Detailed response to reviewers

**Reviewer 1:  
The paper reports on a careful Monte-Carlo-Simulation study for the layout of the proposed, new engineering diffractomter eMAP at the ISIS spallation source. The paper is well written and all graphs are clear and support the main findings of the study. The conclusion that eMAP will be a valuable and timely addition to the engineering suite of ISIS seems well founded. Besides the minor remark, that many refernces are web pages (although that seems to be understandable concerning the topic of the paper), I have no hesitation to recommend that this paper should be published as is.**

Response: We appreciate the positive comments from the reviewer. References number 12 to 14 in the manuscript are replaced with the following:

12. X-L. Wang, et al., Physica B 385, 673-675 (2006)

13. S. Harjo, Nihon Kessho Gakkaishi 50(1), 40-45 (2008)

14. W. Kockelmann, et al., IMAT – a new imaging and diffraction instrument at ISIS, in Proceedings of the 7th International Topical Meeting on Neutron Radiography, Phys. Procedia 43, 16 – 24 June 2012, Kingston, Canada (2013)

**Reviewer 2:  
This work provides a great description of a proposed medium-resolution strain mapping and imaging instrument at ISIS. It provides pertinent information about the incident beam, its impact on the instrument performance, and a good comparison to existing capabilities at the ISIS neutron source and at other world-class facilities. The only issue I see is with initial language describing the guide shape in section 2.1. "The straight supermirror guide has an elliptic shape in the vertical plane and a constant width in the horizontal plane to minimize ...". While it is small error, it adds confusion to the reader later on. Other than that, the brilliance transfer analysis was thorough and well described in the manuscript.**

Response: We thank the reviewer for pointing out the error regarding the description of the guide shape. We have made the following changes in section 2.1:

eMAP features an elliptic guide to help maximise incident vertical divergence. Due to the low horizontal divergence required for strain scanning, the sides of the guide are straight.

We hope these changes are satisfactory and the paper can now be published.

Best regards,

Tung Lik Lee

Instrument Scientist

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