

CALIBRATION AND QUALITY MANAGEMENT OF WIM DATA

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ABSTRACT

Robust and effective tools for the accuracy and quality assessment of WIM data are essential to continuously prove the relevance and maintain the reliability of in-service WIM systems. The American ASTM Standard Specification for Weigh-in-Motion (WIM) Systems was initially used as the basis for the implementation and testing of WIMs in South Africa, followed by the European COST 323 Specification from approximately 2006. Since 2010 there has been a shift towards using a data-based method for retrospective calibration and for assessing the quality of WIM data in South Africa.

The Truck Tractor (TT) Method is currently applied on various toll concessions and is endorsed by the South African National Roads Agency (SANRAL). Development of the method started in 2007 and it was first presented (at the time still known as the FTR Method) at the ISWIM-6 Conference in Paris in 2008. It is a uniquely South African method that uses the truck tractor loads of a specific selection of 6- and 7-axle trucks to determine the appropriate calibration factor and to assess the quality of data. The calibration method and key elements of the quality assessment procedures were incorporated into the new South African Technical Methods for Highways (TMH 3) document that details traffic and axle load monitoring procedures in South Africa. The TT Method will therefore play a key role in the quality assurance of in-service WIM monitoring systems on a national level in future.

Over the past 10 years the TT Method built up a track record of being able to timeously identify WIM system defects and to make the most of historic data that was collected even before the TT Method was developed. There is currently a renewed emphasis on WIM performance because of SANRAL's vision to use WIM for direct enforcement in future. Research into the possible refinement of the TT Method continues to stay abreast with changes in truck loading characteristics and the demand for even better WIM accuracy.