

THE NETHERLANDS
(N E D E R L A N D)

COMMUNICATION

Concerning ⁽¹⁾:

- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of tyre with regard to 'rolling sound emission level' and/or 'adhesion performance on wet surfaces' and/or 'rolling resistance' pursuant to Regulation number 117.

Approval number: E4*117R02/09*10765*00

- | | | |
|------|---|---|
| 1. | Manufacturer's name and address | : Shangdong Longyue Rubber Co., Ltd.
The South of Yalujiang Road, Wenzhuang
Village, Qinghe Agency of Cao County, Heze
City, Shandong Province, 274400, China(PRC) |
| 2. | If applicable, name and address of
manufacturer's representative | : not applicable |
| 3. | 'Tyre class' and 'category of use' of
the type of tyre | : Class C1/ Class C2 /Class C3
: normal/snow/special |
| 3.1. | Snow tyre for use in severe snow
conditions | : yes/ no ⁽¹⁾ |
| 3.2. | Traction tyre | : yes /no ⁽¹⁾ |
| 4. | Tyre type designation | : |
| 4.1 | Brand name(s)/trademark(s) of the type
of tyre | : CONSTANCY; ILINK; LUXXAN; RHINO;
ARIVO; GRENLANDER; T TYRE; CRYSTAL;
FRONWAY; ROCKBLADE; SAILWIN; XBRI;
ROADMARCH (Brand names) |

Approval number: E4*117R02/09*10765*00

- 4.2 Trade description(s)/Commercial name(s) of the type of tyre : Winter GL989; Winter IL989; ICEPOWER 989; : ICEWINNER 989; WINMASTER ARW6; ROCK 989S; THIRTY; SNOWROVER 989; INSPIRER W22(Tread pattern names)
5. Technical service and, where appropriate, test laboratory approved for purposes of approval or of verification of conformity tests : TÜV NORD Mobilität GmbH & Co. KG IFM - Institut für Fahrzeugtechnik und Mobilität Schönscheidtstr. 28, : D-45307 Essen
6. Performance(s) approved : sound level at (~~stage 1~~/stage 2)⁽¹⁾, wet adhesion level, rolling resistance level (~~stage 1~~/stage 2)⁽¹⁾
- 6.1. Sound level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 1.6. of the test report in the appendix 1 to Annex 3: 72 dB(A) at reference speed of ~~70~~80 km/h⁽¹⁾.
- 6.2. Wet adhesion level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 1.7. of the test report in the appendix to Annex 5: 1.12 (G) using the vehicle ~~or trailer~~ method⁽¹⁾.
- 6.3. Rolling resistance level of the representative tyre size, see paragraph 2.5. of Regulation number 117, as per item 1.8. of the test report in the appendix 3 to Annex 6: 9.14 N/kN⁽²⁾.
- 6.4. Snow grip level of the representative tyre size, see paragraph 2.5. of Regulation No. 117, as per item 1.10. of the test report in the appendix ⁽²⁾ to Annex 7: 1.42 (Snow grip index) using the brake on snow method⁽¹⁾, ~~spin traction method⁽¹⁾ or acceleration method⁽¹⁾~~.
7. Number of report issued by that service : CS117-A0-2019-00647
8. Date of report issued by that service : May 13, 2019
9. Reason(s) of extension (if applicable) : Not applicable
10. Any remarks : ---
11. Place : Zoetermeer
12. Date :14 June 2019
13. Signature :
14. Annexed to this communication are:
- 14.1. A list of documents in the approval file deposited at the Type Approval Authorities having delivered the approval and which can be obtained upon request⁽³⁾.

- 14.2. A list of tyre size designations: Specify for each brand name/trademark and/or each trade description/Commercial name the list of tyre size designations, adding in case of Class C1 tyres the mark 'reinforced' (or 'extra load') or the speed symbol of snow tyres or in the case of tyres of Classes C2 and C3, the mark 'traction', if so required by paragraph 3.1. of this Regulation.

⁽¹⁾ Strike out what does not apply.

⁽²⁾ Appendix 2 for C1 and C2 tyres
Appendix 3 for C3 tyres.

⁽³⁾ In the case of 'snow tyre for use in severe snow conditions' a test report according to Appendix 2 of Annex 7 shall be submitted.

RELATING TO ECE TYPE-APPROVAL FOR A TYPE OF TYRE WITH REGARD TO ROLLING SOUND EMISSIONS AND TO ADHESION PERFORMANCE ON WET SURFACES AND/OR TO ROLLING RESISTANCE (ECE Regulation No. 117. 02, Supplement 9)

1. GENERAL

- 1.1. The performance characteristics to be assessed for the tyre type : rolling sound emission level and adhesion performance level on wet surfaces and rolling resistance and snow performance level of snow tyre for use in severe snow conditions
- 1.2. Manufacturer's name : ShangdongLongyue Rubber Co., Ltd.
- 1.3. Name and address of applicant : The South of Yalujiang Road, Wenzhuang Village Qinghe Agency of Cao County Heze City, Shandong Province 274400 China(PROC)
- 1.4. Address(es) of manufacturing plant(s) : same with the applicant
- 1.5. Brand name(s), Trade description(s) or Trade mark(s) to be used for particular tyre type-approval requested : Brand name : CONSTANCY; ILINK; LUXXAN; RHINO; ARIVO; GRENLANDER; T TYRE; CRYSTAL; FRONWAY; ROCKBLADE; SAILWIN; XBRI; ROADMARCH
Tread pattern: Winter GL989; Winter IL989; ICEPOWER 989; ICEWINNER 989; WINMASTER ARW6; ROCK 989S; THIRTY; SNOWROVER 989; INSPIRER W22

2. Tyre

- 2.1. Tyre classification (class C1, C2, C3) : ~~Class C1~~ / Class C2 / ~~Class C3~~
- 2.2. Section width range for class C1 tyres : not applicable
- 2.3. Tyre structure : ~~diagonal / bias belted~~ / radial
- 2.4. For Class C1 tyres, state weather :
- 2.4.1. Reinforced (or extra load) in case of approval with regarding to rolling sound emission level : see attached "list of tyre size"
- 2.4.2. Speed category symbol "Q" or below (not including "H") or "R" and above (including "H") in case of snow tyres for approval with regarding to adhesion on wet surfaces : not applicable
- 2.5. For Class C2 or C3 tyres, state weather "Traction tyre" : ~~Yes~~ / No
- 2.6. Category of use (normal, snow, special) : ~~normal~~ / snow (snow tyre for use in severe snow conditions) / ~~special~~
- 2.7. A list of tyre designations covered by this application : see attached "list of tyre size"
- 2.8. Details of major features, with respect to the effects on tyre performance (i.e. rolling emission level or adhesion on wet surfaces, respectively) of the tread pattern(s) to be used on the designated range of tyre sizes. : see attached "drawing of tread pattern"
- 2.9. In the case of "special use tyre", drawing of the tread pattern supplied in order to verify the void-to-fill ratio. : not applicable

MANUFACTURER'S STAMP

Signature :

Ren Hailong

Name: Ren Hailong

THIS APPLICATION IS ACCOMPANIED BY:

- List of tyre size
- Drawing of tread pattern
- The test report

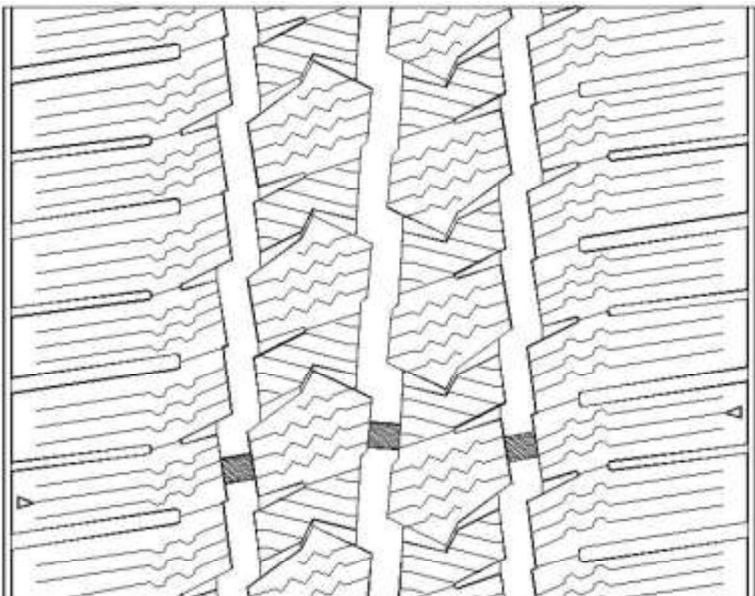
List of tyre size

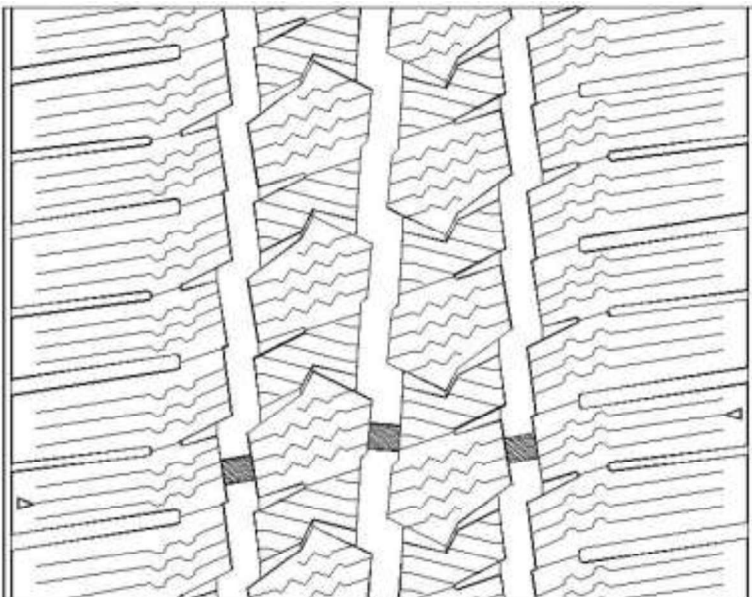
Brand name(s) or Trade mark(s) : CONSTANCY;ILINK;LUXXAN;RHINO;ARIVO; GRENLANDER;
T TYRE;CRYSTAL;FRONWAY; ROCKBLADE;
SAILWIN;XBRI;ROADMARCH

Tread pattern : Winter GL989;Winter IL989;ICEPOWER 989;ICEWINNER 989;
WINMASTER ARW6;ROCK 989S;THIRTY;
SNOWROVER 989;INSPIRER W22

Tyre size	Approval No.	Limit for rolling sound dB(A) of Stage II	Limit for wet grip index	Limit for rolling resistance coefficient N/KN of Stage II
235/65R16C 115/113R	E4-0043564	73 dB(A)	1.045	10.0
185/75R16C 104/102R	E4-0043553	73 dB(A)	1.045	10.0
195/75R16C 107/105R	E4-0043556	73 dB(A)	1.045	10.0
205/75R16C 113/111R	E4-0043574	73 dB(A)	1.045	10.0
215/75R16C 113/111R	E4-0043561	73 dB(A)	1.045	10.0
225/75R16C 121/120R	E4-0043582	73 dB(A)	1.045	10.0
175/70R14C 95/93T	E4-0043566	73 dB(A)	1.045	10.0
195/70R15C 104/102R	E4-0043555	73 dB(A)	1.045	10.0
205/70R15C 106/104R	E4-0043573	73 dB(A)	1.045	10.0
215/70R15C 109/107R	E4-0043560	73 dB(A)	1.045	10.0
225/70R15C 112/110R	E4-0043563	73 dB(A)	1.045	10.0
175/65R14C 90/88T	E4-0043565	73 dB(A)	1.045	10.0
215/65R15C 104/102R	E4-0043558	73 dB(A)	1.045	10.0
195/65R16C 104/102R	E4-0043554	73 dB(A)	1.045	10.0
195/65R16C 104/102T	E4-0043569	73 dB(A)	1.045	10.0
205/65R16C 107/105R	E4-0043557	73 dB(A)	1.045	10.0
205/65R16C 107/105T	E4-0043572	73 dB(A)	1.045	10.0
215/65R16C 109/107R	E4-0043559	73 dB(A)	1.045	10.0
215/65R16C 109/107T	E4-0043577	73 dB(A)	1.045	10.0
225/65R16C 112/110R	E4-0043562	73 dB(A)	1.045	10.0
195/60R16C 99/97H	E4-0043568	73 dB(A)	1.045	10.0
215/60R16C 103/101T	E4-0043575	73 dB(A)	1.045	10.0
215/60R17C 109/107T	E4-0043576	73 dB(A)	1.045	10.0

Worst Case Selection	
Representative tyre size for rolling sound emission	235/65R16C 115/113R
Worst Case Criteria for rolling sound emission	Widest
Representative tyre size for wet grip	235/65R16C 115/113R
Worst Case Criteria for wet grip	The wet grip test result of 235/65R16C 115/113R is G=1.12,witch is 110% above the limit value of ECE-R117(for snow tyre for us,the110% limit value is G=1.045)
Representative tyre size for snow grip	235/65R16C 115/113R
Worst Case Criteria for snow grip	The largest nominal section
Representative tyre size for rolling resistance	195/70R15C 104/102R
Worst Case Criteria for rolling resistance	Lowest load capacity index

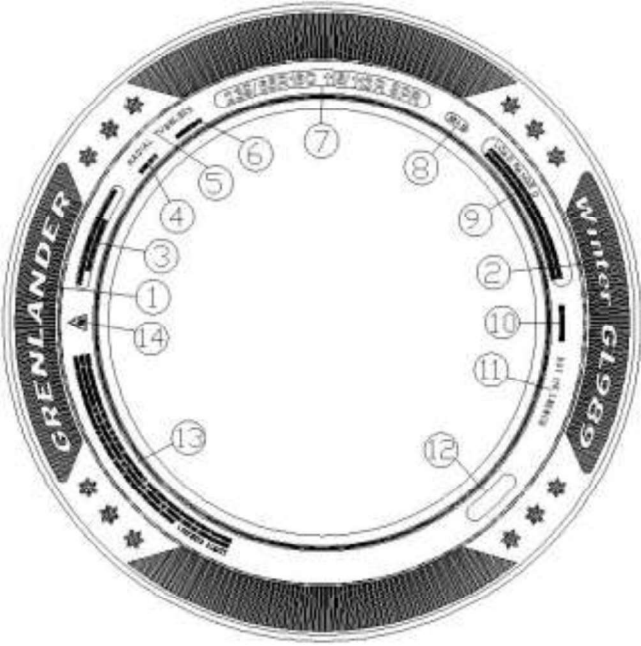
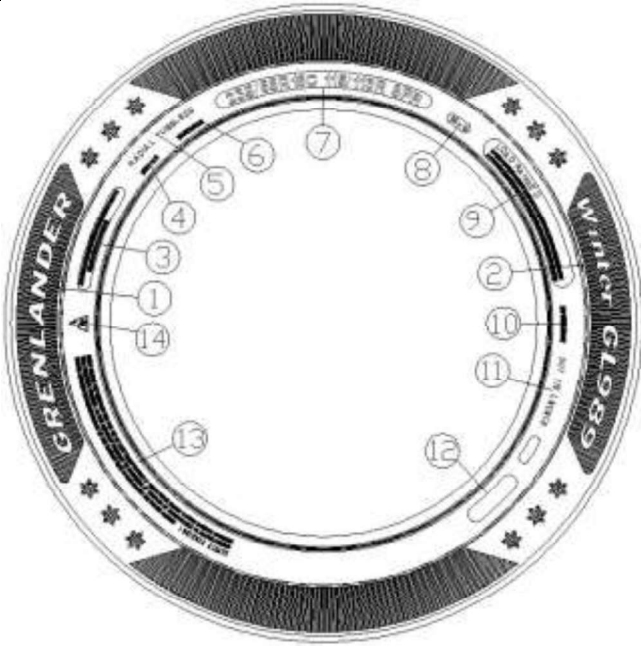
Drawing of the tread pattern (for measured tyre using for tyre noise and wet grip and snow grip)	
Manufacturer name	: Shandong Longyue Rubber Co., Ltd.
Pattern name	: Winter GL989;Winter IL989; ICEPOWER 989;ICEWINNER 989; WINMASTER ARW6;ROCK 989S; THIRTY;SNOWROVER 989;INSPIRER W22
Tyre Size	: 235/65R16C 115/113R
Market	: EU/US
Marking	: M+S 
Pitch number	: 37
Pitch ratio	: 0.71/1/1.16
Void volume [%]	: 22
Width: main grooves [mm]	: 11.3/11.6/11.4
Depth: center groove [mm]	: 8.8
Depth: shoulder groove [mm]	: 8.8
Tyre tread pattern	: 

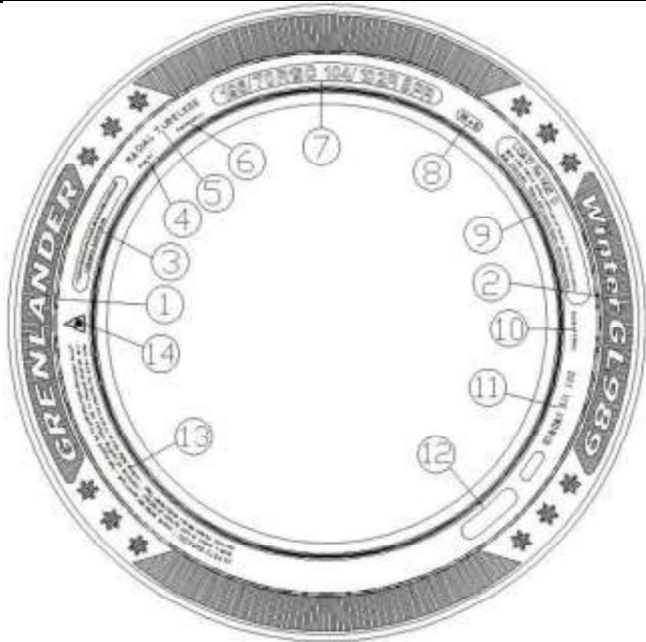
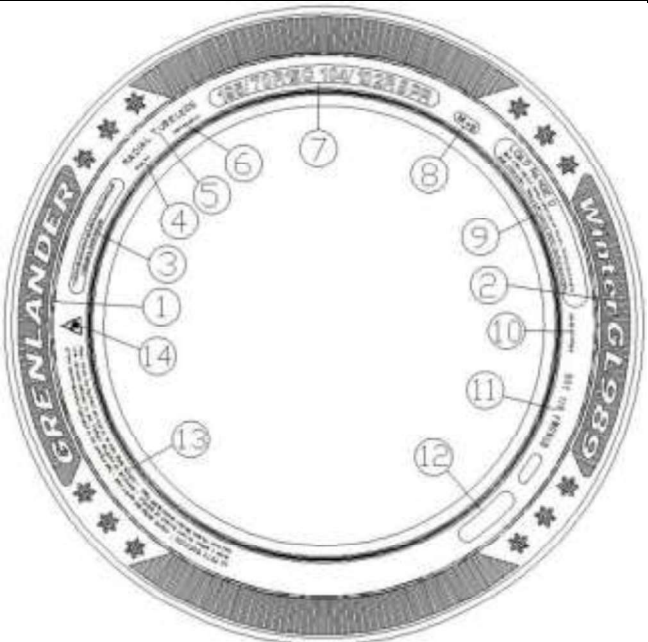
Drawing of the tread pattern (for measured tyre using for tyre rolling resistance test)	
Manufacturer name	: Shangdong Longyue Rubber Co., Ltd.
Pattern name	: Winter GL989;Winter IL989; ICEPOWER 989;ICEWINNER 989; WINMASTER ARW6;ROCK 989S; THIRTY;SNOWROVER 989;INSPIRER W22
Tyre Size	: 195/70R15C 104/102R
Market	: EU/US
Marking	: M+S 
Pitch number	: 37
Pitch ratio	: 0.86/1/1.28
Void volume [%]	: 22
Width: main grooves [mm]	: 9.1/9.5/9.4
Depth: center groove [mm]	: 8.8
Depth: shoulder groove [mm]	: 8.8
Tyre mass [kg]	:
Tread depth [mm]	: 8.8
Tread width [mm]	: 144
Curvature radius of tread crown [mm]	: 332
Tyre outer diameter [mm]	: 651
Tread plies	: 2POLYESTER + 2 STEEL + 1NYLON
Tyre tread pattern	: 

Drawing of the tyre sidewall

Tyre Size

: 235/65R16C 115/113R

 Upper mold	 Lower mold
1. GRENLANDER	1. GRENLANDER
2. Winter GL989	2. Winter GL989
3. PLIES:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER	3. PLIES:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER
4. RIM:7J	4. RIM:7J
5. RADIAL TUBELESS	5. RADIAL TUBELESS
6. MOLD NO.	6. MOLD NO.
7. 235/65R16C 115/113R 8PR	7. 235/65R16C 115/113R 8PR
8. M+S	8. M+S
9. LOAD RANGE D MAX. LOAD SINGLE 1215kg (2679 LBS) AT 475kPa (69 PSI) MAX.PRESS. MAX. LOAD DUAL 1150kg (2535 LBS) AT 475kPa (69 PSI) MAX.PRESS.	9. LOAD RANGE D MAX. LOAD SINGLE 1215kg (2679 LBS) AT 475kPa (69 PSI) MAX.PRESS. MAX. LOAD DUAL 1150kg (2535 LBS) AT 475kPa (69 PSI) MAX.PRESS.
10. MADE IN CHINA	10. MADE IN CHINA
11. DOT 17B LNENCB	11. DOT 17B LNENCB XXXX(DATE CODE)
12. (E4)XXXXXXX	12. (E4)XXXXXXX
13. SAFETY WARNING	13. SAFETY WARNING
14. 	14. 

Drawing of the tyre sidewall	
Tyre Size : 195/70R15C 104/102R	
	
Upper mold	Lower mold
1. GRENLANDER	1. GRENLANDER
2. Winter GL989	2. Winter GL989
3. PLIES:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER	3. PLIES:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER
4. RIM:6J	4. RIM:6J
5. RADIAL TUBELESS	5. RADIAL TUBELESS
6. MOLD NO.	6. MOLD NO.
7. 195/70R15C 104/102R 8PR	7. 195/70R15C 104/102R 8PR
8. M+S	8. M+S
9. LOAD RANGE D MAX. LOAD SINGLE 900kg (1984 LBS) AT 450kPa (65 PSI) MAX.PRESS. MAX. LOAD DUAL 850kg (1874 LBS) AT 450kPa (65 PSI) MAX.PRESS.	9. LOAD RANGE D MAX. LOAD SINGLE 900kg (1984 LBS) AT 450kPa (65 PSI) MAX.PRESS. MAX. LOAD DUAL 850kg (1874 LBS) AT 450kPa (65 PSI) MAX.PRESS.
10. MADE IN CHINA	10. MADE IN CHINA
11. DOT 17B FMDNCB	11. DOT 17B FMDNCB XXXX(DATE CODE)
12. (E4) XXXXXXXX	12. (E4) XXXXXXXX
13. SAFETY WARNING	13. SAFETY WARNING
14. 	14. 

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

Test Report

Agreement concerning the adoption of uniform technical prescriptions for the wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions

Uniform Provisions Concerning The Approval Of Types With Regard To Rolling Sound Emissions And To Adhesion On Wet Surfaces And Rolling Resistance

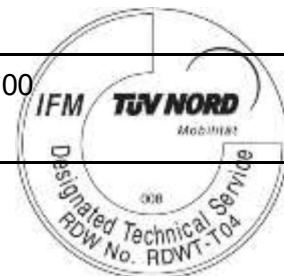
ECE-R 117

as last amended

Revision 4

Supplement 9 to the 02 series of amendments

Approval status	
ECE	Number of approval
	E4*117R02/09*10765*00



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

0. Tire noise, wet grip test and rolling resistance test description

0.1. Test facilities : The test facilities are in compliance with the requirements of the regulation

0.2. Noise Measurement

0.2.1.measurement : The test course satisfies the requirements of ISO 10844:2014 and the test surface is dry and clean for all measurement.

Measurement equipment corresponds to class 1 of IEC 60651.

The microphones are arranged at a distance of $7.5m \pm 0.05m$ to the centreline at a height of $1.20m \pm 0.02m$ above the measurement surface. A suitable windscreen may be fitted to the microphone provided that account is taken of its effect on the sensitivity and directional characteristics of the microphone.

The microphones were calibrated prior to commencement.

Wind speed at the microphone height $\leq 5m/s$.

Ambient noise is at least 10 dB (A) less than the measured tyre-road sound emission.

Prior to actual measurement, the tires were run in for about 100 Km on public roads, to remove mold-release agents, mold discharges etc. from the tires.

The tyres fitted to the test rotate in the same direction as when they were run-in. Prior to testing tyres are warmed up by running under test conditions.

0.2.2.Test results

: The vehicle was rolled across the test course in neutral gear with the engine switched off. The maximum sound pressure levels in dB (A) right and left of the vehicle were recorded together with the speed.

This measurement was carried out 8 times at different speeds; the different speeds were distributed as evenly as possible across the defined speed range.

Regression analysis is used to establish the relationship between the results and the reference speed.

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

0.3. Wet grip test Measurement

0.3.1.Measurement

The test track are in compliance with the requirements of the regulation paragraph 1.1 annex 5

Standard reference test tyre (SRTT) in accordance with the American Society for Testing and Materials (ASTM) standard E 1136 - 93 (re-approved 1998).

Wetting conditions according paragraph 1.2 annex 5

The water depth shall be between 0.5 and 1.5 mm.

The wetted surface temperature shall be between 5 °C and 35 °C and shall not vary during the test by more than 10 °C.

Trailer or special purpose tyre evaluation vehicle method according the regulation paragraph 2.1 annex 5.

Standard vehicle method

according the regulation paragraph 2.2 annex 5.

0.3.2.Test results

The type of tyre complies with the requirements of the regulation paragraph 6.2.1.

0.4. Rolling resistance test Measurement

0.4.1.Measurement

Test equipment tolerances in compliance with the requirements of Appendix 1, Annex 6, Regulation 117 and EC/1235/2011.

Test rim,

For passenger car tyre rims (C1 tyres), the test rim width shall be the same as the measuring rim determined in ISO 4000-1: 2010 clause 6.2.2.

For truck and bus tyres (C2 and C3) the rim width shall be the same as the measuring rim determined ISO 4209-1:2001 clause 5.1.3.

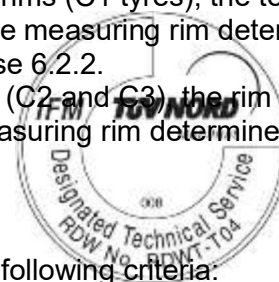
Run-out,

Run-out shall meet the following criteria:

- (a) Maximum radial run-out: 0.5 mm;
- (b) Maximum lateral run-out: 0.5 mm.

Load application

The direction of tyre loading application shall be kept normal to the test.



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

surface and shall pass through the wheel centre within
(a) 1 mrad for the force and deceleration methods;
(b) 5 mrad for the torque and power methods.

Tyre alignment

Camber angle

The plane of the wheel shall be perpendicular to the test surface within 2 mrad for all methods.

Slip angle

The plane of the tyre shall be parallel to the direction of the test surface motion within 1 mrad for all methods.

Control accuracy

(a) Tyre loading:

(i) For $LI \leq 121$ ± 20 N or ± 0.5 per cent, whichever is greater;

(ii) For $LI > 121$ ± 45 N or ± 0.5 per cent whichever is greater;

(b) Cold inflation pressure: ± 3 kPa;

(c) Surface speed:

(i) ± 0.2 km/h for the power, torque and deceleration methods;

(ii) ± 0.5 km/h for the force method;

(d) Time: ± 0.02 s.

Instrumentation accuracy

Parameter	Load Index ≤ 121	Load Index > 121
Tyre load	± 10 N or ± 0.5 % ^(a)	± 30 N or ± 0.5 % ^(a)
Inflation pressure	± 1 kPa	± 1.5 kPa
Spindle force	± 0.5 N or ± 0.5 % ^(a)	± 1.0 N or ± 0.5 % ^(a)
Torque input	± 0.5 Nm or ± 0.5 % ^(a)	± 1.0 Nm or ± 0.5 %
Distance	± 1 mm	± 1 mm
Electrical power	± 10 W	± 20 W
Temperature	± 0.2 °C	
Surface speed	± 0.1 km/h	
Time	± 0.01 s - ± 0.1 % - ± 10 s ^(b)	
Angular velocity	± 0.1 %	

In cases where reverse tyre rotation immediately follows the completion of the forward tyre rotation, a warm-up time for reverse tyre rotation shall be at least 10 minutes for Class C1 tyres and 30 minutes for all other tyre types.

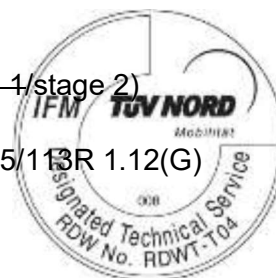
Test surface roughness

The roughness, measured laterally, of the smooth steel drum surface shall have a maximum centreline average height value of 6.3 mm.

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

1. General information

- 1.1. Name and address of applicant : Shangdong Longyue Rubber Co., Ltd.
The South of Yalujiang Road, Wenzhuang Village, Qinghe Agency of Cao County, Heze City, Shandong Province, 274400, China(PRC)
- 1.2. Manufacturer and Brand Name(s) or Trade(s) description : CONSTANCY; ILINK; LUXXAN; RHINO; ARIVO; GRENLANDER; T TYRE; CRYSTAL; FRONWAY; ROCKBLADE; SAILWIN; XBRI; ROADMARCH (Brand names)
Winter GL989; Winter IL989; ICEPOWER 989; ICEWINNER 989; WINMASTER ARW6; ROCK 989S; THIRTY; SNOWROVER 989; INSPIRER W22(Tread pattern names)
- 1.3. Tyre Class : ~~Class C1/~~ Class C2 ~~/Class C3~~
- 1.4. Category of use : ~~normal/snow/special~~
- 1.4.1. Snow tyre for use in severe snow conditions : ~~yes/no~~
- 1.4.2. Traction tyre : ~~yes/no~~
- 1.5. Worst case : refer to RDW announcement 2018-1
- 1.6. Sound level according to paras. 4.4. and 4.5. of Annex 3 at reference speed of ~~70/80~~ km/h : 235/65R16C 115/113R 72 dB(A)
- limit value for list of tyre size : 73 dB(A) (stage ~~1~~/stage 2)
- 1.7. Wet adhesion level of the representative tyre size, see paragraph 2.5. of Regulation No. 117, as per item 7. of the test report in the Appendix to Annex 5: using vehicle or ~~trailer~~ method : 235/65R16C 115/113R 1.12(G)
- limit value for list of tyre size : 0.95 x 1.1 (G)
- 1.8. Rolling resistance coefficient of the representative tyre size, see paragraph 2.5. of Regulation No. 117, according to : 195/70R15C 104/102R 9.14 N/kN



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

paragraph 6.2 and 6.3 of Annex 6 using
~~force / torque / deceleration / power~~
method

limit value for list of tyre size : 9.0+1 N/kN (~~stage 1~~/stage 2)

1.9. Test date

rolling sound emission : March 19, 2019
wet grip : March 20, 2019
rolling resistance : May 09, 2019

1.10. Snow grip index of the representative tyre : 235/65R16C 115/113R 1.42 (SG)
size, see paragraph 2.5. of Regulation No.
117, according to paragraph 6.4 of Annex
7 using brake on snow method ⁽¹⁾, ~~spin~~
~~traction method ⁽¹⁾ or acceleration method~~
⁽¹⁾

limit value : 1.25 (SG)
test date : January 15, 2019 and January 16, 2019

1.11. Final conclusion for all testing : Pass / ~~Fail~~

Sound level : Pass / ~~Fail~~

Wet adhesion level : Pass / ~~Fail~~

Rolling resistance coefficient : Pass / ~~Fail~~

Snow grip level : Pass / ~~Fail~~

1.12. Comments (if any) :

2. Remark concerning tested object(s)

All versions of the type as stated in the information document are covered with the tested version(s) and test object(s) respectively.

3. Appendices

0 List of modifications

Information document no. : GL989-SWR-00



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

4. Statement of conformity

The type described in this test report and the appendices attached are in compliance with the Test Specification mentioned above.

The samples / ~~test vehicles~~ used, were representative in terms of the type to be approved.

The Test Report comprises pages 1 to 17.

The Test Report shall be reproduced and published in full only and by the client only. It shall be reproduced partially with the written permission of the Test Laboratory only.

TEST LABORATORY

TÜV NORD Mobilität GmbH & Co. KG
IFM - Institut für Fahrzeugtechnik und Mobilität,
Schönscheidtstr. 28, D-45307 Essen

Designated Technical Service
RDW No. RDWT-T04

Shanghai, May 13, 2019

Patrick Yu

PY WJB
B.S.M.E Patrick Yu



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

List of modifications

Appendix 0

More details for application of : Date : May 13, 2019

Correction of : -

Modification of : -

Addition of : -

Deletion of : -



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

5. Regard to rolling sound emission level

5.1. Test data

- 5.1.1. Date of test : March 19, 2019
- 5.1.2. Test vehicle
- Manufacturer : Liebao
- Vehicle name : Changfeng
- VIN or Year : LMG652B08DA000438
- Transmission : ---
- ENG displacement : 2185 cc
- Test vehicle wheelbase : 2725 mm(<3500mm for C1)
- 5.1.3. Location of test track : Dingyuan Ground for Highway and Traffic
Fangang Town, Dingyuan District,
233210, Anhui,
P.R.China
- 5.1.3.1. Date of track certification to ISO 10844:2014 : March 06, 2006 / June 06, 2018
- 5.1.3.2. Issued by : China Department of Transportation Highway Inspection Center
- 5.1.3.3. Method of certification : Residual void content, Sound absorption coefficient, Texture depth
- 5.1.4. Tyre test details
- 5.2.4.1. Trademark and tread pattern : GRENLANDER Winter GL989
- Tyre size designation : 235/65R16C 115/113R
- Manufactures date code : 17B LNENCB 0819
- Category of use : snow
- Indication : M+S
- ECE Approval No. : E4-0043564
- 5.2.4.2. Reference inflation pressure : 475 kPa



Test Report
No. : CS117-A0-2019-00647
 ECE Regulation No.117



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
 Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

5.1.5. Test data

Reference load : 1215 kg

	Front left	Front right	Rear left	Rear right	Average
Test mass (kg)	642	702	1082	1085	877.75
Tyre load index (%)	52.84	57.78	89.05	89.30	72.24
Inflation pressure (cold) (kPa)	230	260	450	450	---

5.1.5.1. Test rim width code : 8.5J x 18

5.1.5.2. Temperature measurement : Not applicable
 sensor type

5.1.6. Valid Test results :

Runnin g No.	Speed Km/h	Direction of run	Sound Level Measured dB(A)		Air Temp. °C	Track Temp. °C	Sound Level Measured dB(A)		Comment s
			Left	Right			Left Temp. correction	Right Temp. correction	
1	72.1	One Direction	71.8	72.0	15.8	17.1	---	---	---
2	74.2	One Direction	72.5	72.3	15.8	17.2	---	---	---
3	76.3	One Direction	72.8	72.5	15.5	16.8	---	---	---
4	77.7	One Direction	73.2	72.7	15.5	16.2	---	---	---
5	81.7	One Direction	73.7	73.5	14.2	16.1	---	---	---
6	84.2	One Direction	73.9	74.0	14.8	16.2	---	---	---
7	85.7	One Direction	73.9	74.2	14.6	16.1	---	---	---
8	88.1	One Direction	74.2	74.3	14.4	16.2	---	---	---
Limit value	70~90 60~80	---			5°C ~ 40°C	5°C ~ 50°C			

5.1.6.1. Regression line slope : a=27.39

5.1.6.2. Sound level according to paraphrase 4.3. of annex3 : 73.18 dB(A)

5.1.6.3. Sound level according to paras. 4.4. and 4.5. of Annex 3 at reference speed of ~~70~~80 km/h : 72 dB(A)

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

6. Adhesion on wet surface

6.1. Test data :

6.1.1. Date of test : March 20, 2019

6.1.2. Test vehicle(make, model, year, modifications, etc or trailer identification) : Changfeng Motor, Qibing, LMG652B08DA000438

6.1.3. Vehicle configuration : Configuration 1 / ~~Configuration 2~~ / ~~Configuration 3~~

6.1.4. Location of test track : Dingyuan Ground for Highway and Traffic
Fangang Town, Dingyuan District,
233210, Anhui,
P.R.China

6.1.5. Test track characteristics :

Texture depth (mm) : 0.654

BPN : 57.49

6.1.6. Issued by : TUV NORD

6.1.7. Method of certification : BPN / ASTM E 965

6.1.8. Water depth (mm) : 0.50~1.50

6.1.9. Identification of SRTT : ASTM F 2493-08

Initial speed (km/h) : 60

Final speed (km/h) : 20



Test Report
No. : CS117-A0-2019-00647
ECE Regulation No.117



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

6.1.10. Valid test results

No.		SRTT1		Candidate1		Candidate2		SRTT1	
Trademark		C2-SRTT		GRENLANDER				C2-SRTT	
Tread pattern		ASTM F 2872-11		Winter GL989				ASTM F 2872-11	
SIZE		225/75R16C		235/65R16C				225/75R16C	
Service description		116/114S		115/113R				116/114S	
Category of use		M+S		snow				M+S	
Tyre identification		B5JH 006X 3416		17B LNENCB 0819				B5JH 006X 3416	
Reference load (kg)		1250		1215				1250	
Reference pressure(kPa)		475		475				475	
Rim		6.5J		7.00				6.5J	
Tyre loads FA (kg)		762	762	762	762			762	762
Tyre loads RA (kg)		1082	1085	1082	1085			1082	1085
Load index FA (%)		61.0	61.0	62.7	62.7			61.0	61.0
Load index RA (%)		86.6	86.8	89.1	89.3			86.6	86.8
FA pressure (kPa)		333	333	333	333			333	333
RA pressure (kPa)		397	398	411	412			397	398
Wet surface temp (°C)		18.3		17.5				15.6	
Ambient temp (°C)		19.4		18.4				14.7	
		BD (m)	WA (m/s ²)	BD (m)	WA (m/s ²)	BD (m)	WA (m/s ²)	BD (m)	WA (m/s ²)
Measurement	1	21.12	5.85	19.11	6.46			21.68	5.69
	2	21.33	5.79	18.41	6.71			21.65	5.70
	3	21.07	5.86	18.73	6.59			22.55	5.47
	4	21.12	5.85	19.30	6.40			21.68	5.69
	5	21.33	5.79	19.22	6.42			21.85	5.70
	6	21.07	5.86	19.57	6.31			22.55	5.47
Average AD (m/s ²)		21.17	5.83	19.06	6.48			21.96	5.62
Standard deviation(m/s ²)		0.11	0.03	0.38	0.13			0.42	0.11
Validation of results		0.530		2.026				1.876	
Coeff. of variation ≤ 3%								2.26	
BFC (R) reference tyre		0.59		0.59				0.57	
BFC (T) candidate tyre		0.59		0.66				0.573	
Wet grip index (%)		1.00		1.12				1.00	

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

7. Rolling resistance

7.1. Test data

7.1.1 Date of test : May 09, 2019

7.1.2 Test machine identification : RRT67-5K

drum diameter : 1.7100 m

surface : smooth steel / ~~texture surface~~

7.1.3 Test Location : Suzhou, P.R.China

7.1.4 Test tyre details :

7.1.4.1. tyre size designation and service : 195/70R15C 104/102R
description

tyre brand and trade description : GRENLANDER; Winter GL989

Category of use : snow

Reference inflation pressure : 450 kPa

Indication : 17B FMDNCB 1519

ECE Approval No. : E4-0043555

7.1.5 Measurement method : ~~force /~~ torque / ~~deceleration /~~ power method

7.1.6 Test speed : 80 km/h

7.1.7 Test inflation pressure, initial : 450 kPa

7.1.8 Test rim width : 6.00 X 15
material : Alumium

7.1.9 Measurement



procedure	Forward Rotation
Warm up Time (min)	50

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

Temp.(°C)	25.55	
Item	Load	skim test
L _m (kN)	7.5020	0.1000
r _L (m)	0.316420	0.325850
T _t (Nm)	91.360	31.840
F _{r25}	69.997	
F _{r02}	68.58	
C _r	9.279	

7.2. Rolling resistance coefficient

7.2.1 Initial value (or average in the case of more than 1) : 9.279 N/kN

7.2.2 Temperature corrected N/kN : -0.051 N/kN

7.2.3 Temperature and drum diameter corrected for un-aligned measurement : 9.14 N/kN



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
 Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

8. Snow performance

8.1. Test data

- 8.1.1. Date of test : January 15, 2019 and January 16, 2019
- 8.1.2. Test Location and address : Heihe Red Valley Automotive test center
- 8.1.3. Test tyre details :
- tyre size designation and service description : 235/65R16C 115/113R
- tyre brand and trade description : GRENLANDER; Winter GL989
- Category of use : snow
- Reference inflation pressure : 475 kPa
- Indication : 17B LNERCB 0819
- ECE Approval No. : E4-0043564
- 8.1.4. Snow index relative to SRTT according to paragraph 6.4.1.1.
- Test method : brake on snow / ~~spin traction~~ / ~~acceleration method~~
- Test with control tyres : ~~Yes~~ / No
- Test procedure and SRTT used : ~~C1-SRTT14 / C2- SRTT16C / C3N - SRTT 19.5 / C3W - SRTT 22.5~~
 BJ000X 3011

8.2. Test vehicle (make, model and type, year)

For control tyre : not applicable

For candidate tyre : Mitsubishi, CFA2031H, VIN: ~~TL62HBC01BB008460~~

Test vehicle equipped Traction Control System : ~~Yes~~ / No

8.3. Test tyre data 1 : January 15, 2019

Test track characteristics	Begin	Finish	standard
Weather	---	---	---
Ambient temperature	-3.8	-5.3	-2 °C to -15 °C
Snow temperature	-7.0	-8.2	-4 °C to -15 °C
CTI index	82	82	75 to 85



Test Report
No. : CS117-A0-2019-00647
ECE Regulation No.117



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

8.3.1. Test results

	R1 _(1st test)		---		Candidate1		R2 _(2nd test)	
Brand	C2-SRTT				GRENLANDER		C2-SRTT	
Tread pattern	ASTM F 2872-11				Winter GL989		ASTM F 2872-11	
size	225/75R16C				235/65R16C		225/75R16C	
SS & LI	116/114S				115/113R		116/114S	
reference load (kg)	1250				1215		1250	
reference pressure(kPa)	475				475		475	
Test rim width code	6.5J				7J		6.5J	
Tyre Identification	M+S				M+S		M+S	
Tyre loads Front axle(kg)	750	750			750	750	750	750
Tyre loads Rear axle (kg)	775	775			775	775	775	775
Load index Front axle(%)	60.00	60.00			61.73	61.73	60.00	60.00
Load index Rear axle (%)	62.00	62.00			63.79	63.79	62.00	62.00
Front axle Tyre pressure (kPa)	333	333			333	333	333	333
Rear axle Tyre pressure (kPa)	333	333			333	333	333	333
Run number	Dist	MFDD	Dist	MFDD	Dist	MFDD	Dist	Dist
1	7.55	2.683			5.37	3.772	7.85	2.580
2	7.54	2.686			5.33	3.800	7.79	2.600
3	7.54	2.686			5.30	3.822	7.71	2.627
4	7.48	2.708			5.24	3.865	7.59	2.669
5	7.46	2.715			5.24	3.865	7.52	2.693
6	7.45	2.719			5.21	3.888	7.44	2.722
Mean	7.503	2.699			5.282	3.835	7.650	2.649
Std-deviation	0.041	0.015			0.056	0.041	0.146	0.051
CV (%)	0.548				1.065		1.910	
Validation SRTT							1.88%	
Wa(SRTT)	---				2.674		---	
Snow index	---				1.43		---	

8.4. Test tyre data 2 : January 16, 2019

Test track characteristics	Begin	Finish	standard
Weather	---	---	---
Ambient temperature	-6.3	-7.0	-2 °C to -15 °C
Snow temperature	-6.7	-7.4	-4 °C to -15 °C
CTI index	82	82	75 to 85

Test Report
No. : CS117-A0-2019-00647
ECE Regulation No.117



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Shangdong Longyue Rubber Co., Ltd.**

	R1 _(1st test)		---		Candidate1		R2 _(2nd test)	
Brand	C2-SRTT				GRENLANDER		C2-SRTT	
Tread pattern	ASTM F 2872-11				Winter GL989		ASTM F 2872-11	
size	225/75R16C				235/65R16C		225/75R16C	
SS & LI	116/114S				115/113R		116/114S	
reference load (kg)	1250				1215		1250	
reference pressure(kPa)	475				475		475	
Test rim width code	6.5J				7J		6.5J	
Tyre Identification	M+S				M+S		M+S	
Tyre loads Front axle (kg)	750	750			750	750	750	750
Tyre loads Rear axle (kg)	775	775			775	775	775	775
Load index Front axle (%)	60.00	60.00			61.73	61.73	60.00	60.00
Load index Rear axle (%)	62.00	62.00			63.79	63.79	62.00	62.00
Front axle Tyre pressure (kPa)	333	333			333	333	333	333
Rear axle Tyre pressure (kPa)	333	333			333	333	333	333
Run number	Dist	MFDD	Dist	MFDD	Dist	MFDD	Dist	Dist
1	7.18	2.821			5.17	3.918	7.30	2.775
2	7.35	2.756			5.29	3.829	7.56	2.679
3	7.41	2.733			5.31	3.814	7.65	2.648
4	7.45	2.719			5.32	3.807	7.65	2.648
5	7.48	2.708			5.35	3.786	7.79	2.600
6	7.50	2.701			5.50	3.683	7.80	2.597
Mean	7.395	2.740			5.323	3.806	7.625	2.658
Std-deviation	0.108	0.041			0.097	0.069	0.168	0.060
CV (%)	1.482				1.817		2.245	
Validation SRTT							-2.99%	
Wa(SRTT)	---				2.699		---	
Snow index	---				1.41		---	

8.5. Snow index (average) : 1.42

