



***UTQG WEAR
CHANGE FROM 14" TO 16" SRTT
FIRST TWO TEST QUARTERS***

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TOPICS

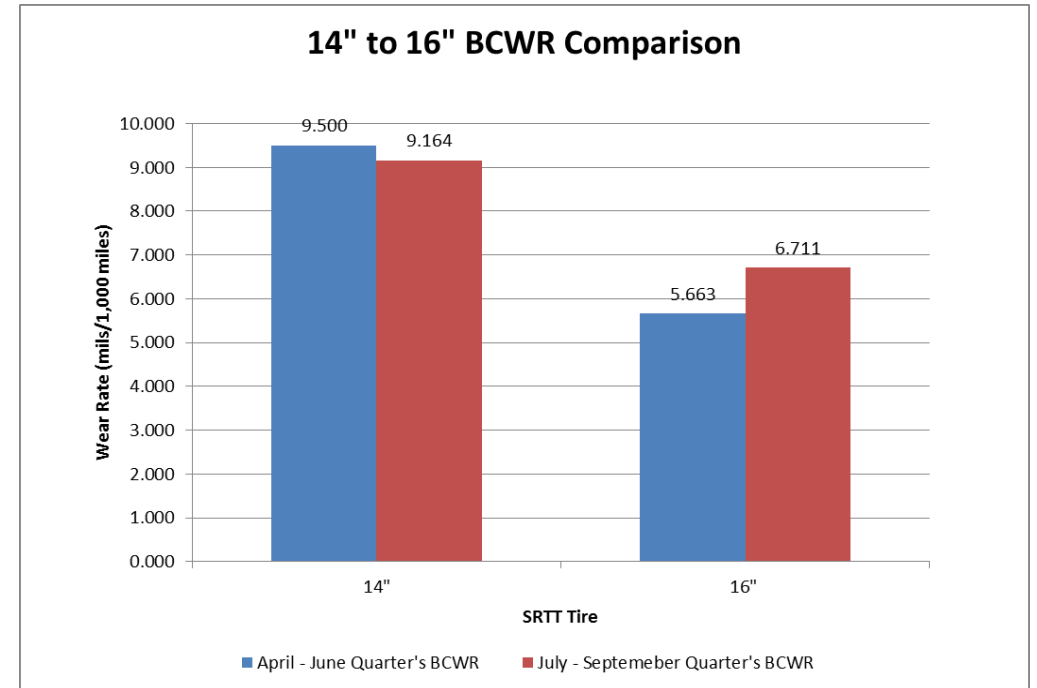
- First two quarters results, compared to normal variability
- Recommendation for calculation change based on SRTT change
- Recommendation for number of test quarters



BCWR FIRST RESULTS

Observations

- The 14" and 16" SRTTs have different levels of wear performance
- The wear rate of both SRTTs changed from the first to the second test
 - 14" change: **-0.336** mil/1000miles
 - 16" change: **+1.048** mil/1000miles

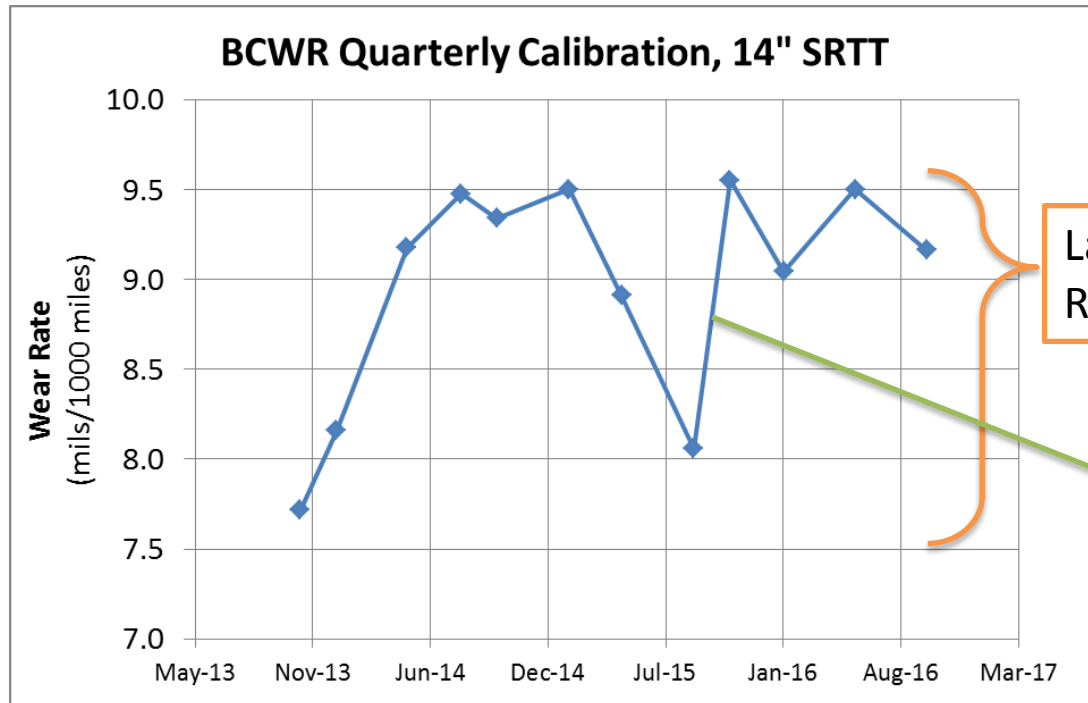


Source: "16" Vs 14" SRTT Study Using UTQG Base Course Wear Rate (BCWR) Test Procedure," November 2016, provided by NHTSA



BCWR VARIABILITY

- / The difference in the results is within variability seen in recent tests
 - / 14" change: **-0.336** mil/1000miles
 - / 16" change: **+1.048** mil/1000miles



Source: "Base Course Wear Rate (BCWR), Quarterly Update," November 2016, provided by NHTSA

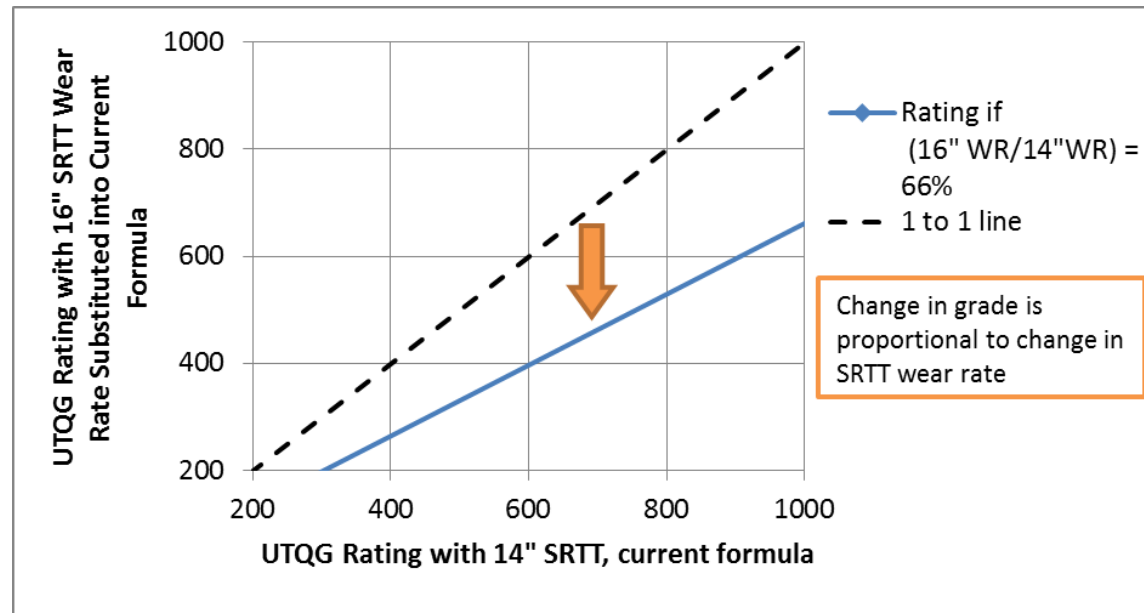
Last 3 years:
Range of **2** mil/1000 miles

Season to season change of
up to **1.5** mil/1000 miles



RATING CALCULATION CHANGES

- /// The UTQG wear rating is an assessment of the performance of the test tire compared to the 14" SRTT
- /// The 16" SRTT has a different level of wear performance
- /// If the 16" SRTT wear rate is simply substituted for the 14" SRTT wear rate, the resulting grade will change proportionally to the wear rate difference



These calculations used the results of the first two quarters of testing to determine a ratio of 16" to 14" wear rate (66%). This ratio is not final, and is used here as an example.



RATING CALCULATION CHANGES

- /// The most straightforward way to correct this is to use the 16" SRTT base course wear rate, and add a new constant adjustment factor to the grading equation, which is the ratio:

$$\left\{ \frac{BCWR_{OldSRTT}}{BCWR_{NewSRTT}} \right\}_{2016-2017} = \text{constant determined by 2016/2017 testing}$$

- /// This should be calculated based on the results of the 6 quarters of comparison tests, such that each season is equally weighted
- /// This maintains consistency with the current grading scale

$$UTQG \text{ Rating} = \frac{APL_{TT} \times BCWR_{NewSRTT}}{402} \left\{ \frac{BCWR_{OldSRTT}}{BCWR_{NewSRTT}} \right\}_{2016-2017}$$



RATING CALCULATION CHANGES

- Another option would be to “reset” the UTQG equation based on the 16” SRTT
 - This would have the benefit of removing the adjustment factors that have been added over the years*, resulting in a more straightforward formula
 - It would be more difficult to maintain consistency with previous test results
 - It would likely take one to two years to gain consensus for a new equation
- Michelin can provide recommendations for a new equation, if desired
- * Docket reference: NHTSA-2010-0036-0045.1, Michelin Americas Research and Development, History and Analysis (of UTQG Wear)



NUMBER OF TEST QUARTERS

- /** Michelin agrees with the suggestion to test 14” and 16” over 6 quarters
 - /** A minimum of four quarters will be needed to assess the difference in all seasons, and to create an adjustment factor (if that solution is chosen)
 - /** Repeating two seasons will allow for confirmation of the difference in a warmer-weather and a colder-weather test



SUMMARY

- First two quarters results, compared to normal variability
 - Results are within normal variability
- Recommendation for calculation change based on SRTT change
 - Michelin recommends a new adjustment factor to account for the wear rate difference
- Recommendation for number of test quarters
 - Michelin agrees with the suggestion to test 14” and 16” over 6 quarters

