Paperwork Reduction Act Statement

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 21xx-xxx. The information collected in this study will be used to create a database of vehicle occupant body size, shape, and posture. The data will be used to improve vehicle safety. Public reporting for this collection of information is estimated to be approximately **17 minutes**, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are voluntary; all responses will be de-identified and confidential, per 45 CFR part 46. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, National Highway Traffic Safety Administration, 1200 New Jersey Ave, S.E., Room W45-205, Washington, DC, 20590.

1PARTICIPANT INFORMED CONSENT FORM

STUDY TITLE: Modern Voice Command Interfaces

INVESTIGATORS: Christian Schmitz (DRI) **/** Amy Benedick (Westat)

STUDY SITE: Dynamic Research Inc.
355 Van Ness Ave # 200 Torrance, CA 90501
Torrance, CA 90501

TELEPHONE: (310) - 212- 5211

SPONSOR: National Highway Traffic Safety Administration

You are being asked to participate in a research study. Your participation in this research is voluntary, meaning that you may or may not choose to take part. To decide whether or not you want to be part of this research, the risks and possible benefits of this study are described in this form so that you can make an informed decision. This process is known as informed consent.

This informed consent consists of two parts. The first part describes the purpose, procedures, possible benefits and risks of the study. This form also explains what information will be collected, how your information will be used, how it is maintained, who may use it and secondary research and other uses. If you agree to participate, you will be asked to acknowledge your consent by signing this form prior to the start of the study.

The second part is the consent to disclose information collected during the study, including use of identifiable private information. This consent will be provided to you **after** you complete the study protocol. You may choose to participate, but not to have your information disclosed without any penalty to you.

The study investigator or study staff will answer any questions you may have about this form, the study, the information collected, storage of information, the use of information or the disclosure of

information. Please read this document carefully and do not hesitate to ask anything about it or its contents. This form may contain words or information you do not understand. Please ask the study investigator or study staff to explain any words or information you do not understand. After reading the consent form, if you would like to participate, you will be asked to sign this form. You will be offered a copy of the form to keep for your records.

KEY INFORMATION

Things you should know:

- The purpose of this research is to better understand how using voice commands to perform different tasks, like sending texts or setting the navigation, while driving impacts driver behavior.
- If you choose to participate, you will be asked to attend one study session of approximately 2.5 hours at DRI's research facility located in Torrance, CA. You will be trained on several tasks that can be executed using either the voice command interface or the vehicle's infotainment screen. During your drives and training, you will have a strap secured across your sternum to measure your heart rate, as well as eye-tracking glasses and a button secured to one of your fingers to respond to tactile vibrations. Driving will be conducted in a virtual environment using a fixed-based driving simulator. The vehicle and system you will be using in this study will match what you previously reported.
- Risks or discomforts from this research include discomfort associated with driving for 1 hour, sitting for 2 hours and risk of motion sickness symptoms (e.g., dizziness, nausea, vomiting, headache).
- There is no direct, immediate benefit to you from participating in this study other than the compensation for participation that is provided.
- The results of the study will not be disclosed to you.

PURPOSE

This research study is being conducted by DRI and Westat on behalf of the National Highway Traffic Safety Administration (NHTSA). The purpose of this study is to learn about drivers' use of and behavior when interacting with certain advanced voice command interfaces. These advanced features may allow drivers to complete tasks, such as sending a text message or entering a destination via navigation, using their voice. This research will seek to improve NHTSA's understanding of how these new voice command capabilities affect driving performance.

STUDY REQUIREMENTS

By participating in this research you acknowledge that:

- You are 18-70 years old (inclusive)
- You have normal or corrected-to-normal hearing
- You meet vision requirements (either i or ii)
    - (i) Must meet one of the following criteria:
        - No Prescription glasses needed to drive OR

        - Wear contact lenses while driving
    - (ii) Must meet both of the following criteria:
        - Prescription glasses with SPH values between -6 and +6 diopters AND
        - Prescription glasses with CYL values between -1.5 and +1.5
- You are fluent in reading and speaking in English
- You possess a valid driver's license
- You regularly drive one of the following vehicles
    - [*Vehicles to be chosen after PRA*]
- You regularly use one of the following systems
    - [*Systems to be chosen after PRA*]
- You have not experienced motion sickness in a driving simulator previously
- You drive at least 3000 miles per year
- You abstained from alcohol, marijuana, and illicit substances for 12 hours prior to session
- You do not need special driving equipment
- You have no medical conditions that might impact driving (i.e., heart condition, back or neck pain, recent back or neck pain treatment, disorders, disability or seizures)
- You have taken no sedative or psychotropic medications (antidepressants, anti-anxiety medications, stimulants, antipsychotics, or mood stabilizers)
- You are not pregnant
- You are not wearing mascara or fake eyelashes
- You have a valid Social Security Number or Tax Identification Number

NUMBER OF STUDY SITES AND STUDY PARTICIPANTS

This study will take place at one research site (noted above). A total of up to 160 study participants will be recruited from the local area surrounding the research site.

STUDY PROCEDURES

Before participating in this research study, you will be asked to read this Participant Informed Consent Form in its entirety. After all of your questions have been answered, you will be asked to sign the first part of the form to show that you voluntarily consent to participate in this research study. After the study protocol is completed, you will be asked to sign the second part of the form.

Summary of Study Procedures

The following procedures will take place at your participation session:

- Participation involves one session of approximately 2.5 hours that includes up to 1 hour of driving a specified route on a driving simulator.
- After signing this consent form, you will be given an overview of the study protocol and be escorted to the test area to receive instructions.

- The study staff will provide instructions and training regarding how to use the system being studied and will help familiarize you with the system functions. You will be given as much practice as is necessary and reasonable to be comfortable driving the vehicle.
- You will operate the driving simulator and we will collect data related to your interaction with the vehicle systems.
- At the completion of the drive in the simulator , you will be escorted to an area where you will be given a short study debriefing, asked to review and sign the second part of the consent form, and receive payment for your participation. Upon receiving payment, your participation will be complete.

NEW INFORMATION

No changes to procedures during this study are anticipated. However, any new information developed during the course of the research that may affect your willingness to participate will be provided to you.

RISKS OF STUDY PARTICIPATION

The possible risks associated with participating in this research study include discomfort associated with sitting in a motor vehicle for the above stated duration. Many people enjoy study participation and do not experience any discomfort.

During your participation in this study, you will be exposed to all risks normally associated with driving a contemporary motor vehicle in a simulated environment. If your participation involves driving in a simulator, there is a small chance that you could experience discomfort associated with simulator disorientation. A small percentage of individuals driving in simulators experience symptoms of discomfort, such as slight uneasiness, warmth, or eyestrain. If experienced, these effects typically last for only a short time, usually 10 – 15 minutes, after leaving the simulator.

Any driving that you will do in this study will be of your own volition. If you ask to stop driving as a result of discomfort, you will be allowed to stop at once.

There are no known physical or psychological risks associated with participation in this study beyond those normally found in driving while using contemporary in-vehicle technologies.

BENEFITS OF STUDY PARTICIPATION

Your participation in this study will help NHTSA to learn about drivers' use of and behavior in interacting with voice command interfaces and how voice command interface characteristics affect driver behavior and potential safety impacts.

There is no direct, immediate benefit from your participation in this research study other than the compensation for participation that is provided. You may benefit from future vehicle safety improvements that result from this research.

ALTERNATIVES

This study is for research purposes only. Your alternative is to not participate.

CONDITIONS OF PARTICIPATION, WITHDRAWAL, AND TERMINATION

Participation in this research is voluntary. You may withdraw your consent and discontinue participation in the study at any time without penalty.

By agreeing to participate, you agree to operate any research equipment and motor vehicles associated with the study protocol in accordance with all instructions provided by the study staff, and, if the study protocol involves driving, to operate the motor vehicle in accordance with all applicable traffic safety laws. If you fail to follow instructions, or if you behave in a dangerous manner, you may be removed from the study.

COSTS TO YOU

Other than the time you contribute, there will be no costs to you. You will incur costs for transportation to and from the research site, however, you will be provided an honorarium to compensate you for your time and travel cost.

COMPENSATION

You will receive $60 per hour for the time you spend participating in the study. If you voluntarily withdraw or are removed from this study, you will be compensated for the number of hours you participated in the study.

INFORMATION COLLECTED

During this study, DRI will collect the following data to assess your eligibility for study participation and to document your participation:

1. **Personally identifiable information** includes your name, address, e-mail address, phone number(s), and social security number (SSN) or Tax Identification Number (TIN) and similar information to contact you regarding your study participation, as well as to confer a 1099 form if more than $600 is earned from DRI in 1 calendar year.
2. **Driving background and experience information** includes your driver's license information, and your current personal vehicle's make, model, and model year. This information is used to verify your identity and ensure you have the necessary experience for the study.
3. **Health Information** includes your responses to questions regarding certain health conditions you may have and medications you may take that may affect your ability to drive normally. While you have responded to questions asking about specific health information, the individual responses to these questions are not retained by the research team. The only health-related information retained is a yes/no indication of whether you met all health-related participation criteria.
4. **Engineering data** includes driving performance, behavior, and any physiological data collected from the vehicle and any technologies you interact with and use during your participation, including sensor data and subjective questionnaire responses. Sensor data

includes vehicle motion information such as speed and the timing and magnitude of vehicle control inputs made including steering, gas pedal, and brake pedal inputs.

5. **Video/audio data** (the information recorded by video cameras and microphone(s)), if recorded, includes images of your face that will be recorded for later analysis, such as to determine the location and duration of your eye glances while driving and performing other study-related tasks. Recorded video data will only contain recording of your eyes, and no personally identifiable information will be recorded visually or auditorily. All recordings will be captured and stored in digital format (no tape copies will exist).

Any data collected during this study that personally identifies you or that could be used to personally identify you will be treated with confidentiality. Study data (which consists of Engineering and Video/Audio data as defined above) is collected without reference to your name or contact information. Study data is kept separate from study participation data (which consists of Contact Information, Driving Background and Experience Information and Health Information as defined above) and is only identified with a unique subject number assigned to each participant. The list correlating subject numbers to participant contact information will be kept in a secure location and only authorized individuals (the research staff) will have access for specific study-related reasons, such as to contact you for an additional participation appointment. Contact information data as well as the list correlating subject numbers to contact information will be stored on password-protected directories and destroyed after the study is complete.

Study data will be securely transferred from the data acquisition system to password-protected directories on a secure file server and verified. Data will be examined to ensure that study staff properly carried out the test procedures and that study equipment properly recorded data. Verified data from all study participants will be combined for analysis.

Access to study data will be solely for authorized research purposes or oversight of research activities. Such data will be maintained only on secure computers and/or file directories that are password-protected. Your study data may be reviewed by the study sponsor, federal regulatory agencies (e.g., Office for Human Research Protections within the HHS department), or Dynamic Rsch, Inc. Institutional Review Board for the purpose of making sure that the data collected are correct and that the study is being conducted properly.

At the conclusion of the data collection phase of this study, data, without any link to your contact information, will be securely stored by DRI for a period of three years after completion of the research project.

USES AND RELEASE OF INFORMATION COLLECTED

Information NHTSA may release:

The participation data (personally identifiable information, Driving Background and Experience Information and Health Information) may be released in a deidentified manner or in an aggregate format that does not include personal identifiers.

The engineering data collected and recorded in this study will include your driving performance based on the data. This data will be analyzed along with data gathered from other participants. NHTSA may publicly release this data, which will not be linked to your name or contact

information, in final reports or other publication or media for scientific, educational, research, traffic safety or government purposes.

The video/audio data recorded in this study includes images of your face and in-vehicle audio (possibly including your voice). The video/audio data will include information regarding your driving performance and visual and other behavior while driving. Video and in-vehicle audio will be used to examine your driving performance and other driving and non-driving related task performance while driving. This information will not be shared with NHTSA. NHTSA will not be provided with video/audio recordings, only a summarized dataset of coded behaviors.

Information NHTSA will not release:

Any release of participation data or engineering data will not include the release of your name, or data that will permit your identification. This information is also described explicitly in the Informed Consent Statement below. However, subject to Federal Law or an order from a court of competent jurisdiction, NHTSA may be required to release your name or other personal identifying information, health information, or driving record.

Secondary research and other use of collected information:

In consenting to this study, you also are consenting to follow-up or secondary research involving the data collected by the study sponsor or those entities it authorizes to use the study data.. Secondary research would not include the use of personally identifiable information as this will not be provided to NHTSA. For any future research or other future uses, you will not be informed of the details or purpose of the research, and you will not have the opportunity to withdraw consent for specific uses. In addition, results of future research will not be disclosed to you

Connected vehicle notice

The vehicle you will drive in this study collects data while in use through connected services and transmits the data to the vehicle manufacturer. The data may be about driving behavior, audio and video of you using the vehicle, or data collected through the use of the vehicle's applications platform, e.g., information system, and when personal devices such as a smartphone are connected to the vehicle's applications platform. The vehicle manufacturer may use the data for its own research, commercial or operational purposes without any further notice. It may also share the data it collects with third parties without further notice.

In general, each vehicle manufacturer may collect geolocation information such as location and speed of the vehicle. It may also collect driver behavior information such as vehicle speed, seat belt usage and information about breaking habits. The manufacturer may collect audio and video information through its connected services or through internal or external vehicle sensors. If you use the vehicle information system or connect a personal device such as a smartphone to the vehicle information system, the vehicle manufacturer may collect data from your use of the system or from third party applications that are connected to the vehicle.

The vehicle manufacturer may use the data it collects for a number of purposes. These include but are not limited to the following:

- To deliver the manufacturer's products and services where the information is reasonably necessary to perform the products or services.

- As reasonably necessary to protect the safety, property, or rights of consumers, the public and the manufacturer.
- For operations, compliance, or warranty purposes.
- For internal research or product development.
- To prevent, detect, protect against, or respond to security incidents, identity theft, harassment, malicious or deceptive activities, or any illegal activity.
- Comply with legal, regulatory, or contractual requirements.
- Protect the manufacturer's rights, such as investigating, establishing, exercising, preparing for, or defending legal claims.

Each vehicle manufacturer has a privacy policy that provides notice and specific information about the data the manufacturer collects during use and through connected services and applications. The study investigator has provided you with a copy of the specific vehicle manufacturer's privacy policy via a link in previous communications. If you would like to review this document now, you can request a researcher to provide a digital copy. Before you consent to participate in this study, you should review and understand the vehicle manufacturer's privacy policy. If you do not agree with the vehicle manufacturer's privacy policy, you should decline to participate in this study. If you have any questions concerning the vehicle privacy policy, you may ask the study investigator.

QUESTIONS

Any questions you have about this informed consent, the study, storage and maintenance of the data and future use of the data can be answered by the person administering this form or the study investigators by calling Christian Schmitz 310-212-5211(DRI) or Amy Benedick 240-314-5816 (Westat).

If you have any questions regarding your rights as a research participant, or if you have questions, concerns, complaints about the research, would like information, or would like to offer input, you may contact the Dynamic Research and (IRB) Regulatory Department at telephone number +1 *(310) 212-5211* (toll free) or email at *Jordan.Silberling@dynres.com*.

INFORMED CONSENT

By signing the informed consent statement contained in this document, you agree that your participation is voluntary and that the study has been explained to you. You also agree to the collection of information about you and your personnel information during the study. Also, by signing the informed consent statement, you agree to operate the study equipment in accordance with all instructions provided by the study staff. You may withdraw your consent and discontinue participation in the study at any time without penalty.

NHTSA will keep a signed copy of this form. A copy of this signed and dated form will also be offered to you.

INFORMED CONSENT STATEMENT

I certify that:

- I have a valid, U. S. driver's license.

- All personal and vehicle information, as well as information regarding my normal daily driving habits provided by me to DRI employees associated with this study during the pre-participation screening and the introductory briefing was true and accurate to the best of my knowledge.
- I have been informed about the study in which I am about to participate.
- I have been told how much time and compensation are involved.
- I have been told that this study's purpose is to improve NHTSA's understanding of how voice command interface characteristics affect driver effectiveness and impact safety.
- I agree to operate the research equipment, including operation of any motor vehicles, safely and in accordance with all instructions provided to me by the study staff and applicable laws.
- I have been provided a copy of the vehicle manufacturer's privacy policy, had an opportunity to review and ask questions about the policy and agree to continue to participate in this study.
- I have been told that:
  - The study will involve my operation of or interaction with a motor vehicle and that the risk of discomfort associated with driving is minimal.
  - That the deidentified study data collected may be used in future research without any notice to me.
  - My participation is voluntary, and I may refuse to participate or withdraw my consent and stop taking part at any time without penalty or loss of benefits to which I may be entitled.
  - Neither NHTSA nor its authorized contractors or agents shall release your personally identifiable Information, Driving Background and Experience Information or Health Information, unless required by Federal law or an order from a court with competent jurisdiction.

I understand the contents of this informed consent form and I have been given adequate time to read it. I hereby consent to take part in this research study.

I, _____, voluntarily consent to participate.
(*Printed Name of Participant*)

_____ _____
Signature of Participant Date

_____
Printed Name of Person Explaining Consent

_____ _____
Signature of Person Explaining Consent Date