Optical Lever Coordinates, L1 E1000608-v2 aLIGO Optical Lever Coordinates, L1
12/14/2010

GROUND
HEIGHT
GLOBAL -1854.2

			BEAM POSITION, mm																	
			ZEMAX			GLOBAL			LOCAL											
IFO	Mirror	CHAMBER	X	Y	Z	X	Y	Z	X	Y	Z	Comment						PATH LENGTH	TRANSMIT HEIGHT	RECEIVE HEIGHT
	OPTLEV																			
H1	BS	BSC2	0.0	-1253.0	1230.0	1230.0	-1253.0	0.0	1230.0	-1253.0	0.0	Source	501:00:00	BS	OPTLEV	Tx			1854.2	
			0.0	-1023.9	1005.7	1005.7	-1023.9	0.0	1005.7	-1023.9	0.0	BSC2	VP8					320.6		
			0.0	-850.0	835.4	835.4	-850.0	0.0	835.4	-850.0	0.0	BS	optlev	periscope	M1			243.4		
			0.0	-1062.1	627.6	627.6	-1062.1	0.0	627.6	-1062.1	0.0	BS	optlev	periscope	M2			296.9		
			0.0	-241.8	-175.7	-175.7	-241.8	0.0	-175.7	-241.8	0.0	BS						1148.1		
			0.0	-1062.1	664.5	664.5	-1062.1	0.0	664.5	-1062.1	0.0	BS	optlev	periscope	M2			1174.2		
			0.0	-850.0	881.5	881.5	-850.0	0.0	881.5	-850.0	0.0	BS	optlev	periscope	M1			303.4		
			0.0	-997.4	1032.2	1032.2	-997.4	0.0	1032.2	-997.4	0.0	BSC2	VP8					210.8		
			0.0	-1224.0	1264.0	1264.0	-1224.0	0.0	1264.0	-1224.0	0.0	BS	OPTLEV	Rc				324.2		1854.2
																		4021.7		
	OPTLEV																			
	PR3	LAMC1	977.4	-336.8	-5893.5	-5893.5	-336.8	-977.4	-5893.5	-336.8	-977.4	Source	344:00:00	OPTLEV	PR3	Tx			876.8	
			962.1	-334.1	-6138.2	-6138.2	-334.1	-962.1	-6138.2	-334.1	-962.1	OPTLEV	PR3	IN	LAMCB1	VP7		245.2		
			111.2	-183.4	-19740.0	-19740.0	-183.4	-111.2	-19740.0	-183.4	-111.2	PR3_RADIUS						13629.2		
			-760.5	-333.9	-6138.2	-6138.2	-333.9	760.5	-6138.2	-333.9	760.5	OPTLEV	PR3	OUT	LAMCB1	VP11		13630.6		
			-774.6	-336.3	-5918.0	-5918.0	-336.3	774.6	-5918.0	-336.3	774.6	OPTLEV	PR3	Rc				220.7		2628.8
																		27725.7		
	OPTLEV																			
	HAM2	LAMC1	913.9	514.9	-5893.5	-5893.5	514.9	-913.9	-5893.5	514.9	-913.9	Source	345:00:00	HAM2	OPTLEV	Tx			940.3	
			899.8	506.8	-6138.2	-6138.2	506.8	-899.8	-6138.2	506.8	-899.8	OPTLEV	HAM2	IN/OUT	LAMCB1	VP5		245.2		
			149.9	75.9	-19199.6	-19199.6	75.9	-149.9	-19199.6	75.9	-149.9	DLC	HAM2	OPTLEV				13090.0		
			899.7	420.1	-6138.2	-6138.2	420.1	-899.7	-6138.2	420.1	-899.7	OPTLEV	HAM2	IN/OUT	LAMCB1	VP5		13087.4		
			912.3	425.9	-5918.0	-5918.0	425.9	-912.3	-5918.0	425.9	-912.3	HAM2	OPTLEV	Rc				220.6		941.9
																		26643.4		
	OPTLEV																			
	HAM3	LAMC1	913.9	-426.9	-17957.1	-17957.1	-426.9	-913.9	-17957.1	-426.9	-913.9	Source	375:00:00	HAM3	OPTLEV	Tx			940.3	
			900.5	-415.9	-17703.1	-17703.1	-415.9	-900.5	-17703.1	-415.9	-900.5	OPTLEV	HAM3	IN/OUT	WAMCA1	VP5		254.6		
			216.3	147.1	-4700.1	-4700.1	147.1	-216.3	-4700.1	147.1	-216.3	DLC	HAM3	OPTLEV				13033.1		
			900.8	-516.0	-17703.1	-17703.1	-516.0	-900.8	-17703.1	-516.0	-900.8	OPTLEV	HAM3	IN/OUT	WAMCA1	VP5		13037.8		
			914.1	-528.9	-17957.0	-17957.0	-528.9	-914.1	-17957.0	-528.9	-914.1	HAM3	OPTLEV	Rc				254.6		940.1
																		26580.1		
	OPTLEV																			
	SR3	LAMC2	965.1	-5893.5	-367.2	-367.2	-5893.5	-965.1	-367.2	-5893.5	-965.1	Source	407:00:00	OPTLEV	SR3	Tx			889.1	
			247.8	-17422.5	-200.2	-200.2	-17422.5	-247.8	-200.2	-17422.5	-247.8	LAMCA2	MC	TUBE	BAF	APER		11552.5		
			111.3	-19615.0	-168.4	-168.4	-19615.0	-111.3	-168.4	-19615.0	-111.3	SR3_RADIUS						2196.9		
			-756.1	-6138.2	-362.3	-362.3	-6138.2	756.1	-362.3	-6138.2	756.1	OPTLEV	SR3	OUT	WAMCB2	VP1		13506.0		
			-771.8	-5893.5	-365.9	-365.9	-5893.5	771.8	-365.9	-5893.5	771.8	OPTLEV	SR3	Rc				245.2		2626.0
																		27500.7		
	OPTLEV																			
	HAM5	LAMC2	913.9	-5893.5	514.9	514.9	-5893.5	-913.9	514.9	-5893.5	-913.9	Source	408:00:00	HAM5	OPTLEV	Tx			940.3	
			901.2	-6138.2	506.8	506.8	-6138.2	-901.2	506.8	-6138.2	-901.2	OPTLEV	HAM5	IN/OUT	WAMCB2	VP7		245.2		
			220.7	-19249.8	74.3	74.3	-19249.8	-220.7	74.3	-19249.8	-220.7	DLC	HAM5	OPTLEV				13136.3		
			901.1	-6138.2	424.4	424.4	-6138.2	-901.1	424.4	-6138.2	-901.1	OPTLEV	HAM5	IN/OUT	WAMCB2	VP7		13133.9		
			913.8	-5893.5	430.9	430.9	-5893.5	-913.8	430.9	-5893.5	-913.8	HAM5	OPTLEV	Rc				245.1		940.4
																		26760.5		
	OPTLEV																			
	HAM4	LAMC2	913.9	-17957.1	514.9	514.9	-17957.1	-913.9	514.9	-17957.1	-913.9	Source	441:00:00	HAM4	OPTLEV	Tx			940.3	
			900.6	-17703.1	507.2	507.2	-17703.1	-900.6	507.2	-17703.1	-900.6	OPTLEV	HAM4	IN/OUT	WAMCA2	VP5		254.5		
			219.0	-4700.3	114.6	114.6	-4700.3	-219.0	114.6	-4700.3	-219.0	DLC	HAM4	OPTLEV				13026.6		
			900.4	-17703.1	425.5	425.5	-17703.1	-900.4	425.5	-17703.1	-900.4	OPTLEV	HAM4	IN/OUT	WAMCA2	VP5		13024.4		
			913.8	-17957.1	431.6	431.6	-17957.1	-913.8	431.6	-17957.1	-913.8	HAM4	OPTLEV	Rc				254.4		940.4
																		26559.8		
	OPTLEV																			
	ITMX	BSC3	685.0	155.0	38051.0	38051.0	155.0	-685.0	38051.0	155.0	-685.0	Source	474:00:00	ITMX	OPTLEV	Tx			1169.2	

			BEAM POSITION, mm																	
			ZEMAX			GLOBAL			LOCAL											
IFO	Mirror	CHAMBER	X	Y	Z	X	Y	Z	X	Y	Z	Comment						PATH LENGTH	TRANSMIT HEIGHT	RECEIVE HEIGHT
			680.3	152.3	37797.0	37797.0	152.3	-680.3	37797.0	152.3	-680.3	ITMX	OPTLEV	IN	A1-A	VP3		254.1		
			79.9	-199.7	5001.1	5001.1	-199.7	-79.9	5001.1	-199.7	-79.9	ITMX-RADIUS						32803.2		
			-520.6	-551.7	37797.0	37797.0	-551.7	520.6	37797.0	-551.7	520.6	ITMX	OPTLEV	OUT	A1-A	VP6		32803.2		
			-525.3	-554.5	38051.0	38051.0	-554.5	525.3	38051.0	-554.5	525.3	ITMX	OPTLEV	Rc				254.1		2379.5
																		66114.7		
	OPTLEV																			
	ITMY	BSC1	685.0	38051.0	155.0	155.0	38051.0	-685.0	155.0	38051.0	-685.0	Source	512:00:00	ITMY	OPTLEV	Tx			1169.2	
			680.3	37797.0	152.3	152.3	37797.0	-680.3	152.3	37797.0	-680.3	ITMY	OPTLEV	IN	A1-B	VP4		254.1		
			79.8	4998.1	-199.8	-199.8	4998.1	-79.8	-199.8	4998.1	-79.8	ITMY-RADIUS						32806.2		
			-520.7	37797.0	-551.8	-551.8	37797.0	520.7	-551.8	37797.0	520.7	ITMY	OPTLEV	OUT	A1-B	VP1		32806.2		
			-525.4	38051.0	-554.5	-554.5	38051.0	525.4	-554.5	38051.0	525.4	ITMY	OPTLEV	Rc				254.1		2379.6
																		66120.7		
	OPTLEV																			
	ETMX	BSC4	725.0	168.4	63969.7	63969.7	168.4	-725.0	59389.7	168.4	-725.0	Source	745:00:00	ETMX	OPTLEV	Tx		IN	1129.2	
			696.5	152.1	64214.1	64214.1	152.1	-696.5	59634.1	152.1	-696.5	ETMX	OPTLEV	IN	A1-A	VP4		246.5		
			80.0	-200.2	69501.1	69501.1	-200.2	-80.0	64921.1	-200.2	-80.0	ETMX-RADIUS						5334.5		
			-536.5	-552.6	64214.1	64214.1	-552.6	536.5	59634.1	-552.6	536.5	ETMX	OPTLEV	OUT	A1-A	VP1		5334.5		
			-565.0	-568.9	63969.7	63969.7	-568.9	565.0	59389.7	-568.9	565.0	ETMX	OPTLEV	Rc				246.5		2419.2
																		11162.1		
	PHOTCAL1																			
	ETMX	BSC4	0.0	791.0	63969.7	63969.7	791.0	0.0	56969.7	791.0	0.0	Source	749:00:00	PHOTCAL1	ETMX	Tx		IN	1854.2	
			8.5	747.2	64214.1	64214.1	747.2	-8.5	57214.1	747.2	-8.5	PHOTCAL1-2	ETMX	IN	A1-A	VP5		248.4		
			191.2	-199.7	69501.1	69501.1	-199.7	-191.2	62501.1	-199.7	-191.2	ETMX-RADIUS						5374.3		
			285.6	-688.7	66772.7	66772.7	-688.7	-285.6	59772.7	-688.7	-285.6	PERI1-1	PHOTCAL	ETMX				2773.5		
			284.2	-822.3	66772.4	66772.4	-822.3	-284.2	59772.4	-822.3	-284.2	PERI1-2	PHOTCAL	ETMX				133.6		
			-8.5	-718.7	64214.1	64214.1	-718.7	8.5	57214.1	-718.7	8.5	PHOTCAL1-2	ETMX	OUT	A1-A	VP2		2577.1		
			-36.4	-708.8	63969.7	63969.7	-708.8	36.4	56969.7	-708.8	36.4	PHOTCAL1	ETMX	Rc				246.1		1890.6
																		11353.0		
	PHOTCAL2																			
	ETMX	BSC4	0.0	867.0	63969.7	63969.7	867.0	0.0	56969.7	867.0	0.0	Source	750:00:00	PHOTCAL2	ETMX	Tx		IN	1854.2	
			-1.4	819.9	64214.1	64214.1	819.9	1.4	57214.1	819.9	1.4	PHOTCAL1-2	ETMX	IN	A1-A	VP5		248.9		
			-32.4	-199.6	69501.1	69501.1	-199.6	32.4	62501.1	-199.6	32.4	ETMX-RADIUS						5384.5		
			-48.4	-726.1	66771.9	66771.9	-726.1	48.4	59771.9	-726.1	48.4	PERI2-1	PHOTCAL	ETMX				2779.6		
			-53.3	-823.1	66770.2	66770.2	-823.1	53.3	59770.2	-823.1	53.3	PERI2-2	PHOTCAL	ETMX				97.1		
			-42.0	-793.5	64214.1	64214.1	-793.5	42.0	57214.1	-793.5	42.0	PHOTCAL1-2	ETMX	OUT	A1-A	VP2		2556.3		
			-40.9	-790.7	63969.7	63969.7	-790.7	40.9	56969.7	-790.7	40.9	PHOTCAL2	ETMX	Rc				244.4		1895.1
																		11310.8		
	OPTLEV																			
	ETMY	BSC5	725.0	63969.7	168.4	168.4	63969.7	-725.0	168.4	56969.7	-725.0	Source	772:00:00	ETMY	OPTLEV	Tx		IN	1129.2	
			696.5	64214.1	152.1	152.1	64214.1	-696.5	152.1	57214.1	-696.5	ETMY	OPTLEV	IN	A-1A	VP3		246.5		
			80.4	69498.1	-200.0	-200.0	69498.1	-80.4	-200.0	62498.1	-80.4	ETMY-RADIUS						5331.5		
			-535.8	64214.1	-552.2	-552.2	64214.1	535.8	-552.2	57214.1	535.8	ETMY	OPTLEV	OUT	A-1A	VP6		5331.5		
			-564.3	63969.7	-568.5	-568.5	63969.7	564.3	-568.5	56969.7	564.3	ETMY	OPTLEV	Rc				246.5		2418.5
																		11156.1		
	PHOTCAL1																			
	ETMY	BSC5	0.0	63969.7	751.0	751.0	63969.7	0.0	751.0	56969.7	0.0	Source	776:00:00	PHOTCAL1	ETMY	Tx		IN	1854.2	
			8.4	64214.1	708.9	708.9	64214.1	-8.4	708.9	57214.1	-8.4	PHOTCAL1-2	ETMY	IN	A1-A	VP2		248.1		
			190.9	69498.1	-199.9	-199.9	69498.1	-190.9	-199.9	62498.1	-190.9	ETMY-RADIUS						5364.7		
			285.0	66774.7	-668.6	-668.6	66774.7	-285.0	-668.6	59774.7	-285.0	PERI1-1	PHOTCAL	ETMY				2765.1		
			283.3	66775.4	-818.9	-818.9	66775.4	-283.3	-818.9	59775.4	-283.3	PERI1-2	PHOTCAL	ETMY				150.3		
			-11.5	64214.1	-715.6	-715.6	64214.1	11.5	-715.6	57214.1	11.5	PHOTCAL1-2	ETMY	OUT	A1-A	VP5		2580.3		
			-39.6	63969.7	-705.8	-705.8	63969.7	39.6	-705.8	56969.7	39.6	PHOTCAL1	ETMY	Rc				246.2		1893.8
																		11354.7		
	PHOTCAL2																			
	ETMY	BSC5	0.0	63969.7	827.0	827.0	63969.7	0.0	827.0	56969.7	0.0	Source	777:00:00	PHOTCAL2	ETMY	Tx		IN	1854.2	
			-1.4	64214.1	781.6	781.6	64214.1	1.4	781.6	57214.1	1.4	PHOTCAL1-2	ETMY	IN	A1-A	VP2		248.5		
			-32.4	69498.1	-200.0	-200.0	69498.1	32.4	-200.0	62498.1	32.4	ETMY-RADIUS						5374.5		
			-48.3	66773.2	-706.6	-706.6	66773.2	48.3	-706.6	59773.2	48.3	PERI2-1	PHOTCAL	ETMY				2771.6		
			-54.1	66772.0	-821.3	-821.3	66772.0	54.1	-821.3	59772.0	54.1	PERI2-2	PHOTCAL	ETMY				114.9		
			-43.3	64214.1	-792.1	-792.1	64214.1	43.3	-792.1	57214.1	43.3	PHOTCAL1-2	ETMY	OUT	A1-A	VP5		2558.1		
			-42.3	63969.7	-789.3	-789.3	63969.7	42.3	-789.3	56969.7	42.3	PHOTCAL2	ETMY	Rc				244.4		1896.5
																		11312.1		

			BEAM POSITION, mm																	
			ZEMAX			GLOBAL			LOCAL											
IFO	Mirror	CHAMBER	X	Y	Z	X	Y	Z	X	Y	Z	Comment						PATH LENGTH	TRANSMIT HEIGHT	RECEIVE HEIGHT
MC Tube viewport ref in ZEMAX																				
	WAMC1		0.0	0.0	0.0	0.0	0.0	0.0												
	WAMC2		0.0	0.0	0.0	0.0	0.0	0.0												
chamber coordinates in ZEMAX																				
	BSC1		0.0	4580.0	0.0	0.0	4580.0	0.0												
	BSC2		0.0	0.0	0.0	0.0	0.0	0.0												
	BSC3		0.0	0.0	4580.0	4580.0	0.0	0.0												
	BSC4		0.0	0.0	7000.0	7000.0	0.0	0.0												
	BSC5		0.0	7000.0	0.0	0.0	7000.0	0.0												