera centered and perpendicular to the HR of ETMy face for a  $\pm 11$  deg field of regard (22 full Angle)

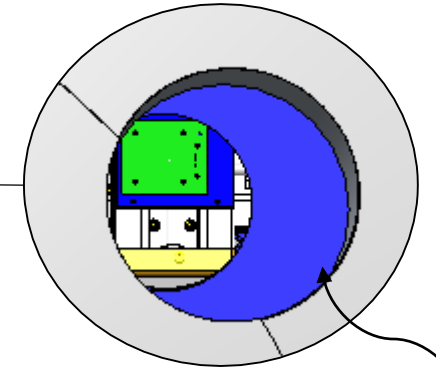
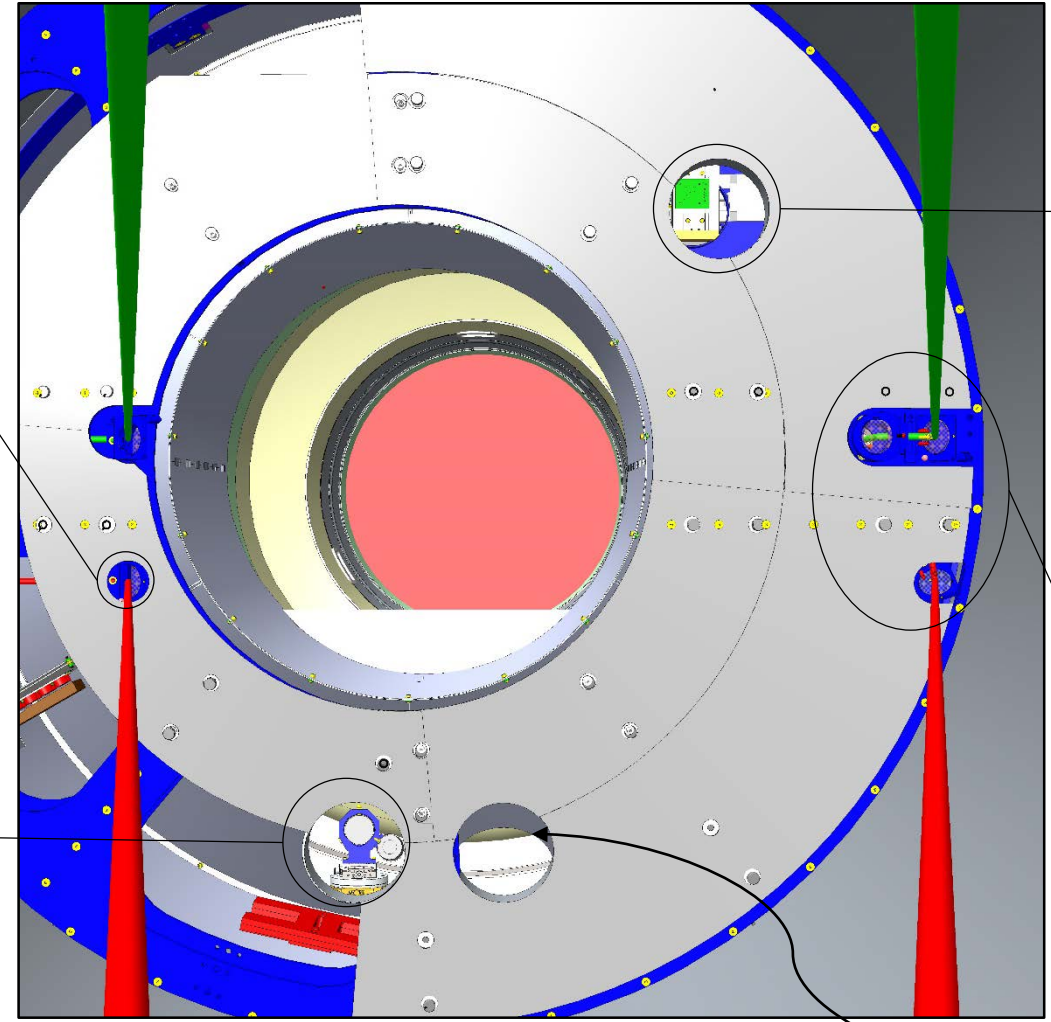
LIGO-D1600453-v5

PROPOSED BAFFLES FOR PCAL Periscope:

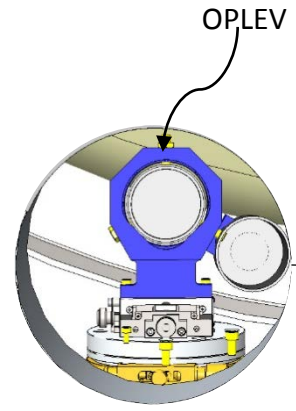
With PCAL shields



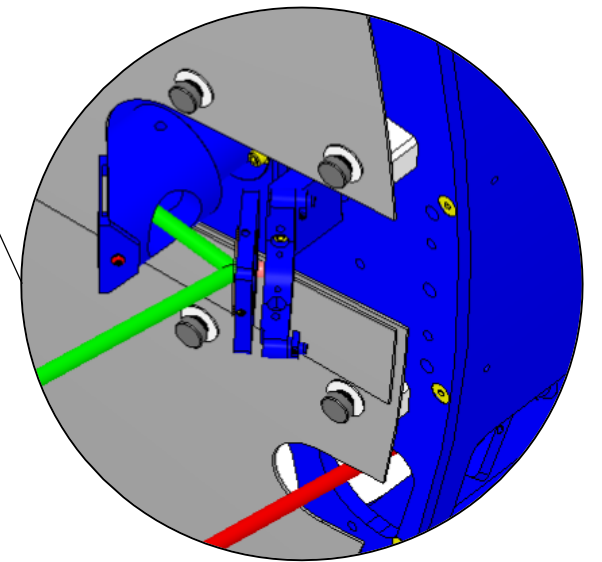
Aperture Size= 2.5in



RCVR PYLON  
(oplev enclosure)



OPLV



VP4

CAD image extracted from Solidworks of PCAL Periscope as viewed from a camera centered and perpendicular to the HR of ETMy face for a  $\pm 11$  deg field of regard (22 full Angle)