

CLEM7 in-tunnel air quality

Monthly trend report – December 2018

The table below sets out the in-tunnel air quality criteria for the Clem 7 tunnel as set out in the Coordinator General's Report.

- For the month of December 2018 no notable trends have emerged.

Table 1: In-tunnel air quality criteria

Parameter	Criteria
Carbon monoxide (CO)	70 ppm generally 90 ppm in peak traffic congestion
Nitrogen dioxide (NO ₂)	1 ppm (average)
Visibility coefficient (K)	0.005 m ⁻¹ for free flowing traffic (greater than 50km/hr) 0.007 m ⁻¹ otherwise

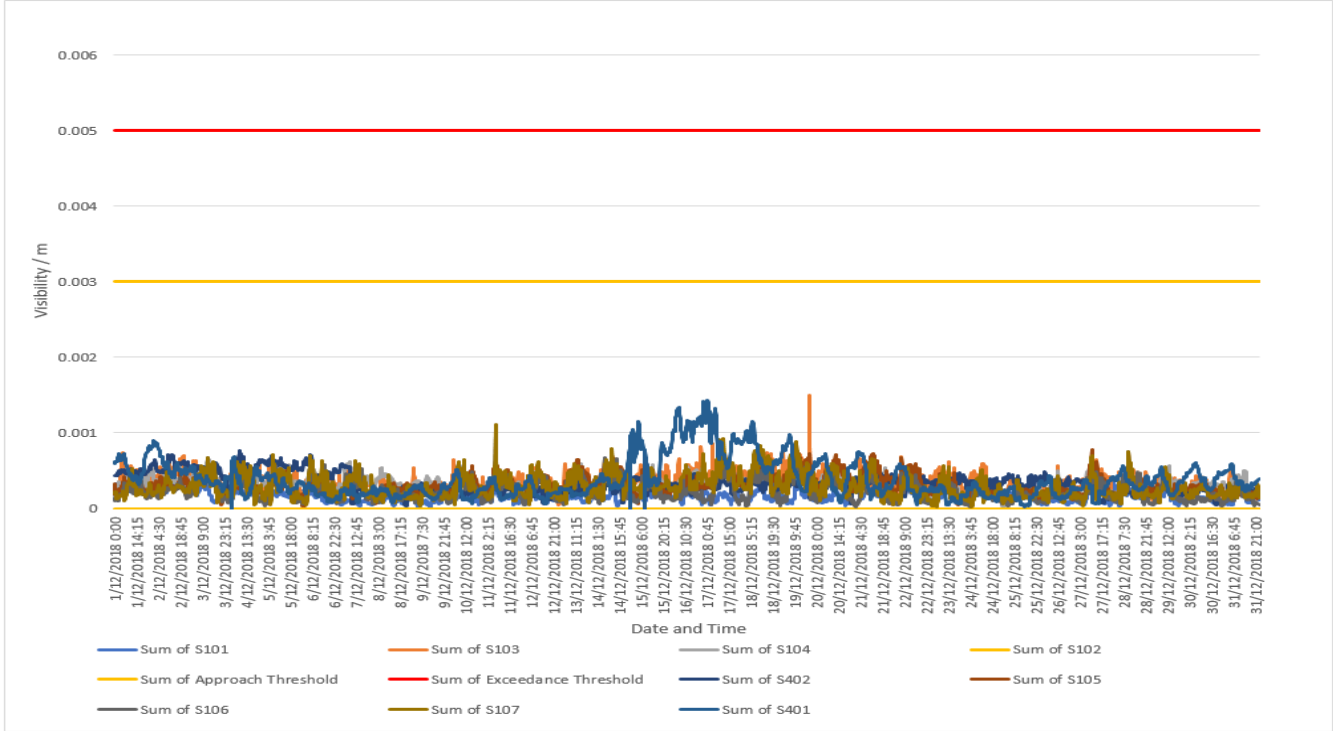
Notes:

1. Monitoring and measuring protocols for each criteria as set out in the PIARC guidelines, as current December 2009.
2. Peak traffic congestion occurs when traffic flows are less than 10 km/h.
3. Visibility coefficient (K-value) may fluctuate with peak conditions.

CLEM7 IN-TUNNEL AIR QUALITY

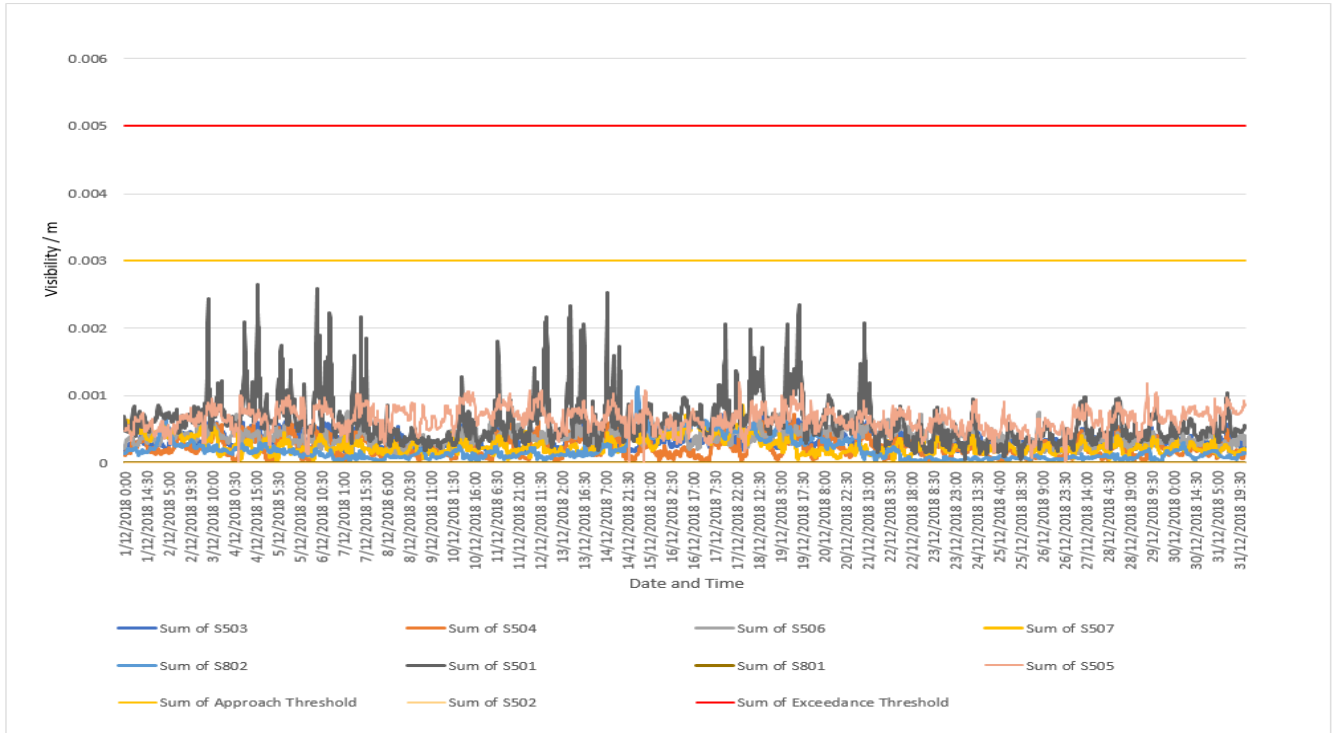
Visibility

Figure 1: In-tunnel visibility extinction coefficient – Northbound (15 minute averaged data)



S102 Reported with high / erratic levels. Maintenance undertaken during December shutdown and to be reinvestigated during February shutdown.

Figure 2: In-tunnel visibility extinction coefficient – Southbound (15 minute averaged data)

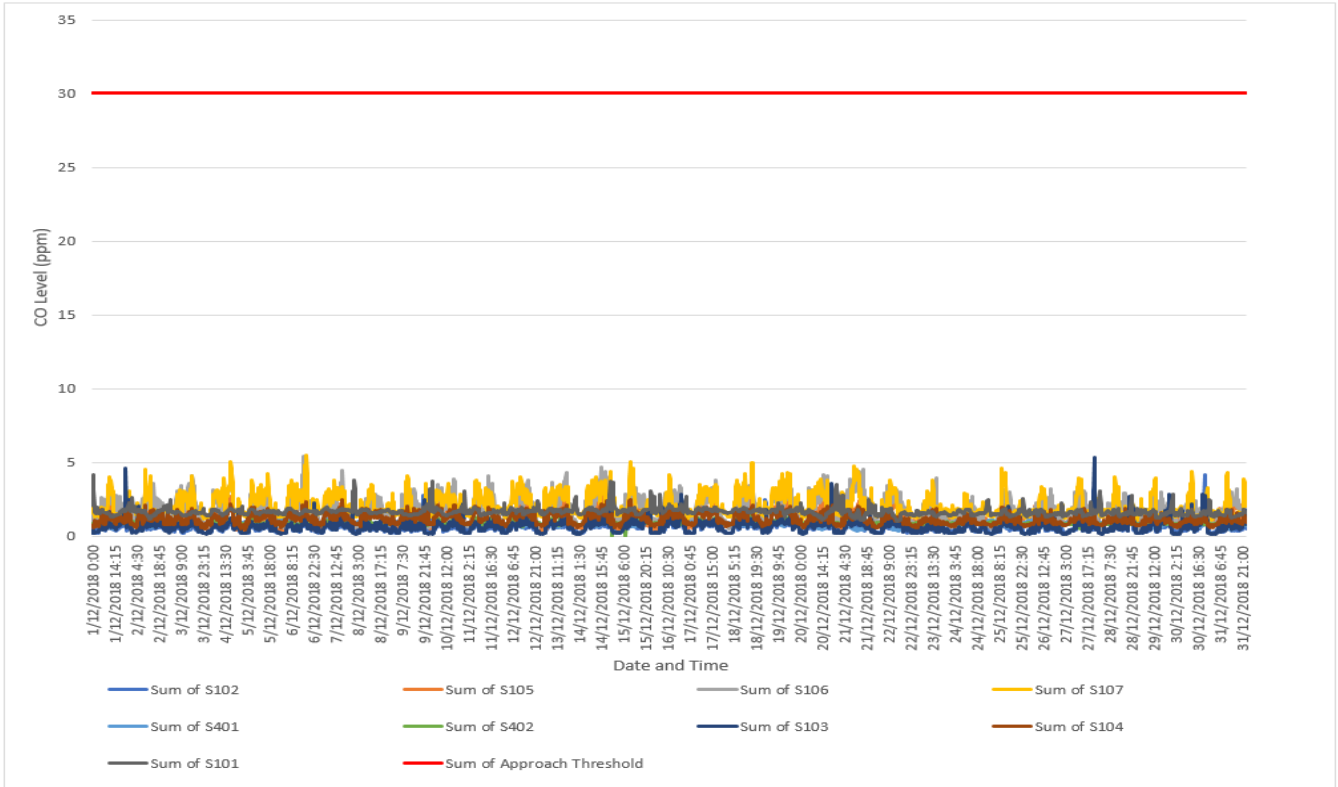


S502: Not powered during December. To be reinstalled during February closure following new flash-card install.
 S506: Sensor displaying an erratic reading. Corrective maintenance occurred during December shutdown.
 S801: No data available. Unit removed for spectrometer repairs at manufacturer.
 S501: High spikes throughout month. Sensor to be calibrated during February closure
 S505: Erratic Throughout month, to be investigated during February closure.

CLEM7 IN-TUNNEL AIR QUALITY

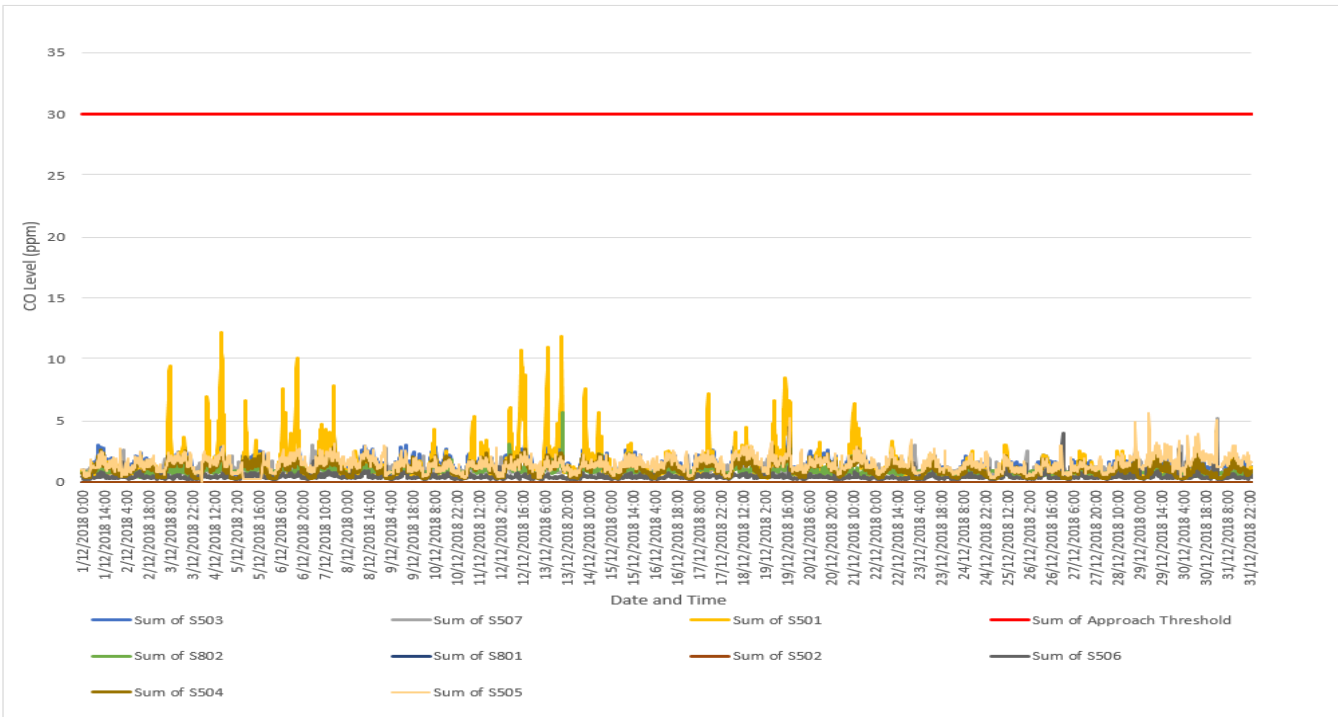
Carbon monoxide

Figure 3: In-tunnel Carbon Monoxide (CO) Concentrations - Northbound (15 minute averaged data)



No comments.

Figure 4: In-tunnel Carbon Monoxide (CO) Concentrations - Southbound (15 minute averaged data)

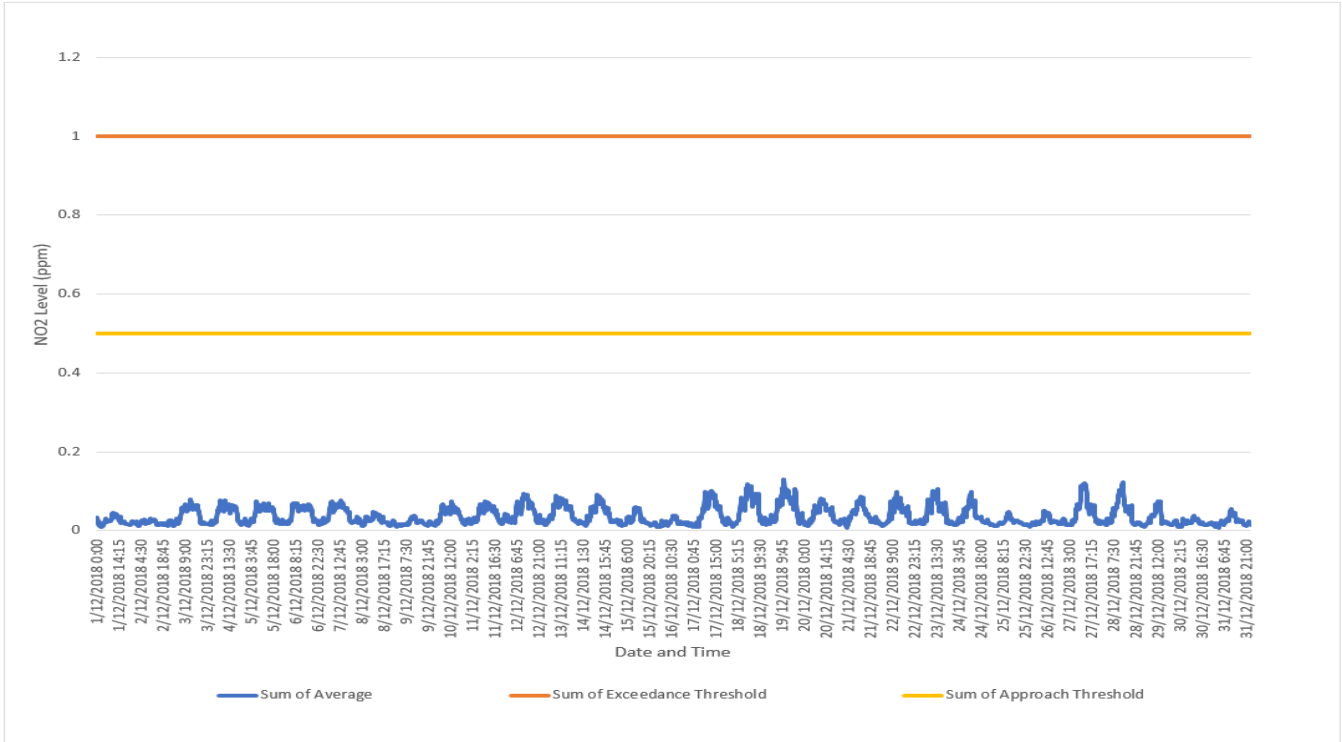


S501: Usually high spikes observed. Sensor due for calibration during February closure.
 S502: Not powered during early December. Sensor to be reinstalled during February closure with new flash card.
 S505: Sensor displaying an erratic reading. To be investigated during February closure.
 S801: Not powered during early December. Sensor sent to manufacturer for spectrometer repairs.

CLEM7 IN-TUNNEL AIR QUALITY

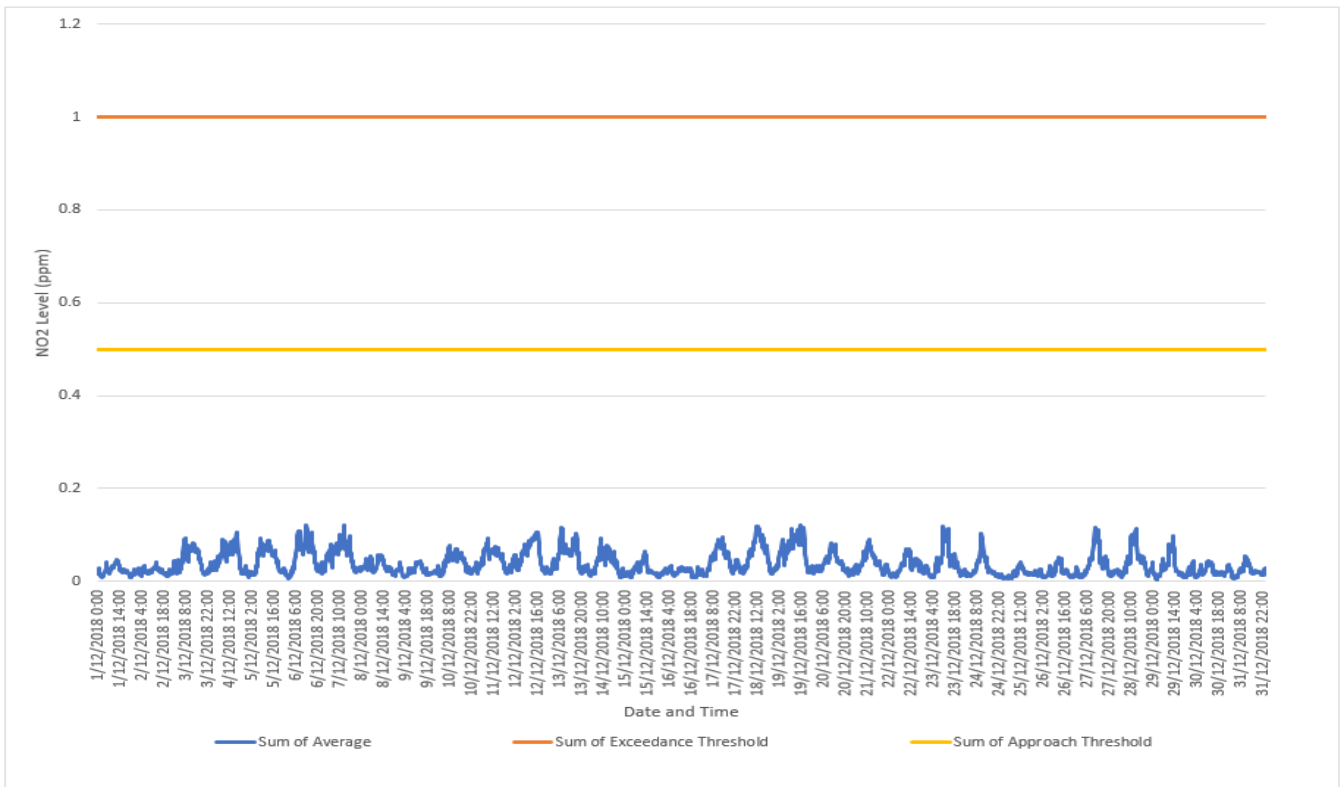
Nitrogen dioxide

Figure 5: In-tunnel Nitrogen Dioxide (NO₂) Concentrations - Northbound (15 minute averaged data)



S0102 Sensor Displaying an Erratic / Flat line Reading throughout month. To be further investigated during February 2019 Closure

Figure 6: In-tunnel Nitrogen Dioxide (NO₂) Concentrations - Southbound (15 minute averaged data)



AN0501 Spikes appear to be on-trend but unusually high. Sensor due for calibration during February 2019 Closure
 AN0502 Sensor Not Powered due to ongoing fault. To be Re-installed during February 2019 Closure.
 AN0801 Sensor Not Powered due to ongoing fault. Cannot be Re-installed during February 2019 Closure. Spectrometer fault requires sending unit back to manufacturer.