

Interactive comment on “Near equipment magnetic field verification and scaling” by M. A. Pudney et al.

Anonymous Referee #1

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General comments

This is a well written article that analyses the AC magnetic verification of individual spacecraft units (“unit level”) considering the situation in which the measurements must be taken close to the equipment under test (EUT) and then extrapolated. The study concludes that the traditional extrapolation technique that uses a dipolar scaling power of -3 close to the EUT risks underestimating the field emission. It proposes using a scaling power of -2 up to a distance equal to 3 times the unit size and a scaling power -3 to greater distances. These distances are taken with respect to the center of the box which simulates the EUT. The work only considers AC magnetic field frequencies below 1 MHz and focuses on improving the extrapolation of the field from a single mea-

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surement. The technique is based on a model of the magnetic emissions generated by a series of small dipoles inside the box. No magnetic contamination due to the DC magnetisation of the considered unit is taken into account. I consider that the problem studied can be of interest when considering spacecraft magnetic cleanliness and I recommend this article be published.

Specific comments

The subject considered is interesting, useful and, as far as this referee knows, original. It clearly falls within the scope of GI. The method is founded and clearly stated. The model procedure is carefully detailed in the text and the explanation incorporates several useful figures. Nevertheless, the concepts of “verification distance” and “break distance” should be more explicitly defined. The results obtained and the conclusions derived from them are precise and can be applied to real cases. The title reflects the contents of the article although a short reference to its application to space missions would probably improve it. The abstract has a right length and gives a good summary of the article. The number and quality of references are appropriate.

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