



Product Service

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TÜV SÜD – Tire Test 2016

235/65 R17 108 H XL – Goodyear UltraGrip Performance Gen-1 SUV

Tire Performance Test acc. to PPP 90023A:2014

Test Period: February 2016 – March 2016

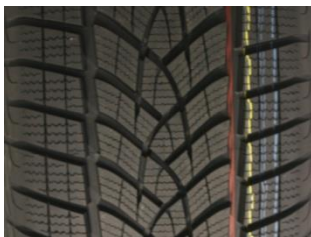
Report No. 713074748-04

TIRE DETAILS

DIMENSION: 235/65 R17 108 H XL

TIRE BRANDS / PATTERNS IN THE TEST:

NEW PRODUCT:

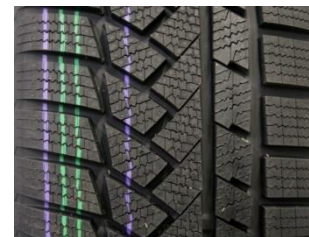


GOODYEAR
ULTRAGRIP PERFORMANCE GEN-1 SUV
DOT ND81 KV1R 0216-0316

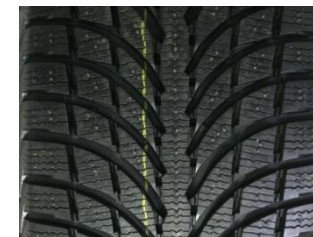
PREMIUM COMPETITORS:



BRIDGESTONE
BLIZZAK LM-80 EVO
DOT 6CL8 R4R 2115



CONTI
WINTERCONTACT TS850P
DOT 6Y81 D3UU 4215



MICHELIN
LATITUDE ALPIN LA2
DOT FKH2 015X 3915-4015

- The test samples of Goodyear UltraGrip Performance Gen-1 were provided for the test by the client.
- All other tires were purchased in the normal market by TÜV SÜD.
- TÜV SÜD randomly selected the tires for the individual tests.



TEST DETAILS

■ Test Locations

- Wet, Dry: GPG Mireval (F)
- Snow: Arctic Center Saariselkä (FIN)
- Ice: Ice Hall Montpellier (F)
- Rolling Resistance: TÜV SÜD PS Garching (D)
- Noise: Neubiberg (D)

■ Test Vehicles

- Audi Q5 2.0 TDI 2WD 110kW, Audi Q5 2.0 TDI 4WD 130kW, Toyota Hilux 2.4 TD

■ Procedure and Evaluation

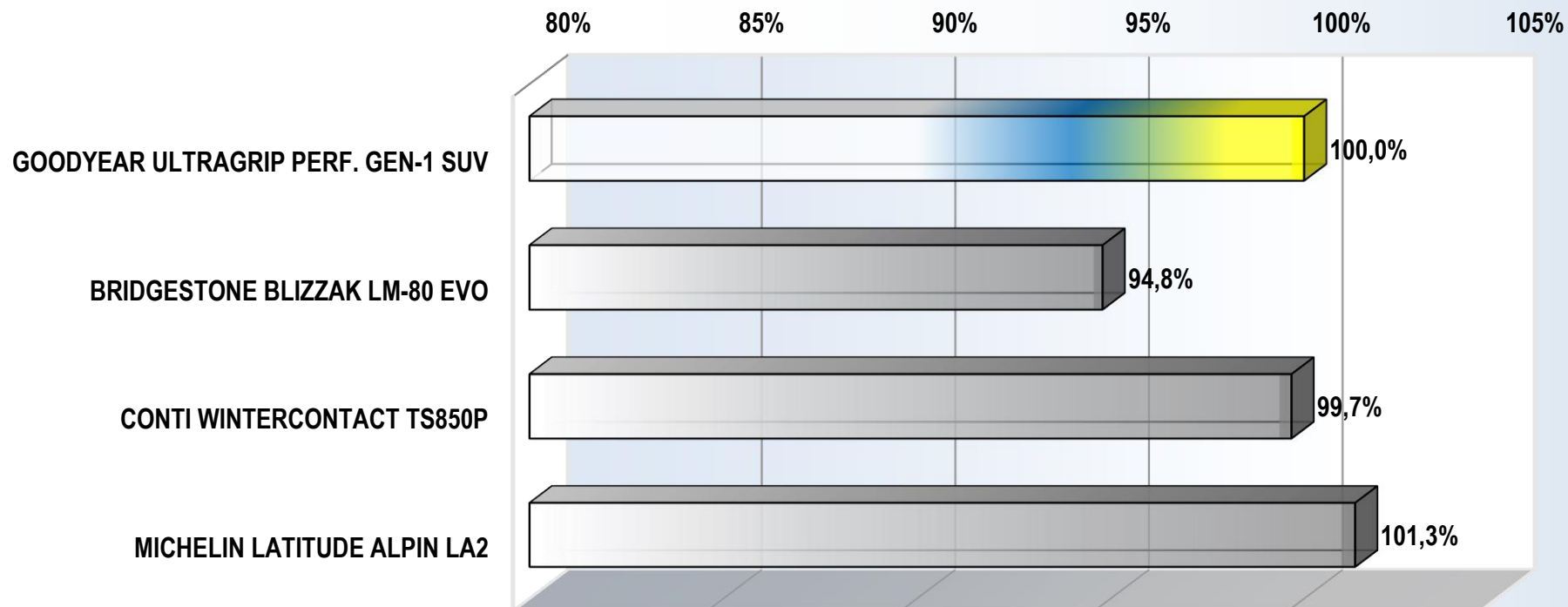
- In most tests, the reference/control tire is tested repeatedly in the progress of the test to detect and consider changes of the ambient test parameters and correct its performance by linear interpolation.
- Generally, all tires in a test are primarily evaluated in relation to the reference/control tire.
- The performance is expressed as a percentage value, calculated on the basis of the measured and corrected test data.
- In this present evaluation, the performance of each tire is assessed relative to the reference tire (Goodyear \triangleq 100%).
- In all evaluations, a percentage $\geq 100\%$ means better and $\leq 100\%$ means worse.

TEST RESULTS

■ AQUAPLANING STRAIGHT-LINE

- Water depth: ~ 8mm
- Aquaplaning speed at 15% slip difference
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Aquaplaning speed: 87.5 km/h

AQUAPLANING STRAIGHT-LINE PERFORMANCE * [%]



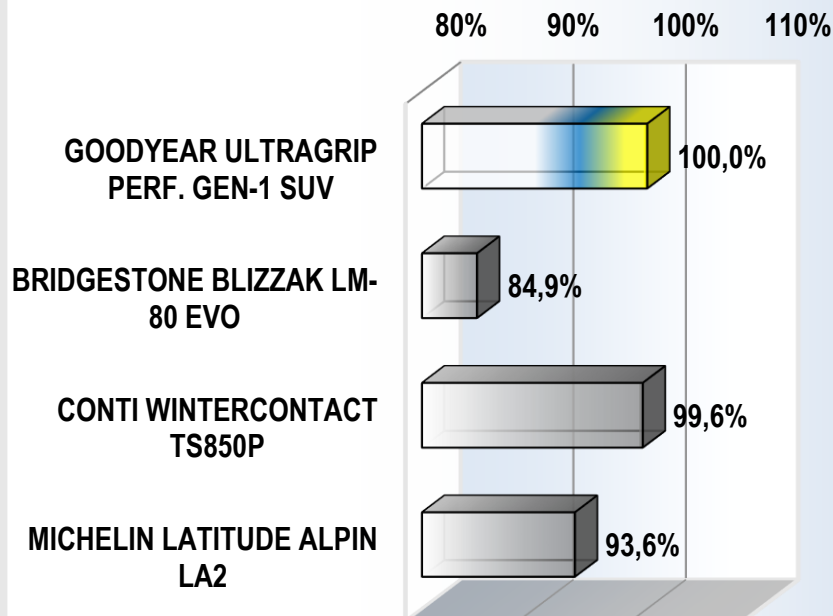
*) The calculation of the percentage performance is based on the aquaplaning speed.

TEST RESULTS

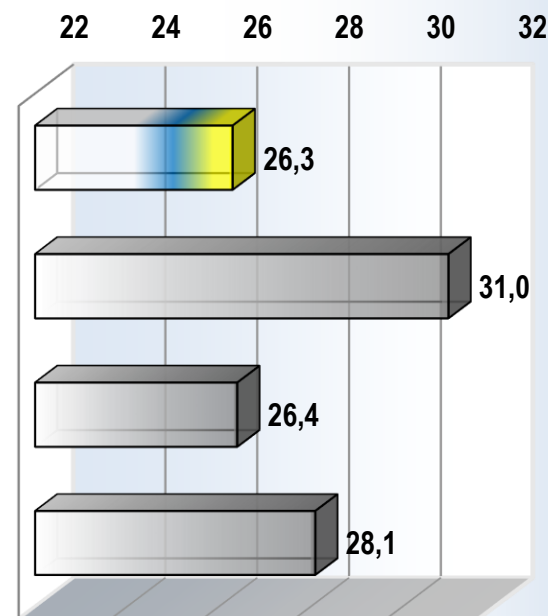
WET BRAKING HIGH μ

- ABS-braking
- Speed range: 80 to 20 km/h
- Tested on high μ wet surface
- Result Goodyear UltraGrip Performance Gen-1 SUV: \varnothing Stopping distance / mean deceleration: 24.7 m / 9.38 m/s²

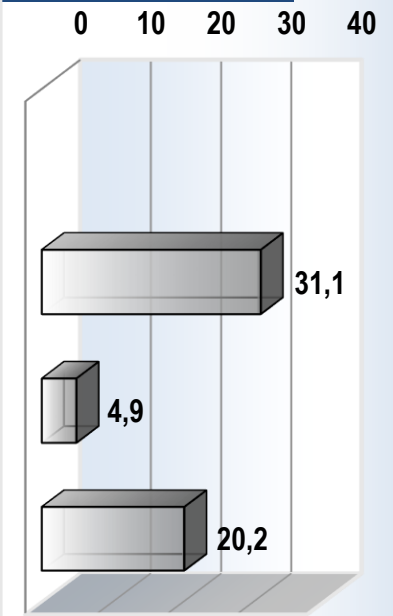
WET BRAKING PERFORMANCE * [%]



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.

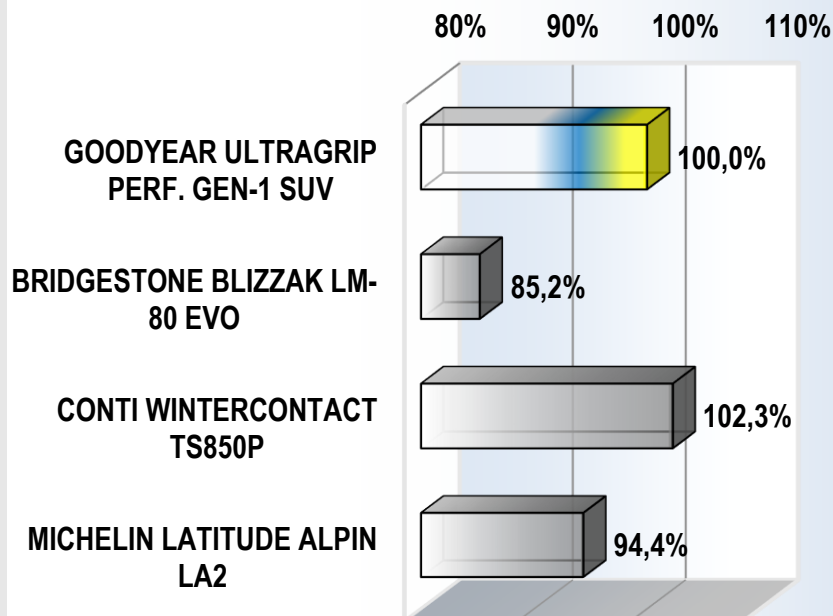
***) The calculation of the residual speed is based on the extrapolated stopping distance (80-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

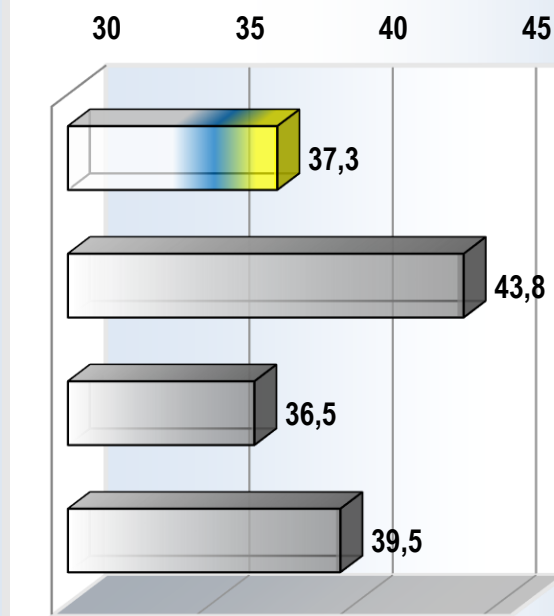
WET BRAKING LOW μ

- ABS-braking
- Speed range: 80 to 20 km/h
- Tested on low μ wet surface
- Result Goodyear UltraGrip Performance Gen-1 SUV: \varnothing Stopping distance / mean deceleration: 35.0 m / 6.62 m/s²

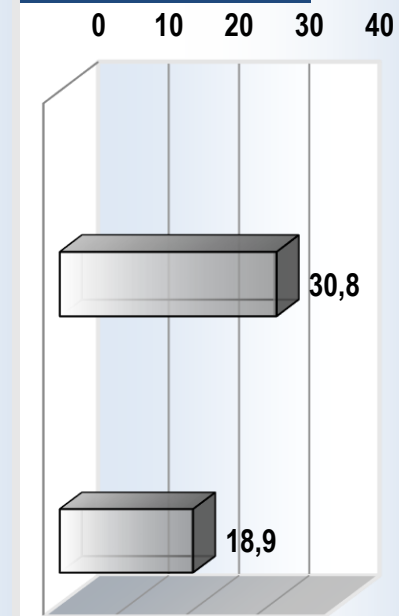
WET BRAKING PERFORMANCE * [%]



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.

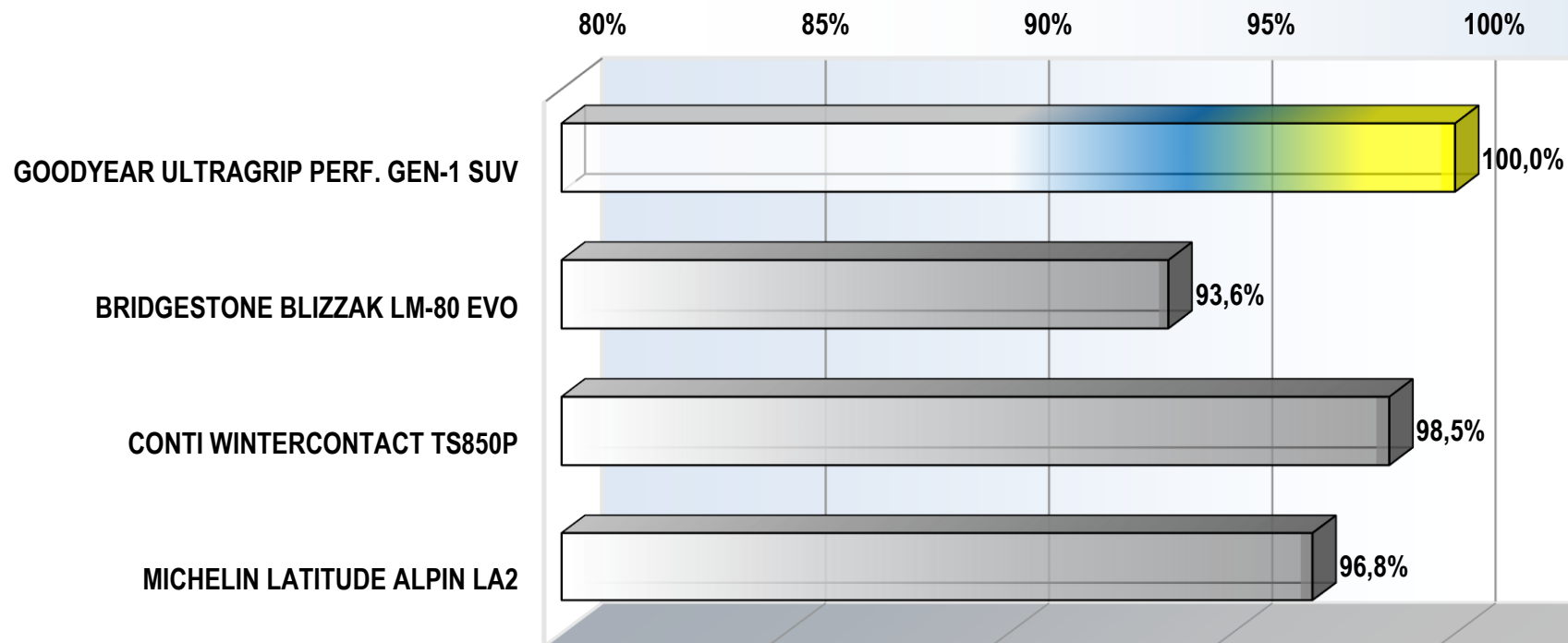
***) The calculation of the residual speed is based on the extrapolated stopping distance (80-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ WET HANDLING

- ESP off
- Subjective assessment & lap times
- Handling track with wet asphalt, length: 1700 m
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Speed: 91.2 km/h Ø Rating (out of max. 10): 8.3

WET HANDLING PERFORMANCE * [%]



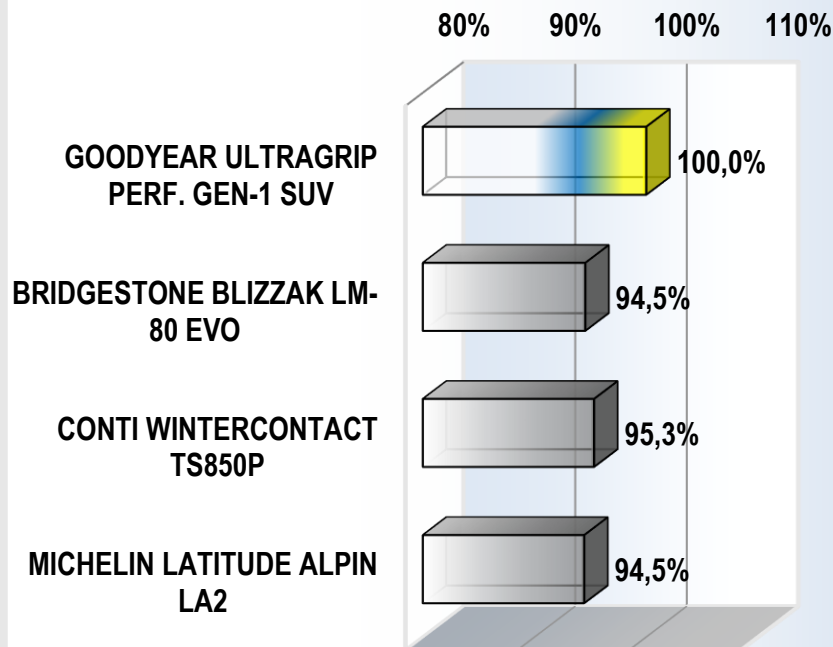
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

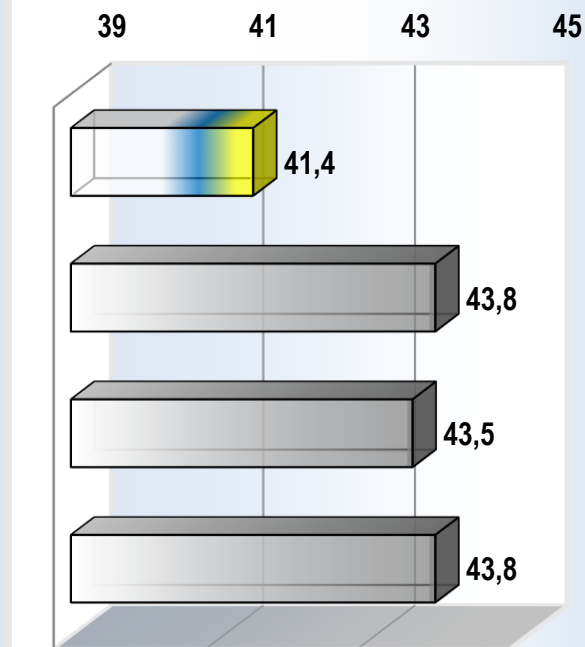
■ DRY BRAKING

- ABS-braking
- Speed range: 100 to 0 km/h
- Test surface: dry asphalt
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Stopping distance / mean deceleration: 41.4 m / 9.32 m/s²

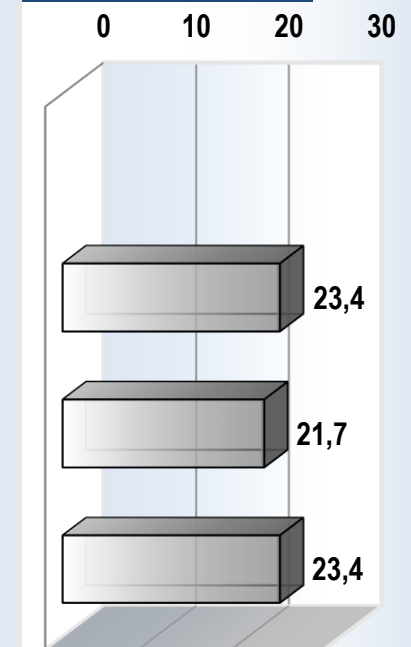
DRY BRAKING PERFORMANCE * [%]



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.

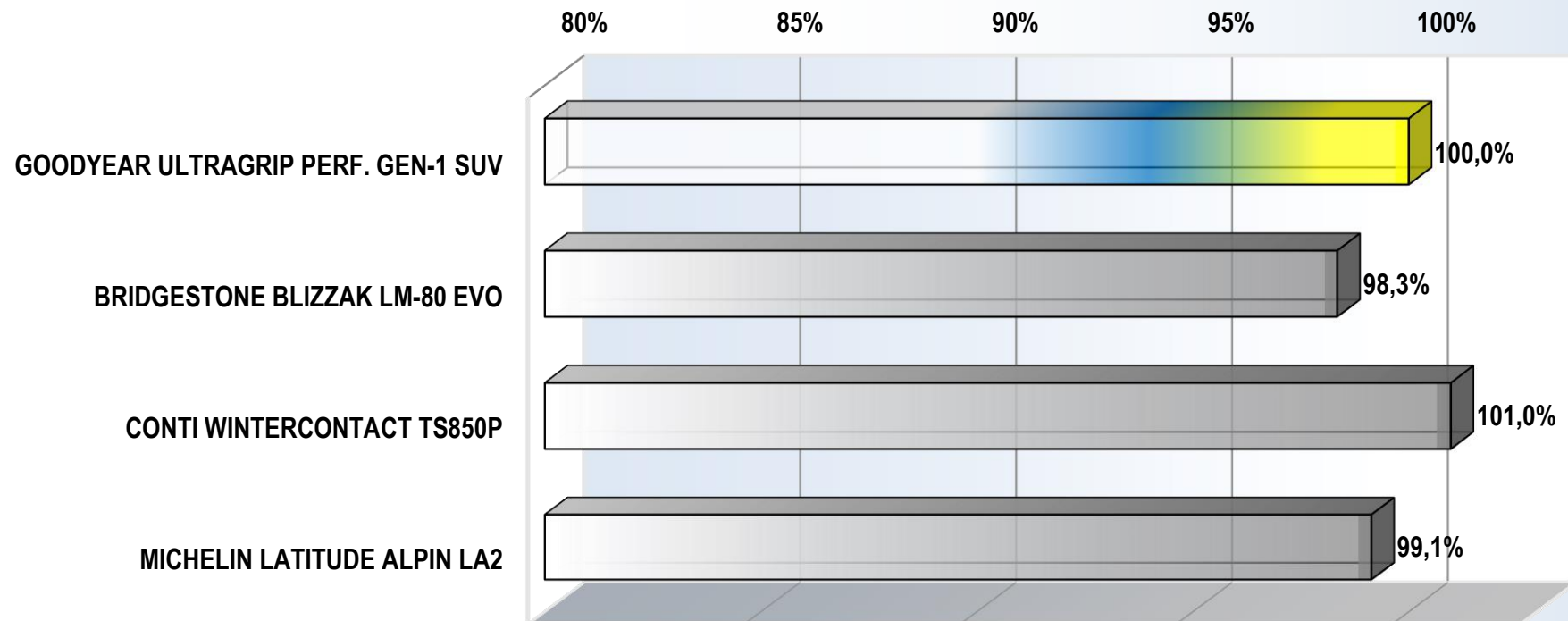
**) The calculation of the residual speed is based on the measured braking distances and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ DRY HANDLING

- ESP off
- Subjective assessment & lap times
- Handling track with dry asphalt, length: 3100 m
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Speed: 107.3 km/h Ø Rating (out of max. 10): 7.9

DRY HANDLING PERFORMANCE * [%]



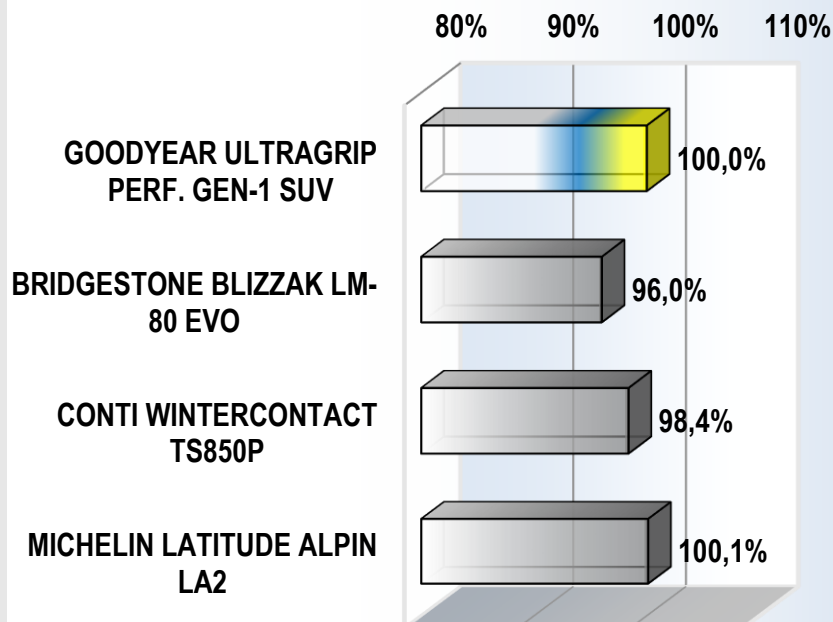
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

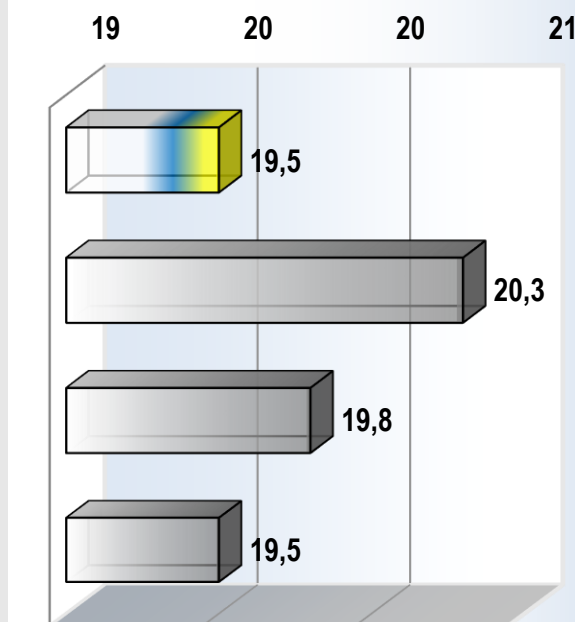
■ BRAKING ON SNOW

- ABS-braking
- Speed range: 40 to 5 km/h
- Duplicate testing (test and re-test on two different days)
- Test surface: compressed snow
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Stopping distance / mean deceleration (average of test & re-test): 19.2 m / 3.16 m/s²

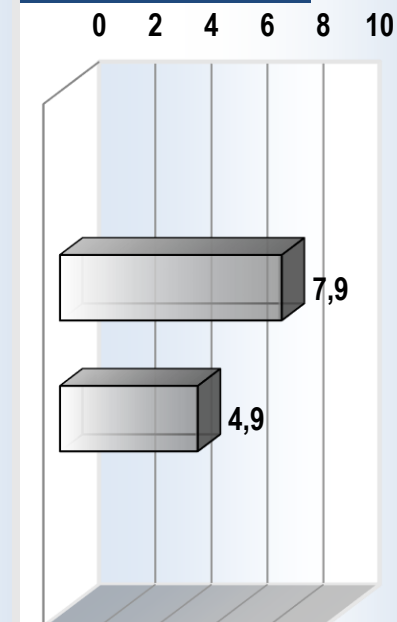
SNOW BRAKING PERFORMANCE * [%]



STOPPING DISTANCE [m], 40-0 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.

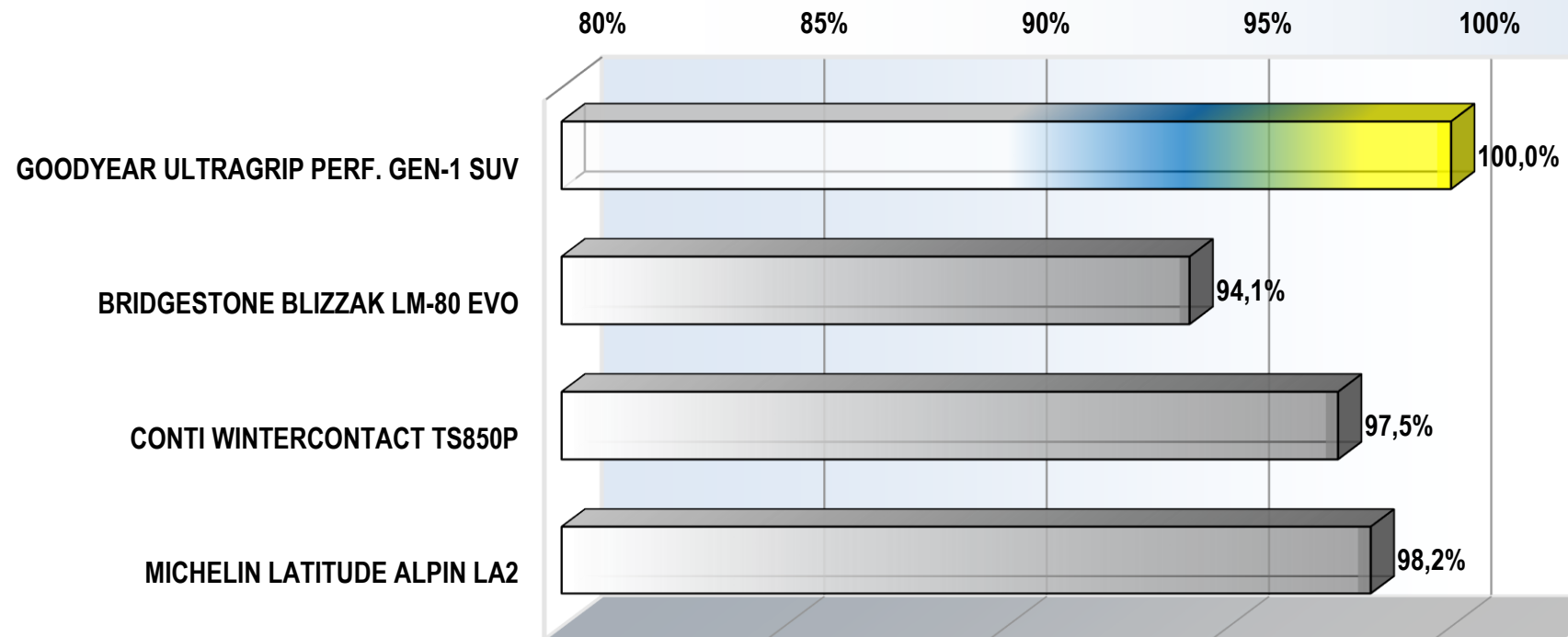
***) The calculation of the residual speed is based on the extrapolated stopping distance (40-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ ACCELERATION ON SNOW

- ETC activated
- Speed range: 10 to 30 km/h
- Duplicate testing (test and re-test on two different days)
- Test surface: compressed snow
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Acceleration time / mean acceleration (average of test & re-test): 3.49 sec / 1.59 m/s²

SNOW TRACTION PERFORMANCE * [%]



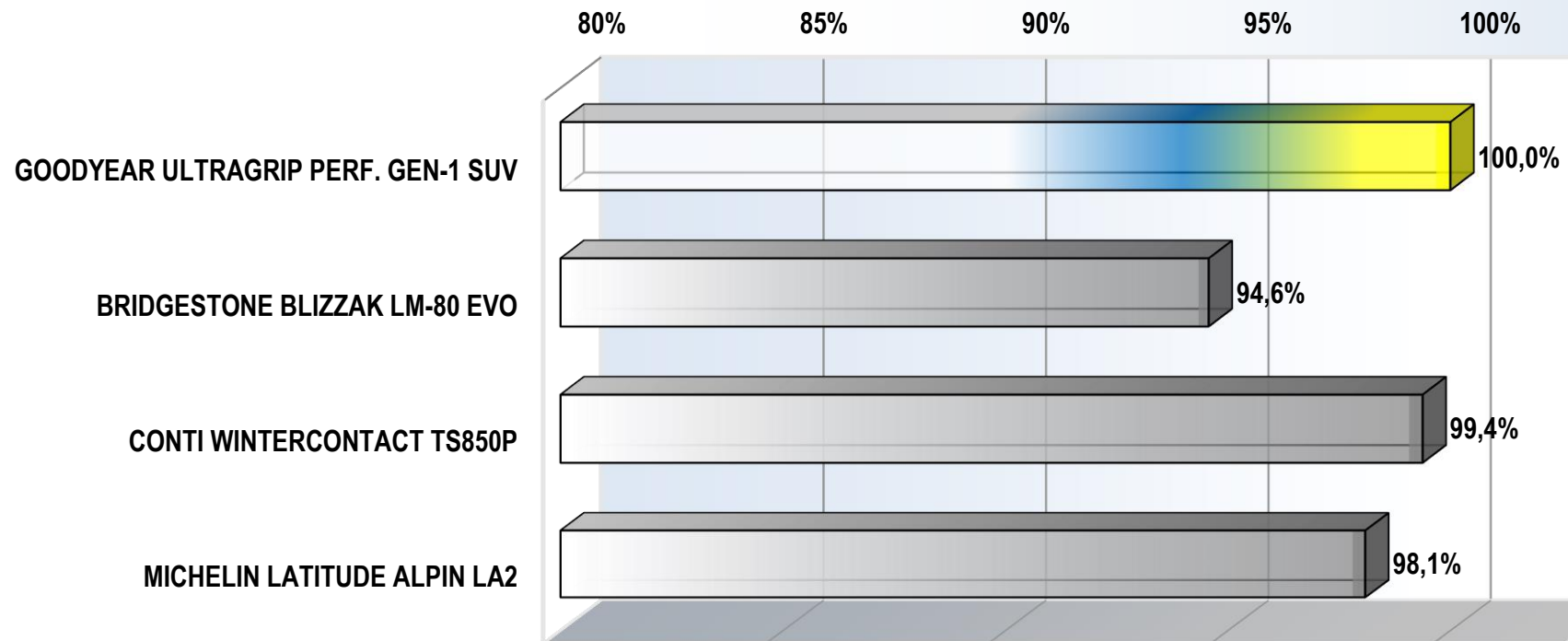
*) The calculation of the percentage performance is based on the mean acceleration values resulting from the measured acceleration times.

TEST RESULTS

■ SNOW HANDLING

- ESP off - Subjective assessment & lap times - Duplicate testing on two different days - Handling track (compressed snow), length: 680 m
- Result Goodyear UltraGrip Performance Gen-1 SUV (average of test and re-test) : Ø Speed: 38.3 km/h Ø Rating (out of max. 10): 8.3

SNOW HANDLING PERFORMANCE * [%]



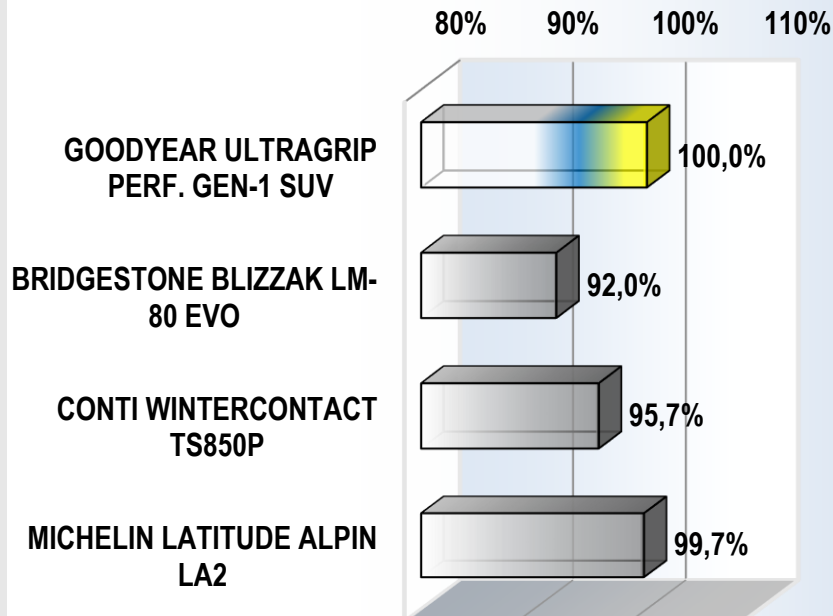
*) The calculation of the percentage performance is based on the speed and the rating scores (at the ratio 2:1).

TEST RESULTS

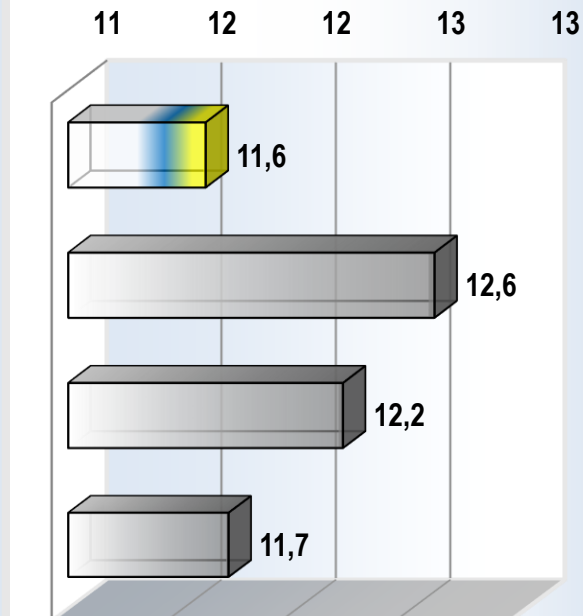
■ BRAKING ON ICE

- ABS-braking
- Speed range: 20 to 5 km/h
- Test surface: polished, artificial ice
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Stopping distance / mean deceleration: 10.9 m / 1.33 m/s²

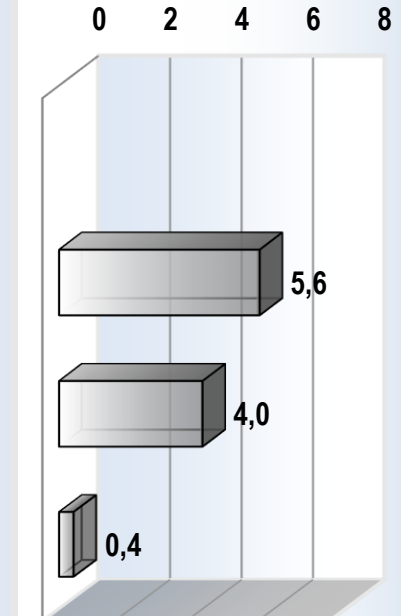
ICE BRAKING PERFORMANCE * [%]



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.

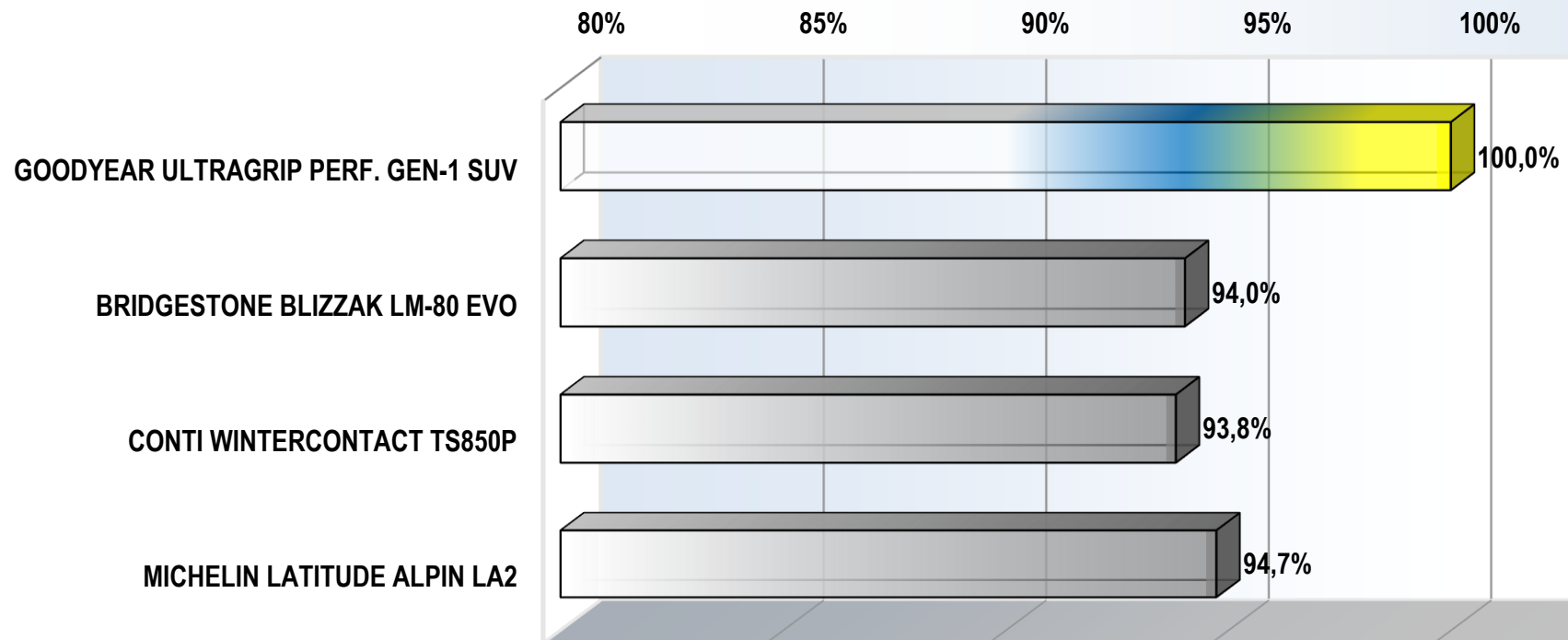
***) The calculation of the residual speed is based on the extrapolated stopping distance (20-0 km/h) and the mean deceleration values resulting from the measured braking distances.

TEST RESULTS

■ ACCELERATION ON ICE

- ETC activated
- Speed range: 9 to 18 km/h
- Test surface: polished, artificial ice
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Acceleration time / mean acceleration: 3.52 sec / 0.71 m/s²

ICE TRACTION PERFORMANCE * [%]



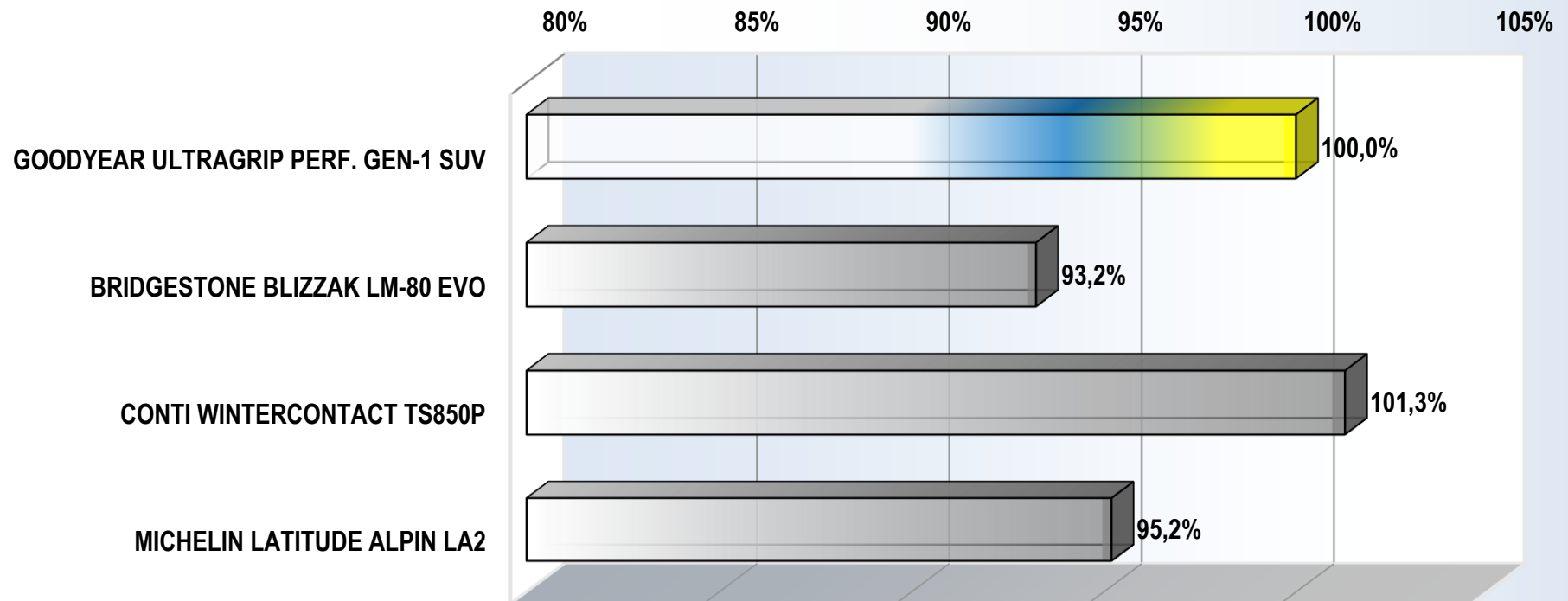
*) The calculation of the percentage performance is based on the mean acceleration values resulting from the measured acceleration times.

TEST RESULTS

■ LATERAL GRIP ON ICE

- ESP off
- Circle radius 10 m
- Test surface: polished, artificial ice
- Result Goodyear UltraGrip Performance Gen-1 SUV: Ø Lap time / mean lateral acceleration: 20.77 sec / 0.91 m/s²

CORNERING PERFORMANCE ON ICE * [%]



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

TEST RESULTS

■ ROLLING RESISTANCE

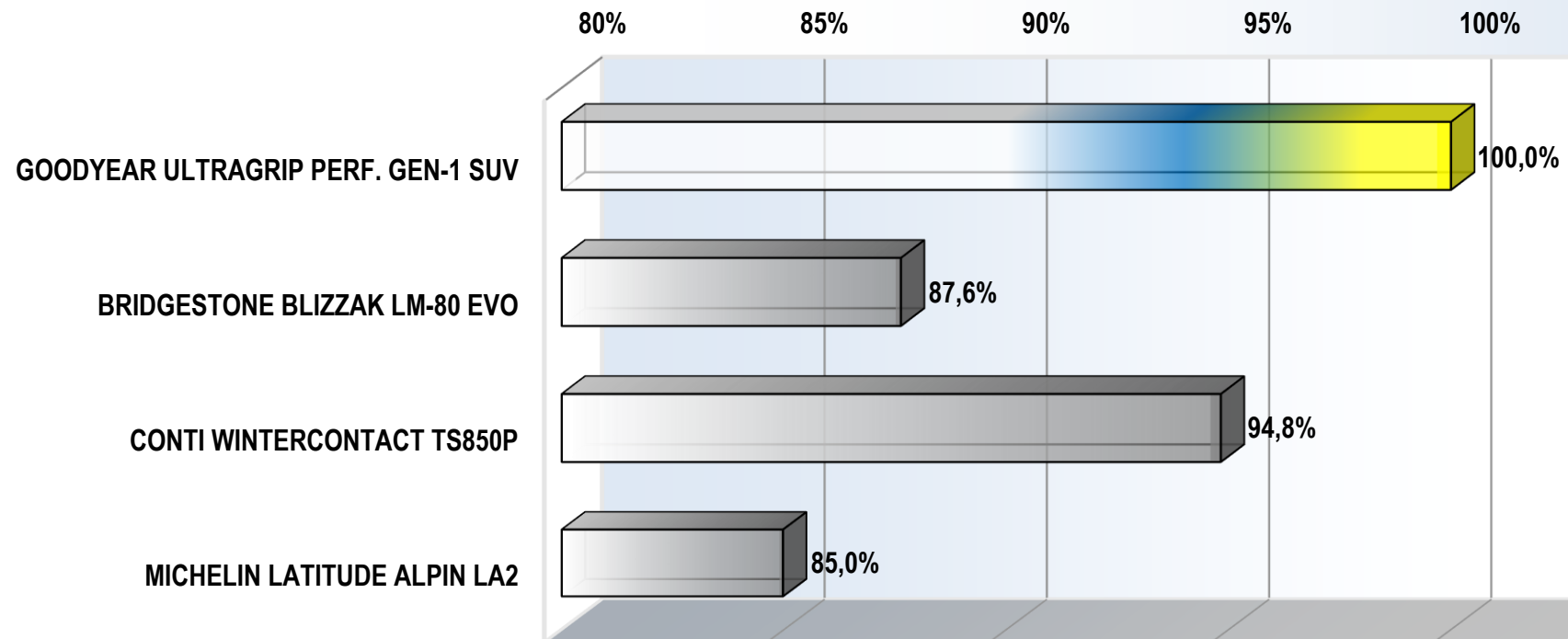
- Acc. to ISO 28580 / EC 1222/2009

- Electrical power method

- Load / inflation: 800 kg / 2.5 bar

- Result Goodyear UltraGrip Performance Gen-1 SUV: RR-Force $F_R = 62.2 \text{ N}$ RR-Coefficient $c_R = 7.92 \text{ kg/t}$ (\triangleq EC Label RRC = 7.6)

LOW ROLLING RESISTANCE PERFORMANCE * [%]



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

TEST RESULTS

■ PASS-BY NOISE

- In accordance to ECE R117 - Reference speed: 80 km/h - Load & Inflation FA / RA: 1400 / 1470 kg - 2.0 / 2.1 bar
- Result Goodyear UltraGrip Performance Gen-1 SUV: $L_R(J_{ref}) = 72.68 \text{ dB(A)}$ Noise level acc. ECE R117 = 71 dB(A)

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

The resulting type approval values are given in brackets.

