

## Concessionaire's HS-WIM in Brazil- COST 323

The highway system in Brazil uses concessionaires to maintain and operate portions of the road infrastructure to facilitate safe and fair transportation and trade. Weigh-In-Motion (WIM) systems are employed at high and low speeds to identify overweight vehicles on these roadways to help minimize damage by overloaded vehicles. ANTT, (the National Land Transportation Agency) along with INMETRO, (the National Institute of Metrology, Standardization, and Industrial Quality), are developing regulations for operation of these systems. WIM performance tests, such as COST 323, are conducted to evaluate if the accuracy complies with the proposed legal performance requirements in Brazil.

“Entrevias operates hundreds of kilometers of roadways in Brazil, and we are pleased with the performance of the Intercomp Strip Sensors when installed in our HS-WIM sites.”  
S. Santillian, President – Director of Operations, Entrevias

Brazilian highway concessionaire [Entrevias](#) maintains infrastructure and operates sites throughout the State of São Paulo. A typical HS-WIM site includes two rows of Intercomp strain gauge strip sensors installed per COST 323 pavement specifications, and is currently used for screening for vehicle weights at high speeds and evaluation for performance for future federal regulations. A COST 323 analysis of accuracy was done at a site on Highway SP330 with the following vehicles: 3-axle rigid at 22,750 kg, 5-axle segmented at 40,940 kg, and 6-axle segmented at 45,040 kg with 84 vehicle passes over the left, right, and center of the traffic lane.

Installed by Entrevias' partner for WIM integration, [FiscalTech](#), the HS-WIM site demonstrated COST A(5) accuracies with all three vehicles for GVW, single axle, group axle, and axle in a group weights (see table). The performance of strain gauge strip sensors at this site provides in-service examples meeting or exceeding COST 323 A(5) criteria. In addition to the sensor's OIML R134 certification, these tests demonstrate Intercomp Strip Sensors' accurate weight performance for various vehicle configurations, increasing user's ability to demonstrate consistent accuracy required for current screening and future direct enforcement applications.

To learn more about Entrevias, visit <http://www.entrevias.com.br/>

To learn more about FiscalTech, visit <https://www.fiscaltech.com.br/en/>



Two pairs of Intercomp Strip Sensors are installed to cover the width of each lane to provide the desired accuracy.



As a result of the weights and vehicle dimensioning, vehicles can be directed by VMS to exit for further actions.



WIM Strip Sensors are installed into channels cut into the pavement, and are used at speeds ranging from 3-120+ km/h.

Criterion	Accuracy			
	COST 323 A(5)	95% CI	n=	Obtained Accuracy Class
Gross Vehicle Weight (Avg % error)	5%	4.4%	84	A(5)
Group of Axles	7%	5.2%	111	A(5)
Single Axle	8%	7.4%	112	A(5)
Axle in a Group	10%	9.5%	304	A(5)