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Aug. 22, 2022

Dr. Steven Cliff
Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

RE: NPRM – Part 563, Event Data Recorders, Minimum time Capture for Pre-Crash Data, U.S. DOT – National Highway Traffic Safety Administration [Docket No. NHTSA-2022-0021]

Dear Dr. Cliff:

Ford Motor Company (Ford), a domestic manufacturer and importer of motor vehicles with offices at One American Road, Dearborn, Michigan 48126-2798, submits the following comments regarding NHTSA's notice of proposed rulemaking to amend the requirements of CFR Part 563.

Ford supports the primary purpose of Part 563, which is to equip vehicles with Event Data Recorders (EDRs) to record data for effective crash investigations and for analysis of safety equipment performance (e.g., advanced restraint systems). EDRs are used in conjunction with traditional crash reconstruction methods, and Ford's 20+ years of field experience with EDRs confirms that the existing Part 563 EDR requirement of 5 seconds of pre-crash data at a frequency of 2 Hz is sufficient for this purpose in nearly every case.

Ford agrees with the comments submitted by the Society of Automotive Engineers (SAE) in response to this NPRM. Ford is a member of the Alliance for Automotive Innovation ("Innovators") and participated in the development of the comments submitted by the Innovators in response to this NPRM. Ford is submitting these comments separately to clarify and provide context for a statement in the NPRM regarding a "2007 Ford" vehicle and to provide information supporting the Innovators' statement that "the goal of improving the data provided by EDRs could be better served by considering additional categories of useful data rather than extending the duration and/or sampling rate of existing Part 563 data retention requirements".

NHTSA makes the following statement in the NPRM:

We believe a 20 second pre-crash recording duration is feasible. We are aware that, previously, several manufacturers' EDRs recorded pre-crash data in excess of the minimum time intervals required in part 563. For example, a 2007 Ford was shown to have reported over 25 seconds of data (23.6 seconds pre-crash and 1.6 seconds post-crash) on five separate data elements, at a frequency of 5 data points per second (5 Hz).

87 FR at 37293. In support of this statement, NHTSA cited a Special Crash Investigation involving a 2007 Ford Mustang. See *id.* at n.28.

To the extent NHTSA is making this statement to suggest that current Ford vehicle systems already are equipped with unused excess memory capacity that can be used to meet the proposed increased Part 563 EDR requirements, Ford respectfully states that this suggestion is incorrect. The pre-crash data recording capability of the 2007 Ford Mustang (and of other legacy Ford vehicles) was not designed to meet the EDR requirements or purpose of Part 563. Instead, on this vehicle (and on other legacy Ford vehicles), pre-crash data was stored in a Powertrain Control Module (PCM), which served as a diagnostics tool and was not equipped with a power energy reserve. This legacy system could not meet the Part 563 crash test performance and survivability requirements (49 CFR 563.10) and did not record many of the Table I data requirements such as delta-V, air bag deployment, and safety belt status (49 CFR 563.7). The 2007 Ford referenced by NHTSA therefore does not reflect a practical design path forward to meet the proposed increased EDR requirements.

To meet the Part 563 EDR requirements that became effective in 2010, Ford replaced the PCM data recording capability with a Part 563 compliant EDR that uses the Restraint Control Module (RCM) to record PCM data. The PCM internal data recording capability on the 2007 Ford vehicle referenced in the NPRM (including the 23.6 seconds of non-survivable pre-crash data) was therefore replaced with a Part 563 compliant RCM EDR in more recent model years. The existing Ford RCM EDR does not have adequate memory to preserve the proposed 20 seconds of pre-crash data at the proposed 10Hz sampling rate or a sufficient power reserve to ensure post-crash survivability of that data.

Developing an RCM EDR compliant with the proposed amendments would require significant revisions to current Ford production hardware and software. At a minimum, these revisions would include reprogramming the module to capture the additional data, adding additional RAM memory to store the data, and providing an increased energy reserve to ensure survivability of the data. These revisions would, in turn, require vehicle specific revalidation of the entire system (including crash testing) prior to implementation. Even after new systems are designed and validated, ongoing chip shortages and other supply chain issues currently affecting the industry are likely to further delay implementation. The proposed one-year lead-time is therefore simply inadequate to meet the proposed new EDR requirements or any other new EDR requirements NHTSA ultimately adopts.

Ford therefore recommends further consideration of the proposed amendment and suggests that additional data and studies are needed to confirm any anticipated safety benefit. As noted in the comments submitted by SAE, the vehicles involved in the Virginia Tech study were older vehicles, some of which even predated the effective date of existing Part 563 EDR requirements. To more accurately determine the potential safety benefit of the proposed amendments to Part 563, Ford suggests that additional studies are needed involving vehicles equipped with active safety features and EDRs compliant with existing Part 563 requirements.

Ford also suggests that the benefits of EDRs could be more directly and more quickly improved by identifying additional categories of information that should be collected and preserved, especially on vehicles equipped with advanced safety technologies. By way of example, EDRs on current Ford vehicles collect and preserve information such as yaw angle rate and telltale signals for the anti-lock braking system (ABS), electronic stability control (ESC) and traction control (TC) which provide valuable data for effective crash investigations. This additional data, Ford believes, is significantly more useful for purposes of crash reconstruction and evaluating the performance of a vehicle's restraint systems than the proposed extended duration and increased sampling rate of existing data elements.

As Ford explains above, the proposed amendments to Part 563 would require significant revisions to and revalidation of Ford's current EDR system. If NHTSA adopts the currently proposed amendment, Ford states that a lead time of 3 to 4 years with a 3-year phase-in period is both necessary and appropriate.

Ford appreciates the opportunity to provide these comments. If you have any questions, please contact Abhishek Samuelson (email: asamue35@ford.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Emily Frascaroli". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Emily Frascaroli