

# Final On-Track Competition Stage: The Race to 100 MPGe

*Michigan International Speedway*

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## All Vehicles Must Pass Tech Inspection

- Mechanical
- Electrical
- DAS – installed and functioning
- Fueling/charging before Dynamic Safety Testing
- No hardware or **software** changes from here to end of competition

## Pre-Event Dynamic Safety Testing

Must meet minimum requirements for these on-track tests (Same as Shakedown and Knockout, but should take **less time**):

- Braking test: stop from 60 MPH in less than 170' without knocking over cones in 12 foot lane
- Low-speed stability testing – 30 MPH slalom
- Double lane change maneuver at 50 MPH
- 0 – 60 MPH: 15 s max Mainstream class; 18 s max Alternative class
- 40 – 65 MPH: maximum 9 s
- Skid pad – 0.7 g on 300' circle

## Range Test

- Done on MIS oval after refueling and recharging
- 200 miles for Mainstream; 100 miles for Alternative
- 60 MPH average speed with 1 stop every 10 miles
- Maximum time based on minimum average speeds of 55 MPH
- Must meet minimum acceleration requirements during test
- Pass/Fail

## Efficiency Tests

- Based on NHTS data
- City test: 15 miles with 4 stops/mile; average speed 20 MPH – held on infield road course
- Suburban test: 30 miles long; 2 stops/mile; average speed 40 MPH – held on infield road course and oval track
- Highway test: 100 miles long; 1 stop/10 miles; average speed 60 MPH – held on oval track
- Anticipate two tests/day
- **Efficiency testing will be repeated to improve data accuracy**

## Speed and Efficiency Tests

- Special tests that incorporate an element of speed with 100 MPGe efficiency – details will not be shared at this time
  - Track configuration
  - Speed limit – maximum
  - Speed limit – minimum
  - No side-by-side racing – overtaking controlled
- Sharing details might encourage teams to develop their car to optimize performance in this test – we want you to design a car for the real world!
- Time to complete will be used as element of Grand Prizes

## Vehicles Impounded

- Immediately after Speed and Efficiency test, vehicles that do not need charging will be rolled into impound area
  - Fuel measurements will be conducted
- Teams that need charging will go immediately to the charging area
- After charging is complete, vehicles moved to impound

## The “Finalists”

- Of those vehicles achieving all performance minimums (MPGe, range & dynamic safety), the vehicles with the top ten scores in Mainstream and the top ten scores in Alternative will be considered Finalists for the Grand Prize
- Coast-down testing will begin the next morning
  - Fueling will be done as-needed
- Teams should be prepared with any instructions transport company that will move the vehicles to emissions testing labs
  - Vehicles will likely go on car haulers with 5-8 vehicles/trailer
  - Specific instructions for tying vehicle down to hauler is mandatory