



THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING APPROVAL GRANTED 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 UN REGULATION NO. 117.02



Approval No: E11\*117R02/13\*1911\*00

Suffix(es)<sup>(2)</sup>: S2WR2

1. Manufacturer's name and address:

Otani Radial Co., Ltd.  
96 Mu 3 Rimklong Banrai Rd.  
Bangkaew, Nakornchaisri  
Nakornpathom, 73120, Thailand

2. If applicable, name and address of manufacturer's representative:

Not Applicable

3. "Tyre class" of the type of tyre: C3

4. "Category of use" of the type of tyre: Snow tyre

4.1. Snow tyre for use in severe snow conditions (Yes/No): Yes

4.2. Traction tyre (Yes/No): No

5. Tyre structure: Radial

6. Tyre type designation:

6.1 Brand-name(s)/trademark(s) of the type of tyre: OTANI

6.2 Trade description(s)/ Commercial name(s) of the type of tyre: OH-118

7. Technical service and, where applicable, test laboratory approved for purposes of approval or of verification of conformity tests: Vehicle Certification Agency
8. Performance(s) approved: sound level at (Stage 2), wet adhesion level, rolling resistance level (Stage 2)
  - 8.1. Sound level of the representative tyre size, see paragraph 2.7. of this Regulation, as per item 7. of the test report in Appendix 1 to Annex 3: 73 dB(A) at reference speed of 70 km/h
  - 8.2. Wet adhesion level of the representative tyre size, see paragraph 2.7. of this Regulation, as per item 7. of the test report in the appendix to Annex 5: 1.12(G) using the vehicle method
  - 8.3. Rolling resistance level of the representative tyre size, see paragraph 2.7. of this Regulation, as per item 7. of the test report in Appendix 1 to Annex 6: 6.199N/kN
  - 8.4. Snow grip level of the representative tyre size, see paragraph 2.7. of UN Regulation No. 117, as per item 7. of the test report in the appendix <sup>(1)</sup> to Annex 7: 1.58 (Snow grip index) using the brake on snow method.
9. Number of report issued by the Technical Service: ISA566583
10. Date of report issued by that service: 09 May 2022
11. Reason(s) of extension (if applicable):  
Not applicable
12. Any remarks: None
13. Place: BRISTOL
14. Date: 12 MAY 2022
15. Signature:



C McCABE  
Chief Technical and Statutory Operations Officer

16. Annexed to this communication are:
- 16.1. 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. <sup>(2)</sup>
- 16.2. 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 and service descriptions, adding in case of Class C1 tyres whether "reinforced" (or "extra load") or not.

(1) According to Schedule 4 to Revision 3 of the 1958 Agreement.

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



THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

APPROVAL NUMBER: E11\*117R02/13\*1911\*00

**INFORMATION PACKAGE CONTENTS**

**INDEXREVISION NUMBER: 00**

<b>Conformity of Production (COP) Declaration</b>	<b>COP Confirmed</b>
<b>Assessment Method</b>	<b>IATF 16949 &amp; Control Plans</b>
<b>Date of Initial Clearance</b>	<b>Pre 2013</b>
<b>Date of Last Clearance</b>	<b>February 2022</b>

Total number of sheets:05 (Five)

Reasons for Revision: Not applicable

Revision Date  
&  
Office Stamp

**Date: May 06, 2022**

**Relating to ECE type approval for a type of tyre relating to Tyre/Road Noise Emission / Adhesion performance level on wet surfaces and rolling resistance level, according to ECE Regulation 117.02**

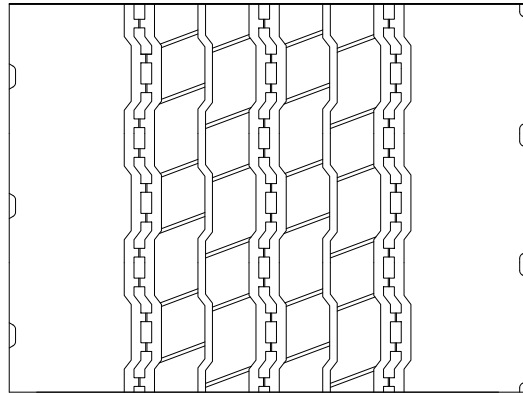
--	<b>General</b>	
3.1.2	Manufacturer's Name	OTANI RADIAL CO., LTD.
3.1.3	Name and Address of applicant	OTANI RADIAL CO., LTD. 96 MU 3 RIMKLONG BANRAI RD. BANGKEAW, NAKORNCHAI SRI, NAKORNPATHOM 73120, THAILAND
3.1.4	Address (es) of Manufacturing Plant(s)	OTANI RADIAL CO., LTD. 96 MU 3 RIMKLONG BANRAI RD. BANGKEAW, NAKORNCHAI SRI, NAKORNPATHOM 73120, THAILAND
3.1.5	Brand name(s), Trade description(s) Or Trade mark(s) to be used for particular tyre approval requested	OTANI
---	Tyre	
3.1.6	Tyre Classification (class C1, class C2, class C3)	C3
3.1.6.1	Section width range for class C1 tyres	Not Applicable
3.1.7	Tyre Structure	Radial
3.1.8	For Class C1 Tyres : (a) Reinforced (or extra load) in case of approval with regard to rolling sound emission level; (b) Speed category symbol "Q" or below (excluding "H") or "R" and above (including "H") in case of "snow" tyres for approval with regard to adhesion on wet surfaces;	Not Applicable
3.1.8	For Classes C2 and C3 tyres, state whether: (a) M+S marked in case of approval with regard to rolling sound emission level at stage 1.	Yes
	(b) Traction in case of approval with regard to rolling sound emission level at stage 2.	Not Applicable
3.1.9	Category of use: (Normal / Snow / Special)	Snow in severe condition
3.2.1	Details of major features with respect to the effect on tyre /road noise emission of tread pattern(s) of the tread pattern(s) to be used on the designated range of tyre sizes. This may be by drawing, photograph or description but must be sufficient to allow the type approval authority or Technical service to determine whether any subsequent changes to the major features will adversely affect the tyre /road noise emission	Yes
3.1.10	List of tyre sizes covered	See Below
---	List of tread pattern designations	OH-118
---	Speed category symbol (in case of "snow" tyres for approval on wet surfaces)	Not Applicable

This application is accompanied by

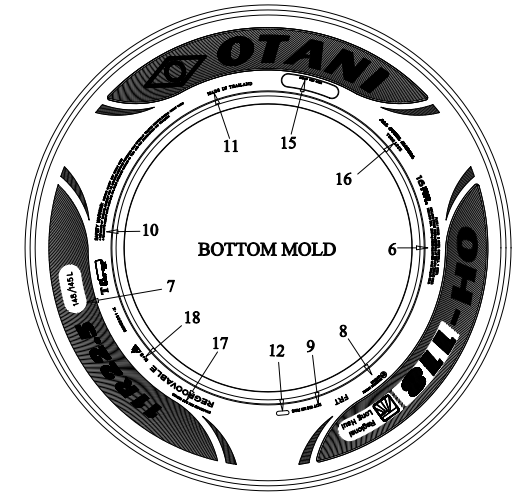
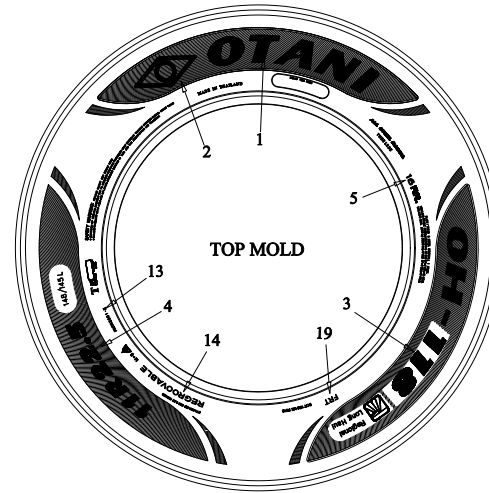
- List of Tyre Sizes
- Drawing of tread pattern (Attached)

**List of Tyre Sizes**

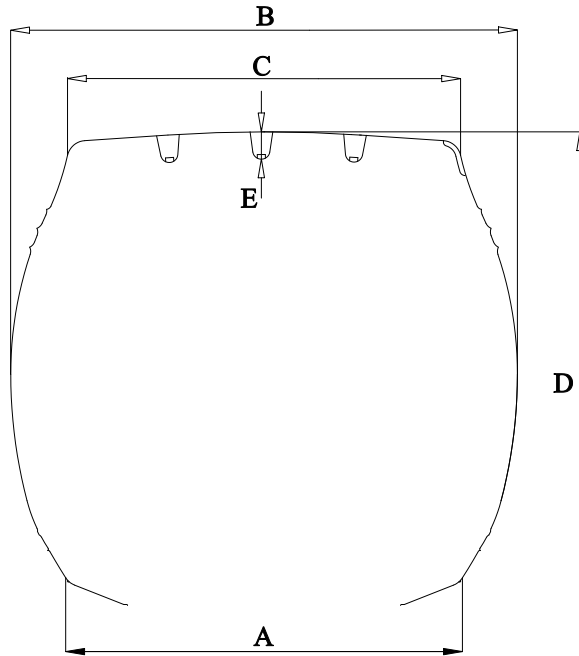
SIZE	PATTERN	L/S INDEX	Approval Number
245/70R19.5 18 PR	OH-118	141/140 J	E11*54R00/24*19760*00
265/70R19.5 18 PR	OH-118	143/141 J	E11*54R00/24*19761*00
11R22.5 16 PR	OH-118	148/145 L	E11*54R00/24*19759*00



**TREAD PATTERN**



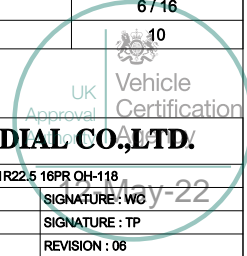
**SIDE LETTERING**

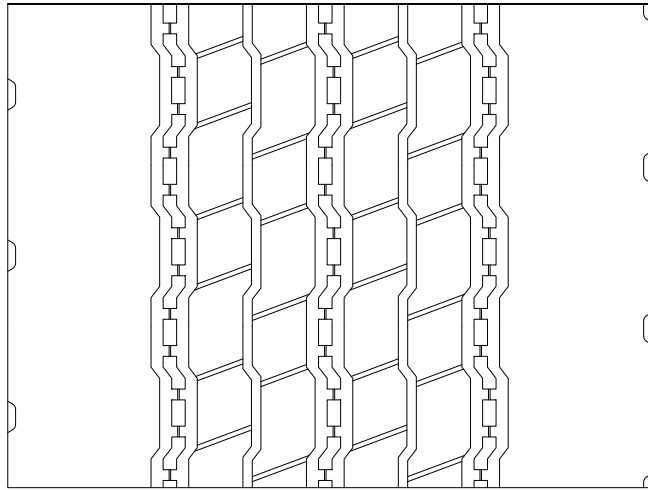


**CROSS SECTION**

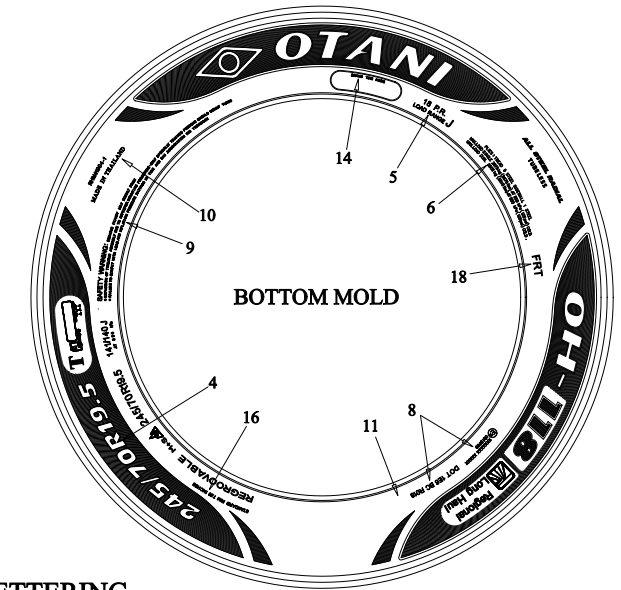
No	ITEM	DESCRIPTION	HEIGHT (mm)
1	TRADE MARK	OTANI	54
2	LOGO	OTANI LOGO	63
3	PATTERN	OH-118	40
4	TYRE SIZE	11R22.5	30
5	PLY RATING / LOAD RANGE	16 P.R.	11
6	MAX.LOAD / TREAD / SIDEWALL	MAX.LOAD SINGLE 3150 kg (6940 lbs) AT 860 kPa (125 psi) COLD.	3.5
		MAX.LOAD DUAL 2900 kg (6395 lbs) AT 860 kPa (125 psi) COLD.	3.5
		5/1	3.5
7	LOAD INDEX / SPEED INDEX	148/145L	10
8	APPROVED NUMBER OF R117 AND R54	E11 XXXXXXX XXXXX 0019759	6 / 4
9	MARKING SD.	DOT 1E6 ME R018	6
10	SAFETY WARNING	SAFETY WARNING	6 / 3
11	COUNTRY OF ORIGIN	MADE IN THAILAND	5
12	WEEK NUMBER	WEEK No.	5
13	MOLD NUMBER	RMN92201-X	5
14	REGROOVABLE	REGROOVABLE	10
15	BRAND TIRE HERE	BRAND TIRE HERE	3
16	MARKING TIRE TYPE	ALL STEEL RADIAL / TUBELESS	5
17	STANDARD RIM	STANDARD RIM 8.25 INCHES	4
18	MARKING M+S / 3PMSF	M+S / 3PMSF	6 / 16
19	MARKING FRT	FRT	10

A (Inch/mm)	B (mm)	C (mm)	D (mm)	E (mm)	<b>OTANI RADIAL CO.,LTD.</b>		
8.25/210	280	185	1059	14	TITLE	11R22.5 16PR OH-118	
REMARK :					CHEK/APPV D	MR. WITTAYA C.	SIGNATURE : WC
					DRAWN BY.	MR. TIRAYUT P.	SIGNATURE : TP
					DATE	18 Apr. 2022	REVISION : 06

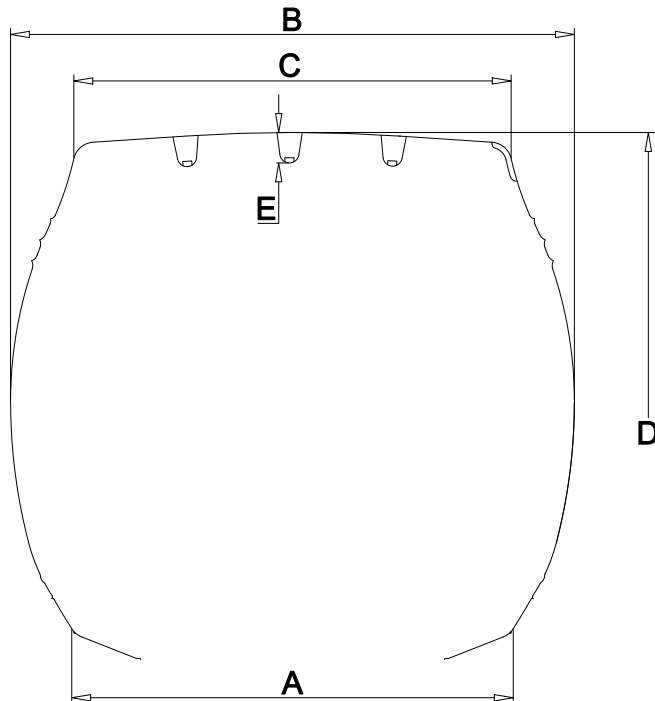




**TREAD PATTERN**



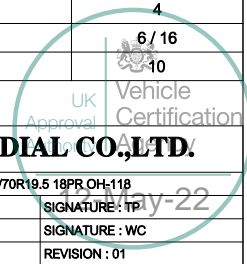
**SIDE LETTERING**



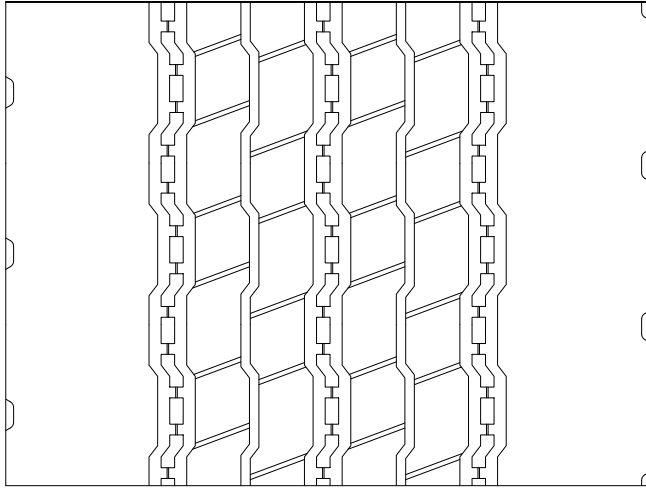
**CROSS SECTION**

No	ITEM	DESCRIPTION	HEIGHT (mm)
1	TRADE MARK	OTANI	38
2	LOGO	OTANI LOGO	44
3	PATTERN	OH-118	28
4	TYRE SIZE	245/70R19.5	20
5	PLY RATING / LOAD RANGE	18 P.R. / LOAD RANGE / J	7 / 5 / 11
6	MAX.LOAD / TREAD / SIDEWALL	MAX.LOAD SINGLE 2575 kg (5675 lbs) AT 850 kPa (123 psi) COLD.	3.5
		MAX.LOAD DUAL 2500 kg (5510 lbs) AT 850 kPa (123 psi) COLD.	3.5
		5/1	3.5
7	LOAD INDEX / SPEED INDEX	141/140J / AT 850 kPa	10 / 3.5
8	MARKING SD.	DOT 1E6 BC R018	6
		E11 XXXXXX XXXXX 0019760	6 / 4
9	SAFETY WARNING	SAFETY WARNING	6 / 3
10	COUNTRY OF ORIGIN	MADE IN THAILAND	5
11	WEEK NUMBER	WEEK No.	6
12	MOLD NUMBER	RHM41904-1	5
13	REGROOVABLE	REGROOVABLE	8
14	BRAND TIRE HERE	BRAND TIRE HERE	3
15	MARKING TIRE TYPE	ALL STEEL RADIAL / TUBELESS	5
16	STANDARD RIM	STANDARD RIM 7.50 INCHES	4
17	MARKING M+S / 3PMSF	M+S / 3PMSF	6 / 16
18	MARKING FRT	FRT	10

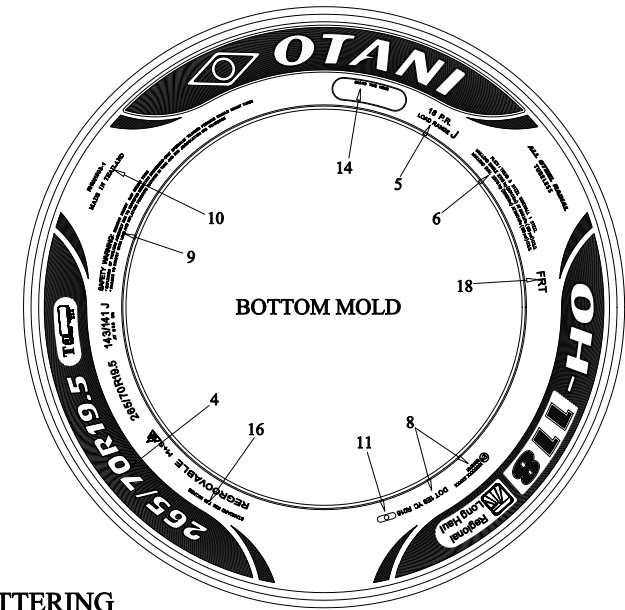
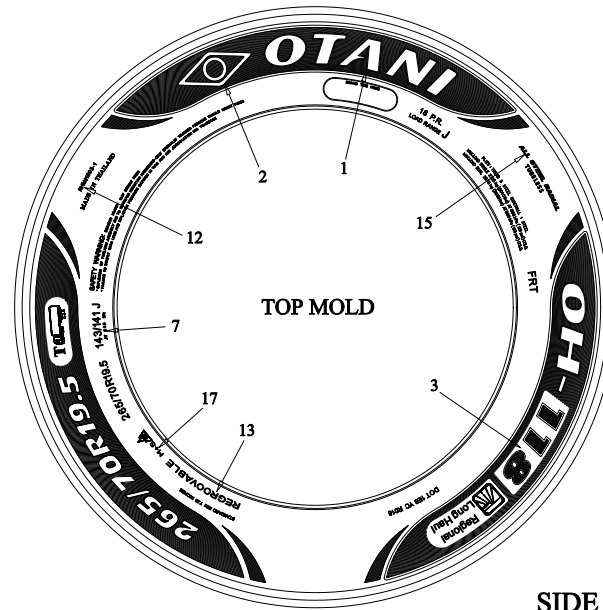
A (Inch/mm)	B (mm)	C (mm)	D (mm)	E (mm)	<b>OTANI RADIAL CO.,LTD.</b>		
7.50/191	251	211	841	12.5	TITLE	245/70R19.5 18PR OH-118	
REMARK :					DRAWN BY.	MR. TIRAYUT P.	SIGNATURE : TP
					CHEK./APPV D	MR. WITTAYA C.	SIGNATURE : WC
					DATE	19 Apr. 2022	REVISION : 01



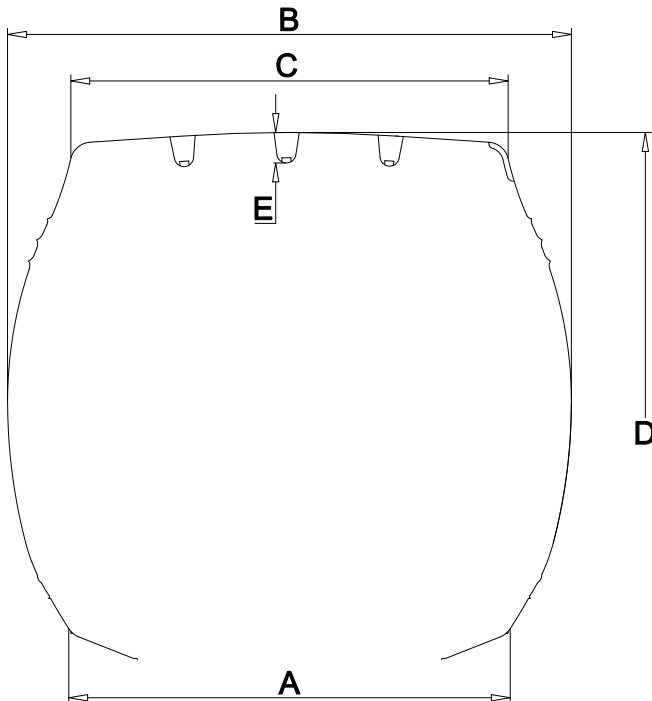




**TREAD PATTERN**



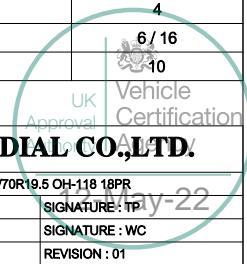
**SIDE LETTERING**



**CROSS SECTION**

No	ITEM	DESCRIPTION	HEIGHT (mm)
1	TRADE MARK	OTANI	42
2	LOGO	OTANI LOGO	48
3	PATTERN	OH-118	32
4	TYRE SIZE	265/70R19.5	24
5	PLY RATING / LOAD RANGE	18 P.R. / LOAD RANGE / J	7 / 5 / 11
6	MAX.LOAD / TREAD / SIDEWALL	MAX.LOAD SINGLE 2725 kg (6010 lbs) AT 860 kPa (125 psi) COLD.	3.5
		MAX.LOAD DUAL 2575 kg (5675 lbs) AT 860 kPa (125 psi) COLD.	3.5
7	LOAD INDEX / SPEED INDEX	143/141J / AT 860 kPa	10 / 3.5
		DOT 1E6 YC R018	6
8	MARKING SD.	E11 XXXXXX XXXXX 0019761	6 / 4
		SAFETY WARNING	6 / 3
9	SAFETY WARNING	SAFETY WARNING	6 / 3
10	COUNTRY OF ORIGIN	MADE IN THAILAND	5
11	WEEK NUMBER	WEEK No.	6
12	MOLD NUMBER	RHM41903-1	5
13	REGROOVABLE	REGROOVABLE	8
14	BRAND TIRE HERE	BRAND TIRE HERE	3
15	MARKING TIRE TYPE	ALL STEEL RADIAL / TUBELESS	5
16	STANDARD RIM	STANDARD RIM 7.50 INCHES	4
17	MARKING M+S / 3PMSF	M+S / 3PMSF	6 / 16
18	MARKING FRT	FRT	10

A (Inch/mm)	B (mm)	C (mm)	D (mm)	E (mm)	<b>OTANI RADIAL CO.,LTD.</b>		
7.50/191	260	224	871	14	TITLE	245/70R19.5 OH-118 18PR	
REMARK :					DRAWN BY.	MR. TIRAYUT P.	SIGNATURE: TP
					CHEK./APPV D	MR. WITTAYA C.	SIGNATURE : WC
					DATE	19 Apr. 2022	REVISION : 01





## Inspection/Test Report: Tyre/Road Noise

### Legislation

UNECE Regulation 117.02 Consolidated to Supplement 13

### Inspection/Test Details

Location of Inspection/Test: For Wet-Grip & Pass By-Noise - Dingyuan Proving Ground – Anhui, China  
For Rolling Resistance – Smithers Rapra Suzhou, China  
Test World – Ivalo , Finland

Date of Inspection/Test: Rolling Resistance – 13 April 2022  
Wet-Grip – 02 April 2022  
Pass By-Noise – 02 April 2022  
Snow-Grip – 04 March 2022

VCA Representative(s): Aekansh Saxena  
Inspectors office location: VCA India  
Manufacturer's Representative(s): Boonmee J  
Reason for Test Report: New approval

### Manufacturer Details

Name and Address: Otani Radial Co., Ltd.  
96 Mu 3 Rimklong Banrai Rd.  
Bangkeaw, Nakornchaisri  
Nakornpathom 73120, Thailand

Type: OH-118  
Commercial Description: Tyre of C3 Class  
Category: Radial Tyre (Snow Use)

### Conclusion

The above mentioned [vehicle / engine / component] was tested in accordance with the above mentioned legislation and was found to comply in all respects. This report relates only to the items tested.

Witness Engineer/Test Engineer  
Signature:

Name: Aekansh Saxena  
Position: Type approval engineer  
Date: 9 May 2022





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## List of Annexes

Annex	No of Pages	Subject
	-	-

## Issue Record

Issue 0 is original report

## Worst Case Rationale

Representative tyres of C3 Category for Severe Snow Use were tested as per the requirements of ECE R117.02

### Following Testing is done to cover all the Tyre Sizes:

11R22.5 148/145L for Tyre Rolling Sound Emission Test

245/70R19.5 141/140J for Wet-Grip Index Test

245/70R19.5 141/140J for Rolling Resistance Coefficient Test

245/70R19.5 141/140J for Severe Snow Grip Test

*Note: Include information on variants and versions this report covers, as applicable. Supporting documents may be annexed to this report.*

## Significant Interpretations, Alternative Test Methods, New Technologies

Not applicable

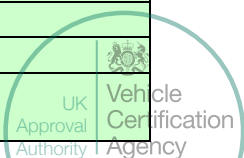
## Inspection/Tests Required

Yes, NA, See Report ... / Approval ... / Annex ...

Markings:	Yes
Tyre Rolling Sound Emission:	Yes
Wet Grip Index:	Yes
Rolling Resistance Coefficient:	Yes
Snow Grip Index:	Yes

## Tyre Specification

Tyre Size Designation:	11R22.5 245/70R19.5
Category of Use:	Snow
Structure:	Radial
Speed Category Symbol:	11R22.5 - L 245/70R19.5 - J





Report Number: ISA566583 Issue: 0

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Load Capacity Index:

11R22.5 – 148/145  
245/70R19.5 – 141/140

Tread Pattern:

OH-118

### Manufacturer's Documentation

Manufacturer's documentation is complete and reflects the agreed specification for the tyre tested and covers all variants and versions agreed in the worst case rationale. Information document uploaded to job folder and identified by job number.

Yes

### Facility and Equipment Checks

Facility Appraisal reference and date (*Reference and date if formal; state if ad-hoc appraisal*).

ad-hoc

Calibration certificates are traceable to national or international standards of measurement, where available:

Yes

Calibration certificates checked and valid, recorded in the following table:

Yes

### Equipment

Description	Make	Model	Serial number	Calibration due date*
VBOX	--	--	024402	05 March 2023
Sound Level Meter	--	--	0001313	03 November 2022
Sound Level Meter	--	--	0001299	03 November 2022
Infrared Radiation Thermometer	--	--	16290004	03 November 2022
Wet film thickness Gauge	--	--	SP4010	03 November 2022
Speed , MFDD	VBox 3i	--	054182	03 November 2022
Weight	Dini Argeo	--	0100635432B1 , 0100668555B1 , 0100668560B1	03 November 2022
Snow Hardness	CTI Penetrometer	--	TW-PM-003	03 November 2022

\*Specify calibrated date + (interval) or calibration due date.



Inspection/Test Requirements		Complies Yes / NA
<b>Markings</b>		
4.1	All tyres constituting the type of tyre must be marked as prescribed by either ECE Regulations No. 30 or 54, as applicable.	Yes
4.2	The tyres shall bear:	
4.2.1	The manufacturer's name or the Brand name/trademark	Yes
4.2.2	The trade description/commercial name	Yes
4.2.3	The tyre size designation	Yes
4.2.4	The inscription "REINFORCED" (or alternatively "EXTRA LOAD") if the tyre is classified as reinforced;	NA
4.2.5	The inscription "TRACTION", if the tyre is classified as "traction tyre"	NA
4.2.6	The "Alpine" symbol ("3-peak-mountain with snowflake" conforming to the symbol described in Annex 7 Appendix 1) shall be added if the snow tyre is classified as "snow tyre for use in severe snow conditions"	Yes
4.2.7	The inscription "MPT" (or alternatively "ML" or "ET") and/or "POR" if the tyre is classified in the category of use "special"	NA
4.3	Tyres shall provide adequate space for the approval mark as shown in Annex 2 to this Regulation	Yes
4.4	The markings referred to in paragraph 4.2. and the approval mark prescribed in paragraph 5.4. of this Regulation shall be clearly legible, indelible and raised above or sunk below the tyre surface	Yes
4.4.1	The approval mark shall be situated in the lower area of the tyre on at least one of its sidewalls.	Yes
4.4.1	However, in the case of tyres identified by the "tyre to rim fitment configuration" symbol "A" or "U", the approval mark may be located anywhere on the outside sidewall of the tyre	NA





## Annex 3 - Coast-By Test Method for Measuring Tyre-Rolling Sound Emission

### Measurement Equipment

Equipment	Serial No.	Calibration data
Drive-by noise meter 1	0001313	03 November 2022
Drive-by noise meter 2	0001299	03 November 2022
<i>Calibration frequency requirement: At least once a year as per IEC 60942:1988</i>		
Noise meter calibrator	9047	31 October 2022
<i>Calibration frequency requirement: At least once every two year as per IEC 60651:1979/A 1:1993</i>		
Speed measurement	024402	05 March 2023
Digital Anemometer	DJ-LJ-05	03 November 2022
Air Temperature measurement	DJ-LJ-05	03 November 2022
Test surface temperature measurement*	1629004	31 October 2022

\* If an instrument with a contact temperature sensor is used, heat-conductive paste shall be applied between the surface and the sensor to ensure adequate thermal contact.

### Test Site

Ann 3, 2.1	Location of Test track:
Ann 3, 2.1	Date of track Certification to ISO 10844: 2014
Ann 3, 2.1	Track Certification Issued by:
Ann 3, 2.1	Method of Certification:
Ann 3, 2.2	Air Temperature:
Ann 3, 2.3	Ambient Noise:

Dingyuan Proving Ground Fangang Town, Dingyuan District , 233210 , Anhui , P.R.China
19 September 2014
TUV Nord
Residual Void Content , Sound absorption Coefficient , Texture Depth
28.9° C
15dB

### Test Vehicle Requirements

Test vehicle make / model	Kangling by JAC Auto LJ13RBBBD3GA002100
Test vehicle wheelbase	3365mm



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### Test Vehicle Requirements

Ann 3, 2.4.1	The test vehicle shall be a motor vehicle and be fitted with four single tyres on just two axles	Yes				
Ann 3, 2.4.3	The wheelbase between the two axles fitted with the test tyres shall be:	Yes				
	<table border="1"> <tr> <td>Class C1</td> <td>Less than 3.50 m</td> </tr> <tr> <td>Class C2 &amp; C3</td> <td>Less than 5 m</td> </tr> </table>	Class C1	Less than 3.50 m	Class C2 & C3	Less than 5 m	
Class C1	Less than 3.50 m					
Class C2 & C3	Less than 5 m					
Ann 3, 2.4.4.1 (a)	Spray suppression flaps or other extra device to suppress spray shall not be fitted	Yes				
Ann 3, 2.4.4.1 (b)	Addition or retention of elements in the immediate vicinity of the rims and tyres, which may screen the emitted sound, is not permitted	Yes				
Ann 3, 2.4.4.1 (c)	Wheel alignment (toe in, camber and caster) shall be in full accordance with the vehicle manufacturer's recommendations	Yes				
Ann 3, 2.4.4.1 (d)	Additional sound absorbing material may not be mounted in the wheel housings or under the underbody	Yes				
Ann 3, 2.4.4.1 (e)	Suspension shall be in such a condition that it does not result in an abnormal reduction in ground clearance when the vehicle is loaded in accordance with the testing requirement. If available, body level regulation systems shall be adjusted to give a ground clearance during testing which is normal for un-laden condition	Yes				
Ann 3, 2.4.4.2 (a)	Removal or modification on the vehicle that may contribute to the background noise of the vehicle is recommended. Any removals or modifications shall be recorded in the test report	NA				
Ann 3, 2.4.4.2 (b)	During testing it should be ascertained that brakes are not poorly released, causing brake noise	Yes				
Ann 3, 2.4.4.2 (c)	It should be ascertained that electric cooling fans are not operating	Yes				
Ann 3, 2.4.4.2 (d)	Windows and sliding roof of the vehicle shall be closed during testing	Yes				



This test report shall not be reproduced except in full, without written approval of the technical service.

<b>Tyres</b>			
<i>Ann 3, 2.5.1</i>	Four identical tyres shall be fitted on the test vehicle		<input type="text" value="Yes"/>
	The tyres must have full tread depth before being run-in		<input type="text" value="Yes"/>
	Tyres are to be tested on rims permitted by the tyre manufacturer		<input type="text" value="Yes"/>
	Test rim width code: 8.25*22.5		<input type="text" value="Yes"/>
<i>Ann 3, 2.5.2</i>	Tyre Loads		<input type="text" value="Yes"/>
<i>Ann 3, 2.5.3</i>	Tyre Inflation Pressure		<input type="text" value="Yes"/>
<i>Ann 3, 2.5.4</i>	The tyres shall be "run-in" prior to testing to remove compound nodules or other tyre pattern characteristics resulting from the moulding process. This will normally require the equivalent of about 100 km of normal use on the road		<input type="text" value="Yes"/>
<i>Ann 3, 2.5.4</i>	The tyres fitted to the test vehicle shall rotate in the same direction as when they were run-in		<input type="text" value="Yes"/>
<i>Ann 3, 2.5.4</i>	Prior to testing tyres shall be warmed up by running under test conditions		<input type="text" value="Yes"/>
<b>Test Results</b>			
<i>Ann 3, 4.3</i>	Sound Level measured	<input type="text" value="74.69"/> dB(A)	
<i>Ann 3, 4.4</i>	Any measuring instrument inaccuracies	<input type="text" value="1.69"/> dB(A)	<input type="text" value="Yes"/>
<i>Ann 3, 4.5</i>	Rounded Result (Rounded down to the nearest lower whole value.)	<input type="text" value="73"/> dB(A)	<input type="text" value="Yes"/>
	Limit value	<input type="text" value="73"/> dB(A)	<input type="text" value="Yes"/>







**Annex 5 – Test procedures for measuring Wet Grip Index of New Tyres –  
Part A - C1 category tyres  
Part B – C2 / C3 category tyres**

**Track Characteristics**

<i>Ann 5, 3.1.1</i> <i>Ann 5 (B), 1.1</i>	Location of Test track:	Dingyuan Proving Ground
<i>Ann 5, 3.1.1</i> <i>Ann 5 (B), 1.1</i>	Surface of Test track:	Dense Asphalt
<i>Ann 5, 3.1.3</i> <i>Ann 5 (B), 1.1</i>	Chipping Size:	8mm to 13mm
<i>Ann 5, 3.1.4</i> <i>Ann 5 (B), 1.1</i>	Average Macro Texture Depth:	0.654
<i>Ann 5, 3.1.5</i> <i>Ann 5 (B), 1.1</i>	Wetted Frictional Properties:	57.49 (BPN Method)

**Testing Methods for Measuring Wet-Grip**

<i>Ann 5,4</i>	For the calculation of the wet grip index (G) of a candidate tyre, the wet grip braking performance of the candidate tyre is compared to the wet grip braking performance of the reference tyre on a vehicle travelling straight ahead on a wet, paved surface.	Yes
	It is measured with one of the following methods:	
<i>Ann 5,4 (a)</i>	Vehicle method consisting of testing a set of tyres mounted on an instrumented passenger car	NA
<i>Ann 5,4 (b)</i>	Testing method using a trailer towed by a vehicle or a tyre test vehicle, equipped with the test tyre(s)	Yes



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### Measurement of Wet Grip Index Using – Trailer Method

#### Test Trailer Configuration

Test Trailer make / model

Test No.		1	2	3	4	5
Tire Size						
Service Description						
Reference (test) inflation pressure (kPa)						
Tyre Identification						
Rim						
M+ S Marking (Y/N)						
3PMSF Marking (Y/N)						
Pattern/ Trade Description						
Load (kg)						
Pressure (kPa)						
$\mu_{peak}$	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
$\mu_{peak}$						
Standard Deviation $\sigma \mu$						
CV $\mu \leq 4\%$						
CV $aI (\mu_{peak}) \leq 5\%$						
$\mu_{peak, corr}^{(R)}$						
$\mu_{peak, adj}^{(R)}$						
Wet Grip Index						
Wet Surface Temperature (°C)						
Ambient Temperature (°C)						
Remarks						



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## Measurement of Wet Grip Index Using – Vehicle Method

### Test Vehicle Configuration

Test vehicle make / model

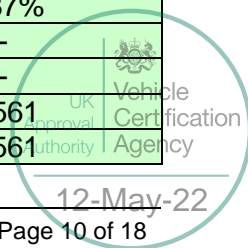
Test vehicle wheelbase

Initial Speed (km/h)

Final Speed (km/h)

Kangling by JAC Auto LJ13RBBD3GA002100 3760cc
3365mm
60km/hr
20km/hr

	SRTT (Before)		Candidate Tyre (1/1)		SRTT (After)	
Tire Size	245/70R19.5		245/70R19.5		245/70R19.5	
Brand	MICHELIN		OTANI		MICHELIN	
Tyre Identification	FWLB 008X 3619		1E6BC R018 0822		FWLB 008X 3619	
Rim width	7.50 x 19.5		7.50 x 19.5		7.50 x 19.5	
Service Description	136/134M		141/140J		136/134M	
Pattern/Trade Description	SRTT		OH-118		SRTT	
M+S Marking (Y/N)	Y		Y		Y	
3 PMSF Marking (Y/N)	Y		Y		Y	
Reference (Test) Inflation Pressure (kPa)	760		850		760	
FA Axle Pressure (kPa)	532/532		595/595		532/532	
RA Axle Pressure (kPa)	532/532		595/595		532/532	
FA Load (kg)	1554/1568		1554/1568		1554/1568	
RA Load (kg)	1598/1618		1598/1618		1598/1618	
Measurements	Braking Distance (m)	Avg. Deceleration m/s <sup>2</sup>	Braking Distance (m)	Avg. Deceleration m/s <sup>2</sup>	Braking Distance (m)	Avg. Deceleration m/s <sup>2</sup>
	22.98	5.37	20.32	6.08	22.60	5.46
	22.26	5.55	19.97	6.18	22.48	5.49
	22.55	5.47	20.14	6.13	22.22	5.56
	-	-	19.67	6.28	-	-
	-	-	20.21	6.11	-	-
Average AD (m/s <sup>2</sup> )	5.46		6.16		5.50	
Standard Deviation $\sigma_{BFC}$	0.09		0.07		0.05	
$(\sigma/\text{Average}) \leq 3\%$	1.60%		1.20%		0.87%	
$CV_{BFC} \leq 4\%$	-		-		-	
$CV_{al} (BFC_{ave}) \leq 5\%$	-		-		-	
$BFC_{ave,corr} (R)$	0.557		0.559		0.561	
$BFC_{adj} (R)$	0.557		0.628		0.561	





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Wet Grip Index G (T)	1.12		
Wet Surface Temperature (°C)	18.7	19.2	19.8
Ambient Temperature (°C)	21.4	22.2	22.3
Remarks	None		





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## Annex 6 - Test procedure for measuring rolling resistance

### Testing Methods

<i>Ann 6,1</i>	The alternative measurement methods listed below are given in this Regulation. The choice of an individual method is left to the tester. For each method, the test measurements shall be converted to a force acting at the tyre/drum interface. The measured parameters are:	
<i>Ann 6,1 (a)</i>	In the force method: the reaction force measured or converted at the tyre spindle	Yes
<i>Ann 6,1 (b)</i>	In the torque method: the torque input measured at the test drum	NA
<i>Ann 6,1 (c)</i>	In the deceleration method: the measurement of deceleration of the test drum and tyre assembly	NA
<i>Ann 6,1 (d)</i>	In the power method: the measurement of the power input to the test drum	NA

### Test Equipment

Drum Specification	1.707 Meter
Drum Surface	Smooth Steel
Measuring Rim	7.50 X 19.5
Thermal Environment	24.3°C





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## Testing Procedure

### Thermal Conditioning

Ann 6,4.2	The inflated tyre shall be placed in the thermal environment of the test location for a minimum of:	Yes																				
Ann 6,4.2 (a)	3 hours for Class C1 tyres;	NA																				
Ann 6,4.2 (b)	6 hours for Class C2 and C3 tyres.	Yes																				
Ann 6,4.3	After thermal conditioning, the inflation pressure shall be adjusted to the test pressure, and verified 10 minutes after the adjustment is made.	Yes																				
Ann 6,4.4	The warm-up durations shall be as <table border="1"> <thead> <tr> <th colspan="5">Warm up durations</th> </tr> <tr> <th>Tyre Class</th> <th>C1</th> <th>C2 and C3 LI ≤ 121</th> <th colspan="2">C3 LI &gt; 121</th> </tr> <tr> <th>Nominal Rim Diameter</th> <td>All</td> <td>All</td> <td>&lt; 22.5</td> <td>≥ 22.5</td> </tr> <tr> <th>Warm up duration</th> <td>30 min.</td> <td>50 min.</td> <td>150 min.</td> <td>180 min.</td> </tr> </thead> </table>	Warm up durations					Tyre Class	C1	C2 and C3 LI ≤ 121	C3 LI > 121		Nominal Rim Diameter	All	All	< 22.5	≥ 22.5	Warm up duration	30 min.	50 min.	150 min.	180 min.	Yes
Warm up durations																						
Tyre Class	C1	C2 and C3 LI ≤ 121	C3 LI > 121																			
Nominal Rim Diameter	All	All	< 22.5	≥ 22.5																		
Warm up duration	30 min.	50 min.	150 min.	180 min.																		

## Measurement and Recording

The following shall be measured and recorded:

Test speed  $U_n$

Load on the tyre normal to the drum surface  $L_m$

The initial test inflation pressure

The coefficient of rolling resistance measured  $C_r$ , and its corrected value  $C_{rc}$ , at 25 °C and for a drum diameter of 2 m

The distance from the tyre axis to the drum outer surface under steady state  $r_s$ ,

Ambient temperature  $t_{amb}$

Test drum radius R

Test method chosen

Test rim (size and material)

Tyre size

Tyre Manufacturer

Load index

Speed symbol,

DOT number (Department of Transportation).

60 km/hr
21.464kN
850 kPa
NA
0.398
24.3°C
1.707
Force
7.50 x 19.5
245/70R19.5
OTANI
141/140
J
1E6 BC R018 0622

## Test Results

Ann 6, 5.2	The rolling resistance $F_r$ , in newton	165.40	N
Ann 6, 6	The rolling resistance coefficient $C_r$	6.199	N/kN





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**Annex 7 – Procedures for snow performance testing relative to snow tyre for use in severe snow conditions**

**Appendix 2 - Test data for C1 and C2 tyres**

Location of test track:	
Test vehicle (Make, model and type, year):	
Test tyre details:	
Tyre size designation and service description:	
Tyre brand and trade description:	
Reference inflation pressure:	
Identification:	

Snow index relative to SRTT according to paragraph 6.4.1.1 of ECE R117:

Test method:	
Test with control tyres:	
Test procedure and SRTT used:	

**Test data :**

Test track characteristics:	At start of tests	At end of tests	Specifications
Weather			---
Ambient temperature			-2 °C to - 15 °C
Snow temperature			-4 °C to - 15 °C
CTI index			80 to 90
Other			

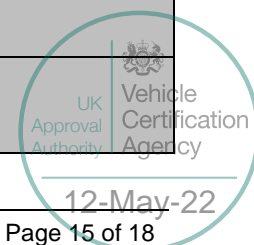




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Test tyre data:	SRTT(1st test)	Candidate(1 of 2)	SRTT(2nd test)
Brand name			
Trade Description / Commercial name			
Tyre Size Designation			
Service Description			
Reference (test) inflation pressure (kPa)			
Test rim width code			
Tyre loads Front axle (kg)			
Tyre loads Rear axle (kg)			
Load index Front axle (%)			
Load index Rear axle (%)			
Front axle Tyre pressure (kPa)			
Rear axle Tyre pressure (kPa)			

Test Results :				
Run Number	Specification	SRTT(1st test)	Candidate(1 of 2)	SRTT(2nd test)
1				
2				
3				
4				
5				
6				
Mean				
Std-Deviation				
CV(%)	≤6%			
Validation SRTT	≤6%			
SRTT weighted Average				







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Snow Index				
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### Appendix 3 - Test data for C3 tyres

Location of test track:	Test World , Ivalo - Finland
Test vehicle (Make, model and type, year):	Ford F250 Regularcab 5.4L 6-Speed Manual 2009 VIN : 1FTNF20599EB16406
Test tyre details:	
Tyre size designation and service description:	245/70R19.5 and 141/140J
Tyre brand and trade description:	OTANI and OH-118
Reference inflation pressure:	5.3 bar
Identification:	1E6 BC R018 822

Snow index relative to SRTT according to paragraph 6.4.1.1 of ECE R117:

Test method:	Brake-on Snow
Test with control tyres:	No
Test procedure and SRTT used:	ASTM-F2871 ; 245/70R19.5 136/134M ; FWLB 008 X 3619

### Test data:

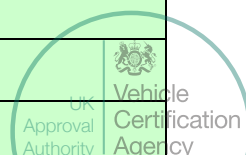
Test track characteristics:	At start of tests	At end of tests	Specifications
Weather	--	--	---
Ambient temperature	-5.5 °C	-5.6 °C	-2 °C to - 15 °C
Snow temperature	-7.8 °C	-7.3 °C	-4 °C to - 15 °C
CTI index	83	83	75 to 85
Other			---



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Test tyre data:	SRTT(1st test)		Candidate(1 of 2)		SRTT(2nd test)	
Brand name	ASTM		OTANI		ASTM	
Trade Description / Commercial name	--		OH 118		--	
Tyre Size Designation	245/70R19.5		245/70R19.5		245/70R19.5	
Service Description	136/134M		141/140J		136/134M	
Reference (test) inflation pressure (kPa)	5.3		6.0		5.3	
Test rim width code	7.5 X 19.5		8 x 18		7.5 X 19.5	
Tyre loads Front axle (kg)	805	880	805	880	805	880
Tyre loads Rear axle (kg)	805	740	805	740	805	740
Load index Front axle (%)	36	36	31	31	36	36
Load index Rear axle (%)	33	33	29	29	33	33
Front axle Tyre pressure (kPa)	530	530	630	630	530	530
Rear axle Tyre pressure (kPa)	530	530	630	630	530	530

Run Number	Specification	SRTT(1st test)	Candidate(1 of 2)	SRTT(2nd test)
1		0.72	1.14	0.72
2		0.72	1.13	0.72
3		0.71	1.13	0.71
4		0.71	1.13	0.71
5		0.71	1.11	0.71
6		0.70	1.10	0.70
Mean		0.71	1.12	0.71
Std-Deviation		0.00	0.02	0.01
CV(%)	≤6%	0.7	1.4	0.9
Validation SRTT	≤5%	--	--	-0.2
SRTT weighted Average		--	0.71	--
Factor f		--	--	--
Snow Index		--	1.58	--





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Final result of snow grip index:	1.58
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**Remarks**

None
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