

[Infrastructure]

		MI	Value	TU	FA	VA	VI	MI	CR	IF	DG	EL	IO	LA	DA	GE
Facility	tunnel width/height		4m	TU	FA	VA										GE
Facility	tunnel tilt		1/300	TU	FA	VA				IF						GE
Facility	chamber room size (2nd floor)		8m x 12m	TU	FA	VA				IF						GE
Facility	chamber room size (1st floor)		20m x 12m	TU	FA	VA			CR	IF						GE
Facility	diameter of borehole for SAS		1.2m	TU	FA	VA	VI									
Facility	duct height from floor		1.2m from the floor		FA	VA				IF						
Facility	duct diameter		80cm		FA	VA				IF						
Facility	room temperature		289K		FA											
Cryostat	radiation shield diameter		50cm			VA			CR							
Cryostat	radiation shield aperture (diameter)		25cm			VA			CR	IF						
Cryostat	top hole diameter (to SAS)	*	15cm			VA	VI		CR	IF						
Cryostat	heat from shield aperture		4W			VA			CR							
Cryostat	heat from vacuum duct support		24W			VA			CR							
Cryostat	radiation from upper stages	*	10mW			VA	VI		CR	IF						
Cryostat	radiation from BS chamber	*	10mW			VA			CR	IF						
Cryostat	radiation from arm cavity	*	10mW			VA			CR	IF						
Cryostat	heat from radiation shield	*	100mW			VA			CR	IF						
Cryostat	heat from scattering light	*	TBD			VA			CR	IF						
Cryostat	heat from view ports	*	10mW			VA			CR	IF						
Cryostat	heat link thermal conductivity at 10K		4kW/m/K				VI		CR							
Cryostat	number of view ports		1			VA			CR	IF						
Cryostat	vibration at cryostat		TBD	TU	FA	VA	VI		CR	IF						
Cryostat	inner shield temperature		8K			VA	VI		CR	IF						
Cryostat	duct shield temperature		80K			VA	VI		CR	IF						

[Optics]

Laser	laser power		180W							IF			IO	LA		
Laser	free-run frequency noise		100Hz/rtHz at 100Hz							IF			IO	LA		
Laser	free-run intensity noise		1e-4 W/W/rtHz							IF			IO	LA		
PMC	cavity length		48.8cm										IO			
PMC	finesse		155										IO			
IOO	AF RIN (requirement)		TBD							IF			IO	LA		
IOO	RF RIN (requirement)		1e-9W/W/rtHz							IF			IO	LA		
IOO	FSS gain at 100Hz		300dB							IF			IO	LA		
IOO	FSS gain at 1kHz		180dB							IF			IO			

IOO	pick-off power for FSS	100mW					IO
IOO	COF between EOM and PZT	10kHz				IF	IO LA
IOO	COF between PZT and MC length	* a few Hz				IF	IO LA
IOO	COF between MC length and thermal	TBD				IF	IO LA
IOO	RF oscillator phase noise	-160dBc				IF	IO
IOO	power attenuation range	100%-0.1%				IF	IO
IOO	extinction ratio of Faraday Isolator	40dB				IF	IO
MC2	MC-in and MC-out RoC	* >500km			MI	IF	IO
MC2	MC-end RoC	40m			MI	IF	IO
MC2	MC mirror dimension	f100mm, t30mm			MI	IF	IO
MC2	distance of MC-in and MC-out	0.5m				IF	IO
MC2	beam radius on MC-end	4.377m				IF	IO
MC2	beam radius on MC-in and MC-out	2.527m				IF	IO
MC2	MC-end reflectivity	99.99%			MI	IF	IO
MC2	MC-in and MC-out reflectivity	99.37%			MI	IF	IO
MC2	MC finesse	500	VA		MI	IF	IO
MC2	output polarization	S-polarization			MI	IF	IO
MMT	MMT mirror dimension	f100mm, t30mm			MI		IO
MMT	MMT1 RoC	20.6m			MI		IO
MMT	MMT2 RoC	26.1m			MI		IO
PRM (SRM)	PM1 radius	12.5cm		VI	MI		
PRM (SRM)	PM1 thickness	10cm		VI	MI		
PRM (SRM)	PM2 radius	12.5cm		VI	MI		
PRM (SRM)	PM2 thickness	10cm		VI	MI		
PRM (SRM)	PM3 radius	12.5cm		VI	MI		
PRM (SRM)	PM3 thickness	10cm		VI	MI		
PRM (SRM)	PRM/SRM reflectivity	90%/85%			MI	IF	
PRM (SRM)	PRM optical loss	100ppm			MI	IF	
PRM (SRM)	RoC of PRM	370m			MI	IF	IO
PRM (SRM)	RoC of PR2	4.17m			MI	IF	IO
PRM (SRM)	RoC of PR3	32.34m			MI	IF	IO
PRM (SRM)	wedge angle of PRM	* 0.3deg	VA		MI	IF	IO
BS	BS radius	19cm			MI	IF	
BS	BS thickness	12cm			MI	IF	
BS	BS HR surface optical loss	50ppm			MI	IF	
BS	BS AR surface reflectivity	50ppm			MI	IF	
BS	RoC of BS	>100km			MI	IF	

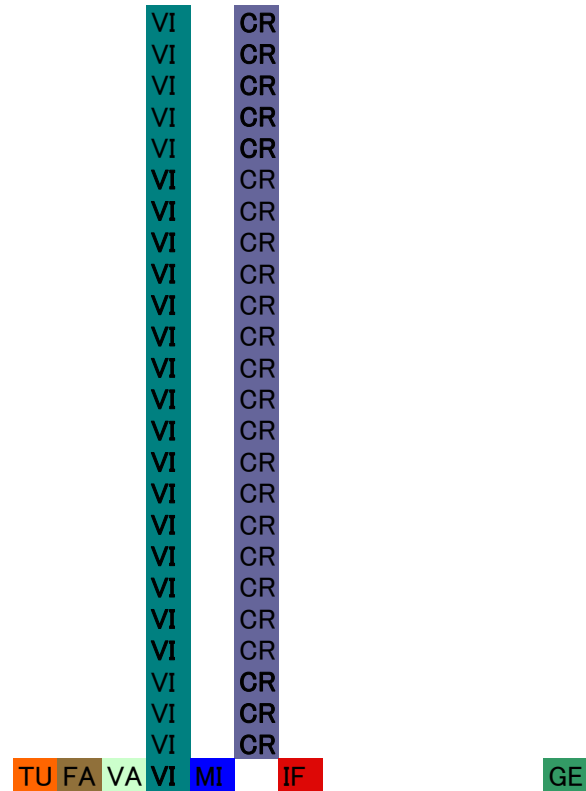
BS	BS substrate absorption	1ppm/cm (problematic!)	MI	IF		
BS	AR wedge of BS	0.383deg	MI	IF		
TM	dimension	f250 x t150	VI	MI	CR	
TM	temperature	20K	VI	MI	CR	
TM	Outer Diameter	25cm	VI	MI	CR	
TM	Outer Diameter Flat to Flat	* 24.6cm	VI	MI	CR	
TM	local actuator of TM	ESD	VI	MI	CR	
TM	RRR of material	TBD	VI	MI	CR	
TM	scratches and sleeks on two surfaces	TBD	VI	MI	CR	
TM	point defects on two surfaces	TBD	VI	MI	CR	
TM	central region surface rms	0.3nm (d<12cm)	VI	MI	CR	IF
TM	outer region surface rms	* 1nm (d>12cm)	VI	MI	CR	IF
TM	beam radius on ETM	4.53cm	MI		IF	
TM	beam radius on ITM	3.43cm	MI		IF	
TM	mirror mechanical loss of ETM	1e-8	MI	CR		
TM	mirror mechanical loss of ITM	1e-8	MI	CR		
TM	silica coating loss	3e-4	MI	CR		
TM	tantala coating loss	5e-4	MI	CR		
TM	number of layers on ETM	18	MI	CR		
TM	number of layers on ITM	9	MI	CR		
TM	coating absorption	0.5ppm	MI	CR		
TM	AR surface absorption	1ppm	MI	CR		
TM	ETM reflectivity	0.999945	MI		IF	
TM	ITM reflectivity	0.996	MI		IF	
TM	ETM optical loss	45ppm	MI		IF	
TM	ITM optical loss	45ppm	MI		IF	
TM	optical loss imbalance	+/-15ppm	MI		IF	
TM	finesse imbalance	0.5%	MI		IF	
TM	ITM substrate optical loss	20ppm/cm	MI	CR	IF	
TM	ITM AR surface optical loss	* 1000ppm	MI		IF	
TM	ETM mass	30kg	MI		IF	
TM	ITM mass	30kg	MI		IF	
TM	RoC error of ETM	* 1%	MI		IF	
TM	RoC error of ITM	* 1%	MI		IF	
TM	RoC of ETM	7km	MI		IF	
TM	RoC of ITM	>500km	MI		IF	
TM	RoC imbalance in two arms	* 0.5%	MI		IF	

VA

IO  
IO

TM	wedge angle of ETM	* 0.3deg	VA	MI	IF		
TM	wedge angle of ITM	* 0.3deg	VA	MI	IF		
OMC	OMC optical loss	* 1%		MI	IF	IO	
OMC	OMC length	* 38cm	VA		IF	IO	
OMC	OMC finesse	* 1000 (too high for 1% loss)			IF	IO	
OMC	RF reduction ratio	110dB			IF	IO	
MIF	(laser power in PRC)	825W			IF	IO	LA
MIF	(total optical loss in SRC)	2%		MI	IF	IO	
MIF	quantum efficiency (DC PD)	90%			IF	EL	IO
MIF	differential offset on arm cavities	+/- 2e-12m			IF	IF	IO
MIF	detune phase	3.55deg			IF		
MIF	folding angle	0.6293deg	VA		IF		
MIF	f1 PM/AM sideband frequencies	16.875MHz			IF	IO	
MIF	f1 modulation depths (PM)	* 0.2 at IFO			IF	IO	
MIF	f2 PM sideband frequencies	45MHz			IF	IO	
MIF	f2 modulation depths	* 0.2 at IFO			IF	IO	
MIF	f3 AM sideband freq (if any)	39.375MHz			IF	EL	IO
MIF	f3 modulation depths (if any)	TBD			IF	IO	
MIF	MZ configuration	single, if any			IF	IO	
MIF	Beam centering error on TM	* 0.1mm		VI	IF		
MIF	CARM UGF	10kHz		VI	IF	EL	
MIF	DARM UGF	200Hz		VI	IF	EL	
MIF	PRCL UGF	20Hz		VI	IF	EL	
MIF	MICH UGF	20Hz		VI	IF	EL	
MIF	SRCL UGF	20Hz		VI	IF	EL	
MIF	PRCL/MICH/SRCL FF gain	100			IF		
MIF	Green Laser finesse in arms	19 (ITM80%-ETM90%)		MI	IF		
MIF	Green Laser power	100mW			IF	IO	LA
MIF	Green laser's frequency gap (X and Y)	100MHz			IF	IO	LA
MIF	Green laser Injection Point	PR3 and SR3	VA		IF	IO	
MIF	BS reflectivity for green	<1%		MI	IF		
MIF	PR2, SR2 reflectivity for green	<1%		MI	IF		
MIF	PR3, SR3 reflectivity for green	>99%		MI	IF		
MIF	rms fluctuation of DARM	1e-14m		VI	IF	IO	
[Suspension]							
4th GAS	T dependence of spring constant	TBD		VI	CR IF		

HL (Sh-PF)	radius of U		25cm
HL (Sh-PF)	diameter		1mm
HL (PF-IM)	radius of U		20cm
HL (PF-IM)	diameter		3mm
HL (PF-IM)	loss		5e-5
IM	temperature of IM		10K
IM	emmissivity of surface of IM	*	0.02
IM fiber	loss		1e-4
IM fiber	length		0.4m
IM fiber	diameter		0.72mm
IM fiber	temperature		10K
RM	mass of RMTM		30kg
RM	material of RMTM		Cu
RM	outer diameter		29cm
RM	inner diameter		26cm
RM	thickness		26cm
RM	temperature of RMTM		20K
RM fiber	length		30cm
RM fiber	diameter		0.4mm
RM fiber	loss		5e-6
TM fiber	length		30cm
TM fiber	diameter		1.6mm
TM fiber	effective temperature		16
TM fiber	loss		2e-7
SAS	Vertical horizontal coupling		1/200



**[Electronics]**

Electronics	PD aperture	*	3mm
Electronics	RF PD input power (high power)	*	300mW
Electronics	RF PD input power (low power)	*	100mW
Electronics	DC PD input power (high power)	*	100mW
Electronics	DC PD input power (low power)	*	10mW

