

TITLE:

X-Net : study of constraints on the driver.

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SUMMARY:

French MoD/DGA realised at the end of 2005, some dynamic tests of stopping with different vehicles (gross weight lower than 3,5 tons), with the net X-Net from QinetiQ company.

One of the aims of this study, was to quantify the different dynamic constraints observed on the driver at the time of the deceleration; this deceleration resulting from the action of the net on the front wheels of the vehicle.

For that purpose, ETBS made measures by means of a model equipped with several types of sensors.

This model was -for each test- taken on board, on the right side near the driver.

The means of measure were constituted with :

- different models of accelerometers put on the helmet and in the head of the model,
- sensors of force and momentum placed in the neck of the same model,
- a sensor of force placed under the safety belt of the model.

The helmet of the driver was also equipped with accelerometers to compare the values with those recorded on the helmet of the model. A sensor of force was also installed between his safety belt and his chest.

Two video cameras (500 images/second and 25 images/seconds) were positioned inside the vehicle so as to verify the two behaviours (pilot and model).

All the electronics of recording was embarked aboard each of the tested vehicles.

In conclusion and considering the observed distances of stopping, the decelerations undergone by the passengers are weak and remain very lower than those equivalent to thresholds of accidentology phenomena.

For the record, these measures were completed by those realised by ETAS with the recording made by GPS and concerning speeds and trajectories of vehicles in test.

KEYWORDS:

Net "X-Net", stopping of vehicle, physical measures, driver, and model.