

RELATING TO ECE TYPE-APPROVAL EXTENSION FOR A TYPE OF TYRE WITH REGARD TO ROLLING SOUND EMISSIONS AND TO ADHESION PERFORMANCE ON WET SURFACES AND TO ROLLING RESISTANCE (ECE Regulation No. 117. 02, Supplement 3)

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 testing~~
- 1.2. Manufacturer's name : Triangle Tyre Co., Ltd.
- 1.3. Name and address of applicant : TRIANGLE TYRE CO., LTD.
No. 56, Qingdao (M) Road, Weihai City,
Shandong 264200
P.R. China
- 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 : TRIANGLE; DIAMONDBACK; VALLEYSTONE
TE301; DE301
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
- 2.4. For Class C1 tyres, state weather :
- 2.4.1. Reinforced (or extra load) in case of approval with regard 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 regard 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:


.....

Name: Deng Shitao.....

THIS APPLICATION IS ACCOMPANIED BY:

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



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- ~~approval withdrawn~~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-027223 S2WR2

Extension number: 03

- | | | |
|------|---|--|
| 1. | Manufacturer's name and address | : Triangle Tyre Co., Ltd.
No. 56, Qingdao (M) Road, Weihai City,
Shandong 264200, P.R. China |
| 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 / snow tyre for use in severe snow
conditions / 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 | : TRIANGLE; VALLEYSTONE;
DIAMONDBACK |
| 4.2. | Trade description(s)/ Commercial
name(s) of the type of tyre | : TE301; DE301 |



5. Technical service and, where applicable, test laboratory approved for purposes of approval or of verification of conformity tests : TÜV Rheinland Kraftfahrt GmbH
Technologiezentrum Verkehrssicherheit
Typprüfstelle Fahrzeuge/Fahrzeugteile
Am Grauen Stein
D-51105 Köln (Poll)
6. Performance(s) approved : sound level at (~~stage 1~~/stage 2)⁽¹⁾, wet adhesion level, rolling resistance level (~~stage 1~~/stage 2)⁽¹⁾ and snow performance level
- 6.1. Sound level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 7. of the test report in appendix to Annex 3, at reference speed of ~~70~~/80 km/h⁽¹⁾. : 235/60R16 100H: 71 dB(A)
- 6.2. Wet adhesion level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 7. of the test report in the appendix to Annex 5 using ~~the vehicle or trailer~~ method⁽¹⁾. : 205/55R16 94V: 1.38
- 6.3. Rolling resistance level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 7. of the test report in the appendix to Annex 6. : 165/60R14 75H: 10.26 N/KN
- 6.4. Snow grip 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⁽²⁾ to Annex 7 using the brake on snow method⁽¹⁾, ~~spin traction method⁽¹⁾ or acceleration method⁽¹⁾~~. : ---
7. Number of report issued by that service : 86-R117-0961/17-00
8. Date of report issued by that service : March 10, 2017
9. Reason(s) of extension (if applicable) : Addition of tire size unnecessary for repetition test
10. Any remarks : ---
11. Place : Zoetermeer
12. Date : 05-APR-2017

13. Signature :



R.F.R. Clement

14. Annexed to this communication are: TE301-SWR-03

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 tyre size designations: Specify for each brand name/trademark and/or each trade description/ Commercial name the list of tyre size designations, adding, 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.

List of tyre size

Brand name(s) or Trade mark(s) : TRIANGLE/DIAMONDBACK/VALLEYSTONE

Tread pattern : TE301;DE301

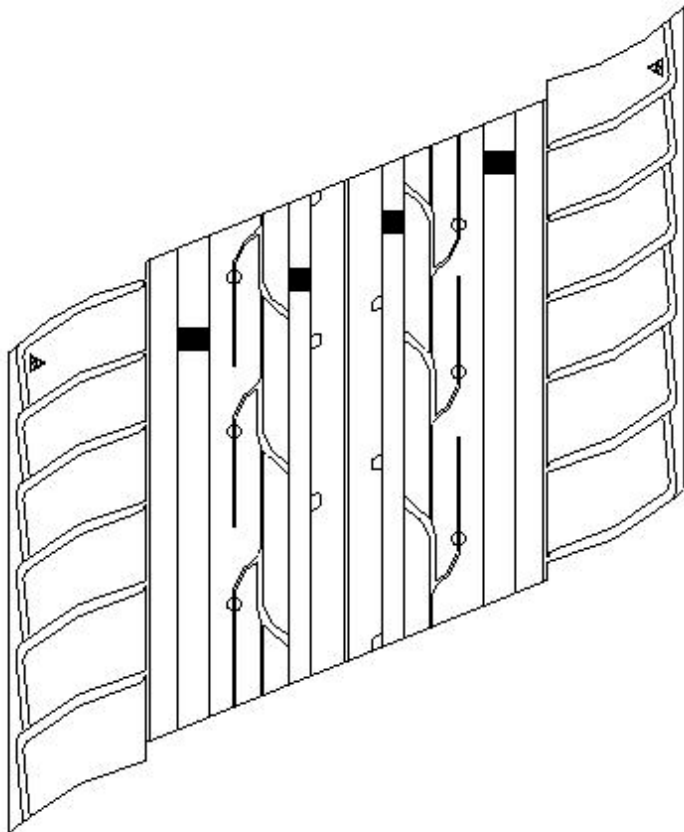
Tyre size	ECE Approval No.	Limit for rolling sound dB(A) of Stage II	Limit for wet grip index	Limit for rolling resistance coefficient N/KN of Stage II
165/60R14 75H	E4 0248107	70	1.1	10.5
165/65R14 79H	E4 0284039	70	1.1	10.5
165/65R15 81H	E4 0284041	70	1.1	10.5
165/70R13 79T	E4 0255832	70	1.1	10.5
165/70R14 85T XL	E4 0244357	71	1.1	10.5
175/60R15 81H	E4 0284037	70	1.1	10.5
175/65R14 86H XL	E4 0236657	71	1.1	10.5
175/65R15 84H	E4 0284038	70	1.1	10.5
175/70R13 82H	E4 0245998	70	1.1	10.5
175/70R14 88H XL	E4 0284036	71	1.1	10.5
175/80R14 88H	E4 0284040	70	1.1	10.5
185/60R14 82H	E4 0233028	70	1.1	10.5
185/60R15 88H XL	E4 0246198	71	1.1	10.5
185/65R14 86H	E4 0236660	70	1.1	10.5
185/65R15 88H	E4 0237133	70	1.1	10.5
185/70R14 88H	E4 0246197	70	1.1	10.5
195/50R15 82V	E4 0236027	71	1.1	10.5
195/55R15 85V	E4 0240376	71	1.1	10.5
195/60R14 86H	E4 0236031	71	1.1	10.5
195/60R15 88V	E4 0233031	71	1.1	10.5
195/65R15 95V XL	E4 0236035	72	1.1	10.5
195/70R14 95H XL	E4 0246190	72	1.1	10.5
205/55R16 94V XL	E4 0236043	72	1.1	10.5
205/65R15 94V	E4 0236050	71	1.1	10.5
205/70R15 96H	E4 0290281	71	1.1	10.5
215/65R15 100H XL	E4 0236651	72	1.1	10.5
215/65R16 98H	E4 0248106	71	1.1	10.5
215/70R15 98H	E4 0262235	71	1.1	10.5
225/60R16 98V	E4 0237115	71	1.1	10.5
225/65R17 102H	E4 0260118	71	1.1	10.5
225/70R15 100T	E4 0290282	71	1.1	10.5
235/60R16 100H	E4 0290280	71	1.1	10.5
165/65R13 77T	E4 0299557	70	1.1	10.5
185/70R13 86T	E4 0299723	70	1.1	10.5
215/60R16 99V XL	E4 0236057	72	1.1	10.5
<u>195/65R15 91H</u>	<u>E4 0269009</u>	<u>71</u>	<u>1.1</u>	<u>10.5</u>



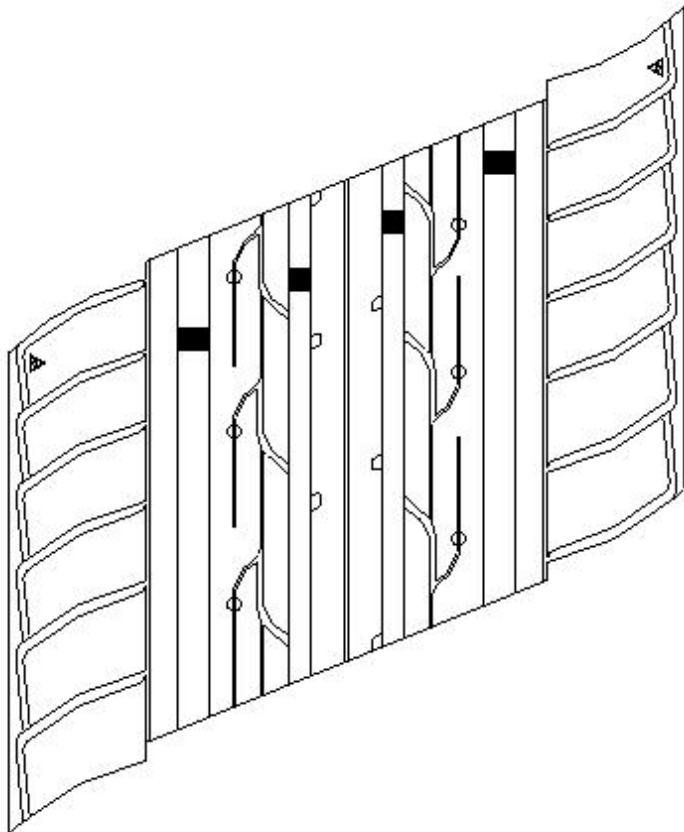
Worst Case Selection

Test size for rolling sound	:	235/60R16 100H
Because of	:	Widest
Test size for wet grip	:	205/55R16 94V
Because of	:	The wet grip test result of 205/55R16 94V is $G=1.38$, which is 110% above the limit value of ECE-R117 (the 110% limit value is $G=1.1 \times 1.1 = 1.21$)
Test size for rolling resistance	:	165/60R14 75H
Because of	:	Lowest load capacity index

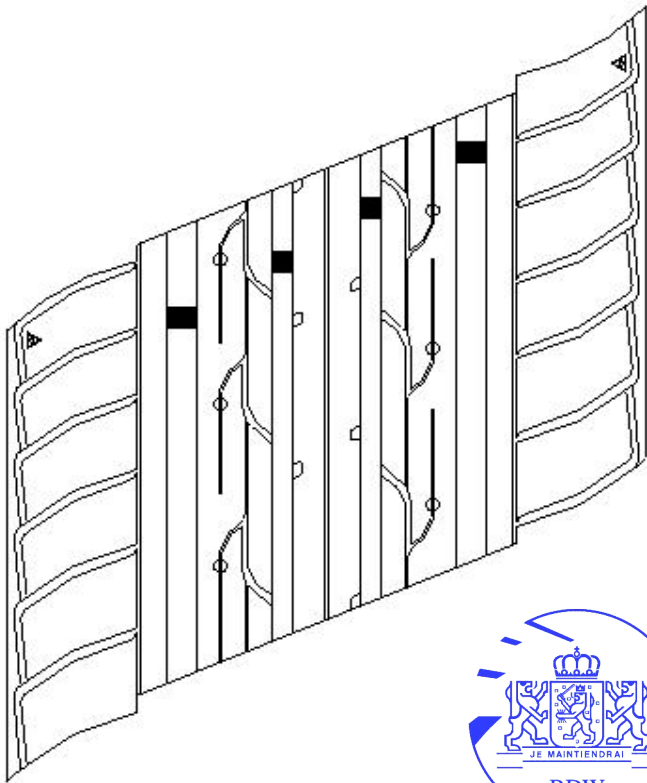


Drawing of the tread pattern (for measured tyre using for tyre noise performance)		
Manufacturer name	:	Triangle TyreCo.,Ltd.
Pattern name	:	TE301;_DE301
Tyre Size	:	235/60R16 100H
Market	:	EU/US
Pitch number	:	42
Pitch ratio	:	0.79:0.89:1:1.12:1.26
Void volume [%]	:	26.8
Width: main grooves [mm]	:	8.0/11.6
Depth: center groove [mm]	:	7.8
Depth: shoulder groove [mm]	:	7.4
Tyre tread pattern	:	



Drawing of the tread pattern (for measured tyre using for tyre wet grip performance)		
Manufacturer name	:	Triangle TyreCo.,Ltd.
Pattern name	:	TE301; DE301
Tyre Size	:	205/55R16 94V
Market	:	EU/US
Pitch number	:	37
Pitch ratio	:	0.79:0.89:1:1.12:1.26
Void volume [%]	:	29
Width: main grooves [mm]	:	10.4/7.2
Depth: center groove [mm]	:	7.6
Depth: shoulder groove [mm]	:	7.1
Tyre tread pattern	:	



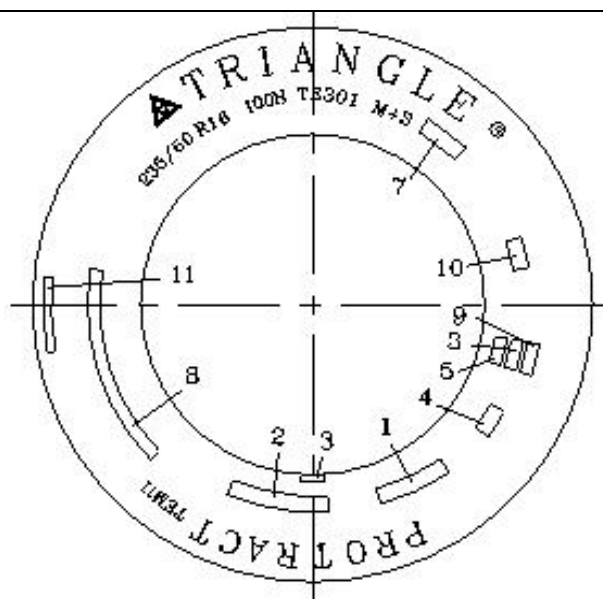
Drawing of the tread pattern (for measured tyre using for tyre rolling resistance test)		
Manufacturer name	:	Triangle TyreCo.,Ltd.
Pattern name	:	TE301; DE301
Tyre Size	:	165/60R14 75H
Market	:	EU/US
Pitch number	:	37
Pitch ratio	:	0.79:0.89:1:1.12:1.26
Void volume [%]	:	27.5
Width: main grooves [mm]	:	8.2/5.7
Depth: center groove [mm]	:	7.3
Depth: shoulder groove [mm]	:	6.5
Tyre mass [kg]	:	6.2
Tread depth [mm]	:	7.4
Tread width [mm]	:	182
Curvature radius of tread crown [mm]	:	580
Tyre outer diameter [mm]	:	554
Tread plies	:	1 POLYESTER+2 STEEL+ 1 NYLON
Tyre tread pattern	:	



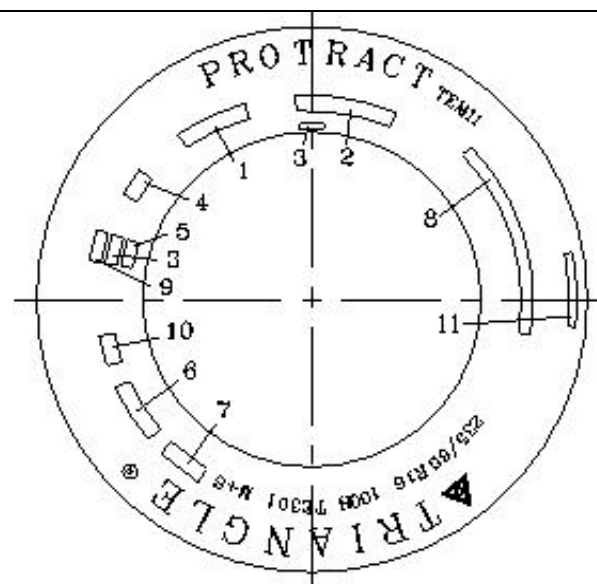
Drawing of the tyre sidewall

Tyre Size

: 235/60R16 100H



Upper mold



Lower mold

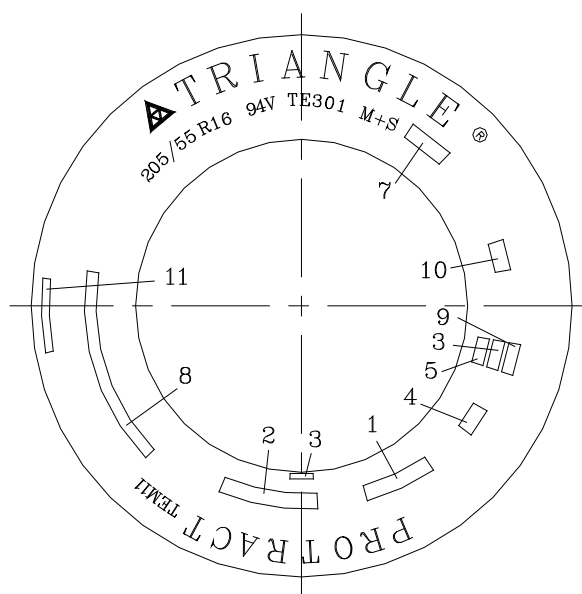
1	TREAD 5 PLIES : 2 POLYESTER + 2 STEEL + 1 NYLON
	SIDEWALL 2 PLIES POLYESTER
2	MAX. LOAD RATING 800 Kg(1764 LBS)
	AT MAX. INFL. PRESSURE 350KPa(51 PSI)
3	MADE IN CHINA
4	RADIAL TUBELESS
5	STANDARD RIM ?J
6	ECE APPROVAL MARK & APPROVAL No.
7	DOT **VB **** (**** — DATE CODE) (lower) DOT **VB (upper)
8	SAFETY WARNING :
9	TRIANGLE GROUP
10	3C
11	TREADWEAR 400 TRACTION A TEMPERATURE A



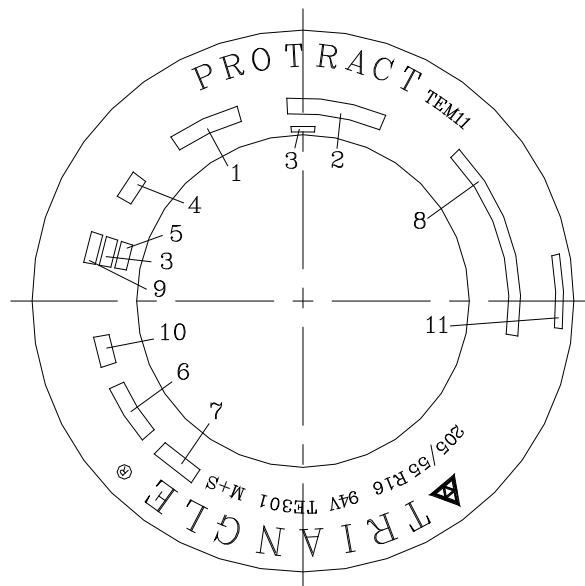
Drawing of the tyre sidewall

Tyre Size

: 205/55R16 94V



Upper mold



Lower mold

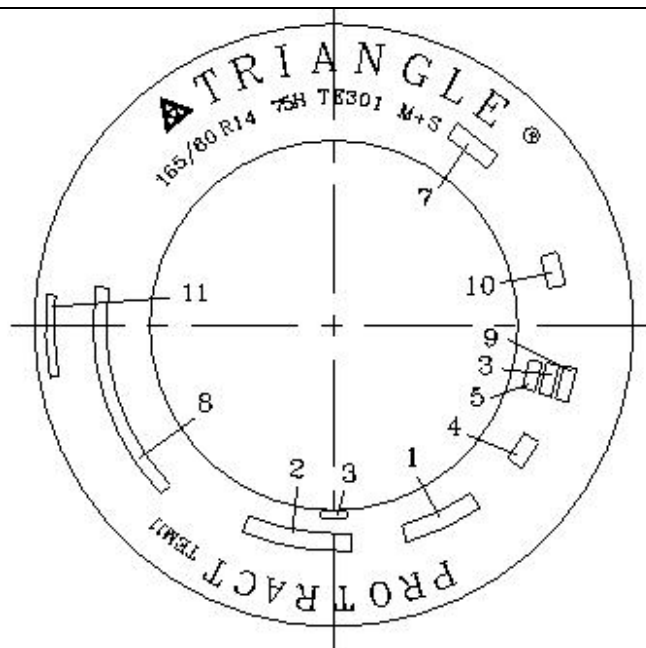
1	TREAD 4 PLYES : 1 POLYESTER + 2 STEEL + 1 NYLON SIDEWALL 1 PLY POLYESTER
2	EXTRA LOAD $\frac{\text{MAX. LOAD RATING 670 Kg(1477 LBS)}}{\text{AT MAX. INFL. PRESSURE 340KPa(49 PSI)}}$
3	MADE IN CHINA
4	RADIAL TUBELESS
5	STANDARD RIM 6 1/2J
6	ECE APPROVAL MARK & APPROVAL No.
7	DOT **XR**** (**** — DATE CODE) (lower) DOT **XR (upper)
8	SAFETY WARNING :
9	TRIANGLE GROUP
10	3C
11	TREADWEAR 400 TRACTION A TEMPERATURE A



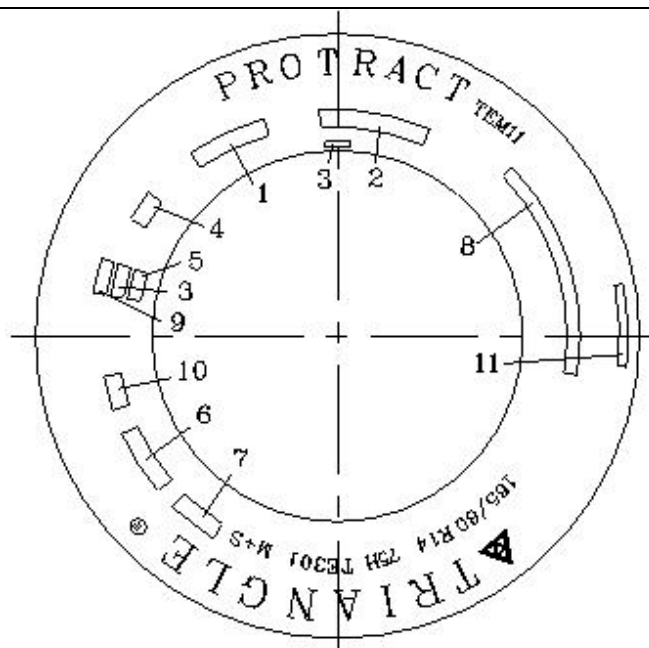
Drawing of the tyre sidewall

Tyre Size

: 165/60R14 75H TE301 M+S



Upper mold



Lower mold

1	TREAD 4 PLYES : 1 POLYESTER + 2 STEEL + 1 NYLON SIDEWALL 1 PLY POLYESTER
2	MAX. LOAD RATING 387 Kg(853 LBS) AT MAX. INFL. PRESSURE 350KPa(51 PSI)
3	MADE IN CHINA
4	RADIAL TUBELESS
5	STANDARD RIM 5J
6	ECE APPROVAL MARK & APPROVAL No.
7	DOT **XV **** (**** — DATE CODE) (lower) DOT **XV (upper)
8	SAFETY WARNING :
9	TRIANGLE GROUP
10	3C
11	TREADWEAR 400 TRACTION A TEMPERATURE A



Type : TE301; DE301
Manufacturer : Triangle Tyre Co., Ltd.

TEST REPORT

according to UNECE-Regulation

Uniform Provisions concerning the Approval of Tyres with regard to Rolling Sound Emissions and to Adhesion on Wet Surfaces and to Rolling Resistance

ECE-R117

including all amendments until
Amend.02, Suppl. 09

Approval Status

UNECE approval : E4-117R-027223 S2WR2 Ext.03

Structure of report :

Item No.

0. General information

1. Tested ~~vehicle(s)~~ / object(s)

2. Tested record

3. List of appendices

4. Statement of conformity

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



Type : TE301; DE301
 Manufacturer : Triangle Tyre Co., Ltd.

0. General information

- 0.1. Make (trade name of the manufacturer) : Triangle Tyre Co., Ltd.
 0.2. Type : TE301; DE301
 0.3. Category of vehicle : Not applicable
 0.4. Name and address of the manufacturer : Triangle Tyre Co., Ltd.
 No. 56, Qingdao (M) Road, Weihai City,
 Shandong 264200, P.R. China
 0.5. No. of the information folder : TE301-SWR-03
 -Date of issue : ---
 -Date of last change : ---

1. Tested ~~vehicle(s)~~ / object(s)

- 1.1. Description
 1.1.1. ~~Vehicle~~ / object
 Commercial description : Not applicable
 Type(s) / ~~variant(s)~~ / ~~version(s)~~ : TE301; DE301
 Identification number : See Appendix 1
 1.1.2. Condition of ~~vehicle(s)~~ / Object(s) : New / ~~Used~~ / ~~Tested~~
 1.2. Worst case selection : The determination of the worst case was done according to internal procedures of the Technical Service (QMA 1.301.005, section 6.2.2.2.).
 1.3. Remarks : All versions of the types as stated in the information folder are covered by the tested object(s) respectively.



Type : TE301; DE301
 Manufacturer : Triangle Tyre Co., Ltd.

2. Tested record

- 2.1. Equipment for measuring and testing : The test facilities / measurement equipment used were in compliance with the test requirements.
- 2.1.1. Specifications for the test site : See Appendix 1
- 2.1.2. Subcontracting
- Tyre noise : Not applicable
 - Wet grip : Not applicable
 - Rolling resistance : Not applicable
 - Snow performance : Not applicable
- 2.2. Test results : See appendix 1
- Numbering according to Paragraph 6. and 7. of the UNECE-R117
- 2.2.1. Test results referring to measurements : Pass / ~~Fail~~
- 2.2.2. Attributive tests : Not applicable
- 2.2.3. Alternative test provisions : Not applicable
- Remarks concerning extension : ~~The type has been tested according to the modification(s) mentioned in appendix 0.~~
~~The new parts meet the requirements of the regulation.~~
 An actual practical test of the type was not necessary.
 The results of the previous test(s) are still valid.
- 2.3. Additional information : The results of the test refer exclusively to the object(s) mentioned under point 1. of this report.
- Test site : See Appendix 1
- Test date : See Appendix 1
- 2.4. Remarks : Not applicable



Type : TE301; DE301
Manufacturer : Triangle Tyre Co., Ltd.

3. List of Appendices

Appendix 0 : List of modifications
Appendix 1 : Test minutes

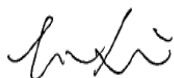
4. Statement of conformity

The in point 0.5. mentioned information folder and the type described in that comply with the requirements mentioned on page 1.

With regard to the required level of performance to be achieved, the tested items were representative for the type to be approved (see point 1.2).

The mentioned test results refer to the ~~vehicle(s)~~/object(s) described under point 1.1. of this report.

Engineering centre Shanghai / March 10, 2017
LX



Liu Xin
Expert Technical Service



Type : TE301; DE301
Manufacturer : Triangle Tyre Co., Ltd.

List of modifications

Appendix 0

Correction of	: ---
Modification of	: ---
Addition of	: Tire size unnecessary for repetition test
Deletion of	: ---



Type : TE301; DE301
Manufacturer : Triangle Tyre Co., Ltd.

Test minutes

Appendix 1

1. Tyre noise measurements : Refer to report No. : 86-R117-0124/17-00 corresponding to type approval No. : E4-117R-027223 S2WR2 Ext.02.
2. Tyre wet grip measurements : Refer to report No. : 86-R117-0124/17-00 corresponding to type approval No. : E4-117R-027223 S2WR2 Ext.02.
3. Rolling resistance measurements : Refer to report No. : 86-R117-0124/17-00 corresponding to type approval No. : E4-117R-027223 S2WR2 Ext.02.
4. Snow performance measurements : Not applicable

