



Automotive

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TÜV SÜD – Tire Test 2014

Benchmark Test – GOODYEAR ULTRAGRIP 9

195/65 R15

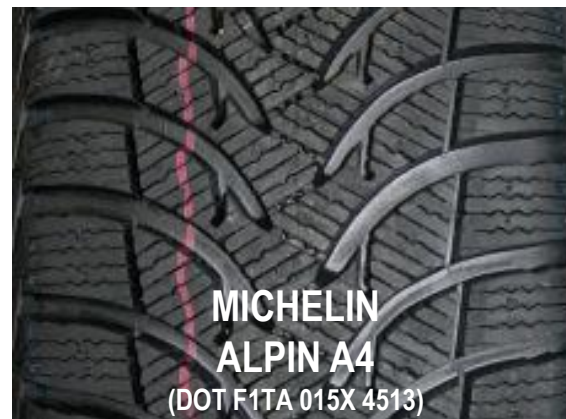
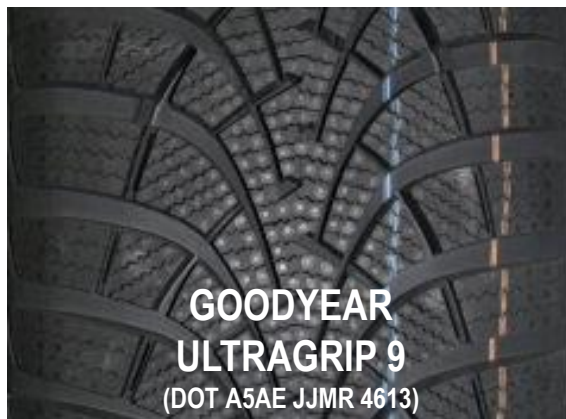
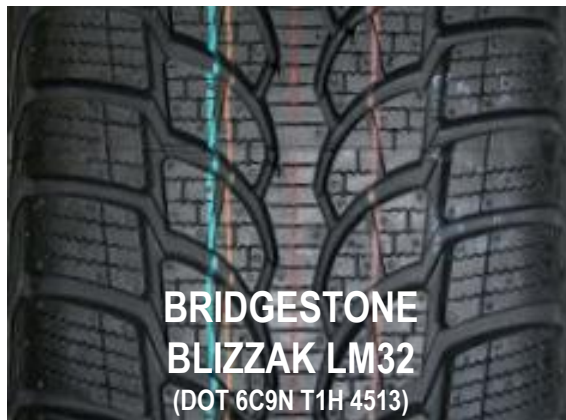
Test Period: January - February 2014

Report No. 76252693-02

TIRE DETAILS

TIRE SIZE: 195/65 R15 91T

TEST TIRES (in alphabetical order):



- All test samples of Goodyear UG9 were provided by the client within one lot and randomly selected by TÜV SÜD for the different tests.

- All other tires were purchased by TÜV SÜD from normal tire dealers with particular focus on most recent and uniform DOT.

SCOPE OF TESTS

■ Environment

- Rolling Resistance
- Pass-by Noise



■ Snow Performance

- Braking
- Traction/Acceleration
- Handling



■ Wet Performance

- Braking (ABS, 80-20 km/h)
- Aquaplaning straight-line
- Handling



■ Dry Performance

- Braking (ABS, from 100 km/h)
- Handling

■ Ice Performance

- Braking
- Traction/Acceleration
- Lateral Grip



TEST DETAILS

■ Test Locations

- Wet, Noise & Dry Handling Tests: GPG Mireval (F)
- Dry Braking Test: TÜV SÜD Allach (D)
- Snow Tests: St. Moritz area (CH)
- Ice Tests: Ice Rink Montpellier (F)
- Rolling Resistance Test: TÜV SÜD Garching (D)

■ Test Vehicles

- VW Golf 1.4 TSI (122 and 140 hp)

■ Acquisition and Evaluation of Results

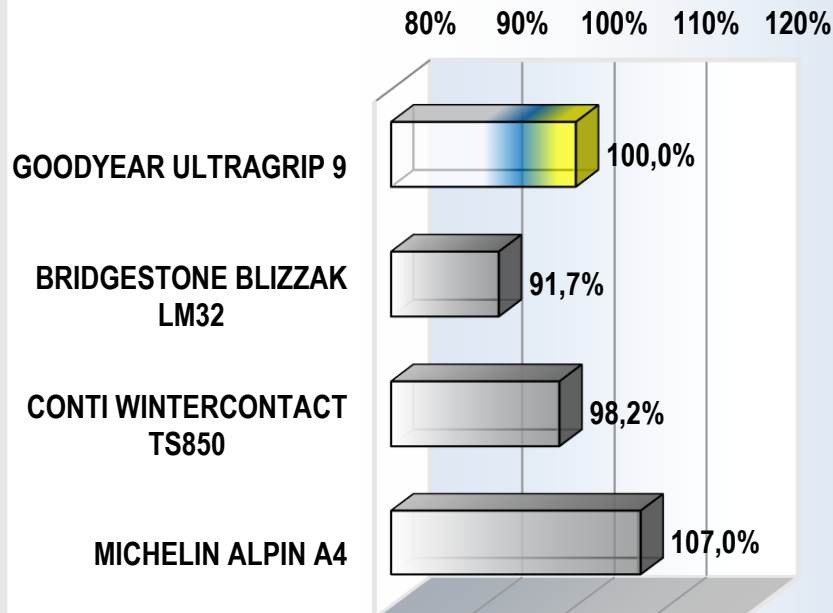
- All tests were carried out by TÜV SÜD personnel (pass-by noise as witness test).
- In this present evaluation, the performance of each tire is assessed relative to the Goodyear Ultragrip 9 (Goodyear \triangleq 100%).
- Percentage values are mathematically rounded to the nearest whole number.
- The conversion of the results into a percentage value is done in a way that **>100% always means better, <100% means worse.**

TEST RESULTS

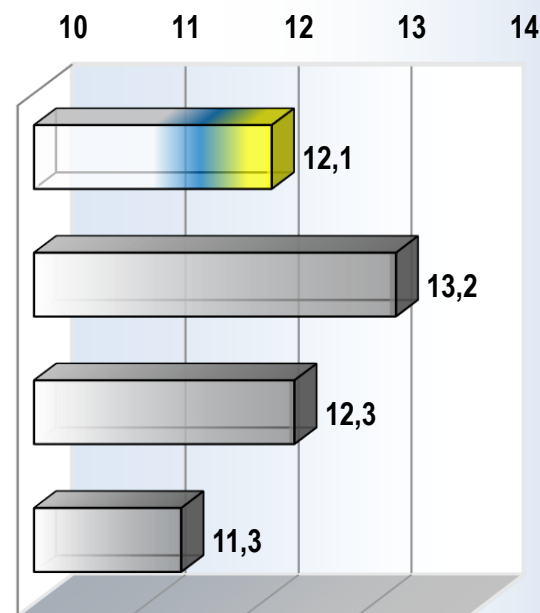
■ BRAKING ON ICE

- ABS-braking on artificial ice - Speed range: 20 to 5 km/h
- Goodyear Ultragrip 9: Ø Stopping distance / mean deceleration: 11.5 m / 1.26 m/s²

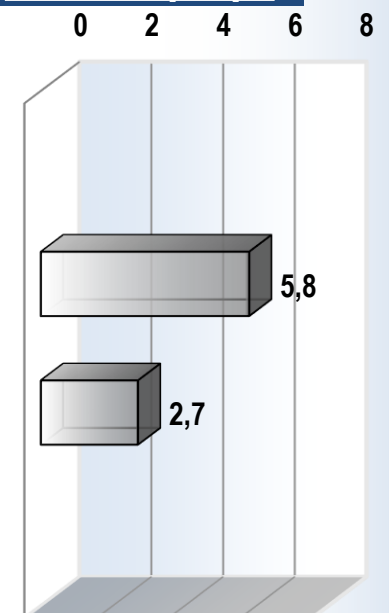
ICE BRAKING PERFORMANCE * [%]



STOPPING DISTANCE [m], 20-0 km/h **



RESIDUAL SPEED WHEN GY STOPPED [km/h] ***



*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

**) The extrapolation is based on the corrected mean deceleration values resulting from the measured braking distances.

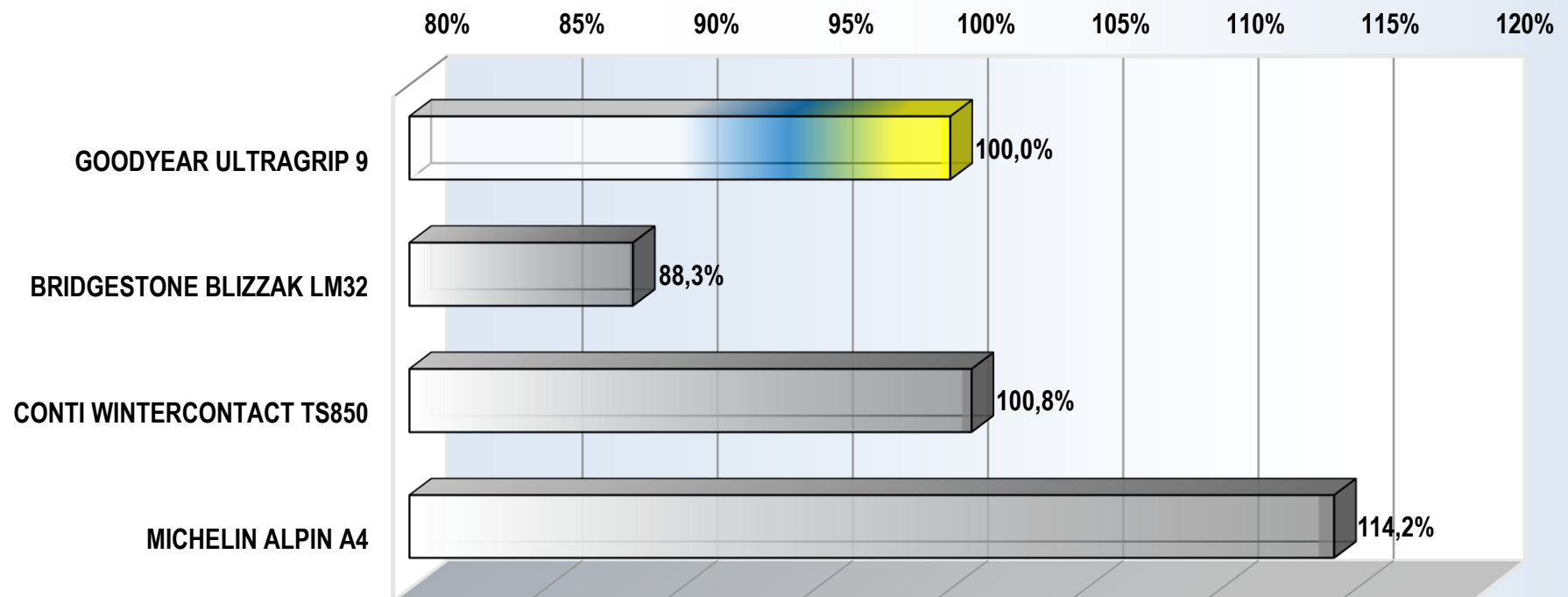
***) The calculation of the residual speed is based on the extrapolated stopping distance (20-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ TRACTION ON ICE

- Acceleration (ASR) on artificial ice - Speed range: 8 to 18 km/h
- Goodyear Ultragrip 9: Ø Acceleration time / mean acceleration: 5.30 s / 0.52 m/s²

ICE TRACTION PERFORMANCE * [%]



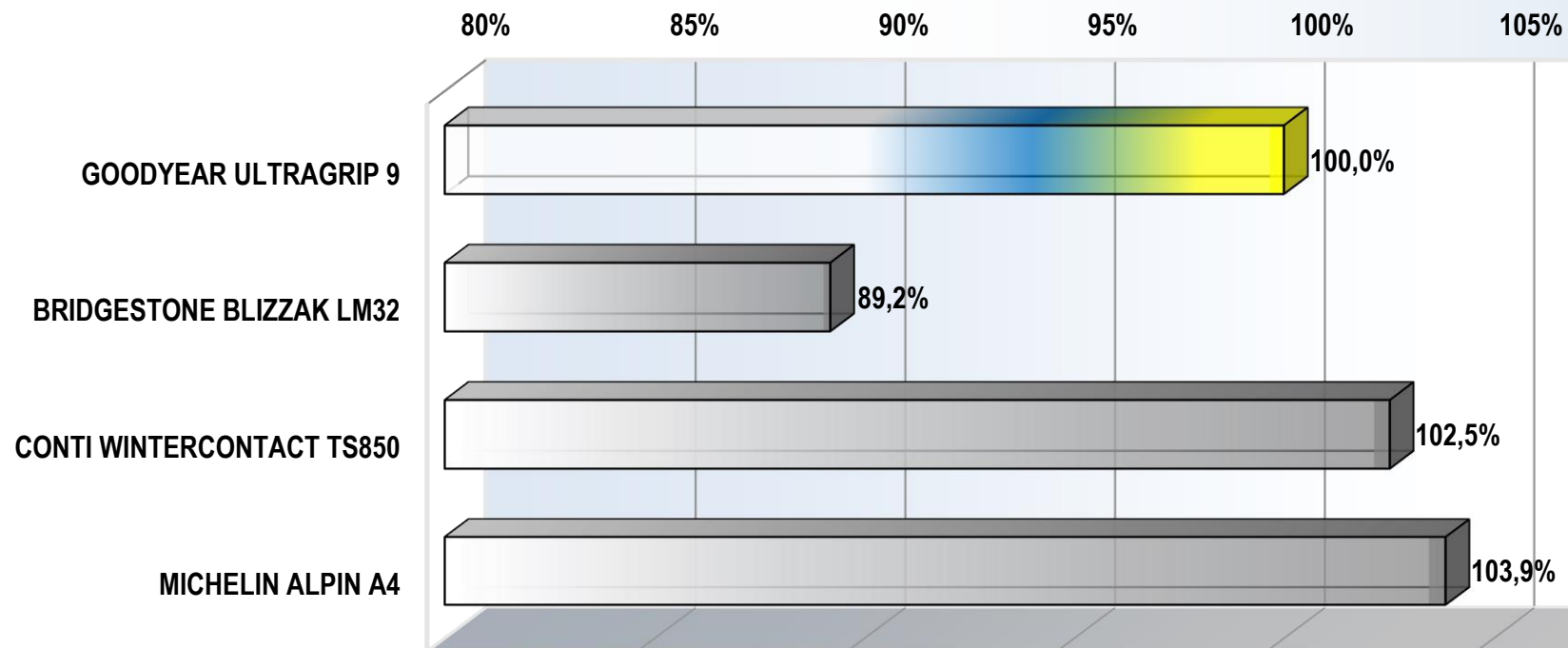
*) The calculation of the percentage performance is based on the mean acceleration values resulting from the measured acceleration times.

TEST RESULTS

■ LATERAL GRIP ON ICE

- Steady state driving at the limits on circle track (Radius 10m, artificial ice)
- Goodyear Ultragrip 9: Ø Lap time / mean lateral acceleration: 19.65 s / 1.02 m/s²

LATERAL GRIP ON ICE PERFORMANCE * [%]



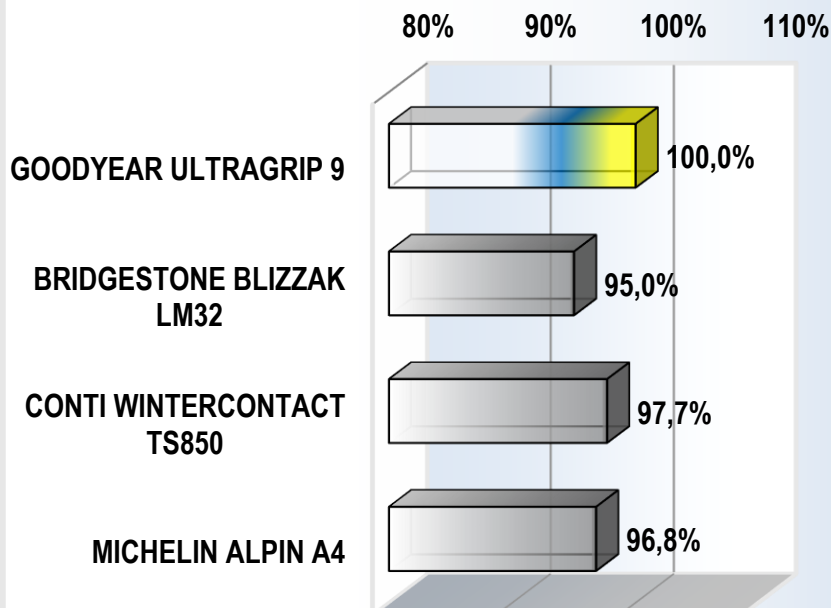
*) The calculation of the percentage performance is based on the mean lateral acceleration values resulting from the measured lap times.

TEST RESULTS

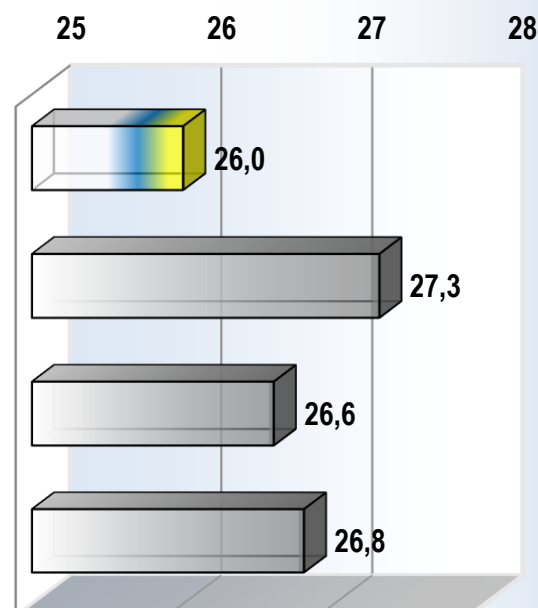
■ BRAKING ON SNOW

- ABS-braking on compressed snow - Speed range: 50 to 10 km/h - Duplicate test (t1/t2)
- Goodyear Ultragrip 9: Ø Stopping distance / mean deceleration t1: 25.2 m / 3.67 m/s² t2: 24.7 m / 3.75 m/s²

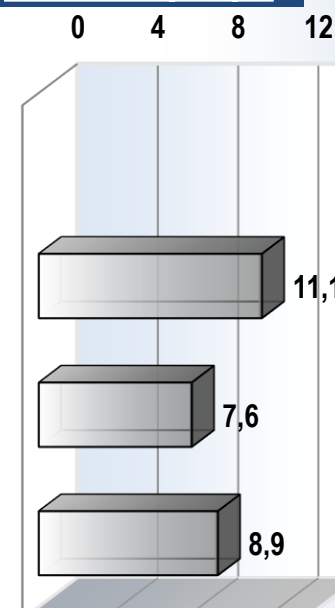
SNOW BRAKING PERFORMANCE * [%]



STOPPING DISTANCE [m], 50-0 km/h **



RESIDUAL SPEED WHEN GY STOPPED [km/h] ***



*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

**) The extrapolation is based on the corrected mean deceleration values resulting from the measured braking distances.

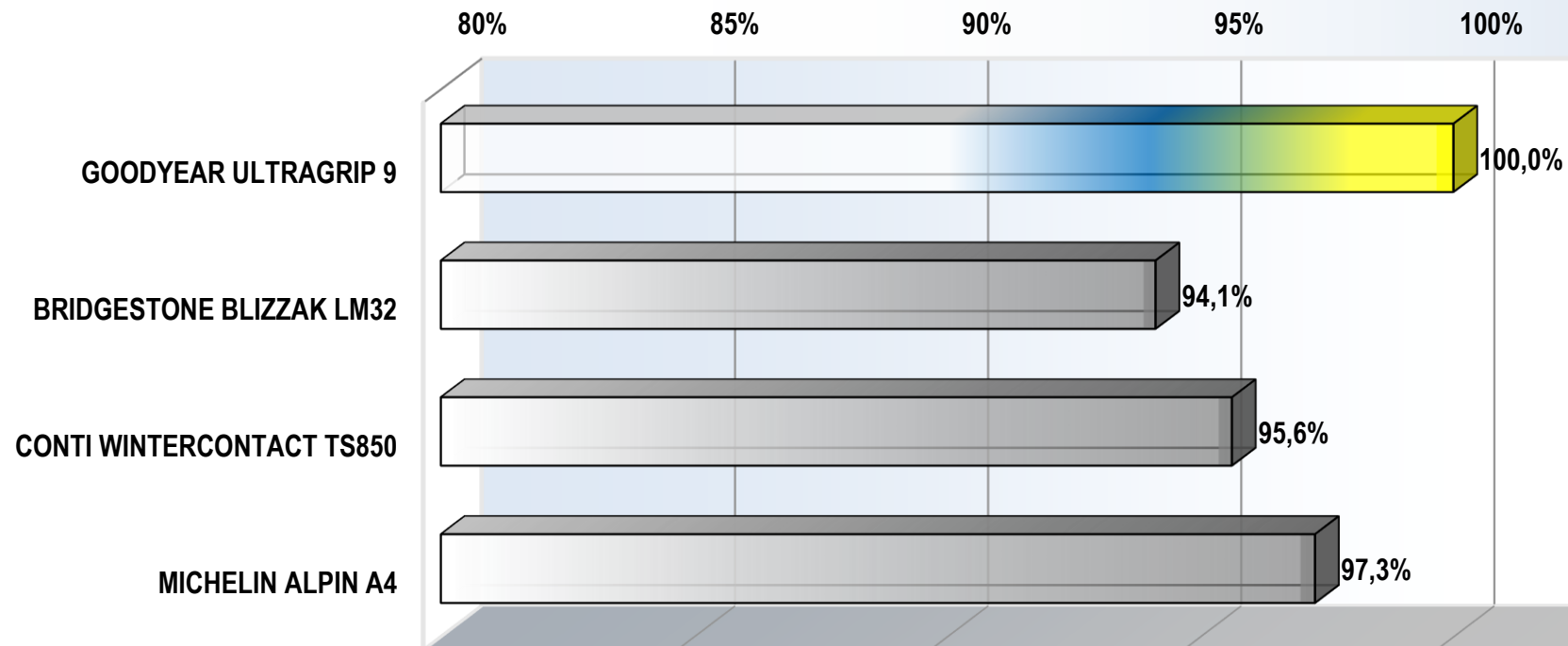
***) The calculation of the residual speed is based on the extrapolated stopping distance (50-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ TRACTION ON SNOW

- Acceleration (ASR) on compressed snow - Speed range: 10 to 30 km/h - Duplicate test (t1/t2)
- Goodyear Ultragrip 9: Ø Acceleration time / mean lat. acceleration t1: 2.83 s / 1.96 m/s² t2: 2.84 s / 1.96 m/s²

SNOW TRACTION PERFORMANCE * [%]



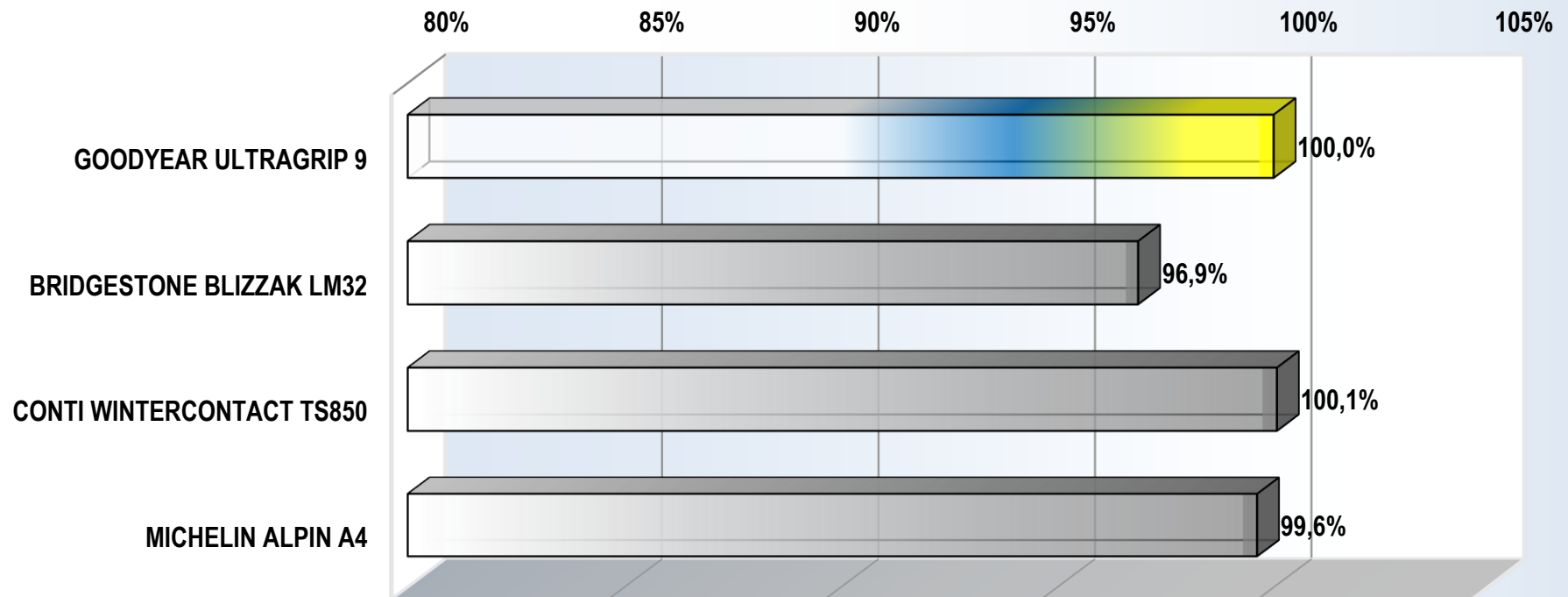
*) The calculation of the percentage performance is based on the mean acceleration values resulting from the measured acceleration times.

TEST RESULTS

■ HANDLING ON SNOW

- ESP off - Subjective assessment & lap times - Duplicate test (t1/t2) - Snow handling track, length (t1/t2) 495 / 515 m
- Goodyear Ultragrip 9: Ø Speed: ~41.9 (t1), 48.4 (t2) km/h Ø Rating (out of max. 10): 7.9 (t1) / 8.0 (t2)

SNOW HANDLING PERFORMANCE * [%]



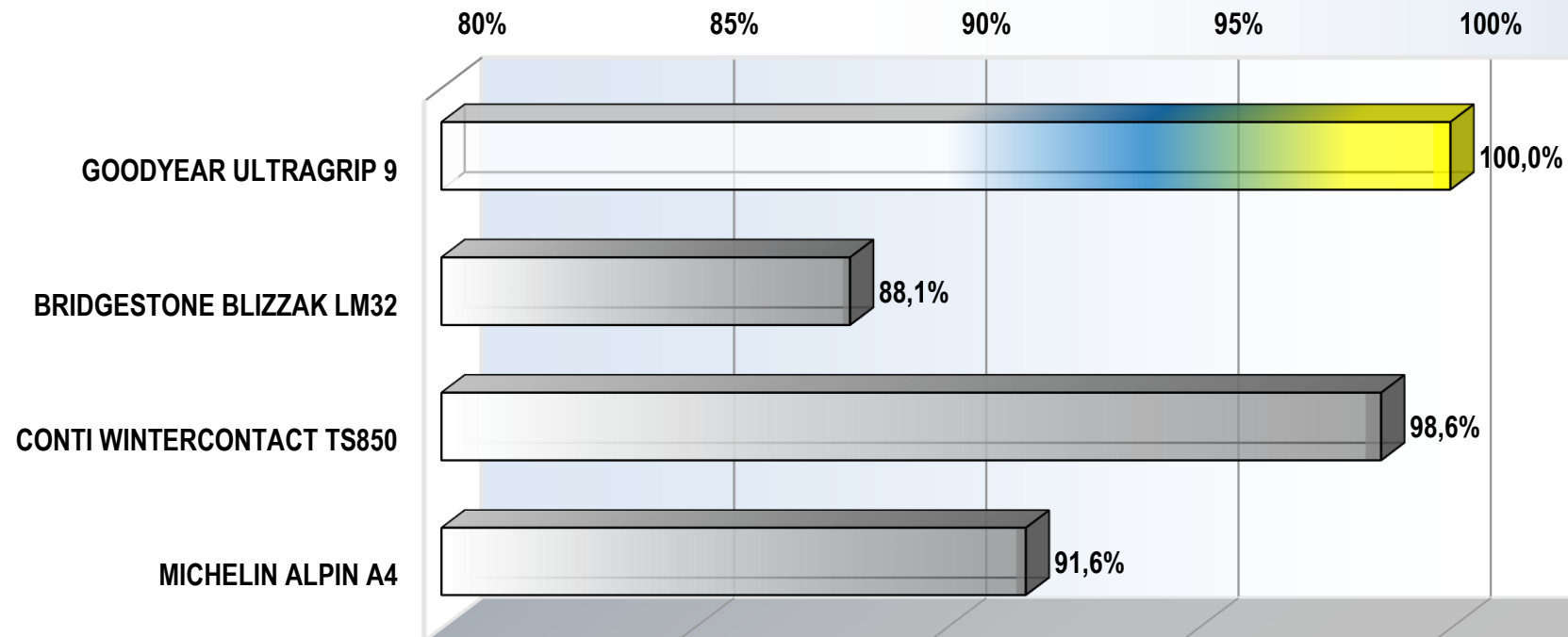
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

■ AQUAPLANING STRAIGHT-LINE

- Water depth: ~ 9 mm
- Aquaplaning speed at 15% slip difference
- Goodyear Ultragrip 9: Ø Aquaplaning speed 98.3 km/h

AQUAPLANING PERFORMANCE * [%]



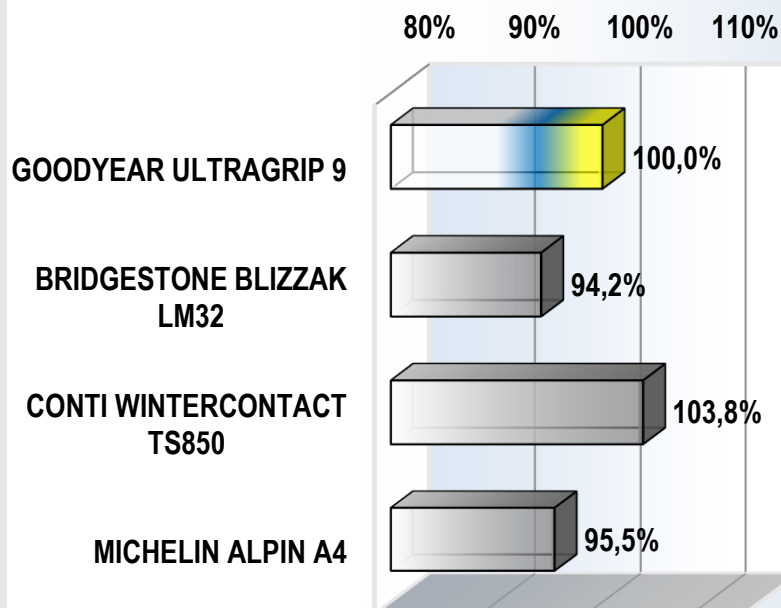
*) The calculation of the percentage performance is based on the aquaplaning speed.

TEST RESULTS

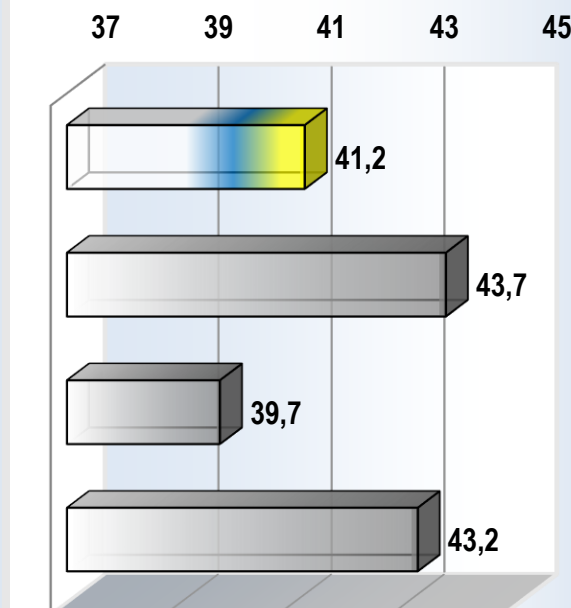
WET BRAKING, low μ

- ABS-braking
- Speed range: 80 to 20 km/h
- Tested on low μ wet surface
- Goodyear Ultragrip 9: Ø Stopping distance / mean deceleration: 38.5 m / 6.02 m/s²

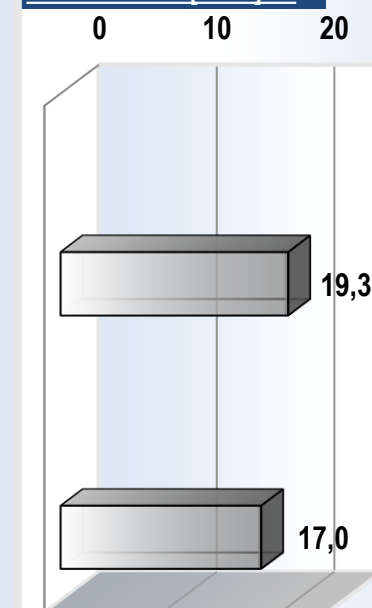
WET BRAKING PERFORMANCE * [%]



STOPPING DISTANCE [m], 80-0 km/h **



RESIDUAL SPEED WHEN GY STOPPED [km/h] ***



*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

**) The extrapolation is based on the corrected mean deceleration values resulting from the measured braking distances.

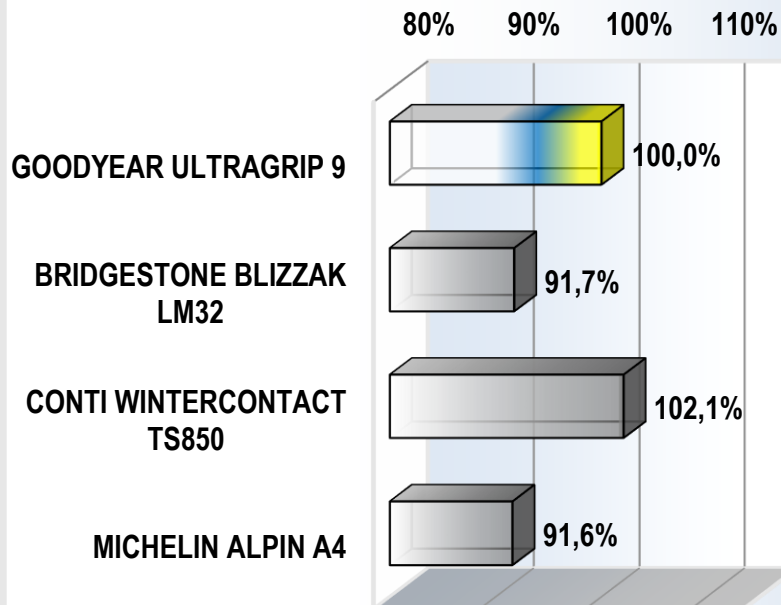
***) The calculation of the residual speed is based on the extrapolated stopping distance (80-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

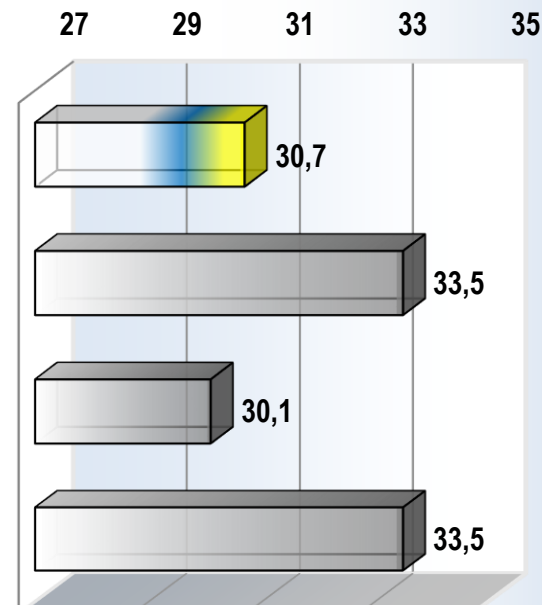
WET BRAKING, high μ

- ABS-braking
- Speed range: 80 to 20 km/h
- Tested on high μ wet surface
- Goodyear Ultragrip 9: Ø Stopping distance / mean deceleration: 28.5 m / 8.14 m/s²

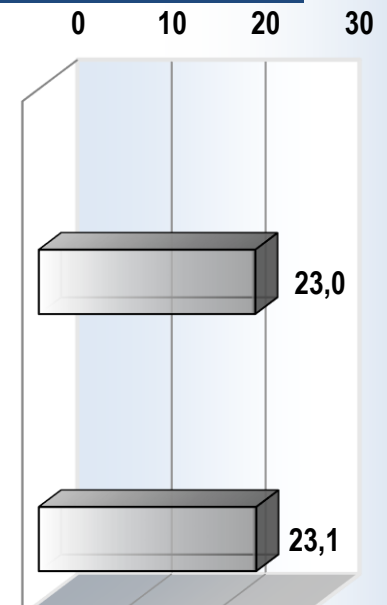
WET BRAKING PERFORMANCE * [%]



STOPPING DISTANCE [m], 80-0 km/h **



RESIDUAL SPEED WHEN GY STOPPED [km/h] ***



*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

**) The extrapolation is based on the corrected mean deceleration values resulting from the measured braking distances.

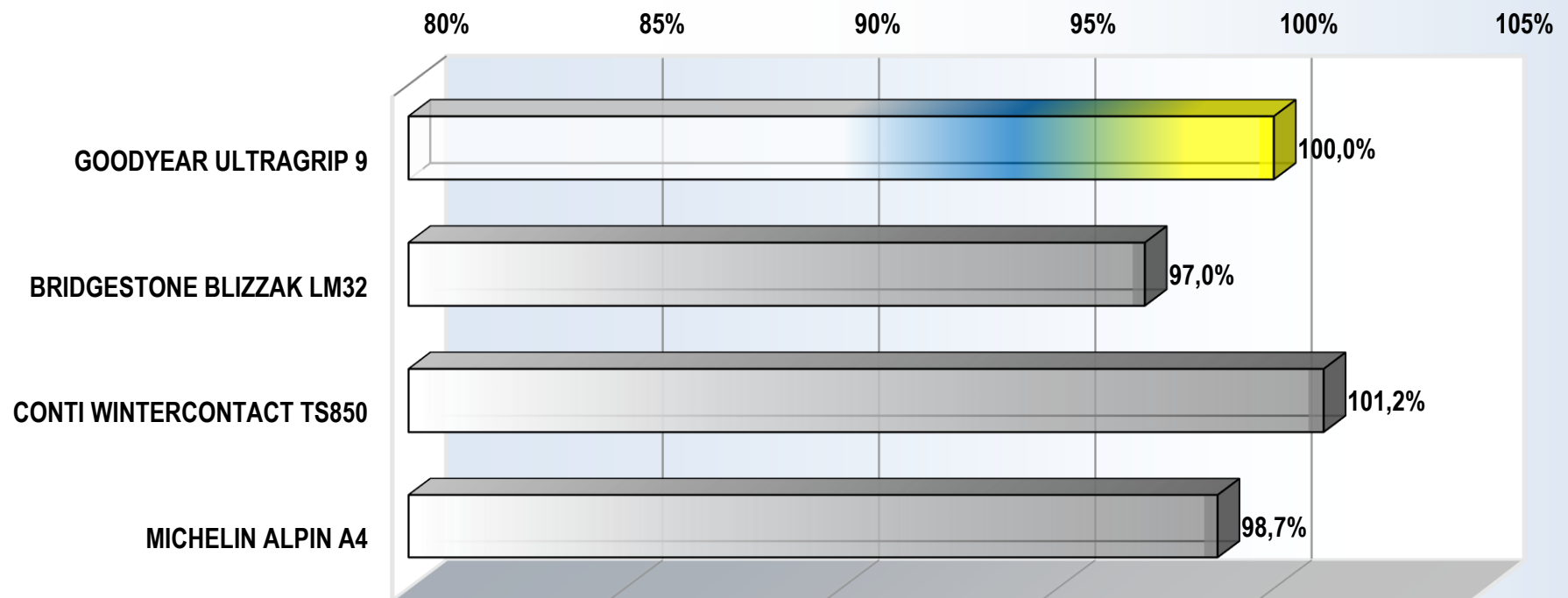
***) The calculation of the residual speed is based on the extrapolated stopping distance (80-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

WET HANDLING

- ESP off
- Subjective assessment & lap times
- Handling track with wet asphalt, length 1700 m
- Goodyear Ultragrip 9: Ø Speed: ~86.3 km/h Ø Rating (out of max. 10): 7.9

WET HANDLING PERFORMANCE * [%]



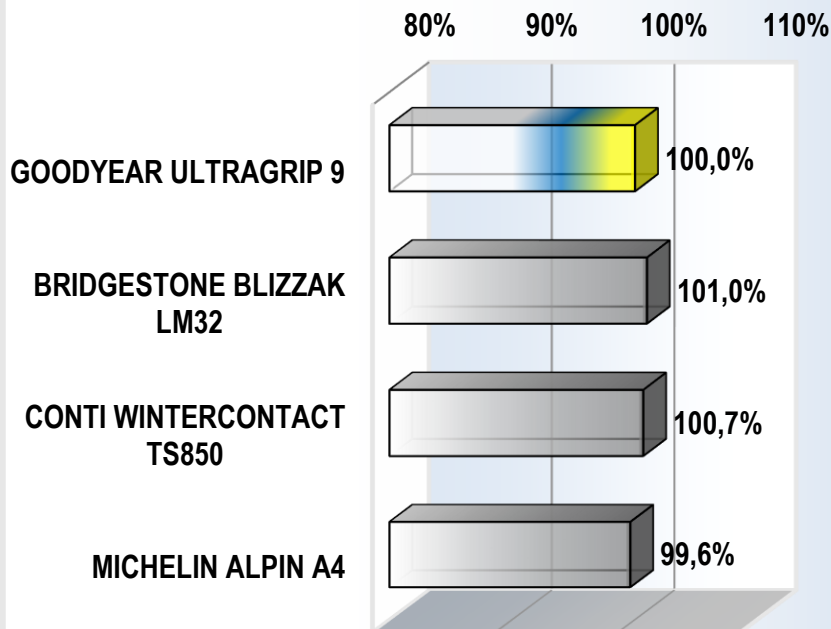
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

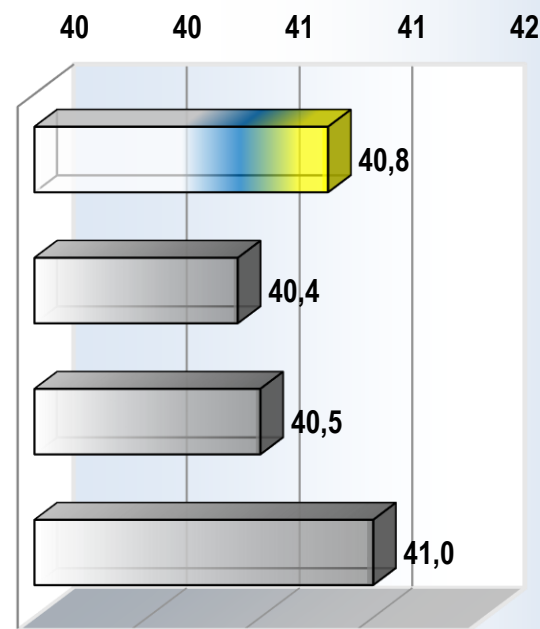
■ DRY BRAKING

- ABS-braking on dry asphalt surface
- Speed range: 100 to 0 km/h
- Goodyear Ultragrip 9: Ø Stopping distance / mean deceleration: 41.0 m / 9.42 m/s²

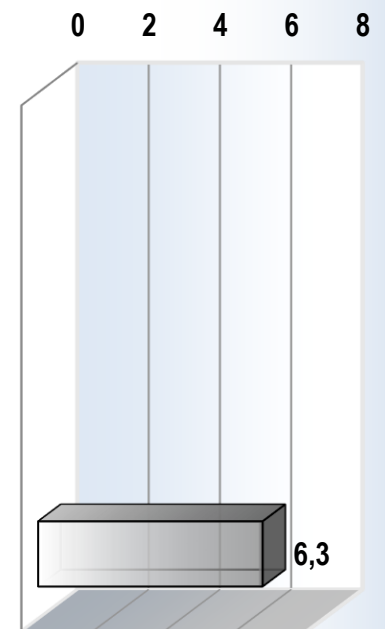
DRY BRAKING PERFORMANCE * [%]



STOPPING DISTANCE [m], 100-0 km/h



RESIDUAL SPEED WHEN GY STOPPED [km/h] **



*) The calculation of the percentage performance is based on the mean deceleration values resulting from the measured braking distances.

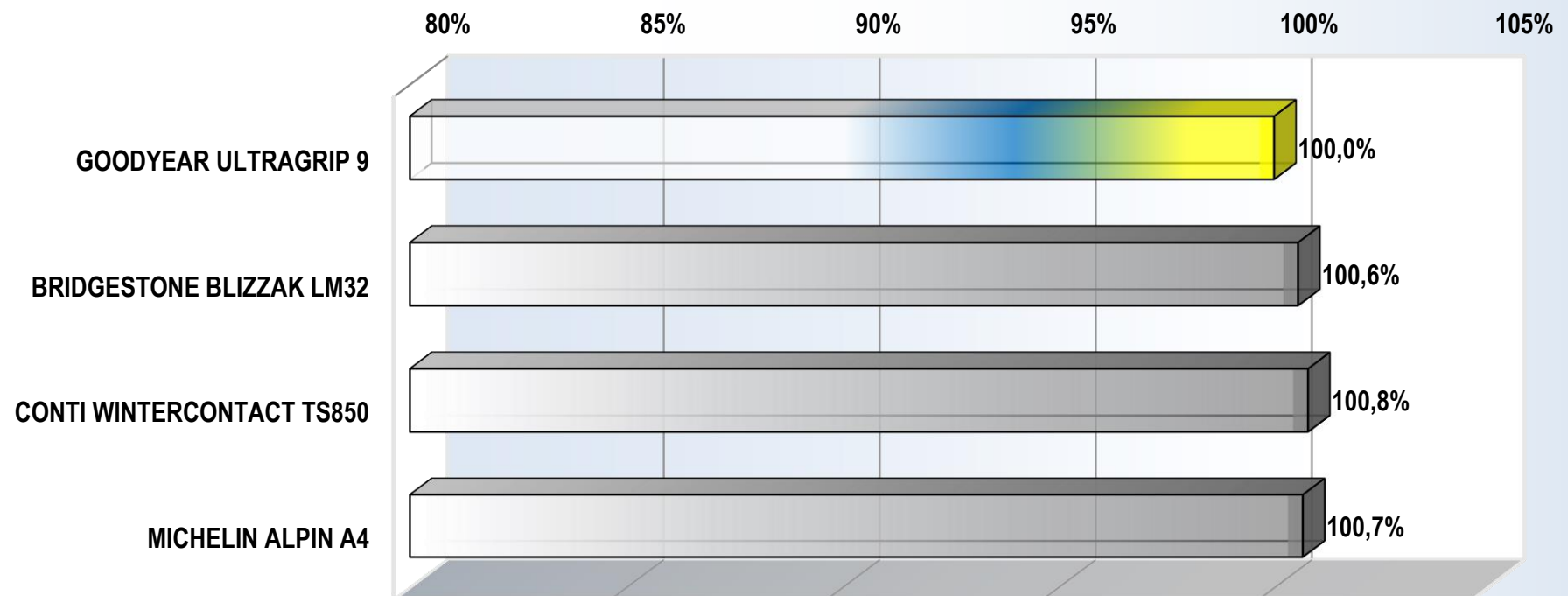
**) The calculation of the residual speed is based on the measured braking distances and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ DRY HANDLING

- ESP off
- Subjective assessment & lap times
- Handling track with dry asphalt, length 3100 m
- Goodyear Ultragrip 9: Ø Speed: ~104.7 km/h Ø Rating (out of max. 10): 7.5

DRY HANDLING PERFORMANCE * [%]



*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

■ ROLLING RESISTANCE

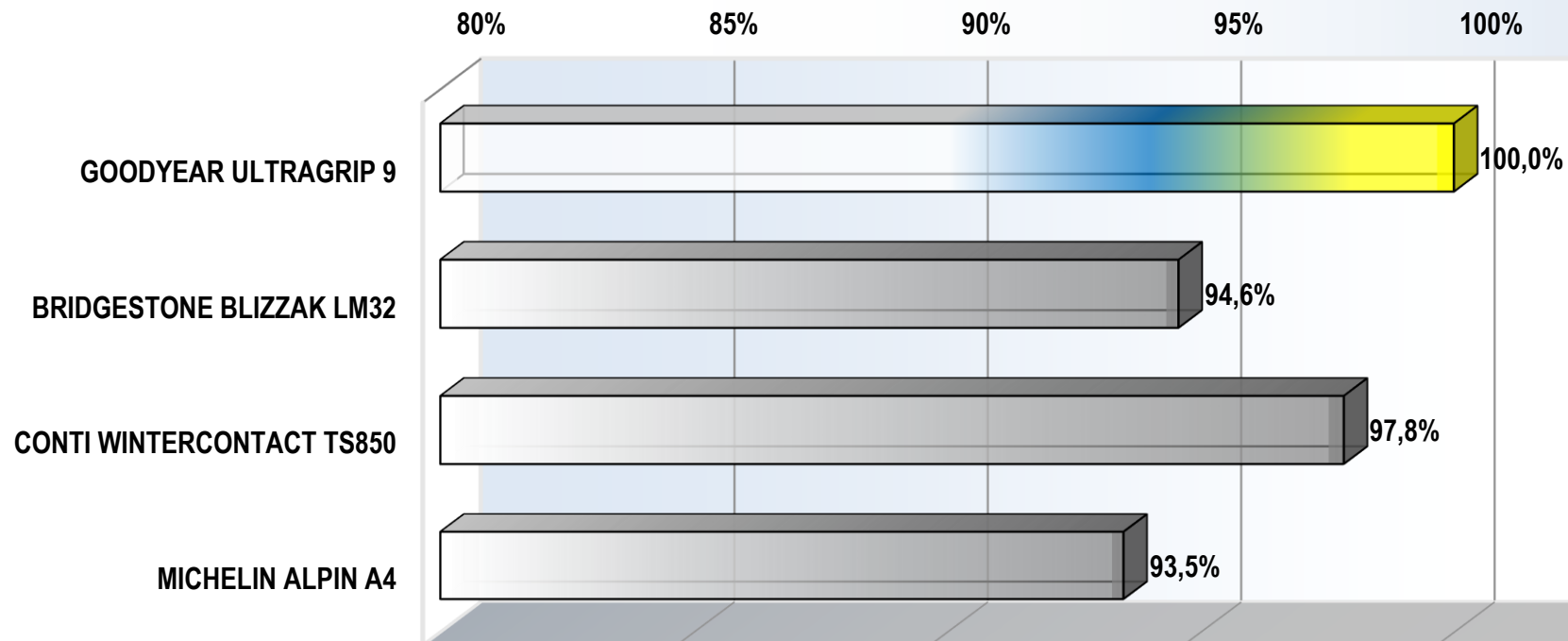
- Acc. to ISO 28580 / EC 1222/2009

- Electrical power method

- Load / inflation: 492 kg / 2.1 bar

- Goodyear Ultragrip 9: $F_R = 42.6 \text{ N}$ $c_R = 8.8 \text{ kg/t}$ (\triangleq EC Label RRC = 8.6)

LOW ROLLING RESISTANCE PERFORMANCE * [%]



*) The calculation of the percentage performance is based on the reciprocal values of the measured rolling resistance forces.

TEST RESULTS

■ ROLLING NOISE

- In close acc. to ECE R117 - Reference speed: 80 km/h - Load / inflation FA-RA: 989 - 756 kg / 2.05 - 1.65 bar
- Goodyear Ultragrip 9: 69.6 dB(A) \triangleq type approval value: 68 dB(A)

TIRE ROLLING NOISE (measured, normalized values) [dB(A)]

The resulting type approval values are given in brackets.

