Gradient Dipole Magnet Checks	145D30

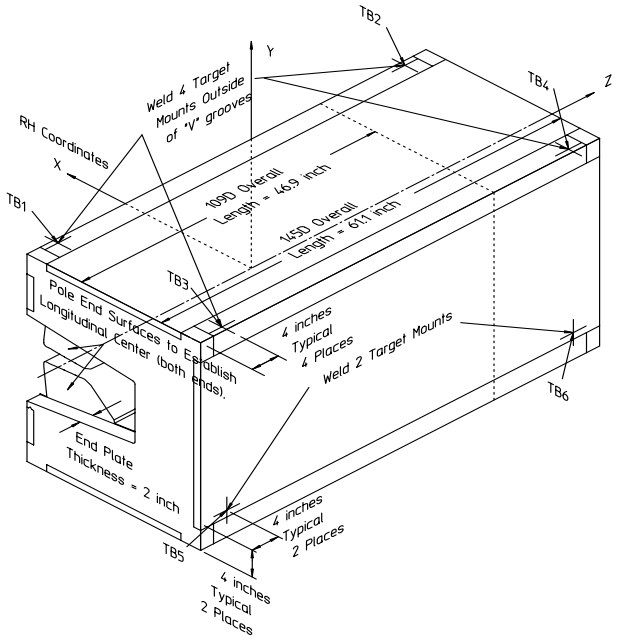
Date: 11/20/01

Magnet: 145D30

Operators: H. Imfeld; L. Griffin

Notes:

Magnetic vs. Mechanical offset NOT applied (June 2002)



Magnetic Fiducial Coordinates: (inches)

Fiducial	Z	X	Y
TB1	-26.5410	3.4121	16.9985
TB2	26.5198	3.4161	17.0051
TB3	-26.5598	-22.3744	16.9992
TB4	26.5265	-22.3760	16.9985
TB5	-26.5460	-24.2341	-11.3343
TB6	26.3824	-24.2531	-11.2614

Offset: 0.0106 inches

Description:

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

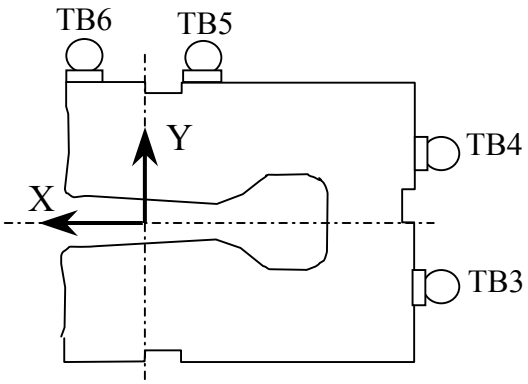
Downstream Garage Mechanical Check:

145D30 Status

Horizontal (X)	Vertical (Y)		
0.069 mm	-0.047 mm	X-value: Y-value:	OK OK

Description:

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



Trolley Checks:

145D30 Status

Trolley Distance

3D Distance R1	3D Distance R2	R2 - R1 (mm)	
2800.001 mm	2799.928 mm	-0.073	OK

Description:

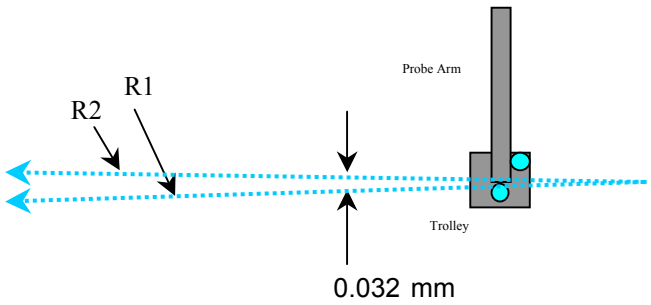
Travel distance for trolley target points should be similar. If not, trolley (rails) may be skewed.

Z-axis Vector

3D Angle	Yaw	Pitch	Midpoint 3D Offset (mm)	
0.0230	0.0141	0.0182 mrad	0.032	OK

Description:

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



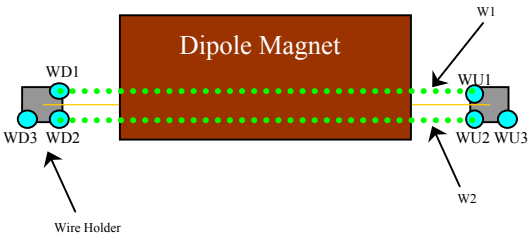
Wire Holder Position Checks:

145D30 Status

Wire Holders' Yaw Check					
3D Distance W1		3D Distance W2		W2 - W1 (mm)	
2382.818	mm	2382.557	mm	-0.261	OK

Description:

Distance between wire holders for TB1 and TB2.



Wire Position Checks:

145D30 Status

Wire Orientation					
3D Angle	Yaw	Pitch		Midpoint 3D Offset (mm)	
0.0563	0.0353	-0.0439	mrad	0.067	OK

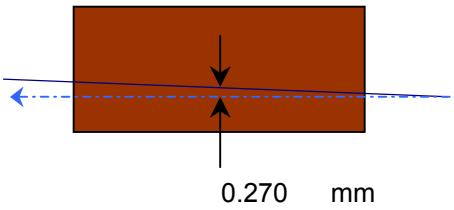
Description:

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

Wire Offsets					
US	Origin	DS		Origin Offset:	
0.228	**0.270**	0.312	mm		Too Big?

Description:

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



End Surface Orientation Check and Magnet Length: 145D30

Status

End Surfaces

	3D Angle	Yaw	Pitch		3D Offset (mm)	
US:	1.1590	-1.1590	-0.0078	mrad	~ 0.777	Too Big?
DS:	0.2115	0.0068	-0.2114		~ 0.142	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		
1589.967	mm	1551.867	mm	OK

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

Top Surface Orientation Check: 145D30

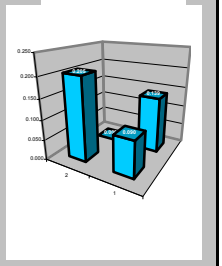
Status

Top of Magnet

Height (Y-value) **with 0.75"**			Delta Y		
Corner 1	412.751	mm	0.090	Delta Y C1:	OK
Corner 2	412.866	mm	0.205	Delta Y C2:	OK
Corner 3	412.800	mm	0.139	Delta Y C3:	OK
Corner 4	412.661	mm	0.000	Delta Y C4:	OK

Dispersion:

Corner 1	0.032	mm
Corner 2	0.028	mm
Corner 3	0.036	mm
Corner 4	0.036	mm
Overall	0.084	mm



Roll (mm)

~ 0.070 OK

3D Angle	Roll	Pitch		Pitch (mm)	
0.1292	0.1289	0.0094	mrad	~ 0.015	OK

Twist:	Roll	Pitch			
	-0.4704	-0.1637	mrad		
	-0.254	-0.254	mm	Twist:	OK

Description:

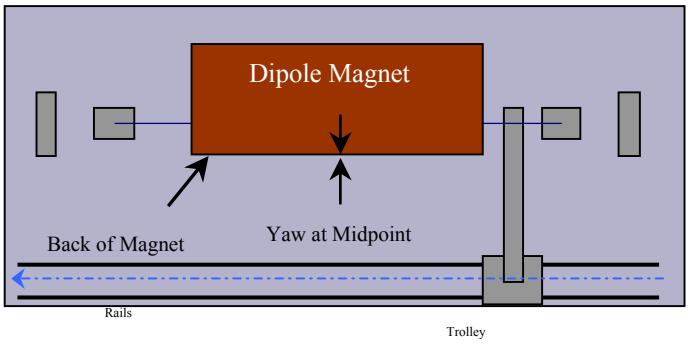
Top surface corner heights and average surface orientation values. ***(With 0.75" SMR offset.)***

Back Surface Orientation Check: 145D30

					Status
Back of Magnet					
Horizontal (X-value)			Delta X		
US:	115.914	mm	0.155		
Origin:	115.836	mm	0.077		
DS:	115.759	mm	0.000		
3D Angle	Roll	Yaw		Midpoint Yaw in mm	
0.8292	0.8217	-0.1110	mrad	-0.086	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: 145D30
Capacitive System Alignment
Date_____, Operator _____
Fiducial Measurements
See Data Sheet on Next Page. Approval:
Date: 11/20/01 Operator: H. Imfeld
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: 145D30

Magnetic Measurements Operator: _____ Date:_____

Measured Magnetic Center Offset:	0.270	mm

Measured at:

Integrated Field: _____ T-m @ _____ Amps

Corrected to:

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

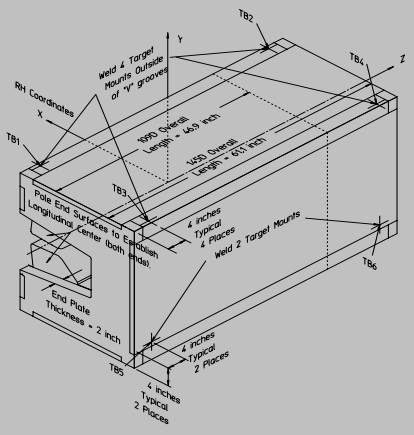
Fiducialization:

Operator(s): H. Imfeld L. Griffin

Date: 11/20/01 Temp: 21 deg. C

Fiducial - Measured	z mm	x mm	y mm
TB1	-674.141	86.668	431.763
TB2	673.602	86.769	431.930
TB3	-674.619	-568.311	431.780
TB4	673.773	-568.350	431.763
TB5	-674.268	-615.545	-287.891
TB6	670.113	-616.030	-286.039

Mechanical Centerline Tooling Ball Coordinates



Fiducial - Magnetic	z mm	x mm	y mm
TB1	-674.141	86.668	431.763
TB2	673.602	86.769	431.930
TB3	-674.619	-568.311	431.780
TB4	673.773	-568.350	431.763
TB5	-674.268	-615.545	-287.891
TB6	670.113	-616.030	-286.039

Magnetic Centerline Tooling Ball Coordinates

Check Measurements:

Corner	$x_{measured}$ mm	$x_{nominal}$ mm
C1	96.864	96.520
C2	96.709	96.520
	incl. paint	no paint

	$y_{measured}$ mm	$y_{nominal}$ mm
C1	393.701	393.700
C2	393.816	393.700
C3	393.750	393.700
C4	393.611	393.700
	incl. paint	no paint

Approval: