**Participant Information Sheet**

**Study Title**: **Measurement of the apparent mass of the seated human body and the suspension seat transmissibility under multi-axial vibration: effect of excitation magnitude and backrest inclination angle**

**Researcher**: Weitan Yin

**ERGO number: 48757**

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

**What is the research about?**

This study is conducted by the Institute of Sound and Vibration Research, University of Southampton, in the laboratory of Building 19, Highfield campus. This study is a part of a PhD project. The research is to investigate how the response of seated human body to tri-axial vibration and how the dynamics of coupled suspension seat-human body system under tri-axial vibration is affected by the relevant factors. The experimental study of apparent mass and seat transmissibility under tri-axial vibration will contribute to advancing the understanding about the mechanism of the biodynamic response of the seated human body, and the interaction between the human body and the suspension seat. It will also assist in the development of suitable seat-occupant models to predict vibration transmissibility under tri-axial vibration, so as to improve the seat design and ride comfort.

**Why have I been asked to participate?**

The experiment involves 12 healthy male subjects between 18 and 50 years old, recruited within the university staff and students, and you satisfy the requirements.

**What will happen to me if I take part?**

Before the experiment starts, you will be given detailed instructions about the test procedure, relevant requirements and your rights to withdraw during the test, and you will be asked to complete a consent form and a health questionnaire.

The whole experiment is divided into 3 sessions, carried out on separate days. You will need to participate in both the first and the third session if you are consent to participate in this experimental study. During the experiment, you will sit in two kinds of test seats firmly mounted on the 6-axis motion simulator under different backrest inclination conditions. You will be loosely secured by a seat belt and be exposed to Whole-Body Vibration, which may induce discomfort. The vibration will be single-axial and multi- axial vibration at varying magnitudes, frequencies and directions. In the first session, the test seat will be a rigid seat, and in the second session the test seat will be an air suspension seat. The emergency button will be positioned on the seat in order to be easily available at any time, so that you can use the emergency stop button or ask the experimenter to stop the experiments at any time. Each session will last approximately 120 minutes. You can have two 5-minute-breaks during each session. All the motions respect the safety limits indicated in BS 6841:1987, ISO 2631-1:1997, and the Control of Vibration at Work Regulations 2005, as well as ISVR TR 808 (1996).

**Are there any benefits in my taking part?**

You are not expected to benefit directly from the participation in the study. However, the results of this study will add to current knowledge.

**Are there any risks involved?**

The greatest magnitude of the vibration is no greater than you might occasionally experience in some forms of public transport, and the exposure to Whole Body Vibration is controlled within the safe range in accord with the standard BS 6841:1987. You are free to stop the experiment at any time, without reason, either by pushing the emergency stop button or informing the experimenter.

**What data will be collected?**

The researcher will collect your e-mail address, the consent forms you signed prior to the commence of each test, and your age, weight and stature, and record them in the subject’s information form. All the written material will be stored in lockable cabinets in the Institute of Sound and Vibration Research.

During the experiment, when you are seated in the rigid seat and exposed to the Whole-Body Vibration, the dynamic force and acceleration at the seat pan and backrest, and the acceleration at the seat base will be recorded using force transducers, SIT-Pads or accelerometers. When you are seated in the suspension seat and exposed to the Whole-Body Vibration, the acceleration at the seat pan and backrest, and the acceleration at the seat base will be recorded using SIT-Pads or accelerometers.

All data will be retained confidentially by the applicant and collaborators. The use of data collected in the study will comply with the Data Protection Act. The measured experiment result data will be kept on a password protected computer. Records may be looked at and/or copied for research and regulatory purposes by the University of Southampton. The results of this research study may be presented at meetings or in publications. The test results can be accessed by researchers, but the identity of the subjects will not be known other than by the applicant and collaborators.

**Will my participation be confidential?**

Your participation and the information we collect about you during the course of the research will be kept strictly confidential.

**Do I have to take part?**

No, your participation in this study is voluntary. If you decide you want to take part, you will need to contact the researcher and sign a consent form to show you have agreed to take part. The contact information of the researcher is shown below.

Weitan Yin

Institute of Sound and Vibration Research

University of Southampton

Southampton, SO17 1BJ

Email: W.Yin@soton.ac.uk

**What happens if I change my mind?**

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights being affected. Withdrawal will not result in any penalty or loss of benefits to which you are entitled. If you withdraw from the study, we will keep the information about you that we have already obtained for the purposes of achieving the objectives of the study only.

On the other hand, your participation in this study may be stopped at any time by the researcher without your consent if: you have not followed study instructions; or administrative reasons require your withdrawal.

**What will happen to the results of the research?**

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent.

Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

**Where can I get more information?**

For more information, you can contact the following researcher and the researcher’s supervisor:

Weitan Yin

Institute of Sound and Vibration Research

University of Southampton

Southampton, SO17 1BJ

Email: W.Yin@soton.ac.uk

Dr. Yi Qiu (Supervisor)

Institute of Sound and Vibration Research

University of Southampton

Southampton, SO17 1BJ

Email: yq@isvr.soton.ac.uk

**What happens if there is a problem?**

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions. The contact information of the researcher and the researcher’s supervisor is shown below.

Weitan Yin

Institute of Sound and Vibration Research

University of Southampton

Southampton, SO17 1BJ

Email: W.Yin@soton.ac.uk

Dr. Yi Qiu (Supervisor)

Institute of Sound and Vibration Research

University of Southampton

Southampton, SO17 1BJ

Email: yq@isvr.soton.ac.uk

In the unlikely case that you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

**Data Protection Privacy Notice**

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, ‘Personal data’ means any information that relates to and is capable of identifying a living individual. The University’s data protection policy governing the use of personal data by the University can be found on its website (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at <http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf>

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University’s policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason (‘lawful basis’) to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the ‘Data Controller’ for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University’s data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form. If you need further assistance, please contact the University’s Data Protection Officer (data.protection@soton.ac.uk).

**Thank you.**