Table of weighting factors for wide-angle scattering

optic from which beam is scattered and recombined, dash gives the direction of the beam being scattered if there are multiple possibilities	retro-reflecting site	weighting	Rough seismic isolation at 100 Hz	weighting x seismic isolation
BRDF model: 3e-6/theta^1.3 with distance^2 and isolation weighting				
ETMY-ITMY	P-Cal periscope glint	1.00E+00	1	1.00E+00
ITMX-ETMX	valve seat	9.48E-01	1	9.48E-01
ITMX-ETMX	ACB line reflections in near corner of ACB	3.10E+00	0.1	3.10E-01
ETMY-ITMY	ACB line reflection near corner	2.24E+00	0.1	2.24E-01
ETMX-ITMX	ACB line reflection near corner	1.31E+00	0.1	1.31E-01
ETMX-ITMX	ACB line reflection far corner	8.46E-01	0.1	8.46E-02
ETMY-ITMY	ACB line reflection far corner	2.52E-01	0.1	2.52E-02
ITMX-ETMX	reducing flange by op lev	1.32E-02	1	1.32E-02
BS--XY wall	wall with op lev	1.47E-03	1	1.47E-03
BS-ITMY	chamber wall	2.70E-05	1	2.70E-05
BS-ITMX	BSC3-7-Flange	1.03E-05	1	1.03E-05
BS-SR3	HAM4 table edge	7.95E-04	0.01	7.95E-06
BS-ITMY	Flange BSC1-8	6.50E-06	1	6.50E-06
ITMX-ETMX	bellows	6.07E-06	1	6.07E-06
CPY-BS	ITM elliptical baffle top	4.91E-05	0.1	4.91E-06
CPX-BS	TCS mirror	4.28E-06	1	4.28E-06
CPX-BS	ITM elliptical baffle top	3.06E-05	0.1	3.06E-06
CPY-BS	TCS mirror holder	3.01E-06	1	3.01E-06
BS-SR3	HWFS equipment	1.72E-04	0.01	1.72E-06
BS-ITMY	elliptical baffle top	1.48E-05	0.1	1.48E-06

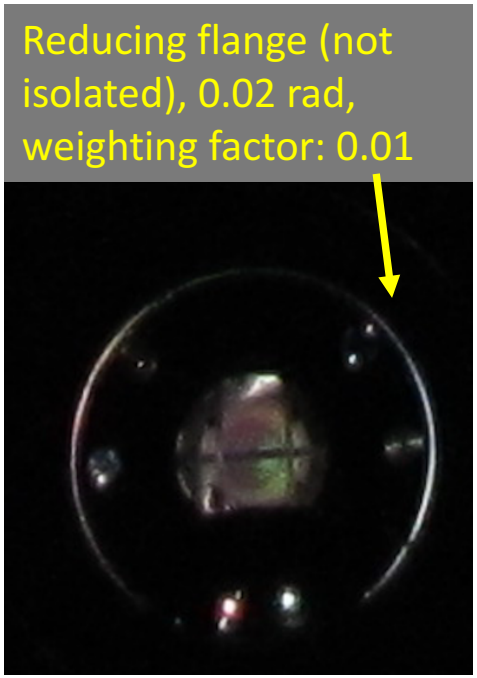
Glints with weighting of 1

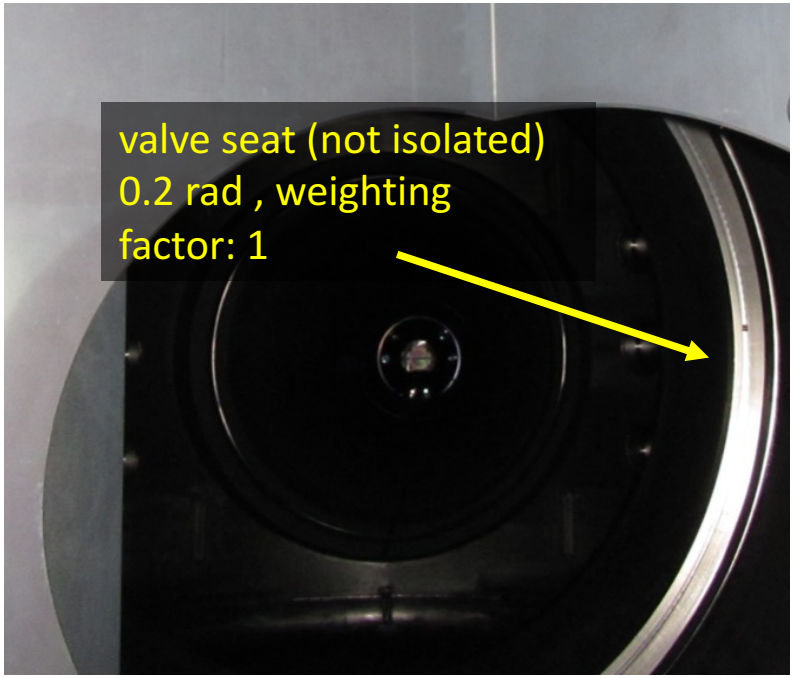
ETMY towards ITMY, showing P-Cal periscope before upgrade

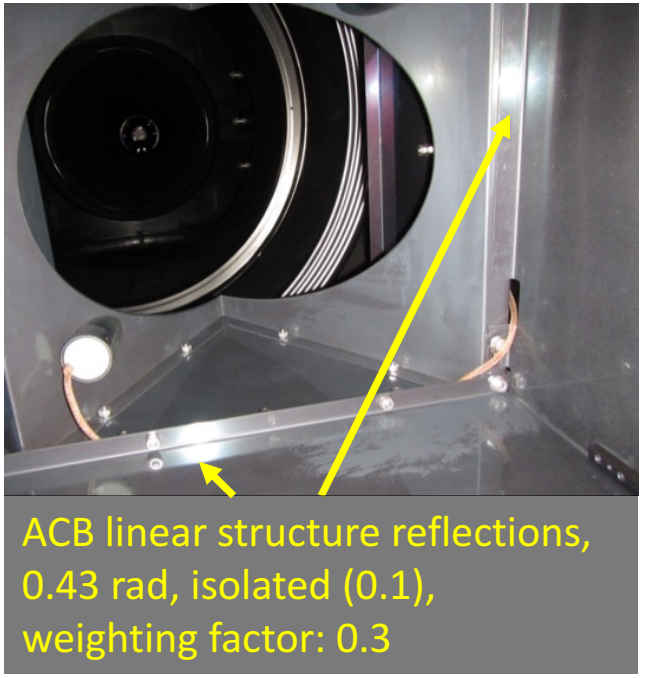
Periscope glints before baffling, no isolation, about 0.06 rad, weighting factor: 1, glints thought to be responsible for raven pecks appearing in DARM. Reflection from gate valve has been blacked out.

Next highest weighting factors

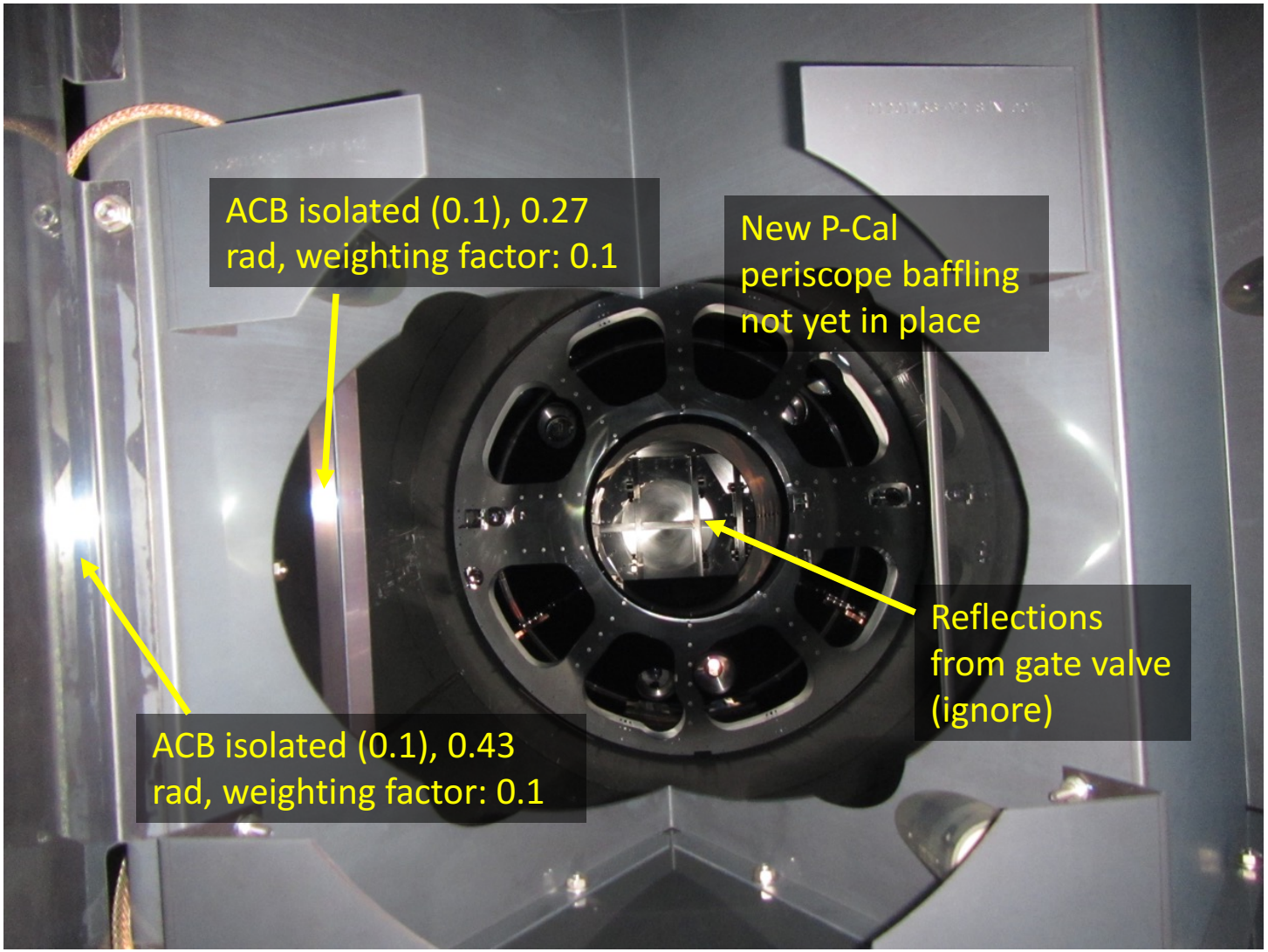
ITMX looking towards ETMX, similar on other arm

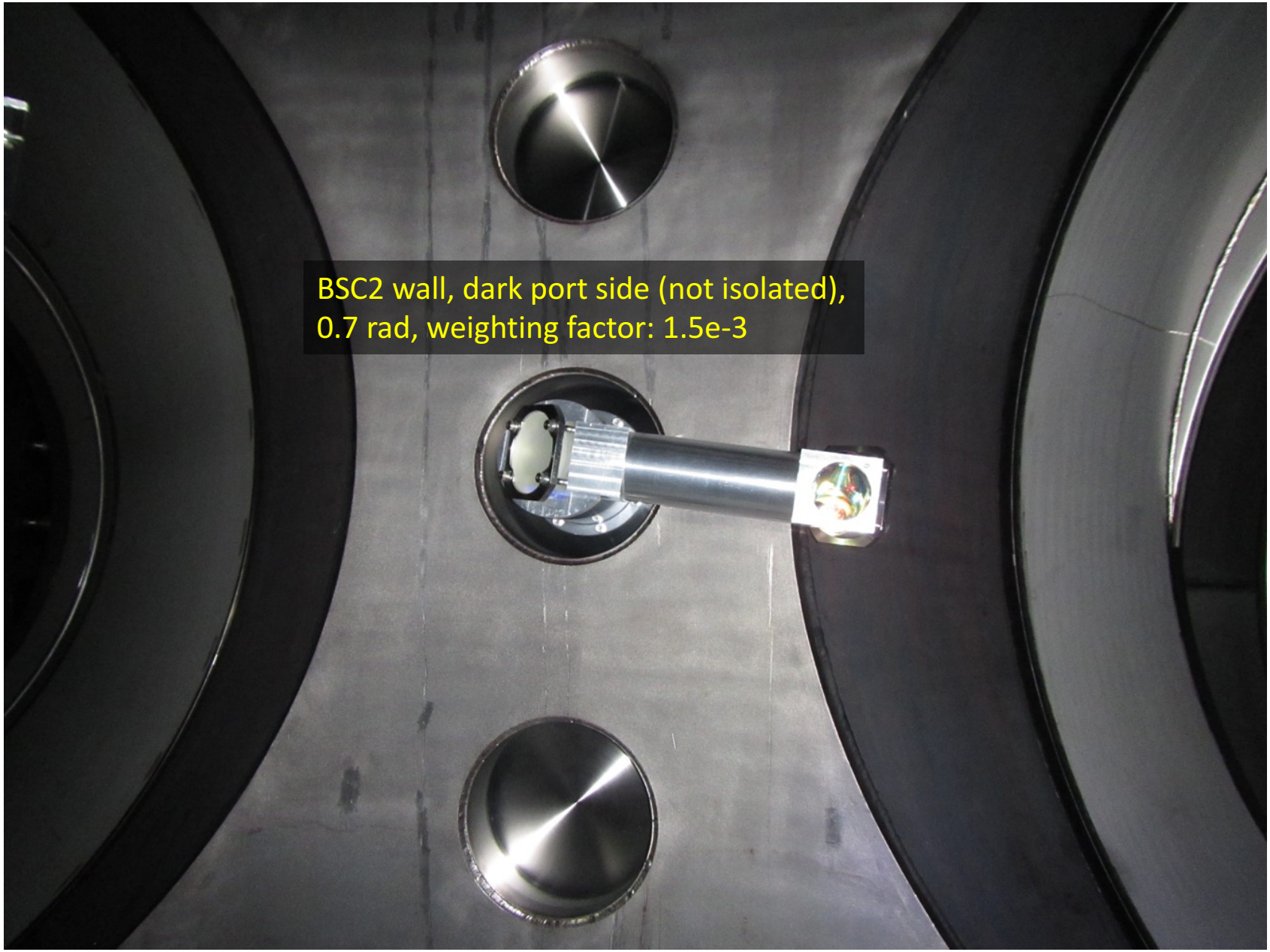




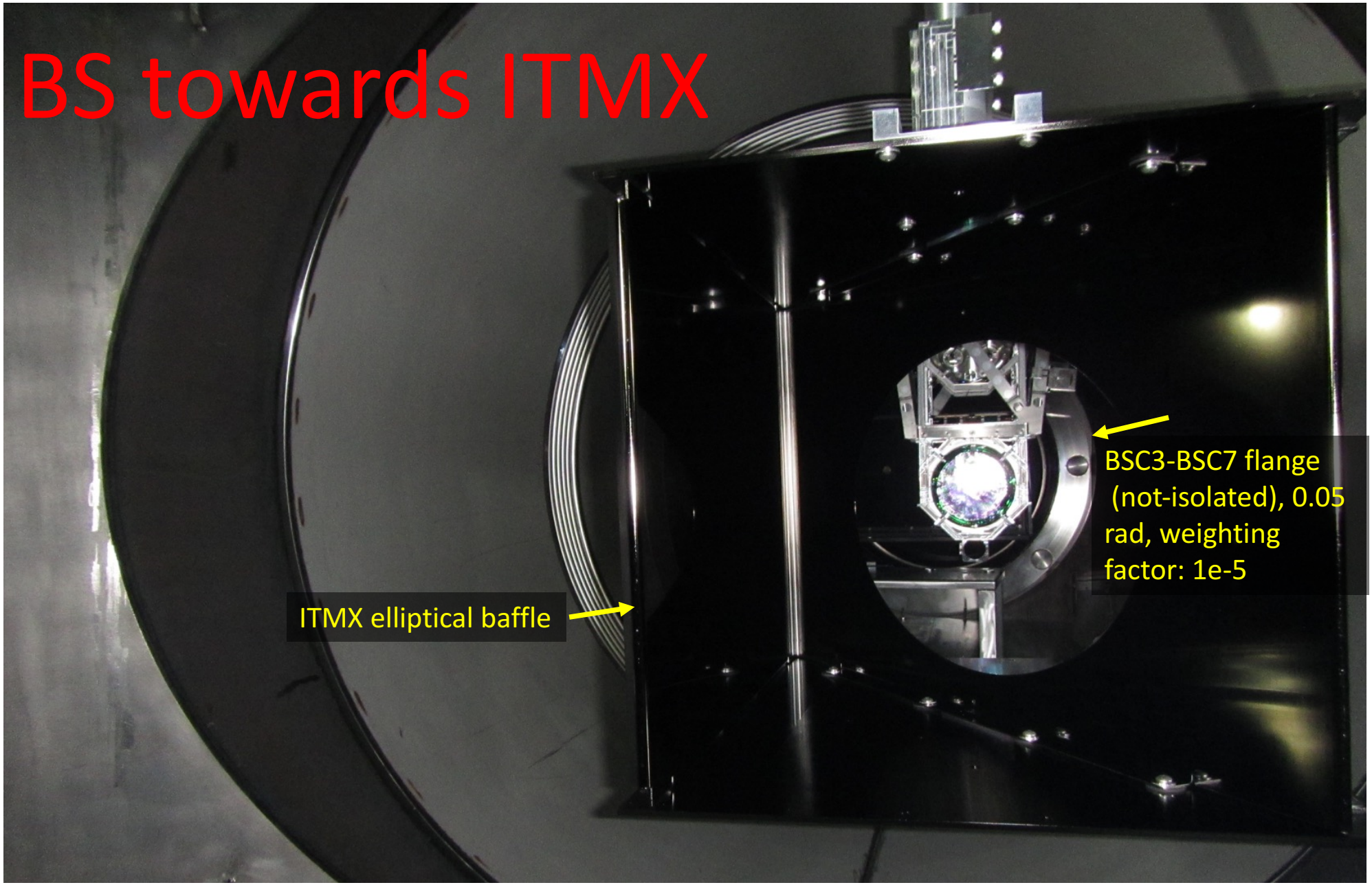


ETMX towards ITMX

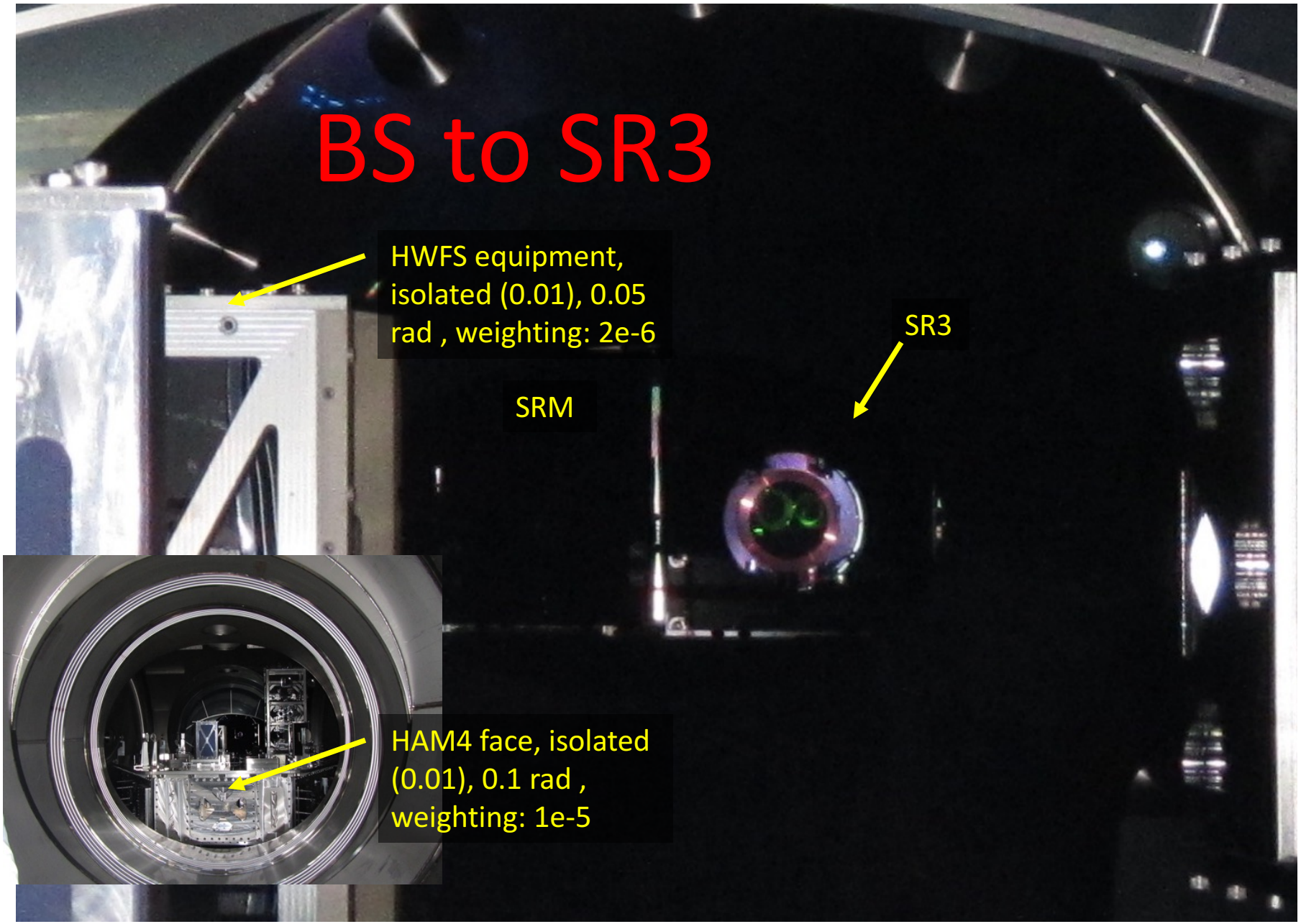



BSC2 wall, dark port side (not isolated),
0.7 rad, weighting factor: 1.5e-3

BS towards ITMX



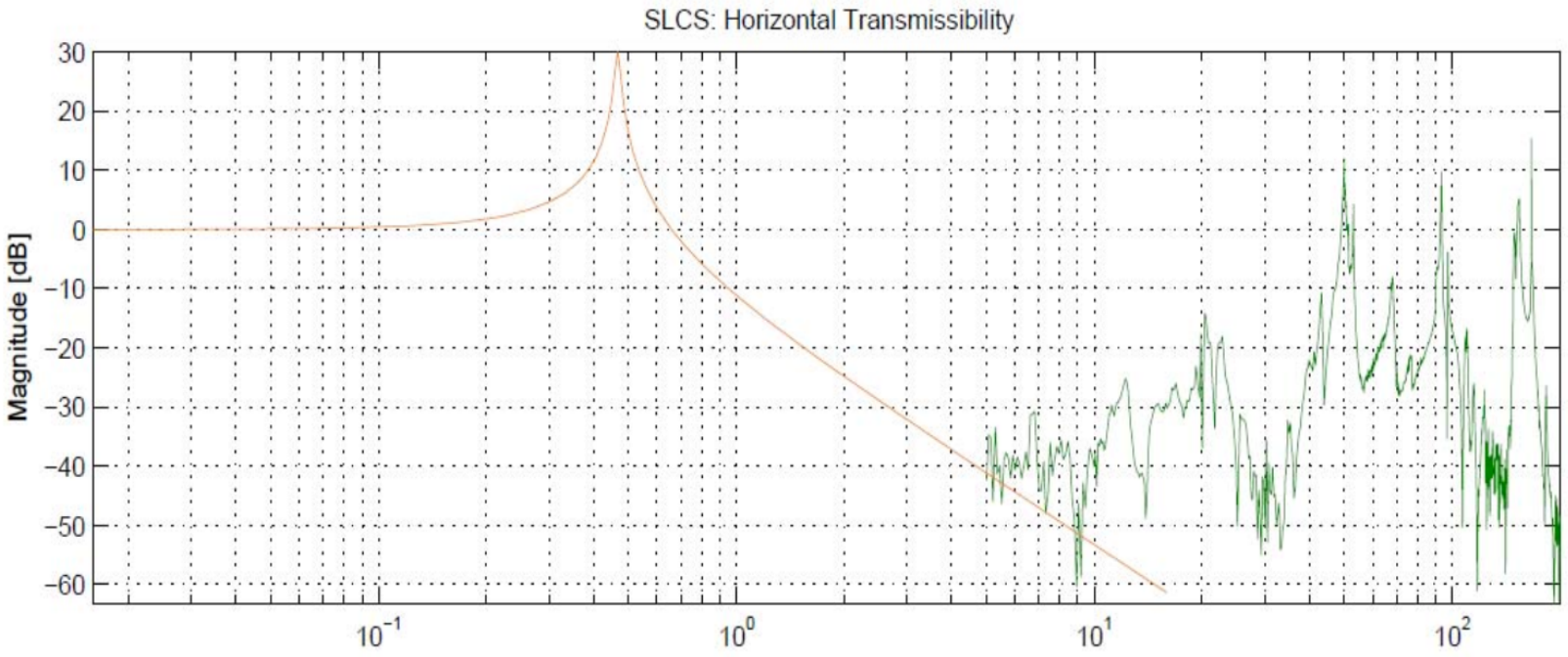
BS to SR3


HWFS equipment, isolated (0.01), 0.05 rad , weighting: 2e-6
SR3
SRM
HAM4 face, isolated (0.01), 0.1 rad , weighting: 1e-5

Sample plots showing seismic isolation

Arm Cavity Baffle

LIGO LIGO- T1000747 –v4



Sample plots showing seismic isolation

HAM and BSC