

# ***Interactive comment on “The development and test research of multi-channel Synchronous transient electromagnetic receiver” by Fanqiang Lin et al.***

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Dear Professor Zhao,

Thank you for your comments and precious suggestions on the manuscript! According to your advice, we revised this manuscript. All of the changes we have made are in the supplement file, which is marked-up manuscript version.

1. According to the comment, we have modified the paper thoroughly by correcting the grammatical errors, and also rephrased some paragraphs to present a clear expression. Such as: (1) In Page 1, Line 6: the sentence is changed as “...the

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real-time synchronous transient electromagnetic acquisition system of six channels is achieved with 128k sampling rate". (2) In Page 2, Line 1: the sentence is change as" "...Conventional transient electromagnetic (TEM) uses mostly magnetic source or electrode source mode. In the magnetic source mode TEM volume effect is relatively small, and it has high detection accuracy." More modifications regarding grammatical errors are enclosed in the supplement file.

2. We devised a detailed design circuit diagram of the receiver and added specific design steps which are presented by eight figures (Figure2-9) in the manuscript, and gave detailed descriptions for these figures, which can be seen in the supplement file.

3. We have added the flowchart (Figure 10) in the manuscript for the system program, which makes the software design complete and clear.

4. We have described the characteristics of the waveform in Figure 4, and explained the cause of the waveform in the discussion version of the manuscript. Now, Figure 4 in the original version of the manuscript has been changed as Figure 13 in the discussion version. We elaborated Figure 13, and added "the left figure is about the waveform of 3 cycles of data acquisition by the first channel shown in Figure 12. The right figure is about the frequency spectrum formed by waveforms in the left one, which underwent fast fourier transform. As is shown in the right one, the frequency of the input sine waves is 20Hz, with few harmonic components, which indicates the excellent performance of analog circuit board and high stability of power circuit".

Once again, thank you very much for your comments and advice. We have tried our best to modify and make all necessary changes in the manuscript. Meanwhile, we are deeply grateful for the time and efforts of the editors and reviewers, and we sincerely hope that these amendments will meet your expectation.

Please also note the supplement to this comment:

<https://www.geosci-instrum-method-data-syst-discuss.net/gi-2018-6/gi-2018-6-AC1->

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