Note:

1 The recycling cavity lengths are specified in Ref:T0900043-10; the ITM and ETM were moved per E1200345
2 BS thickness = 59.86 mm is the average as-built (5 mirrors) thickess at the center of BS
3 BS wedge angle = 0.073 deg is the average as-built (5 mirrors) wedge angle
4 Schnupp assymmetry changed to 80 mm

	WEDGE		
	horizontal	vertical	thick side
ITM/ETM		0.076	down
CP-x	0.069		-Y
CP-y	0.069		-X
BS	0.073		+X, +Y
PRM3/SRM3		0.10	down
PRM2/SRM2		1.00	down
PRM/SRM		1.00	down
Schnupp Assymetry	80.0		
Schnupp correction	0		

	RAY COORDINATES, mm									
OPTIC	**ZEMAX**			**GLOBAL**			**LOCAL**			**CHAMBER**
	X	**Y**	**Z**	**X**	**Y**	**Z**	**X**	**Y**	**Z**	
ITMX-RADIUS	80.00	-200.00	5013.00	5013.0	-200.0	-80.0	433.0	-200.0	-80.0	LBSC3
ITMX-CP	80.01	-200.00	4793.00	4793.0	-200.0	-80.0	213.0	-200.0	-80.0	LBSC3
BS AR	82.90	-202.62	-136.62	-136.6	-202.6	-82.9	-136.6	-202.6	-82.9	LBSC2
BS HR	82.91	-183.89	-202.63	-202.6	-183.9	-82.9	-202.6	-183.9	-82.9	LBSC2
PR3	94.59	-174.77	-19741.00	-19741.0	-174.8	-94.6	381.0	-174.8	-94.6	LHAM2
PR2	84.22	-530.38	-3589.10	-3589.1	-530.4	-84.2	241.9	-530.4	-84.2	LHAM3
PRM	94.14	-627.36	-20207.70	-20207.7	-627.4	-94.1	-85.7	-627.4	-94.1	LHAM2
ITMY-RADIUS	80.00	4983.10	-200.00	-200.0	4983.1	-80.0	-200.0	403.1	-80.0	LBSC1
ITMY-CP	80.01	4763.10	-200.00	-200.0	4763.1	-80.0	-200.0	183.1	-80.0	LBSC1
BS ARS	82.93	-249.82	-183.99	-184.0	-249.8	-82.9	-184.0	-249.8	-82.9	LBSC2
SR3	94.49	-19615.90	-175.02	-175.0	-19615.9	-94.5	-175.0	506.1	-94.5	LHAM5
SR2	104.10	-4178.10	-594.19	-594.2	-4178.1	-104.1	-594.2	-347.1	-104.1	LHAM4
SRM	113.51	-19908.49	305.29	305.3	-19908.5	-113.5	305.3	213.5	-113.5	LHAM5
OUTPUT FARADAY IN	116.69	-20378.21	332.02	332.0	-20378.2	-116.7	332.0	-256.2	-116.7	LHAM5
OUTPUT FARADAY OUT	116.96	-20869.12	355.89							
ETMX	80.0	-200.0	3999498.0	3999498.0	-200.0	-80.0	-502.0	-200.0	-80.0	LBSC4
ETMY	80.0	3999468.1	-200.0	-200.0	3999468.1	-80.0	-200.0	-531.9	-80.0	LBSC5

		ZEMAX			GLOBAL			GLOBAL		
OPTIC	**CHAMBER**	**RAY VECTOR COSINES**			**RAY VECTOR COSINES**			**RAY VECTOR ANGLES, deg**		
		X	**Y**	**Z**	**X**	**Y**	**Z**	**X**	**Y**	**Z**
ITMX-RADIUS	LBSC3	0.000000	0.000000	-1.000000	-1.000000	0.000000	0.000000	0.000	90.000	0.000
ITMX-CP	LBSC3	0.000597	0.000000	-1.000000	-1.000000	0.000000	-0.000597	0.000	90.000	-0.034
BS AR	LBSC2	0.000597	-0.000542	-1.000000	-1.000000	-0.000542	-0.000597	0.031	89.969	-0.034
BS HR	LBSC2	0.000597	-1.000000	-0.000542	-0.000542	-1.000000	-0.000597	89.969	0.031	-0.034
PR3	LHAM2	0.000597	0.000467	-1.000000	-1.000000	0.000467	-0.000597	-0.027	-89.973	-0.034
PR2	LHAM3	-0.000642	-0.022011	0.999758	0.999758	-0.022011	0.000642	-1.261	-88.739	0.037
PRM	LHAM2	0.000597	-0.005836	-0.999983	-0.999983	-0.005836	-0.000597	0.334	89.666	-0.034
ITMY-RADIUS	LBSC1	0.000000	-1.000000	0.000000	0.000000	-1.000000	0.000000	90.000	0.000	0.000
ITMY-CP	LBSC1	0.000597	-1.000000	0.000000	0.000000	-1.000000	-0.000597	90.000	0.000	-0.034
BS ARS	LBSC2									
SR3	LHAM5	0.000597	-1.000000	0.000463	0.000463	-1.000000	-0.000597	90.027	-0.027	-0.034
SR2	LHAM4	0.000622	0.999631	-0.027142	-0.027142	0.999631	-0.000622	91.555	-1.555	-0.036
SRM	LHAM5	0.000597	-0.998369	0.057088	0.057088	-0.998369	-0.000597	93.273	-3.273	-0.034
OUTPUT FARADAY IN	LHAM5	0.000593	-0.998369	0.057086	0.057086	-0.998369	-0.000593	93.273	-3.273	-0.034
OUTPUT FARADAY OUT	LHAM5	0.000593	-0.997746	0.067105	0.067105	-0.997746	-0.000593	93.848	-3.848	-0.034
ETMX	LBSC9									
ETMY	LBSC10									

	CAVITY LENGTH		
	ACTUAL	DESIGN	DIFF
AC length	3994485.0	3994485.0	0.0
PRC length	57656.01	57656.00	0.0
SRC length	56007.97	56008.00	0.0
Arm Cavity X length	3994485.0	3994485.0	0.0
Arm Cavity Y length	3994485.0	3994485.0	0.0
Schnupp Assymmetry	80	80	0.0
n	1.44963		

	GLOBAL		
CHAMBER	X	Y	Z
LBSC1	0.0	4580.0	0.0
LBSC2	0.0	0.0	0.0
LBSC3	4580.0	0.0	0.0
LBSC4	4000000.0	0.0	0.0
LBSC5	0.0	4000000.0	0.0
LHAM1	-22692.0	0.0	0.0
LHAM2	-20122.0	0.0	0.0
LHAM3	-3831.0	0.0	0.0
LHAM4	0.0	-3831.0	0.0
LHAM5	0.0	-20122.0	0.0
LHAM6	0.0	-22692.0	0.0

z	x	y	Comment	distance	index	optical path	average length	Schnupp	design length
ACTUAL SPACING									
POWER RECYCLING CAVITY									
				Y-ARM					
-80.0	-200.0	3999468.1	ETMY						
-80.0	-200.0	4983.1	ITMY-RADIUS			0.0			
-80.0	-200.0	4883.1	ITMY-RADIUS	100.0	1.44963	145.0			
-80.0	-200.0	4783.1	ITMY-RADIUS	100.0	1.44963	145.0			
-80.0	-200.0	4763.1	ITMY-CP	20.0	1.000	20.0			
-80.0	-200.0	4663.1	ITMY-CP	100.0	1.44963	145.0			
-82.9	-202.6	-183.9	BSHR	4847.0	1.000	4847.0			
-94.6	-19741.0	-174.8	PRM3	19538.4	1.000	19538.4			
-84.2	-3589.1	-530.4	PRM2	16155.8	1.000	16155.8			
-94.1	-20207.7	-627.4	PRM	16618.9	1.000	16618.9			
						57615.0			
				X-ARM					
-80.0	3999498.0	-200.0	ETMX						
-80.0	5013.0	-200.0	ITMX-RADIUS			0.0			
-80.0	4913.0	-200.0	ITMX-RADIUS	100.0	1.44963	145.0			
-80.0	4813.0	-200.0	ITMX-RADIUS	100.0	1.44963	145.0			
-80.0	4793.0	-200.0	ITMX-CP	20.0	1.000	20.0			
-80.0	4693.0	-200.0	ITMX-CP	100.0	1.44963	145.0			
-82.9	-136.6	-202.6	BS AR	4829.6	1.000	4829.6			
-82.9	-202.6	-183.9	BSHR	68.6	1.44963	99.5			
-94.6	-19741.0	-174.8	PRM3	19538.4	1.000	19538.4			
-84.2	-3589.1	-530.4	PRM2	16155.8	1.000	16155.8			
-94.1	-20207.7	-627.4	PRM	16618.9	1.000	16618.9			
						57697.1	**57656.0**	**82.1**	

z	x	y	Comment	distance	index	optical path	average length	Schnupp	design length
z	x	y	Comment	distance	index	optical path	average length	Schnupp	design length
ACTUAL SPACING									
SIGNAL RECYCLING CAVITY									
				Y-ARM					
-80.0	-200.0	4983.1	ITMY-RADIUS			0.0			
-80.0	-200.0	4883.1	ITMY-RADIUS	100.0	1.44963	145.0			
-80.0	-200.0	4783.1	ITMY-RADIUS	100.0	1.44963	145.0			
-80.0	-200.0	4763.1	ITMY-CP	20.0	1.000	20.0			
-80.0	-200.0	4663.1	ITMY-CP	100.0	1.44963	145.0			
-80.0	-202.6	-183.9	BSHR	4847.0	1.000	4847.0			
-82.9	-184.0	-249.8	BS ARS	68.6	1.44963	99.4			
-94.5	-175.0	-19615.9	SRM3	19366.1	1.000	19366.1			
-104.1	-594.2	-4178.1	SRM2	15443.5	1.000	15443.5			
-113.5	305.3	-19908.5	SRM	15756.1	1.000	15756.1			
						55967.0			
				X-ARM					
-80.0	5013.0	-200.0	ITMX-RADIUS	0.0	1.44963	0.0			
-80.0	4913.0	-200.0	ITMX-RADIUS	100.0	1.44963	145.0			
-80.0	4813.0	-200.0	ITMX-RADIUS	100.0	1.44963	145.0			
-80.0	4793.0	-200.0	ITMX-CP	20.0	1.000	20.0			
-80.0	4693.0	-200.0	ITMX-CP	100.0	1.44963	145.0			
-82.9	-136.6	-202.6	BS AR	4829.6	1.000	4829.6			
-82.9	-202.6	-183.9	BSHR	68.6	1.44963	99.5			
-82.9	-184.0	-249.8	BSARS	68.5	1.44963	99.3			
-94.5	-175.0	-19615.9	SRM3	19366.1	1.000	19366.1			
-104.1	-594.2	-4178.1	SRM2	15443.5	1.000	15443.5			
-113.5	305.3	-19908.5	SRM	15756.1	1.000	15756.1			
						56049.0	**56008.0**	**82**	