

Fields resulting from geometry errors in the newly assembled and installed EC quad magnet at 15W



Jim Crittenden and John Sikora Electron Cloud/Impedance Meeting 28 September 2016





Cornell University Laboratory for Elementary-Particle Physics

Central Field Uniformity $1/16 \rightarrow 1/2$ Model



28 September 2016



Measured Geometrical Errors

1) SW-NE diagonal bore error of 0.38 mm. 2) Lower aisle quadrant short by 1.6 mm.



The bore error alone affects the central field uniformity. It lowers the gradient by 2.5 per mil with negligible consequence for the L/R symmetry.

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Field Integral Uniformity $1/16 \rightarrow 1/2$ Model



The additional numerical fluctuations in the ½ model are well within specification.

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Measured Geometrical Errors

1) SW-NE diagonal bore error of 0.38 mm. 2) Lower aisle quadrant short by 1.6 mm.

With Errors



Both errors contribute to the field integral uniformity. Any field asymmetry introduced is negligible.

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