

Working Paper N° : TYREGTR-09-06
(ETRTO – Progress on the harmonisation
work for LT/C tyres)

LT/C Harmonization

Update for informal Tyre gtr group
24 September 2010

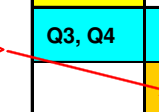
Timing

| | Q4 2009 | Q1 2010 | Q2 2010 | Q3 2010 | Q4 2010 | Q1 2011 | Q2 2011 | Q3 2011 | Q4 2011 | 2012 | 2013 | 2014 | |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------|--------|-------------|--|
| Phase 1: Harmonized requirements for radial PC, non-harmonized requirements for radial LT/C tyres | | | | | | | | | | | | | |
| Meeting with some CPs, Technical sponsor, Chairman of ad hoc WG at WP29 | | | | | | | | | | | | | |
| Publication of draft GTR text | | | | | | | | | | | | | |
| Meeting of ad hoc WG after GRRF; validation of Roadmap | | | | | | | | | | | | | |
| Take into account CP reactions to GTR text | | | | | | | | | | | | | |
| Adoption of draft GTR text with harmonised PC tests by GRRF | | | | | | | | | | | | | |
| Presentation of final draft GTR text (PC only) to WP.29 | | | | | | | | | | | | | |
| Adoption of GTR text (Phase 1) by WP.29 | | | | | | | | | | Q1 | | | |
| Adoption by UN in New York | | | | | | | | | | Q2 | | | |
| Phase 2: Harmonized requirements for all radial tyres for vehicles up to 4536 kg | | | | | | | | | | | | | |
| Tyre Industry works on LT/C test harmonisation (* = meetings of ad hoc tyre GTR WG, where work will be shared) | | | * | | | | | | | | | Q1, Q2 * | |
| Presentation of proposal for validation by CPs | | | | | | | | | | | Q3 | | |
| Take into account CP reactions to LT/C harmonisation proposal | | | | | | | | | | | Q3, Q4 | Q1, Q2 | |
| Adoption of draft GTR (PC and LT/C) by GRRF | | | | | | | | | | | | Q3 | |
| Adoption of complete GTR (PC and LT/C) by WP29 | | | | | | | | | | | | Q4 | |
| General | | | | | | | | | | | | | |
| AC.3 works on "administrative marking" issue for GTRs in general Action plan to be defined by WP.29 AC3 | | | | | | | | | | | | | |

Today



Today + 4 years



Requirements to be Harmonized

- High speed test (FMVSS 139 and R54)
- Endurance test (?)
- Physical dimensions test
 - Pressures not yet harmonized, but not technically difficult
- Plunger energy (breaking energy) test
 - Limits in FMVSS 139 based on Load Range, which doesn't exist for all tires

High Speed Test

- Work has begun
- Intent is to use same method as HS test for PC tyres
 - Compare steps above limit to determine which test is most severe for different speed symbols
 - Use one existing test for one set of speed symbols, other existing test for remaining speed symbols
- Preliminary data should be available at next meeting (Feb 2011)

Endurance Test

- In FMVSS 139, endurance test required for all LT/C tyres
- In R54, endurance test only required for tyres with Speed Symbol < Q (160 km/h)
 - For Q and above, requires high speed test instead
- These 2 tests have very different conditions and harmonizing them will be difficult and long
- One solution is to restrict scope of gtr to radial tyres for vehicles up to 4536 kg with speed symbols \geq Q (160 km/h)
 - LT/C tyres with speed symbol < Q would be treated under existing regional regulations (i.e. regional tyres)
 - In USA all tyres must pass a high speed test with final speed of 160 km/h

Breaking Energy

- Only one test, from FMVSS 139
- But limits are defined based on Load Range
- No mathematical conversion from Load Index to Load Range
- Thus no way to know which limits to apply for a given LI
- Not technically difficult, but needs to be harmonized using pressure equivalence table, for example

Two Open Questions

(1) Limit scope to include only lower than Q speed symbols?

- Limit scope for LT/C tyres to \geq Q speed symbol?
 - Reduces the number and complexity of tests to harmonize without large impact on number of tyres covered by gtr
 - Endurance test is technically hard to harmonize
 - Tyres with speed symbol less than Q would continue to be treated by current regional regulations
 - All tyres under FMVSS 139 have to pass a high speed test at a final speed of 160 km/h, which acts as a "de facto" limit

Two Open Questions

(2) Exclude Deep Tread Tyres?

- In USA, LT/C tyres with tread depth $> 18/32$ inch (14.3 mm) are treated under different US regulation
 - Endurance test is different (less severe)
 - High speed test is different (less severe)
- If treated under FMVSS 139 they exhibit testing failures which do not reflect real life behaviour in normal road use
- Should they be excluded from gtr?