The General Motors request for exemption from safety standards for testing the ZEAV level 4 autonomous vehicle should be denied based on several important criteria.

1. Any highly autonomous vehicle approved for driving on public roads should be required to demonstrate a level of performance and reliability at least equal to human drivers. In addition, such systems must be required to perform basic tasks that are currently performed by human drivers (including detection and identification of safety signage, and detection and avoidance of obstacles, vehicles, cyclists, and pedestrians). For fully autonomous vehicles testing must include, at a minimum, an ability to detect and safely avoid obstacles, debris, pedestrians, bicyclists, vehicles, and animals, and manage other roadway conditions and hazards. It must include the ability to accurately detect and recognize roadway signage and signaling, even when that signage has been degraded by sun, weather, dirt, tree branches, and other factors common in the driving environment [SAE Level 4/5]. Until the vehicle has demonstrated this minimum level of performance, it should not be approved to operate on public roads.
2. A human driver travels over 490,000 miles between accidents and over 95 million miles between fatal accidents based on 2015 data. This does not create a situation in which there should be a rush to approve the operation of an untested autonomous system on public roadways, potentially endangering vehicle occupants, other drivers or pedestrians.
3. No compelling evidence suggests that the inclusion of the listed safety features will hinder the operation of the vehicle, even if not needed at some later date after appropriate vehicle safety has been demonstrated.
4. Given that the vehicle is intended only to operate under limited weather conditions, provisions must be made for situations in which the weather changes suddenly, or in which the vehicle fails to operate properly. In such situations, manual driving may become necessary to remove it to a safe location.
5. Testing of unproven autonomous software on public roads creates a situation in which other drivers and pedestrians become unwitting participants in vehicle testing. This violates the Common Rule for human testing which requires informed consent. To comply with basic ethical requirements, the test vehicle should be required to display prominent signage on top of the vehicle stating that it is “An autonomous test vehicle. No human driver present”.
6. Automated vehicles should be safe and understandable.
    a. Automation reliability standards and requirements for the conditions that automated vehicle systems should be able to handle must be established for each SAE level to support testing, training, and implementation approval. [SAE Level 2/3/4/5]
    b. Highly automated systems should include provisions for safe fallback states when the automation fails for any reason. The safety of these fallback states should consider the consequence of multiple vehicles seeking the same state at the same time. [SAE Level 4/5]
    c. Automated systems should include features that allow it to communicate intended actions to cyclists, pedestrians, law enforcement, and other road users [SAE Level 4/5].
    d. Automation design should make the underlying algorithms and their behavior interpretable so that its capabilities and limits are clear to designers and policy makers. [SAE Level 2/3/4/5]

7. If the public is the public is to accept potential crash risk from exposure to these vehicles, then there must be a requisite benefit to the public of greater value. The benefit is the data from the test. If there is a crash or an event where the automation brings the vehicle to a stop because: (1) the vehicle cannot handle a situation, or (2) there is a technical fault, then the data for 30 seconds before that event and 15 seconds thereafter shall be made public. Raw data shall be provided at the "as collected" data rate. For all values that are coded, a data dictionary shall be provided that contains similar detail to those used to explain CAN. The data to provide shall include:
    a. Video and audio from all cameras
    b. track profiles (distance, vehicle type, velocity) detected for each moving and fixed object and confidence for each measure
    c. steering wheel angle
    d. throttle position
    e. brake position
    f. Windshield wiper state and speed
    g. Vehicle speed
    h. Distance to both left and right lane markings and confidence of those values
    i. GPS values
    j. An explanation as to why the event occurred
    k. If there are occupants in the vehicle, then their belt status, pre-crash position, and a list of their injuries similar to that in crash reports shall be provided.
    l. A detailed description of damage to other vehicles/pedestrians/property sufficient to reproduce the crash dynamics

    In the event of a crash, this data shall be make public 2 days after the crash. For other events, the data shall be made public on a monthly basis, with the data for each month being released within 30 days or less of the previous month.