



# Water Distribution Measurement

A tool to estimate the water distribution for skid resistance dynamic measuring devices

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# Checkpoints – Novelties of this year

- Slip rate (Jean-Marc Moliard)
- Angle (Minh-Tan DO)
- Water distribution (Zoltan RADO and Malal KANE)

EPFW 2019

# Objective

- The thickness and distribution of the water film dropped in front of the measuring wheel, is a major factor of influence of skid resistance measurement.
- This presentation describes a method for determining the thickness of the water film spread on the pavement during a skid resistance measurement performed by the dynamic test devices.

# For what?

- This tool characterizes the thickness of the film of water diffused under the wheel of measurements, as well as its homogeneity.
- The thickness measurement of the water film can be carried out for all the standard speeds of test vehicles, and in the range 20 to 100km, and for water thickness between 0.25 and 2mm.

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# Grooved metal plate

- 32 grooves
- at the 2 ends, storage tubes of 2 different widths:
  - 12.7 mm (preferably used for thickness from 1 to 2 mm)
  - 6.35 mm (preferably used for thickness from 0.25 to 0.5 mm)



# Plate location



# Measurement procedure





# Measurement procedure

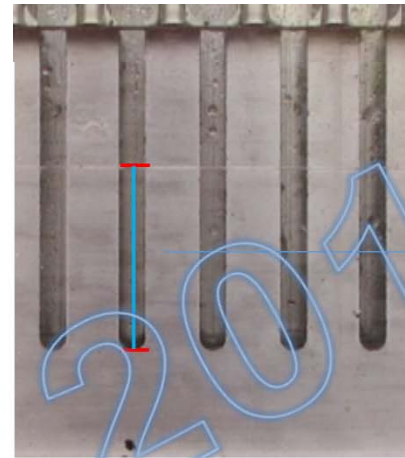


# Calibration

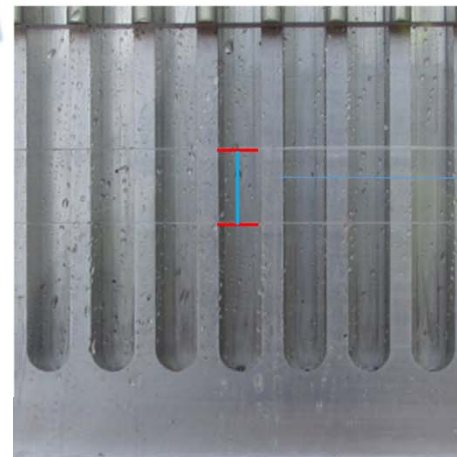
	Characteristic Water Film Thickness (mm)	Equivalent water heights in the tubes (mm)
Narrow Tubes	0,25	21,3
	0,5	42,5
Large Tubes	0,5	21,3
	1,0	42,5
	1,5	63,8
	2,0	85,1

$$H_{ref} = \frac{H_p \times L_p \times E_{fe}}{n \times l_t \times p_t}$$

- $H_p$  : Total length of the open portion of the grooved plate
- $L_p$  : Width of grooved plate
- $E_{fe}$  : Thickness of the water film
- $n$  : Number of tubes
- $l_t$  : Width of the tubes
- $p_t$  : Depth of the tubes



= 0.5 mm



= 0.5 mm

Some examples



# Some examples



# Some examples



# The software



# Contacts

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