Gradient Dipole Magnet Checks	145D29

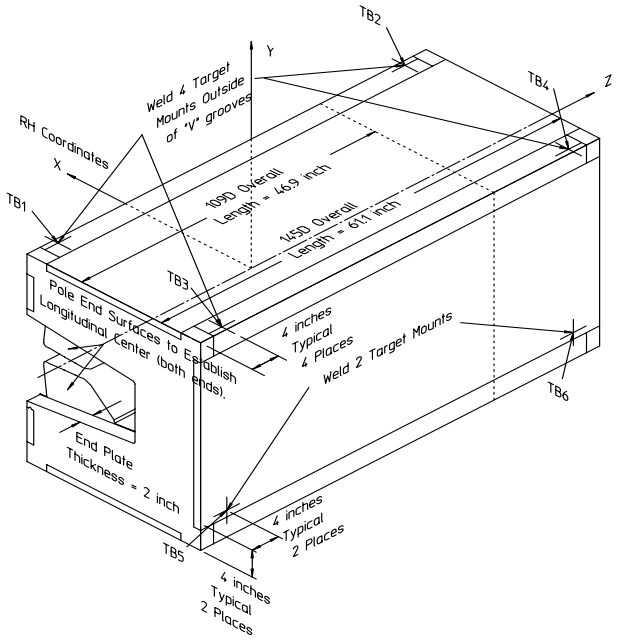
Date: 10/26/01

Magnet: 145D29

Operators: M. Rogers; H. Imfeld

Notes:

Magnetic vs. Mechanical offset NOT applied (June 2002)



Magnetic Fiducial Coordinates: (inches)

Fiducial	Z	X	Y
TB1	-26.5309	3.4378	16.9957
TB2	26.6043	3.3974	16.9956
TB3	-26.5554	-22.4195	16.9953
TB4	26.5790	-22.4363	16.9965
TB5	-26.4666	-24.2457	-11.6302
TB6	26.5214	-24.2417	-11.5589

Offset: 0.0177 inches

Description:

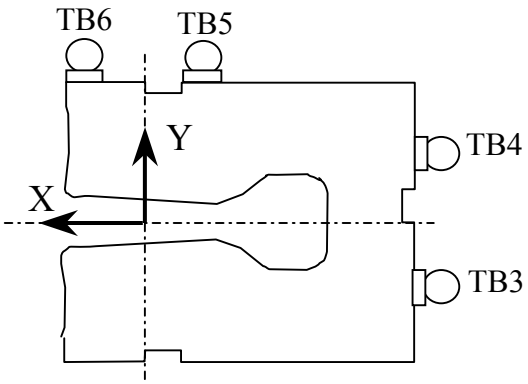
Fiducial values based on the x-offset of the mechanical center line to the magnetic.

Downstream Garage Mechanical Check: 145D29 Status

Horizontal (X)	Vertical (Y)		
0.085 mm	-0.067 mm	X-value:	OK
		Y-value:	OK

Description:

How much does the Z-axis from the US garage miss the center of the DS garage?



Trolley Checks: 145D29 Status

Trolley Distance

3D Distance R1	3D Distance R2		
2800.130 mm	2800.080 mm	R2 - R1 (mm)	OK
		-0.050	

Description:

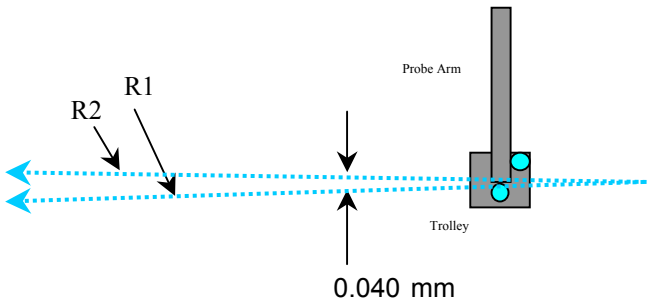
Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.

Z-axis Vector

3D Angle	Yaw	Pitch		
0.0289	0.0157	0.0243	mrad	Midpoint 3D Offset (mm)
				0.040 OK

Description:

Angle between R1 and R2 vectors. The average of these two defines the Z-axis.



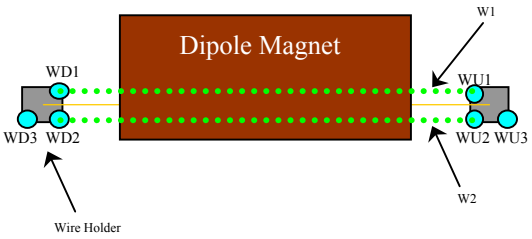
Wire Holder Position Checks:

145D29 Status

Wire Holders' Yaw Check				
3D Distance W1	3D Distance W2		W2 - W1 (mm)	
2382.797 mm	2382.514 mm		-0.283	OK

Description:

Distance between wire holders for TB1 and TB2.



Wire Position Checks:

145D29 Status

Wire Orientation				
3D Angle	Yaw	Pitch	Midpoint 3D Offset (mm)	
0.0520	0.0342	-0.0392 mrad	0.062	OK

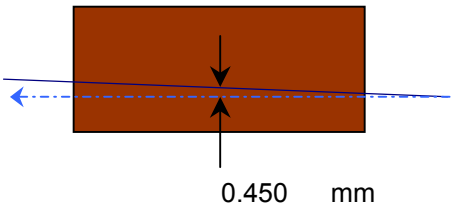
Description:

Orientation of wire with respect to Z-axis defining axis of dipole.

Wire Offsets				
US	Origin	DS	Origin Offset:	
0.409	**0.450**	0.490 mm		Too Big?

Description:

Offset distance from the mechanical center to the wire. (x-offsets only!)



End Surface Orientation Check and Magnet Length: 145D29

Status

End Surfaces

	3D Angle	Yaw	Pitch		3D Offset (mm)	Status
US:	3.1021	0.8480	2.9839	mrad	~ 2.078	Too Big?
DS:	0.3209	-0.1766	-0.2679		~ 0.215	OK

Description:

End surface orientation relative to reference frame.

Note: 3D Offset based on average of width and height of the magnet side.

Length of Magnet

Distance **with SMR**		Distance		Status
1591.840	mm	1553.740	mm	LENGTH?

Description: *Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)*

Top Surface Orientation Check: 145D29

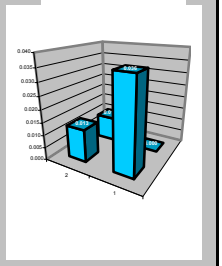
Status

Top of Magnet

Height (Y-value) **with 0.75"**			Delta Y		Status
Corner 1	412.729	mm	0.036	Delta Y C1:	OK
Corner 2	412.706	mm	0.013	Delta Y C2:	OK
Corner 3	412.693	mm	0.000	Delta Y C3:	OK
Corner 4	412.703	mm	0.010	Delta Y C4:	OK

Dispersion:

Corner 1	0.033	mm
Corner 2	0.025	mm
Corner 3	0.031	mm
Corner 4	0.017	mm
Overall	0.033	mm



Roll (mm) ~ 0.019 — OK

3D Angle	Roll	Pitch		Pitch (mm)	Status
0.0346	0.0346	-0.0018	mrad	~ -0.003	OK

Twist:	Roll	Pitch			Status
	0.0611	0.0212	mrad		
	0.033	0.033	mm	Twist:	OK

Description:

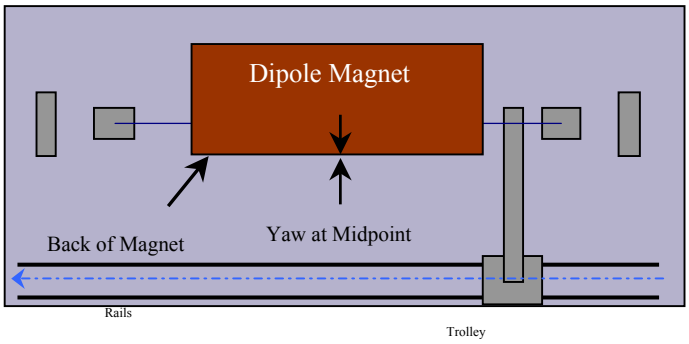
Top surface corner heights and average surface orientation values. ***(With 0.75" SMR offset.)***

Back Surface Orientation Check: 145D29

					Status
Back of Magnet					
Horizontal (X-value)			Delta X		
US:	115.730	mm	0.006		
Origin:	115.727	mm	0.003		
DS:	115.724	mm	0.000		
3D Angle	Roll	Yaw		Midpoint Yaw in mm	
0.4453	0.4452	-0.0044	mrad	-0.003	OK

Description:

Position of scanned half of back surface of magnet for yaw check. ***(With 0.75" SMR offset.)***



Gradient Magnet
Magnetic Measurements/FiducializationTraveller

Approval must be obtained before going on to the next procedure
or removing the magnet from the test stand.
Magnetic Measurements Approval by – Jack Tanabe or Nanyang Li
Fiducialization Approval by – Jack Tanabe or Tony King
Magnet Serial Number: 145D29
Capacitive System Alignment
Date_____, Operator _____
Fiducial Measurements
See Data Sheet on Next Page. Approval:
Date: 10/26/01 Operator: M. Rogers
Water, Power and Interlock Connections.
Date_____, Operator _____
Measured Water Flow _____ gpm at Δp= _____ psi
Maximum Conditioning Current:_____ Amps
Wire Magnetic Measurements
Currents _____
Summary File Name(s)_____
Date_____, Operator _____ Approval _____
Coil Magnetic Measurements: Required _____ Yes _____ No.
Currents _____
Summary File Name(s)_____
Date_____, Operator _____ Approval _____

Gradient Magnet

Reduced Data Sheet

Approval must be obtained before removing magnet from test stand.

Magnetic Measurements Approval by – Jack Tanabe or Tony King.

Magnet Serial Number: 145D29

Magnetic Measurements Operator: _____ Date:_____

Measured Magnetic Center Offset: 0.450 mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

Integrated Field: XX.XXX T-m @ XXX.XXX Amps

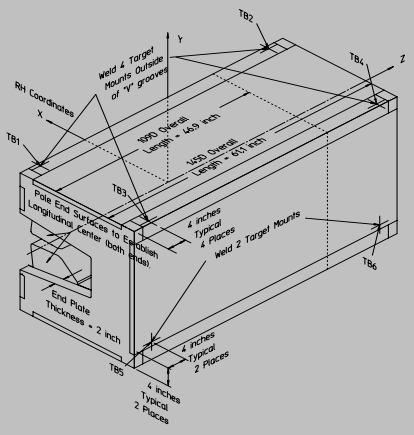
Fiducialization:

Operator(s): M. Rogers H. Imfeld

Date: 10/26/01 Temp: 21 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-673.886	87.320	431.691
TB2	675.749	86.294	431.688
TB3	-674.506	-569.455	431.681
TB4	675.106	-569.882	431.710
TB5	-672.252	-615.840	-295.407
TB6	673.644	-615.738	-293.597

Mechanical Centerline Tooling Ball Coordinates



Fiducial - Magnetic	z mm	x mm	y mm
TB1	-673.886	87.320	431.691
TB2	675.749	86.294	431.688
TB3	-674.506	-569.455	431.681
TB4	675.106	-569.882	431.710
TB5	-672.252	-615.840	-295.407
TB6	673.644	-615.738	-293.597

Magnetic Centerline Tooling Ball Coordinates

Check Measurements:

Corner	$x_{measured}$ mm	$x_{nominal}$ mm
C1	96.680	96.520
C2	96.674	96.520
	incl. paint	no paint

	$y_{measured}$ mm	$y_{nominal}$ mm
C1	393.679	393.700
C2	393.656	393.700
C3	393.643	393.700
C4	393.653	393.700
	incl. paint	no paint

Approval: