
New Snow Test Method for Tyre Class C2 Agenda

1. Scope
2. Requirements and boundary Conditions
3. Test Method Approach
4. Results
5. Conclusions

New Snow Test Method for Tyre Class C2

1. Scope

In addition to the spin traction method for Class C1 and C2 tyres according to the test procedure of ASTM standard F1805-06, a second performance test procedure is proposed in Annex 7 paragraph 3 for Class C2 tyres using a new reference tyre belonging to this class of tyres.

It is based on a braking-on-snow test procedure.

	C1	C2
Spin Traction method	Existing	Existing
Brake on Snow method	Existing	Proposal

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The reasons to add this second method for Class C2 tyres are the following:

- This test method is in line with the logic of the existing test for C1 tyres.
- In order to use an appropriate vehicle for braking of C2 tyres, a dedicated C2 reference testing tyre is mandatory to be introduced. This C2 SRTT 16C ensures the coverage of the required load capacity and avoids fitting problems and so, stabilizes the test quality.
- Increase in flexibility: many available vehicles on the market can be used by all testing parties.
- It is not necessary to invest in a special traction vehicle (ASTM) for the different test companies.
- Cost reason: the spin traction evaluation is more expensive than a braking evaluation for the above reasons.



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2. Requirements for the Test Method

Requirements

- Snow method with a acceptable test accuracy, repeatability and discriminating power
- Any snow tyre has to pass either the spin traction test or the snow braking test
- Introduction of a new reference tyre size 225/75 R 16 C
- Proper defined test conditions to cover the regular use of snow tyres
- Robust / stable test method within the defined range of test condition
- Feasible method for all technical services and tyre manufacturers with vehicles available on the market (owned or rented)



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3. Test Method Approach

Benchmark:

Spin Traction according to ASTM

- Special traction vehicle mandatory
- Single wheel slip measurement
- Maximum vehicle/axle load is limited
- Strong adaption of inflation pressure for higher tyre load index needed
- Reference: C1-SRTT 14

Snow Braking (similar to class C1)

- Regular/ on market available vehicle
- Vehicle braking with ABS: stopping distance measurement
- C2 Vehicles can cover all load requirements
- Inflation pressure is calculated to run at constant deflection
- Reference: C2-SRTT 16C

Approach:

Snow braking with a vehicle equipped with ABS system similar to the UNECE snow braking test for class C1 tyres

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3. Test Method Approach - Description

Test Method Description (based on snow braking for class C1 tyres) :

Vehicle:	market available vehicles
Reference Tyres:	225/75 R 16 C SRTT
Tyre Configuration:	all axle positions
Snow surface:	packed snow with CTI 75 – 85
Ambient Temperature:	-2°C to -15°C
Surface Temperature:	-4°C to -15°C
Initial Speed:	higher than 28 km/h
Braking down to min. 8 km/h or less	
Recorded Measure:	Braking distance from 25 down to 10 km/h

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3. Test Method Approach - Vehicle

Vehicle



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3. Test Method Approach – Reference Tyre

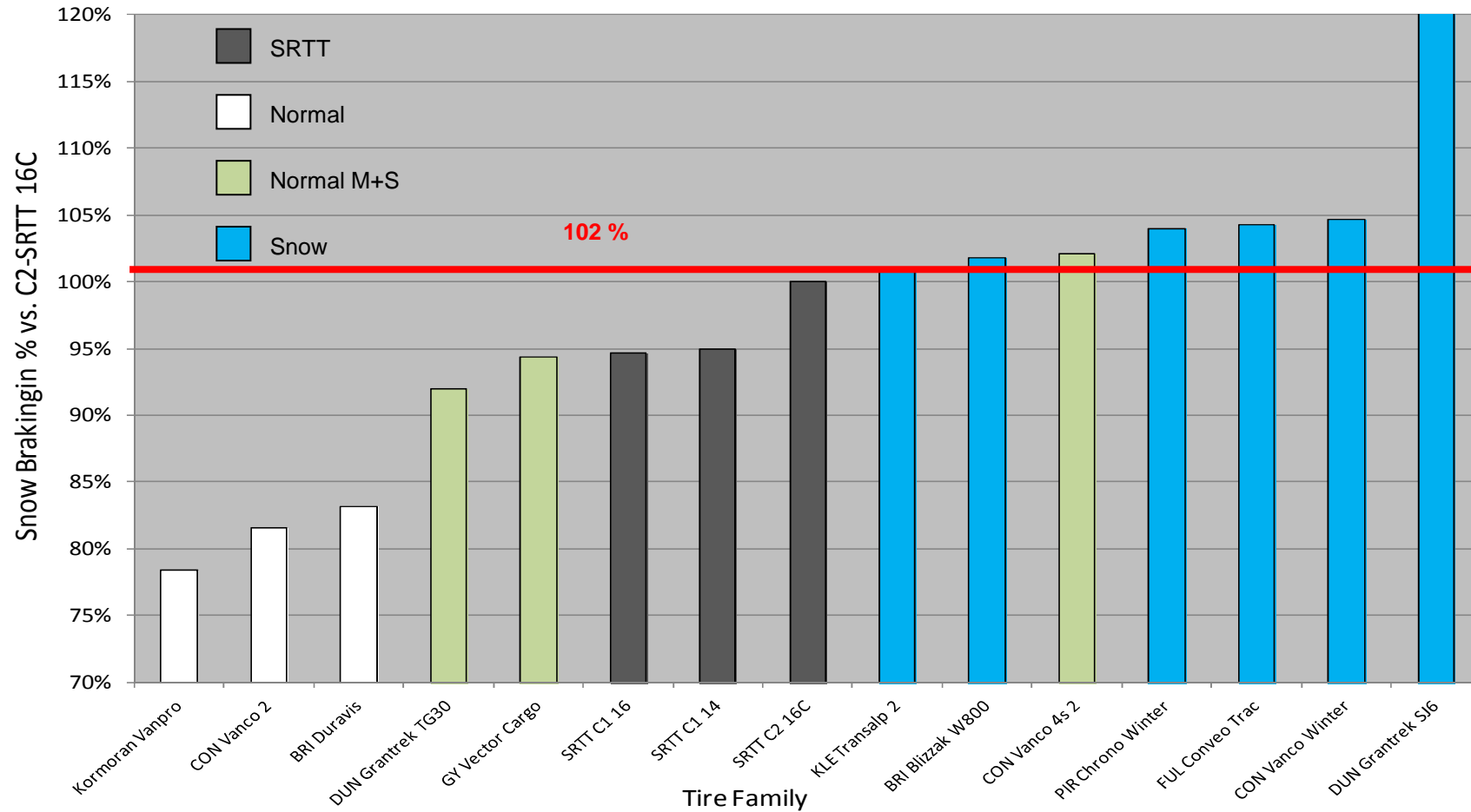
C2 SRTT:

SRTT for C2 tyres
ASTM F 2872 SRTT 225/75 R 16 C



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5. Test Results – Order of Ranking (Threshold 102%)

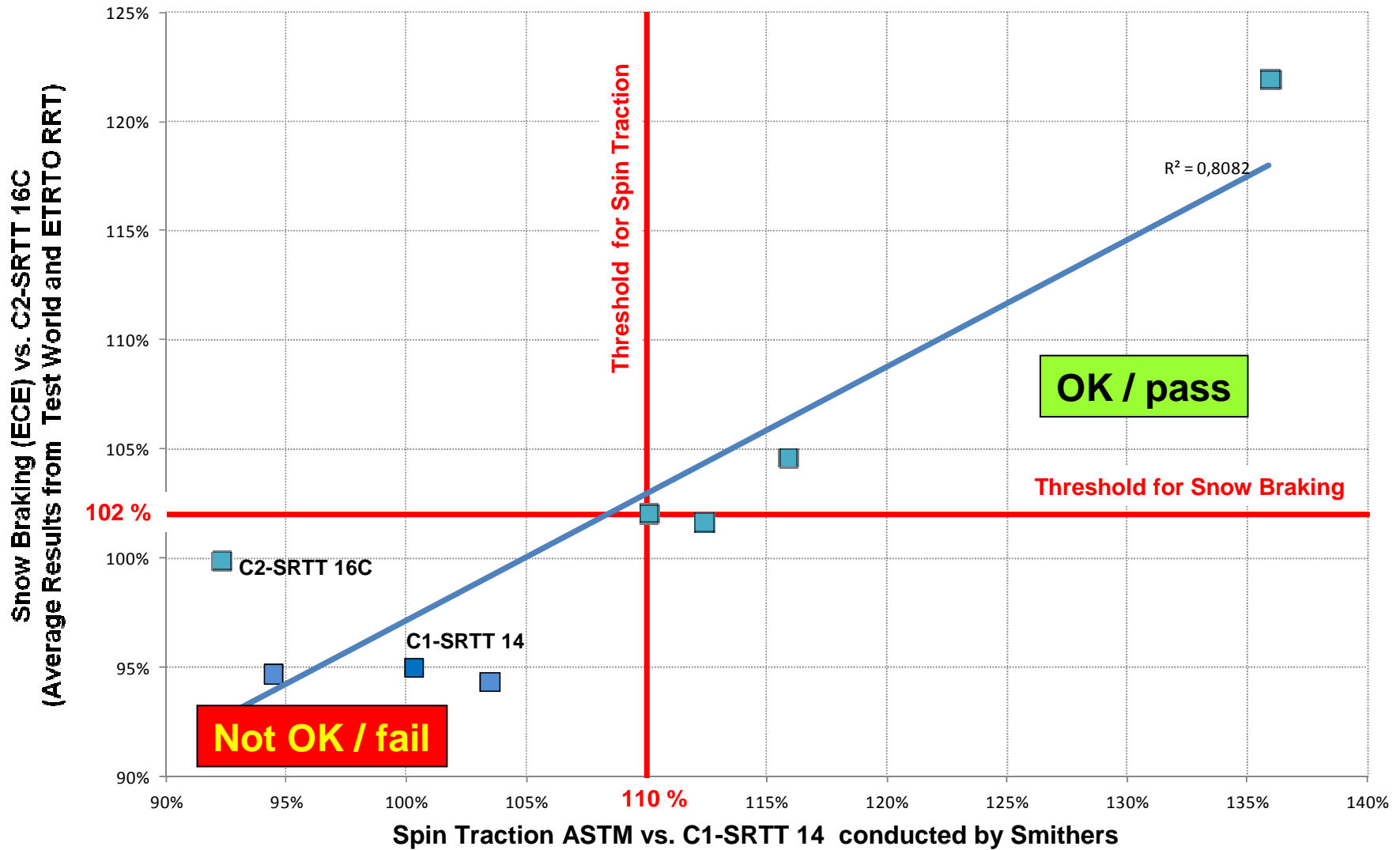


Threshold proposal: 102% vs. C2-SRTT 16 (225/75 R 16C SRTT)



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4. Test Results – Correlation Spin Traction vs. Snow Braking (Threshold 102%)



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5. Conclusions - Summary

- The Snow Braking test is required for “Snow” homologation as an alternative to the Spin traction test to ensure that all testing parties are able to perform the tests (e.g. type approval authorities, independent laboratories, testing journalists) and tyre companies and to optimize the testing activities within the short winter season.
- The Snow braking test for class C2 tyres is same approach as the Snow braking test for class C1 tyres
- Data from independent third parties, Smithers and Test World, confirmed the equivalence of both methods (snow braking vs. spin traction)

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Thank you!



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Annex



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4. Test Results (RRT, Test World and Smithers 2010/2011)

Family	Size	Pattern	Snow Braking ECE							Spin Traction acc. to ASTM	
			Continental RRT 2010	Michelin RRT 2010	Bridgestone RRT 2010	Goodyear RRT 2010	Test World 2011	Test World 2011	Test World 2011	Average 2010/2011	Smithers 2011
Normal	205/75R16C	Kormoran Vanpro	74%	77%	81%	82%				78%	
Normal	235/65R16C	CON Vanco 2				82%				82%	
Normal	235/65R16C	BRI Duravis	90%	82%	87%	75%				83%	
Normal M+S	205R16C	DUN Grantrek TG30	87%	93%	95%	93%				92%	
Normal M+S	205/65 R 16C	GY Vector Cargo					92%	95%	96%	94%	103%
SRTT	P225/60R16	SRTT C1 16	95%	99%	86%	95%	96%	97%	96%	95%	94%
SRTT	195/75R14	SRTT C1 14				95%				95%	100%
SRTT	225/75R16C	SRTT C2 16C	100%	100%	100%	100%	100%	100%	100%	100%	92%
Snow	195/65R16C	KLE Transalp 2		103%		99%				101%	
Snow	225/70 R 15C	BRI Blizzak W800	92%	104%			101%	107%	104%	102%	112%
Normal M+S	225/75R16C	CON Vanco 4s 2	90%	102%			104%	108%	107%	102%	110%
Snow	225/70R15C	PIR Chrono Winter	101%			107%				104%	
Snow	195/75R16C	FUL Conveo Trac		107%	102%	104%				104%	
Snow	235/65R16C	CON Vanco Winter	96%	102%	100%	106%	108%	110%	111%	105%	116%
Snow	275/70 R 16C	DUN Grantrek SJ6					116%	128%	122%	122%	136%

Snow Braking ECE	
Ref.: SRTT C2 16C	
Threshold = 102%	
< 100%	fail
101-102%	borderline
> 103%	pass

Spin Traction ASTM	
Ref.: SRTT C1 14	
Threshold = 110%	
< 107%	fail
107-110%	borderline
> 110%	pass

Threshold proposal: 102% vs. C2-SRTT 16 (225/75 R 16C SRTT)

