



DOCUMENT CHANGE NOTICE (DCN)

DOCUMENT No. (DOC-REV-GP. ID)	TITLE	NEW REV.
E000028-B-D	CORE OPTICS TILT ANGLES	C

CHANGE DESCRIPTION (FROM/TO):

On sheet 2, under 2km Interferometer at Hanford, add the following information:

ADD: MMT3, down, 0.001962, 0, 6, 44

On sheet 3, under 4km Interferometer at Hanford, add the following information:

ADD: MMT3, down, 0.001829, 0, 6, 17

Also, on sheet 3, under 4km Interferometer at Livingston, add the following information:

ADD: MMT3, down, 0.001839, 0, 6, 19

REASON FOR CHANGE: Although the MMT3s are technically not Core Optics, their tilt angles should be documented in the same location as the other large optics.

ACTION: Incorporate change Attach DCN to drawing(s) Other action (specify):

DISPOSITION OF HARDWARE (IDENTIFY SERIAL NUMBERS)

- No hardware affected (record change only)
- List S/Ns which comply already: MMT3 2K LHO, MMT3 4K LLO
- List S/Ns to be reworked or scrapped:
- List S/Ns to be built with this change:
- List S/Ns to be retested per this change:
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DCN DISTRIBUTION (X=incl. docs)

Coyne	Barish	Coles
Raab	Lazzarini	Lindquist
Stapfer	Sanders	Shoemaker
Whitcomb	Tyler	Weiss
XBarton	XM. Smith	
Jones	X D. Tanner	
Heefner	X D. Reitze	
X Romie	X B. Weaver	
Fritschel	X D. Cook	

SAFETY, COST, SCHEDULE, REQUIREMENTS IMPACT? No Yes (if yes, enter Change Request number see above *)

APPROVALS:	DATE	OTHER APPROVALS (specify)	DATE
ORIGINATOR: J. Romie <i>JHR</i>	6-22-00		
TASK LEADER: D. Reitze <i>DMP</i>			
GROUP LEADER: <i>J. Coyne</i>	8/29/00		
DCC RELEASE: <i>J. Shaw</i>	8/30/00		

CORE OPTICS TILT ANGLES

E000028-C-D

Author: Dennis Coyne

Date: Sept. 17, 1999

Table 1: Revision History

REV	DATE	AUTHOR	CHECKED	DATE	DCN/DESCRIPTION
A	1-19-00	D. Coyne			E000032/INITIAL RELEASE
B	6-22-00	J. Romie			E000330/CHANGE LLO, 4K BS SURFACE NORMAL & PITCH
C	8-4-00	J. Romie			E000396/ADD TILTS FOR MMT3s AS REFERENCE

IAS Theodolite/ Autocolimator Positions

This notebook verifies the positions and orientations of the IAS theodolite/ autocolimator for initial alignment and positioning of the core optics. It also calculates the pitch angles of the COC relative to the local horizontal. MMT3 data is included for reference

Global to Local Coordinate Transformation Matrices

Optic surface positions & orientations

Suspension Pitch Angles

2km Intererometer at Hanford

Table 2: LHO 2k

OPTIC	U1	V1	W1	Pitch	radians	deg	min.	sec
RM HR (p3)	-1	-.000137	-.0183	down	.0183	1	2	51
OFy	-.924	-.383	0		-4.35e-12	0	0	0
FMy (p6)	.707	.707	.00289	up	-.00289	0	-9	-57
ITMy HR (p8)	7.73e-9	1	1.25e-5	up	-.0000125	0	0	-3
OFbs	-1	0	-.00628	down	.00628	0	21	36
BS bs (p4)	.707	-.707	.00645	up	-.00645	0	-22	-11
OFx	-.00049	-1	-.00331	down	.00331	0	11	22
FMx (p9)	.707	.707	.00288	up	-.00288	0	-9	-53
ITMx HR (p11)	1	0	-.000619	down	.000619	0	2	8
ETMx HR	-1	0	.000306	up	-.000306	0	-1	-3
ETMy HR	-2.02e-7	-1	-.000326	down	.000326	0	1	7
MMT3				down	.001962.	0	6	44

4km Interferometer at Hanford

Table 3: LHO 4k

OPTIC	U1	V1	W1	Pitch	radians	deg	min	sec
RM HR (p3)	1	.000137	-.0195	down	.0195	1	7	6
BS (p4)	-.707	.707	.00733	up	.00733	0	25	12
ITMx HR (p7)	1	0	-.000619	down	.000619	0	2	8
ITMy HR (p9)	7.73e-9	1	.0000125	up	-.0000125	0	0	-3
ETMx HR	-1	0	-7.84e-6	down	7.84e-6	0	0	2
ETMy HR	-3.97e-7	-1	-.000639	down	.000639	0	2	12
MMT3				down	.001829	0	6	17

4km Interferometer at Livingston

Table 4: LLO 4k

OPTIC	U1	V1	W1	Pitch	radians	deg	min	sec
RM HR (-p3)	1	.000125	-.0192	down	.0192	1	6	3
BS (p4)	-.707	.707	.00667	up	.00667	0	22	56
ITMx HR (p7)	1	0	-.000312	down	.000312	0	1	4
ITMy HR (p9)	-1.91e-7	1	-.000611	down	.000611	0	2	6
ETMx HR	-1	0	-.000315	down	.000315	0	1	5
ETMy HR	-5.85e-9	-1	-.0000188	down	.0000188	0	0	4
MMT3				down	.001839	0	6	19