



Participant Information Sheet For Adults

UCL Research Ethics Committee Approval ID Number: **_21917/003**

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study: How does a bus sun roof affect thermal comfort in London buses?

Department: Department of Civil, Environmental and Geomatic Engineering, UCL

Name and Contact Details of the Researcher(s): Samuel Stamp, samuel.stamp@ucl.ac.uk

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Name and Contact Details of the Principal Researcher: Professor Nick Tyler: n.tyler@ucl.ac.uk

You are being invited to take part in a research project on the topic of “How does a bus sun roof affect thermal comfort in London Buses”. Before you decide, it is important for you to understand why the research is being done and what participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Project Introduction

Transport for London (TfL) has acquired some double deck buses with a sun roof installed over part of the upper deck. TfL wishes to understand the effects of this on the interior thermal comfort conditions within the upper deck. The aim of this study is to investigate how the sun roof performs in relation to passengers’ perceptions of thermal comfort, under a variety of installation conditions. Upon completion of this study, the objective is to propose a specification for sun roof installation on future buses in London. This project is expected to run until August 2026, when a final report of the results will be submitted to TfL.

Participant recruitment

200 participants over 18 years of age will be invited to participate in this project. As this study involves passengers sitting in the upper deck of a double deck bus, participants will need to be able to climb the stairs on a bus. Participants are also required to have access to a mobile phone with data for accessing online questionnaires via a QR code. There are no other particular inclusion or exclusion criteria.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You cannot withdraw after the experiment as all data will be anonymised.

Opting to take part

You will only be required to participate for 2.5 hours to complete the online survey process via your personal mobile phone. A simple digital survey will be given to you prior to boarding a bus where you

will be asked questions regarding your thermal comfort levels during your simulated journey. You will be asked to board one of four buses, each with a slightly different sun roof installation. The buses will then complete a test route, after which you will transfer to one of the other buses and repeat the process until you have completed the four trials. This should take 25 minutes each, and complete within the intended duration of 2.5 hours. Questions in the survey will involve no collection of personal information (identifiable information) and only involves obtaining participants giving their opinion on their thermal comfort before, during and after the journey. The survey is fully anonymous.

No recorded media is required for the entire data collection process. However, pictures may be taken of the equipment setup. Specific consent will be sought from participants to use these pictures with editing to remove identifiable features.

Withdrawing from the project

If at any point you wish to end your participation, you may inform the Principal Researcher during the experiment. You cannot withdraw after the experiment day..

Risk and Disadvantages

As this project will involve moving in and out of a bus, climbing the stairs to the upper deck, and also completing repeated journeys, there are a few risks that should be noted:

1. Tripping Hazard when entering and leaving the bus and ascending/descending the stairs.
2. Participants with motion sickness should not participate in this data collection session due to the need to sit in a moving bus.
3. Risk of tripping over measuring equipment. High visibility warnings will be placed around high risk hazards.
4. Risk of fatigue.

You will not be asked to do anything during this bus that would not be done in the course of a normal bus journey.

Benefits

Whilst there are no immediate benefits for those people participating in the project, it is hoped that this work will aid the design of future buses. Combined with other advances in technology for thermal management in buses, the ultimate goal is to further reduce emissions and energy consumption of public transport (buses). We will offer £50 as compensation for your time.

Complaints

Should any problems arise during the experiment, complaints can be filed and dealt with in a proper manner. Your first point of contact should be the Principal Researcher of this Project listed at the top of this information sheet. More serious issues can be escalated to the Chair of the UCL Research Ethics Committee at ethics@ucl.ac.uk.

Confidentiality

All the information that we collect about you during the course of the research will be kept strictly confidential. You will not be able to be identified in any ensuing reports or publications. Data will not be shared with researchers outside of this project. All data will be stored on UCL One Drive and will be deleted on 31 August 2026.

**Please note that assurances on confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies.*

Research results

Immediately after submission of your survey responses, you will be able to download them as a PDF for your reference.

The data is then taken for analysis, followed by compilation of conclusions and recommendations. The research project will result in a report to be delivered to TfL in August 2026. You will be able to request a copy of published results through contact with the researcher. While data is not expected to be used by other research projects, the published conclusions from this project may be taken into subsequent research.

Personal Data

Personal Data (Data which you will be identifiable using) is not collected during the entire research period. Although your email address will be used for communication purposes, this will be stored on UCL One Drive and deleted on 31 August 2026.

Data Protection Privacy Notice

The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

This 'local' privacy notice sets out the information that applies to this particular study. Further information on how UCL uses participant information can be found in our 'general' privacy notice:

For participants in research studies, visit: <https://www.ucl.ac.uk/legal-services/privacy/ucl-general-research-participant-privacy-notice>

The information that is required to be provided to participants under data protection legislation (GDPR and DPA 2018) is provided across both the 'local' and 'general' privacy notices.

The lawful basis that will be used to process your personal data is: 'public task.

Your personal data will be processed so long as it is required for the research project. All data will be anonymised..

If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk

Funding

Transport for London is funding this project.

Contact for Further Information

Professor Nick Tyler

Email: n.tyler@ucl.ac.uk

Director of the UCL Centre for Transport Studies and Chadwick Professor of Civil Engineering
Dept. of Civil, Environmental and Geomatic Engineering

Participants will receive a copy of this information sheet and a consent form to sign and keep.

Thank you for reading this information sheet and for considering to take part in this research study.