

Product Statement Draft

The Automated Subway Inspection Vehicle (ASIV) will measure the following variables for the purpose of finding defects or non-conformities in the track and third rail components for a subway's right of way:

- Longitudinal profile and horizontal alignment of both running rails using
 - Laser Measurement and/or
 - Gyroscope
- Track gauge using
 - Laser measurement or
 - Contact wheel and strain gauge
- Tunnel and platform clearances using
 - Laser measurement
- Corrugation of running rail surface
- Third rail height and gauge using
 - Laser measurement or
 - Contact wheel and strain gauge
- Vertical gap between the top of the third rail and the protective board using
 - Laser measurement
- ~~Internal rail flaws~~
- Track grade using
 - Inclinometer
- GPS/Tracking Location using
 - Starting point and distance traveled and translate into stationing such as mileposts (underground / in tunnels) or
 - GPS (above ground) or
 - perhaps both above depending on GPS signal strength

When a variable is measured to be outside of the tolerances prescribed, the on board computer (OBC) will assign a unique ID number to the defect, record the type of defect found, the amount of deviation, and the location by stationing and/or exact GPS position onto an internal SSD drive. ASIV will also take a photograph at the approximate location of the defect for visual identification by track workers.

Additionally, ASIV will be capable of inspecting track that is in use for revenue service though a collision avoidance system that will detect the approach of a subway and trigger a mechanism that will remove any components from the running rails and fold the device into an envelope small enough such that a subway can pass over ASIV without incurring any damage to itself or the inspection vehicle. After the subway has passed, ASIV will automatically re-mount to the running rails and continue the inspection.

ASIV will be self-propelled via a battery powered by on board motors controlled by the OBC. The OBC will be programmable such that a user can input a set distance to be inspected. By default, when ASIV is finished inspecting a set distance or if it detects that the battery is at a critical level, it will automatically retract into its collision avoidance envelope. ASIV will charge at specific known points between the rails in while it is retracted from the track.