



# DEWESoft®

C A S E S T U D I E S



# TRACTOR BRAKE TEST

## ABSTRACT

This application note shows how Dewesoft products provide an effective solution for a quick validation of braking parameters in the field. The mobile measurement instruments and the easy-to-setup software are used for checking braking parameters according to regulations. At the same time similar solution is providing testing tool in case of troubles in future.



## INTRODUCTION

The client, a huge tractor manufacturer in Austria, is developing and producing farming machinery including tractors for worldwide market. With increasing performance of the tractors (higher velocity) and new regulations every tractor has to pass brake test in order to pass the homologation test.

The regulation at the moment is quite basic, in comparison to automotive regulations, because the tractor has to drive either with 40 km/h or 50 km/h (depends on the HP of the engine) and brake to 0 km/h, within certain distance and achieving certain MFDD factor. At the same time also braking force is a key factor on successfully passing brake test. It does not include measurement of the temperature of brake lines and several cycles of braking.

## MEASUREMENT SETUP

### DATA ACQUISITION SYSTEM

- DEWE-43 (8 analog, 8 digital and 2 CAN inputs)
- VGPS-HS (100 Hz GNSS receiver with support of GPS/GLONASS)

### SENSORS

- Entron force transducer with range of 2500 N
- DEWE-Brake trigger

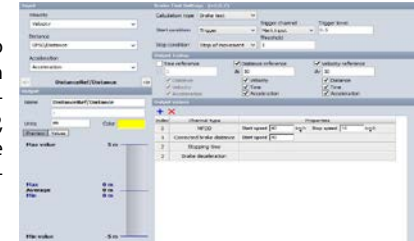
### SOFTWARE

- Dewesoft X2
- Brake test plugin



## BRAKE TEST SETUP

In brake test plugin, we have choose a proper start/stop condition. Which was in our case the signal coming from the brake trigger and stop of the movement with a threshold value of 1 km/h. Since the tractor was "only" 140 HP, the brake test was performed at 40 km/h. So MFDD, brake distance, stopping time and brake deceleration was calculated for this conditions.



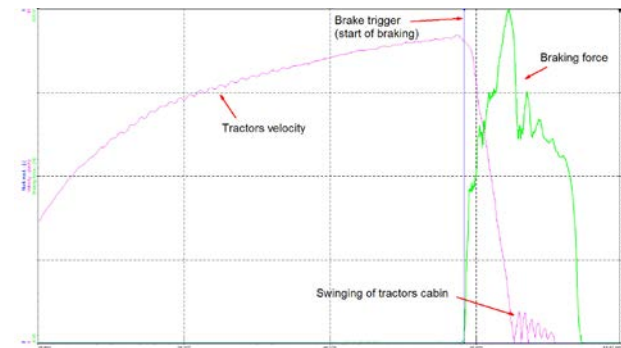
## ANALYSIS

The display was created for easier online indication to the driver if the test is valid or not. Therefore all the parameters (MFDD, Brake distance, Start speed, ... ) were compared to regulation conditions with the help of math channels.



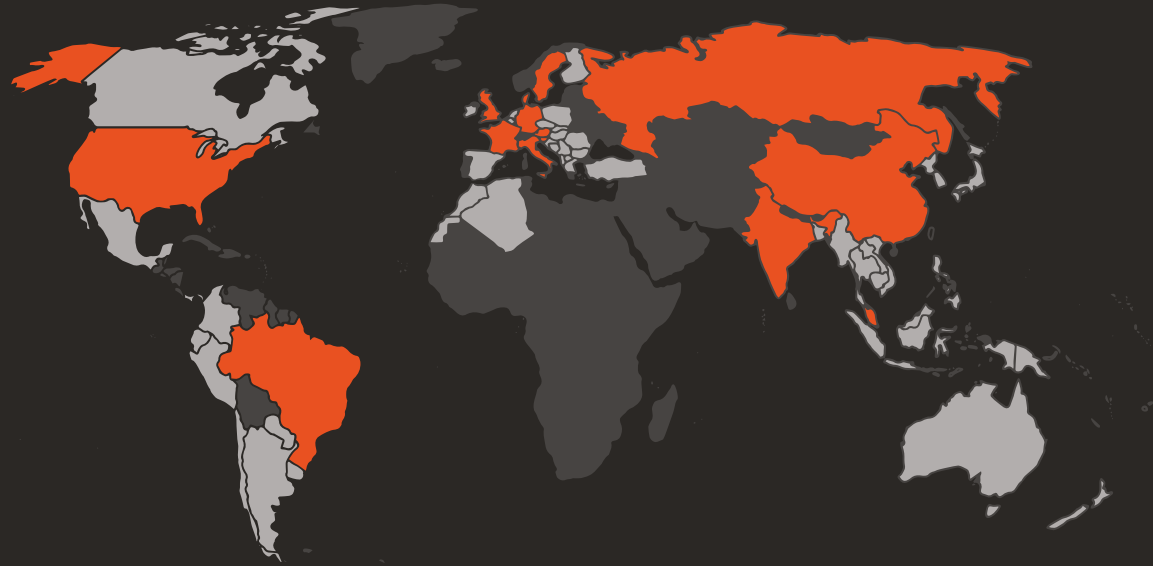
## ANALYSIS SCREEN

Testing engineers were of course interested in more details, therefore curves like dynamic braking force and velocity are very important for them.



## CONCLUSION

The measurement of this particular model of the tractor has been successful and tractor has passed internal check of regulation. The most interesting parameter for customer was velocity, where they were able to see the swinging of the cabin, which goes up to 5 km/h and will help them at future development of stiffness of the suspension. The whole measurement including setup of the tractor took 3 h (including soldering the connectors of special sensors provided by customer and comparison tests).



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