# MetroCount®
## *Traffic Data Specialists*

# Spectrum of Axle Hits

## MTE User Manual - Classification Reports

3.21

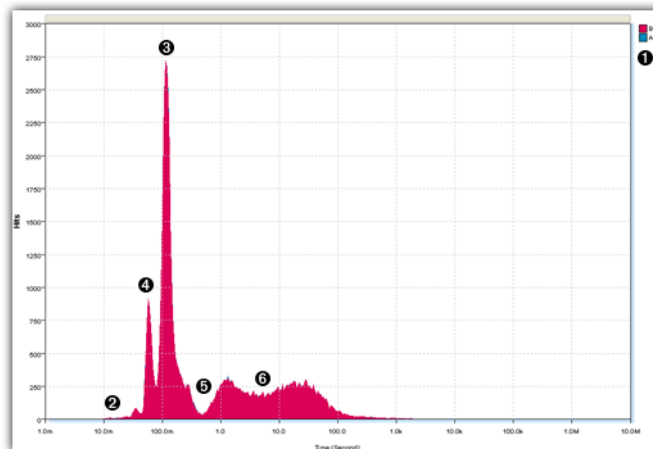May 2009

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# Spectrum of Axle Hits

The Spectrum of Axle Hits report, or Hit Spectrum, is a histogram of the time difference between successive sensor hits. This chart is one of the most useful tools for instantly verifying data quality.

MCReport scans a dataset, and keeps a tally of the time between successive sensor hits, grouping them by the order of hits: **A to A**, **B to B**, **A to B** or **B to A**. The Hit Spectrum shows the **A to A** and **B to B** plots by default - the time between hits on the same sensor provides the most useful information.

The time between sensor hits can vary over a huge range, so the horizontal axis is logarithmic. This allows a range from one millisecond to ten million seconds.

A typical Hit Spectrum is characterised by the following:

1.  With good quality classification data, the A to A and B to B plots should perfectly overlay each other. Only the top-most plot may be visible.
2.  Peaks in the left-most region, from around 10 to 30 milliseconds, depict spurious hits caused by sensor noise.
3.  A sharp peak somewhere around 100ms represents the product of speed and wheelbase of the most frequently recorded vehicles (usually cars).
4.  Additional smaller peaks in this region are due to bi-axle and tri-axle groups, or trailers.
5.  A trough approaching the x-axis indicates low congestion.
6.  The remainder of the Hit Spectrum, usually above 400ms, is characterised by a broad hump that represents the distribution of inter-vehicle times.



**Typical Hit Spectrum**

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