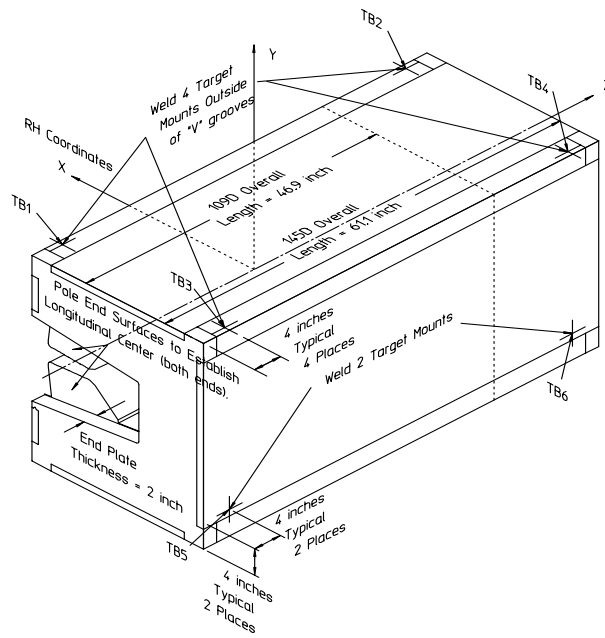


<b>Gradient Dipole Magnet Checks</b>	<b>145D02</b>
--------------------------------------	---------------

Date: <input style="width: 80%;" type="text" value="5/25/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D02"/>	Operators: <input style="width: 80%;" type="text" value="M. Rogers"/> <input style="width: 80%;" type="text" value="H. Imfeld"/>
Notes: <div style="border: 1px solid black; padding: 10px; min-height: 40px; color: red; font-weight: bold; margin-top: 10px;">Magnetic vs. Mechanical offset NOT applied (June 2002)</div>		



**Magnetic Fiducial Coordinates: (inches)**

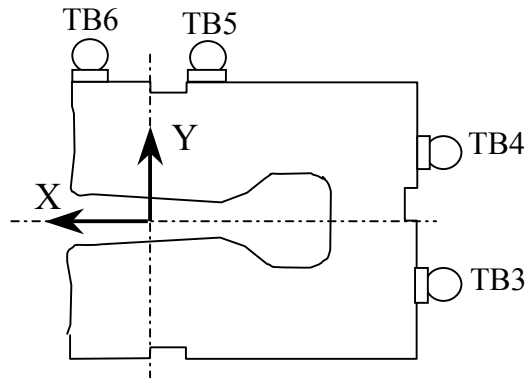
Fiducial	Z	X	Y	
TB1	-26.5443	3.4415	17.0109	Offset: <input style="width: 80%;" type="text" value="0.0080"/> inches
TB2	26.5587	3.4583	17.0056	
TB3	-26.5446	-22.4180	17.0012	
TB4	26.5539	-22.4086	17.0010	
TB5	-26.4491	-24.2652	-11.6156	
TB6	26.5765	-24.2733	-11.7061	

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

**Downstream Garage Mechanical Check:**

145D02  
Status

Horizontal (X) 0.040 mm	Vertical (Y) -0.065 mm	X-value:	OK
		Y-value:	OK
<p><b>Description:</b> How much does the Z-axis from the US garage miss the center of the DS garage?</p>			

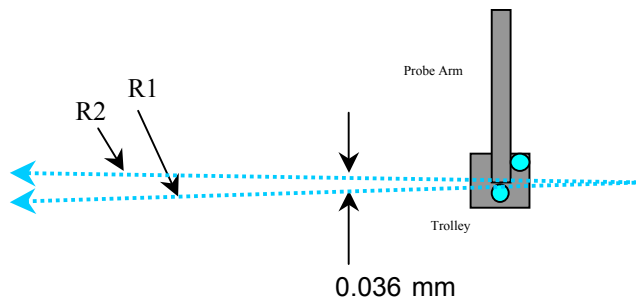


**Trolley Checks:**

145D02  
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.201 mm	3D Distance R2 2800.148 mm	R2 - R1 (mm) -0.053	OK
<p><b>Description:</b> Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

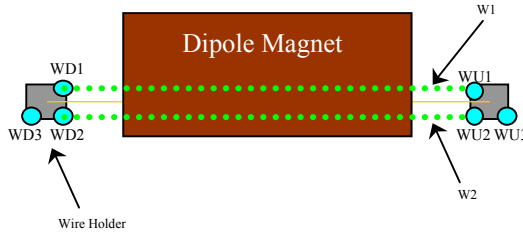
<u>Z-axis Vector</u>			
3D Angle Yaw 0.0255	Pitch 0.0092	0.0237 mrad	Midpoint 3D Offset (mm) 0.036
<p><b>Description:</b> Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



**Wire Holder Position Checks:**

145D02  
Status

<u>Wire Holders' Yaw Check</u>		<u>W2 - W1 (mm)</u>	
3D Distance W1 2382.628 mm	3D Distance W2 2382.346 mm	-0.282	<b>OK</b>
<b>Description:</b> Distance between wire holders for TB1 and TB2.			

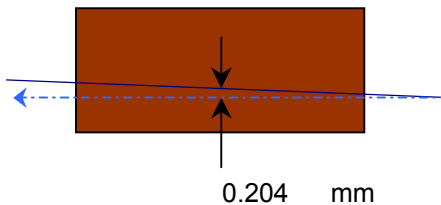


**Wire Position Checks:**

145D02  
Status

<u>Wire Orientation</u>			<u>Midpoint 3D Offset (mm)</u>	
3D Angle 0.0511	Yaw 0.0003	Pitch -0.0511 mrad	0.061	<b>OK</b>
<b>Description:</b> Orientation of wire with respect to Z-axis defining axis of dipole.				

<u>Wire Offsets</u>			<u>Origin Offset:</u>	
US 0.203	Origin 0.204	DS 0.204 mm		<b>OK</b>
<b>Description:</b> Offset distance from the mechanical center to the wire. ( x-offsets only! )				



**End Surface Orientation Check and Magnet Length:**

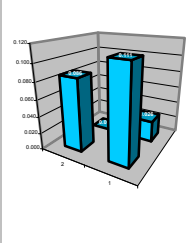
145D02  
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		3D Offset (mm)
US:	0.9394	-0.7694	0.5390	mrad	~ 0.629
DS:	0.8472	-0.6910	0.4902		~ 0.568
					Too Big?
					OK
<b>Description:</b>					
End surface orientation relative to reference frame.					
Note: 3D Offset based on average of width and height of the magnet side.					

<u>Length of Magnet</u>			
Distance with SMR	Distance		
1590.460 mm	1552.360 mm		LENGTH?
<b>Description:</b>			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

**Top Surface Orientation Check:**

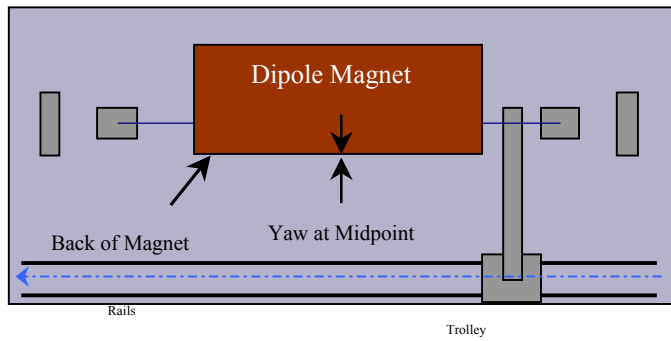
145D02  
Status

<u>Top of Magnet</u>					
Height (Y-value) with 0.75"		Delta Y			
Corner 1	412.858 mm		0.111	Delta Y C1:	OK
Corner 2	412.833 mm		0.086	Delta Y C2:	OK
Corner 3	412.773 mm		0.026	Delta Y C3:	OK
Corner 4	412.747 mm		0.000	Delta Y C4:	OK
Dispersion:					
Corner 1	0.024 mm				
Corner 2	0.030 mm				
Corner 3	0.033 mm				
Corner 4	0.030 mm				
Overall	0.034 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.1411	0.1406	0.0118	mrad	~ 0.076	OK
Twist:		Roll	Pitch	Pitch (mm)	
		-0.0019	-0.0006	~ 0.018	OK
		-0.001	-0.001	mm	
				Twist:	OK
<b>Description:</b>					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

**Back Surface Orientation Check:**

145D02  
Status

<u>Back of Magnet</u>				Delta X	Midpoint Yaw in mm	OK
Horizontal (X-value)						
US:	115.632	mm		0.166		
Origin:	115.549	mm		0.083		
DS:	115.466	mm		0.000		
3D Angle	Roll	Yaw				
0.1810	-0.1368	-0.1185	mrad			
<b>Description:</b>						
Position of scanned half of back surface of magnet for yaw check. (With 0.75" SMR offset.)						



**Gradient Magnet  
Magnetic Measurements/Fiducialization Traveller**

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: 145D02

Capacitive System Alignment

Date \_\_\_\_\_, Operator \_\_\_\_\_

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 5/25/01 Operator: M. Rogers

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Water, Power and Interlock Connections.

Date \_\_\_\_\_, Operator \_\_\_\_\_

Measured Water Flow \_\_\_\_\_ gpm at  $\Delta p =$  \_\_\_\_\_ 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: 145D02

Magnetic Measurements Operator: \_\_\_\_\_ Date: \_\_\_\_\_

Measured Magnetic Center Offset: 0.204 mm

Measured at:

Integrated Field: \_\_\_\_\_ T-m @ \_\_\_\_\_ Amps

Corrected to:

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

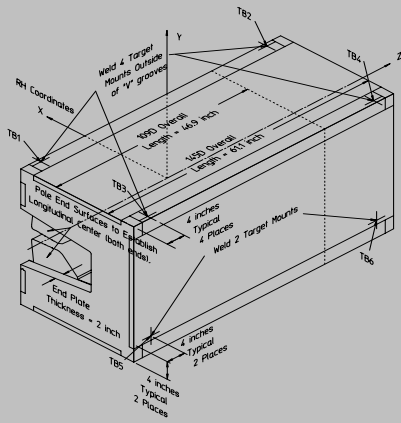
**Fiducialization:**

Operator(s): M. Rogers H. Imfeld

Date: 5/25/01 Temp: 22 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.224	87.413	432.076
TB2	674.590	87.842	431.943
TB3	-674.232	-569.418	431.830
TB4	674.470	-569.179	431.826
TB5	-671.807	-616.336	-295.037
TB6	675.042	-616.541	-297.335

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.224	87.413	432.076
TB2	674.590	87.842	431.943
TB3	-674.232	-569.418	431.830
TB4	674.470	-569.179	431.826
TB5	-671.807	-616.336	-295.037
TB6	675.042	-616.541	-297.335



**Check Measurements:**

Corner	X <sub>measured</sub> mm	X <sub>nominal</sub> mm
C1	96.582	96.520
C2	96.416	96.520

incl. paint    no paint

	Y <sub>measured</sub> mm	Y <sub>nominal</sub> mm
C1	393.808	393.700
C2	393.783	393.700
C3	393.723	393.700
C4	393.697	393.700

incl. paint    no paint

Approval: