

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



ANNUAL IN-SERVICE CONFORMITY REPORT

According to Commission Regulation (EU) 2018/1832, Annex II, Appendix 4

Report number: RDW-ISC-2022-50

A. Quick overview and main conclusions

For the year 2022 the RDW has selected 14 ISC families to be tested according to Commission Regulation (EU) 2018/1832, Annex II. For two (2) of the tested ISC families the Statistical Folder is closed with a ‘Pass’ result. The elaborated test results can be found in section D, point 6.

For one (1) tested family the Statistical Folder is closed with a ‘Fail’ result. For this concerning family a Compliance Assessment according chapter 6 of the regulation is started. Once the procedure for this family is completely finished, the results will be added to an update of this Annual Report.

For eleven (11) ISC families the Statistical Folder is yet undecided. Once the procedures for these families are completely finished, the results will be added to an update of this Annual Report.

B. ISC activities performed by the manufacturer in the previous year

(1) Information gathering by manufacturer

N/A responsibility for manufacturer

(2) ISC testing (including planning and selection of families tested, and final results of tests)

N/A

C. ISC activities performed by accredited laboratories or technical services in the previous year

(3) Information gathering and risk assessment

N/A responsibility for accredited laboratories or technical services

(4) ISC testing (including planning and selection of families tested, and final results of tests)

N/A

D. ISC activities performed by the granting type approval authority in the previous year

(5) Information gathering and risk assessment

The leading principles that were applied to gather information and carry out a comprehensive risk assessment are:

- Gathering relevant information on possible emission non-compliances relevant for deciding which ISC families to check in a particular year.
- Conducting initial risk assessment based on gathered information to choose the ISC family to be tested.

The steps that were undertaken to gather the relevant information and select the ISC families for testing are:

1. Identifying relevant parameters to start collecting the information;
2. Gathering the information from e4 type approvals;
3. Collecting relevant data from e4 certificate holders (sales, ISC families, motor type, available ISC and CoP (WLTP) test results from OEM, eligible vehicles' availability);
4. Creating a database to collect and organize the relevant vehicle data;
5. Selecting the ISC families for testing.

(6) ISC testing (including planning and selection of families tested, and final results of tests)

Based on gathered information as explained in section 5 ISC families are selected and an ISC test plan was produced.

The annual test scope and test plan is based on 3 subjects:

1. Minimum amount of vehicles to be tested;
2. Minimum amount of ISC tests to be carried out;
3. Selected ISC families for testing.

Final test results

Overview of tests performed.

| OEM | ISC family | Fuel | Vehicle | Tests | Test status |
|-----------------------|------------|--------|------------|---------------|-------------|
| Hyundai Motor Company | 4-HMC-6-0 | petrol | Vehicle #1 | type 1 (WLTP) | done |
| | | | | type 1a (RDE) | done |
| | | | | type 4 (evap) | done |
| | | | | type 6 (cold) | done |
| | | | Vehicle #2 | type 1 (WLTP) | done |
| | | | | type 1a (RDE) | done |
| | | | | type 4 (evap) | done |
| | | | | type 6 (cold) | done |
| | | | Vehicle #3 | type 1 (WLTP) | done |
| | | | | type 1a (RDE) | done |
| | | | | type 4 (evap) | done |
| | | | | type 6 (cold) | done |
| Kia Slovakia | 4-KMS-2-0 | petrol | Vehicle #1 | type 1 (WLTP) | done |
| | | | | type 1a (RDE) | done |
| | | | | type 4 (evap) | done |
| | | | | type 6 (cold) | done |
| | | | Vehicle #2 | type 1 (WLTP) | done |
| | | | | type 1a (RDE) | done |
| | | | | type 4 (evap) | done |
| | | | | type 6 (cold) | done |
| | | | Vehicle #3 | type 1 (WLTP) | done |
| | | | | type 1a (RDE) | done |
| | | | | type 4 (evap) | done |
| | | | | type 6 (cold) | done |

Figure 1.

Test results of Type 1 tests

| Type 1 (WLTC) | | Emissions | CO | THC | NMHC | NO _x | THC+NO _x | PM | PN | Pass/Fail decision |
|---------------|------------|--------------|---------|---------|---------|-----------------|---------------------|---------|----------------------------|--------------------|
| | | | [mg/km] | [mg/km] | [mg/km] | [mg/km] | [mg/km] | [mg/km] | [# · 10 ¹¹ /km] | |
| ISC family | | Limit values | 1000 | 100 | 68 | 60 | - | 4,5 | 6,00E+11 | |
| 4-HMC-6-0 | Vehicle #1 | Final values | 161,9 | 10,9 | 7,6 | 29,4 | - | 0,01 | 3,04E+10 | Pass |
| | Vehicle #2 | Final values | 158,8 | 6,0 | 4,6 | 17,4 | - | 0,06 | 3,79E+10 | Pass |
| | Vehicle #3 | Final values | 244,3 | 13,5 | 10,7 | 14,5 | - | 0,21 | 1,08E+10 | Pass |
| 4-KMS-2-0 | Vehicle #1 | Final values | 110,6 | 10,0 | 8,5 | 11,8 | - | 0,13 | 7,81E+10 | Pass |
| | Vehicle #2 | Final values | 125,3 | 9,7 | 8,1 | 12,3 | - | 0,09 | 2,73E+10 | Pass |
| | Vehicle #3 | Final values | 292,7 | 11,9 | 9,4 | 11,2 | - | 0,20 | 5,50E+10 | Pass |

Figure 2.

Test results of Type 1a tests

| Type 1a (RDE) | Emissions | Urban trip conformity factors | | | Total trip conformity factors | | | Pass/Fail decision | |
|---------------|------------|-------------------------------|------|------|-------------------------------|------|------|--------------------|------|
| | | NO _x | CO | PN | NO _x | CO | PN | | |
| | | [-] | [-] | [-] | [-] | [-] | [-] | | |
| ISC family | | Limit values | 2,1 | n.a. | 1,5 | 2,1 | n.a. | 1,5 | |
| 4-HMC-6-0 | Vehicle #1 | Final values | 0,51 | n.a. | 0,07 | 1,76 | n.a. | 0,09 | Pass |
| | Vehicle #2 | Final values | 0,49 | n.a. | 0,21 | 0,35 | n.a. | 0,31 | Pass |
| | Vehicle #3 | Final values | 0,47 | n.a. | 0,02 | 0,32 | n.a. | 0,05 | Pass |
| 4-KMS-2-0 | Vehicle #1 | Final values | 0,41 | n.a. | 0,20 | 0,29 | n.a. | 0,10 | Pass |
| | Vehicle #2 | Final values | 0,64 | n.a. | 0,16 | 0,45 | n.a. | 0,11 | Pass |
| | Vehicle #3 | Final values | 0,42 | n.a. | 0,14 | 0,34 | n.a. | 0,13 | Pass |

Figure 3.

Test results of Type 4 test

| Type 4 (EVAP) | | Emissions | Hot soak THC | Diurnal day 1 THC | Diurnal day 2 THC | Final value THC | Pass/Fail decision |
|---------------|------------|--------------|--------------|-------------------|-------------------|-----------------|--------------------|
| | | | [g] | [g] | [g] | [g] | |
| ISC family | | Limit values | - | - | - | 2 | |
| 4-HMC-6-0 | Vehicle #1 | Final values | 0,05 | 0,4 | 0,45 | 0,9 | Pass |
| | Vehicle #2 | Final values | 0,05 | 0,4 | 0,32 | 0,77 | Pass |
| | Vehicle #3 | Final values | 0,04 | 0,34 | 0,29 | 0,67 | Pass |
| 4-KMS-2-0 | Vehicle #1 | Final values | 0,05 | 1,07 | 0,24 | 1,36 | Pass |
| | Vehicle #2 | Final values | 0,05 | 0,22 | 0,29 | 0,56 | Pass |
| | Vehicle #3 | Final values | 0,05 | 0,34 | 0,28 | 0,67 | Pass |

Figure 4.

Test results of Type 6 test

| Type 6 (Cold) | | Emissions | CO | THC | Pass/Fail decision |
|---------------|------------|--------------|--------|--------|--------------------|
| | | | [g/km] | [g/km] | |
| ISC family | | Limit values | 15 | 1,8 | |
| 4-HMC-6-0 | Vehicle #1 | Final values | 1,22 | 0,44 | Pass |
| | Vehicle #2 | Final values | 1,43 | 0,37 | Pass |
| | Vehicle #3 | Final values | 1,93 | 0,50 | Pass |
| 4-KMS-2-0 | Vehicle #1 | Final values | 0,82 | 0,21 | Pass |
| | Vehicle #2 | Final values | 1,01 | 0,22 | Pass |
| | Vehicle #3 | Final values | 1,57 | 0,22 | Pass |

Figure 5.

(7) Detailed investigations

For one (1) family the Statistical Folder is closed with a 'Fail' result. For this concerning family a Compliance Assessment according chapter 6 of the regulation is started. This means detailed investigations together with the concerning manufacturer will be started. Once the procedure for this family is completely finished, the results will be added to an update of this Annual Report.

(8) Remedial measures

There are no confirmed non-compliant situations based on the detailed investigations. Therefore there are no requirements for any remedial measures right now.

E. Assessment of the yearly expected emissions decrease due to any ISC remedial measures

N/A No assessment was performed due to the answers provided in chapter 8 "Remedial measures"

F. Lessons Learned (including for performance of instruments used)

Finding the right vehicles is still a challenge.

G. Report of other invalid tests

N/A There are no reports with invalid test results

Date : 30-03-2023

Place : Zoetermeer