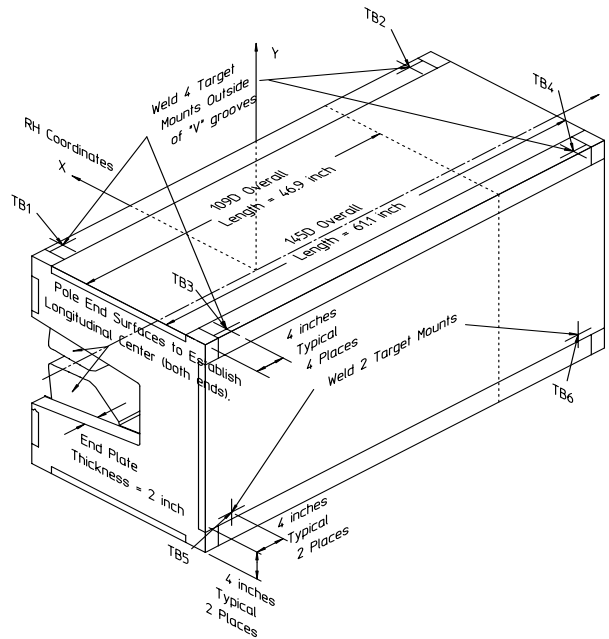


<b>Gradient Dipole Magnet Checks</b>	<b>145D27</b>
--------------------------------------	---------------

Date: <input style="width: 80%;" type="text" value="10/17/01"/>	Magnet: <input style="width: 80%;" type="text" value="145D27"/>	Operators: <input style="width: 80%;" type="text" value="M. Gaydosh"/> <input style="width: 80%;" type="text" value="H. Imfeld"/>
Notes: <div style="border: 1px solid black; padding: 5px; min-height: 40px;"> <p style="color: red; margin: 0;"><b>Magnetic vs. Mechanical offset NOT applied (June 2002)</b></p> </div>		



**Magnetic Fiducial Coordinates: (inches)**

Fiducial	Z	X	Y
TB1	-26.5445	3.4324	16.9972
TB2	26.5451	3.4280	17.0067
TB3	-26.5429	-22.4130	16.9925
TB4	26.6112	-22.3972	17.0001
TB5	-26.4381	-24.2500	-11.4475
TB6	26.5317	-24.2485	-11.4852

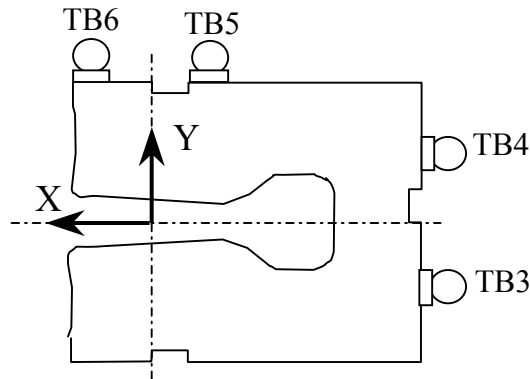
Offset:  inches

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

**Downstream Garage Mechanical Check:**

145D27  
Status

Horizontal (X) 0.082 mm	Vertical (Y) -0.061 mm	X-value: Y-value:	OK OK
<p><b>Description:</b> How much does the Z-axis from the US garage miss the center of the DS garage?</p>			

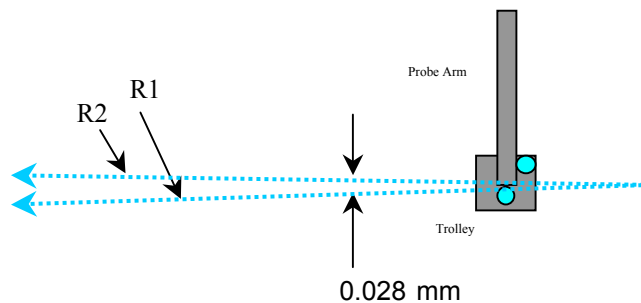


**Trolley Checks:**

145D27  
Status

<u>Trolley Distance</u>			
3D Distance R1 2800.563 mm	3D Distance R2 2800.500 mm	R2 - R1 (mm) -0.063	OK
<p><b>Description:</b> Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.</p>			

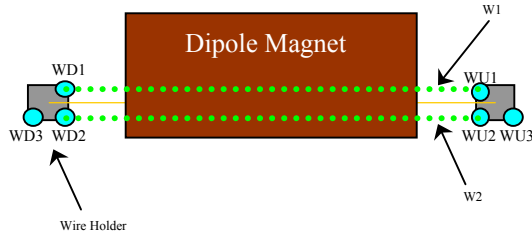
<u>Z-axis Vector</u>			
3D Angle 0.0200	Yaw 0.0116	Pitch 0.0164 mrad	Midpoint 3D Offset (mm) 0.028
<p><b>Description:</b> Angle between R1 and R2 vectors. The average of these two defines the Z-axis.</p>			



**Wire Holder Position Checks:**

145D27  
Status

<u>Wire Holders' Yaw Check</u>				
3D Distance W1	3D Distance W2		<u>W2 - W1 (mm)</u>	
2382.999 mm	2382.703 mm		-0.296	<b>OK</b>
<b>Description:</b> Distance between wire holders for TB1 and TB2.				

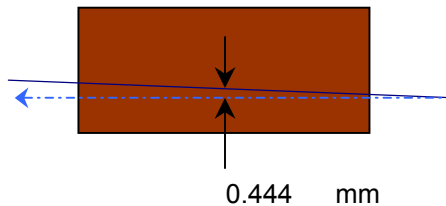


**Wire Position Checks:**

145D27  
Status

<u>Wire Orientation</u>					
3D Angle	Yaw	Pitch		<u>Midpoint</u>	
0.0416	0.0290	-0.0298	mrad	<u>3D Offset (mm)</u>	
				0.050	<b>OK</b>
<b>Description:</b> Orientation of wire with respect to Z-axis defining axis of dipole.					

<u>Wire Offsets</u>					
US	Origin	DS		Origin Offset:	
0.409	<b>0.444</b>	0.478	mm		<b>Too Big?</b>
<b>Description:</b> Offset distance from the mechanical center to the wire. ( x-offsets only! )					



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

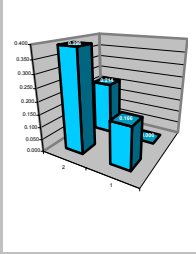
145D27  
Status

<u>End Surfaces</u>					
	3D Angle	Yaw	Pitch		
US:	1.2904	-1.0560	0.7415	mrad	
DS:	0.5831	0.5420	0.2152		
				3D Offset (mm)	
				~ 0.865	Too Big?
				~ 0.391	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 <b>with SMR</b>	Distance		
1590.299 mm	1552.199 mm		LENGTH?
<b>Description:</b>			
Length of magnet along Z-axis. (Design vals: 1551.61 and 1189.10)			

**Top Surface Orientation Check:**

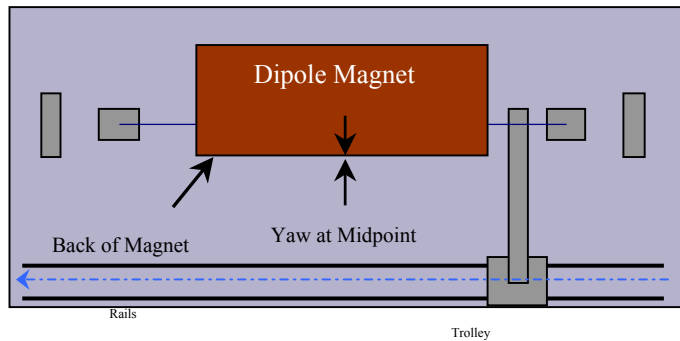
145D27  
Status

<u>Top of Magnet</u>					
Height (Y-value) <b>with 0.75"</b>		Delta Y			
Corner 1	412.752 mm		0.166	Delta Y C1:	OK
Corner 2	412.982 mm		0.396	Delta Y C2:	Too Big?
Corner 3	412.586 mm		0.000	Delta Y C3:	OK
Corner 4	412.800 mm		0.214	Delta Y C4:	OK
Dispersion:					
Corner 1	0.037 mm				
Corner 2	0.044 mm				
Corner 3	0.028 mm				
Corner 4	0.040 mm				
Overall	0.048 mm				
3D Angle	Roll	Pitch		Roll (mm)	
0.3457	0.3063	-0.1605	mrad	~ 0.165	OK
Twist:		Roll	Pitch	Pitch (mm)	
		-0.0296	-0.0103	~ -0.249	Too Big?
		-0.016	-0.016	mm	
				Twist:	OK
<b>Description:</b>					
Top surface corner heights and average surface orientation values. (With 0.75" SMR offset.)					

**Back Surface Orientation Check:**

145D27  
Status

<u>Back of Magnet</u>					
Horizontal (X-value)		Delta X			
US:	115.935	mm	0.063		
Origin:	115.903	mm	0.031		
DS:	115.872	mm	0.000		
3D Angle		Roll	Yaw		
	1.3039	1.3031	-0.0452	mrad	
				Midpoint	
				Yaw in mm	
				-0.035	OK
<b>Description:</b>					
<i>Position of scanned half of back surface of magnet for yaw check. (With 0.75" SMR offset.)</i>					



**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: 145D27

Capacitive System Alignment

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

Fiducial Measurements

See Data Sheet on Next Page.

Approval:

Date: 10/17/01 Operator: M. Gaydosh

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: 145D27

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

Measured Magnetic Center Offset: 0.444 mm

Measured at:

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

Corrected to:

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

**Fiducialization:**

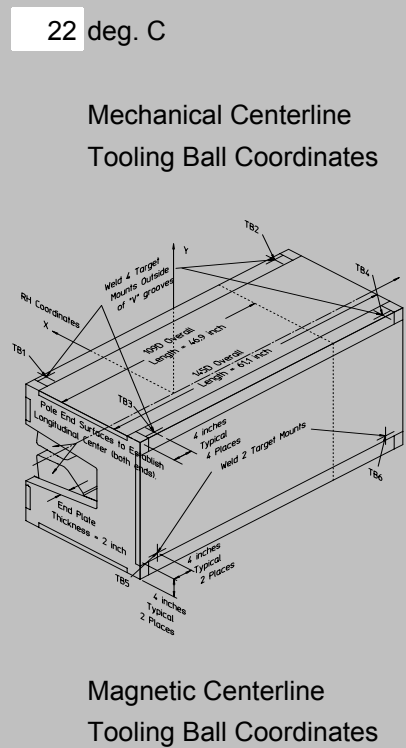
Operator(s): M. Gaydos† H. Imfeld

Date: 10/17/01

Temp: 22 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.231	87.183	431.728
TB2	674.245	87.070	431.971
TB3	-674.189	-569.291	431.609
TB4	675.925	-568.889	431.802
TB5	-671.529	-615.951	-290.767
TB6	673.906	-615.911	-291.724

Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.231	87.183	431.728
TB2	674.245	87.070	431.971
TB3	-674.189	-569.291	431.609
TB4	675.925	-568.889	431.802
TB5	-671.529	-615.951	-290.767
TB6	673.906	-615.911	-291.724



**Check Measurements:**

Corner	X <sub>measured</sub> mm	X <sub>nominal</sub> mm
C1	96.885	96.520
C2	96.822	96.520

incl. paint    no paint

	Y <sub>measured</sub> mm	Y <sub>nominal</sub> mm
C1	393.702	393.700
C2	393.932	393.700
C3	393.536	393.700
C4	393.750	393.700

incl. paint    no paint

Approval: