Outline

- Do EPA Test Routes Meet RDE4 Route Requirements?
- Do EPA Tested Vehicles Comply with RDE4 Requirements?
- Ideas to Improve Upon Current Test Procedures
- Summary
Do EPA Test Routes Meet RDE4 Route Requirement?

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- Routes used by EPA’s NVFEL were not designed to comply with RDE4 route requirements
- Each route was designed to replicate a specific type of driving rather than covering the full spectrum of vehicle operation in one route
- Routes can be arranged such that RDE4 route validity is completely met
Do EPA Tested Vehicles Pass RDE4

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Yellow: \( >\) Standard
Red: \( >1.43 \) *Standard

- Besides vehicle D, emissions were consistent across drive routes
- Even though routes do not comply with RDE4 requirements the clean vehicles seem to be clean regardless of how they are driven
Ideas to Improve Upon Current Test Procedures

- Are main concern with the European RDE procedure is with the constraints on the routes that can be used for a valid test.

- One possible way to handle this is by dividing test data into segments so that the appropriate standard can apply for each segment.

- To date we have looked at using window average speed and window CO2 (g/km) to divided up in-use test data.
  - For the United States the standards could be based on FTP, HWY and US06 emission levels.
Vehicle B
Vehicle C
Vehicle E
Vehicle F
Summary

- RDE4 procedure constrains in-use routes can be used for test procedure
- EPA routes can be arranged in a way to pass RDE4 route requirements
- At least one vehicle that EPA has tested would fail RDE4
- RDE emissions are route and environmental conditions dependent
- Looking into ways to not require defined route, but still have appropriate standards for different driving conditions
- Cold start operation may need to be binned separately
Appendix
Vehicle A
Vehicle D
Vehicle G