

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

COMMUNICATION

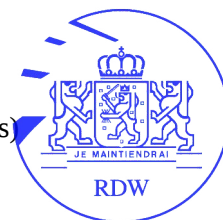
Concerning ⁽¹⁾:

- ~~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- ~~approval withdrawn~~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: E4-117R-026638-S2WR2 Ext.02

1. Manufacturer's name and address : Aeolus Tyre Co., Ltd.
NO.48 South Road Jiaodong, Jiaozuo, 454003,
Henan Province, 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 ⁽²⁾
- 3.2. Traction tyre : yes/no ⁽²⁾ **НЕ ШИПОВАННЫЕ**
4. Tyre type designation :
- 4.1 Brand name(s)/trademark(s) of the type of tyre : AEOLUS; WINDPOWER (Brand names)
- 4.2 Trade description(s)/Commercial name(s) of the type of tyre : AGB22; WGB22; Neo Urban G (Tread patterns)



5. Technical service and, where appropriate, test laboratory approved for purposes of approval or of verification of conformity tests : TÜV NORD Mobilit ä GmbH & Co. KG
Institut für Fahrzeugtechnik und Mobilit ä
Schönscheidtstr. 28, D-45307 Essen
6. Performance(s) approved : sound level at (~~stage 1~~/stage 2)⁽¹⁾⁽²⁾, wet adhesion level, rolling resistance level (~~stage 1~~/stage 2)⁽¹⁾⁽²⁾
- 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: 73 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: 0.82 (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 to Annex 6: 6.82 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: 1.29 (Snow grip index) using the ~~brake on snow method~~⁽²⁾, ~~spin traction method~~⁽²⁾ or acceleration method⁽²⁾.
7. Number of report issued by that service : CS117-C0-2018-00923
8. Date of report issued by that service : June 08, 2018
9. Reason(s) of extension (if applicable) : Addition of snow performance test, upgrade the rolling resistance stage from stage 1 to stage 2. The previous test data of other test sizes are still valid.
10. Any remarks : ---
11. Place : Zoetermeer
12. Date : 06-AUG-2018
13. Signature : 
D. de Vries 
14. Annexed to this communication are:
- 14.1. A list of documents in the approval file deposited at the Administration services having delivered the approval and which can be obtained upon request⁽³⁾.

- 14.2. A list of tread-pattern designations: Specify for each trademark or brand name and trade description 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 category of use 'snow' a test report according to appendix 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 ON WET SURFACES
(ECE Regulation No. 117. 02)**

1. GENERAL

- | | | | |
|-----|---|---|--|
| 1.1 | The performance characteristics to be assed for the tyre type | : | rolling sound level / adhesion performance level on wet surfaces/ rolling resistance |
| 1.2 | Manufacturer's name | : | Aeolus Tyre Co. LTD |
| 1.3 | Name and address of applicant | : | Aeolus TyreCo., Ltd.
No.48, Jiaodong South Road,
JiaozuoHenanProvince, 454003
P.R.China |
| 1.4 | Address(es) of manufacturing plant(s)
Brand name(s), Trade description(s) or Trade mark(s)
to be used for particular tyre type-approval requested | : | the same as the applicant
AEOLUS; WINDPOWER
AGB22;WGB22; Neo Urban G |

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 | : | see attached list of tyre size |
| 2.3 | Tyre structure | : | diagonal / bias belted / radial |
| 2.3.1 | For Class C1 tyres, state weather | : | |
| 2.3.1.1 | Reinforced (or extra load) in case of approval with regarding to rolling sound mission level | : | not applicable |
| 2.3.1.2 | Speed category symbol “Q” or below (not inc-luding “H”) or “R” and above (including “H”)in case of snow tyres for approval with regarding to adhesion on wet surfaces | : | not applicable |
| 2.3.2 | For Class C2 and C3 tyres, state whether: | : | |
| 2.3.2.1 | M+S marked in case of approval with regard to rolling sound emission level at stage 1 | : | not applicable |
| 2.3.2.2 | Traction in case of approval with regard to rolling sound emission level at stage 2. | : | not applicable |
| 2.4 | Category of use (normal, snow, special) | : | normal / snow/ special |
| 2.5 | A list of tyre designations covered by this application | : | see attached list of tyre size |
| 2.6 | 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. This may be by drawing, photograph or descriptionbut must be sufficient to allow the type approval authority ortechanical service to determine whether any subsequent changes to the major features will adversely affect the tyre performance | : | see attached drawing of tread pattern |



MANUFACTURER'S STAMP

Signature: 

Name: ...FengYao Ling.....

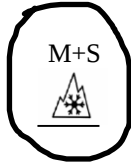
THIS APPLICATION IS ACCOMPANIED BY:

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



List of tyre size

Brand name(s) or Trade mark(s) : **AEOLUS; WINDPOWER**
Tread pattern : **AGB22;WGB22; Neo Urban G**

Tyre size	Approval No.	Limit value for stage2 dB(A)	Wet grip index(G)	Rolling resistance maximum values for stage2 (N/kN)	Indication	Marking
275/70R22.5 148/145J(152/148E)	E4-0018383	74	0.65	7.5	Reinforced/ standard	
305/70R22.5 152/148J(154/150E)	E4-0030706					
✓ 275/70R22.5 150/148J	E4-0035863					
305/70R22.5 150/148J	E4-0035668					
305/70R22.5 152/150L	E4-0035669					
<u>295/80R22.5</u> <u>154/149M</u>	<u>E4-0033484</u>					

Test size for tyre noise:

Test Size : **305/70R22.5 152/148J(154/150E)**
Because of : **Largest section width**
Smallest aspect ratio
Largest rim diameter

Test size for rolling resistance:

Test Size : **275/70R22.5 148/145J (152/148E)**
Because of : **Lowest load index**

Test size for Wet grip :

Test Size : **275/70R22.5 148/145J (152/148E)**
Because of : **smallest section width**

Test size for snow performance:

Test Size : **275/70R22.5 150/148J**
Because of : **smallest section width**



Drawing of the tread pattern (for measured tyre)

Manufacturer name

Pattern name

Tyre Size

Market

Marking

Aeolus Tyre Co. LTD.

AGB22; WGB22; Neo Urban G
275/70R22.5 148/145J (152/148E)

EU/US

M+S/ 

Pitch number

55

Pitch ratio

1.00

Void volume [%]

20

Width: main grooves [mm]

10/13.5

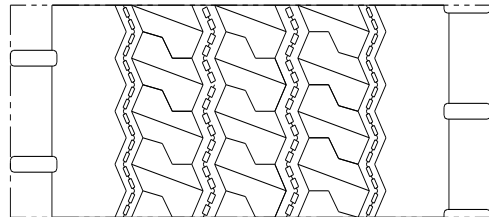
Depth: center groove [mm]

18

Depth: shoulder groove [mm]

17

Pattern



Drawing of the tread pattern (for measured tyre)

Manufacturer name

Pattern name

Tyre Size

Market

Marking

Pitch number

Pitch ratio

Void volume [%]

Width: main grooves [mm]

Depth: center groove [mm]

Depth: shoulder groove [mm]

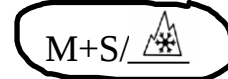
Pattern

Aeolus Tyre Co. LTD.

AGB22; WGB22; Neo Urban G

275/70R22.5 150/148J

EU/US



55

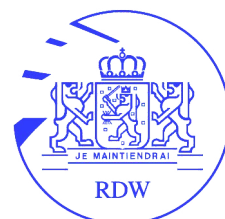
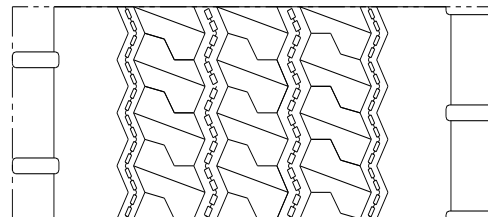
1.00

20

10/13.5

18

17



Drawing of the tread pattern (for measured tyre)

Manufacturer name

Aeolus Tyre Co. LTD.

Pattern name

AGB22; WGB22; Neo Urban G

Tyre Size

305/70R22.5 152/148J(154/150E)

Market

EU/US

Marking

M+S / 

Pitch number

52

Pitch ratio

1.00

Void volume [%]

21

Width: main grooves [mm]

10/15

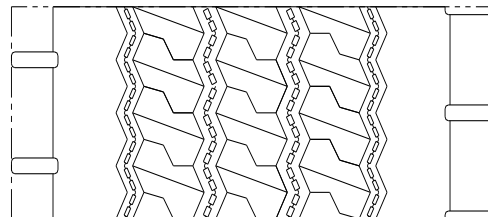
Depth: center groove [mm]

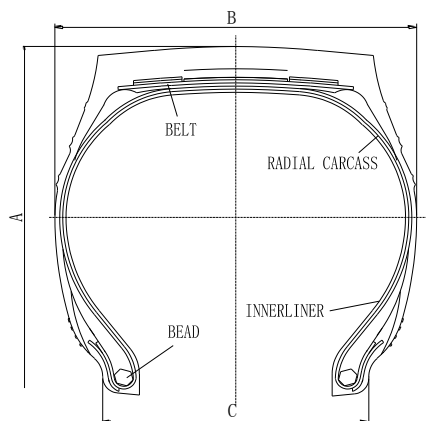
19

Depth: shoulder groove [mm]

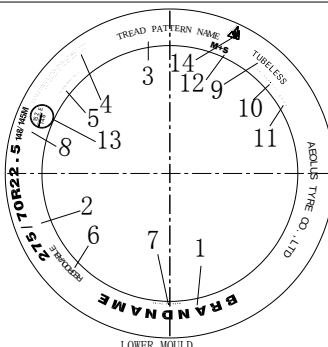
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Pattern

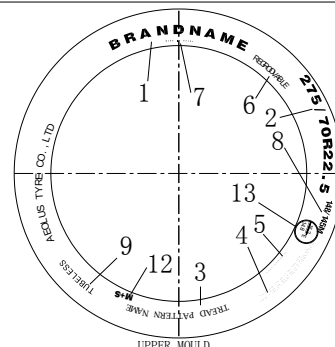




TREAD PATTERN
REFER TO ATTACHMENT NO. 113-2016



LOWER MOULD

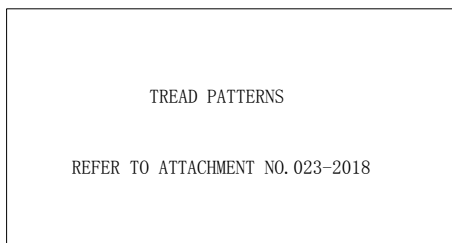
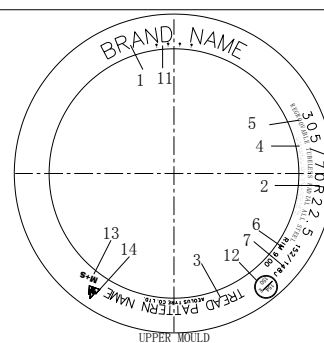
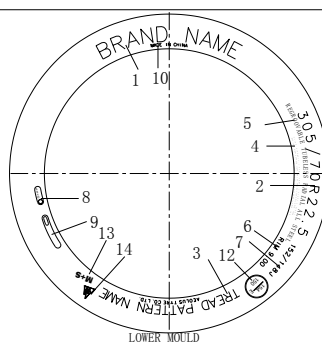
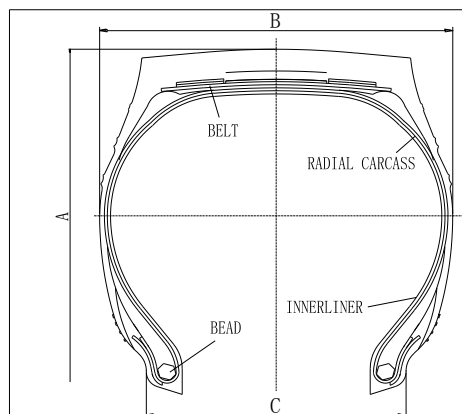


UPPER MOULD

1	REFER TO ATTACHMENT NO. 113-2016						
2	275/70R22.5						
3	REFER TO ATTACHMENT NO. 113-2016						
4	PLIES: TREAD 4 STEEL SIDEWALL 1 STEEL MAX LOAD SINGLE 3150kg (6940 LBS) AT 900kPa (130 PSI) COLD 18PR DUAL 2900kg (6395 LBS) AT 900kPa (130 PSI) COLD LR. J						
5	ALL STEEL RADIAL RIM 8.25						
6	REGROOVABLE						
7	MADE IN CHINA						
8	148/145J						
9	TUBELESS						
10	④ 0018383						
11	DOT 5X67 **** (****-DATE CODE)						
12	M + S						
13	152/148E			14	ALPINE		
275/70R22.5	148/145 152/148	J E	TL	958	276	209.55	20
TIRE SIZE	LOAD INDEX	SPEED SYMBOL	TYPE	A (mm)	B (mm)	C (mm)	SKID DEPTH (mm)

DRAWN BY	WANG XIAOMIN	CHECKED BY	FAN JUNWEI	APPROVED BY	LI ZHAO	AEOLUS TYRE CO., LTD.
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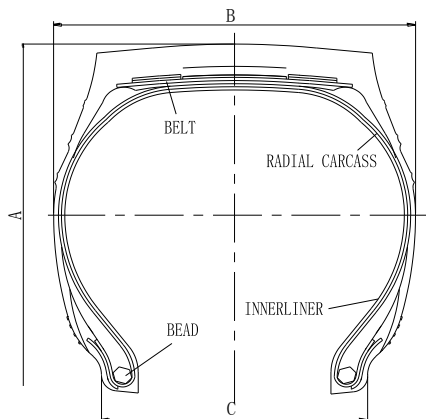




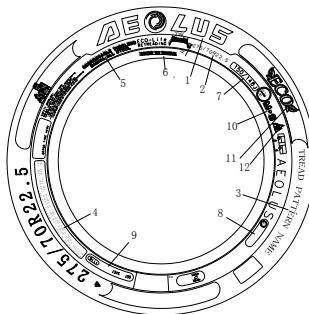
1	REFER TO ATTACHMENT NO. 023-2018						
2	305/70R22.5						
3	REFER TO ATTACHMENT NO. 023-2018						
4	PLIES:SIDEWALL 1 STEEL TREAD 1 STEEL 3 STEEL MAX LOAD SINGLE 3550kg (7830 LBS) AT 900kPa (130 PSI) COLD 16PR DUAL 3150kg (6940 LBS) AT 900kPa (130 PSI) COLD LR.H						
5	REGROOVABLE TUBELESS RADIAL ALL STEEL						
6	RIM 9.00						
7	152/148J						
8	0030706						
9	DOT 5X22 **** (****-DATE CODE)						
10	MADE IN CHINA						
11	中国焦作(JIAOZUO CHINA)						
12	154/150E						
13	M+S	14	ALPINE				
305/70R22.5		152/148 154/150	J E	TL	1000	305	228.6 SEE TREAD PATTERNS
TIRE SIZE	LOAD INDEX	SPEED SYMBOL	TYPE	A (mm)	B (mm)	C (mm)	SKID DEPTH (mm)

DRAWN BY	ZHAO FEIYAN	CHECKED BY	FAN JUNWEI	APPROVED BY	LI ZHAO	AEOLUS TYRE CO., LTD.
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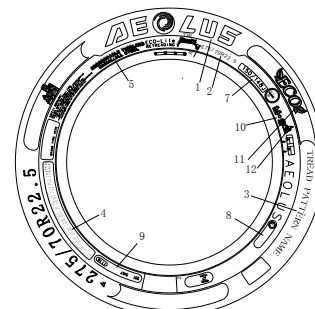




TREAD PATTERN
REFER TO ATTACHMENT NO. 020-2018



LOWER MOULD



UPPER MOULD

1	REFER TO ATTACHMENT NO. 020-2018
2	275/70R22. 5
3	REFER TO ATTACHMENT NO. 020-2018
4	PLIES:TREAD 4 STEEL SIDEWALL 1 STEEL MAX LOAD SINGLE 3350kg (7390 LBS) AT 900kPa (130 PSI) COLD 18PR DUAL 3150kg (6940 LBS) AT 900kPa (130 PSI) COLD LR. J
5	REGROOVABLE TUBELESS RADIAL ALL STEEL
6	MADE IN CHINA
7	150/148J
8	0035863
9	DOT 5X67 **** (****-DATE CODE)
10	M + S
11	ECO
12	ALPINE

275/70R22. 5	150/148	J	TL	958	276	209.55	SEE TREAD PATTERNS
TIRE SIZE	LOAD INDEX	SPEED SYMBOL	TYPE	A (mm)	B (mm)	C (mm)	SKID DEPTH (mm)

DRAWN BY	ZHAO FEIYAN	CHECKED BY	FAN JUNWEI	APPROVED BY	LI ZHAO	AEOLUS TYRE CO., LTD.
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Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Aeolus Tyre Co., Ltd.**

Test Report

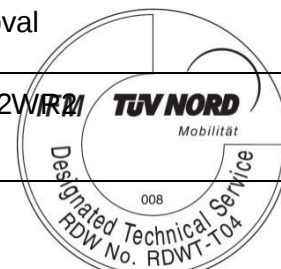
Agreement concerning the adoption of uniform technical prescriptions for the wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions

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

ECE-R 117
as last amended

Revision 4
Supplement 9 to the 02 series of amendments

Approval status	
ECE	Number of approval
	E4-117R-026638-S2WV11



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Aeolus Tyre 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 10844:1994 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 : **Aeolus Tyre 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.

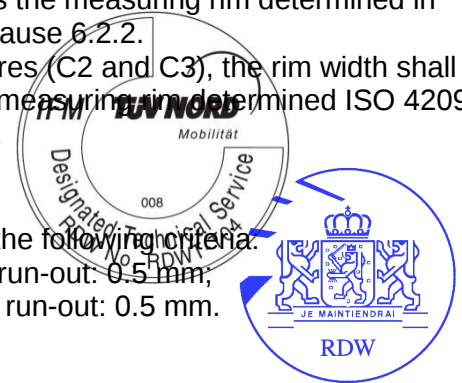
Run-out,

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 : **Aeolus Tyre 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 $LI \leq 121 \pm 20$ N or ± 0.5 per cent, whichever is greater;

(ii) For $LI > 121 \pm 45$ 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 : **Aeolus Tyre Co., Ltd.**

1. General information

- 1.1. Name and address of applicant : Aeolus Tyre Co., Ltd.
NO.48 South Road Jiaodong, Jiaozuo, 454003,
Henan Province, China (PRC)
- 1.2. Manufacturer and Brand Name(s) or Trade(s) description : AEOLUS; WINDPOWER (Brand names)
AGB22; WGB22; Neo Urban G(Tread patterns)
- 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 : 305/70R22.5 152/148J(154/150E) 73 dB(A)
- limit value for list of tyre size : 73+1 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 : 275/70R22.5 148/145J(152/148E) 0.82(G)
- limit value for list of tyre size : 0.65×1.1 (G)
- 1.8. Rolling resistance coefficient of the representative tyre size, see paragraph 2.5. of Regulation No. 117, according to paragraph 6.2 and 6.3 of Annex 6 using ~~force / torque / deceleration / power~~ method : 275/70R22.5 148/145J(152/148E) 6.82 N/kN
- limit value for list of tyre size : 6.5+1 N/kN (~~stage 1/~~stage 2)



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

1.9. Test date

rolling sound emission : November 02, 2014
wet grip : November 27, 2014
rolling resistance : November 10, 2014

1.10. Snow grip index of the representative tyre : 275/70R22.5 150/148J1.29 (SG)
size, see paragraph 2.5. of Regulation No.
117, according to paragraph 6.4 of Annex
7 using ~~brake on snow method~~⁽²⁾, ~~spin~~
~~traction method~~⁽²⁾ or acceleration method
(2)

limit value : 1.25 (SG)
test date : January 6, 2018

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

Sound level : Refer to CS117-A0-2014-02471 corresponding to
Type approval No: E4-117R-026638-S2WR1 Ext
00

Wet adhesion level : Refer to CS117-A0-2014-02471 corresponding to
Type approval No: E4-117R-026638-S2WR1 Ext
00

Rolling resistance coefficient : Refer to CS117-A0-2014-02471 corresponding to
Type approval No: E4-117R-026638-S2WR1 Ext
00

Snow grip level : Details in item 5

1.12. Comments (if any) : Addition of snow performance test, upgrade the
rolling resistance stage from stage 1 to stage
2. The previous test data of other test sizes are
still valid.

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. : AGB22- 10-2018



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance and Snow Performance**
Manufacturer : **Aeolus Tyre 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 10.

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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, June 08, 2018

Patrick Yu

PY LXY
B.S.M.E Patrick Yu



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

List of modifications

Appendix 0

More details for application of : Date : June 08, 2018

Correction of : -

Modification of : -

Addition of : Addition of snow performance test, upgrade the rolling resistance stage from stage 1 to stage 2. The previous test data of other test sizes are still valid.

Deletion of : -



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

5. Snow performance

5.1. Test data

5.1.1. Date of test: : January 6,2018

5.1.2. Test Location and address : Heihe Red Valley Automotive test center

5.1.3. Test tyre details :

tyre size designation and service : 275/70R22.5 150/148J
description

tyre brand and trade description : AEOLUS Neo Urban G

Reference inflation pressure : 900 kPa

Category of use : Snow

Indication : 5X17 4517

ECE Approval No. : E4-0018383

5.1.4. 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 19.5~~
FWLB 008X

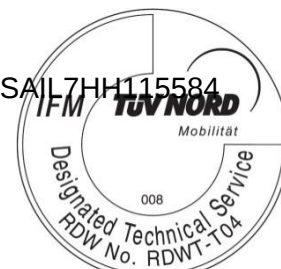
5.2. Test vehicle (make, model and
type, year)

For candidate tyre : DFAC Duolika LGDCSAIL7HH115584

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

5.3. Test tyre data 1 : January 6,2018

Test track characteristics	Begin	Finish	standard
Weather	Cloudy	Cloudy	---
Ambient temperature	-14.9	-13.1	-2 °C to -15 °C
Snow temperature	-14.4	-10.4	-4 °C to -15 °C
CTI index	85	85	80 to 90



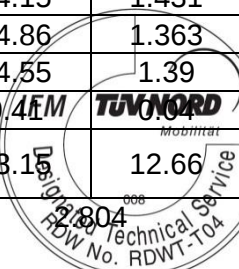
Test Report
No. : CS117-C0-2018-00923
ECE Regulation No.117



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

5.3.1. Test results **Применяемость на переднюю и заднюю оси**

	R1 _(1st test)		Candidate1	Candidate2	Candidate3		R2 _(2nd test)	
Brand	C3N-SRTT				AEOLUS		C3N-SRTT	
Tread pattern	ASTM F 2871-11				Neo Urban G		ASTM F 2871-11	
size	245/70R19.5				275/70R22.5		245/70R19.5	
SS & LI	136/134M				150/148J		136/134M	
reference load (kg)	2240				3350		2240	
reference pressure(kPa)	760				900		760	
Test rim width code	7.5				8.25		7.5	
Tyre Identification	M+S				M+S		M+S	
✓ Tyre loads Front axle (kg)	755	740			755	740	755	740
✓ Tyre loads Rear axle (kg)	995	980			995	980	995	980
Ratio of FA/RA(%)	75.9	75.5			75.9	75.5	75.9	75.5
Load index Rear axle (%)	44.4	43.8			29.7	29.3	44.4	43.8
Front axle Tyre pressure (kPa)	770	770			770	770	770	770
Rear axle Tyre pressure (kPa)	532	532			630	630	532	532
Run number	Dist	MFDD			Dist	MFDD	Dist	MFDD
1	18.45	1.098			14.95	1.355	18.75	1.080
2	18.67	1.085			15.05	1.346	19.22	1.054
3	18.69	1.084			14.20	1.426	18.35	1.104
4	18.64	1.087			14.09	1.438	19.47	1.040
5	18.47	1.097			14.15	1.431	19.17	1.057
6	18.83	1.076			14.86	1.363	17.96	1.128
Mean	18.63	1.09			14.55	1.39	18.82	1.08
Std-deviation	0.13	0.01			0.41	0.06	0.53	0.03
Slip ratio(percent)	14.94	21.15			13.15	12.66	17.13	19.76
CV (%)	0.704				3.804		2.838	
Validation SRTT					RDW No. RDWT-T04		-0.96	
AFC(R _a)	---				0.110		---	
Snow index	---				1.29		---	



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **Aeolus Tyre 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 And Snow Performance

ECE-R 117

as last amended

Revision 3-Amendment 2

Supplement 6 to the 02 series of amendments

Approval status	
ECE	Number of approval
	E4-117R-026638-S2WR1



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **Aeolus Tyre 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 10844:1994 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 $7.5\text{m} \pm 0.05\text{m}$ to the Centreline at a height of $1.20\text{m} \pm 0.02\text{m}$ 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 $\leq 5\text{m/s}$.

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**
Manufacturer : **Aeolus Tyre 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**
Manufacturer : **Aeolus Tyre 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 % ^(a)
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	
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**
Manufacturer : **Aeolus Tyre Co.,Ltd.**

1. General information

- 1.1. Name and address of applicant : Aeolus Tyre Co.,Ltd.
No.48, Jiaodong South Road,Jiaozuo, Henan
Province, 454003,P.R.China
- 1.2. Manufacturer and Brand Name(s) or Trade(s) description : AEOLUS; WINDPOWER (Trademarks)
AGB22; WGB22 (Tread patterns)
- 1.3. Tyre Class : ~~Class C1/ Class C2~~ / Class C3
- 1.4. Category of use : ~~normal~~/snow/special
- 1.5. Worst case : refer to RDW announcement 2015-1
- 1.6. Sound level according to paras. 4.4. and 4.5. of Annex 3 at reference speed of 70/80 km/h : 305/70R22.5 152/148J(154/150E) 73 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~~/trailer method : 275/70R22.5 148/145J(152/148E) 0.82 (G)
limit value for list of tyre size : 0.65 ×1.1 (G)
- 1.8. Rolling resistance coefficient of the representative tyre size, see paragraph 2.5. of Regulation No. 117, according to paragraph 6.2 and 6.3 of Annex 6 using ~~force~~/ torque /~~deceleration~~ / power method : 275/70R22.5 148/145J(152/148E) 6.82 N/kN
limit value for list of tyre size : 8.0 N/kN (~~stage 1~~/stage 2)
- 1.9. Test date :
rolling sound emission : November 02, 2014
wet grip : November 27, 2014
rolling resistance : November 10, 2014
- 1.10. Final conclusion for all testing : Pass /~~Fail~~
- 1.11. Comments (if any) : ---



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **Aeolus Tyre Co.,Ltd.**

2. Regard to rolling sound emission level

2.1. Test data Test tyre type 1

2.1.1. Date of test : November 02, 2014

2.1.2. Test vehicle

Manufacturer : DAF

Vehicle name : CF75

VIN or Year : 2002

Transmission : ---

ENG displacement : --- cc

Test vehicle wheelbase : 4520 mm

2.1.3. Location of test track : RDW – Test Centre Lelystad

2.1.3.1. Date of track certification to ISO : March 08, 2006
10844:1994

2.1.3.2. Issued by : China Department of Transportation Highway Inspection Center

2.1.3.3. Method of certification : Residual void content, Sound absorption coefficient, Texture depth

2.1.4. Tyre test details

2.1.4.1. Tyre size designation : 305/70R22.5 152/148J(154/150E)

Manufactures date code : 0814

Category of use : snow

Indication : standard

ECE Approval No. : E4-0030706

2.1.4.2. Tyre service description : not applicable

2.1.4.3. Reference inflation pressure : 900 kPa



Test Report
No. : CS117-A0-2014-02471
 ECE Regulation No.117



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
 Manufacturer : **Aeolus Tyre Co.,Ltd.**

2.1.4.4. Test data

Reference load : 3550 kg

	Front left	Front right	Rear left	Rear right	Average
Test mass (kg)	2690	2690	2735	2640	2688.8
Tyre load index (%)	75.8	75.8	77.0	74.4	75.7
Inflation pressure (cold) (kPa)	680	680	680	680	---

2.1.4.5. Test rim width code : 9.00

2.1.4.6. Temperature measurement : YSI Super Stable Thermister(YSI 401)
 sensor type

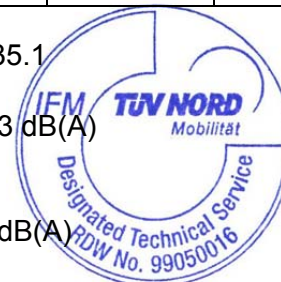
2.1.5. Valid Test results :

Running No.	Speed Km/h	Direction of run	Sound Level Measured dB(A)		Air Temp. °C	Track Temp. °C	Sound Level Measured dB(A)		Comments
			Left	Right			Left Temp. correction	Right Temp. correction	
1	62.2	East-NorthEast	73.0	71.8	6.6	17.4	---	---	---
2	64.7	East-NorthEast	73.4	72.9	6.6	17.5	---	---	---
3	66.9	East-NorthEast	73.9	73.3	6.7	17.6	---	---	---
4	68.7	East-NorthEast	74.3	73.5	6.8	17.7	---	---	---
5	71.9	East-NorthEast	74.9	74.6	6.9	17.8	---	---	---
6	74.3	East-NorthEast	75.3	75.4	6.8	17.8	---	---	---
7	77.5	East-NorthEast	75.9	76.0	6.8	17.8	---	---	---
8	79.5	East-NorthEast	75.9	76.1	6.9	17.9	---	---	---
Limit value	60-80	---			5°C ~ 40°C	5°C ~ 50°C			

2.1.5.1. Regression line slope : a=35.1

2.1.5.2. Sound level after temperature correction : 74.3 dB(A)
 according to paraphrase 4.3. of annex3

2.1.5.3. Sound level according to paras. 4.4. and 4.5. of : 73 dB(A)
 Annex 3 at reference speed of 70/80 km/h



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **Aeolus Tyre Co.,Ltd.**

3. Adhesion on wet surface

3.1. Test data : **Test tyre type 1**

3.1.1. Date of test : November 27, 2014

3.1.2. Test vehicle(make, model, year, : RDW wetgrip trailer 01
modifications, etc or trailer
identification)

3.1.3. Location of test track : RDW – Test Centre Lelystad

3.1.4. Test track characteristics : TBN13; G13.1206A, G13.1303A, G14.0237, G13.1193

3.1.5. Issued by : KOAC.NPC

3.1.6. Method of certification : BPN / ASTM E 965

3.1.7. Water depth (mm) : 1.00-1.25

3.1.8. Identification of SRTT : ASTM F2871, F6036 EKC04964R

3.1.9. Initial speed (km/h) : 67

3.1.10. Final speed (km/h) : 63



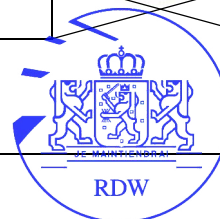
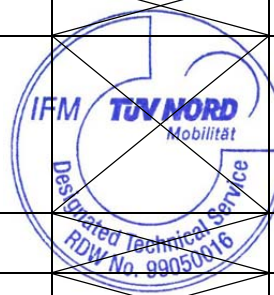
Test Report
No. : CS117-A0-2014-02471
ECE Regulation No.117



Type : Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance
Manufacturer : Aeolus Tyre Co.,Ltd.

3.1.11. Valid test results

No.	SRTT(before)	Candidate1	Candidate2	---	SRTT(after)
SIZE	245/70R19.5		275/70R22.5		245/70R19.5
Tread pattern	SRTT		AGB22		SRTT
Service description	136/134M		148/145J (152/148E)		136/134M
Tyre identification	F2871		---		F2871
category of use	Normal		snow		Normal
Rim	7.50		8.25		7.50
Pessure (kPa)	550		640		550
Load (kg)	1715		2374		1732
Wet surface temp (°C)	7.8		10.8		12.0
Ambient temp (°C)	3.7		5.4		5.7
μpeak Measurement	1		0.54		0.69
	2		0.57		0.64
	3		0.54		0.70
	4		0.55		0.70
	5		0.59		0.69
	6		0.58		0.66
Average	0.69		0.56		0.68
Standard deviation σ	0.01		0.02		0.02
Validation of results Coeff. of variation ≤ 5%	1.7		3.3		3.1 2.7
BFC (T) candidate tyre	---		0.68		---
Wet grip index (%)	---		0.82		---



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **Aeolus Tyre Co.,Ltd.**

4. Rolling resistance

- 4.1. Test data **Test tyre type 1**
- 4.1.1 Date of test November 10, 2014
- 4.1.2 Test machine identification : MTS2W860
- drum diameter : 2.000 m
- surface : smooth steel
- 4.1.3 Test Location : Paris, France
- 4.1.4 Test tyre details :
- 4.1.4.1. tyre size designation and service : 275/70R22.5 148/145J(152/148E)
description
- tyre brand and trade description : AEOLUS AGB22
- Reference inflation pressure : 900 kPa
- Indication : ---
- ECE Approval No. : E4-0238368
- 4.1.5 Measurement method : ~~force / torque / deceleration / power~~ method
- 4.1.6 Test speed : 60 km/h
- 4.1.7 Test inflation pressure, initial : 900 kPa
- 4.1.8 Test rim width : 8.25
material : Wrought Aluminium
- 4.1.9 Ambient temperature : 26.2 °C
- 4.1.10 Measurement

	Load test	Skid test
L_m	26257 N	400 N
F_t / T_t	191.5 N m	13.7 N m
r_L	0.5 m	0.5 m



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **Aeolus Tyre Co.,Ltd.**

- 4.2. Rolling resistance coefficient
- 4.2.1 Initial value (or average in the case of more than 1) : 6.770 N/kN
- 4.2.2 Temperature corrected N/kN : 0.05 N/kN
- 4.2.3 Temperature and drum diameter corrected for un-aligned measurement : 6.82 N/kN
- 4.2.4 Rolling resistance coefficient aligned according to EC 1235/2011 : 6.93 N/kN

5. 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.

6. Appendices

- 0 List of modifications

Information document no. : AGB22-06-2015

7. 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 used, were representative in terms of the type to be approved.

The Test Report comprises pages 1 to 12.

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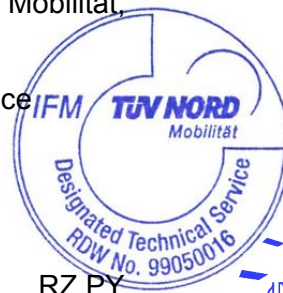
TÜV NORD Mobilität GmbH & Co. KG
IFM - Institut für Fahrzeugtechnik und Mobilität,
Adlerstr. 7, 45307 Essen

Designated Technical Service
RDW No. 99050016-04

Shanghai, May 29, 2015

Rilvanzh

RZ PY
B.S.M.E R. Zhu



Type : Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance
Manufacturer : Aeolus Tyre Co.,Ltd.

List of modifications

Appendix 0

More details for application of : **Date** : **May 29, 2015**

Correction of : -

Modification of : -

Addition of : -

Deletion of : -

