



## PEER-REVIEW REPORT

**Name of journal:** World Journal of Radiology

**Manuscript NO:** 58054

**Title:** Cardiac functional magnetic resonance imaging at 7T: Image quality optimization and ultra-high field capabilities

**Reviewer's code:** 04279936

**Position:** Associate Editor

**Academic degree:** PhD

**Professional title:** Academic Research, Professor

**Reviewer's Country/Territory:** France

**Author's Country/Territory:** United States

**Manuscript submission date:** 2020-07-17

**Reviewer chosen by:** Jia-Ping Yan

**Reviewer accepted review:** 2020-09-03 12:10

**Reviewer performed review:** 2020-09-05 17:14

**Review time:** 2 Days and 5 Hours

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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## **SPECIFIC COMMENTS TO AUTHORS**

The topic is very interest. It can be an approach for in vivo tissue diagnosis and potentially served in medical advanced imaging. In this work the authors focus on improving image quality by studying both the effects of adding a dielectric buffer at different locations around the region of interest and also effects of adjusting the flip angle of imagery in cinematic and tagging sequences. Several parameters were considered such as the homogeneity of the B1 field, the signal / noise ratio (SNR), the contrast / noise ratio blood-myocardium (CNR) and the marking persistence throughout the cardiac cycle. The given background in the Introduction is easy to follow. It cites the recent appropriate papers. It provide a hypothesis or aim of the study well located in relation to the state of the art of existing works. The manuscript describes very well the approach used in data analysis, surveys, and clinical trials methods. The document is well written and structured. However, you will find below some comments to improve, from my point of view, the overall content of the paper and which in under no circumstances affects the quality of this work. First: Better introduce scale units on 2D graphs Page 5, § Introduction - line 2: "...and lack of ionizing radiation" From a physical point of view this statement is not always true. it will be preferable that the authors refer to other sources than references [1] and [2]. Page 8, § Effect of Imaging Flip Angle on Image Quality; line 1: Explain the scientific or/and practical reason for the choice targeting the short-axis and long-axis in the imaging context Page 10, § SAR Calculations: In the case of a female subject, what will be, in the absence of a focusing approach, the effect of the dispersion generated by the physical nature of the mammary glands (variation of the cantrast)? Page 12, line 2: "... optimal prescribed flip angle for tagging MRI was 15°..." How could you explain this optimal value of 15 ° compared to that of 60 ° announced above as optimal (see figure 4)? In conclusion, this paper



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presents a structured practical approach reflected the promising potential of the concept in the field of a medical radiology. As a reviewer, I give a favorable opinion and I recommend its publication after a minor revision.



### PEER-REVIEW REPORT

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**Manuscript NO:** 58054

**Title:** Cardiac functional magnetic resonance imaging at 7T: Image quality optimization and ultra-high field capabilities

**Reviewer's code:** 02903429

**Position:** Editorial Board

**Academic degree:** MD

**Professional title:** Associate Professor

**Reviewer's Country/Territory:** China

**Author's Country/Territory:** United States

**Manuscript submission date:** 2020-07-17

**Reviewer chosen by:** Jia-Ping Yan

**Reviewer accepted review:** 2020-09-04 16:44

**Reviewer performed review:** 2020-09-15 00:39

**Review time:** 10 Days and 7 Hours

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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## **SPECIFIC COMMENTS TO AUTHORS**

This is a good performed and written original research on the improvement of cardiac functional image quality at 7T MRI through simple scan set-up adjustment and imaging parameter optimization. Specific Comments to Authors: 1 Title The title reflect the main subject of the manuscript, however, there is still minor grammar mistake. I suggest the "7T" should replace the "7T.". 2 Abstract. The abstract summarize and reflect the work described in the manuscript. 3 Key words. The key words reflect the focus of the manuscript. 4 Background. The manuscript adequately describe the background, present status and significance of the study. 5 Methods. The manuscript describe methods in adequate detail. 6 Results. The research objectives achieved by the experiments used in this study. The contributions that the study has given a method to optimize the quality of 7T magnetic resonance images. 7 Discussion. The manuscript interprets the findings adequately and appropriately, highlighting the key points concisely, clearly, and logically. However, there are still shortcomings in the discussion, and the discussion is not sufficient. There is a lack of reasonable explanations for the different results produced by the different positions of the dielectric pad. As the author mentioned in the article, the limited number of studied subjects, which does not allow for conducting a thorough statistical analysis. More studies on a larger cohort are need to confirm the results from this study and to investigate more details in the future. 8 Illustrations and tables. The figures are good quality and appropriately illustrative of the paper contents. 9 Biostatistics. The manuscript does not meet the requirements of biostatistics. 10 Units. The manuscript meet the requirements of use of SI units. 11 References. The manuscript cite appropriately the important and authoritative references in the introduction and discussion section. However, most of they are old. Therefore, the latest publications on evidence will be appreciated in the reference section.



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And there are punctuation errors in the References.(i.e., “3.Ibrahim EH. Heart Mechanics: Magnetic Resonance Imaging. . Boca Raton, FL: CRC Press; 2017.” ) 12 Quality of manuscript organization and presentation. The manuscript is well, concisely and coherently organized and presented. However, there are still grammar errors and should be fixed before publication. 13 Research methods and reporting. The author prepare the manuscript according to the appropriate research methods and reporting. 14 Ethics statements. The manuscript meet the requirements of ethics.



## RE-REVIEW REPORT OF REVISED MANUSCRIPT

**Name of journal:** World Journal of Radiology

**Manuscript NO:** 58054

**Title:** Cardiac functional magnetic resonance imaging at 7T: Image quality optimization and ultra-high field capabilities

**Reviewer's code:** 04279936

**Position:** Associate Editor

**Academic degree:** PhD

**Professional title:** Academic Research, Professor

**Reviewer's Country/Territory:** France

**Author's Country/Territory:** United States

**Manuscript submission date:** 2020-07-17

**Reviewer chosen by:** Pan Huang

**Reviewer accepted review:** 2020-09-29 05:46

**Reviewer performed review:** 2020-09-30 04:45

**Review time:** 22 Hours

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

### SPECIFIC COMMENTS TO AUTHORS



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In this revised version, the authors have provided answers to all the suggestions made on the standard version. They made the content and the text fluid for comprehension while emphasizing the scientific and practical interest of their approach. I recommend the publication of the paper in this final version