JAVNA AGENCIJA REPUBLIKE SLOVENIJE
ZA VARNOST PROMETA

SLOVENIAN TRAFFIC SAFETY AGENCY

HOMOLOGACIJA
*TYPE-APPROVAL*

AVP, Kotnikova ulica 19a, SI-1000 Ljubljana, tel.: 01 478 8430, vozila@avp-rs.si
STSA, Kotnikova ulica 19a, SI-1000 Ljubljana, tel.: +386 1 478 8430, vozila@avp-rs.si
37141-39/2024/5

**POTRDILO O EU-HOMOLOGACIJI**
***EU TYPE-APPROVAL CERTIFICATE***

Sporočilo o:
*Communication concerning:*

| | |
|---|---|
| - EU-homologaciji<br>- *EU type-approval*<br>~~- razširitvi EU-homologacije~~<br>~~- *extension of EU type-approval*~~<br>~~- zavrnitvi EU-homologacije~~<br>~~- *refusal of EU type-approval*~~<br>~~- preklicu EU-homologacije~~<br>~~- *withdrawal of EU type-approval*~~ | samostojne tehnične enote: naprave za zmanjševanje hrupa<br>*of a type of STU: noise-abatement device* |

glede na Priloge IX k Delegirani uredbi Komisije (EU) št. 134/2014, kakor je bila nazadnje spremenjena z Delegirano uredbo Komisije (EU) št. 2018/295
*with regard to Annex(es) IX to Commission Delegated Regulation (EU) No 134/2014, as last amended by Commission Delegated Regulation (EU) No 2018/295*

Številka EU-homologacije: **e26*134/2014*2018/295G*08219*00**
*EU type-approval number:*

Razlog za razširitev: /
*Reason for extension:*

**ODDELEK I**
***SECTION I***

| | | |
|---|---|---|
| 0.7 | Znamke (tovarniška imena proizvajalca):<br>*Make(s) (trade name(s) of manufacturer)* | AKRAPOVIČ |
| 0.8 | Tip:<br>*Type:* | M-HEE010 |
| 0.8.1 | Trgovska imena (če obstajajo):<br>*Commercial name(s) (if available):* | / |
| 0.9 | Ime podjetja in naslov proizvajalca:<br>*Company name and adress of manufacturer:* | AKRAPOVIC D.D.<br>MALO HUDO 8A<br>1295 IVANCNA GORICA<br>Slovenia |

| | | |
|---|---|---|
| 0.9.1. | Imena in naslovi proizvodnih tovarn:<br>*Name(s) and addresse(s) of assembly plant(s):* | *AKRAPOVIC D.D.*<br>*MALO HUDO 8A*<br>*1295 IVANCNA GORICA*<br>*Slovenia*<br><br>AKRAPOVIČ D.D., PE ČRNOMELJ<br>ULICA HEROJA STARIHA 24<br>8340 ČRNOMELJ<br>Slovenia |
| 0.9.2 | Ime in naslov zastopnika proizvajalca (če obstaja):<br>*Name and adress of manufacturer's representative (if nay):* | / |
| 0.10. | Pri samostojni tehnični enoti, vozila, za katere je namenjena:<br>*In the case of seperate technical unit, vehicle(s) for which is intended for:* | KTM |
| 0.10.1 | Tip:<br>*Type:* | KTM R2 RC (e1*168/2013*00488*) |
| 0.10.2 | Variante:<br>*Variant(s):* | vse<br>*all* |
| 0.10.3 | Izvedenke:<br>*Version(s):* | vse<br>*all* |
| 0.10.4 | Trgovska imena (če obstajajo):<br>*Commercial name(s) (if available):* | KTM 990 RC R |
| 0.10.5 | Kategorija, podkategorija in podpodkategorija vozila:<br>*Category, subcategory and sub-subcategory of vehicle:* | L3e-A3 |

in / *and*

| | |
|---|---|
| 0.10. | KTM |
| 0.10.1 | KTM R2 Dk<br>(e1*168/2013*00369*) |
| 0.10.2 | vse<br>*all* |
| 0.10.3 | vse<br>*all* |
| 0.10.4 | KTM 990 Duke<br>KTM 990 Duke R |
| 0.10.5 | L3e-A3 |

**ODDELEK II**
***SECTION II***

| | | |
|---|---|---|
| 1. | Tehnična služba, pristojna za izvajanje preskusov:<br>*Technical service responsible for carrying out the tests:* | TÜV SÜD Auto Service GmbH<br>Westendstraße 199<br>D-80686 München<br>Germany |
| 2. | Datum poročil o preskusu:<br>*Date of test report(s):* | 29.09.2025 |
| 3. | Številka poročil o preskusu:<br>*Number of test report(s):* | 25-00009-CM-GBM-00 |
| 4. | Opombe:<br>*Remarks:* | glej Dodatek<br>*see Addendum* |
| 4a. | Homologacija je:<br>*The approval is:* | **podeljena**<br>***granted*** |
| 4a.1. | Homologacija se podeli na podlagi člena 40 Uredbe (EU) št. 168/2013, tako da je njena veljavnost omejena do:<br>*The approval is granted in accordance with Article 40 of Regulation (EU) No 168/2013 and its validity is thus limited to:* | ne pride v poštev<br>*not applicable* |
| 5. | ~~Omejitve veljavnosti:~~<br>~~*Restrictions of validity:*~~ | / |
| 6. | ~~Uporabljene opustitve:~~<br>~~*Waivers applied:*~~ | / |
| | Kraj:<br>*Place:* | 1000 LJUBLJANA |
| | Datum:<br>*Date:* | 16.10.2025 |
| | Ime in podpis:<br>*Name and signature:* | mag.Tomaž Svetina, univ.dipl.inž.str.<br>vodja sektorja za vozila<br>TOMAŽ SVETINA Digitalno podpisal TOMAŽ SVETINA Datum: 2025.10.20 09:54:50 +02'00' |

Temu sporočilu je priložen seznam dokumentov, ki so deponirani pri homologacijskem organu, ki je odobril to homologacijo in jih je na zahtevo mogoče dobiti:
**glej kazalo opisne dokumentacije št. e08219 Rev.00**
*The list of documents deposited with the Administrative Service which has granted approval is annexed to this communication and may be obtained on request:*
***see index to information package No e08219 Rev.00***

Dodatek k potrdilu o EU-homologaciji s številko EU-homologacije:
*Addendum to the EU type-approval certificate with EU type-approval number:*
**e26*134/2014*2018/295G*08219*00**

1. **Omejitve uporabe samostojne tehnične enote: naprave za zmanjševanje hrupa:**
   ***Restriction of use of the STU: noise-abatement device:***

   glej prilogo 2 testnega poročila 25-00009-CM-GBM-00
   *see enclosure 2 of the test report 25-00009-CM-GBM-00*

2. **Posebni pogoji za vgradnjo samostojne tehnične enote: naprave za zmanjševanje hrupa:**
   ***Special conditions for the mounting of the STU: noise-abatement device:***

   glej proizvajalčeva navodila za vgradnjo
   *see manufacturer's instruction manual*

3. **Opombe:**
   ***Remarks:***

   /

Ta homologacija se uporablja za tip serijsko izdelanih neoriginalnih izpušnih sistemov za tip motornega kolesa ali njegovih sestavnih delov pod naslednjimi pogoji:

Posamezni proizvodi iz serijske proizvodnje morajo ustrezati najmanj vsem zahtevam Uredbe (EU) št. 168/2013 in Priloge IX k Delegirani uredbi Komisije (EU) št. 134/2014, nazadnje spremenjene z Delegirano uredbo Komisije (EU) št. 2018/295, "Zahteve za preskus tipa IX: raven hrupa".

Priloženo poročilo o preskusu in risbe so sestavni del te homologacije.

Vsak sestavni del neoriginalnega izpušnega sistema, vendar ne deli in cevi za vgradnjo, mora biti čitljivo in trajno označen z:

- znamko (tovarniškim imenom proizvajalca),
- trgovskim imenom,
- homologacijsko oznako.

Temu tipu proizvoda se dodeli naslednja homologacijska oznaka:

e26

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Homologacijska oznaka na proizvodu mora po izvedbi in velikosti ustrezati zahtevam Izvedbene uredbe Komisije (EU) št. 901/2014, nazadnje spremenjene z Izvedbeno uredbo Komisije (EU) št. 2018/295.

S tem homologacijskim znakom so lahko označeni samo tisti proizvodi, ki v celoti ustrezajo homologacijski dokumentaciji.

Oznaka EU-homologacije samostojne tehnične enote ali sestavnega dela mora biti na samostojni tehnični enoti ali sestavnem dele nameščena tako, da je neizbrisna (npr. odtisnjena, jedkana, lasersko vgravirana, samouničljiva nalepka), jasno berljiva in vidna na mestu, kjer se namesti na vozilo, ne da bi bilo treba kateri koli del odstraniti z orodjem.

Proizvod je lahko označen tudi s tujo homologacijsko ali drugo oznako, če s tem ni motena razpoznavnost in čitljivost homologacijske oznake, ki jo je dodelil slovenski homologacijski organ.

Na proizvodu ne sme biti oznak, ki bi lahko privedle do zamenjave z uradno dodeljeno oznako.

Kakršnekoli spremembe na proizvodu so dovoljene samo na podlagi posebnega dovoljenja homologacijskega organa.

Veljavnost homologacije preneha z vrnitvijo ali z odvzemom. Homologacija se odvzame, če pogoji za podelitev in obstoj homologacije ne obstajajo več, če lastnik homologacije krši obveznosti, povezane s homologacijo, oziroma če se ugotovi, da homologirani proizvod ne ustreza več veljavnim predpisom.

Proizvajalec je dolžan stalno kontrolirati kakovost homologiranega proizvoda in njegovo skladnost s homologacijsko dokumentacijo. O tej kontroli je dolžan voditi evidenco in omogočiti vpogled v zapiske nadzornemu organu, ki ga določi homologacijski organ. V primeru ugotovitve neskladnosti s homologacijsko dokumentacijo je proizvajalec dolžan o tem takoj obvestiti homologacijski organ.

Homologacijski organ lahko kadarkoli preverja pravilno izvajanje pooblastil, dodeljenih s to homologacijo, in v ta namen tudi izbira vzorce za ponovni preskus. Stroške takšnih pregledov in presoj skladnosti proizvodnje, se zaračunajo proizvajalcu.

Vsako spremembo oznake proizvajalca, naslova ali proizvodne tovarne oziroma pri homologaciji imenovane pooblaščene osebe je treba takoj sporočiti homologacijskemu organu.

Pravice, podeljene s to homologacijo, so neprenosljive. Pravice tretjih s to homologacijo niso prizadete.

V primerih, da se proizvodnja ali prodaja proizvoda ne začne v roku enega leta od podelitve homologacije, da se proizvodnja ali prodaja prekine za več kot eno leto oziroma, da se predvideva taka prekinitev, je o tem treba takoj obvestiti homologacijski organ.

O začetku proizvodnje ali začetku prodaje oziroma njihovem ponovnem začetku je treba obvestiti homologacijski organ najkasneje v enem mesecu.

Neupoštevanje zgoraj navedenih določil lahko povzroči odvzem homologacije in se kazensko preganja.

Pravno razlago v zvezi s to homologacijo lahko daje samo homologacijski organ.

16.10.2025

mag. Tomaž Svetina, univ.dipl.inž.
vodja sektorja za vozila

*This Approval shall apply to non-original exhaust systems for a type of motorcycle or its components from serial production under the following conditions:*

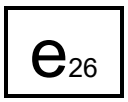
*Individual products from serial production shall comply at least with all requirements set out in the Regulation (EU) No 168/2013 and Annex(es) IX to Commission Delegated Regulation (EU) No 134/2014, as last amended by Commission Delegated Regulation (EU) No 2018/295, "Test type IX requirements: sound level".*

*The attached test report and drawings shall be a constituent part of this Approval.*

*Each component of the nonoriginal exhaust system, excluding pipes and fitting accessories, shall be marked with a readable and durable:*

- *make (trade name of manufacturer)*,
- *commercial name*,
- *approval marking*.

*This type of product shall be allotted the following approval marking:*

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*The design and size of the approval marking shall meet the requirements of the Commission implementing Regulation (EU) No 901/2014, as last amended by Commission implementing Regulation (EU) No 2018/295.*

*Only products which comply with the approval documentation may bear the approval marking.*

*The EU separate technical unit or component type-approval mark shall be affixed to the separate technical unit or component in a way which is indelible (e.g. stamped, etched, laser-engraved, self-destructing adhesive label), clearly legible and visible in the place at which it is to be fitted to the vehicle without the need to remove any parts with the use of tools.*

*The product may also be marked with a foreign approval or other marking, provided that the identifiability and readability of the approval marking granted by the Slovenian Type Approval Authority is not affected.*

*The product shall not bear any markings that may lead to confusion with the officially allotted marking.*

*Changes of any kind performed on the product shall be subject to special permission by the Slovenian Type Approval Authority.*

*The Approval will become ineffective when returned or withdrawn. The Approval shall be withdrawn: should the conditions for its granting and existence no longer exist, should the owner of the Approval break his obligations related to the Approval, or when it has been established that the approved product no longer complies with the applicable regulations.*

*The manufacturer shall regularly inspect the quality of the approved product as well as its conformity with the approval documentation. He shall keep record of this inspection and allow to the surveillance body appointed by the Slovenian Type Approval Authority access to the records. Should any non-conformities be found with respect to the approval documentation, the manufacturer shall immediately inform thereof the Slovenian Type Approval Authority.*

*Any time, the Slovenian Type Approval Authority may check the correct implementation of the authorizations appointed through this Approval, and for this purpose also select samples for a repeated*

*test. The costs of such checks and conformity of production assessments are charged to the manufacturer.*

*Any changes regarding the manufacturer's marking, the address or the production plant, or the authorized person appointed through this Approval, shall be forthwith notified to the Slovenian Type Approval Authority.*

*The rights granted through this Approval shall be untransferrable. The rights of third persons shall not be affected through this Approval.*

*In the case where the production or sale of the product does not start within one year after the granting of the Approval, or the production or sale is interrupted for a period longer than one year, or such interruption is foreseen, the Slovenian Type Approval Authority shall be immediately notified.*

*The Slovenian Type Approval Authority shall be notified of the start of production or start of sale, or its restart, within a month's time at the latest.*

*Non-compliance with above stated provisions may result in withdrawal of the Approval and will be prosecuted.*

*Legal explanations in relation with this Approval may only be given by the Slovenian Type Approval Authority.*

16.10.2025

Tomaž Svetina, M.Sc.Eng.
Head of Vehicle department

Akrapovič d.d.
Malo Hudo 8A
1295 Ivančna Gorica

**SLOVENIAN TRAFFIC SAFETY AGENCY,**
**KOTNIKOVA ULICA 19a,**
**1000 LJUBLJANA,**
**SLOVENIA**

We, Akrapovič d.d., Malo Hudo 8a. 1295 Ivančna Gorica, Slovenia hereby ask STSA to grant approval against ***134/2014*2018/295 EC (G)*** for the following product:
Exhaust system for Motorcycles - muffler:

Type: ***M-HEE010***

Version:
***M-HEE010 06T*** *(Ti / Ti / Ti)*
***M-HEE010 05T*** *(Ti / Ti / Ca)*
***M-HEE010 03T*** *(SS / Ti / Ti)*
***M-HEE010 02T*** *(SS / Ti / Ca)*
***M-HEE010 06TBL*** *(Ti / Ti / Ti)*
***M-HEE010 05TBL*** *(Ti / Ti / Ca)*
***M-HEE010 03TBL*** *(SS / Ti / Ti)*
***M-HEE010 02TBL*** *(SS / Ti / Ca)*

Manufacturer:
***Akrapovič d.d.***
***Malo Hudo 8a***
***1295 Ivančna Gorica***
***Slovenia***

We declare that we have not applied to any other Approval Authority in the EU Member States for this approval.

We have requested ***TÜV SÜD Auto Service GmbH,*** to carry out all testing required by the directive and/or regulation that the approval is sought against and to present the entire documentation for the approval.

Yours sincerely,

Akrapovič d.d.
Davorin Dobočnik, CEO

AKRAPOVIČ d.d.
Malo Hudo 8a, 1295 Ivančna Gorica

Date: 20.08.2024

**JAVNA AGENCIJA**
**REPUBLIKE SLOVENIJE**
**ZA VARNOST PROMETA**
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
**Sektor za vozila**

Kotnikova 19a
1000 Ljubljana
Slovenija
telefon: 01 478 89 61
telefaks: 01 478 89 68
http://www.avp-rs.si

Številka: 37141-039/2024/03

Datum: 06.09.2024

AKRAPOVIČ D.D.
REGULATORY DEPARTMENT
g./ga. MARKO ŠTAMCAR
MALO HUDO 8A
1295 IVANČNA GORICA
Slovenija

**Zadeva: Rezervacija homologacijske številke**

Spoštovani!

Sporočamo Vam rezervirano homologacijsko številko za:

| | |
|---|---|
| Znamka: | AKRAPOVIČ |
| Tip: | M-HEE010 |
| Opis: | STE: NAPRAVA ZA ZMANJŠEVANJE HRUPA 134/2014G |
| Direktiva / pravilnik: | 2018/295/EU - Delegirana uredba Komisije (EU) 2018/295 z dne 15. decembra 2017 o spremembi Delegirane uredbe (EU) št. 44/2014 v zvezi z zahtevami za konstrukcijo vozil in splošnimi zahtevami ter spremembi Delegirane uredbe (EU) št. 134/2014 v zvezi z zahtevami za okoljske značilnosti in zmogljivost pogonskega sistema za odobritev dvo- |

REZERVACIJA: e26*2018/295*08219*00

PRI ORIGINALNI VLOGI OBVEZNO NAVESTI, DA GRE ZA DOPOLNITEV VLOGE: 37141-039/2024/03

Lep pozdrav!

Poslano:
- AKRAPOVIČ D.D.

Digitally signed by JOŽE TRŠELIČ
Date: 2025.10.16 12:59:42 +02'00'

# PRÜFBERICHT
# *TEST REPORT*

## Nr. / *no.* 25-00009-CM-GBM-00

über die Prüfung zur Bauartgenehmigung einer Nicht-Originalauspuffanlage oder von Einzelteilen hiervon als selbstständige technische Einheit für Krafträder /

*about a test regarding a component type-approval for non-original exhaust system or components thereof, as a technical unit for motorcycles*

| | | |
|---|---|---|
| Verordnung / *Regulation* | (EU) 134/2014 | vom / *dated* 16.12.2013 |
| zuletzt geändert / *last amended* | (EU) 2023/2724 | vom / *dated* 27.09.2023 |
| Kodierung / *Codification* | G | |

zur Ergänzung der Verordnung (EU) Nr. 168/2013 des Europäischen Parlaments und des Rates. /
*supplementing Regulation (EU) 168/2013 of the European Parliament and the Council.*

| **Genehmigungsstand / *Approval status*** | | |
|---|---|---|
| ☑ | Erteilung einer Typgenehmigung<br>*Granting of a type approval* | **e26*134/2014*2018/295G*08219*00** |
| ☐ | Nachtrag/Änderung zur Typgenehmigung Nr.<br>*Extension/correction to type approval no.* | |

**Gründe der Erweiterung / *Reasons for extension***

Es wird geändert /
*It will be changed:* -

Es kommt hinzu /
*It will be added:* -

Es wird aktualisiert /
*It will be updated:* -

## 0. Allgemeine Angaben / *General information*

0.1. Fabrikmarke / *Make:* AKRAPOVIČ

0.2. Typ / *Type:* M-HEE010

0.2.1. Ausführungen / *Variants:*

| Ausführungen / *Variants* | Material / *Material* | | |
|---|---|---|---|
| | Rohre / *Tubes* | Außenmantel / *Sleeve* | Endkappe / *End cap* |
| M-HEE010 06T | Titan / *Titan* | Titan / *Titan* | Titan / *Titan* |
| M-HEE010 05T | Titan / *Titan* | Titan / *Titan* | Karbon / *Carbon* |
| M-HEE010 03T | VA / *Stainless steel* | Titan / *Titan* | Titan / *Titan* |
| M-HEE010 02T | VA / *Stainless steel* | Titan / *Titan* | Karbon / *Carbon* |
| M-HEE010 06TBL | Titan / *Titan* | Titan / *Titan* | Titan / *Titan* |
| M-HEE010 05TBL | Titan / *Titan* | Titan / *Titan* | Karbon / *Carbon* |
| M-HEE010 03TBL | VA / *Stainless steel* | Titan / *Titan* | Titan / *Titan* |
| M-HEE010 02TBL | VA / *Stainless steel* | Titan / *Titan* | Karbon / *Carbon* |

Die Ausführungen unterscheiden sich in der Verwendung verschiedener Werkstoffe. Der konstruktive Aufbau ist gleich. Das akustische Verhalten ist als gleichwertig zu betrachten. /
*The variants vary because different materials are used. The basic construction remains the same. The acoustic behaviour is to be regarded as equivalent.*

0.3. Name und Anschrift des Herstellers /
*Name and address of manufacturer:* Akrapovič d.d.
Malo Hudo 8a
SLO-1295 Ivančna Gorica

0.4. Name und Anschrift des Beauftragten /
*Name and address of authorized agent:* entfällt / *n.a.*

0.5. Nr. des Beschreibungsbogens /
*No. of information document:* M-HEE010
Ausgabedatum / *Date:* 29.09.2025

## 1. Verwendungsbereich / *Application range*

1.1. Klasse der Fahrzeuge für die die Anlage bestimmt ist / *Class of the vehicles the unit is used for:* L3e

1.2. Beschreibung der Fahrzeuge für die die Einrichtung bestimmt ist / *Description of the vehicles the unit is used for:* siehe Anlage 2 / *see enclosure 2*

## 2. Angaben zum Prüfobjekt / *Composition of the separate technical unit*

2.1. Art der Technischen Einheit / *Kind of technical unit:*
Technische Einheit, bestehend aus einem Schalldämpfer nach Zeichnung Nr. 132856, oval 102,2 x 137,2 x 300 mm, Absorptionsprinzip mit Eintritts- und Austrittsrohren gem. Anlage 1. / *Technical unit, consisting of a silencer according to drawing no. 132856, oval 102,2 x 137,2 x 300 mm, absorption-principle with inlet and outlet pipes according to enclosure 1.*

2.2. Ort der Kennzeichnung / *Place of marking:* Lasergravur, Typschild aufgenietet / *Engraved by laser, plate fixed with rivets*

2.3. Zusammenstellung der techn. Einheit / *Composition of the separate technical unit:* siehe Anlage 1 / *see enclosure 1*

2.4. Lage und Richtung der Auspuffmündung / *Position and direction of the tail pipe:* rechts seitlich nach hinten / *right side to the rear*

## 3. Prüfprotokoll / *Test report*

Die Prüfungen wurden in 1 Versuchsreihe A mit folgendem Fahrzeug durchgeführt. / *The tests were carried out in 1 series A with following vehicle:*

Versuchsreihe A / *Series A:* (lfd. Nr. / *no.* 1, Messdatum / *Date* 14.11.2024)

### 3.1. Fahrzeug / *Vehicle*

| | | |
|---|---|---|
| 3.1.1. | Typ / *Type:* | KTM R2 RC |
| 3.1.1.1 | Variante / Version / *Variant / Version:* | A / - |
| 3.1.1.2 | Fahrzeugkasse / *Category:* | L3e-A3 |
| 3.1.1.3 | Handelsbezeichnung / *Model:* | KTM 990 RC R |
| 3.1.2. | Hersteller / *Manufacturer:* | KTM AG<br>Stallhofnerstr. 3<br>A-5230 Mattighofen |
| 3.1.3. | Genehmigungs-Nr. / *Homologation no.:* | e1*168/2013*00488* |
| 3.1.3.1 | Nachtrag bzw. Erweiterung / *Extension:* | 00 |
| 3.1.4. | Fahrzeugidentifizierungsnummer / *Vehicle identification no.:* | VBKR99P3XSM908130 |
| 3.1.5. | Baujahr / *Year of manufacture:* | 2025 |
| 3.1.6. | Km-Stand / *Kilometers:* | 1388 |
| 3.1.7. | Zul. Gesamtgewicht / *Total weight:* | 390 kg |

### 3.2. Antriebsmaschine / *Engine*

| | | |
|---|---|---|
| 3.2.1. | Hersteller / *Manufacturer:* | KTM |
| 3.2.2. | Typ / *Type:* | A640 |
| 3.2.3. | Hubraum / *Engine capacity:* | 947 $cm^3$ |
| 3.2.4. | Höchstleistung / *Max. net power:* | 94 kW bei / *at* 9500 $min^{-1}$ |
| 3.2.5. | Max. Drehmoment / *Max. net torque:* | 101 Nm bei / *at* 7000 $min^{-1}$ |

## 3. **Prüfprotokoll** (Fortsetzung) / ***Test report*** *(continuation)*

### 3.3. Kraftübertragung / *Transmission*

| | | |
|---|---|---|
| 3.3.1. | Art der Kraftübertragung / *Kind of transmission:* | mechanisch / *mechanical* |
| 3.3.2. | Getriebe / *Gearbox:* | 6-Gang-Manuell / *6-gear-manual* |
| 3.3.3. | Übersetzungsverhältnisse / *Transmission ratios* primär / *primary* / sekundär / *secondary:* | 1,81 / 2,69 |
| | Höchstgeschwindigkeit / *Top speed:* | 239 km/h |
| | Reifen / *Tires:*<br>Achse / *Axle* 1:<br>Achse / *Axle* 2: | Michelin Power Cup 2<br>120/70 ZR17 58W<br>180/55 ZR17 73W |

### 3.4. Zusammenbau der Auspuffanlage / *Assembly of the exhaust system*

(Teile lfd. Nr. lt. Anlage 1 / *no. of parts acc. enclosure 1)*

| | | |
|---|---|---|
| | Versuchsreihe A / *Series A:* | 1)2a) |

### 3.5. Messung der Geräuschwerte / *Acoustic measurements*

| | | |
|---|---|---|
| 3.5.1. | Hersteller des Messgerätes / *Manufacturer of test equipment:* | MÜLLER-BBM |
| 3.5.2. | Typ des Messgerätes / *Type of the test equipment:* | PAK MK II Configuration |
| 3.5.3. | Fahrgeräusch, Standgeräusch / *Drive by noise, stationary noise:* | nach ECE-R 41.05 / *according ECE-R 41.05* |
| 3.5.3.1 | Position des Mikrofons / *Position of the microphone:* | gemäß UN-R41 Anhang 3 Anlage 2, rechte Fahrzeugseite / *acc. to UN-R41 Annex 3 Appendix 2, right side of the vehicle* |
| 3.5.4. | Beladungszustand bei der Fahrgeräuschmessung / *Load condition during drive by test:* | Leergewicht zuzüglich 75 kg Fahrer / *Unloaded weight plus 75 kg driver* |
| 3.5.5. | Abweichung bei Kalibrierung / *Deviation at calibration:* | < 0.2 dB(A) |

## 3. **Prüfprotokoll** (Fortsetzung) / ***Test report*** *(continuation)*

### 3.6. Messung der Leistung / *Power measurement*

3.6.1. Messung der Leistungskurve mit Nicht-Originalauspuffanlage /
*Testing of max. power with non-original exhaust system:*

Die gemessene Nennleistung und die zugehörige Drehzahl liegen im Toleranzbereich von 5% im Vergleich zu den mit der Originalauspuffanlage gemessenen Werten (siehe Anlage). /
*The tested max. power und the engine speed is in the 5% tolerance in comparison with the original exhaust system (see enclosure).*

3.6.2. Messung der Höchstgeschwindigkeit mit Nicht-Originalauspuffanlage /
*Testing of top speed with non-original exhaust system:*

entfällt, da Fahrzeugklasse /
*not applicable, because vehicle class:* L3e

### 3.7. Konditionierung der Auspuffschalldämpferanlage / *Conditioning of silencer system*

durch Druckschwingungen / *by pulsation*

### 3.8. Ergebnisse / *Test results*

Die Ergebnisse der Prüfungen hinsichtlich / *The test results of*

3.8.1. Geräuschmessung / *Noise testing*
3.8.2. Leistungsmessung / *Power measurement*

sind der als Anlage beigefügten Tabellen zu entnehmen. /
*are attached in the enclosures.*

Aufgrund der Messung mit dem/n o.g. Fahrzeug/en können auch die in Anlage 2 aufgeführten Krafträder, die die gleiche bzw. akustisch gleichwertige Serien-Auspuffanlage besitzen und gleiche bzw. geringere Motorleistung haben, mit in den Verwendungsbereich aufgenommen werden. /
*All motorcycles with the same or acoustically equivalent serial exhaust system and same or less performance mentioned in enclosure 2 can be taken into the field of application due to the measurement with the above-named motorcycle/s.*

## 3. **Prüfprotokoll** (Fortsetzung) / ***Test report*** *(continuation)*

3.8.3. Die beschriebene Nicht-Originalauspuffanlage / Technische Einheit darf an den in der Anlage 2 aufgeführten Kraftfahrzeugen unter den dort genannten Bedingungen verwendet werden. /
*The described non-original exhaust system / technical unit is suitable for an application at the vehicles listed in enclosure 2.*

3.8.4. Die allgemeinen Spezifikationen gemäß:
(EU) 134/2014; Anhang IX; Anlage 2; Abschnitt 3.5.1. werden durch die Nicht-Originalauspuffanlage als technische Einheit erfüllt. /
*The general specifications regarding:*
*(EU) 134/2014; Annex IX; Appendix 2; Clause 3.5.1. are fulfilled by the non-original exhaust system as technical unit.*

## 4. **Anlagen / *Enclosures***

| | |
|---|---|
| Anlage 1: Teile der technischen Einheit<br>*Enclosure 1: Composition of the separate technical unit* | (1 Seite / *Page)* |
| Anlage 2: Verwendungsbereich<br>*Enclosure 2: Field of application* | (1 Seite / *Page)* |
| Anlage 3: Ergebnisse der Prüfungen<br>*Enclosure 3: Test results* | (1 Seite / *Page)* |
| Anlage: Protokoll Geräuschmessung (24-AT-GE-AUT-1-0442)<br>*Enclosure: Protocol noise test (24-AT-GE-AUT-1-0442)* | (24 Seiten / *Pages)* |
| Anlage: Leistungskurve (KTM 990 RC R)<br>*Enclosure: Performance diagram (KTM 990 RC R)* | (1 Seiten / *Page)* |

## 5. Schlussbescheinigung / *Summary*

Das beschriebene Prüfobjekt entspricht der genannten Prüfspezifikation. Das Prüfobjekt wurde als ungünstigster Fall entsprechend der Prozessbeschreibung "Anforderungen an Prüfberichte (AS-PB-T-02)" aus der Beschreibung des Typs (Beschreibungsmappe) ausgewählt. Somit erfüllt auch der beschriebene Typ die o. a. Prüfspezifikation.
In Bezug auf die Einhaltung der Grenzwerte wurde die Messunsicherheit nicht berücksichtigt.
Der Hersteller trägt die Verantwortung für die zu Verfügung gestellten Informationen und Prüfmuster. Die Prüfergebnisse beziehen sich auf die erhaltenen und genannten Prüfmuster. Diese sind repräsentativ für den beschriebenen Typ.
Der Prüfbericht darf nur vom Auftraggeber und nur in vollem Wortlaut vervielfältigt und weitergegeben werden. Eine auszugsweise Vervielfältigung und Veröffentlichung des Prüfberichtes sind nur nach schriftlicher Genehmigung zulässig. /

*The test object described conforms to the mentioned test specification. The worst-case configuration was selected from the type of description (information folder) in accordance with the process description "Requirements for Test Reports (AS-PB-T-02)". Thus, the described type conforms to the test specification.*
*In question of meeting the limits the measurement uncertainty was ignored.*
*The manufacturer is responsible for the information and the test specimens provided by him. The test results relate only to the test specimens as received and mentioned. The test specimens are representative for the type described.*
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## 5. Schlussbescheinigung (Fortsetzung) / *Summary (continuation)*

TÜV SÜD Auto Service GmbH ist benannt als Technischer Dienst durch:
*TÜV SÜD Auto Service GmbH is designated as Technical Service by:*

| **Genehmigungsbehörde** ***Approval authority*** | **Land** ***Country*** | **Registriernummer** ***Registration number*** |
|---|---|---|
| Kraftfahrt-Bundesamt (KBA) | Deutschland *Germany* | KBA-P 00100-10 |
| Vehicle Certification Agency (VCA) | Vereinigtes Königreich *United Kingdom* | VCA-TS-006 |
| Approval Authority of the Netherlands (RDW) | Niederlande *The Netherlands* | RDWT-082-xx |
| National Standards Authority of Ireland (NSAI) | Irland *Ireland* | 49 |
| Swedish Transport Agency (STA) | Schweden *Sweden* | TT 0024 |
| Société Nationale de Certification et d'Homologation s.a. | Luxemburg *Luxembourg* | 13/B(g) |
| Vehicle Safety Certification Center (VSCC) | Taiwan *Taiwan* | DE04-06-2 |

Dieser Bericht umfasst Seite 1 bis 9. /
*This test report contains the pages 1 up to 9.*

München, 29.09.2025


F. Rinske (B. Eng.)
Sachverständiger / *Recognized Expert*
fr
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# ANLAGE 1
# *ENCLOSURE 1*

## Teile der technischen Einheit / *Composition of the separate technical unit*

| Lfd. Nr. / *No.* | Einzelteile, Abmessungen in mm / *Components parts, dimensions in mm* | Abmessungen des Teiles in mm bzw. Originalteil / Ersatzteil / *Dimensions of the part in mm or original part / replacement part* | Teilenummer bzw. Genehmigungsnummer / *Part no. or homologation no.* |
|---|---|---|---|
| | | | |
| 1) | Krümmerrohre mit Katalysator und Vorschalldämpfer / *Header pipes with catalytic converter and pre-silencer* | Originalteile / *Original parts* | - |
| 2a) | Schalldämpfer / *Silencer*<br>(2 Austrittsrohre / *Outlet pipes* ∅ 12 / 40) | oval / *oval* 102,2 x 137,2<br>Länge ohne Endkappe /<br>*Length without end cap* 300 | M-HEE010<br>e26*08219*G<br>E26 92R-02 8219 |

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# ANLAGE 2
# *ENCLOSURE 2*

## Verwendungsbereich / *Field of application*

Die Fahrzeuge erfüllen - bezugnehmend auf ihre Fahrzeugtypgenehmigung - die Umweltanforderungsstufen: Euro (5+)
*The vehicles fulfil - regarding their Whole Vehicle Type Approval (WVTA) - the environmental steps:* *Euro (5+)*

| Lfd. Nr. | Hersteller | Fabrik-marke | Handelsbezeich-nung | Fahrzeugtyp und Genehmigungs-nummer | Variante / Version | Motortyp (4-Takt, Fremd-zündung) | Hubraum in $cm^3$ | Nennleistung $kW/min^{-1}$ | Sonstige bestimmende Merkmale | Anordnung entspr. Anl. 1 lfd. Nr. |
|---|---|---|---|---|---|---|---|---|---|---|
| *No. of ve-hicle* | *Manufac-turer* | *Trade mark* | *Commercial des-cription* | *Vehicle type and no. of homologation* | *Variant / Version* | *Engine type (4-stroke, positive ignition)* | *Engine capacity in $cm^3$* | *max. engine power $kW/min^{-1}$* | *Additional remarks* | *Composition acc. enclo-sure 1* |
| 1) | KTM (A) | KTM | KTM 990 RC R | KTM R2 RC e1*168/2013*00488* | A / - | A640 | 947 | 94/9500 | mit Kat. / *with cat.* *) | 1)2a) |
| 2) | | | KTM 990 Duke | KTM R2 Dk e1*168/2013*00369* | A / - | | | 90/9600 | | |
| 3) | | | KTM 990 Duke R | | B / - | | | 94/9500 | | |

*) Der serienmäßige Katalysator bleibt unverändert im Abgassystem. Eine Verschlechterung des Abgasverhaltens ist nicht zu erwarten. /
*The original catalytic converter remains in the exhaust system. A degradation of catalyst efficiency is not expected.*

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# ANLAGE 3
# *ENCLOSURE 3*

## Ergebnisse der Geräusch- und Leistungsmessungen / *Results of noise testing and power measurements*

| Lfd. Nr. Fahrzeug | Leistung Serie kW/min$^{-1}$ | Leistung Austausch kW/min$^{-1}$ | $V_{max}$ Serie km/h | $V_{max}$ Aus-tausch km/h | Fahrgeräusch in dB(A) / *Sound level driving vehicle in dB(A)* [2] | | | | | Standgeräusch in dB(A) / *Sound level stationary vehicle in dB(A)* [2] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | gemessen in Gang | Grenz-wert [1] | Serie gemes-sen | Austausch gemessen | bei km/h | lt. Fzg. BE | Serie gemes-sen | Austausch gemessen | bei min$^{-1}$ |
| *No. of vehicle* | *Engine power original kW/min$^{-1}$* | *Engine power non-original kW/min$^{-1}$* | *$V_{max}$ original km/h* | *$V_{max}$ non original km/h* | *measured in gear ratio* | *Limit value* [1] $SL_{EU5}$ | *original mea-sured* $L_{urban}$ | *non-original measured* $L_{urban}$ | *at km/h* | *Vehicle type hom.* | *original mea-sured* | *non-original measured* | *at min$^{-1}$* |
| 1) A: | 94/9500 | 94/9500 | - | - | 4 | 77 | 77,7 | 77,2 | 50 | 93 | 93 | 92 | 4750 |

[1] Grenzwert der Richtlinienfassung, die bei Erteilung der Fahrzeuggenehmigung Gültigkeit hatte. /
*Limit value of directive which was valid by vehicle type homologation.*

[2] Betriebsart / *Operating mode:* Track

Anmerkungen / *Remarks:*
- Das Prüffahrzeug wurde zusätzlich in den weiteren Betriebsarten gemessen. /
  *Test vehicle tested in additional driving modes.*
- Die verschiedenen Betriebsarten haben keinen signifikanten Einfluss auf den Geräuschpegel und Beschleunigungsverhalten. /
  *Different driving modes have no significant influence on sound pressure level and acceleration.*

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| | | |
|---|---|---|
| Manufacturer | : Akrapovič | Order No. |
| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

# Test Report
# No. 24-AT-GE-AUT-1-0442

**on the uniform provisions concerning the approval of sound emission for vehicles of categories L3e**

**according to**

**UN-R 41.05, Supp. 2**

| Approval status | |
|---|---|
| ☒ | Granting of a system-approval |
| ☐ | Extension to the type-approval No. : --- |
| ☐ | Correction of the type-approval No. : --- |

## 0. Application

### 0.1. General Information

| | | | |
|---|---|---|---|
| 0.1.1. | Name and address of manufacturer | : | Akrapovič d.d.<br>Malo Hudo 8a<br>1295 Ivancna Gorica<br>Slovenia |
| 0.1.1.1. | Name and address of representative | : | n.a. |
| 0.1.2. | Type | : | M-HEE010 |
| 0.1.3. | Trademark | : | Akrapovič |
| 0.1.4. | Information document No. | : | n.a. |
| 0.1.4.1. | Issue date | : | n.a. |

## 0.2. Changes

0.2.1. to be changed

---

0.2.2. to be added

---

0.2.3. to be deleted

---

0.2.4. to be corrected

---

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| | | |
|---|---|---|
| Manufacturer | : Akrapovič | Order No. |
| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

## 1. Description of subject

| | | | |
|---|---|---|---|
| 1.1. | Subject | : | Sound emission silencing system |
| 1.2. | Production plant(s) | : | Akrapovič d.d.<br>Malo Hudo 8a<br>1295 Ivancna Gorica<br>Slovenia<br><br>Akrapovič d.d., PE Crnomelj<br>Ulica heroja Stariha 24<br>8340 Crnomelj<br>Slovenia |
| 1.3. | Type | : | M-HEE010 |
| 1.3.1. | Variant(s) | : | n.a |
| 1.3.2. | Version(s) | : | n.a. |
| 1.4. | Trade name(s) | : | Akrapovič |
| 1.5. | Marking | : | On exhaust |
| 1.5.1. | Method of attachment | : | Laser engraving |
| 1.5.2. | Location of attachment | : | On exhaust |
| 1.6. | Means of identification of type, if marked on the component / separate technical unit | : | Type designation on marking |
| 1.7. | Dimensions | : | n.a. |
| 1.8. | Material | : | n.a. |
| 1.9. | Mounting | : | n.a. |
| 1.10. | Range of application | : | n.a. |

| | | |
|---|---|---|
| Manufacturer | : Akrapovič | Order No. |
| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

## 2. Tests carried out

### 2.1. Acoustic measurements

| | | | |
|---|---|---|---|
| 2.1.1. | Manufacturer of measurement devices | : | Müller-BBM Vibro Akustik Systeme |
| 2.1.2. | Make of measurement devices | : | PAK MK II |
| 2.1.3. | Testing procedure for moving vehicle noise level | : | UN-R 41.05, Supp. 2 |
| 2.1.4. | Mode of operation | : | UN-R 41.05, 6.2.3 is met |
| 2.1.5. | Testing procedure for stationary vehicle noise level | : | See 2.1.3. |

### 2.2. Measurement of Vehicle Performance

| | | | |
|---|---|---|---|
| 2.2.1. | Manufacturer of measurement device | : | n.a. |
| 2.2.2. | Method of testing | : | n.a. |

### 2.3. Conditioning of exhaust gas silencing system

| | | | |
|---|---|---|---|
| 2.3.1. | Method of testing | : | See Annexes 3.1. / 3.3., Pt. 6.6 |

**2.4. Test results**

2.4.1. The test results of the tests carried out shall be taken from the test record(s) in the Annexes.

2.4.2. Due to a comparison of the noise level of the described replacement silencing system with those of the standard silencing system, both silencing systems are considered to be acoustically equivalent.

2.4.3. As a result, the test results are representative of the vehicle(s), engine(s) and silencing system(s) listed in the Annexes that have been tested and type approved in accordance with the guidelines mentioned in 2.4.4.

2.4.4. It is ensured that all vehicles listed in the Annexes have been type-approved in accordance with UN-R 41 or Regulation (EU) 134/2014 in the corresponding version.

2.4.5. The sound emissions of the vehicle(s) listed in the Annexes comply with the requirements of UN-R 41.05, Supp. 2.

## 3. Annexes

## 4. Final statement

The type specified in No. 0.1.2. complies with the above basis of testing.

The worst case was selected in accordance with the document No. VB-TAGMBH-KBS-0700f.

The test report becomes invalid in the event of technical changes of the subject or if changes made to the vehicle types described in the range of application influence the use of the subject, as well as in the event of changes to the legal basis.

This Test Report comprises pages 1 to 6 and the annexes listed in item 3.



Vienna, 09.01.2025
**TÜV AUSTRIA GMBH**

☒ Benannter Technischer Dienst des Kraftfahrt-Bundesamtes (KBA)
Registrier-Nummer KBA-P 00126
*Designated Technical Service of Kraftfahrt-Bundesamt (KBA), Germany, Registration number KBA-P 00126*

☐ Benannter Technischer Dienst der National Standards Authority of Ireland (NSAI)
Technical Service Number 00143
*Designated Technical Service by the National Standards Authority of Ireland (NSAI), Technical Service Number 00143*

Approved signatory

Wibmer

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| | | |
|---|---|---|
| Manufacturer | : Akrapovič | Order No. |
| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

## Vehicle information

### 1. General vehicle information

| | | | |
|---|---|---|---|
| 1.1. | Manufacturer | : | KTM |
| 1.2. | Type | : | n.a. |
| 1.3. | Variant // Version | : | n.a. // n.a. |
| 1.4. | Commercial name | | 990 RC R |
| 1.5. | Approval No. | : | Prototype |
| 1.6. | Vehicle identification No. | : | VBKR99P3XSM908130 |
| 1.7. | Vehicle category | : | L3e-A3 |
| 1.8. | Year of manufacture | : | 2025 |
| 1.9. | Mileage [km] | : | 1388 |

### 2. Masses / Dimensions / Reference Point

| | | | |
|---|---|---|---|
| 2.1. | Mass in running order ($m_{ro}$) [kg] | : | 193 |
| 2.2. | Test mass of the vehicle ($m_t$) [kg] | : | 274 |
| 2.3. | Power to mass ratio index (PMR) | : | 350,7 |
| 2.4. | Calculation Power to mass ratio index (PMR): | | [x] Rated power (acc. 3.2.8.) |
| | | | [ ] System power (acc. 2.4) |
| 2.5. | Vehicle length / Reference length [m] | : | 2,01 |

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| | | |
|---|---|---|
| Manufacturer | : Akrapovič | Order No. |
| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

## 3. Engine

| | | | |
|---|---|---|---|
| 3.1. | Drive type | | [x] Combustion engine |
| | | | [ ] Electric engine |
| | | | [ ] Hybrid engine |
| | | | [ ] Others |
| 3.2. | Combustion engine | | |
| 3.2.1. | Manufacturer | : | KTM |
| 3.2.2. | Engine code | : | R-A640*98533* |
| 3.2.3. | Arrangement of cylinders | | In-Line |
| 3.2.4. | Numbers of cylinders | : | 2 |
| 3.2.5. | Cycles | | [x] Four stroke |
| | | | [ ] Two stroke |
| 3.2.6. | Working principle | | [x] Positive ignition |
| | | | [ ] Compressed ignition |
| 3.2.7. | Cylinder capacity [$cm^3$] | : | 947 |
| 3.2.8. | Rated power [kW] | : | 94 |
| 3.2.9. | Nominal rpm [rpm] | : | 9500 |
| 3.2.10. | Idle rpm [rpm] | | 1500 |
| 3.3. | Electric engine | | |
| 3.3.1. | Manufacturer | : | --- |
| 3.3.2. | Engine code | : | --- |
| 3.3.3. | Numbers of engines | : | --- |
| 3.3.4. | Rated power [kW] | : | --- |
| 3.4. | system power | | --- |

## 4. Transmission

| | | | |
|---|---|---|---|
| 4.1. | Type of power transmission | | [x] mechanic |
| | | | [ ] hydraulic |
| | | | [ ] electric |
| | | | [ ] n.a. |
| 4.2. | Type of gearbox | | [x] manual |
| | | | [ ] automatic |
| | | | [ ] CVT |
| 4.3. | Numbers of gear(s) | : | 6 |
| 4.4. | Final drive axle ratio | : | XX : 43 |
| 4.5. | Gearbox mode: | | locked |
| 4.6. | Operation modes | : | Street |
| | | | Sport |
| | | | Rain |
| | | | Track |
| | | | --- |

## 5. Tyres

| | | | |
|---|---|---|---|
| 5.1. | Axle 1 | | |
| 5.1.1. | Manufacturer: | : | Michelin |
| 5.1.2. | Brand (Tread) | : | Power Cup 2 |
| 5.1.3. | Dimension: | : | 120/70 ZR17 58W |
| 5.1.4. | Inflation pressure [bar]: | : | --- |
| 5.1.5. | Tread depth [mm]: | : | ≥ 1,6 |
| 5.2. | Axle 2 | | |
| 5.2.1. | Manufacturer: | : | Michelin |
| 5.2.2. | Brand (Tread) | : | Power Cup 2 |
| 5.2.3. | Dimension: | : | 180/55 ZR17 73W |
| 5.2.4. | Inflation pressure [bar]: | : | --- |
| 5.2.5. | Tread depth [mm]: | : | ≥ 1,6 |

| | | | | | |
|---|---|---|---|---|---|
| **6.** | **Intake silencer and Exhaust system** | | | | |
| 6.1. | Intake silencer(s) | | | | |
| 6.1.1. | Manufacturer: | : | --- | | |
| 6.1.2. | Type | : | --- | // | --- |
| 6.2. | Catalyst(s)/ Particulate trap(s) | | | | |
| 6.2.1. | Pre-Catalyst | | | | |
| 6.2.1.1. | Manufacturer: | : | --- | | |
| 6.2.1.2. | Type | : | --- | // | --- |
| 6.2.2. | Catalyst | | | | |
| 6.2.2.1. | Manufacturer: | : | KTM | | |
| 6.2.2.2. | Type | : | --- | // | A64005007033-00 |
| 6.3. | Silencer(s) | | | | |
| 6.3.1. | Pre-silencer(s) | | | | |
| 6.3.1.1. | Manufacturer: | : | KTM | | |
| 6.3.1.2. | Type | : | --- | // | KTM VSD R2-01 |
| 6.3.2. | Middle-silencer(s) | | | | |
| 6.3.2.1. | Manufacturer: | : | --- | | |
| 6.3.2.2. | Type | : | --- | // | --- |
| 6.3.3. | Rear-silencer(s) | | | | |
| 6.3.3.1. | Manufacturer: | : | KTM | | |
| 6.3.3.2. | Type | : | --- | // | KTM ED R2-02 |
| 6.4. | Tail pipe(s) | | | | |
| 6.4.1. | Numbers of independent outlets | | 1 | | |
| 6.4.2. | Manufacturer: | : | KTM | | |
| 6.4.3. | Type | : | --- | // | no marking |

| | | |
|---|---|---|
| 6.5. | Exhaust working principle | ☐ Absorption |
| | | ☐ Reflection |
| | | ☐ Absorption + Reflection |
| | | ☒ n.a. |
| 6.6. | Condition methods | ☐ cont. Road Operation |
| | | ☐ Pulsation |
| | | ☐ Test Bench |
| | | ☒ n.a. |

**7. Exhaust flap/ECU exhaust flap**

| | | | | |
|---|---|---|---|---|
| 7.1. | Exhaust flap(s) | | | |
| 7.1.1. | Manufacturer: | | --- | |
| 7.1.2. | Type | : | --- | // --- |
| 7.2. | ECU exhaust flap(s) | | | |
| 7.2.1. | Manufacturer: | : | --- | |
| 7.2.2. | Type | : | --- | |
| 7.2.3. | Software version: | : | --- | |

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| | | |
|---|---|---|
| Manufacturer | : | Akrapovič |
| Type | : | M-HEE010 |
| Subject | : | Sound emission silencing system |

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**Test chart** **No.: 1**

**1. Pass by Parameter**

| | | | |
|---|---|---|---|
| $a_{wot\ ref\ min}$ (-10% $a_{wot\ ref}$) | : | 3,88 | [m/s²] |
| $a_{wot\ (ref)}$ | : | 4,31 | [m/s²] |
| $a_{wot\ ref\ max}$ (+10% $a_{wot\ ref}$) | : | 4,74 | [m/s²] |
| $a_{urban}$ | : | 2,07 | [m/s²] |
| Test speed $v_{test}$ at PP' (±1) | : | 50,0 | [km/h] |

**2. Calculations a, $n_{max}$**

| |
|---|
| $a_{wot\ ref\ min}$ = 3.33 * log(PMR) - 4.16 * 0,9 |
| $a_{wot\ ref}$ = 3.33 * log(PMR) - 4.16 |
| $a_{wot\ ref\ max}$ = 3.33 * log(PMR) - 4.16 * 1,1 |
| $a_{urban}$ = 1.28 * log(PMR) - 1.19 |
| Evaluation $a_{wot\ test}$: AA'-BB' |

**3. Environmental conditions**

| | | | |
|---|---|---|---|
| Temperature | : | 4,0 | [°C] |
| Road temperature | : | 7,6 | [°C] |
| Air pressure | : | 1006,8 | [hPa] |
| Wind speed | : | 1,2 | [m/s] |
| Humidity | : | 78,5 | [%] |
| Ambient noise | : | 37,5 | [dB(A)] |

**4. Measurements according Annex 3**

4.1. Vehicle in motion

4.1.1. Gear (i)

4.1.1.1. Wide open throttle (wot)

| Gear (i) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $a_{wot\ test}$ [m/s²] | $Pos_{wot}$ att. PP' [m] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{wot\ ave.\ (i)}$ left [dB(A)] | Ø $L_{wot\ ave.\ (i)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | TRACK | 1 | 40,3 | 2127 | 50,0 | 2705 | 61,8 | 3253 | 3,85 | 10,8 | 82,0 | 82,9 | 82,2 | 82,9 |
| | | 2 | 39,5 | 2099 | 49,9 | 2663 | 62,2 | 3269 | 4,05 | 10,8 | 82,4 | 82,9 | | |
| | | 3 | 39,3 | 2054 | 49,5 | 2648 | 61,9 | 3264 | 4,01 | 11,0 | 82,2 | 82,9 | | |

4.1.1.2. Constant speed (crs)

| Gear (i) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{crs\ ave.\ (i)}$ left [dB(A)] | Ø $L_{crs\ ave.\ (i)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | TRACK | 1 | 50,1 | 2668 | 50,3 | 2665 | 50,3 | 2665 | 71,3 | 71,8 | 72,0 | 72,0 |
| | | 2 | 50,6 | 2632 | 50,4 | 2681 | 50,4 | 2681 | 72,2 | 71,9 | | |
| | | 3 | 50,5 | 2675 | 50,4 | 2674 | 50,4 | 2674 | 72,4 | 72,3 | | |

*) Values reduced by 1 dB(A); Numbers written in italics a corrected acc. to Annex 3, Pt. 2.1

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4.1.2. Gear (i+n)

4.1.2.1. Wide open throttle (wot)

| Gear (i+n) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $a_{wot\ test}$ [1)] [m/s²] | $Pos_{wot}$ att. PP' [m] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{wot\ ave\ (i+1)}$ left [dB(A)] | Ø $L_{wot\ ave\ (i+1)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

4.1.2.2. Constant speed (crs)

| Gear (i+n) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{crs\ ave\ (i+n)}$ left [dB(A)] | Ø $L_{crs\ ave\ (i+n)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

*) Values reduced by 1 dB(A); Numbers written in italics a corrected acc. to Annex 3, Pt. 2.1

4.1.3. Summary Pass by measurements (Average values of 3 single runs)

| | | Operation mode | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $a_{wot\ test}$ [1,2)] [m/s²] | $Pos_{wot}$ att. PP' [m] | $L_{wot}$ left [dB(A)] | $L_{wot}$ right [dB(A)] | $L_{crs}$ left [dB(A)] | $L_{crs}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear(i) | 4 | TRACK | 39,7 | 2093 | 49,8 | 2672 | 62,0 | 3262 | 3,97 | 10,9 | 82,2 | 82,9 | 72,0 | 72,0 |
| Gear(i+n) | - | TRACK | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

1) gear (i): $a_{wot\ test\ (i)} = ((v_{BB'} / 3.6)^2 - (v_{AA'} / 3.6)^2) / (2 * (20 + l))$
2) gear (i+1): $a_{wot\ test\ (i+1)}$ = n.a.

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4.1.4. Factor k, $k_p$

| | | |
|---|---|---|
| Gear ratio weighting factor k | : | --- |
| Partial power factor $k_P$ | : | 0,48 |

Calculation Factor k, $k_p$

| |
|---|
| k = n.a. |
| $k_P = (1-(a_{urban} / a_{wot\ test}))$ |

4.1.5. Final results

| | $L_{wot}$ [dB(A)] | $L_{crs}$ [dB(A)] | $L_{wot\ (reported)}$ [dB(A)] | $L_{crs\ (reported)}$ [dB(A)] | $L_{wot\ (limit)}$ [dB(A)] | **$L_{urban}$ [dB(A)]** |
|---|---|---|---|---|---|---|
| Gear i | 82,9 | 72,0 | 82,9 | 72,0 | 82 | **77,7** |
| Gear (i+1) | --- | --- | | | | |

Calculation $L_{urban}$ (PMR > 25)

| |
|---|
| $L_{wot\ rep} = L_{wot\ (i+1)} + k * (L_{wot\ (i)} - L_{wot\ (i+1)})$ |
| $L_{crs\ rep} = L_{crs\ (i+1)} + k * (L_{crs\ (i)} - L_{crs\ (i+1)})$ |
| $L_{urban} = L_{wot\ rep} - k_P * (L_{wot\ rep} - L_{crs\ rep})$ |

4.2. Stationary vehicle

4.2.1. Target engine speed n [$min^{-1}$]

| | | |
|---|---|---|
| - | n= 75% S[1)] (S[1)] ≤5000 $min^{-1}$) | 4750 |
| x | n= 50% S[1)] (S[1)] >5000 $min^{-1}$) | |

1) Rated engine speed S [min-1]

4.2.2. Measurement results

| Measurement run | Operation Mode(s) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Track | | Rain | | Sport | | Street | | --- | | --- | |
| | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] |
| 1st. run | --- | 92,9 | --- | 92,9 | --- | 92,8 | --- | 93,1 | --- | --- | --- | --- |
| 2nd. run | --- | 92,9 | --- | 92,5 | --- | 93,0 | --- | 93,1 | --- | --- | --- | --- |
| 3rd. run | --- | 93,4 | --- | 92,8 | --- | 93,1 | --- | 93,6 | --- | --- | --- | --- |
| Average result | --- | 93,1 | --- | 92,7 | --- | 93,0 | --- | 93,3 | --- | --- | --- | --- |
| Interim result [dB(A)] | 93,1 | | 92,7 | | 93,0 | | 93,3 | | --- | | --- | |
| **Result [dB(A)]** | **93** | | | | | | | | | | | |

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| | | |
|---|---|---|
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| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

| | | | |
|---|---|---|---|
| **5.** | General Information's | | |
| 5.1. | Test standard | : | UN-R 41.05, Supp. 2, Annex 3 |
| 5.2., | Date // place of test | : | 14.11.2024 // Prečna (SI) |
| 5.3. | Issue date | : | 04.12.2024 |
| 5.4. | Remarks | : | Vehicle had been tested in additional operation modes |
| | | : | Different operation modes have no significant influence in sound pressure level $L_{urban}$, $L_{stat}$ and acceleration $a_{wot\ test}$ |
| | | | --- |

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| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

## Vehicle information

### 1. General vehicle information

| | | | |
|---|---|---|---|
| 1.1. | Manufacturer | : | KTM |
| 1.2. | Type | : | n.a. |
| 1.3. | Variant // Version | : | n.a. // n.a. |
| 1.4. | Commercial name | | 990 RC R |
| 1.5. | Approval No. | : | Prototype |
| 1.6. | Vehicle identification No. | : | VBKR99P3XSM908130 |
| 1.7. | Vehicle category | : | L3e-A3 |
| 1.8. | Year of manufacture | : | 2025 |
| 1.9. | Mileage [km] | : | 1388 |

### 2. Masses / Dimensions / Reference Point

| | | | |
|---|---|---|---|
| 2.1. | Mass in running order ($m_{ro}$) [kg] | : | 193 |
| 2.2. | Test mass of the vehicle ($m_t$) [kg] | : | 274 |
| 2.3. | Power to mass ratio index (PMR) | : | 350,7 |
| 2.4. | Calculation Power to mass ratio index (PMR): | | [x] Rated power (acc. 3.2.8.) |
| | | | [ ] System power (acc. 2.4) |
| 2.5. | Vehicle length / Reference length [m] | : | 2,01 |

## 3. Engine

| | | | |
|---|---|---|---|
| 3.1. | Drive type | [x] | Combustion engine |
| | | [ ] | Electric engine |
| | | [ ] | Hybrid engine |
| | | [ ] | Others |

3.2. Combustion engine

| | | | |
|---|---|---|---|
| 3.2.1. | Manufacturer | : | KTM |
| 3.2.2. | Engine code | : | R-A640*98533* |
| 3.2.3. | Arrangement of cylinders | | In-Line |
| 3.2.4. | Numbers of cylinders | : | 2 |
| 3.2.5. | Cycles | [x] | Four stroke |
| | | [ ] | Two stroke |
| 3.2.6. | Working principle | [x] | Positive ignition |
| | | [ ] | Compressed ignition |
| 3.2.7. | Cylinder capacity [$cm^3$] | : | 947 |
| 3.2.8. | Rated power [kW] | : | 94 |
| 3.2.9. | Nominal rpm [rpm] | : | 9500 |
| 3.2.10. | Idle rpm [rpm] | | 1500 |

3.3. Electric engine

| | | | |
|---|---|---|---|
| 3.3.1. | Manufacturer | : | --- |
| 3.3.2. | Engine code | : | --- |
| 3.3.3. | Numbers of engines | : | --- |
| 3.3.4. | Rated power [kW] | : | --- |
| 3.4. | system power | | --- |

## 4. Transmission

| | | | |
|---|---|---|---|
| 4.1. | Type of power transmission | [x] | mechanic |
| | | [ ] | hydraulic |
| | | [ ] | electric |
| | | [ ] | n.a. |
| 4.2. | Type of gearbox | [x] | manual |
| | | [ ] | automatic |
| | | [ ] | CVT |
| 4.3. | Numbers of gear(s) | : | 6 |
| 4.4. | Final drive axle ratio | : | XX : 43 |
| 4.5. | Gearbox mode: | | locked |
| 4.6. | Operation modes | : | Street |
| | | | Sport |
| | | | Rain |
| | | | Track |
| | | | --- |

## 5. Tyres

| | | | |
|---|---|---|---|
| 5.1. | Axle 1 | | |
| 5.1.1. | Manufacturer: | : | Michelin |
| 5.1.2. | Brand (Tread) | : | Power Cup 2 |
| 5.1.3. | Dimension: | : | 120/70 ZR17 58W |
| 5.1.4. | Inflation pressure [bar]: | : | --- |
| 5.1.5. | Tread depth [mm]: | : | ≥ 1,6 |
| 5.2. | Axle 2 | | |
| 5.2.1. | Manufacturer: | : | Michelin |
| 5.2.2. | Brand (Tread) | : | Power Cup 2 |
| 5.2.3. | Dimension: | : | 180/55 ZR17 73W |
| 5.2.4. | Inflation pressure [bar]: | : | --- |
| 5.2.5. | Tread depth [mm]: | : | ≥ 1,6 |

| | | | | | |
|---|---|---|---|---|---|
| **6.** | **Intake silencer and Exhaust system** | | | | |
| 6.1. | Intake silencer(s) | | | | |
| 6.1.1. | Manufacturer: | : | --- | | |
| 6.1.2. | Type | : | --- | // | --- |
| 6.2. | Catalyst(s)/ Particulate trap(s) | | | | |
| 6.2.1. | Pre-Catalyst | | | | |
| 6.2.1.1. | Manufacturer: | : | --- | | |
| 6.2.1.2. | Type | : | --- | // | --- |
| 6.2.2. | Catalyst | | | | |
| 6.2.2.1. | Manufacturer: | : | KTM | | |
| 6.2.2.2. | Type | : | --- | // | A64005007033-00 |
| 6.3. | Silencer(s) | | | | |
| 6.3.1. | Pre-silencer(s) | | | | |
| 6.3.1.1. | Manufacturer: | : | KTM | | |
| 6.3.1.2. | Type | : | --- | // | KTM VSD R2-01 |
| 6.3.2. | Middle-silencer(s) | | | | |
| 6.3.2.1. | Manufacturer: | : | --- | | |
| 6.3.2.2. | Type | : | --- | // | --- |
| 6.3.3. | Rear-silencer(s) | | | | |
| 6.3.3.1. | Manufacturer: | : | Akrapovič | | |
| 6.3.3.2. | Type | : | --- | // | M-HEE010 |
| 6.4. | Tail pipe(s) | | | | |
| 6.4.1. | Numbers of independent outlets | | 1 | | |
| 6.4.2. | Manufacturer: | : | Akrapovič | | |
| 6.4.3. | Type | : | --- | // | D40 and D12 |

| | | |
|---|---|---|
| 6.5. | Exhaust working principle | [x] Absorption |
| | | [ ] Reflection |
| | | [ ] Absorption + Reflection |
| | | [ ] n.a. |
| 6.6. | Condition methods | [ ] cont. Road Operation |
| | | [x] Pulsation |
| | | [ ] Test Bench |
| | | [ ] n.a. |

**7. Exhaust flap/ECU exhaust flap**

| | | | | |
|---|---|---|---|---|
| 7.1. | Exhaust flap(s) | | | |
| 7.1.1. | Manufacturer: | | --- | |
| 7.1.2. | Type | : | --- | // --- |
| 7.2. | ECU exhaust flap(s) | | | |
| 7.2.1. | Manufacturer: | : | --- | |
| 7.2.2. | Type | : | --- | |
| 7.2.3. | Software version: | : | --- | |

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Type : M-HEE010
Subject : Sound emission silencing system

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**Test chart** **No.: 2**

**1. Pass by Parameter**

| | | | |
|---|---|---|---|
| $a_{wot\ ref\ min}$ (-10% $a_{wot\ ref}$) | : | 3,88 | [m/s²] |
| $a_{wot\ (ref)}$ | : | 4,31 | [m/s²] |
| $a_{wot\ ref\ max}$ (+10% $a_{wot\ ref}$) | : | 4,74 | [m/s²] |
| $a_{urban}$ | : | 2,07 | [m/s²] |
| Test speed $v_{test}$ at PP' (±1) | : | 50,0 | [km/h] |

**2. Calculations a, $n_{max}$**

| |
|---|
| $a_{wot\ ref\ min}$ = 3.33 * log(PMR) - 4.16 * 0,9 |
| $a_{wot\ ref}$ = 3.33 * log(PMR) - 4.16 |
| $a_{wot\ ref\ max}$ = 3.33 * log(PMR) - 4.16 * 1,1 |
| $a_{urban}$ = 1.28 * log(PMR) - 1.19 |
| Evaluation $a_{wot\ test}$: AA'-BB' |

**3. Environmental conditions**

| | | | |
|---|---|---|---|
| Temperature | : | 4,6 | [°C] |
| Road temperature | : | 8,2 | [°C] |
| Air pressure | : | 1006,4 | [hPa] |
| Wind speed | : | 1,0 | [m/s] |
| Humidity | : | 75,0 | [%] |
| Ambient noise | : | 40,0 | [dB(A)] |

**4. Measurements according Annex 3**

4.1. Vehicle in motion

4.1.1. Gear (i)

4.1.1.1. Wide open throttle (wot)

| Gear (i) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $a_{wot\ test}$ [m/s²] | $Pos_{wot}$ att. PP' [m] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{wot\ ave.\ (i)}$ left [dB(A)] | Ø $L_{wot\ ave.\ (i)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | TRACK | 1 | 38,8 | 2043 | 49,7 | 2662 | 61,5 | 3244 | 3,99 | 11,4 | 82,0 | 81,7 | 82,0 | 81,7 |
| | | 2 | 39,3 | 2061 | 49,5 | 2644 | 61,5 | 3243 | 3,92 | 10,8 | 82,0 | 81,6 | | |
| | | 3 | 39,6 | 2080 | 49,6 | 2682 | 61,4 | 3217 | 3,86 | 10,8 | 81,9 | 81,7 | | |

4.1.1.2. Constant speed (crs)

| Gear (i) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{crs\ ave.\ (i)}$ left [dB(A)] | Ø $L_{crs\ ave.\ (i)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | TRACK | 1 | 50,1 | 2642 | 50,2 | 2649 | 50,2 | 2649 | 71,8 | 72,2 | 71,8 | 71,7 |
| | | 2 | 50,0 | 2615 | 49,7 | 2671 | 49,7 | 2671 | 71,7 | 71,6 | | |
| | | 3 | 50,0 | 2645 | 50,1 | 2639 | 50,1 | 2639 | 71,9 | 71,4 | | |

*) Values reduced by 1 dB(A); Numbers written in italics a corrected acc. to Annex 3, Pt. 2.1

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4.1.2. Gear (i+n)

4.1.2.1. Wide open throttle (wot)

| Gear (i+n) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $a_{wot\ test}$ [1)] [m/s²] | $Pos_{wot}$ att. PP' [m] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{wot\ ave\ (i+1)}$ left [dB(A)] | Ø $L_{wot\ ave\ (i+1)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

4.1.2.2. Constant speed (crs)

| Gear (i+n) | Operation mode | Run | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $L_{max}$* left [dB(A)] | $L_{max}$* right [dB(A)] | Ø $L_{crs\ ave\ (i+n)}$ left [dB(A)] | Ø $L_{crs\ ave\ (i+n)}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| - | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

*) Values reduced by 1 dB(A); Numbers written in italics a corrected acc. to Annex 3, Pt. 2.1

4.1.3. Summary Pass by measurements (Average values of 3 single runs)

| | | Operation mode | AA' v [km/h] | AA' n [U/min] | PP' v [km/h] | PP' n [U/min] | BB' v [km/h] | BB' n [U/min] | $a_{wot\ test}$ [1,2)] [m/s²] | $Pos_{wot}$ att. PP' [m] | $L_{wot}$ left [dB(A)] | $L_{wot}$ right [dB(A)] | $L_{crs}$ left [dB(A)] | $L_{crs}$ right [dB(A)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear(i) | 4 | TRACK | 39,2 | 2061 | 49,6 | 2663 | 61,5 | 3235 | 3,92 | 11,1 | 82,0 | 81,7 | 71,8 | 71,7 |
| Gear(i+n) | - | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

1) gear (i): $a_{wot\ test\ (i)} = ((v_{BB'} / 3.6)^2 - (v_{AA'} / 3.6)^2) / (2 * (20 + l))$
2) gear (i+1): $a_{wot\ test\ (i+1)}$ = n.a.

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Manufacturer : Akrapovič
Type : M-HEE010
Subject : Sound emission silencing system

Order No.
2024-AT-GE-AUT-EX-0-000419
FM-TAGMBH-HOM-AUTO03-019
Rev. 00

4.1.4. Factor k, $k_p$

| | | |
|---|---|---|
| Gear ratio weighting factor k | : | --- |
| Partial power factor $k_P$ | : | 0,47 |

Calculation Factor k, $k_p$

| |
|---|
| k = n.a. |
| $k_P = (1-(a_{urban} / a_{wot\ test}))$ |

4.1.5. Final results

| | $L_{wot}$ [dB(A)] | $L_{crs}$ [dB(A)] | $L_{wot\ (reported)}$ [dB(A)] | $L_{crs\ (reported)}$ [dB(A)] | $L_{wot\ (limit)}$ [dB(A)] | **$L_{urban}$ [dB(A)]** |
|---|---|---|---|---|---|---|
| Gear i | 82,0 | 71,8 | 82,0 | 71,8 | 82 | **77,2** |
| Gear (i+1) | --- | --- | | | | |

Calculation $L_{urban}$ (PMR > 25)

| |
|---|
| $L_{wot\ rep} = L_{wot\ (i+1)} + k * (L_{wot\ (i)} - L_{wot\ (i+1)})$ |
| $L_{crs\ rep} = L_{crs\ (i+1)} + k * (L_{crs\ (i)} - L_{crs\ (i+1)})$ |
| $L_{urban} = L_{wot\ rep} - k_P * (L_{wot\ rep} - L_{crs\ rep})$ |

4.2. Stationary vehicle

4.2.1. Target engine speed n [$min^{-1}$]

| | | |
|---|---|---|
| - | n= 75% S[1)] (S[1)] ≤5000 $min^{-1}$) | 4750 |
| x | n= 50% S[1)] (S[1)] >5000 $min^{-1}$) | |

1) Rated engine speed S [min-1]

4.2.2. Measurement results

| Measurement run | Operation Mode(s) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Track | | Rain | | Sport | | Street | | --- | | --- | |
| | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] | left [dB(A)] | right [dB(A)] |
| 1st. run | --- | 91,2 | --- | 91,4 | --- | 91,4 | --- | 91 | --- | --- | --- | --- |
| 2nd. run | --- | 90,9 | --- | 91,9 | --- | 91,4 | --- | 90,5 | --- | --- | --- | --- |
| 3rd. run | --- | 91,0 | --- | 91,4 | --- | 90,8 | --- | 90,9 | --- | --- | --- | --- |
| Average result | --- | 91,0 | --- | 91,6 | --- | 91,2 | --- | 90,8 | --- | --- | --- | --- |
| Interim result [dB(A)] | 91,0 | | 91,6 | | 91,2 | | 90,8 | | --- | | --- | |
| **Result [dB(A)]** | **92** | | | | | | | | | | | |

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| | | |
|---|---|---|
| Manufacturer | : Akrapovič | Order No. |
| Type | : M-HEE010 | 2024-AT-GE-AUT-EX-0-000419 |
| Subject | : Sound emission silencing system | FM-TAGMBH-HOM-AUTO03-019 Rev. 00 |

**5.** General Information's

| | | | |
|---|---|---|---|
| 5.1. | Test standard | : | UN-R 41.05, Supp. 2, Annex 3 |
| 5.2., | Date // place of test | : | 14.11.2024 // Prečna (SI) |
| 5.3. | Issue date | : | 04.12.2024 |
| 5.4. | Remarks | : | Vehicle had been tested in additional operation modes |
| | | : | Different operation modes have no significant influence in sound pressure level $L_{urban}$, $L_{stat}$ and acceleration $a_{wot\ test}$ |
| | | : | Inserts D = 40 mm and D = 12 mm |
| | | | --- |

**Information Document M-HEE010**

**relating to EU type-approval of a noise-abatement device as a STU**

**TÜV SÜD Auto Service Technical Report: 25-00009-CM-GBM-00**

| Item No. | (Sub) categories | Detailed information | |
|---|---|---|---|
| B. | | **General information concerning systems, components, or separate technical units** | |
| 0.7. | L1e — L7e | **Make(s) (trade name(s) of manufacturer)**: | AKRAPOVIČ |
| 0.8. | L1e — L7e | **Type**: | **M-HEE010** |
| 0.8.1. | L1e — L7e | Commercial name(s) (if available): | n.a. |
| 0.8.2. | L1e — L7e | Type-approval number(s) (if available): | e26*134/2014*2018/295G*08219*00 |
| 0.8.3. | L1e — L7e | Type-approval(s) issued on (date, if available): | n.a. |
| 0.9. | L1e — L7e | **Company name and address of manufacturer**: | Akrapovic d.d.<br>Malo Hudo 8a<br>SLO-1295 Ivancna Gorica |
| 0.9.1. | L1e — L7e | Name(s) and address(es) of assembly plants: | Akrapovič, d.d.<br>Malo Hudo 8a<br>SLO-1295 Ivancna Gorica<br><br>Akrapovič d.d., PE<br>Ulica heroja Stariha 24<br>SLO-8340 Črnomelj |
| 0.9.2. | L1e — L7e | Name and address of manufacturer's authorized representative, if any: | n.a. |
| 0.10. | | **Vehicle(s) for which the system/separate technical unit is intended for:** | |
| 0.10.1. | L1e — L7e | Type: | see Technical Report |
| 0.10.2. | L1e — L7e | Variant: | see Technical Report |
| 0.10.3. | L1e — L7e | Version: | see Technical Report |
| 0.10.4. | L1e — L7e | Commercial name(s) (if available): | see Technical Report |
| 0.10.5. | L1e — L7e | Category, subcategory and sub-subcategory of vehicle: | see Technical Report |
| C. | | **General information concerning vehicle, systems, components, or separate technical units** | |
| 0.12. | | **Conformity of production** | |
| 0.12.1. | L1e — L7e | Controlled by ISO 9001:2008 Quality Management System certified by TÜV SÜD Management Service GmbH Registration no.: | 12 100/104 31148 TMS |
| 1. | | **GENERAL CONSTRUCTION CHARACTERISTICS** | |
| 1.8. | | **Propulsion unit performance** | |
| 1.8.1. | L3e, L4e, L5e, L7e-A, L7e-B2 | Declared maximum vehicle speed: km/h | see Technical Report |
| 1.8.2. | L1e, L2e, L6e, L7e-B1, L7e-C | Maximum design vehicle speed: ..... and gear in which it is reached: | n.a. |
| 1.8.3. | L1e — L7e | Maximum net power combustion engine: . kW at . min $^{-1}$ at A/F ratio: | see Technical Report |
| 1.8.4. | L1e — L7e | Maximum net torque combustion engine: . Nm at . min $^{-1}$ at A/F ratio: | see Technical Report |
| 1.8.5. | L1e — L7e | Maximum continuous-rated power electric motor (15/30 minutes power): | n.a. |
| 1.8.6. | L1e — L7e | Maximum continuous-rated torque electric motor: ..... Nm at …. min $^{-1}$ | n.a. |
| 1.8.7. | L1e — L7e | Maximum continuous total power for propulsion(s): .... kW. at …. min $^{-1}$ at A/F ratio: | n.a. |
| 1.8.8. | L1e — L7e | Maximum continuous total torque for propulsion(s): .... Nm at .... min $^{-1}$ at A/F ratio: | n.a. |
| 1.8.9. | L1e — L7e | Maximum peak power for propulsion(s): ..... kW at .... min $^{-1}$at A/F ratio: | n.a. |

| | | | |
|---|---|---|---|
| 4. | | **GENERAL INFORMATION ON ENVIRONMENTAL AND PROPULSION UNIT PERFORMANCE** | |
| 4.0 | | **General information on environmental and propulsion performance** | |
| 4.0.1. | L1e — L7e | Environmental step: Euro | (5+) |
| 4.0.2. | L1e — L7e | Fuel consumption: | see WVTA |
| 4.0.3. | L1e — L7e | $CO_2$ emissions: | see WVTA |
| 4.0.4. | L1e — L7e | Energy consumption: | n.a. |
| 4.0.5. | L1e — L7e | Electric range: | n.a. |
| 4.0.6. | | Sound level | |
| 4.0.6.1. | L1e — L7e | Limit value for $L_{urban}$ : | see Technical Report |
| 4.4. | L1e — L7e | **Additional information on environmental and propulsion unit performance** | |
| 4.4.4. | L1e — L7e | All additional technical information according to UN Regulation No. 92, are mentioned in the Technical Report or shown in the attachments. | |

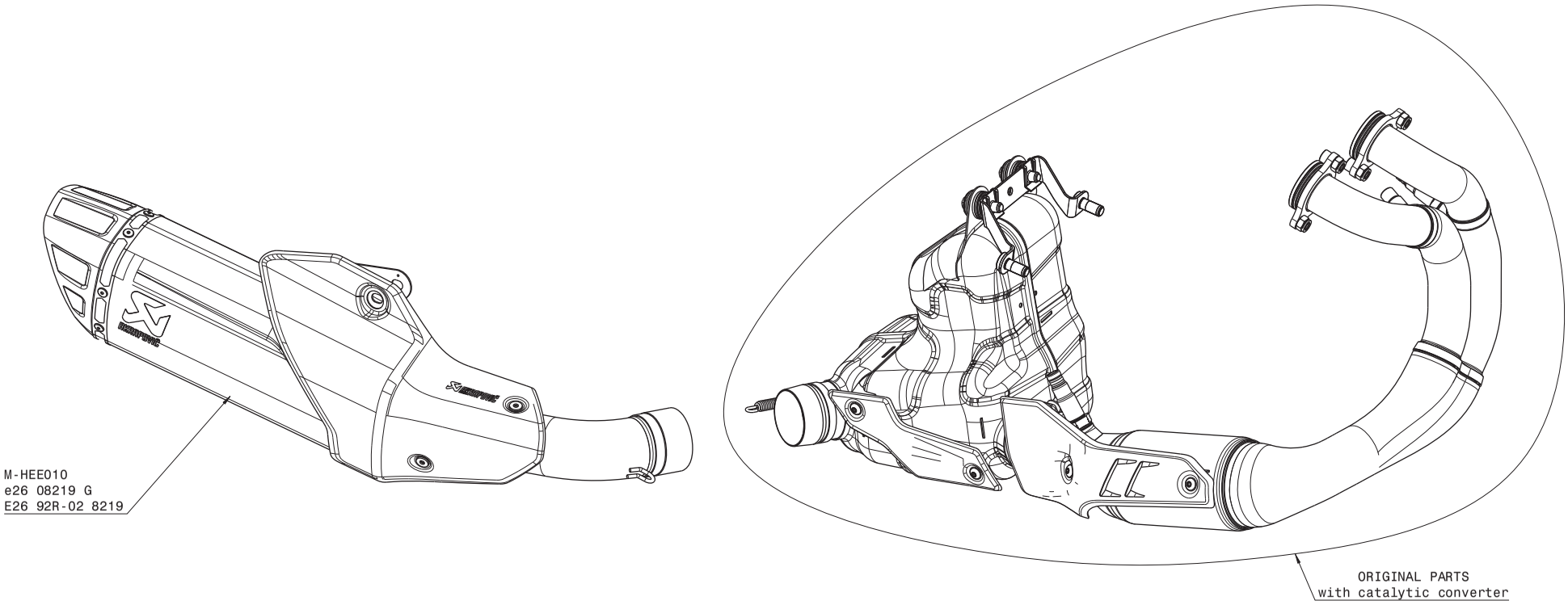
| Anlage / *Enclosure* | Dokument-Nr. / *Document no.* | Datum / *Date* | Seiten / *Pages* |
|---|---|---|---|
| Zeichnung Gesamtanlage / *Drawing exhaust system* | KTM 990 RC R | - | 1 |
| Zeichnung(en) der Bauteil(e) der zu genehmigenden techn. Einheit / *Drawing(s) of the part(s) of the separate techn. unit* | 132856 | 12.08.2024 | 1 |
| Stückliste / *Part list* | M-HEE010 | - | 1 |
| Einbauanleitung / *Mounting instructions* | KTM RC 990R | 11/2024 | 16 |
| ASEP-Erklärung / *ASEP Statement* | - | 20.11.2024 | 1 |

AKRAPOVIČ d.d. Ivančna Gorica, Slovenija

Davorin Dobočnik, CEO

29.09.2025

**KTM 990 RC R, KTM 990 Duke/R Partial exhaust system / Slip-on line / EC & ECE type approval**
**Product code:**
**S-KTM9SO2-HAPLT**



# Statement of compliance with the Additional Sound Emission Provisions

This statement is required for non-original replacement exhaust silencing systems (NORESS) without multiple, manually or electronically adjustable, rider selectable operating modes or without variable geometries specified for the use on L3 Category vehicles that are type approved pursuant to the amendments to UN Regulation No.41 and are subject to the ASEP-requirements series of amendments to UN Regulation No.41.

Akrapovič d.d., Malo Hudo 8a, 1295 Ivančna Gorica, attests that the non-original replacement exhaust silencing systems of this type **M-HEE010, (E26 92R-02 8219)**, comply with the applicable ASEP requirements of UN Regulation No.41 during the type approval procedure and its production.

Akrapovič d.d., Malo Hudo 8a, 1295 Ivančna Gorica, makes this statement in good faith, after having performed an appropriate evaluation of the sound emission performance of the non-original replacement exhaust silencing system in accordance with the requirements of UN Regulation No.92 during the type approval procedure and its production.

*Akrapovič d.d.*
*Davorin Dobočnik, CEO*

Date: 20.11.2024

AKRAPOVIČ
AKRAPOVIČ d.d.
Malo Hudo 8a, 1295 Ivančna Gorica