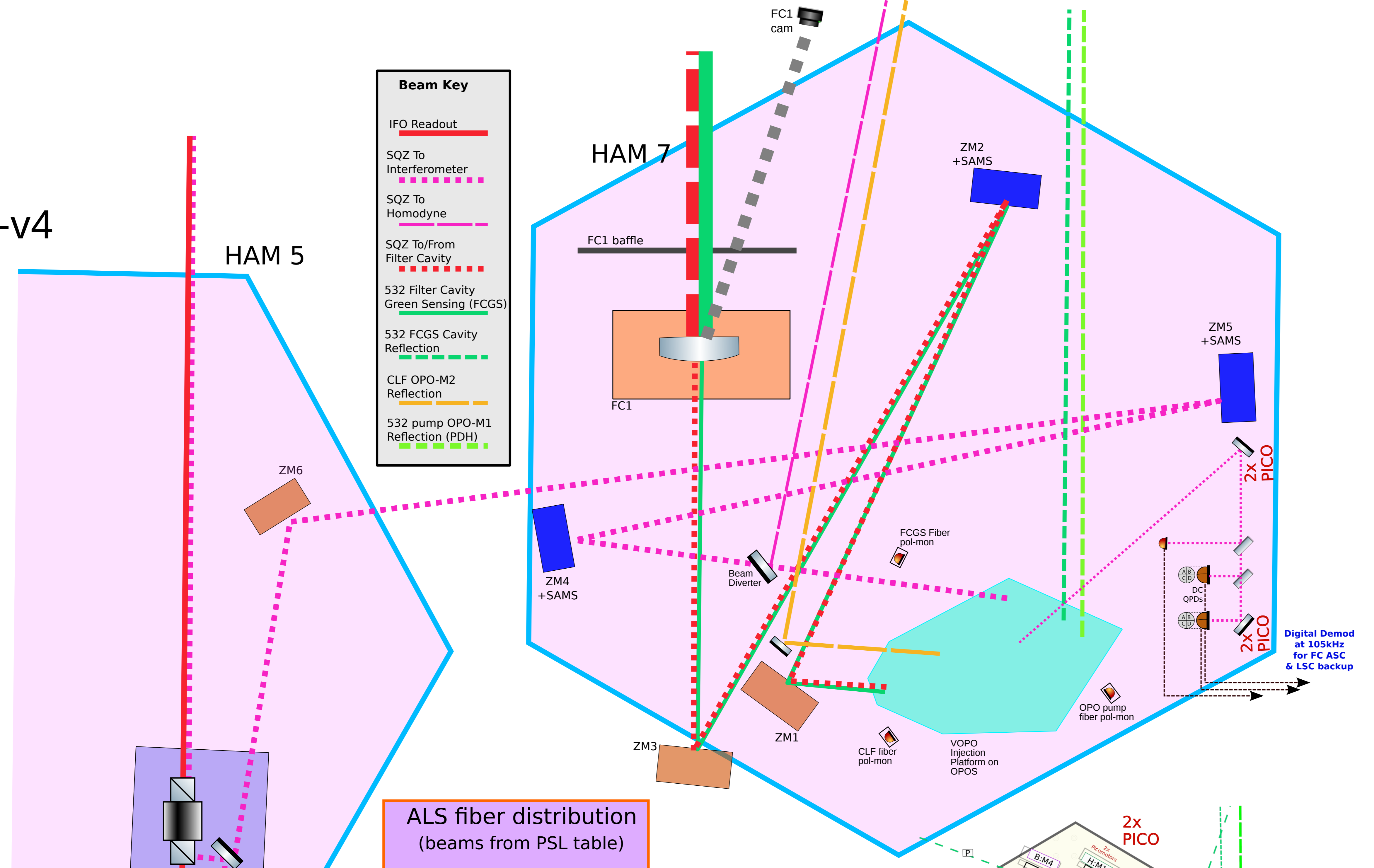
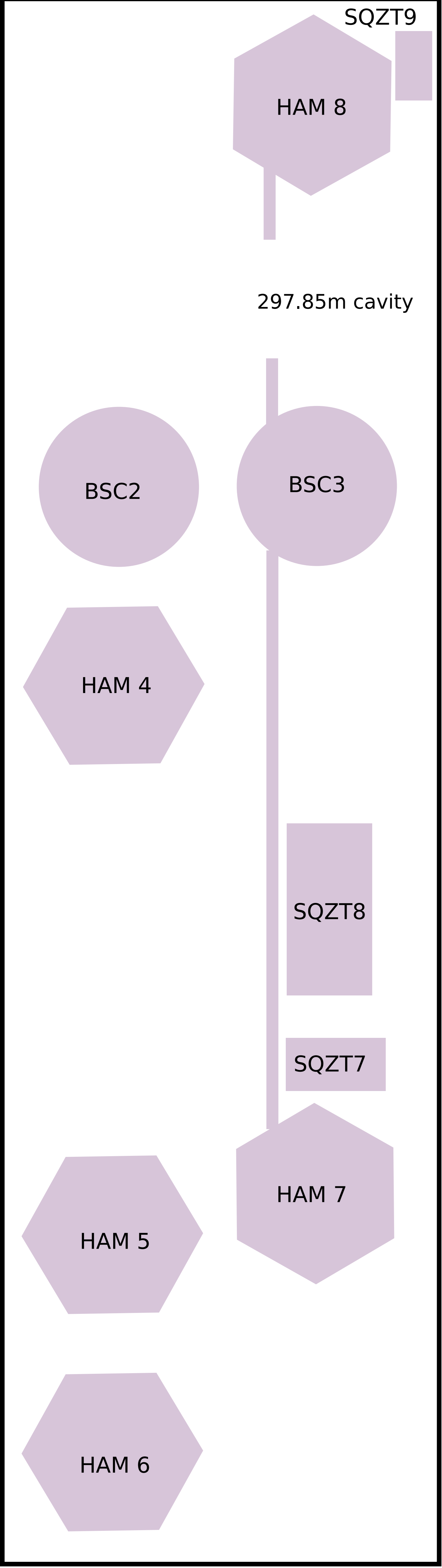


# D1900281-v3

Filter Cavity Version of D1500297-v8

HAM7, VIP and HAM8 layouts from T1900649-v4

## Overview



**Beam Key**

- IFO Readout
- SQZ To Interferometer
- SQZ To Homodyne
- SQZ To/From Filter Cavity
- 532 Filter Cavity Green Sensing (FCGS)
- 532 FCGS Cavity Reflection
- CLF OPO-M2 Reflection
- 532 pump OPO-M1 Reflection (PDH)

**ALS fiber distribution (beams from PSL table)**

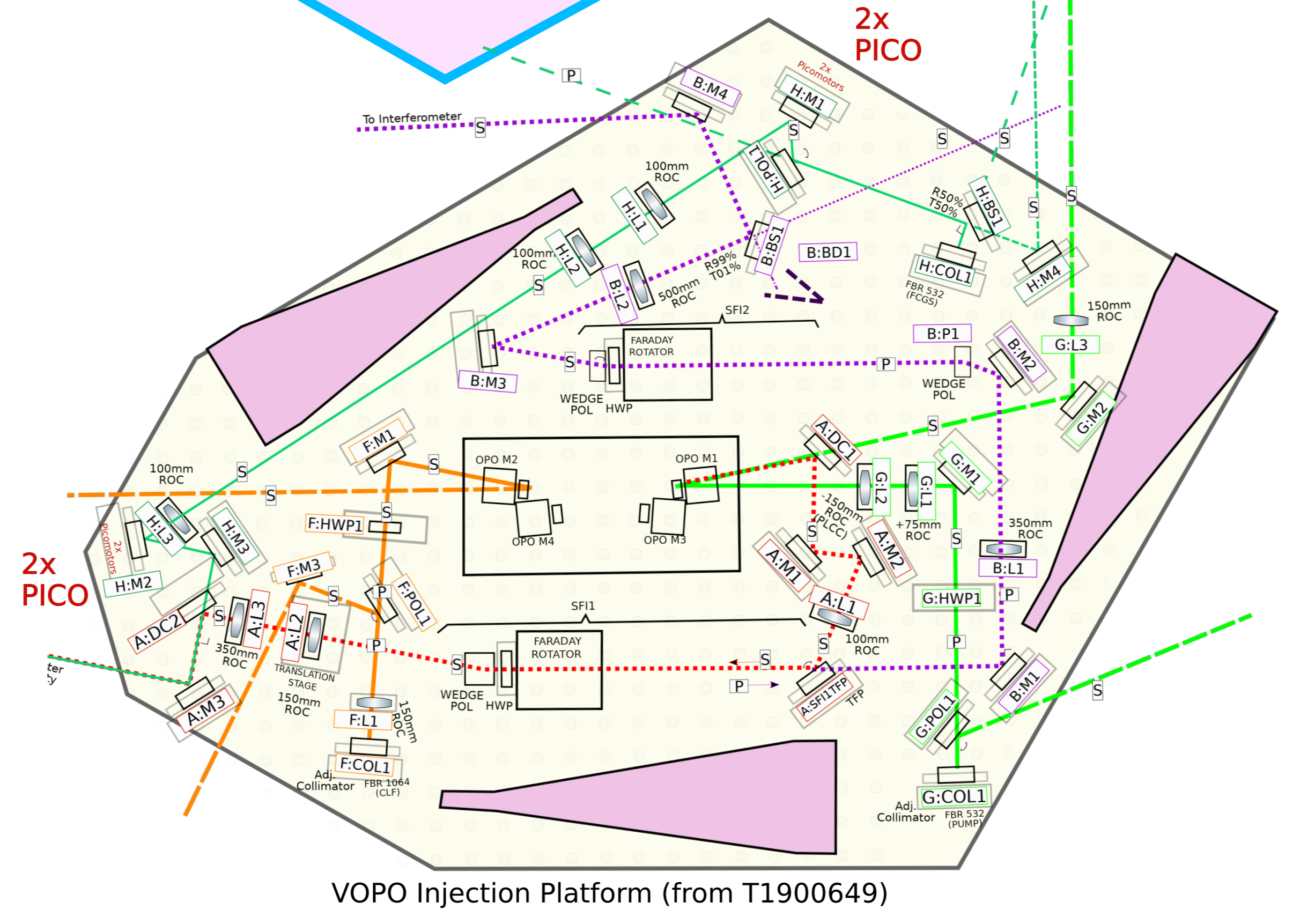
E1200138

- PSL sample (after RFC)
- SQZ LO (diagnostic)

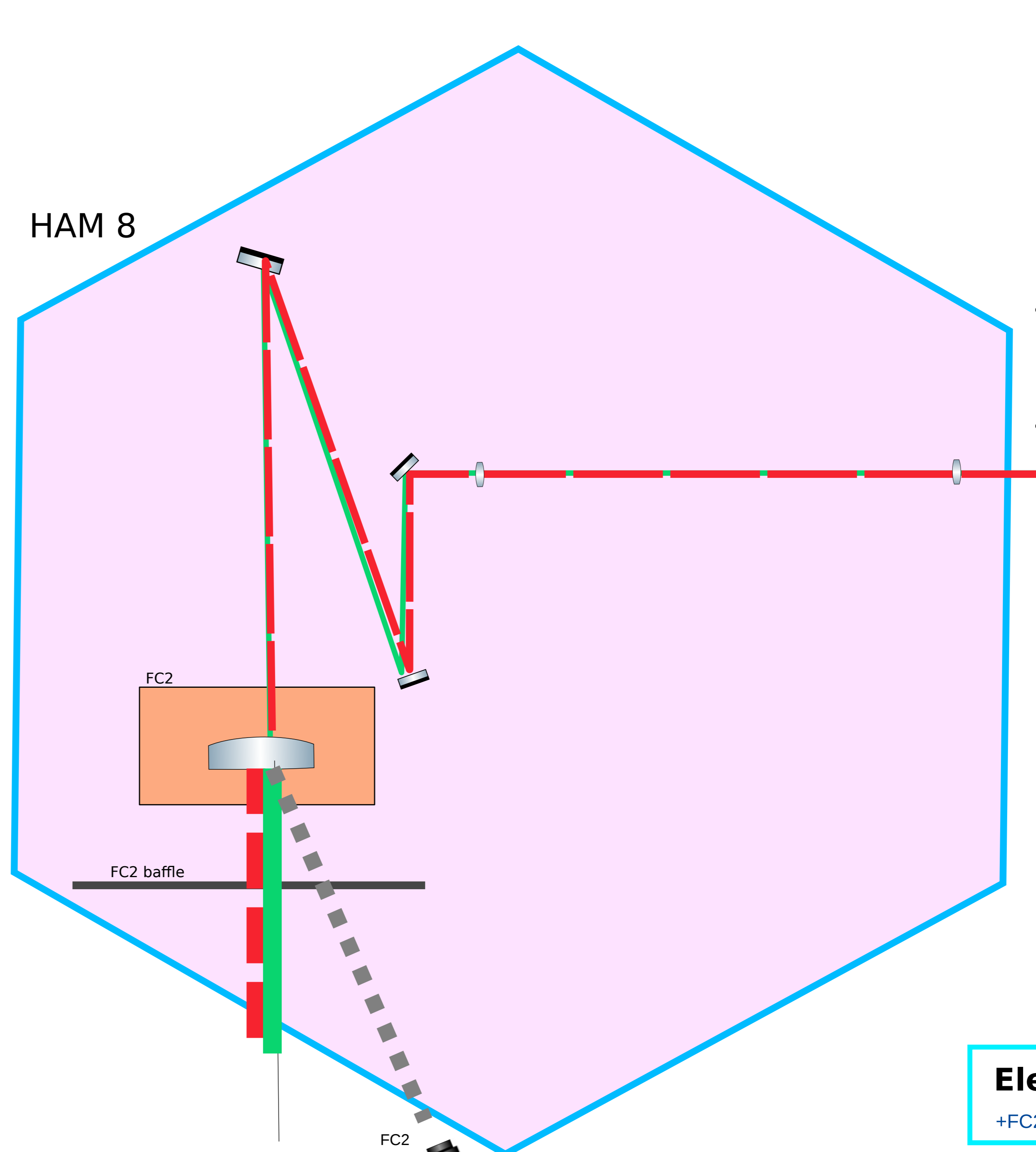
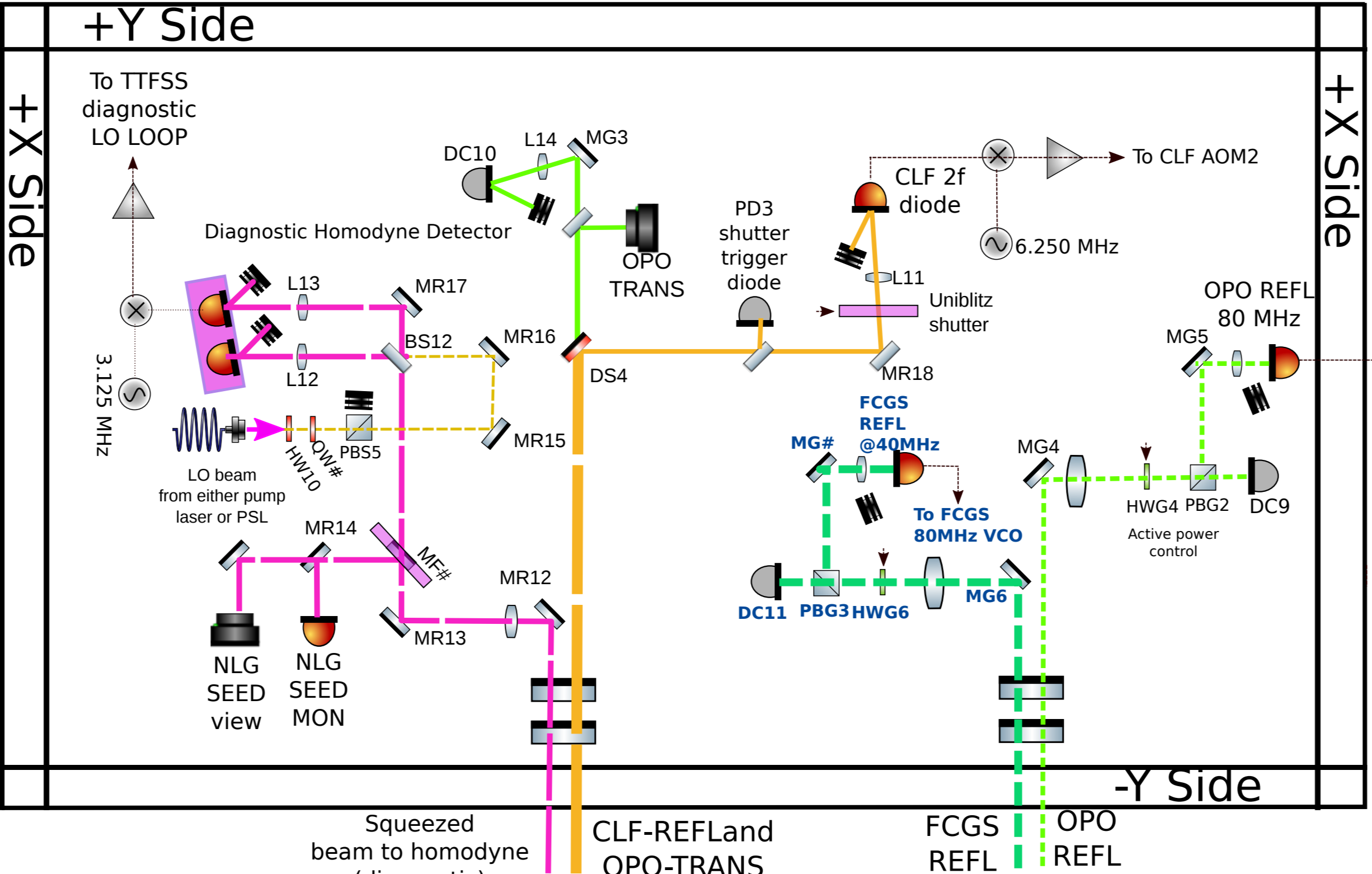
**Legend**

- MR High Reflector 1064nm
- MG High Reflector 532nm
- L Lens (dual AR coated)
- BS Beam Splitter 1064nm
- BG Beam Splitter 532 nm
- DS Dichroic mirror (HR 1064nm, HT 532nm)
- HW Half-waveplate 1064nm
- QW Quarter-waveplate 1064nm
- HWG Half-waveplate 532nm
- QWVG Quarter-waveplate 532nm
- PBS Pol Beam Splitter 1064nm
- PBG Pol Beam Splitter 532nm
- DC Monitoring DC diode
- MF Motorized flipper
- MF Motorized element

Blue text are filter cavity additions



SQZT7, 3' x 5' (was SQZT6, see D1800060 for current LLO/LHO layout)



**SQZT7 active elements**

- Diodes (see T1600605)
- PDA100A PDs (#1, PD3)
- Unamplified monitor PDs (#2, DC9-10)
- LSC RF PDs (#2, CLF 2f and OPO REFL)

Cameras (#2, IT\_TRANS and OPO\_TRANS)

Motorized waveplates (#1)

Uniblitz shutter (#1)

+1 40MHz silicon BBPD (FCGS 532 REFL)

+1 Unamplified DC PD

**SQZT8 active elements**

- Diodes (see T1600605)
- PDA100A PDs (#2, PD1 and PD2)
- Unamplified monitor PDs (#8, DC1-8)
- BBPD (#1, SHG BBPD)
- 1611 (#1, FSS1 1611)

PZTs (#2, PZT1 and PZT2)

Cameras (#1, SHG\_TRANS)

Motorized waveplates (#9)

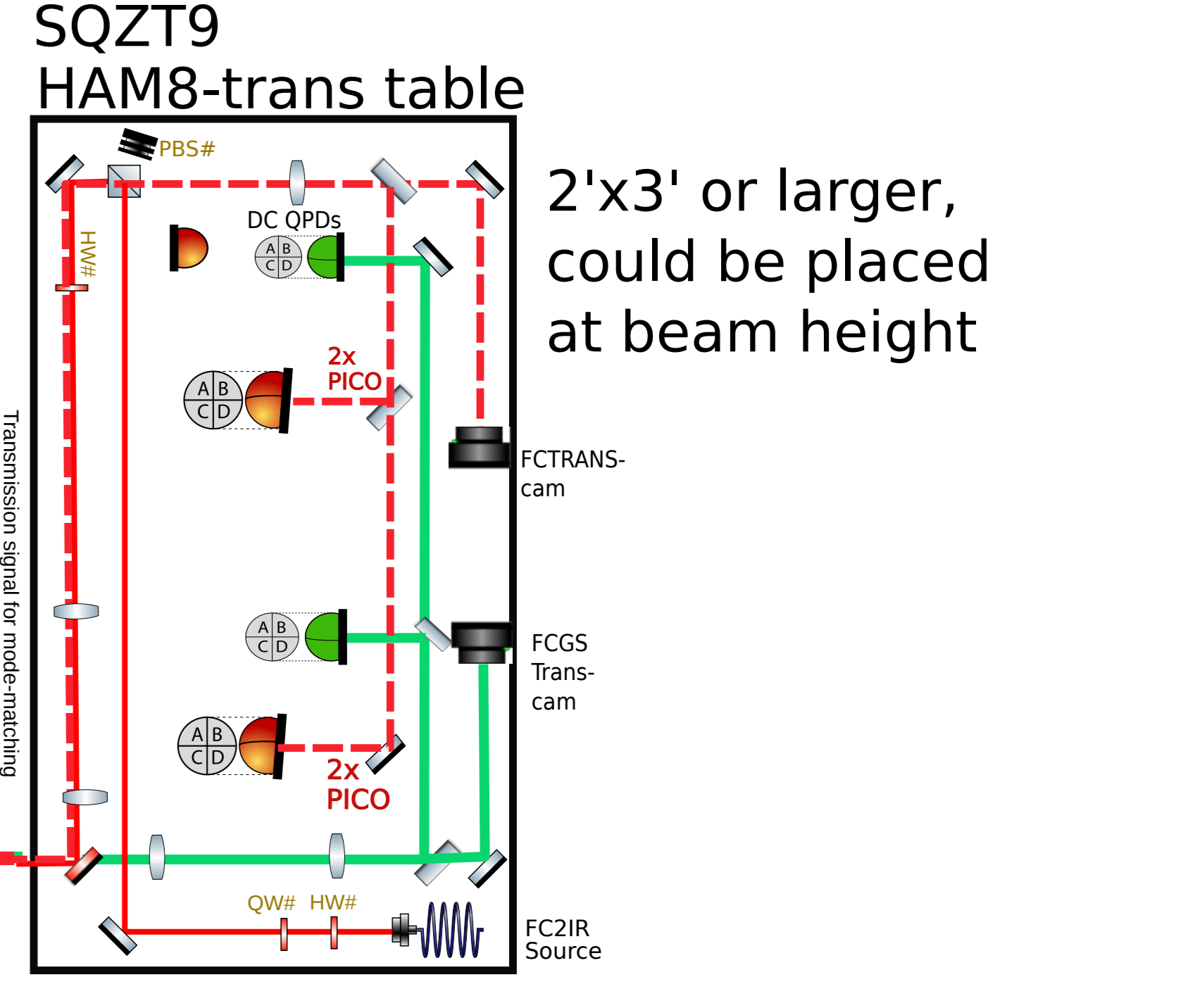
Motorized flippers (#4, MF)

+2 80MHz Green AOM

+1 40MHz Green EOM

+1 Unamplified Monitor PDs

+2 Motorized Waveplates



**HAM8 Trans active elements**

- 2x 532 DC-QPDs
- 2x 1064 DC-QPDs (high-transimpedance)
- 2x Cameras (1x for IR, 1x for 532)
- 1x DCPD (can be non-permanent, PDA100A or similar)
- +4 picomotors (2x on 2 mirrors) for 1064 DC-QPD centering

**Near-Chamber Elements**

- 2x Cameras, FC1 and FC2 imaging

**Electrical signals in HAM8**

- +FC2 HSTS

**Electrical signals in HAM7 (was)T1700019**

**VOPO Injection Platform**

- 1 x Lens translation stage, PZT driven
- +2 Faraday TEC Controllers
- +4 Picomotors (2x on 2 mirrors)

**OPO cavity**

- 1 x Oven translation stage, PZT driven
- 1 x Peltier heater
- 3 x Thermistor
- 2 x Cavity PZT, avoid crosstalk with oven

**Suspensions**

- OPOS: 6 x aOSEM
- +ZM1 4 x BOSEAM HAM7
- +ZM2 4 x BOSEAM HAM7 +AWC
- +ZM3 4 x BOSEAM HAM7
- +ZM4 4 x BOSEAM HAM7 + AWC
- +ZM5 4 x BOSEAM HAM7 + AWC
- +ZM6 4 x BOSEAM HAM5
- +FC1 HSTS

**Optomechanics**

- +1 Beam diverter
- +2 DC QPDs (105kHz readout)
- +4 Picomotors (2x on 2 mirrors)
- +3 DCPDs

SQZT8 (was ISCT6) 4' x 8' See D1201210 for Current LHO/LLO layouts

