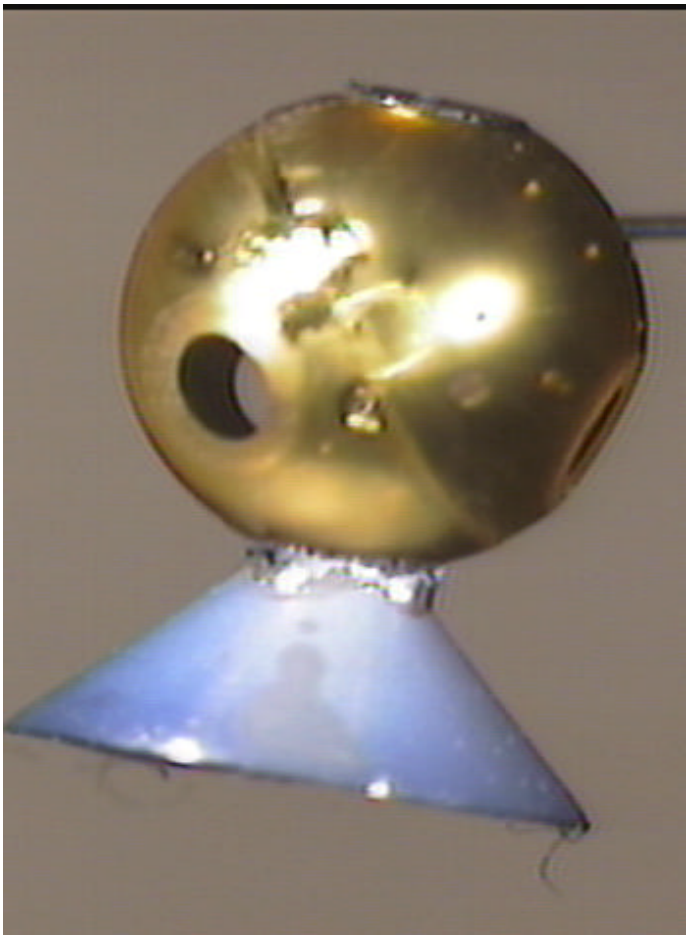
LAUR-99-3223

Structured Shock and Thin Shell Experiments on the OMEGA Laser at the Laboratory for Laser Energetics of the University of Rochester



Structured Shock/Thin Shell Campaign
ID7-FY99
June 22 –24, 1999

Los Alamos
ICF and Radiation Physics

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This document is intended to give an overview of this experimental campaign. Where information conflicts with experimental configurations submitted by official methods, those configurations take precedence. Contact the principal investigator prior to making any changes in the configuration to accommodate conflicts of information based on this document.

This document was produced by the Los Alamos National Laboratory under the auspices of the United States Department of Energy under contract No. W-7405-ENG-36.

Goals of the Experiments

This run week consists of two experiments using tetrahedral hohlraums as a uniform source of radiation drive. The first two days are devoted to experiments investigating the flow of a shock past a material interface. As part of this experiment, the laser beam pointing will be measured, the SOP will be qualified further, a series of shots with double interfaces will be shot, the SOP and side-on radiography will be compared, and the drive from a tetrahedral hohlraum will be measured.

The third day of this run week is designed to complete the experiments begun in December 1998 on thin-shell Rayleigh-Taylor growth in copper. The run day will include shots to verify laser pointing, diagnostic pointing, modulation transfer function (MTF) measurements at the spatial frequency of interest, and RT experiments. The RT packages are of two types: a package "tamped" by a Be filter, and an "untamped" package where the Be merely filters the drive radiation. These will highlight the differences between the classical and ablatively driven Rayleigh-Taylor instabilities, respectively.

The primary goals of each experiment are summarized as:

Structured Shock

Measure shock propagation
Tetrahedral drive measurements
Further qualify the SOP (Streaked Optical Pyrometer)

Thin Shell Rayleigh-Taylor

Complete data set of nonlinear Rayleigh-Taylor experiments begun in December 1998.

Shot Plan for the Entire Week

Major facility changes:
Day 2: Change timing of 5 backlighter beams
Day 2: Place imaging x-ray streak camera in TIM 4, change pulse shape to PS26
Day 3: Massive repointing and retiming of 21 backlighter beams
Change all TIM diagnostics

	Tuesday, 6/22	Wednesday, 6/23	Thursday, 6/24
	BL: 0.0 and 1.1 ns	BL: 1.1 and 2.2 ns	PS26; Move BL's (21 beams)
1	Pointing - Sphere/SOP Timing	Diag Timing* - SOP Res	Pointing - Sphere
2	Pointing - Sphere - backlighter	Double Interface-T	Diag Timing - Thin Shell
3	SOP Absolute Timing*	Double Interface-U	Diag Timing - Thin Shell
4	Diag Timing - SOP Resolution	Radial Shock Motion	Thin Shell - Fe backlighter
5	Diag Timing* - SOP Resolution	Radial Shock Motion	Thin Shell - Fe backlighter
6	Double Interface-T	Double Interface-T	Thin Shell - Fe backlighter
7	Double Interface-U	Double Interface-U	Thin Shell - Fe backlighter
8	Shock Coincidence	Radial Shock Motion	Thin Shell - Fe backlighter
9	Shock Coincidence	Radial Shock Motion*	Thin Shell - Fe backlighter
		PS26; Insert SSC4	
10	Double Interface-T	Side-on Thin Shell	Thin Shell - Fe backlighter
11	Double Interface-U	Side-on Thin Shell	Thin Shell - Fe backlighter
12	Shock Coincidence	Side-on Thin Shell*	Repeat one of above
13	Repeat Double Interface	Repeat Double Interface	
	BL at 0.0 ns: 42, 44, 53, 57, 62	BL at 1.1 ns: 45, 47, 40, 51,	BL 2.5 ns: 13, 18, 32, 59, 68, 69
	BL at 1.1 ns: 45, 47, 40, 51, 69	BL at 2.2 ns: 42, 44, 53, 57	BL 3.9 ns: 11, 14, 24, 47, 66, 67

Note: Foils for SOP timing if needed
***drop as necessary**

June 11, 1999

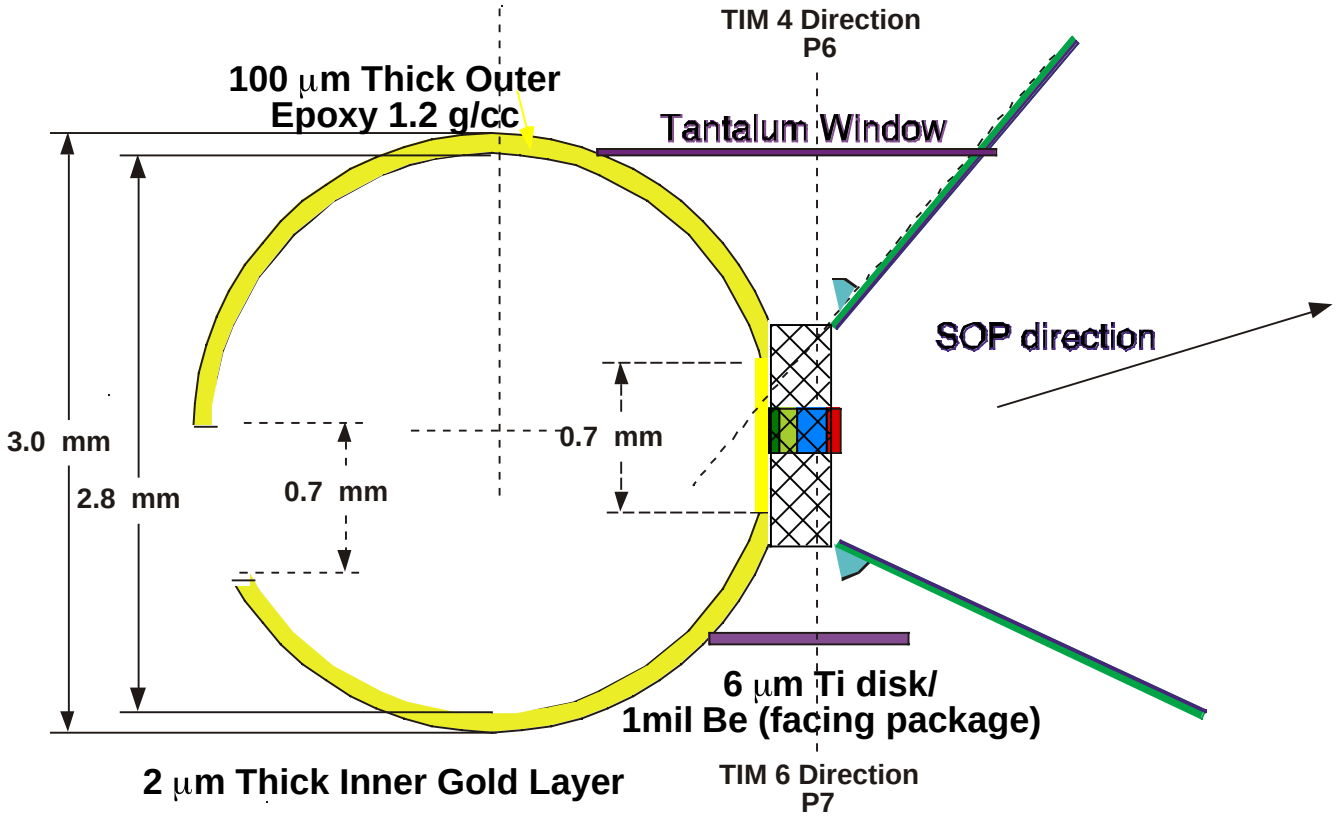
Structured Shock Experiment – Goals

Principal Investigators: George Kyrala and Steve Batha, LANL P-24
Theory: S. Robert Goldman, LANL XPA

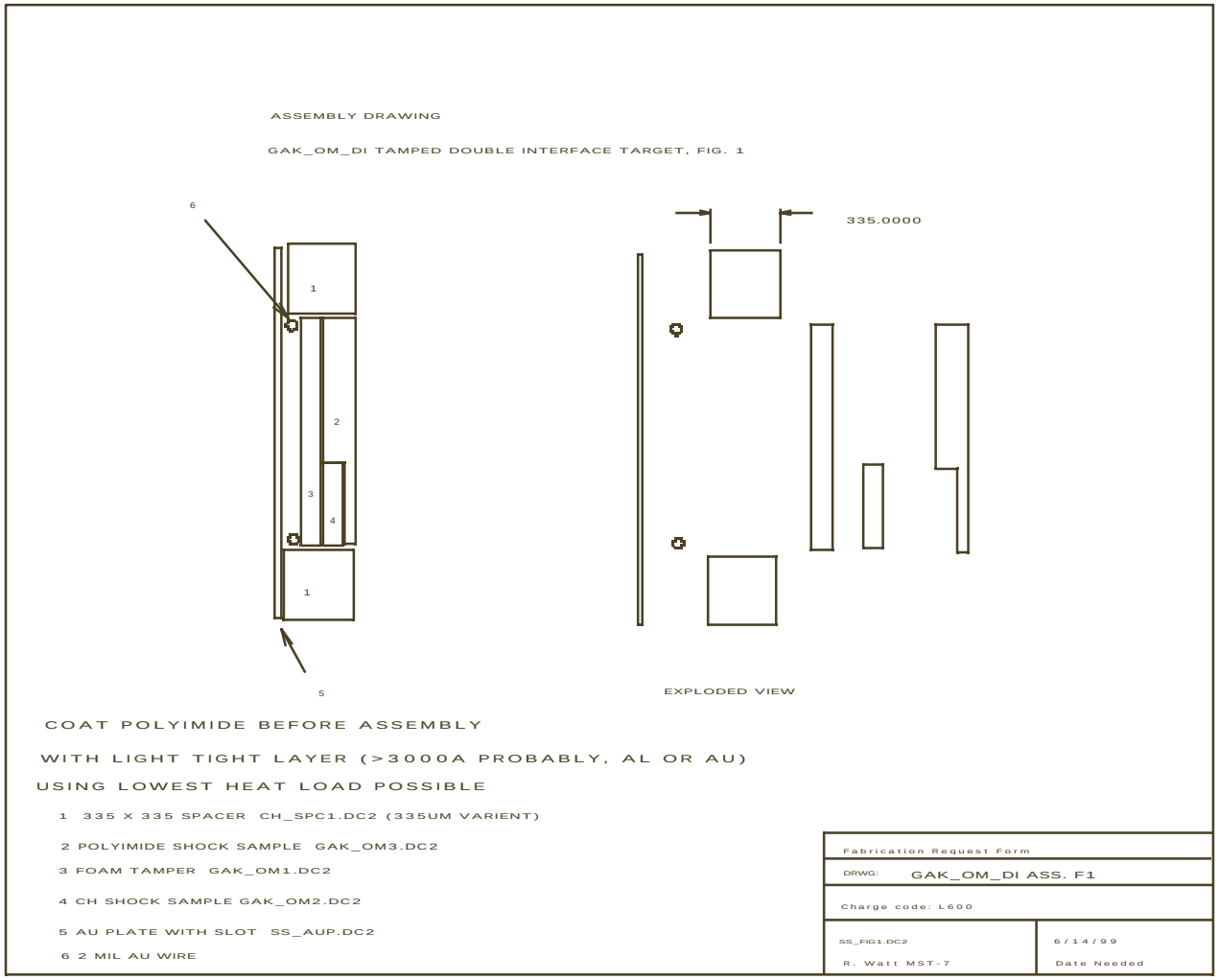
The objectives of the experiments are to study the generation and propagation of shocks through material inhomogeneities involving either structured surfaces or material filled joints. The experiments use shocks generated by radiation drive from tetrahedrally illuminated spherical hohlraums with four laser entrance holes (LEH's). A fifth hole facing the SOP port mounts the package for either face-on or side-on radiography. The SOP will measure the temporal and spatial distribution of the shock breakout at the rear surface of the load. Side-on radiography at the Ti He-like lines will be used to measure both the spatial distribution of the shock front and the density variation across the shock.

Structured Shock Experiment – Target Designs

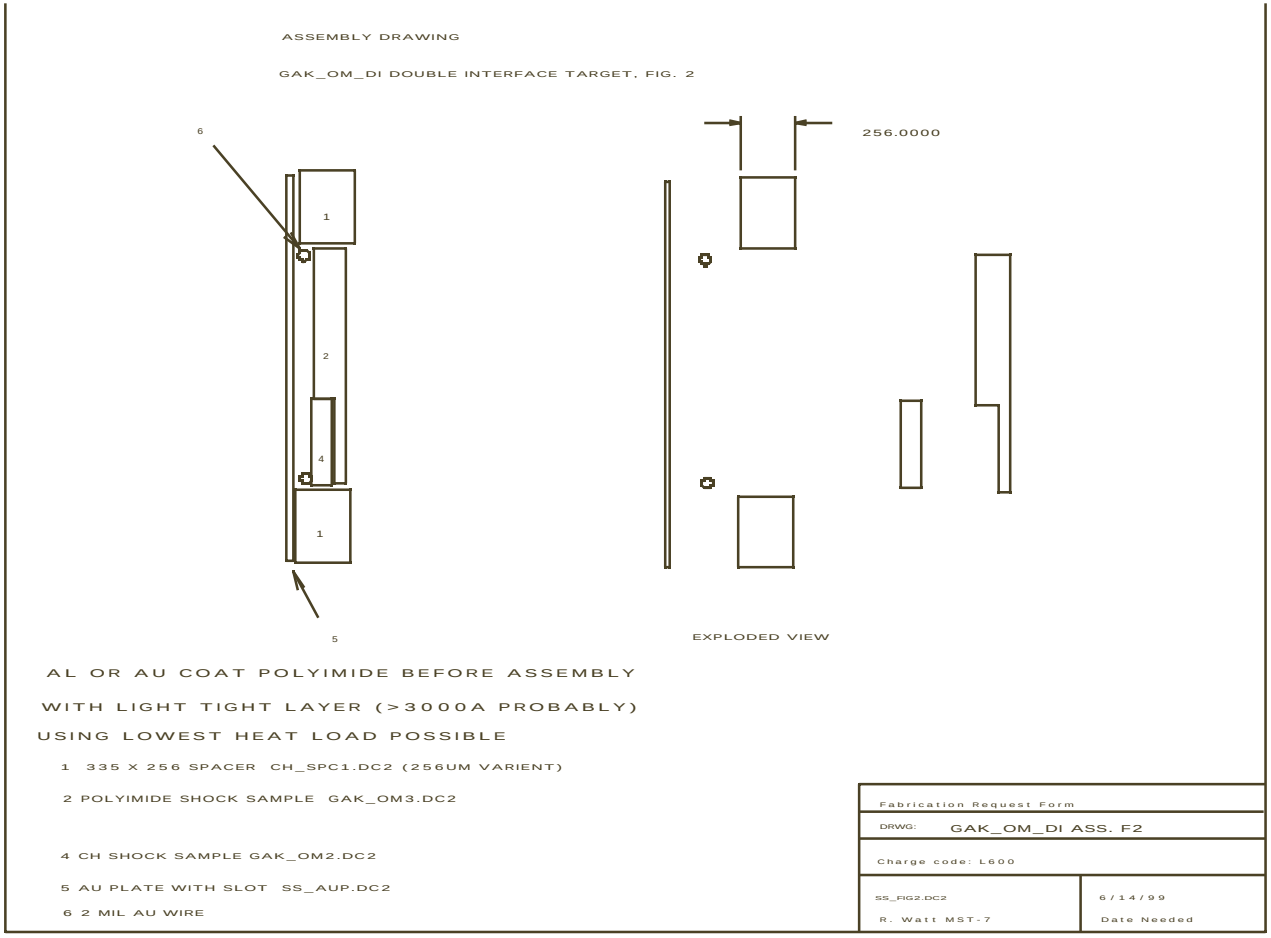
Structured Shock Hohlraum – sort of the top view



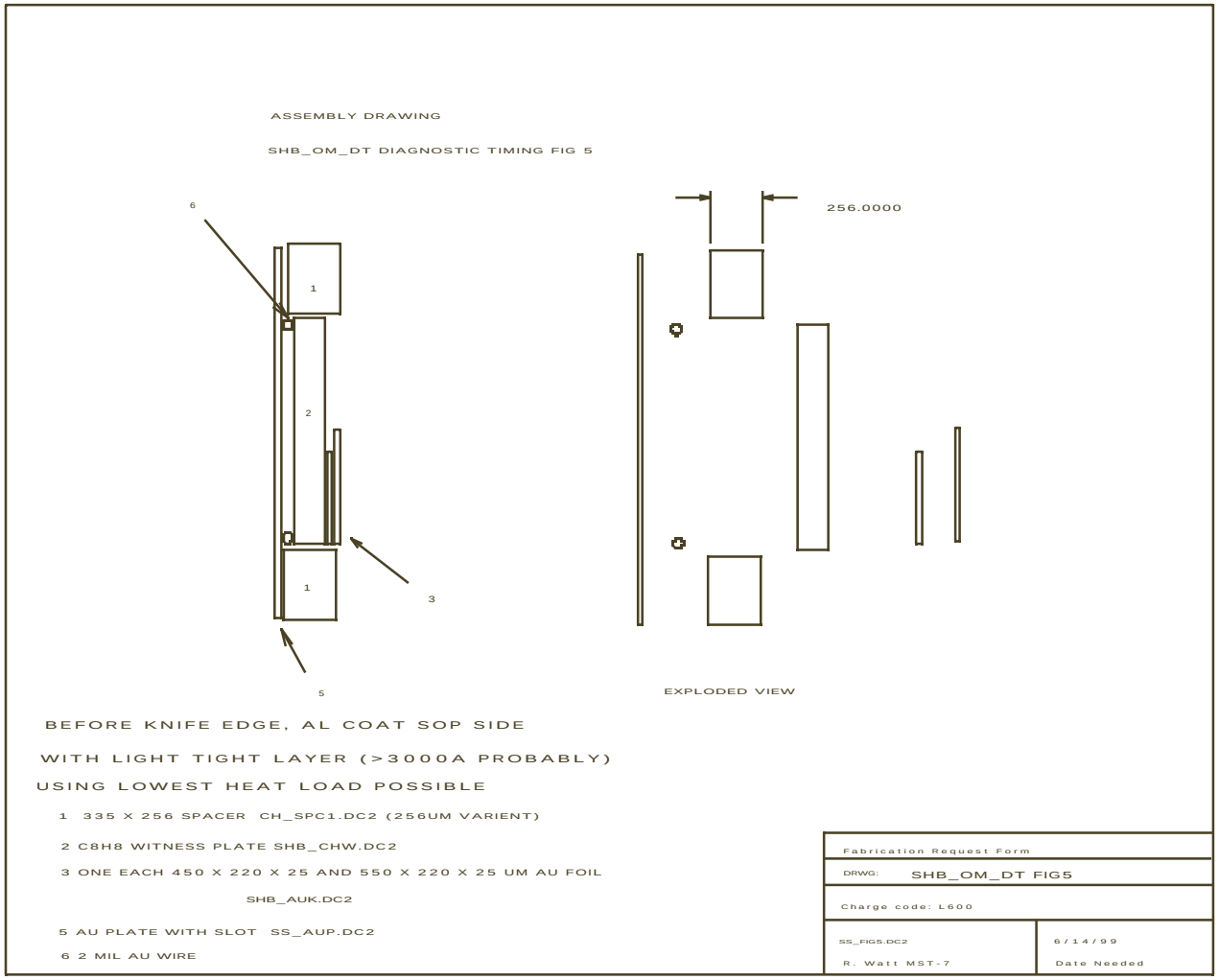
Double Interface – Tamped Package


ASSEMBLY DRAWING
GAK_OM_DI TAMPED DOUBLE INTERFACE TARGET, FIG. 1
6
1
2
3
4
1
5
335.0000
EXPLODED VIEW
COAT POLYIMIDE BEFORE ASSEMBLY
WITH LIGHT TIGHT LAYER (>3000A PROBABLY, AL OR AU)
USING LOWEST HEAT LOAD POSSIBLE
1 335 X 335 SPACER CH_SPC1.DC2 (335UM VARIENT)
2 POLYIMIDE SHOCK SAMPLE GAK_OM3.DC2
3 FOAM TAMPER GAK_OM1.DC2
4 CH SHOCK SAMPLE GAK_OM2.DC2
5 AU PLATE WITH SLOT SS_AUP.DC2
6 2 MIL AU WIRE
Fabrication Request Form
DRWG: GAK_OM_DI ASS. F1
Charge code: L600
SS_FIG1.DC2
R. Watt MST-7
6/14/99
Date Needed

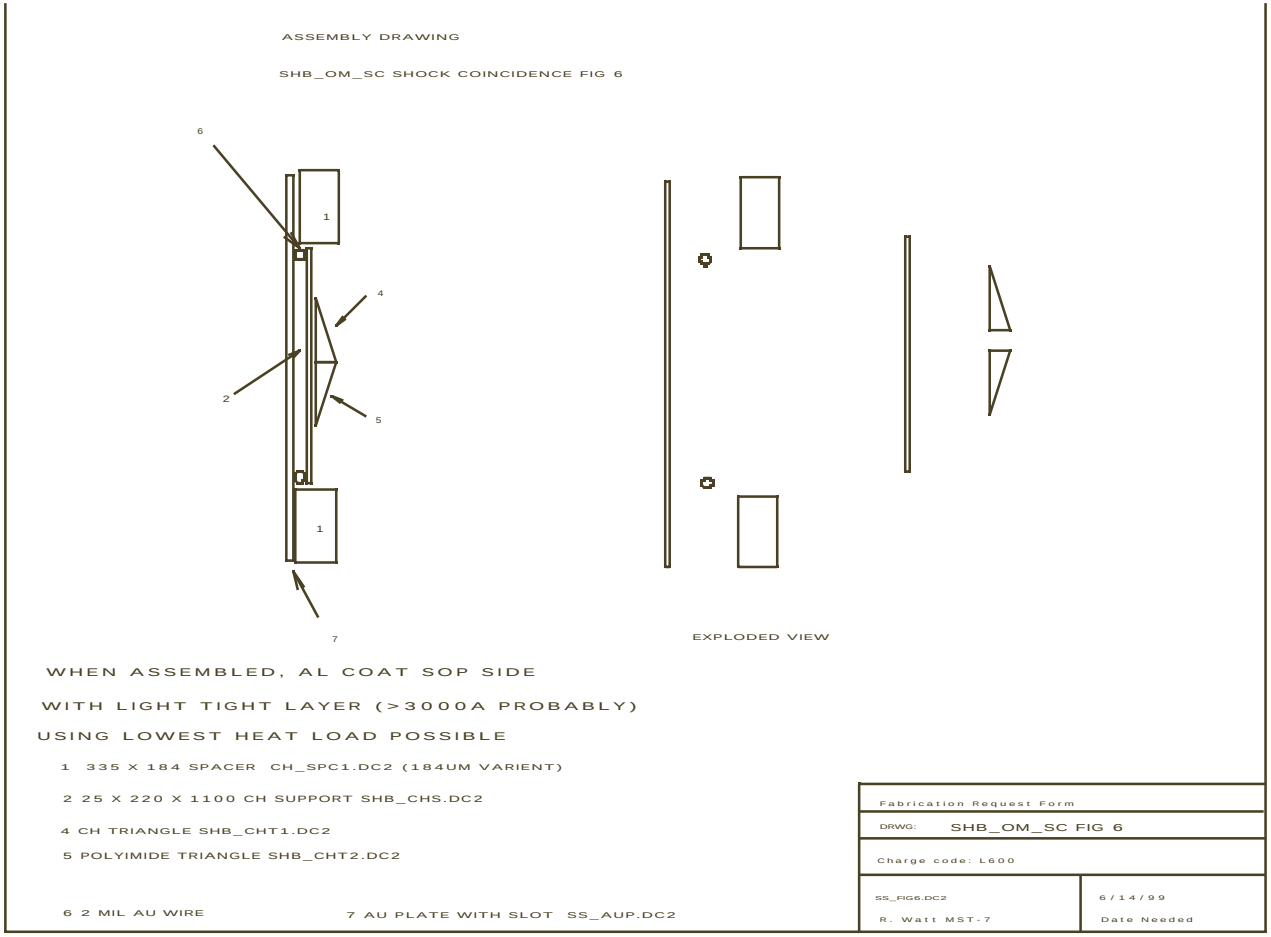
Double Interface – Untamped Package



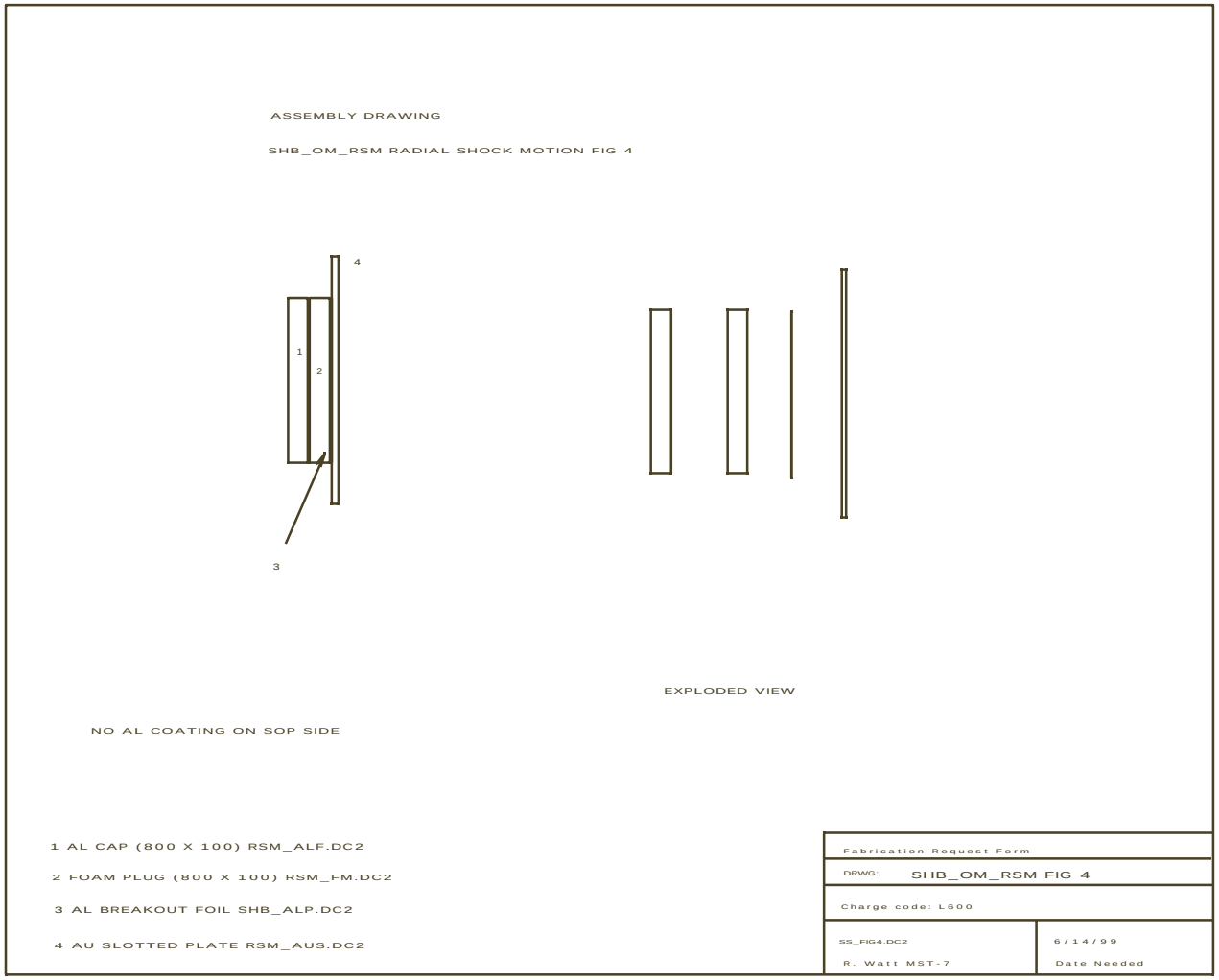
Diagnostic Timing and Poiting – SOP MTF measurement



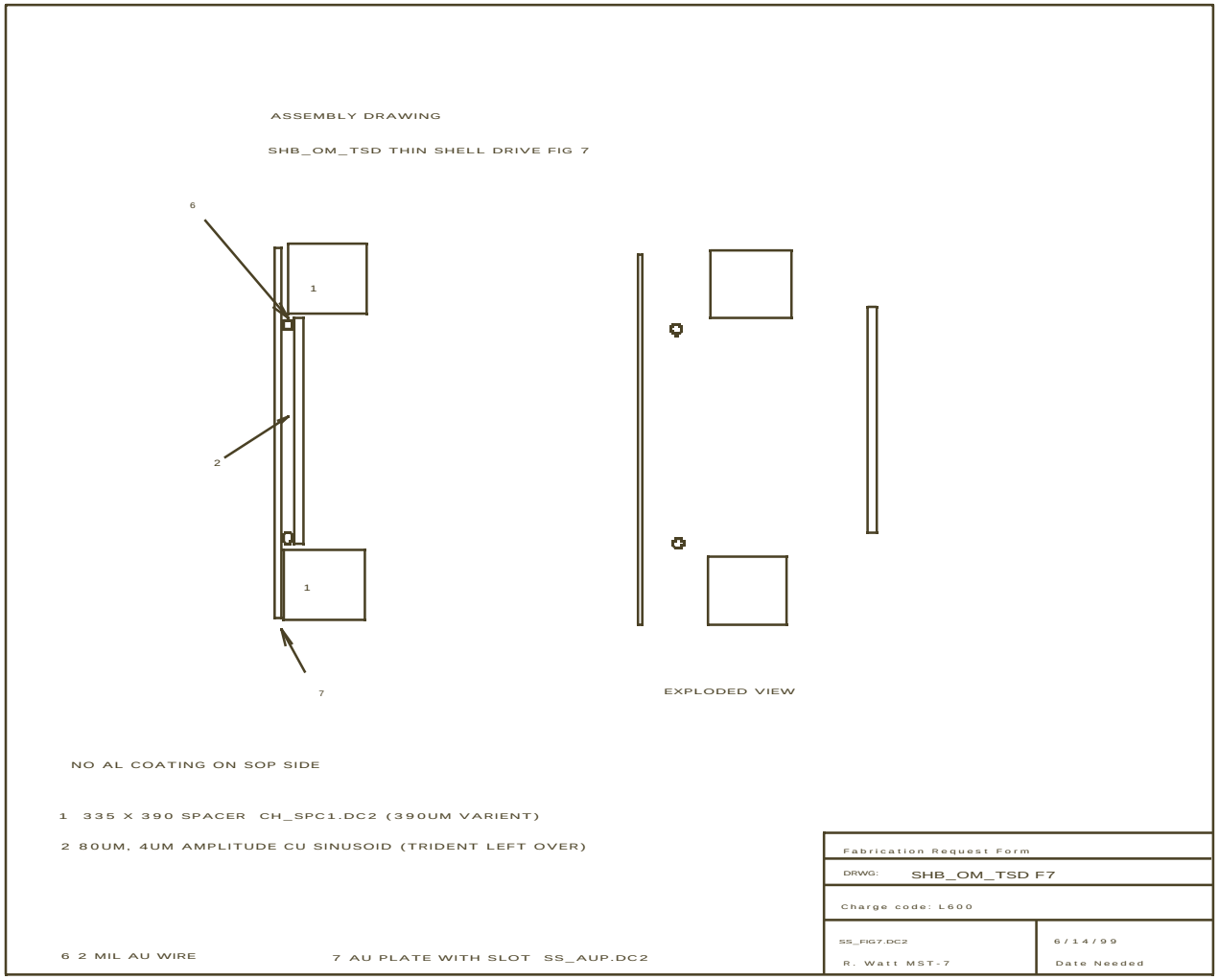
Shock Coincidence



Radial Shock Motion Package



Thin-Shell Side-On Radiography

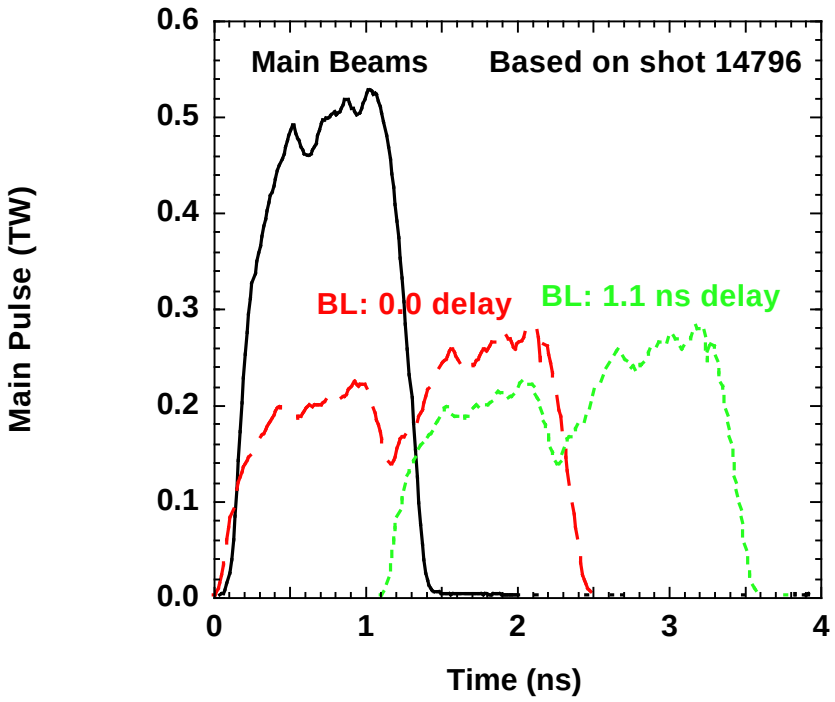

ASSEMBLY DRAWING
SHB_OM_TSD THIN SHELL DRIVE FIG 7
6
1
2
1
7
EXPLODED VIEW
NO AL COATING ON SOP SIDE
1 335 X 390 SPACER CH_SPC1.DC2 (390UM VARIENT)
2 80UM, 4UM AMPLITUDE CU SINUSOID (TRIDENT LEFT OVER)
6 2 MIL AU WIRE
7 AU PLATE WITH SLOT SS_AUP.DC2
Fabrication Request Form
DRWG: SHB_OM_TSD F7
Charge code: L600
SS_FIG7.DC2
R. Watt MST-7
6/14/99
Date Needed

Structured Shock Experiment – Laser Conditions

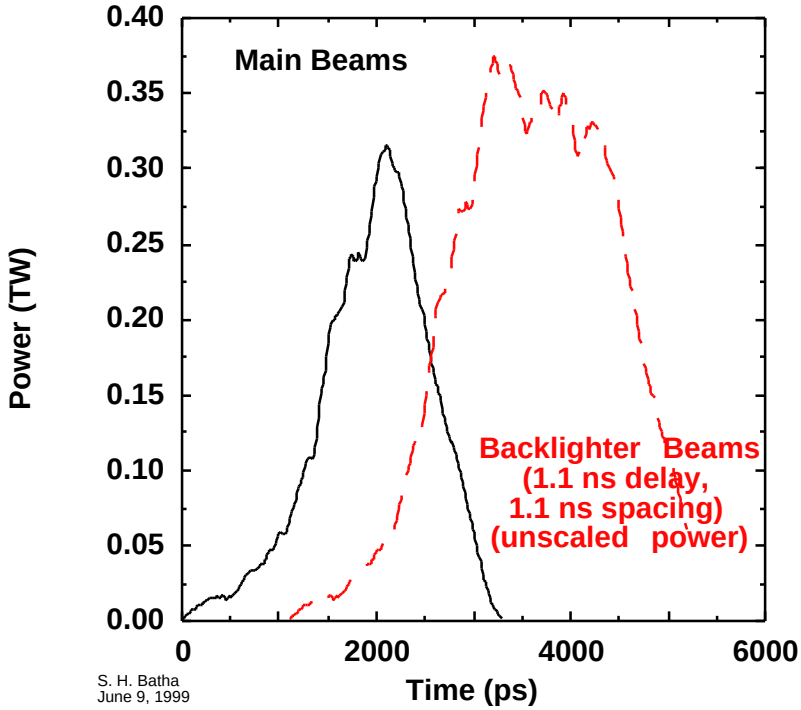
1-ns square pulse (SG1011)
No phase plates
49 drive beams
Max energy for all beams
Tetrahedral hohlraum in H4-H7-H13-H20 configuration
Ti backlighter for side-on radiography facing Port P6
Backlighters in two groups of 5
1.1 ns delay between two groups of backlighters
Package on not directly facing a port – closest is H14 (TIM 5)
One beam is not used

Backlighter beams

Set 1	Day 1 start at 0.0 ns Day 2 start at 2.2 ns	42, 44, 53, 57, 62
Set 2	Days 1 and 2 start at 1.1 ns	45, 47, 40, 51, 69



The backlighter timings for the structured shock experiments. The backlighter timings change between day 1 and day 2.



The Thin-Shell Side-on Radiography shots will use pulse shape 26 with the same backlighter timings as the structured shock experiments.

0.02

Tetrahedral Pointing Parameters—GAK_OM (P7 Backlighter)

config: 407

LEH	Port	Theta	Phi	unit hole vector -- kk z X	Y	Z	Sphere intercept 1400 µm from TCC X	Y	Z	LEH center 1356 µm from TCC X	Y	Z
A	4	37.38	234	-0.357	-0.491	0.795	-500	-688	1113	-484	-666	1077
B	7	79.19	90	0.000	0.982	0.188	0	1375	263	0	1331	254
C	13	100.8	342	0.934	-0.304	-0.188	1308	-425	-263	1266	-411	-254
D	20	142.6	198	-0.577	-0.188	-0.795	-808	-263	-1113	-783	-254	-1077

"Try4" positions for Scale-1.2 pointing

room XYZ are wrong for these

Cone	Angle	R(LEH) 350 X	Y	Z	3 beam centering X	Y	Z	Special backlighter X	Y	Z	dist
		kk offsets in µm						10 beams toward P7			
1A	23.20	525	-45	256	fixes TIM5 view			-1182	0	4113	3000
1B	23.20	300	80	700	300	80	700	-1182	0	4113	3000
2A	47.83	455	20	1035	fixes Dante view			-2224	0	3369	3000
2B	47.83	340	-150	1000	320	-150	1000	-2224	0	3369	3000
3	58.79	210	-50	1278	210	-50	1278	-2566	0	2910	3000
BL pent cone1	21.41	42	53	57	44	62					
BL pent cone2	42.02	40	47	51	69	45					

R retro 1356 RRRmax 166.8 2381 3/16" BB 1984 1984 5/32" BB

6/11/99 10:01 LEH	Cone	Beam	Beam Theta	Phi	kk y Focus wrt TCC X	Y	Z	Retro Dead Recon Offset XXX	YYY	ZZZ	Check Sphere theta	phi	ZZZZ focus
A	1A	55	42.0	198.0	297	-479	159	51	-48	1197	38.8	-135.9	-671
A	1A	46	21.4	270.0	-547	-203	-49	-67	-20	1197	31.6	-121.7	-671
A	1A	48	58.9	246.1	-24	305	500	16	68	1197	42.4	-120.2	-671
A	1B	61	21.4	198.0	-160	-613	430	77	28	714	30.3	-129.8	-666
A	1B	52	58.9	221.9	-55	-187	741	-63	53	714	42.9	-133.7	-666
A	1B	26	42.0	270.0	-533	-232	498	-15	-81	714	39.9	-114.8	-666
A	2A	65	58.9	174.1	15	-752	845	100	24	478	39.9	-150.0	-834
A	2A	17	21.4	342.0	-720	-658	573	-29	-98	478	25.3	-108.1	-834
A	2A	41	81.2	257.5	-403	-115	1050	-70	75	478	51.0	-116.4	-834
OFF	2B	56	21.4	126.0	-508	-745	570	-157	-23	530	25.9	-155.5	-775
A	2B	60	81.2	210.5	-11	-538	921	99	-125	530	55.6	-133.2	-775
A	2B	33	58.9	293.9	-552	-190	893	58	148	530	37.8	-94.6	-775
A	3_	22	21.4	54.0	-595	-733	888	-50	-81	151	15.9	-131.3	-945
A	3_	36	81.2	282.5	-514	-440	1106	-45	84	151	50.1	-100.5	-945
BL	2	40	81.25	185.5	-3435	-947.8	1533.6	-1	0	-2999	52.23	-151.4	-907.2
B	1A	59	81.2	113.5	522	238	119	-51	48	1197	78.3	96.3	-671
B	1A	18	98.8	77.5	-324	173	456	67	20	1197	85.0	87.8	-671
B	1A	13	58.9	77.9	-198	343	-432	-16	-68	1197	74.4	85.9	-671
B	1B	67	98.8	102.5	231	649	336	-77	-28	714	86.4	91.9	-666
B	1B	66	58.9	102.1	65	745	-167	63	-53	714	74.0	95.5	-666
B	1B	24	81.2	66.5	-295	670	225	15	81	714	77.3	82.7	-666
BL	2	47	81.25	138.5	-2222	3294.6	710.7	1	0	-2999	79.07	107.7	-800.6
B	2A	14	121.1	66.1	-196	939	598	29	98	478	92.3	82.5	-834
B	2A	11	42.0	54.0	-258	1087	-174	70	-75	478	66.2	81.8	-834
BL	2	69	121.1	113.9	-1042	3678.1	-1297	0	0	-2999	94.63	98.09	-800.5
B	2B	68	42.0	126.0	308	1021	-17	-99	125	530	61.3	96.8	-775
B	2B	32	81.2	41.5	-334	1013	28	-58	-148	530	83.4	71.3	-775
B	3_	50	138.0	90.0	-50	1216	446	50	81	151	100.7	91.5	-945
B	3_	20	58.9	30.1	-157	1283	94	45	-84	151	70.5	69.5	-945
B	3_	58	58.9	149.9	207	1267	179	-95	3	151	67.9	109.2	-945
C	1A	39	121.1	354.1	265	-295	432	16	68	1197	105.6	-13.9	-671
C	1A	16	98.8	318.5	388	423	-119	51	-48	1197	101.7	-24.3	-671
C	1A	37	81.2	354.5	65	-361	-456	-67	-20	1197	95.0	-15.8	-671
C	1B	21	121.1	329.9	728	-168	167	-63	53	714	106.0	-23.5	-666
C	1B	35	98.8	5.5	546	-488	-225	-15	-81	714	102.7	-10.7	-666
C	1B	15	81.2	329.5	688	19	-336	77	28	714	93.6	-19.9	-666
C	2A	12	138.0	18.0	954	-582	174	-70	75	478	113.8	-9.8	-834
C	2A	34	98.8	293.5	1114	116	-158	100	24	478	100.4	-33.4	-834
C	2A	10	58.9	5.9	833	-476	-598	-29	-98	478	87.7	-10.5	-834
C	2B	29	138.0	306.0	1060	-32	1	88	-142	530	119.1	-25.1	-768
C	2B	27	98.8	30.5	860	-631	-28	58	148	530	96.6	0.7	-775
C	2B	28	58.9	318.1	876	-257	-552	-157	-23	530	86.4	-30.4	-775
C	3_	38	121.1	282.1	1269	-195	-179	95	-3	151	112.1	-37.2	-945
C	3_	31	42.0	342.0	1141	-423	-446	-50	-81	151	79.3	-19.5	-945
C	3_	23	121.1	41.9	1172	-546	-94	-45	84	151	109.5	2.5	-945

BL	2	45	158.6	162	-1824	84.232	-3870	0	0	-2999	148.8	-170	-664.8
BL	1	44	121.1	185.9	-3336	-520	-2629	0	0	-3000	135.7	-166.9	-665
D	1A	54	138.0	234.0	-364	431	-159	-51	48	1197	141.2	-152.1	-671
BL	1	62	138.0	162.0	-2693	366	-3306	0	0	-3000	142.4	-174.5	-665
D	1B	64	158.6	234.0	-633	37	-430	-77	-28	714	149.7	-158.2	-666
BL	2	51	121.1	210.1	-3005	-1540	-2629	0	0	-3000	135.7	-157.1	-664.8
D	2A	25	158.6	90.0	-848	-481	-573	29	98	478	154.7	-179.9	-834
BL	1	42	98.8	174.5	-3734	28	-1534	0	0	-2999	127.2	-173.5	-801
D	2A	43	121.1	257.9	-710	247	-845	-100	-24	478	140.1	-138.0	-834
BL	1	57	121.1	138.1	-2693	1462	-2629	-1	0	-2999	138.7	171.0	-801
D	2B	19	158.6	306.0	-866	-253	-570	157	23	530	154.1	-132.5	-775
D	2B	63	98.8	221.5	-515	156	-921	-99	125	530	124.4	-154.8	-775
BL	1	53	98.8	149.5	-3336	1252	-1534	-1	0	-2999	127.8	172.6	-907
D	3_	49	98.8	246.5	-755	-28	-1053	-95	3	151	127.9	-139.3	-945
D	3_	30	158.6	18.0	-881	-339	-888	50	81	151	164.1	-156.7	-945

Structured Shock Experiment – Diagnostic Settings

Pointing Shot - 1												
									Main	BL 1	BL 2	
Target:		4 mm Au ball at TCC				**Laser:**	Pulse shape		1 ns square			
							Energy/Beam UVOT		100	OFF	OFF	
		Backlighter	Package	LEH-D			Beams on target		49	OFF	OFF	
	R	1811	1526	1356			Total energy on target		4.9 kJ	OFF	OFF	
	theta	118.3	100.8	143			Backlighter delay		0 ns	OFF	OFF	
	phi	227.5	270	198								
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	2	BL spatial uniformity	2x	10 µm	5 mil Be	T0 - 0.4 ns	250 ps	+200 V	Backlighter	
2	H7											
3	H18	SSC1 - Xe nosecone	2	BL time history	NA	200 µm slit	9 mil Be	center 1.2	speed 1	High	Backlighter	Set for Ti
4	P6	XRFC4	1	side-on radiography	2x	10 µm	5 mil Be	T0 - 0.4 ns	250 ps	+100 V	Package	
5	H14	SOP	1	shock breakout	NA	NA	NA	NA	NA		See chart	Absolute timing
6	P7	XRFC3/SXRFC	2	hole closure	3x	25/10/25	standard	T0 - 0.4 ns	250 ps	+100 V	LEH-D	
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

Pointing Shot - 2

									Main	BL 1	BL 2	
Target:		4 mm Au ball at TCC				**Laser:**	Pulse shape		1 ns square			
							Energy/Beam UVOT		OFF	100	100	
		Backlighter	Package	LEH-D			Beams on target		OFF	5	5	
	R	1811	1526	1356			Total energy on target		OFF	0.5 kJ	0.5 kJ	
	theta	118.3	100.8	143			Backlighter delay		OFF	0.0 ns	1.1 ns	
	phi	227.5	270	198								
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	2	BL spatial uniformity	2x	10 µm	5 mil Be	T0-0.4 ns	250 ps	+200 V	Backlighter	
2	H7											
3	H18	SSC1 - Xe nosecone	2	BL time history	200 µm slit	NA	9 mil Be	center 1.2	speed 1	High	Backlighter	Set for Ti
4	P6	XRFC4	1	side-on radiography	2x	10 µm	5 mil Be	T0-0.4 ns	250 ps	+100 V	Package	
5	H14	SOP	1	shock breakout	NA	NA	NA	NA	NA		See chart	Absolute timing
6	P7	XRFC3/SXRFC	2	hole closure	3x	25/10/25	standard	T0-0.4 ns	250 ps	+100 V	LEH-D	
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

Diagnostic Timing, Double Interface, and Shock Coincidence - Day 1

									Main	BL 1	BL 2	
Target:		Tetrahedral hohlraum				**Laser:**	Pulse shape		1 ns square			
							Energy/Beam UVOT		450 J	450 J	450 J	
		Backlighter	Package	LEH-D			Beams on target		49	5	5	
	R	1811	1526	1356			Total energy on target		22 kJ	2.2 kJ	2.2 kJ	
	theta	118.3	100.8	143			Backlighter delay		0 ns	0.0 ns	1.1 ns	
	phi	227.5	270	198								
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	2	BL spatial uniformity	6x	10 µm	5 mil Be + 12 µm Ti	T0+0.3 ns	500 ps	+200 V	Backlighter	
2	H7											
3	H18	SSC1 - Xe nosecone	2	BL time history	250 µm slit	NA	9 mil Be	center 1.2	speed 1	High	Backlighter	Set for Ti
4	P6	XRFC4	1	side-on radiography	8x	10 µm	10 mil Be + 6 µm Ti	T0+0.3 ns	500 ps	+100 V	Package	
5	H14	SOP	1	shock breakout	NA	NA	NA		NA		See chart	Absolute timing
6	P7	XRFC3/SXRFC	2	hole closure	3x	25/10/25	standard	T0+1.0 ns	500 ps	+100 V	LEH-D	
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

SOP Absolute Timing - 3												
Target:		Au foil facing TIM 5						**Laser:**	Pulse shape		1 ns square	
		Target placement to be determined							Energy/Beam UVOT		450 J	
									Beams on target		1	
									Total energy on target		0.4 kJ	
										Beamline	**41 only!**	
										Focus	200 µm in front of foil	
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	OFF									
2	H7											
3	H18	SSC1 - Xe nosecone	OFF									
4	P6	XRFC4	OFF									
5	H14	SOP	1	Absolute timing	NA	NA	NA		NA			Absolute timing
6	P7	XRFC3/SXRFC	OFF									
	H16	Dante	OFF									
	BL 25	Backscatter calorimet	2									
	BL 30	Backscatter calorimet	2									
		p510 laser pulse shape	1									
	P12A	Static pinhole camera	OFF									
	H9C	Static pinhole camera	OFF									
	H8C	Static pinhole camera	OFF									
	H3C	Static pinhole camera	OFF									
	H13C	Static pinhole camera	OFF									
	H12C	Static pinhole camera	OFF									

Double Interface - Day 2

									Main	BL 1	BL 2	
Target:		Tetrahedral hohlraum				**Laser:**	Pulse shape		1 ns square			
							Energy/Beam UVOT		450 J	450 J	450 J	
		Backlighter	Package	LEH-D			Beams on target		49	5	5	
	R	1811	1526	1356			Total energy on target		22 kJ	2.2 kJ	2.2 kJ	
	theta	118.3	100.8	143			Backlighter delay		0 ns	2.2 ns	1.1 ns	
	phi	227.5	270	198								
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	2	BL spatial uniformity	6x	10 µm	5 mil Be + 12 µm Ti	T0+1.3 ns	500 ps	+200 V	Backlighter	
2	H7											
3	H18	SSC1 - Xe nosecone	2	BL time history	250 µm slit	NA	9 mil Be	center 2.0	speed 1	High	Backlighter	Set for Ti
4	P6	XRFC4	1	side-on radiography	8x	10 µm	10 mil Be + 6 µm Ti	T0+1.3 ns	500 ps	+100 V	Package	
5	H14	SOP	1	shock breakout	NA	NA	NA		NA		See chart	Absolute timing
6	P7	XRFC3/SXRFC	2	hole closure	3x	25/10/25	standard	T0+2.5 ns	500 ps	+100 V	LEH-D	
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

Thin Shell Side-On Radiography - Day 2

									Main	BL 1	BL 2	
Target:		Tetrahedral hohlraum				**Laser:**	Pulse shape		PS26			
							Energy/Beam UVOT		450 J	450 J	450 J	
		Backlighter	Package	LEH-D			Beams on target		49	5	5	
	R	1811	1526	1356			Total energy on target		22 kJ	2.2 kJ	2.2 kJ	
	theta	118.3	100.8	143			Backlighter delay		0 ns	2.2 ns	1.1 ns	
	phi	227.5	270	198								
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	2	BL spatial uniformity	6x	10 µm	5 mil Be + 12 µm Ti	T0+1.3 ns	500 ps	+200 V	Backlighter	
2	H7											
3	H18	SSC1 - Xe nosecone	2	BL time history	250 µm slit	NA	9 mil Be	center 2.0	speed 1	High	Backlighter	Set for Ti
4	P6	SSC4 - SMP20x snout	1	foil motion	250 µm slit	10 µm	4 mil Be	center 3.5	speed 1	High	Package	
5	H14	SOP	1	shock breakout	NA	NA	NA		NA		See chart	Absolute timing
6	P7	XRFC3/SXRFC	2	hole closure	3x	25/10/25	standard	T0+2.5 ns	500 ps	+100 V	LEH-D	
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

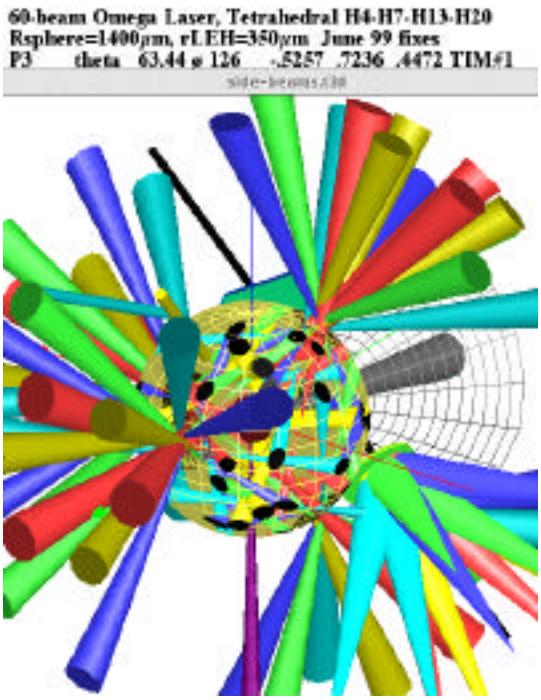
Radial Shock Motion

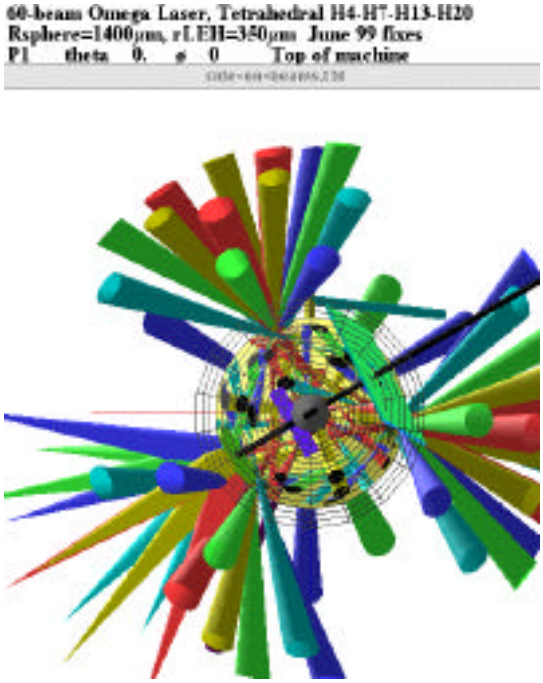
									Main	BL 1	BL 2	
Target:		Radial Shock Motion Target				**Laser:**	Pulse shape		1 ns square			
							Energy/Beam UVOT		450 J	OFF	OFF	
		Backlighter	Package	LEH-D			Beams on target		49	OFF	OFF	
	R	1811	1526	1356			Total energy on target		22 kJ	OFF	OFF	
	theta	118.3	100.8	143			Backlighter delay		0 ns	OFF	OFF	
	phi	227.5	270	198								
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	XRFC2	OFF									
2	H7											
3	H18	SSC1 - Xe nosecone	OFF									
4	P6	XRFC4	OFF									
5	H14	SOP	1	shock breakout	NA	NA	NA		NA		See chart	Shock motion
6	P7	XRFC3/SXRFC	2	hole closure	3x	25/10/25	standard	T0+2.5 ns	500 ps	+100 V	LEH-D	Late time h expansion
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimet	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

Structured Shock Experiment – SOP Pointing & Focusing

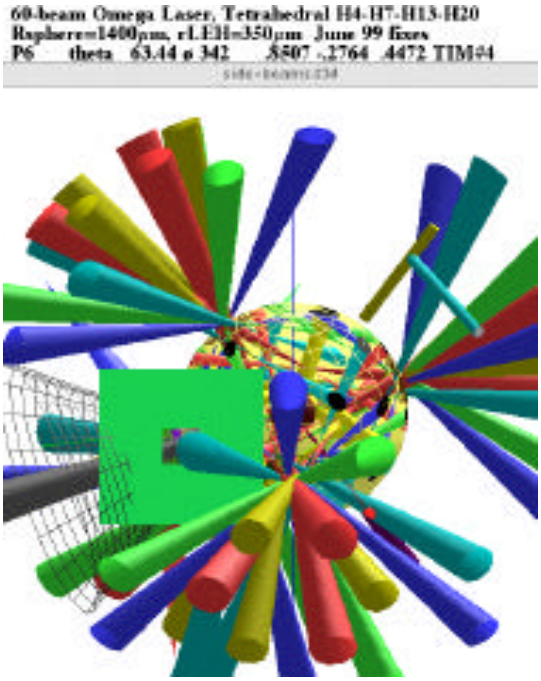
	Day 1	Focus from TCC (µm)	Move Left from TCC/SOP LOS (µm)	Move Down from TCC/SOP LOS (µm)
1	Pointing - Sphere/SO	Nominal	Nominal	Nominal
2	Pointing - Sphere - ba	Nominal	Nominal	Nominal
3	SOP Absolute Timing'	Nominal	Nominal	Nominal
4	Diag Timing - SOP Re	1709	286	168
5	Diag Timing* - SOP R	1709	286	168
6	Double Interface-T	1786	299	176
7	Double Interface-U	1709	286	168
8	Shock Coincidence	1638	274	161
9	Shock Coincidence	1638	274	161
10	Double Interface-T	1786	299	176
11	Double Interface-U	1709	286	168
12	Shock Coincidence	1638	274	161
13	Repeat Double Interface			
	Day 2			
14	Diag Timing* - SOP R	1709	286	168
15	Double Interface-T	1786	299	176
16	Double Interface-U	1709	286	168
17	Radial Shock Motion	1457	244	143
18	Radial Shock Motion	1457	244	143
19	Double Interface-T	1786	299	176
20	Double Interface-U	1709	286	168
21	Radial Shock Motion	1457	244	143
22	Radial Shock Motion*	1457	244	143
23	Side-on Thin Shell	1840	308	181
24	Side-on Thin Shell	1840	308	181
25	Side-on Thin Shell*	1840	308	181
	NOTE: package is tilted 30.45 degrees			
	counter clockwise (CCW) from the vertical			

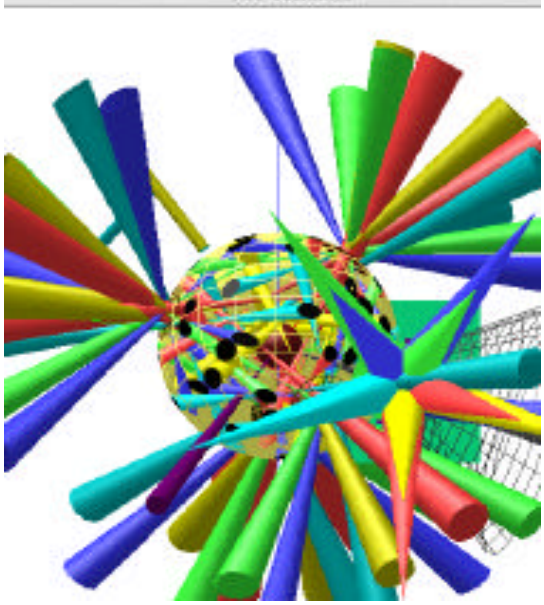
Structured Shock Experiment – Colorful Views





TIM 5 (not top of machine)





Thin Shell Rayleigh-Taylor Experiment – Goals

Principal Investigators: Gottfried T. Schappert and Steve Batha, LANL P-24
Theory: Dave Hollowell and Rod Mason, LANL X-Div

The objective of this experiment is to compare the classical material pressure-driven RT instability with the purely ablative-driven RT instability. The experiment compares the RT growth in two types of targets. The tamped packages consist of a copper foil with 45 μm wavelength, 0.5 μm amplitude corrugations on top and is overcoated with a layer of Be. The untamped package consists of the same copper foil with the same Be layer set 200 μm above the copper.

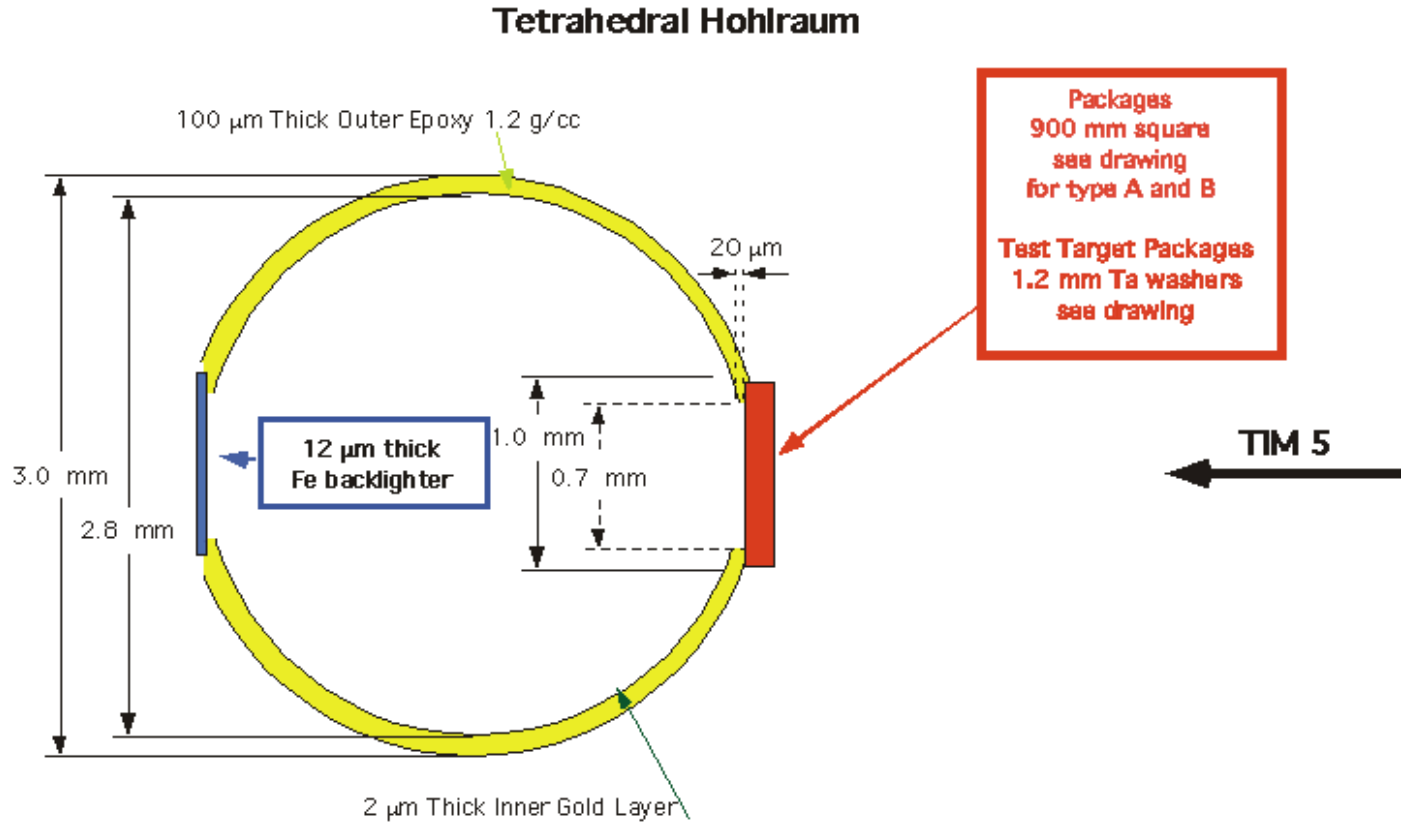
Both packages are mounted on a tetrahedral hohlraum, driven by hohlraum radiation and face-on radiographed using a 6.7 keV iron backlighter. The Cu foil in the tamped package is driven by the Be filtered drive plus the Be material pressure, whereas the untamped package experiences only the Be filtered drive. Hence, the difference in drive is only the material pressure generated from the Be.

Thin Shell Rayleigh-Taylor Experiment – Target Designs

GTS_OM_Tar_1_no-cone
CROSS SECTIONAL VIEW
R-T 45 Drive Beams, 12 B-lighter

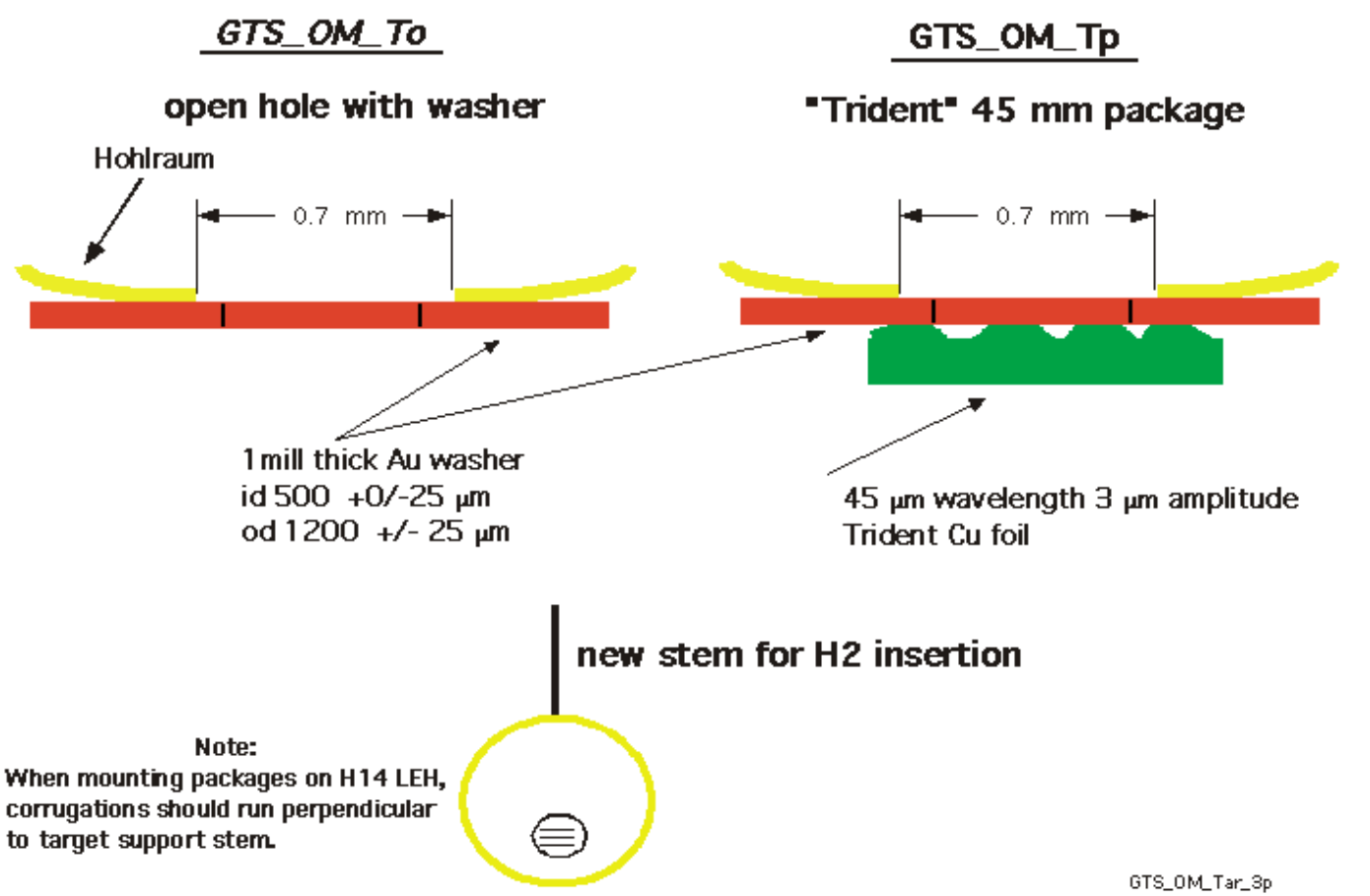
Figure - 9

AU	1.5mg
Fe	.07mg
Cu	.07mg
plastic	3.0mg



GTS_OM_T

Test Target Packages *NOT ALL TO SCALE* **Figure - 10**

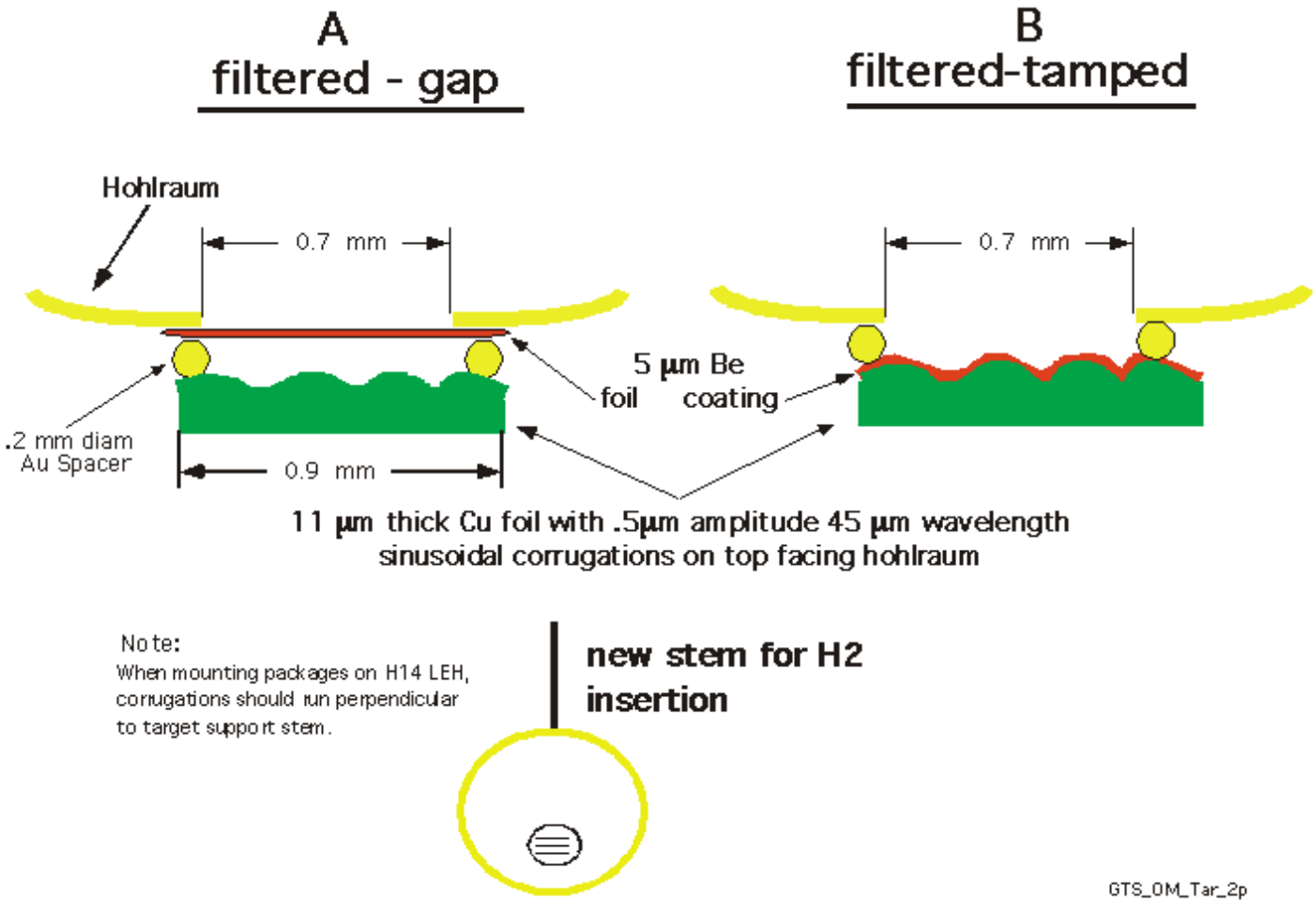


GTS_OM_Tar_2p

Packages

Figure - 11

NOT ALL TO SCALE



GTS_OM_Tar_2p
March 26,99

Thin Shell Rayleigh-Taylor Experiment – Laser Conditions

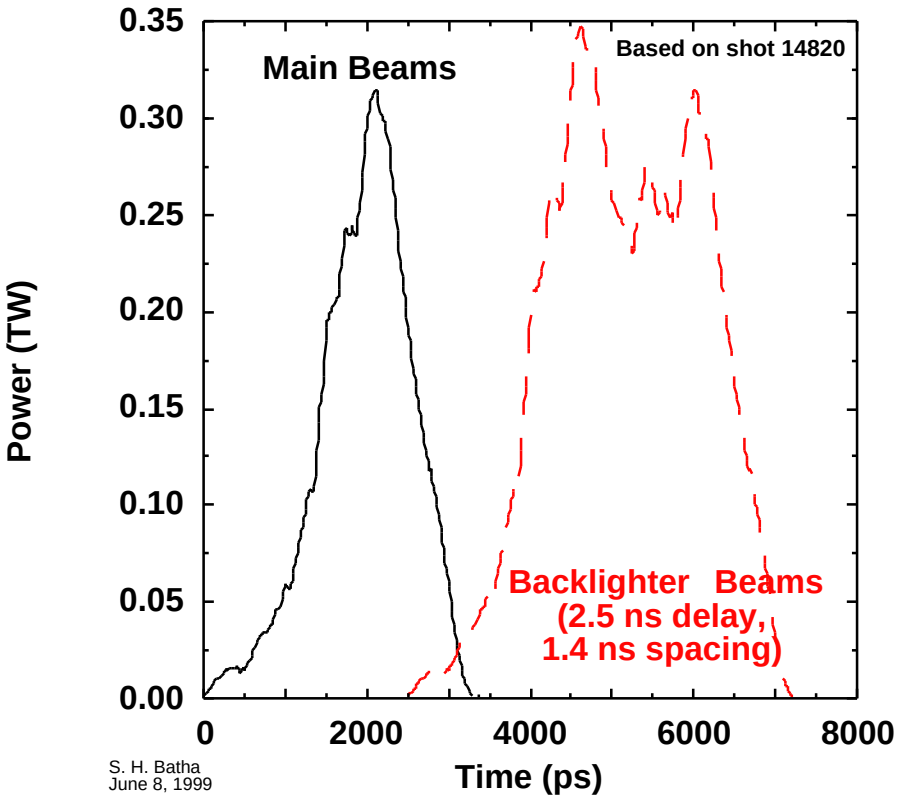
Pulse shape 26
No phase plates
45 drive beams
Max energy for all beams
Tetrahedral hohlraum in H4-H7-H13-H20 configuration
Fe backlighter flush on H7 target LEH
Backlighters in two groups of 6
1.4 ns delay between two groups of backlighters
Package on H14
Three beams are not used

Backlighter beams are 1A and 2B for one and 1B and 2A for the other. Two six-leaf clovers rotated 60 degrees are formed. This pattern will not be smooth with PS26.

Backlighter on H-7 Fe disk
Delay 2 groups of beams relative to each other to produce approx. 3 ns long pulse.
Each beam is PS 26.

Delay 2.5 ns		**Delay 3.9 ns**	
Cone 1A Beams	59	Cone 1B Beams	67
	18		66
	13		24
Cone 2B	69	Cone 2A	47
	68		14
	32		11

Beams 50, 20, and 58 not used



Timing for main pulse and sum of backlighter beams based on December 1998 experience. The Power axis is somewhat arbitrary in this graph.

0.02 Tetrahedral Pointing Parameters—GTS_OM (LEH-B Backlighter)

config: 407

LEH	Port	Theta	Phi	unit hole vector -- kk z X	Y	Z	Sphere intercept 1400 µm from TCC X	Y	Z	LEH center 1356 µm from TCC X	Y	Z
A	4	37.38	234	-0.357	-0.491	0.795	-500	-688	1113	-484	-666	1077
B	7	79.19	90	0.000	0.982	0.188	0	1375	263	0	1331	254
C	13	100.8	342	0.934	-0.304	-0.188	1308	-425	-263	1266	-411	-254
D	20	142.6	198	-0.577	-0.188	-0.795	-808	-263	-1113	-783	-254	-1077

"Try4" positions for Scale-1.2 pointing

Cone	Angle	R(LEH) 350 kk offsets in µm X	Y	Z	3 beam centering X	Y	Z	LEH-B settings Special backlighter X	Y	Z	dist
								Cross LEH center			
1A	23.20	525	-45	256	fixes TIM5 view			-1182	0	4113	3000
1B	23.20	300	80	700	300	80	700	-1182	0	4113	3000
2A	47.83	455	20	1035	fixes Dante view			-2224	0	3369	3000
2B	47.83	340	-150	1000	320	-150	1000	-2224	0	3369	3000
3	58.79	210	-50	1278	210	-50	1278	-2566	0	2910	3000
					R retro		RRRmax			2381	3/16" BB
					1356		166.8		1984	1984	5/32" BB

6/11/99 10:21 LEH	Cone	Beam	Beam Theta	Beam Phi	kk y Focus wrt TCC X	Y	Z	Retro Dead Recon Offset XXX	YYY	ZZZ	Check Sphere theta	phi	ZZZZ focus
A	1A	55	42.0	198.0	297	-479	159	51	-48	1197	38.8	-135.9	-671
A	1A	46	21.4	270.0	-547	-203	-49	-67	-20	1197	31.6	-121.7	-671
A	1A	48	58.9	246.1	-24	305	500	16	68	1197	42.4	-120.2	-671
A	1B	61	21.4	198.0	-160	-613	430	77	28	714	30.3	-129.8	-666
A	1B	52	58.9	221.9	-55	-187	741	-63	53	714	42.9	-133.7	-666
A	1B	26	42.0	270.0	-533	-232	498	-15	-81	714	39.9	-114.8	-666
A	2A	65	58.9	174.1	15	-752	845	100	24	478	39.9	-150.0	-834
A	2A	17	21.4	342.0	-720	-658	573	-29	-98	478	25.3	-108.1	-834
A	2A	41	81.2	257.5	-403	-115	1050	-70	75	478	51.0	-116.4	-834
A	2B	56	21.4	126.0	-508	-745	570	-157	-23	530	25.9	-155.5	-775
A	2B	60	81.2	210.5	-11	-538	921	99	-125	530	55.6	-133.2	-775
A	2B	33	58.9	293.9	-552	-190	893	58	148	530	37.8	-94.6	-775
A	3_	22	21.4	54.0	-595	-733	888	-50	-81	151	15.9	-131.3	-945
A	3_	36	81.2	282.5	-514	-440	1106	-45	84	151	50.1	-100.5	-945
A	3_	40	81.2	185.5	-260	-710	1053	95	-3	151	52.1	-148.7	-945
BL	1A	59	81.2	113.5	-1180	4051	711	0	0	-2999	79.7	97.7	-665
BL	1A	18	98.8	77.5	644	4226	-202	0	0	-2999	85.6	85.9	-665
BL	1A	13	58.9	77.9	537	3842	1806	0	0	-2999	72.4	86.4	-665
BL	1B	67	98.8	102.5	-644	4226	-202	0	0	-3000	85.6	94.1	-665
BL	1B	66	58.9	102.1	-537	3842	1806	0	0	-3000	72.4	93.6	-665
BL	1B	24	81.2	66.5	1180	4051	711	0	0	-3000	79.7	82.3	-665
BL	2A	47	81.2	138.5	-2222	3295	711	1	0	-2999	79.1	107.7	-801
BL	2A	14	121.1	66.1	1042	3678	-1297	0	0	-2999	94.6	81.9	-801
BL	2A	11	42.0	54.0	1180	2956	2483	0	0	-2999	64.7	79.9	-801
BL	2B	69	121.1	113.9	-1042	3678	-1297	0	0	-2999	94.6	98.1	-801
BL	2B	68	42.0	126.0	-1180	2956	2483	0	0	-2999	64.7	100.1	-801
BL	2B	32	81.2	41.5	2222	3295	711	-1	0	-2999	79.1	72.3	-801
OFF	3_	50	138.0	90.0									
OFF	3_	20	58.9	30.1									
OFF	3_	58	58.9	149.9									
C	1A	39	121.1	354.1	265	-295	432	16	68	1197	105.6	-13.9	-671
C	1A	16	98.8	318.5	388	423	-119	51	-48	1197	101.7	-24.3	-671
C	1A	37	81.2	354.5	65	-361	-456	-67	-20	1197	95.0	-15.8	-671
C	1B	21	121.1	329.9	728	-168	167	-63	53	714	106.0	-23.5	-666
C	1B	35	98.8	5.5	546	-488	-225	-15	-81	714	102.7	-10.7	-666
C	1B	15	81.2	329.5	688	19	-336	77	28	714	93.6	-19.9	-666
C	2A	12	138.0	18.0	954	-582	174	-70	75	478	113.8	-9.8	-834
C	2A	34	98.8	293.5	1114	116	-158	100	24	478	100.4	-33.4	-834
C	2A	10	58.9	5.9	833	-476	-598	-29	-98	478	87.7	-10.5	-834
C	2B	29	138.0	306.0	1060	-32	1	88	-142	530	119.1	-25.1	-768
C	2B	27	98.8	30.5	860	-631	-28	58	148	530	96.6	0.7	-775
C	2B	28	58.9	318.1	876	-257	-552	-157	-23	530	86.4	-30.4	-775
C	3_	38	121.1	282.1	1269	-195	-179	95	-3	151	112.1	-37.2	-945
C	3_	31	42.0	342.0	1141	-423	-446	-50	-81	151	79.3	-19.5	-945
C	3_	23	121.1	41.9	1172	-546	-94	-45	84	151	109.5	2.5	-945

D	1A	45	158.6	162.0	-362	-458	49	67	20	1197	148.4	-166.3	-671
D	1A	44	121.1	185.9	282	-117	-500	-16	-68	1197	137.6	-167.8	-671
D	1A	54	138.0	234.0	-364	431	-159	-51	48	1197	141.2	-152.1	-671
D	1B	62	138.0	162.0	-385	-436	-498	15	81	714	140.1	-173.2	-666
D	1B	64	158.6	234.0	-633	37	-430	-77	-28	714	149.7	-158.2	-666
D	1B	51	121.1	210.1	-195	5	-741	63	-53	714	137.1	-154.3	-666
D	2A	25	158.6	90.0	-848	-481	-573	29	98	478	154.7	-179.9	-834
D	2A	42	98.8	174.5	-234	-348	-1050	70	-75	478	129.0	-171.6	-834
D	2A	43	121.1	257.9	-710	247	-845	-100	-24	478	140.1	-138.0	-834
D	2B	57	121.1	138.1	-351	-466	-893	-58	-148	530	142.2	166.6	-775
D	2B	19	158.6	306.0	-866	-253	-570	157	23	530	154.1	-132.5	-775
D	2B	63	98.8	221.5	-515	156	-921	-99	125	530	124.4	-154.8	-775
D	3_	53	98.8	149.5	-577	-353	-1106	45	-84	151	129.9	172.5	-945
D	3_	49	98.8	246.5	-755	-28	-1053	-95	3	151	127.9	-139.3	-945
D	3_	30	158.6	18.0	-881	-339	-888	50	81	151	164.1	-156.7	-945

Thin Shell Rayleigh-Taylor Experiment – Diagnostic Settings

Thin Shell Pointing Shot - 1												
									Main	BL 1	BL 2	
Target:		4 mm Au ball at TCC				**Laser:**	Pulse shape		1 ns square			
							Energy/Beam UVOT		100 J	100 J	100 J	
		Backlighter - H7	Package - H14				Beams on target		45	6	6	
	R	1470	1670				Total energy on target		4.5 kJ	0.6 kJ	0.6 kJ	
	Theta	79.2	100.8				Backlighter delay			2.5	3.9	
	Phi	90	270									
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1.0	P3	SSC1- Fe Snout	2.0	BL temporal history	NA	330 µm slit	8 mil Be + 1/2 mil Fe	center T0	speed 1	High	Backlighter	
2	H7	XRFC2	2	BL spatial uniformity	2x	10 µm	5 mil Be	T0-0.4 ns	250 ps	+ 200 V	Backlighter	
5	H14	XRFC4	1	Face-on Radiography	2x	10 µm	5 mil Be	T0-0.4 ns	250 ps	+100 V	Package	
	H16	Dante	OFF	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

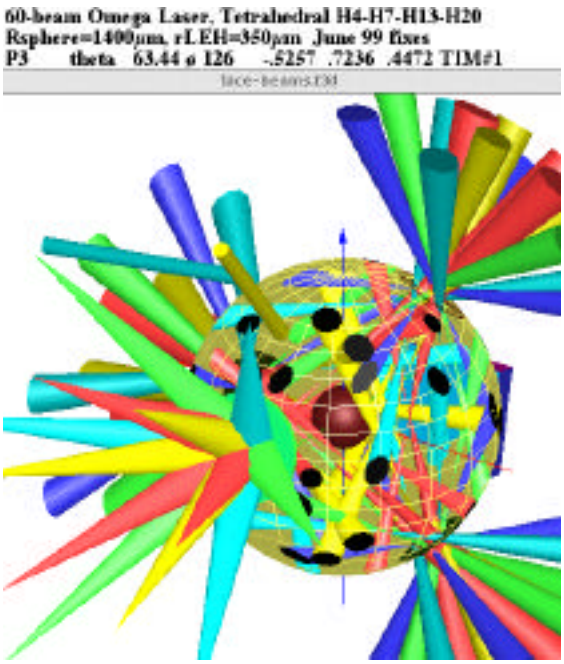
Thin Shell Diagnostic Timing and Alignment Check - 2, 3

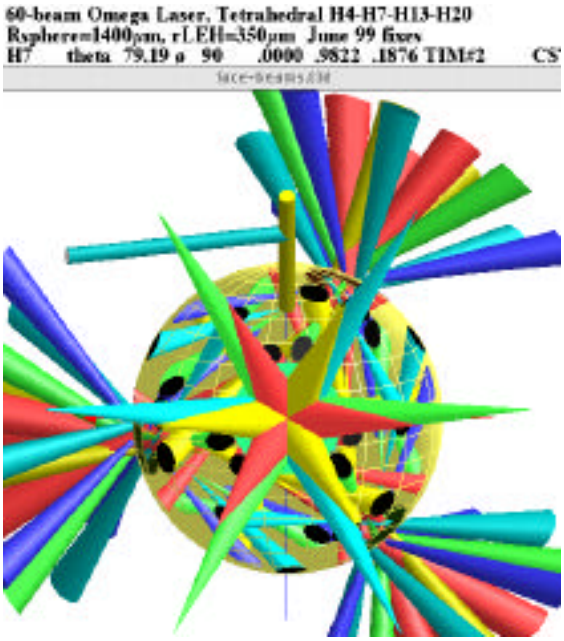
									Main	BL 1	BL 2	
Target:		Tetrahedral hohlraum				**Laser:**	Pulse shape		PS26			
							Energy/Beam UVOT		OFF	375 J	375 J	
		Backlighter - H7	Package - H14				Beams on target		OFF	6	6	
	R	1470	1670				Total energy on target		OFF	2.2 kJ	2.2 kJ	
	Theta	79.2	100.8				Backlighter delay		OFF	2.5	3.9	
	Phi	90	270									
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	SSC1- Fe Snout	2	BL temporal history	NA	330 µm slit	8 mil Be + 1/2 mil Fe	center 5.0	speed 1	High	Backlighter	
2	H7	XRFC2	2	BL spatial uniformity	6x	10 µm	5 mil Be + 1/2 mil Fe	T0+3.0 ns	250 ps	+200 V	Backlighter	
5	H14	XRFC4	1	Face-on Radiography	12x	10 µm	5 mil Be + 1/2 mil Fe	T0+3.0 ns	250 ps	+100 V	Package	
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

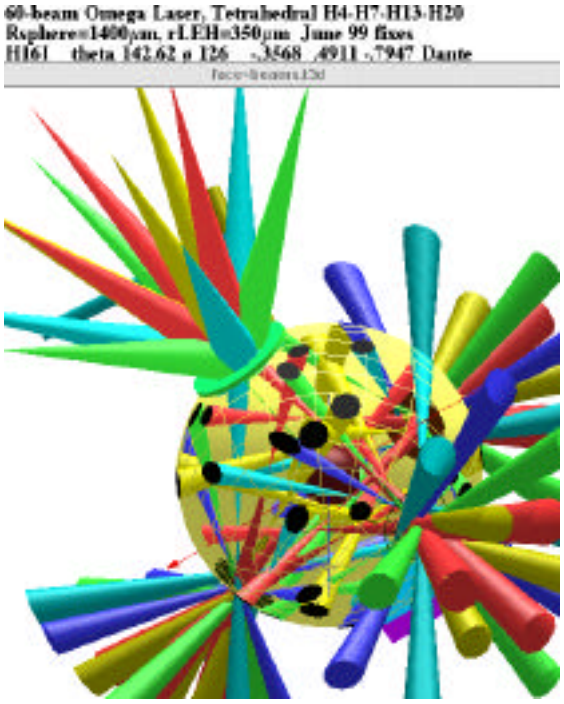
Thin Shell Rayleigh-Taylor Shots - 4 to 12

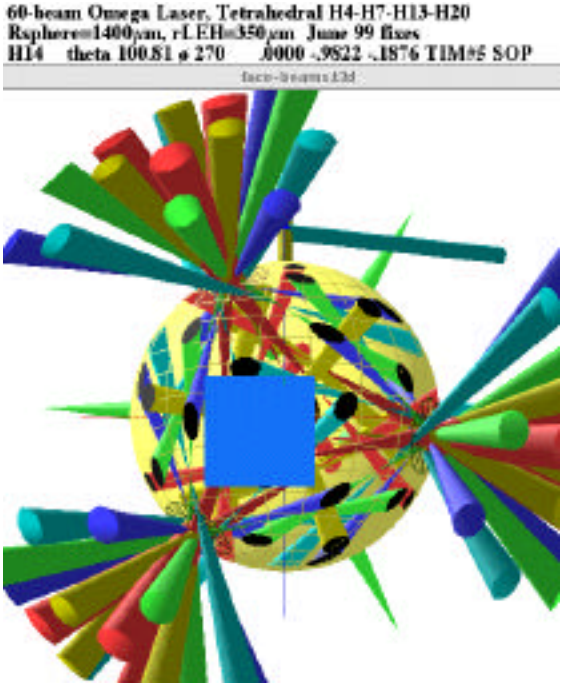
									Main	BL 1	BL 2	
Target:		Tetrahedral hohlraum				**Laser:**	Pulse shape		PS 26			
							Energy/Beam UVOT		375 J	375 J	375 J	
		Backlighter - H7	Package - H14				Beams on target		45	6	6	
	R	1470	1670				Total energy on target		17 kJ	2.2 kJ	2.2 kJ	
	Theta	79.2	100.8				Backlighter delay		0 ns	2.5	3.9	
	Phi	90	270									
TIM	**Port**	**Instrument**	**Priority**	**Purpose**	**Mag.**	**Pinhole**	**Filter**	**Trigger Time**	**Inter-strip**	**Bias**	**Pointing**	**Notes**
1	P3	SSC1- Fe Snout	2	BL temporal history	NA	330 µm slit	8 mil Be + 1/2 mil Fe	center 5.0	speed 1	High	Backlighter	
2	H7	XRFC2	2	BL spatial uniformity	6x	10 µm	5 mil Be + 1/2 mil Fe	T0+4.0 ns	500 ps	+200 V	Backlighter	confirm trigger times with PI before each shot
5	H14	XRFC4	1	Face-on Radiography	12x	10 µm	5 mil Be + 1/2 mil Fe	T0+4.0 ns	500 ps	+100 V	Package	confirm trigger times with PI before each shot
	H16	Dante	2	drive	NA	NA	NA	NA	NA	NA	NA	
	BL 25	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
	BL 30	Backscatter calorimetry	2	drive	NA	NA	NA	NA	NA	NA	NA	streaks if no effort
		p510 laser pulse shape	1	drive	NA	NA	NA	NA	NA	NA	NA	
	P12A	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H9C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H8C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H3C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H13C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup
	H12C	Static pinhole camera	2	beam pointing, etc.	4x	single	6 mil Be	NA	NA	NA	Standard	Standard setup

Thin Shell Rayleigh-Taylor Experiment – Colorful Views









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Map of LLE and Environs