NEW TRACTION DEFINITION
CURRENT TRACTION DEFINITION (reminder)

2.12. “Traction tyre” means a tyre in class C2 or C3 bearing the inscription TRACTION and intended to be fitted primarily to the drive axle(s) of a vehicle to maximize force transmission in various circumstances.

6.5.1. The tyre shall have a tread pattern with minimum two circumferential ribs, each containing a minimum of 30 block-like elements, separated by grooves and/or sipe elements, the depth of which has to be minimum of one half of the tread depth.

The use of an alternative option of a physical test will only apply at a later stage following a further amendment to the Regulation including a reference to an appropriate test methods and limit values.

(CURRENT) DEFINITION OF TRACTION IS BASED ON 1 GEOMETRICAL PATTERN PARAMETER

→ 2012 : ETRTO TRACTION TASK FORCE WAS FIRSTLY LOOKING FOR A TEST METHOD(S) AS ALTERNATIVE OPTION
NEW TRACTION DEFINITION

TEST TRIALS (2013-2015)

• 3 full Round Robin Tests

• 8 types of patterns, 12 tyre candidates

• 34 soil types tested by Companies during 2 years
  • summer and winter campaigns
  • 21 EU tracks + 13 JPN tracks
  • Sand, Clay, Loose soil, Gravel, Concrete, Metallic plates,...
  • Wet and Dry tracks, Snow,...

TEST REPRODUCTIBILITY IS VERY LOW ESPECIALLY FOR SOFT SOILS.
AN ALTERNATIVE FOR NEW DEFINITION USING A UNIQUE OR A COMBINATION OF TEST(S) WAS NOT POSSIBLE
NEW TRACTION DEFINITION

ETRTO GUIDELINES for NEW APPROACH (2016)

• Have a more objective correlation with performance
• Use objective but simple measurements
• Interest of a transversal void/fill ratio introduction
• More precise definition of pattern traction elements
• Take into account non rib patterns
• Take into account future possible technologies and designs

➔ 2016 : ETRTO TRACTION TASK FORCE WAS THEN LOOKING FOR A NEW APPROACH
➔ CHANGE FROM CURRENT PURE GEOMETRICAL APPROACH TO A MORE MECHANICAL APPROACH
INTRODUCTION OF PATTERN “DEFORMATION POTENTIAL” CONCEPT

**CURRENT DEFINITION**
(only 1 factor)

- **Total amount of elements (TE)**

  *Limit*: 60 = minimum 2 x 30 elements

**NEW DEFINITION PROPOSAL**
(3 factors)

- **Total amount of elements (TE)**

  *Deformation Potential (DP) =*
  
  \[
  \text{void/fill ratio} \times \text{tread depth}^3
  \]

3 PARAMETERS: TOTAL AMOUNT of ELEMENTS & VOID/FILL RATIO & TREAD DEPTH.

NEW APPROACH IS MORE MECHANICAL ORIENTED ...
MORE FLEXIBILITY BUT MORE SEVERE CONDITION FOR BLOCK SEPARATION FEATURES

CURRENT DEFINITION

Elements separated by grooves/sipes having their depth min 50% of tread depth

NEW DEFINITION

Elements separated by grooves/sipes having their depth in average min 70% of tread depth AND everywhere min 10% of tread depth

NEW APPROACH IS MORE MECHANICAL ORIENTED ... and MORE SEVERE (for longer Traction sustainability)

BUT STILL CLEAR, RELIABLE and without need of specific testing.

Stronger requirements concerning the separating grooves/sipes from 50% to 70% and never below 10%
NEW TRACTION LIMITS

C2 - SMALL C3 - BIG C3

**TE** : Total amount of Elements in tread pattern
**DP** : Pattern Deformation Potential = VR \cdot TD^3
**RD** : Nominal Rim Diameter code
SYNTHESIS: IMPACT on the MARKET DISTRIBUTIONS

WITH NEW TRACTION DEFINITION
SEGREGATION WILL BETTER CORRESPOND TO MARKET REALITY AND TO REGULATION INTENTION

C2 TYRES

CURRENT Definition
60% might be Traction marked - 40% may not be

NEW Definition Proposal
40% may be - 60% may no more be

C3 TYRES

CURRENT Definition
75% might be Traction marked - 25% may not be

NEW Definition Proposal
40% may be - 60% may no more be
• ETRTO considers that current TRACTION definition is not well segregating real Traction tyres from non-Traction ones.

• It has not been possible to define a unique test method and a unique threshold to propose a physical test method.

• ETRTO proposes a more mechanical approach for the new Traction definition.

• This new Traction definition proposal provides a more accurate segregation, better corresponding to market reality.

• Sufficient transitional provisions will be precised in a Working Document for next GRBP session if this proposal is accepted.
Thank you!