

README for “Seat and Occupant Response in Energy Absorbing Seats [supporting datasets]”.
Civil Aerospace Medical Institute (CAMI), Federal Aviation Administration (FAA), U.S. Department of Transportation (USDOT)
2024-03-01

LINKS TO DATASET

A. Dataset archive link:

<https://doi.org/10.21949/1528568>

B. Link to related report:

<https://doi.org/10.21949/1524450>

C. Links in individual datasets from the project:

<https://doi.org/10.21949/1528570>

<https://doi.org/10.21949/1528571>

<https://doi.org/10.21949/1528572>

<https://doi.org/10.21949/1528573>

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<https://doi.org/10.21949/1529617>

<https://doi.org/10.21949/1529618>

<https://doi.org/10.21949/1529619>

<https://doi.org/10.21949/1529620>

SUMMARY OF DATASET

This project will evaluate potential methods for replacement of worn seat cushions used in energy absorbing seats. Streamlined approaches to the replacement of worn cushions in aircraft seats have been requested by the aviation industry. The FAA developed a method for seats that do not require energy absorption (Part 25 and Part 23 passenger) based on rigid seat performance as a reference point. This method may not be valid for energy absorbing seats used in Part 27/29 and Part 23 pilot seats. As part of an effort to evaluate streamlined approaches, this project will characterize the seat and occupant response of typical energy absorbing seats.

This dataset contains sled test data of anthropomorphic test devices seated in a rigid seat and a real aircraft seat pitched up at 30° with respect to vertical. This data is created by physical experiments. Sensors include load cells and accelerometers. Data also includes video from high-speed cameras and photos from still cameras. The tests were conducted from 2017 to 2020. No existing data was be used for this test series. It is anticipated that Aircraft seat manufacturers and test laboratories will benefit from access to this data as they design and test real aircraft seats and restraints. This dataset will also provide a public record to support potential rulemaking.

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A. GENERAL INFORMATION

0. Title of Dataset:

Seat and Occupant Response in Energy Absorbing Seats [supporting datasets]

1. Description of Dataset:

This project will evaluate potential methods for replacement of worn seat cushions used in energy absorbing seats. Streamlined approaches to the replacement of worn cushions in aircraft seats have been requested by the aviation industry. The FAA developed a method for seats that do not require energy absorption (Part 25 and Part 23 passenger) based on rigid seat performance as a reference point. This method may not be valid for energy absorbing seats used in Part 27/29 and Part 23 pilot seats. As part of an effort to evaluate streamlined approaches, this project will characterize the seat and occupant response of typical energy absorbing seats. This dataset contains sled test data of anthropomorphic test devices seated in a rigid seat and a real aircraft seat pitched up at 30° with respect to vertical. This data is created by physical experiments. Sensors include load cells and accelerometers. Data also includes video from high-speed cameras and photos from still cameras. The tests were conducted from 2017 to 2020. No existing data was be used for this test series. It is anticipated that Aircraft seat manufacturers and test laboratories will benefit from access to this data as they design and test real aircraft seats and restraints. This dataset will also provide a public record to support potential rulemaking.

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4. Date of data collection and update interval:

20170301 to 20230816

5. Geographic location of data collection:

United States

B. SHARING/ACCESS & POLICIES INFORMATION

0. Recommended citation for the data:

U.S. Department of Transportation, Federal Aviation Administration, Civil Aerospace Medical Institute. 2024. Seat and Occupant Response in Energy Absorbing Seats [supporting datasets]. <https://doi.org/10.21949/1528568>

1. Licenses/restrictions placed on the data:

These data are in the Public Domain.

2. Policy Statement:

This dataset and its documentation were created and shared to meet the requirements enumerated in the U.S. Department of Transportation's "Plan to Increase Public Access to the Results of Federally-Funded Scientific Research" Version 1.1 <<<https://doi.org/10.21949/1520559>>> and guidelines suggested by the DOT Public Access website <<<https://doi.org/10.21949/1503647>>>, in effect and current as of March 1, 2024

C. DATA & RELATED FILE OVERVIEW

1. File List

A. Filename:

README_FAA_Seat_and_Occupant_Response_in_Energy_Absorbing_Seats_Data.txt

Short description:

The README.txt file that includes human-readable information about the data, variable definitions, contact information, and other contextual information. The file you are reading now.

B. Filename:

README_FAA_Seat_and_Occupant_Response_in_Energy_Absorbing_Seats_Data.pdf

Short description:

A PDF version of the README.txt file that includes human-readable information about the data, variable definitions, contact information, and other contextual information. A version of the file you are reading now

C. Filename:

METADATA_FAA_Seat_and_Occupant_Response_in_Energy_Absorbing_Seat.json

Short description:

The machine-readable .json metadata file based on DCAT-US metadata schema v1.1, <https://resources.data.gov/resources/dcat-us/>

D. Filename:

DATA_FAA_Seat_and_Occupant_Response_in_Energy_Absorbing_Seats.csv

Short description:

The individual datasets from the project are listed in the table within this .csv file. In this table you will find test number, configuration, occupant, impact angle, closing speed, performer, contract/study title, REF #, and the DOI link to each dataset. There are 13 datasets listed in the table.

E. Filename:

DMP_FAA_Seat_and_Occupant_Response_in_Energy_Absorbing_Seats_Data.pdf

Short description:

A PDF file containing the Data Management Plan that was created for current and future management of the data and associated files.

D. METHODOLOGICAL INFORMATION

1. Description of methods used for collection/generation of data:

See the report 'Seat and Occupant Response in Energy Absorbing Seats' (<https://doi.org/10.21949/1524450>), for an explanation of methodology, study design, and recording equipment.

2. Software-specific information needed to interpret the data:

The dataset complies with the NHTSA Test Reference Guide available at <https://www.nhtsa.gov/databases-and-software/entree-windows>. The data files collected are saved in common file formats, including ascii text, .xls, .jpg, .avi, and .mp4. The file formats can be opened using commonly available software such as text editors, picture viewers, and video viewers. .xls files can be opened with Microsoft Excel or freely available software, such as OpenRefine.

The data files on the record located at <https://doi.org/10.21949/1528568>:

* The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit <https://www.file-extensions.org/csv-file-extension>).

* The .txt file type is a common text file, which can be opened with a basic text editor. The most common software used to open .txt files are Microsoft Windows Notepad, Sublime Text, Atom, and TextEdit (for more information on .txt files and software, please visit <https://www.file-extensions.org/txt-file-extension>).

E. README UPDATE LOG

2024-03-01: README created by Jesse Ann Long <https://orcid.org/0000-0002-4962-1380>, Data Management and Data Curation Fellow, National Transportation Library, jesse.long@dot.gov

2024-03-18: Updates made after review by submitter.