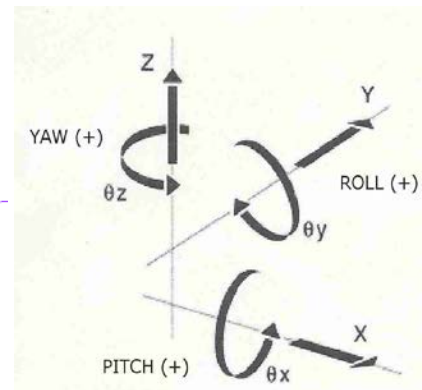
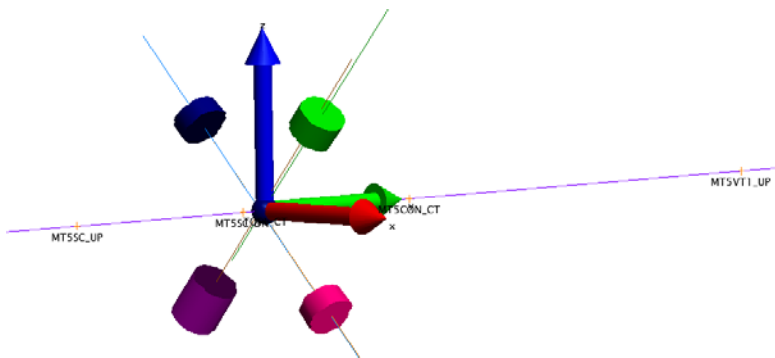
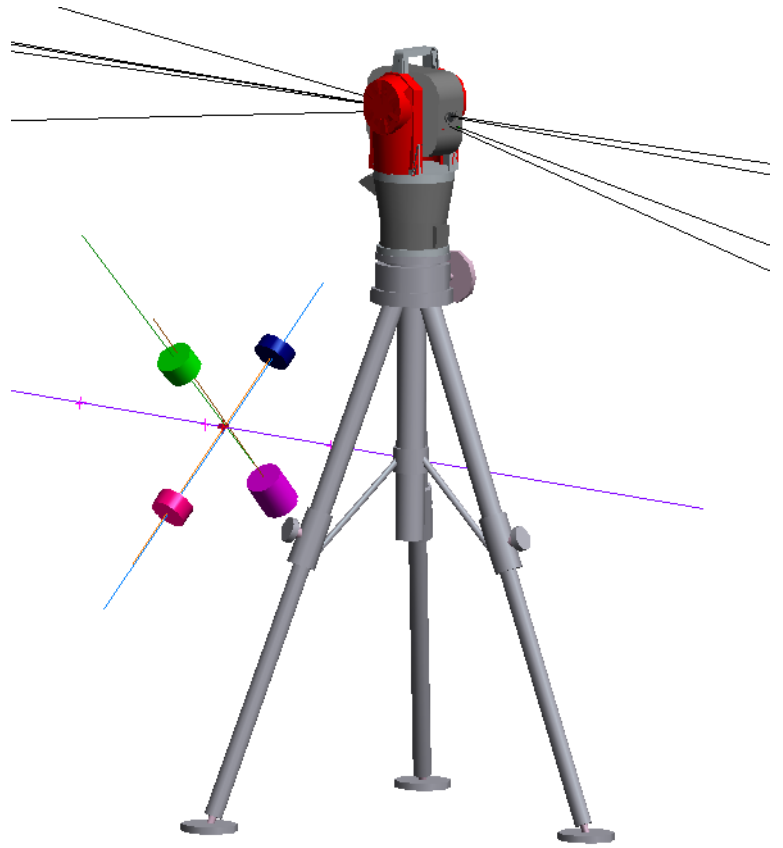
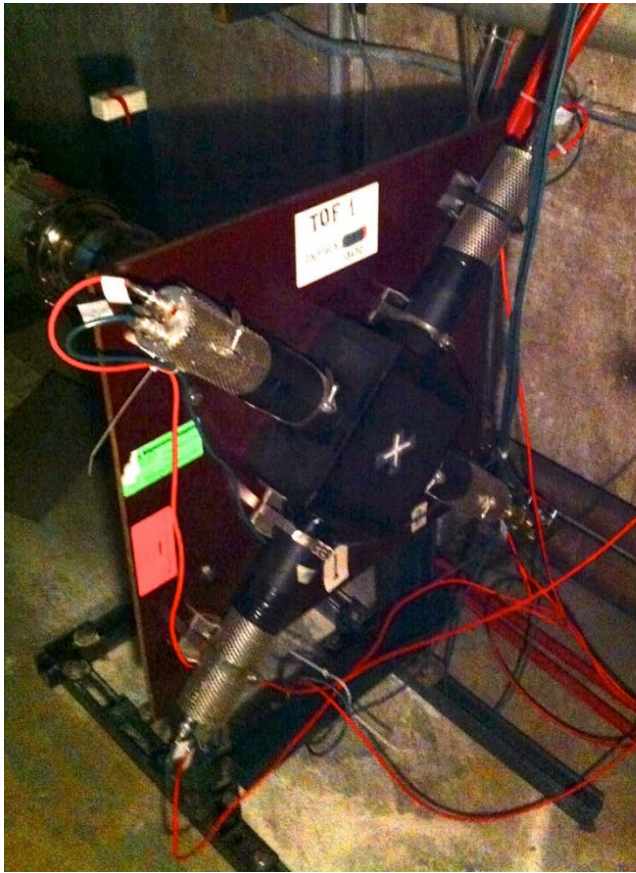


As-Found Survey of MINERvA Test Beam and Upstream TOF 1

Beamsheet 19-Dec-06 FSCSz			
	Metres	Metres	Metres
MT4Q4_UP	30271.36370	32094.36855	227.29106
MT4Q4_DN	30270.60969	32097.32180	227.29880
MT4CH2_UP	30270.51795	32097.68112	227.29975
MT4CH2_DN	30270.14688	32099.13449	227.30356
MT4Q5_UP	30269.78028	32100.57038	227.30733
MT4Q5_DN	30269.02627	32103.52364	227.31507
MT4CV2_UP	30268.93453	32103.88295	227.31602
MT4CV2_DN	30268.56347	32105.33633	227.31983
MT4Q6_UP	30268.10662	32107.12568	227.32452
MT4Q6_DN	30267.35261	32110.07893	227.33227
MT5FP1_UP	30267.25914	32110.44502	227.33323
MT5FP1_DN	30267.21987	32110.59883	227.33363
MT5SC_UP	30267.01331	32111.40790	227.33576
MT5SC_DN	30266.93790	32111.70322	227.33653
MT5CON_CT	30266.86250	32111.99855	227.33731
MT5VT1_UP	30266.71170	32112.58920	227.33886
MT5VT1_DN	30266.52320	32113.32751	227.34079
MT5E1_UP	30266.40372	32113.79550	227.34202
MT5E5_DN	30262.52732	32130.52286	227.38567
MT5Q1_UP	30260.81821	32138.72363	227.40695
MT5Q1_DN	30260.19635	32141.70751	227.41470
MT5Q2_UP	30260.07198	32142.30428	227.41625
MT5Q2_DN	30259.45011	32145.28816	227.42399
MT5VT2_UP	30259.27003	32146.15224	227.42623
MT5VT2_DN	30259.11457	32146.89821	227.42817
MT5HT2_UP	30258.93316	32147.76866	227.43043
MT5HT2_DN	30258.77770	32148.51463	227.43236
MT5FP2_UP	30258.70061	32148.88450	227.43332
MT5FP2_DN	30258.66822	32149.03991	227.43373
MT5CV1_UP	30257.79284	32153.24023	227.44463
MT5CV1_DN	30255.30539	32165.17574	227.47561
MT5CV2_UP	30254.81590	32167.52445	227.48170
MT5CV2_DN	30251.70659	32182.44384	227.52043
MT6FP_UP	30250.92060	32186.21522	227.53021
MT6FP_DN	30250.88821	32186.37063	227.53062
MT6WC1_UP	30250.82603	32186.66902	227.53139
MT6SC_UP	30250.76384	32186.96741	227.53217
MT1374C	30248.32319	32198.67835	227.56256
MT1440C	30244.19586	32218.48247	227.61396

As-Found MT4-TOF1



AS-FOUND MT4-TOF1 FSCSz

Point Name	FSCS_X	FSCS_Y	FSCS_Z
	[Metres]	[Metres]	[Metres]
MT4-TOF1_CT	30266.92092	32111.74037	227.33514

Beamsheet 19-Dec-06 FSCSz

	Metres	Metres	Metres
MT4Q4_UP	30271.36370	32094.36855	227.29106
MT4Q4_DN	30270.60969	32097.32180	227.29880
MT4CH2_UP	30270.51795	32097.68112	227.29975
MT4CH2_DN	30270.14688	32099.13449	227.30356
MT4Q5_UP	30269.78028	32100.57038	227.30733
MT4Q5_DN	30269.02627	32103.52364	227.31507
MT4CV2_UP	30268.93453	32103.88295	227.31602
MT4CV2_DN	30268.56347	32105.33633	227.31983
MT4Q6_UP	30268.10662	32107.12568	227.32452
MT4Q6_DN	30267.35261	32110.07893	227.33227
MT5FP1_UP	30267.25914	32110.44502	227.33323
MT5FP1_DN	30267.21987	32110.59883	227.33363
MT5SC_UP	30267.01331	32111.40790	227.33576
MT5SC_DN	30266.93790	32111.70322	227.33653
MT5CON_CT	30266.86250	32111.99855	227.33731
MT5VT1_UP	30266.71170	32112.58920	227.33886
MT5VT1_DN	30266.52320	32113.32751	227.34079
MT5E1_UP	30266.40372	32113.79550	227.34202

MT4Q4_UP-->MT4Q6_DN translated in Y

AS-FOUND MT4-TOF1			
	X	Y	Z
	Inches	Inches	Inches
MT4-TOF1_CT	-0.286	0.000	-0.059

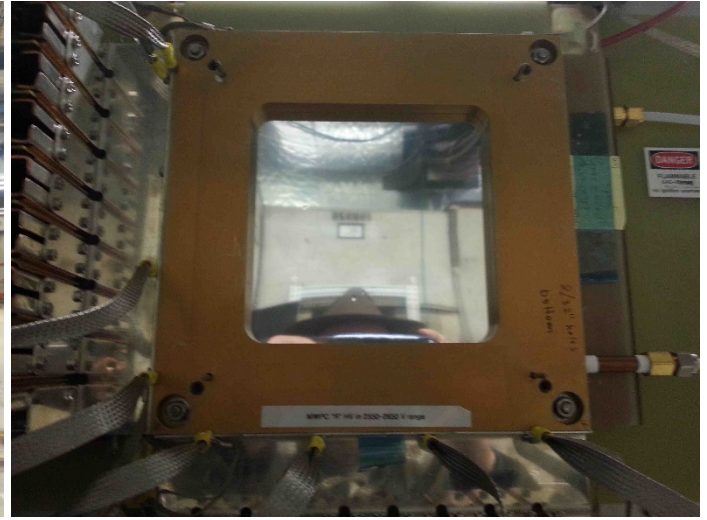
MT4Q4_UP-->MT4Q6_DN translated in Y

	Inches	Inches	Inches
MT4Q4_UP	0.000	-705.944	0.000
MT4Q4_DN	0.000	-585.944	0.000
MT4CH2_UP	0.000	-571.344	0.000
MT4CH2_DN	0.000	-512.289	0.000
MT4Q5_UP	0.000	-453.944	0.000
MT4Q5_DN	0.000	-333.944	0.000
MT4CV2_UP	0.000	-319.344	0.000
MT4CV2_DN	0.000	-260.289	0.000
MT4Q6_UP	0.000	-187.582	0.000
MT4Q6_DN	0.000	-67.582	0.000
MT5FP1_UP	0.000	-52.707	0.000
MT5FP1_DN	0.000	-46.457	0.000
MT5SC_UP	0.000	-13.582	0.001
MT5SC_DN	0.000	-1.582	0.000
MT5CON_CT	0.000	10.418	0.001
MT5VT1_UP	0.000	34.418	0.001
MT5VT1_DN	0.000	64.418	0.000
MT5E1_UP	0.000	83.434	0.000

Computed distance from "MT4-TOF1_CT" to "MT62-PWCR_CT" along the Beamline is 3,552.675". This distance was computed as follows:

MT4-TOF1_CT to Beamsheet FSCSz_MT5E1_UP	83.364
Points: Beamsheet FSCSz_MT5E1_UP to Beamsheet FSCSz_MT5E1_DN	120.000
Points: Beamsheet FSCSz_MT5E1_DN to Beamsheet FSCSz_MT5E2_UP	19.016
Points: Beamsheet FSCSz_MT5E2_UP to Beamsheet FSCSz_MT5E2_DN	120.000
Points: Beamsheet FSCSz_MT5E2_DN to Beamsheet FSCSz_MT5E3_UP	19.016
Points: Beamsheet FSCSz_MT5E3_UP to Beamsheet FSCSz_MT5E3_DN	120.000
Points: Beamsheet FSCSz_MT5E3_DN to Beamsheet FSCSz_MT5E4_UP	19.016
Points: Beamsheet FSCSz_MT5E4_UP to Beamsheet FSCSz_MT5E4_DN	120.000
Points: Beamsheet FSCSz_MT5E4_DN to Beamsheet FSCSz_MT5E5_UP	19.016
Points: Beamsheet FSCSz_MT5E5_UP to Beamsheet FSCSz_MT5E5_DN	120.000
Beamsheet FSCSz_MT5E5_DN to MT62-PWCR_CT	2793.248
	3552.675

As-Found MT62-PWCR



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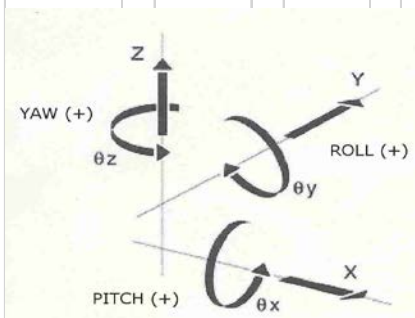
7002_10feb15_jck.xit

AS-FOUND MT62-PWCR

Point Name	FSCS_X	FSCS_Y	FSCS_Z
	[Metres]	[Metres]	[Metres]
MT62-PWCR_CT	30248.05639	32199.97968	227.56535

MT5E5_DN to MT1440C translated in Y

AS-FOUND MT62-PWCR			
	X	Y	Z
	Inches	Inches	Inches
MT62-PWCR_CT	0.170	0.000	-0.023



Query Results

Frames: MT62-PWCR to MT62-AS-FOUND

Translation: dx 0.170, dy 0.000, dz -0.023, dMag 0.171
 Rotation: Px -0.2668, Py -0.3030, Rz 0.6876, Total Angle 0.7967 deg.

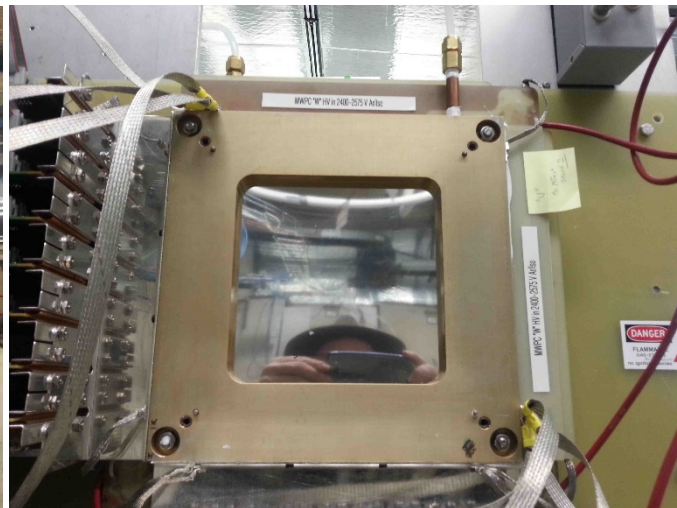
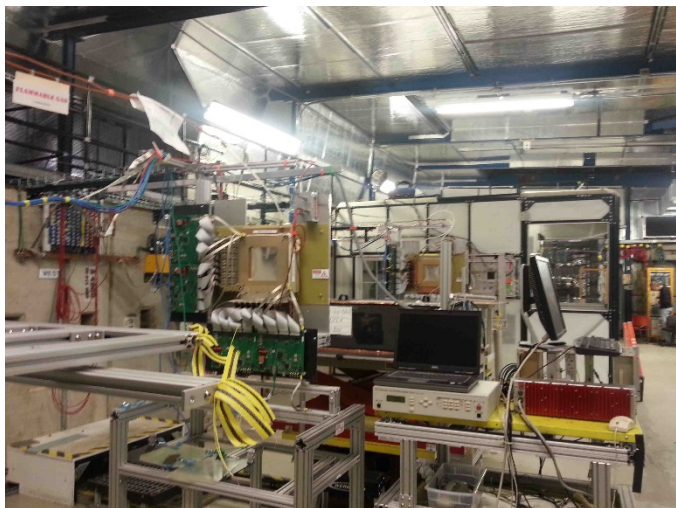
Create Relationship
 Create Dimension

Beamsheet Frame

Query Frame to Frame Results from Tracker

	Inches	Inches	Inches		
Translation: dx	0.170	dy	0.000	dz	-0.023
	dMag				0.171
	Pitch (Rx)	Roll (Ry)	Yaw (Rz)		
Rotation: Rx	-0.2668	Ry	-0.3030	Rz	0.6876
	Total	Angle			0.7967 deg.
Rotation Rx	-4.657	Ry	-5.288	Rz	12.001 mrad

As-Found MT62-MWPCW



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AS-FOUND MT62-MWPCW FSCS_z

Point Name	FSCS_X	FSCS_Y	FSCS_Z
	[Metres]	[Metres]	[Metres]
MT62-MWPCW_CT	30247.48543	32202.68130	227.57368

MT5E5_DN to MT1440C translated in Y

AS-FOUND MT62-MWPCW			
	X	Y	Z
	Inches	Inches	Inches
MT62-MWPCW_CT	-0.135	108.712	0.029

Beamsheet Frame

Query Frame to Frame Results from Tracker

	Inches	Inches	Inches	
Translation: dx	-0.135	dy	108.712	dz
			0.029	dMag 108.712
	Pitch (Rx)	Roll (Ry)	Yaw (Rz)	
Rotation: Rx	0.2331	Ry -0.0179	Rz 1.1048	Total Angle 1.1293 deg.
Rotation Rx	4.068	Ry -0.312	Rz 19.282	mrad

Query Results

Frames: MT62-FWCR to MT62-MWPCW-AS-FOUND

Translation: dx -0.135, dy 108.712, dz 0.029, dMag 108.712

Rotation: Rx 0.2331, Ry -0.0179, Rz 1.1048, Total Angle 1.1293 deg.

Create Relationship

Create Dimension

As-Found MT62-MWPCAA



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AS-FOUND MT62-MWPCAA

Point Name	FSCS_X [Metres]	FSCS_Y [Metres]	FSCS_Z [Metres]
MT62-MWPCAA_CT	30246.90394	32205.46261	227.57912

MT5E5_DN to MT1440C translated in Y

AS-FOUND MT62-MWPCAA

	X	Y	Z
	Inches	Inches	Inches
MT62-MWPCAA_CT	-0.206	220.581	-0.041

Beamsheet Frame

Query Frame to Frame Results from Tracker

		Inches		Inches		Inches			
Translation:	dx	-0.206	dy	220.581	dz	-0.041	dMag	220.581	
		Pitch (Rx)		Roll (Ry)		Yaw (Rz)			
Rotation:	Rx	-0.5709	Ry	0.1053	Rz	0.0724	Total	Angle	0.5851 deg.
Rotation	Rx	-9.964	Ry	1.838	Rz	1.264		mmrad	

Query Results ✖

Frames: MT62-PWCR to MT62-MWPCAA-AS-FOUND

Translation: dx -0.206, dy 220.581, dz -0.041, dMag 220.581

Rotation: Rx -0.5709, Ry 0.1053, Rz 0.0724, Total Angle 0.5851 deg.

Create Relationship

Create Dimension

As-Found Veto System Aperture



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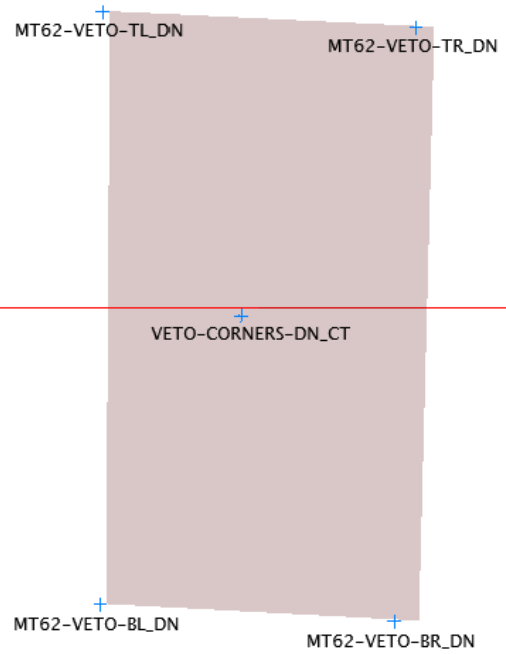
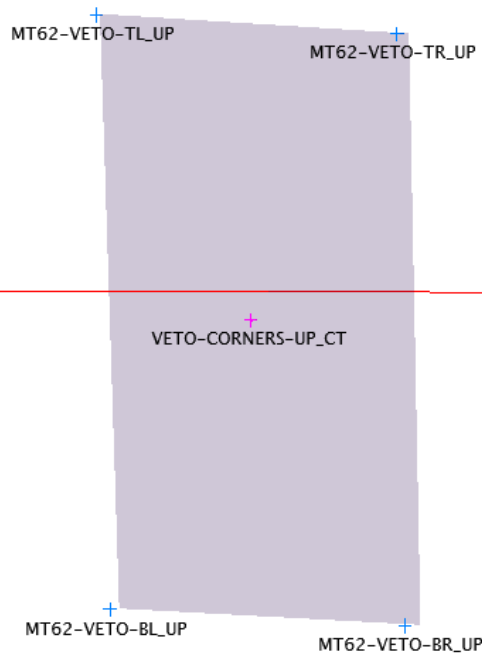
7002_10feb15_jck.xit

AS-FOUND MT62-VETO-UP

Point Name	FSCS_X [Metres]	FSCS_Y [Metres]	FSCS_Z [Metres]
MT62-VETO-CORNERS-UP_CT	30245.22643	32213.52926	227.59605
MT62-VETO-TL_UP	30245.17855	32213.51600	227.64826
MT62-VETO-TR_UP	30245.27656	32213.53783	227.64764
MT62-VETO-BL_UP	30245.17709	32213.52087	227.54425
MT62-VETO-BR_UP	30245.27351	32213.54232	227.54405

MT5E5_DN to MT1440C translated in Y

AS-FOUND MT62-VETO-UP			
	X Inches	Y Inches	Z Inches
MT62-VETO-CORNERS-UP_CT	-0.066	544.960	-0.199
MT62-VETO-TL_UP	-2.018	544.839	1.857
MT62-VETO-TR_UP	1.935	544.893	1.832
MT62-VETO-BL_UP	-2.035	545.028	-2.239
MT62-VETO-BR_UP	1.853	545.080	-2.247

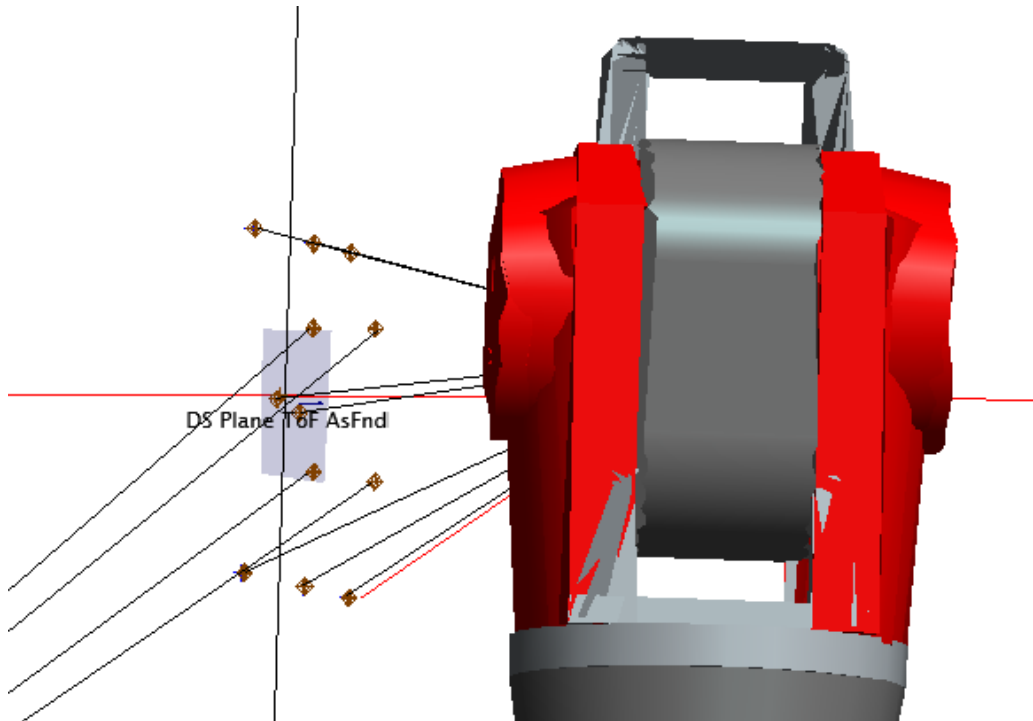




Note: Pictures DO NOT represent the configuration that the Veto Counters were in when surveyed.

Wed Feb 11, 2015 08:32:05 AM							
7002_10feb15_jck.xit							
AS-FOUND MT62-VETO-DN				MT5E5_DN to MT1440C translated in Y			
				AS-FOUND MT62-VETO-DN			
Point Name	FSCS_X	FSCS_Y	FSCS_Z		X	Y	Z
	[Metres]	[Metres]	[Metres]		Inches	Inches	Inches
MT62-VETO-CORNERS-DN_CT	30245.20509	32213.65019	227.60006	MT62-VETO-CORNERS-DN_CT	0.083	549.793	-0.053
MT62-VETO-TL_DN	30245.15589	32213.63830	227.65200	MT62-VETO-TL_DN	-1.909	549.735	1.991
MT62-VETO-TR_DN	30245.25593	32213.66184	227.65201	MT62-VETO-TR_DN	2.136	549.839	1.992
MT62-VETO-BL_DN	30245.15728	32213.63926	227.54827	MT62-VETO-BL_DN	-1.848	549.751	-2.092
MT62-VETO-BR_DN	30245.25124	32213.66138	227.54797	MT62-VETO-BR_DN	1.951	549.848	-2.104

As-Found MT62-TOF2



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AS-FOUND MT62-TOF2_CT

Point Name	FSCS_X	FSCS_Y	FSCS_Z
	[Metres]	[Metres]	[Metres]
MT62-TOF2_CT	30245.13490	32213.98280	227.60110

MT5E5_DN to MT1440C translated in Y

AS-FOUND MT62-TOF2_CT

	X	Y	Z
	Inches	Inches	Inches
MT62-TOF2_CT	0.049	563.176	-0.046

Test Beam Detector

All of the following measurements were for STATIONING PURPOSES ONLY.



Group

Collection: MT6.2

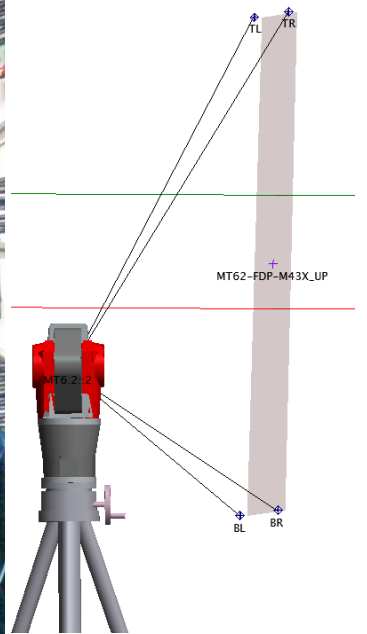
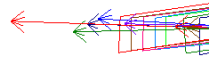
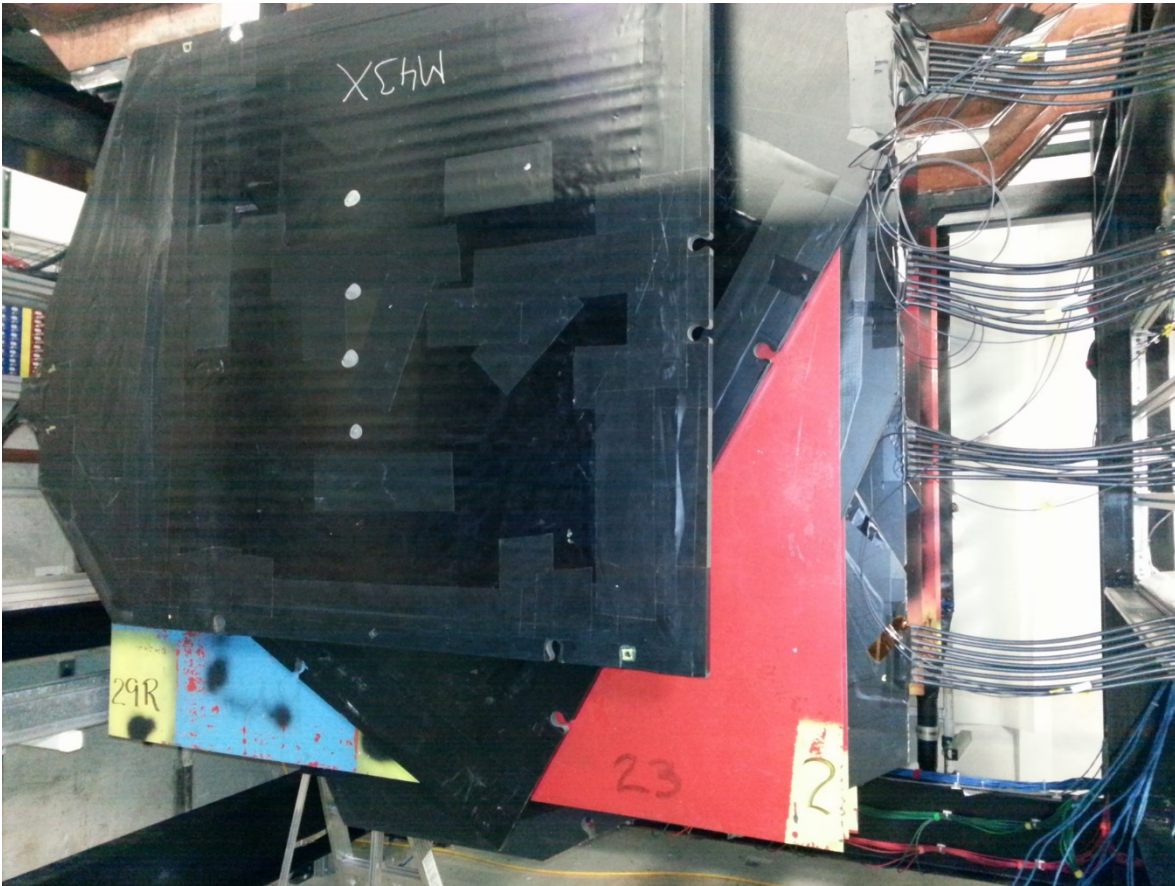
Name:

Contains 46 points.

Notes:

- Upst face of Fenker chambers.
- Upst Plane of First Detector Plane.
- Upst face of plane, downstream of corresponding steel or lead plane.

As-Found First Detector Plane (M43X)



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AS-FOUND MT62-FDP-M43X_UP

Point Name	FSCS_X	FSCS_Y	FSCS_Z
	[Metres]	[Metres]	[Metres]
MT62-FDP-M43X_UP	30244.65722	32216.06364	227.71132

MT5E5_DN to MT1440C translated in Y

AS-FOUND MT62-FDP-M43X_UP

	X	Y	Z
	Inches	Inches	Inches
MT62-FDP-M43X_UP	-1.647	647.223	4.079



NOTE:

PLANES WERE OBSERVED AT THE TOP (EARS) ONLY. BEST-FIT LINE WAS CREATED BETWEEN OBSERVATIONS ON EARS AND PROJECTED ONTO HORIZONTAL PLANE DEFINED BY THE BEAMLINER.

Tue Feb 10, 2015 01:21:58 PM							
7002_10feb15_jck.xit							
AS-FOUND MT62-LEAD and STEEL (STATIONING ONLY)				MT5E5_DN to MT1440C translated in Y			
Point Name	FSCS_X	FSCS_Y	FSCS_Z	AS-FOUND MT62-LEAD and STEEL (STATIONING ONLY)			
	[Metres]	[Metres]	[Metres]	X	Y	Z	
				Inches	Inches	Inches	
MT62-LEAD1	30244.67780	32216.16997	227.60796	MT62-LEAD1	0.000	651.146	0.000
MT62-LEAD2	30244.67240	32216.19589	227.60803	MT62-LEAD2	0.000	652.189	0.000
MT62-LEAD3	30244.66694	32216.22209	227.60809	MT62-LEAD3	0.000	653.242	0.000
MT62-LEAD4	30244.66150	32216.24822	227.60816	MT62-LEAD4	0.000	654.293	0.000
MT62-LEAD5	30244.65613	32216.27396	227.60823	MT62-LEAD5	0.000	655.328	0.000
MT62-LEAD6	30244.64892	32216.30856	227.60832	MT62-LEAD6	0.000	656.719	0.000
MT62-LEAD7	30244.64253	32216.33923	227.60840	MT62-LEAD7	0.000	657.953	0.000
MT62-LEAD8	30244.63690	32216.36624	227.60847	MT62-LEAD8	0.000	659.039	0.000
MT62-LEAD9	30244.63070	32216.39596	227.60855	MT62-LEAD9	0.000	660.235	0.000
MT62-LEAD10	30244.62489	32216.42388	227.60862	MT62-LEAD10	0.000	661.357	0.000
MT62-LEAD11	30244.61825	32216.45570	227.60870	MT62-LEAD11	0.000	662.637	0.000
MT62-LEAD12	30244.61226	32216.48448	227.60877	MT62-LEAD12	0.000	663.795	0.000
MT62-LEAD13	30244.60642	32216.51250	227.60885	MT62-LEAD13	0.000	664.921	0.000
MT62-LEAD14	30244.60090	32216.53897	227.60892	MT62-LEAD14	0.000	665.986	0.000
MT62-LEAD15	30244.59532	32216.56576	227.60899	MT62-LEAD15	0.000	667.063	0.000
MT62-LEAD16	30244.58873	32216.59735	227.60907	MT62-LEAD16	0.000	668.334	0.000
MT62-LEAD17	30244.58337	32216.62311	227.60913	MT62-LEAD17	0.000	669.370	0.000
MT62-LEAD18	30244.57795	32216.64909	227.60920	MT62-LEAD18	0.000	670.415	0.000
MT62-LEAD19	30244.57247	32216.67540	227.60927	MT62-LEAD19	0.000	671.473	0.000
MT62-LEAD20	30244.56467	32216.71281	227.60937	MT62-LEAD20	0.000	672.977	0.000
MT62-STEEL1	30244.55352	32216.76630	227.60951	MT62-STEEL1	0.000	675.128	0.000
MT62-STEEL2	30244.54090	32216.82687	227.60966	MT62-STEEL2	0.000	677.564	0.000
MT62-STEEL3	30244.53081	32216.87529	227.60979	MT62-STEEL3	0.000	679.512	0.000
MT62-STEEL4	30244.51737	32216.93979	227.60996	MT62-STEEL4	0.000	682.105	0.000
MT62-STEEL5	30244.50698	32216.98964	227.61009	MT62-STEEL5	0.000	684.110	0.000
MT62-STEEL6	30244.49740	32217.03558	227.61021	MT62-STEEL6	0.000	685.958	0.000
MT62-STEEL7	30244.48800	32217.08070	227.61032	MT62-STEEL7	0.000	687.772	0.000
MT62-STEEL8	30244.47859	32217.12587	227.61044	MT62-STEEL8	0.000	689.589	0.000
MT62-STEEL9	30244.46752	32217.17897	227.61058	MT62-STEEL9	0.000	691.724	0.000
MT62-STEEL10	30244.45706	32217.22917	227.61071	MT62-STEEL10	0.000	693.743	0.000
MT62-STEEL11	30244.44589	32217.28274	227.61085	MT62-STEEL11	0.000	695.898	0.000
MT62-STEEL12	30244.43503	32217.33487	227.61098	MT62-STEEL12	0.000	697.994	0.000
MT62-STEEL13	30244.42532	32217.38148	227.61110	MT62-STEEL13	0.000	699.868	0.000
MT62-STEEL14	30244.41622	32217.42511	227.61122	MT62-STEEL14	0.000	701.623	0.000
MT62-STEEL15	30244.40572	32217.47549	227.61135	MT62-STEEL15	0.000	703.649	0.000
MT62-STEEL16	30244.39256	32217.53864	227.61151	MT62-STEEL16	0.000	706.189	0.000
MT62-STEEL17	30244.38070	32217.59554	227.61166	MT62-STEEL17	0.000	708.477	0.000
MT62-STEEL18	30244.36973	32217.64818	227.61180	MT62-STEEL18	0.000	710.594	0.000
MT62-STEEL19	30244.35755	32217.70665	227.61195	MT62-STEEL19	0.000	712.945	0.000
MT62-STEEL20	30244.34883	32217.74849	227.61206	MT62-STEEL20	0.000	714.628	0.000

Work Request:

Request # : 7070 Requisition Date : 06-FEB-15
Project # : 7002
WBS : 40ND.02.50.02
Task Manager : JOHN KYLE
Starting Date : 09-FEB-15 Completion Date : 09-FEB-15
Requested By : LEO BELLANTONI
Expt/Beamline : T977

Devices need to be moved or realigned :

None

Description :

The upstream ToF station in MT3-4
First detector plane at 3 points as was done in MINERvA testbeam I
Subsequent planes at 1 point each, as was done in MINERvA testbeam I
Tracking system (Fenker wire chambers) as has been done before
Aperture of veto system; 4 corners or equivalent
Downstream ToF station in MT6.2

Contact for the job

Fermi ID # : N11079 Name : LEO BELLANTONI
Extension : N/A E-Mail : BELLANTO@FNAL.GOV
Mail Stop : 357 Pager/Cell : 6307302155

Hazard assessor's name : LEO BELLANTONI

Crew Reports:

Request # : 7070 Date : 26-FEB-15
Project # : 7002 Crew # : 3
Area : Office
Log Book # : Page # :
File Backup (Y/N) : N Filename : 7002_26feb15.xls
Job Completion (Y/N) : N
Estimate remaining time to finish the request in hour : 0.0

Description

Composed report for M-Test as founds measured 2/10/15.

Request # : 7070 Date : 11-FEB-15
Project # : 7002 Crew # : 3
Area : M-Test
Log Book # : Page # :
File Backup (Y/N) : N Filename : 7002_11feb15.xit
Job Completion (Y/N) : Y
Note is checked (Y/N) : Checked by :
Note or file is put inside the basket (Y/N) :

Description

Completed as found measurements of various items in the M-Test beamline. These include ToF1, 4 Fenker chambers, Veto system aperture, downstream ToF, first Detector plane, and 40 subsequent planes for station only.

Request # : 7070 Date : 10-FEB-15
Project # : 7002 Crew # : 3
Area : MT6
Log Book # : Page # :
File Backup (Y/N) : N Filename : 7002_10feb15.xit

Job Completion (Y/N) : N

Estimate remaining time to finish the request in hour : 10.0

Description

Started as found measurements of various components in the M-Test beamline.