

Technical Report No.:
Regulation:
Manufacturer:
Type:

TÜV SÜD Czech s.r.o.
120726 – 18 – TAC
(EU) 134/2014, Annex IX
Termignoni S.p.A., Italy
H147



Czech

1/7

EU Technical Service No. e8 and e27

**TECHNICAL REPORT
No. 120726 – 18 – TAC**

Test according to Regulation (EU) 134/2014, Annex IX

**Approval and market surveillance of two- or three-wheel vehicles and
quadricycles (sound level)**

Regulation (EU) No. 134/2014 of 2013-12-16
including all amendments up to and including:
Regulation (EU) No. 2018/295 of 2017-12-15
as implemented by:
Regulation (EU) No. 901/2014 of 2014-07-18
including all amendments up to and including:
Regulation (EU) No. 2016/1825 of 2016-09-06

Objectives: Document for issue of approval certificate

I. Technical data

- | | | |
|--------|------------------------------------|--|
| 0.1. | Make (trade name of manufacturer): | Termignoni |
| 0.2. | Type: | H147 |
| 0.2.1. | Variants: | SSSF, STSF, SSTF, STTF |
| 0.3. | Means of identification of type: | manufacturer's plate |
| 0.3.1. | Location of that marking: | on silencer |
| 0.4. | Category of vehicle: | L3e-A2 |
| 0.5. | Name and address of manufacturer: | Termignoni S.p.A.
Via della Rampina, 1
I-15077 Predosa (AL)
Italy |
| 0.8. | Address of assembly plant: | Termignoni S.p.A.
Via della Rampina, 1
I-15077 Predosa (AL)
Italy |
| 0.9. | Location of the approval mark: | on the manufacturer's plate |

II. Test report

1. Test conditions

- 1.1. Test sample:
- STU: noise-abatement device: H147, variant SSSF.
 Sample marked: H147 as pre-production sample. Used materials: Stainless steel and Fibre-glass.
 Assembly of the exhaust system: 1) 2) 3) 4)
 Tested sample was mounted on vehicle: Thai Honda Manufacturing Co., Ltd
 Type: PC56, variant 1, versions 1/1
 Approval No.: e13*168/2013*00086*00
 Category: L3e-A2
 VIN: MHLPC56A1H5000782
 Year of manufacture: 2017
 Odometer reading: 1012
 Total weight: 190 kg
 Engine code: PC56E
 Engine capacity: 471 cm³
 Rated maximum engine power: 34,0 kW at 8500 min⁻¹
 Number of gears: 5
 Gearbox: manual
 Tyres: front: 130/90 - 16 M/C 67H
 rear: 150/80 - 16 M/C 71H
 Unloaded weight plus 75kg driver
 The vehicle is representative of type according to definition 1.1 of Regulation (EU) 134/2014, Annex IX, Appendix 2, see information document paragraph 0.10.
- 1.2. Test procedures used: acc. to Regulation (EU) 134/2014 Annex IX, Appendix 2, para: 3.5.1 to 3.5.5 (Noise reduction only) and ECE Regulation 41.04, para 6.2.1
- 1.3. Measuring and test equipment: Sound level meter: NtI, type XL2; deviation at calibration: < 0.2 dB(A)
 Revolution counter: RACELOGIC MICIN01
 Sound level calibrator: Larson&Davis Cal200
 Temperature hygrometer: Kestrel 4500NV
 Anemometer: KESTREL 4500NV
 Barometer: KESTREL 4500NV
- 1.4. Worst case evaluation: Variant SSSF chosen as worst case as the heavier and noisier between all variants.
- 1.5. Testing conditions: Ambient air temperature: 10°C
 relative humidity: 70%
 wind speed: 0,1 m/s
 direction of wind: none
 atmospheric pressure: 1000 kPa

temperature of track surface: 11°C
 background noise: <54,5 dB(A)

- 1.6. Test track or site: Asphalt-concrete surface without dust.
 Predosa (AL)

2. Test results

Following numbering is according to Annex IX, Appendix 2 of Regulation (EU) 134/2014 or according to ECE Regulation No. 41
/marked in italics/

- 2.1. 2.3.1.4.2. *Conditioning by pulsation* Proceed before tests.
- 2.2. 3.5.1. *General specifications* The general specifications regarding are fulfilled by the non-original exhaust system as technical unit.
- 3.5.2. *Specifications for sound levels* Test methods are described in followed paragraphs.
- 2.3. *Annex 3 - 1. Noise of the motor cycle in motion (measuring conditions and method for testing of the vehicle during component type approval).*
 Final noise-level of vehicle in motion
 L_{wot}: **75,6 dB(A)**
 Final noise-level of vehicle in motion L_{urban}: **72,9 dB(A)**
 (partial measured values are in Test results)
 Requested limits L_{urban}: 77 dB(A)
- 2.4. *Annex 3 - 2. Noise from stationary motor cycle (measuring conditions and method for testing of the vehicle in use).*
 Final noise-level level of vehicle stationary: **88 dB(A) at 4250 min⁻¹**
 (partial measured values are in Test results)
- 2.5. Tested sample and original system - comparison.
 The same motorcycle fitted with the original equipment silencer:
 Noise-level of vehicle in motion L_{wot}: **78,9 dB(A)**
 Noise-level level of vehicle stationary: **91 dB(A)** (partial measured values are in Test results)
 **) Limit value of directive which was valid by vehicle type homologation
 Measured noise-level values with the replacement silencer do not exceed the values measured, using the same motorcycle fitted with the original equipment silencer.

- 2.6. *3.5.3. Testing of motorcycle performance* Engine power curve was measured.
Measured net maximum power and top speed with the replacement silencer are in the 5% tolerance in comparison with the original equipment silencer.
(see Test results)
- 2.7. *3.5.4. Additional provisions relating to silencers as separate technical units containing fibrous material* Absorbent fibrous material is asbestos-free.
Requirements according to point 2.3.1.4. are met, see paragraph 2.1.
- 2.8. *3.5.5. Evaluation of the pollutant emissions of vehicles equipped with a replacement silencer system* The pollution test was not necessary because the original catalytic converter remains without any changes in the exhaust system. A degradation of catalyst efficiency is not expected.
3. Specimen submitted to test on: 2018-02-16
4. Date of test: 2018-02-16
- III. **Manufacturer's information folder** H147/134/2014 rev.00
11 pages total of 2018-04-20
- IV. **Other documentation**
Test results 2 pages
- V. **Attachments**
No attachments

Measuring and test equipment and test site meet the requirements of the applicable legislation.
This report must never be reproduced incomplete and without a written permission of the testing laboratory. TÜV SÜD Czech confidentiality degree: confidential

VI. Final assessment

The described sample

complies

with the requirements of Regulation (EU) No. 134/2014 as last amended by
Regulation (EU) No. 2018/295 as implemented by
Regulation (EU) No. 901/2014 as last amended by
Regulation (EU) No. 2016/1825
for issue of approval certificate.

This technical report consists of pages No. 1 to 7 and has no attachments.



Pietro Vergani

Test executive



Luděk Piskač

Officially recognized expert

Prague, 2018-05-10

Test resultsTesting of noise-level - vehicle in motion

Gears used for test of motor cycle in motion: 3rd
 Final drive ratio(s): 2,666
 Test mass: 265 kg
 Reference length l_{ref} : 2,19 m
 Power to mass ratio index (PMR): 128,3 Third category
 Reference full throttle acceleration ($a_{wot\ ref}$): 2,86 m/s²
 Target acceleration (a_{urban}): 1,51 m/s²

Full throttle acceleration test

TEST RESULTS												
Measurement No.	v _{AA'} [km/h]	Test speed [km/h]	v _{PP'} [km/h]	v _{BB'} [km/h]	L _{wot(3),side} [dB(A)]		L _{wot(3),side} ⁻¹ [dB(A)]		a _{wot,(3),j} [m/s ²]	a _{wot,(3)} [m/s ²]	k _p	L _{wot} [dB(A)]
					left	right	left	right				
1	42,0	50	50,6	59,0	74,6	76,4	75,4	73,6	2,99	2,97	0,49	75,6
2	42,6		50,0	59,3	75,8	76,5	75,5	74,8	2,96			
3	42,4		50,4	59,2	75,3	77,0	76,0	74,3	2,97			

¹⁾ Recorded values are reduced by 1 dB(A) (account of inaccuracies).

Vehicle speed $v_{AA'}$ (average of 3 runs) for gear (3): 42,3km/h

Vehicle speed $v_{PP'}$ (average of 3 runs) for gear (3): 50,3 km/h

Vehicle speed $v_{BB'}$ (average of 3 runs) for gear (3): 59,2 km/h

Wide-open-throttle test result L_{wot} : **75,6 dB(A)**

Constant speed test

TEST RESULTS						
Measurement No.	Test speed [km/h]	$L_{crs(3),side}$ [dB(A)]		$L_{crs(3),side}^{-1}$ [dB(A)]		L_{crs} [dB(A)]
		left	right	left	right	
1	50	69,6	70,8	68,6	69,8	70,1
2		69,3	71,8	68,3	70,8	
3		70,2	70,8	69,2	69,8	

¹⁾ Recorded values are reduced by 1 dB(A) (account of inaccuracies).

Constant speed test results L_{crs} : **70,1 dB(A)**

Final test result L_{urban} = 72,9 dB(A)

Requested limits L_{urban} = 77 dB(A)

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Testing of noise-level - vehicle stationary
Engine speed at which the maximum net power is 8500 rpm.

TEST RESULTS				
		Left silencer dB(A)	Right silencer dB(A)	Engine speed [min^{-1}]
Original silencer	1 st measurement	0	90,1	4250
	2 nd measurement	0	90,5	4250
	3 rd measurement	0	91,0	4250
Tested silencer	1 st measurement	0	87,4	4250
	2 nd measurement	0	87,8	4250
	3 rd measurement	0	87,9	4250
Original silencer	Test result (max of arithmetic average of the three valid measurements): 91 dB(A)			
Tested silencer	Test result (max of arithmetic average of the three valid measurements): 88 dB(A)			

Value indicated on the original silencer manufacturer's data plate: **93 dB(A)**

Measured value does not exceed by more than 3,0 dB(A) the value recorded when the motorcycle was granted type-approval and indicated on the manufacturer's data plate.

Testing of motorcycle performance

TEST RESULTS		
	Net maximum power [kW] at [min^{-1}]	Top speed difference
original silencer	34,0 kW at 8500	< 5%
tested silencer	34,6 kW at 8500	

End of the technical report