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Date: Thursday, February 29, 2024 at 3:40 PM

To: Patrizia Rossi <rossi@jlab.org>

Cc: Hovanes Egiyan <hovanes@jlab.org>, Eugene Chudakov <gen@jlab.org>, Josh Ballard <ballardj@jlab.org>

Subject: KLONG need to reduce Tagger magnet residual field

Hello Patrizia,

We have determined that the Tagger magnet has a residual field of about 48 Gauss which may affect the KLONG experiment. In order to alleviate this concern we plan to reduce the residual field to below 5 Gauss. In communications with the JLAB Magnet Measurement Group (Joe Meyers), it has been learned that they have been able to reduce the residual field of magnets to near zero Gauss by applying alternating positive and negative currents to the magnet. Since the existing (and very old) power supply does not have a reversing switch, a new power supply has been ordered which will have a reversing switch built in.

The plan is to bring the existing tagger magnet up to full current in the opposite direction (say -212A) and then reduce to zero current. The residual field will then be measured. The magnet would then be ramped to a positive value at some number less than the 212A (maybe +190A), reduced to zero and the field measure again. We would alternate +/- current at reduced magnitude until the residual field measure less than 5 Gauss.

We plan on working with Magnet Measurement over the next couple of months to set up a test with an existing dipole to help develop a more detailed procedure.

If you need more information, please let me know.

Cheers,

Timothy Whitlatch, PE State of Virginia

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