

## ***Interactive comment on “The origin of noise and magnetic hysteresis in crystalline permalloy ring-core fluxgate sensors” by B. B. Narod***

**B. Narod**

bnarod@eos.ubc.ca

Received and published: 1 August 2014

The two referees' reports contain very similar content. Thus these replies contain substantial duplication.

1. Page 323 line 20. Figure 3 is mentioned in the text before Figure 2. In my opinion Figure 3 should become Figure 2 or be included in Figure 1 as an additional panel for easier comparison of data.

Agreed. The Figures shall be reordered.

2. Page 327, line 11. Figure 14 is mentioned just after Figure 6 (page 327 line 2). A reordering of figures is needed.

C99

Agreed. After consideration of this problem I believe that Figure 14 is best left as and where it is, to show near the end of the paper. To deal with the numbering issue I propose to change the parenthetical reference to Figure 14 from “(Fig. 14)” to “(see Section 7 below)”.

3. Page 333, line 26 A grain size of 20 micrometers for the new material is mentioned. I understand same material as 100 micrometer ring core described in section 6. Please include a reference or comment how this value was obtained (SEM, XRD,..?), as it is mentioned for Infinitics ring core (page 334, line 14).

Agreed. The measurement was obtained by SEM. The text shall be modified accordingly.

4. Caption Figure 5. Please include a brief description for each showed domain structure in the caption to ease the interpretation.

Agreed. The caption shall be modified as requested, by adding. “a: a demagnetized ring core; b: a ring core exposed to external field H, depicting enhanced domains with magnetization parallel to H; c: a ring core exposed to a drive field H, depicting enhanced domains with magnetization parallel to H; d: a ring core exposed to a saturating drive field H, depicting single domains with magnetization parallel to H.”

5. Figure 9. Although the authorship and citation in the text is clear, I think it should be necessary to request permission to the publisher/author (Elsevier/Coisson et al.) for its reproduction in this journal.

Agreed. Permissions have been obtained for the present revision and all prior versions of this manuscript that were submitted but did not go to publication. A copy of the present permission has been forwarded to the EGU editorial office. The words “Reproduced with permission of the copyright owner.” shall be added to the caption.