

2018 LaserTrain Prototype: Test Results

During the 2018 leaf season New York based MTA LIRR and LPS tested the first ever functioning LaserTrain on live track.

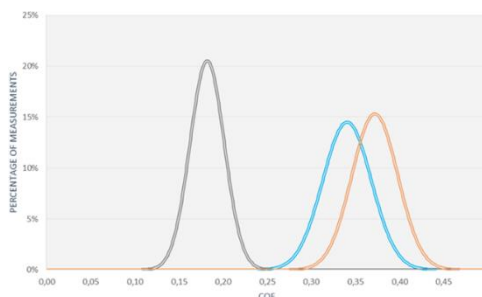
Test goal: Prove that the LaserTrain cleans a 20mm+ band on the railhead safely at 15 km/h.

Cleaning Result

- Visual and measurable cleaning band of 23 mm;
- Correct positioning of the cleaned band on the contact area between wheel and track;



- Effect is regardless of state of track: even tracks purposely highly contaminated are fully cleaned in one passing;
- The target cleaning speed was well surpassed as the prototype cleans any rail at 25 km/h;
- Tribometer measurement prove the cleaning effect. A high COF means high traction. Dirty rail (grey) has less than half the COF of the normal summer operation (blue), but the LaserTrain yields even better COF (orange).



Laser Safety

The LaserTrain uses high-power lasers to remove the slippery contamination from the railway track. ANSI Z136.1 sets the standard for safe use of lasers.

- LaserShield, LaserShoe, Optics and Coatings all function as intended;
- System emits less than 1% of the limit and is safe for use;
- Fully functioning interlock system switches off laser automatically if necessary.

Mechanical Safety

- System fully adheres to the IEC 61373 standard for shock and vibrate of rolling stock;
- Transport mode prevents hitting obstacles at any speed;
- Cleaning mode (low on rail for laser safety) capable of high speeds (65 km/h+ tested);
- Geofencing system uses GPS and independent speed measurements to switch between cleaning and transport mode automatically.

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