

# In-Service Conformity (ISC)

ISC testing according to EU Regulation 2017/1151 as amended by EU  
Regulation 2018/1832

## Final Report - ISC testing for 2022

Table 1. Revision management

Rev.	Date	Comments
00	2023-03-23	Final report



## Glossary

Table 2. Glossary of terms

Term	Description
ISC	In-Service Conformity
GTAA	Granting Type Approval Authority
STA	Swedish Transport Agency
RDE	Real Driving Emission
PEMS	Portable Emission Measurement System
VIN	Vehicle Identification Number
UND	Undecided
NTE	Not to exceed
COC	Certificate of Conformity
ECG	Emissions Characteristics Group
MRO	Mass In Running Order
OBD	On Board Diagnostics
ICE	Internal Combustion Engine
NOVC	Not Off Vehicle charging
OVC	Off Vehicle charging
HEV	Hybrid Electric Vehicle
WLTP	Worldwide Harmonised Light Vehicles Test Procedure
CO	Carbon Monoxide
HC	Hydro Carbons
NMHC	Non-Methane Hydro Carbons
THC	Total Hydro Carbons
NOx	Nitrogen Oxides
PM	Particle Mass
PN	Particle Number

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## A. Quick overview and main conclusions

As of 01 January 2020, Granting Type Approval Authorities (GTAA) are required to perform ISC testing. These new requirements are contained within Annex II, Part B, of Regulation (EU) 2017/1151, as amended by 2018/1832. The regulation also opens up the possibility for accredited laboratories and technical services to conduct ISC testing, in the following referred to as third party testing. This Final report summaries the testing for ISC-2022 conducted by manufacturers, third parties and the Swedish Transport Agency (STA). STA is the GTAA in Sweden.

STA has issued emission type approvals (e5\*715/2007\*2018/1832\*....) for ten manufacturers qualified for the ISC testing programme, sales per ISC-Family in EU>5000 vehicles for previous year.

- Ford-Werke GmbH
- Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S.
- Hyundai Motor Manufacturing Czech s.r.o.
- Jaguar Land Rover Limited
- Kia Corporation
- Kia Slovakia s.r.o
- Volvo Cars Corporation
- Ford Motor Company of Australia Pty Ltd
- BMW AG
- SAIC Motor Corporation Limited

Three manufacturers, BMW AG, Jaguar Land Rover Limited and SAIC Motor Corporation Limited, fulfil the sales of 5000 vehicles in EU for the previous year on one ISC family each and therefore only tested in one family each.

Table 3 describes the final status for ISC-2022. Due to the two invalid vehicles, OBD system detected fault code during PEMS validation and Type 1 test, see section G in this report. The sample size increased with two extra vehicles. An overview of the results is presented in section B2, C3 and D6 in the report. A more detailed presentation of the results per manufacturer is presented in annexes I – X.

Table 3. Summary of planned and performed tests and outcome from STA and third party testing.

ISC-2022	Planned vehicles	Tested vehicles	PASS	FAILED	Invalid test
STA	51	53	51	0	2
3 <sup>rd</sup> Parties	12	10	10	0	-




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

### 1. Information gathering by manufacturer

This section is an overview of the testing performed per manufacturer. If sales numbers pass the mark of 5000 in EU for the previous year, a statistical folder is opened for the ISC family.

As long as the sales pass the mark of 5000 in EU the time period between commencing two in-service conformity checks by the manufacturer for a given ISC-family shall not exceed 24 month.

The requirements for ISC checks are applicable until 5 years after the last COC or individual approval certificate is issued for vehicles of that ISC family.

Manufacturer results reported to GTAA are presented in tables 5 to 28. A summary of the manufacturers ISC testing is presented in table 4.

### 2. ISC testing by manufacturers

Table 4. Summary of ISC-families qualified for manufacturer testing and statistical folders status.

Section	Manufacturer	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
2.1	Ford-Werke GmbH	14	0	8
2.2	Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş.	5	0	1
2.3	Hyundai Motor Manufacturing Czech s.r.o.	11	0	0
2.4	Jaguar Land Rover Limited	1	0	1
2.5	Kia Corporation	4	0	1
2.6	Kia Slovakia s.r.o	3	0	1
2.7	Volvo Cars Corporation	8	0	2
2.8	Ford Motor Company of Australia Pty Ltd	0	0	2
2.9	BMW AG	0	0	0
2.10	SAIC Motor Corporation Limited	1	0	0

## 2.1 Ford-Werke GmbH

Table 5. Number of ISC-families for manufacturer testing and status from Ford-Werke GmbH.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
10	13	7	14	0	8

Table 6. ISC-families to test (Type 1) and status by Ford-Werke GmbH.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
x	x	-	11-WF0-D10	PASS	UND	UND				
x	x	-	5-WF0-D25* 11-WF0-D6*	PASS	UND	UND				
x	x	-	5-WF0-P28* 11-WF0-P9*	PASS	UND	UND				
-	x	x	11-WF0-P16	-	PASS	UND				
x	x	-	11-WF0-D8	PASS	UND	UND				
x	x	-	5-WF0-D13	PASS	UND	UND				
x	x	-	5-WF0-D14	PASS	UND	UND				
-	x	x	5-WF0-P27	-	PASS	UND				
x	-	-	11-WF0-P7	PASS	UND	UND				
x	-	-	11-WF0-P8	PASS	UND	UND				
x	-	-	11-WF0-P20* 11-WF0-P22*	PASS	UND	UND				
x	-	-	11-WF0-D16	PASS	UND	UND				
-	x	x	5-WF0-P34	-	PASS	UND				
-	x	x	5-WF0-D41	-	UND	UND				
-	x	x	5-WF0-D42	-	PASS	UND				
-	x	x	5-WF0-D40	-	UND	UND				
-	x	-	5-WF0-D36	-	UND	UND				
-	-	x	5-WF0-D38	-	-	UND				

\*Request from Ford to merge ISC-families with identical specifications, agreed with STA.

## 2.2 Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S

Table 7. Number of ISC-families and status for manufacturer testing from Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
4	5	5	5	0	1

Table 8. ISC-families to test (Type 1) and status by Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
x	x	-	11-HAO-1	PASS	UND					
x	-	-	11-HAO-2	PASS	UND					
x	x	-	11-HAO-3	PASS	UND					
x	x	-	11-HAO-4	PASS	UND					
-	-	x	5-HAO-1	-	-	UND				
-	-	x	5-HAO-2	-	-	UND				
-	-	x	5-HAO-3	-	-	UND				
-	-	x	5-HAO-4	-	-	UND				
-	x	x	5-HAO-17	-	PASS					
-	x	-	5-HAO-18	-	UND	UND				

Table 9. Additional RDE-test by Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S.

Test	ISC-Family	Tested vehicles	Cold Start	Hot Start	Status
1	5-HAO-17	1	x	x	pass

### 2.3 Hyundai Motor Manufacturing Czech s.r.o

Table 10. Number of ISC-families and status for manufacturer testing from Hyundai Motor Manufacturing Czech s.r.o.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2021	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
8	3	11	11	0	0

Table 11. ISC-families to test (Type 1) and status by Hyundai Motor Manufacturing Czech s.r.o.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
-	-	x	11-HMM-4	-	-	PASS				
x	x	-	11-HMM-5	PASS		UND				
x	-	-	11-HMM-6	PASS		UND				
x	x	-	11-HMM-8	PASS		UND				
x	-	-	11-HMM-10	PASS		UND				
x	-	-	11-HMM-11	PASS		PASS				
x	-	-	11-HMM-12	PASS		UND				
x	-	-	11-HMM-14	PASS		UND				
x	x	-	11-HMM-15	PASS		UND				
-	-	x	5-HMM-1	-	-	UND				
-	-	x	5-HMM-2	-	-	UND				
-	-	x	5-HMM-3	-	-	UND				
-	-	x	5-HMM-4	-	-	UND				
-	-	x	5-HMM-5	-	-	PASS				
-	-	x	5-HMM-12	-	-	UND				
-	-	x	5-HMM-17	-	-	UND				
-	-	x	5-HMM-18	-	-	UND				
-	-	x	5-HMM-19	-	-	UND				
-	-	x	5-HMM-20	-	-	UND				

Table 12. Additional RDE-test by Hyundai Motor Manufacturing Czech s.r.o.

Test	ISC-Family	Tested vehicles	Cold Start	Hot start	Result
1	11-HMM-4	1	x	x	pass
2	11-HMM-10	1	x	x	pass
3	11-HMM-11	1	x	x	pass



## 2.4 Jaguar Land Rover Limited

Table 13. Number of ISC-families and status for manufacturer testing from Jaguar Land Rover Limited.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
1	0	1	1	0	1

Table 14. ISC-families to test (Type I) and status by Jaguar Land Rover Limited.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
x	-	-	11-SAJ-001	PASS	UND	UND				
-	-	x	5-SAJ-026	-	-	UND				

## 2.5 Kia Corporation

Table 15. Number of ISC-families and status for manufacturer testing from Kia Corporation.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
2	5	5	4	0	1

Table 16. ISC-families to test (Type I) and status by Kia Corporation.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
-	x	-	11-KMC-4	-	PASS					
-	x	-	11-KMC-5	-	PASS					
x	x	-	11-KMC-7	PASS	UND					
x	x	-	11-KMC-8	PASS	UND					
-	-	x	5-KMC-12	-	-	UND				
-	-	x	5-KMC-13	-	-	UND				
-	x	x	5-KMC-14	-	UND	UND				
-	-	x	5-KMC-15	-	-	UND				
-	-	x	5-KMC-16	-	-	UND				

Table 17. Additional RDE-test by Kia Corporation

Test	ISC-Family	Tested vehicles	Result
1	11-KMC-4	1	pass
2	11-KMC-5	1	pass
3	11-KMC-7	1	pass
4	11-KMC-8	2	pass

## 2.6 Kia Slovakia s.r.o

Table 18. Number of ISC-families and status for manufacturer testing from Kia Slovakia s.r.o

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	UND Backlog, 24 month test period expired 2022-12-31
4	4	4	3	0	1

Table 19. ISC-families to test (Type 1) and status by Kia Slovakia s.r.o.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
x	x	-	11-HMM-5	PASS	UND					
x	x	-	11-HMM-6	PASS	UND					
x	x	-	11-HMM-8	PASS	UND					
x	x	-	11-HMM-15	UND	UND	UND				
-	-	x	5-KMC-1	-	-	UND				
-	-	x	5-KMC-2	-	-	UND				
-	-	x	5-KMC-4	-	-	UND				
-	-	x	5-KMC-5	-	-	UND				

Table 20. Additional RDE-test by Kia Slovakia s.r.o.

Test	ISC-Family	Tested vehicles	Status
1	11-HMM-5	1	pass

## 2.7 Volvo Cars Corporation

Table 21. Number Of ISC-families and status for manufacturer testing from Volvo Cars Corporation.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	Backlog, 24 month test period expired 2022-12-31
2	8	7	8	0	2

Table 22. ISC-families to test (Type I) and status by Volvo Cars Corporation.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
x	x	-	5-YV1-012	PASS	UND	UND				
x	x	-	5-YV1-016	PASS	UND	UND				
-	x	x	5-YV1-020	-	UND	PASS				
-	x	x	5-YV1-021	-	PASS	UND				
-	x	x	5-YV1-022	-	UND	PASS				
-	x	x	5-YV1-023	-	PASS	UND				
-	x	x	5-YV1-026	-	UND	PASS				
-	x	x	5-YV1-027	-	PASS	UND				
-	-	x	5-YV1-031	-	-	UND				

## 2.8 Ford Motor Company of Australia Pty Ltd

Table 23. Number of ISC-families and status for manufacturer testing from Ford Motor Company of Australia Pty Ltd.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	Backlog, 24 month test period expired 2022-12-31
0	2	2	0	0	2

Table 24. ISC-families to test (Type 1) and status by Ford Motor Company of Australia Pty Ltd.

Qualified for ISC test Sales for previous year>5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
-	x	x	5-6FP-D32	-	UND	UND				
-	x	x	5-6FP-D33	-	UND	UND				

## 2.9 BMW AG

Table 25. Number of ISC-families and status for manufacturer testing from BMW AG.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	Backlog, 24 month test period expired 2022-12-31
0	0	1	0	0	0

Table 26. ISC-families to test (Type 1) and status by BMW AG.

Qualified for ISC test Sales for previous year > 5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
-	-	x	5-WBA-DH13	-	-	UND				

## 2.10 SAIC Motor Corporation Limited

Table 27. Number of ISC-families and status for manufacturer testing from SAIC Motor Corporation Limited.

ISC-families Qualified for ISC			Statistical folder summary		
2020	2021	2022	PASS	FAILED	Backlog, 24 month test period expired 2022-12-31
0	0	1	1	0	0

Table 28. ISC-families to test (Type 1) and status by SAIC Motor Corporation Limited.

Qualified for ISC test Sales for previous year > 5000 vehicles			ISC-Family	Status						
2020	2021	2022		2020	2021	2022	2023	2024	2025	2026
-	-	x	5-LSJ-1-0	-	-	PASS				

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

### 2 Information gathering an risk assessment

No data available

### 3 ISC testing from accredited laboratories or technical services

Table 29. Third party ISC testing performed during 2022.

Test	STA-Ref	Manufacturer	ISC-Family	Technical service	Test type	Status
1	2022-484	Hyundai Motor Manufacturing Czech s.r.o.	5-HMM-19	Emisia	1A	PASS
2	2022-485	Ford-Werke GmbH	5-WF0-P27	Emisia	1A	PASS
3	2022-2203	Hyundai Motor Manufacturing Czech s.r.o.	5-HMM-17	Emisia	1A	PASS
4	2022-2206	Kia Slovakia s.r.o.	5-KMC-4	Emisia	1A	PASS
5	2022-2207	Kia Slovakia s.r.o.	5-KMC-5	Emisia	1A	PASS
6	2022-2294	Ford Motor Company of Australia Pty Ltd	5-6FP-D33	DTI	1A	PASS
7	2021-3005	Kia Slovakia s.r.o.	11-HMM-15	DTI	1A	PASS
8	2021-3005	Kia Slovakia s.r.o.	11-HMM-15	TÜV-NORD	1A	PASS
9	2022-3901	SAIC Motor Corporation Limited	5-LSJ-1	DTI	1A	PASS

Please refer to Annex XI – 3<sup>rd</sup> party testing, for results.

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

### 5. Information gathering and risk assessment

A common risk assessment methodology was applied for all manufacturers applicable for ISC testing by the GTAA. Only Type 1 and 1A tests were conducted for this ISC programme.

As a first step, all e5\*715/2007\*2018/1832\* emissions approvals that were applicable to GTAA ISC testing were identified for the manufacturer. Each approval was accompanied by the associated IP and ISC (PEMS) families, 2021 sales volumes, warranty claims and other administrative information to assist in the information gathering process (such as test reports and basic vehicle specification).

The risk assessment methodology was split into two parts:

#### Risk Rating 1 – Quantifying the emissions performance of ‘similar’ vehicles

In-market emissions test data for Euro 6d-\* vehicles, available from a variety of independent sources, were collated into a database. Each tested vehicle was assigned an ‘Emissions Characteristics Group’ (ECG) identifier, which is a concatenated string of the vehicles’:

- *Mass class* (‘Light’: MRO < 1500 kg; ‘Medium’: 1500 ≤ MRO < 2250 kg; ‘Heavy’: MRO ≥ 2250 kg)
- *Powertrain architecture* (‘ICE / Mild NOVC-HEV’; ‘Full NOVC-HEV’; ‘OVC-HEV’)
- *Fuel* (‘Petrol’; ‘Diesel’)
- *Aspiration* (‘Naturally aspirated’; ‘Turbocharged (single)’; ‘Turbocharged (multiple)’; ‘Turbocharged and Supercharged’; ‘Supercharged’)
- *Fuelling method* (‘Direct Injection’; ‘Indirect Injection’)
- *Engine volume* (< 1500 cm<sup>3</sup>; ≥ 1500 cm<sup>3</sup>)

For example: “*Medium\_ICE / Mild NOVC-HEV\_Diesel\_Turbocharged (single)\_Direct Injection\_Greater than or equal to 1500*”

This allowed the grouping of ‘similar’ vehicles (those which had the same ECG identifier), and the emissions performance of each ECG could be expressed as a risk rating (in terms of the probability that a similar vehicle would exceed pollutant limits) as follows:

$$\text{Risk Rating 1} = \frac{\text{Number of exceedances within ECG}}{\text{Number of tests performed within ECG}} \times 100\%$$

where: ‘exceedances’ in this case actually refers to any exhaust pollutant being at least 70% of the applicable type-approval limit in a Type 1 or RDE test. It was decided to define exceedances in this way, with a low exceedance threshold of 70% (i.e. not 100%), due to rates of vehicle compliance actually being very high in-market tests collected. It was found that if an exceedance was defined as exceeding the type-approval limit, this method would almost allocate no risk to any ECGs. Lowering the exceedance threshold still allows the worst case vehicles to be identified, even if those vehicles are still found to comply.

ECGs identifiers were then assigned to each ISC family for the manufacturer, with the corresponding Risk Rating 1 for that ECG.

#### Risk Rating 2 – Based on manufacturer/vehicle-specific data

This part of the risk rating draws upon the information available from the manufacturer during the initial information gathering step, as well as type-approval test data each ISC family. The rating is built of six parameters, which can each effectively be treated as a form of probability marker, a component of risk for each ISC family:

1. *Rate of emissions-related warranty claims or repairs (%)*  
The number of warranty claims or repairs divided by the number of sales in 2021.
2. *Sales compared to average ISC family registrations in EU (%)*  
This is analogous to the exposure of the ISC family to the market; high sales is a greater risk if emissions-related issue is present on affected vehicles. This was calculated by taking the 2021 sales volume of an ISC family, and dividing it by the 'expected' number of registrations for the ISC family.
3. *In-market test history failure rate (%)*  
Of the vehicle tests that were gathered for the purpose of generating Risk Rating 1, the failure rate of any vehicles that coincidentally happened to be from one of the ISC families was factored in (i.e. number of exceedances divided by the number of tests). In most cases, a vehicle from a particular ISC family had not been tested and where that was the case, this parameter was excluded from the Risk Rating 2 calculation.
4. *Type-approval Type 1 performance (%)*  
For each ISC family, the type-approval Type 1 test results for all IP families contained within it were collected. Any final pollutant result that was at least 70% of the limit (for VH, VL or VM) was deemed an 'exceedance' (see Risk Rating 1 for explanation). The total number of exceedances within an ISC family were counted and then divided by the number of IP families in the ISC family.
5. *Relative type-approval RDE performance (%)*  
For each ISC family, the ratio of the final pollutant result / NTE limit for all RDE tests performed at type-approval were collected and averaged across each pollutant (CO, NOx and PN). To quantify the relative RDE performance of an ISC family, the results were normalised to reveal families that were closer to exceeding the NTE limits. This method was used as vehicles generally were found to be well below the NTE limits at type-approval, and understanding families' *relative* performance gave more insight as to the families who were more likely to emit higher levels of pollutants.
6. *ISC family complexity (%)*  
Calculated by taking the number of IP families in an ISC family and dividing by the total number of IP families across all ISC families. This metric is thought to provide an indication of ISC family complexity, since a greater number of IP families generally corresponds to a greater number of vehicle configurations being available. More configurations arguably adds complexity for a manufacturer in terms of ensuring robust powertrain design and calibration to support compliant emissions performance across a broad range of configurations, where characteristics such as rated engine power, vehicle mass, exhaust system layouts (and more) could differ considerably within the definition of an ISC (PEMS) family.

These six parameters were then averaged for each ISC family to generate Risk Rating 2 value (%).  
Combined Risk Rating

A Combined Risk Rating is then calculated for each ISC family, by summing Risk Rating 1 and Risk Rating 2.

The two ISC families with the highest Combined Risk Rating were then selected to be tested for ISC (Type 1 and 1A). A check was performed to ensure that two ISC families were sufficient to meet the annual minimum test frequency requirements (to test a minimum of 5% or at least two ISC families per year), which showed that two families were sufficient for this manufacturer.

## 6. ISC testing (including selection of ISC families and final results)

Table 30. GTAA ISC-2022 testing programme, for detailed test result, see section and annex for each manufacturer.

Sec.	Manufacturer <i>Test Comment</i>	ISC-Family	Planned Vehicles	Tested Vehicles	Result
6.1	Ford-Werke GmbH	5-WF0-D40	3	3	PASS
		5-WF0-D41	3	3	PASS
6.2	Hyundai Assan Otomotiv Sanayi Tic A.S	5-HAO-1	3	3	PASS
		5-HAO-18	3	3	PASS
6.3	Hyundai Motor Manufacturing Czech s.r.o.	5-HMM-19	3	3	PASS
		5-HMM-2	3	3	PASS
6.4	Jaguar Land Rover Limited <sup>2</sup>	5-SAJ-026	3	3	PASS
		-	-	-	-
6.5	Kia Corporation	5-KMC-13	3	3	PASS
		5-KMC-15	3	3	PASS
6.6	Kia Slovakia s.r.o.	5-KMC-2	3	3	PASS
		5-KMC-4	3	3	PASS
6.7	Volvo Cars Corporation	5-YV1-022	3	3	PASS
		5-YV1-027	3	3	PASS
6.8	Ford Motor Company of Australia Pty Ltd	5-6FP-D32	3	4 <sup>3</sup>	PASS
		5-6FP-D32	3	4 <sup>3</sup>	PASS
6.9	BMW AG <sup>2</sup>	5-WBA-DH13	3	3	PASS
		-	-	-	-
6.10	SAIC Motor Corporation Limited <sup>2</sup> <i>The three tested vehicles have all too low mileage, due to vehicle availability</i>	5-LSJ-1	3	3	PASS
		-	-	-	-

<sup>2</sup> Only one ISC family qualified for ISC testing, sales for year 2021>5000.

<sup>3</sup> Vehicle show OBD fault code in the test series, see chapter G in this report.



## 6.1 Ford-Werke GmbH

Table 31. Ford-Werke GmbH ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 (5-WF0-D40)				ISC family 2 (5-WF0-D41)			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-V408_2020_00011-WF0-1		Type 1: 2022-06-03 RDE: 2022-06-04	IP-C519_2020_00012_WF0-1		Type 1: 2022-05-10 RDE: 2022-05-11		
	Vehicle 2	IP-V408_2020_00003-WF0-1		Type 1: 2022-08-30 RDE: 2022-08-31	IP-C519_2020_00012_WF0-1		Type 1: 2022-09-13 RDE: 2022-09-14		
	Vehicle 3	IP-V408_2020_00003-WF0-1		Type 1: 2022-12-14 RDE: 2022-12-14	IP-C519_2020_00012_WF0-1		Type 1: 2022-10-26 RDE: 2022-10-28		

Table 32. Statistical Folder Status and Test Results ISC family 1 (5-WF0-D40)

		ISC family 1 (5-WF0-D40), Diesel, Direct Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC													
	NMHC													
	NOX	x				x				x				PASS
	THC+NOX	x				x				x				PASS
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 33. Statistical Folder Status and Test Results ISC family 2 (5-WF0-D41)

		ISC family 2 (5-WF0-D41), Diesel, Direct Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC													
	NMHC													
	NOX	x				x				x				PASS
	THC+NOX	x				x				x				PASS
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex I – Ford-Werke GmbH for detailed results.

## 6.2 Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S.

Table 34. Hyundai Assan Otomotiv San ve Tic A.S ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 (5-HAO-1)				ISC family 2 (5-HAO-18)			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-050669-NLH-1	Type 1:	2022-05-17	IP-050538-NLH-1	Type 1:	2022-08-19		
			RDE:			2022-08-23			
	Vehicle 2	IP-050669-NLH-1	Type 1:	2022-09-22	IP-050536-NLH-1		Type 1:	2022-12-01	
			RDE:			2022-12-02			
	Vehicle 3	IP-050669-NLH-1	Type 1:	2022-10-21	IP-050536-NLH-1		Type 1:	2022-11-25	
			RDE:			2022-11-25			

Table 35. Statistical Folder Status and Test Results ISC family 1 (5-HAO-1).

		ISC family 1 (5-HAO-1), Petrol, Indirect Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM													
	PN													
RDE	NOX	x				x				x				PASS
	PN													

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 36. Statistical Folder Status and Test Results ISC family 2 (5-HAO-18)

		ISC family 2 (5-HAO-18), Petrol, Indirect Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM													
	PN													
RDE	NOX	x				x				x				PASS
	PN													

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex II – Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S. for detailed results.

### 6.3 Hyundai Motor Manufacturing Czech s.r.o

Tabell 37. Hyundai Motor Manufacturing Czech s.r.o ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 (5-HMM-19)				ISC family 2 (5-HMM-2)			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-050625-TMA-1		Type 1: 2022-06-10 RDE: 2022-06-09	IP-0500706-TMA-1		Type 1: 2022-05-24 RDE: 2022-05-25		
	Vehicle 2	IP-050625-TMA-1		Type 1: 2022-06-23 RDE: 2022-06-24	IP-0500707-TMA-1		Type 1: 2022-10-05 RDE: 2022-10-06		
	Vehicle 3	IP-050625-TMA-1		Type 1: 2022-07-12 RDE: 2022-07-13	IP-0500707-TMA-1		Type 1: 2022-10-07 RDE: 2022-11-10		

Table 38. Statistical Folder Status and Test Results ISC family 1 (5-HMM-19).

		ISC family 1 (5-HMM-19), Petrol, Direct Injection, NOVC												
		Vehicle 1				Vehicle 2				Vehicle 3				SAMPLE DECISION
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 39. Statistical Folder Status and Test Results ISC family 2 (5-HMM-2)

		ISC family 2 (5-HMM-2), Petrol, Direct Injection, NOVC												
		Vehicle 1				Vehicle 2				Vehicle 3				SAMPLE DECISION
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex III – Hyundai Motor Manufacturing Czech s.r.o for detailed results.

## 6.4 Jaguar Land Rover Limited

Table 40. Jaguar Land Rover Limited ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 (5-SAJ-026)		ISC family 2	
No. of vehicles tested (Type 1 and RDE)		3		0	
IP families tested	Vehicle 1	IP-21a20d120MAA_01-SAD-1	Type 1: 2022-04-27 RDE: 2022-04-28		Type 1: RDE:
	Vehicle 2	IP- 21a20d120MAA_01-SAD-1	Type 1: 2022-09-23 RDE: 2022-09-27		Type 1: RDE:
	Vehicle 3	IP- 21a20d150MAA_01-SAD-1	Type 1: 2022-10-13 RDE: 2022-10-18		Type 1: RDE:

Table 41. Statistical Folder Status and Test Results ISC family 1 (5-SAJ-026)

		ISC family 1 (5-SAJ-026), Diesel, Direct Injection, NOVC												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC													
	NMHC													
	NOX	x				x				x				PASS
	THC+NOX	x				x				x				PASS
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 42. Statistical Folder Status and Test Results ISC family 2

		ISC family 2, only one ISC family qualified for testing												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO													
	THC													
	NMHC													
	NOX													
	THC+NOX													
	PM													
	PN													
RDE	NOX													
	PN													

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex IV – Jaguar Land Rover Limited for detailed results.

## 6.5 Kia Corporation

Table 43. Kia Corporation ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 (5-KMC-13)				ISC family 2 (5-KMC-15)			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-050603-KNA-1	Type 1: 2025-05-19		IP-050048-KNA-01	Type 1: 2022-09-14			
			RDE: 2022-05-20			RDE: 2022-06-15			
	Vehicle 2	IP-050595-KAN-1	Type 1: 2022-08-09		IP-050051-KNA-01	Type 1: 2022-12-02			
			RDE: 2022-08-12			RDE: 2022-12-05			
	Vehicle 3	IP-050595-KNA-1	Type 1: 2022-09-15		IP-050045-KNA-01	Type 1: 2022-12-15			
			RDE: 2022-09-16			RDE: 2022-12-20			

Table 44. Statistical Folder Status and Test Results ISC family 1 (5-KMC-13)

		ISC family 1 (5-KMC-13), Petrol, Direct Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 45. Statistical Folder Status and Test Results ISC family 2 (5-KMC-15)

		ISC family 2 (5-KMC-15), Petrol, Indirect Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM													
	PN													
RDE	NOX	x				x				x				PASS
	PN													

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex V – Kia Motor Corporation for detailed results.

**6.6 Kia Slovakia s.r.o**

Table 46. Kia Slovakia s.r.o. ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 (5-KMC-2)				ISC family 2 (5-KMC-4)			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-0500726-U5Y-1		Type 1: 2022-06-09 RDE: 2022-06-10	IP-0500716-U5Y-1		Type 1: 2022-08-05 RDE: 2022-08-08		
	Vehicle 2	IP-0500728-U5Y-1		Type 1: 2022-06-28 RDE: 2022-06-29	IP-0500716-U5Y-1		Type 1: 2022-08-30 RDE: 2022-08-26		
	Vehicle 3	IP-0500728-U5Y-1		Type 1: 2023-01-10 RDE: 2023-01-11	IP-0500714-U5Y-1		Type 1: 2023-01-31 RDE: 2023-02-01		

Table 47. Statistical Folder Status and Test Results ISC family 1 (5-KMC-2)

		ISC family 1 (5-KMC-2), Petrol, Direct Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 48. Statistical Folder Status and Test Results ISC family 2 (5-KMC-4)

		ISC family 2 (5-KMC-4), Diesel, Direct Injection, ICE												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC													
	NMHC													
	NOX	x				x				x				PASS
	THC+NOX	x				x				x				PASS
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex VI – Kia Motors Slovakia s.r.o for detailed results.

## 6.7 Volvo Cars Corporation

Table 49. Volvo Cars Corporation ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 5-YV1-022				ISC family 2 5-YV1-027			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-2019_536BBF-YV1-1		Type 1: 2022-06-14 RDE: 2022-06-17	IP-2020_235K5D-YV1-1		Type 1: 2022-08-24 RDE: 2022-08-25		
	Vehicle 2	IP-2019_536BBF-YV1-1		Type 1: 2022-06-15 RDE: 2022-06-16	IP-2020_225K5D-YV1-1		Type 1: 2022-08-25 RDE: 2022-08-24		
	Vehicle 3	IP-2019_536BBF-YV1-1		Type 1: 2022-06-15 RDE: 2022-06-21	IP-2020_225K5D-YV1-1		Type 1: 2022-11-15 RDE: 2022-11-16		

Table 50. Statistical Folder Status and Test Results ISC family 1 (5-YV1-022)

		ISC family 1 (5-YV1-022), Petrol, Direct Injection, OVC												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 51. Statistical Folder Status and Test Results ISC family 2 (5-YV1-027)

		ISC family 2 (5-YV1-027), Diesel, Direct Injection, NOVC												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC													
	NMHC													
	NOX	x				x				x				PASS
	THC+NOX													PASS
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex VII – Volvo Cars Corporation for detailed results.

## 6.8 Ford Motor Company of Australia Pty Ltd

For information regarding the two performed invalid tests, see section G in this report.

Table 52. Ford Motor Company of Australia Pty Ltd ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 5-6FP-D32				ISC family 2 5-6FP-D33			
No. of vehicles tested (Type 1 and RDE)		3				3			
IP families tested	Vehicle 1	IP-P375_2019_00005-6FP-1		Type 1: 2022-07-26 RDE: 2022-07-28	IP-P375_2019_00008-6FP-1		Type 1: 2022-06-15 RDE: 2022-06-16		
	Vehicle 2	IP-P375_2019_00005-6FP-1		Type 1: 2022-09-02 RDE: 2022-09-06	IP-P375_2019_00008-6FP-1		Type 1: 2022-07-06 RDE: 2022-07-07		
	Vehicle 3	IP-P375_2019_00005-6FP-1		Type 1: 2020-09-06 RDE: 2022-09-08	IP-P375_2019_00008-6FP-1		Type 1: 2022-07-19 RDE: 2022-07-21		

Table 53. Statistical Folder Status and Test Results ISC family 1 (5-6FP-D32)

		ISC family 1 (5-6FP-D32), Diesel, Direct Injection, ICE												SAMPLE DECISION	
		Vehicle 1				Vehicle 2				Vehicle 3					
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.		
Type 1	CO	x				x				x				PASS	
	THC														
	NMHC														
	NOX	x				x				x					PASS
	THC+NOX	x				x				x					PASS
	PM	x				x				x					PASS
	PN	x				x				x					PASS
RDE	NOX	x				x				x				PASS	
	PN	x				x				x				PASS	

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 54. Statistical Folder Status and Test Results ISC family 2 (5-6FP-D33)

		ISC family 2 (5-6FP-D33), Diesel, Direct Injection, ICE												SAMPLE DECISION	
		Vehicle 1				Vehicle 2				Vehicle 3					
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.		
Type 1	CO	x				x				x				PASS	
	THC														
	NMHC														
	NOX	x				x				x					PASS
	THC+NOX	x				x				x					PASS
	PM	x				x				x					PASS
	PN	x				x				x					PASS
RDE	NOX	x				x				x				PASS	
	PN	x				x				x				PASS	

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex VIII – Ford Motor Company of Australia Pty Ltd for detailed results.



## 6.9 BMW AG

Table 55. BMW AG ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 5-WBA-DH13				ISC family 2			
No. of vehicles tested (Type 1 and RDE)		3				0			
IP families tested	Vehicle 1	IP-0000681-WBA-1	Type 1: 2022-07-08			Type 1:			
			RDE: 2022-07-08			RDE:			
	Vehicle 2	IP-0000680-WBA-1	Type 1: 2022-10-05			Type 1:			
			RDE: 2022-10-06			RDE:			
	Vehicle 3	IP-0000680-WBA-1	Type 1: 2022-12-06			Type 1:			
			RDE: 2022-12-07			RDE:			

Table 56. Statistical Folder Status and Test Results ISC family 1 (5-WBA-DH13)

		ISC family 1 (5-WBA-DH13), Diesel, Direct Injection, NOVC												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC													
	NMHC													
	NOX	x				x				x				PASS
	THC+NOX	x				x				x				PASS
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 57. Statistical Folder Status and Test Results ISC family 2

		ISC family 2 , only one ISC family qualified for testing												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO													
	THC													
	NMHC													
	NOX													
	THC+NOX													
	PM													
	PN													
RDE	NOX													
	PN													

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex IX – BMW AG for detailed results.

## 6.10 SAIC Motor Corporation Limited

Table 58. SAIC Motor Corporation Limited ISC-families from risk assessment and IP families on tested vehicles.

		ISC family 1 5-LSJ-1			ISC family 2		
No. of vehicles tested (Type 1 and RDE)		3			0		
IP families tested	Vehicle 1	IP-AS23P_2020_01-LSJ-1	Type I: 2022-10-19		Type I:		
			RDE: 2022-10-25		RDE:		
	Vehicle 2	IP-AS23P_2020_01-LSJ-1	Type I: 2022-11-04		Type I:		
			RDE: 2022-11-10		RDE:		
	Vehicle 3	IP-AS23P_2020_01-LSJ-1	Type I: 2022-11-15		Type I:		
			RDE: 2022-11-16		RDE:		

Table 59. Statistical Folder Status and Test Results ISC family 1 (5-LSJ-1)

		ISC family 1 (5-LSJ-1), Petrol, Direct Injection, OVC												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO	x				x				x				PASS
	THC	x				x				x				PASS
	NMHC	x				x				x				PASS
	NOX	x				x				x				PASS
	THC+NOX													
	PM	x				x				x				PASS
	PN	x				x				x				PASS
RDE	NOX	x				x				x				PASS
	PN	x				x				x				PASS

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Table 60. Statistical Folder Status and Test Results ISC family 2

		ISC family 2, only one family qualified for testing												SAMPLE DECISION
		Vehicle 1				Vehicle 2				Vehicle 3				
		p	f	i.o.	e.o.	p	f	i.o.	e.o.	p	f	i.o.	e.o.	
Type 1	CO													
	THC													
	NMHC													
	NOX													
	THC+NOX													
	PM													
	PN													
RDE	NOX													
	PN													

p=pass; f=fail; i.o.=intermediate outlier; e.o.=extreme outlier

Please refer to Annex X – SAIC Motor Corporation Limited for detailed results.

**7. Detailed investigations**

Not applicable.

**8. Remedial measures**

Not applicable.

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

Not applicable.

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

Not applicable.

**G. Report of other invalid tests****Invalid test performed on Ford Motor Company of Australia Pty Ltd**

In the ISC-2022 programme there were two invalid tests. Both tests were from Ford Motor Company of Australia Pty Ltd, one in each tested ISC-family. These two vehicles are invalid for testing and two new vehicles were required to be included in the ISC-2022 programme.

1. ISC-family 5-6FP-D32: Vehicle 1, during the PEMS validation test an OBD fault code appear - P2002 Particulate Filter Efficiency Below Threshold Bank.
2. ISC-family 5-6FP-D33: Vehicle 1, during the Type 1 test an OBD fault code appear - P20EE SCR NOx Catalyst Efficiency Below Threshold Bank 1 Catalyst 1.

**ANNEXES:****Annex I:** Ford-Werke GmbH, Final\_rev00 Report ISC-2022**Annex II:** Hyundai Assan Otomotiv Sanayi Ve Ticaret A.S, Final\_rev00 Report ISC-2022**Annex III:** Hyundai Motor Manufacturing Czech s.r.o, Final\_rev00 Report ISC-2022**Annex IV:** Jaguar Land Rover Limited, Final\_rev00 Report ISC-2022**Annex V:** Kia Corporation, Final\_rev00 Report ISC-2022**Annex VI:** Kia Slovakia s.r.o, Final\_rev00 Report ISC-2022**Annex VII:** Volvo Cars Corporation, Final\_rev00 Report ISC-2022**Annex VIII:** Ford Motor Company of Australia Pty Ltd, Final\_rev00 Report ISC-2022**Annex IX:** BMW AG, Final\_rev00 Report ISC-2022**Annex X:** SAIC Motor Corporation Limited, Final\_rev00 Report ISC-2022**Annex XI:** 3rd party ISC testing, Final\_rev00 Report ISC-2022

**Annex I – Ford-Werke GmbH, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Ford-Werke GmbH  
Report status: Final\_rev00  
Report number: ISC-2022-01  
Issue date: 2023-03-23



## Annex I – Ford-Werke GmbH, Final\_rev00 Report ISC-2022

### Test overview for Ford-Werke GmbH

ISC Family	Manufacturer (Section B) 2020→2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
5-WF0-D13	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-WF0-P7	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
5-WF0-D25 11-WF0-D6	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-WF0-D10	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2020</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
5-WF0-P28 11-WF0-P9	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2020</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-WF0-P16	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021/2022</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-WF0-D8	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2020</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
5-WF0-D14	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		

## Annex I – Ford-Werke GmbH, Final\_rev00 Report ISC-2022

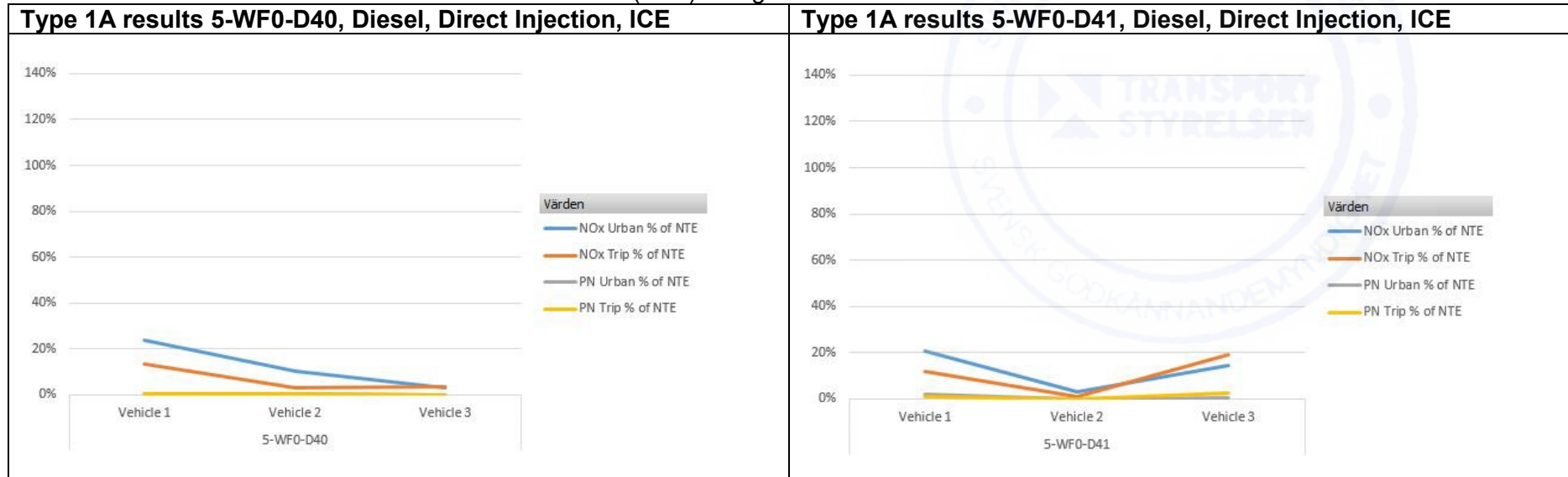
11-WF0-P8	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2020</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-WF0-P20 11-WF0-P22	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2020</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-WF0-D16	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
5-WF0-P27	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021/2022</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		<ul style="list-style-type: none"> <li>• 1 vehicle tested, Type 1A</li> <li>• Tested by Emisia in Greece</li> <li>• Meets applicable regulations</li> <li>• STA ref: TSV 2022-485</li> </ul>
5-WF0-P34	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021/2022</li> <li>• Statistical folder 1. <b>PASS-2022</b></li> </ul>		
5-WF0-D41	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021/2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>• 3 vehicle tested, Type 1+1A</li> <li>• Tested by Dekra in Germany</li> <li>• Statistical folder <b>PASS</b></li> </ul>	
5-WF0-D42	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021/2022</li> <li>• Statistical folder 1. <b>PASS-2022</b></li> </ul>		
5-WF0-D40	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021/2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>• 3 vehicle tested, Type 1+1A</li> <li>• Tested by Dekra in Germany</li> <li>• Statistical folder <b>PASS</b></li> </ul>	
5-WF0-D36	<ul style="list-style-type: none"> <li>• Qualified for ISC-2021</li> <li>• Statistical folder 1. UND-2022</li> </ul>		
5-WF0-D38	<ul style="list-style-type: none"> <li>• Qualified for ISC-2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		

# Annex I – Ford-Werke GmbH, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D), Ki included

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-WF0-D40	Vehicle 1	e5*715/2007*2018/1832AP*01836*00	N/A	114,4	9,0E+11	84,1	15,1	13%	2,8E+09	0%	99,7	27,1	24%	4,1E+09	0%
5-WF0-D40	Vehicle 2	e5*715/2007*2018/1832AP*01835*00	N/A	114,4	9,0E+11	52,5	3,4	3%	2,6E+09	0%	90,0	11,9	10%	3,9E+09	0%
5-WF0-D40	Vehicle 3	e5*715/2007*2018/1832AP*01835*01	N/A	114,4	9,0E+11	22,3	3,9	3%	1,1E+09	0%	22,3	3,7	3%	1,5E+09	0%
5-WF0-D41	Vehicle 1	e5*715/2007*2018/1832AP*1730*00	N/A	114,4	9,0E+11	53,6	13,7	12%	8,1E+09	1%	82,3	23,9	21%	1,9E+10	2%
5-WF0-D41	Vehicle 2	e5*715/2007*2018/1832AP*1730*00	N/A	114,4	9,0E+11	80,9	1,4	1%	1,1E+09	0%	103,3	3,7	3%	1,8E+09	0%
5-WF0-D41	Vehicle 3	e5*715/2007*2018/1832AP*1730*00	N/A	114,4	9,0E+11	74,6	22,0	19%	2,4E+10	3%	37,5	16,4	14%	3,1E+09	0%

Maximum Declared RDE values for NOx and PN in COC (48.2) = Legislation limit



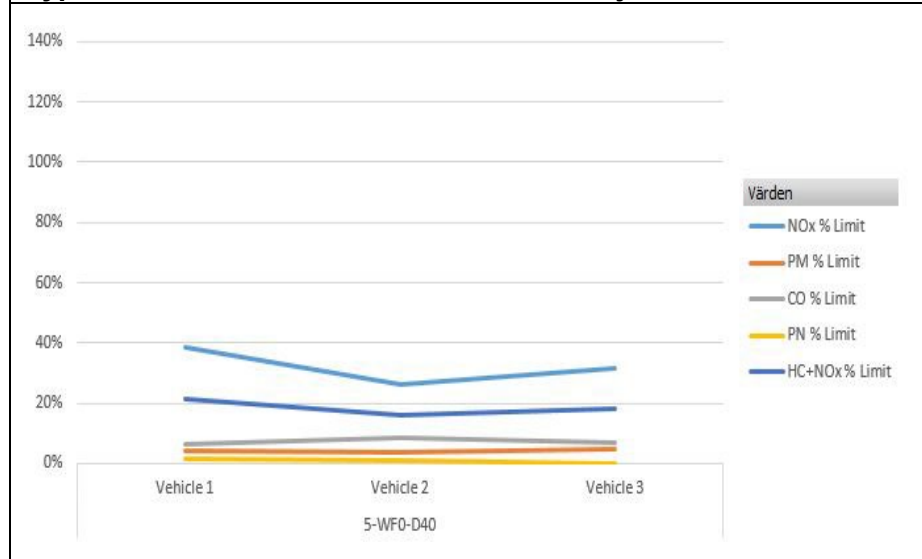


# Annex I – Ford-Werke GmbH, Final\_rev00 Report ISC-2022

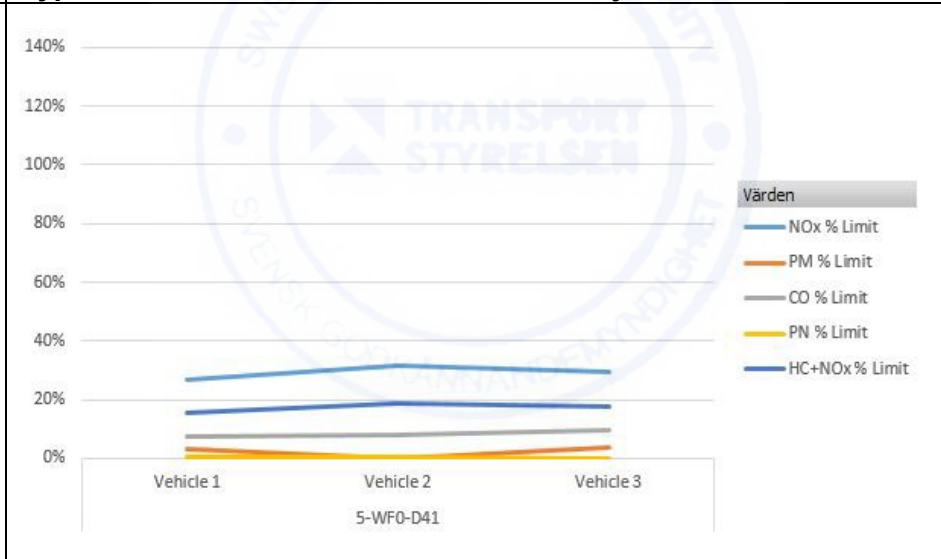
## Detailed Type 1 (WLTP) data from STA test (D), Ki included

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	THC+NOx (mg/km)	Limit THC+NOx (mg/km)	THC+NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-WF0-D40	Vehicle 1	e5*715/2007*2018/1832AP*01836*00	33,0	500	7%	31,1	80	39%	36,7	170	22%	0,2	4,5	4%	8,8E+09	6E+11	1%
5-WF0-D40	Vehicle 2	e5*715/2007*2018/1832AP*01835*00	43,8	500	9%	21,1	80	26%	26,9	170	16%	0,2	4,5	4%	6,6E+09	6E+11	1%
5-WF0-D40	Vehicle 3	e5*715/2007*2018/1832AP*01835*01	35,2	500	7%	25,4	80	32%	31,1	170	18%	0,2	4,5	5%	8,3E+08	6E+11	0%
5-WF0-D41	Vehicle 1	e5*715/2007*2018/1832AP*1730*00	37,1	500	7%	21,4	80	27%	26,5	170	16%	0,1	4,5	3%	2,7E+09	6E+11	0%
5-WF0-D41	Vehicle 2	e5*715/2007*2018/1832AP*1730*00	39,3	500	8%	25,5	80	32%	32,2	170	19%	0,0	4,5	0%	1,8E+09	6E+11	0%
5-WF0-D41	Vehicle 3	e5*715/2007*2018/1832AP*1730*00	47,9	500	10%	23,5	80	29%	29,7	170	17%	0,2	4,5	4%	3,7E+08	6E+11	0%

Type 1 results 5-WF0-D40, Diesel, Direct Injection, ICE



Type 1 results 5-WF0-D41, Diesel, Direct Injection, ICE



**Annex I – Ford-Werke GmbH, Final\_rev00 Report ISC-2022**

**Additive Ki**

ISC-family	CO (mg/km)	THC (mg/km)	NMHC (mg/km)	NOx (mg/km)	THC+NOx (mg/km)	PM (mg/km)	PN (mg/km)
5-WF0-D40	22,3498	2,9234		0,0927		0,0061	
5-WF0-D41	22,3498	2,9234		0,0927		0,0061	



## Annex II – Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş, Final\_rev00 Report ISC-2022

ISC year: 2022  
Manufacturer: Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş.  
Report Status: Final\_rev00  
Report Number: ISC-2022-02  
Issue date: 2023-03-23



## Annex II – Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş, Final\_rev00 Report ISC-2022

### Test overview for Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş.

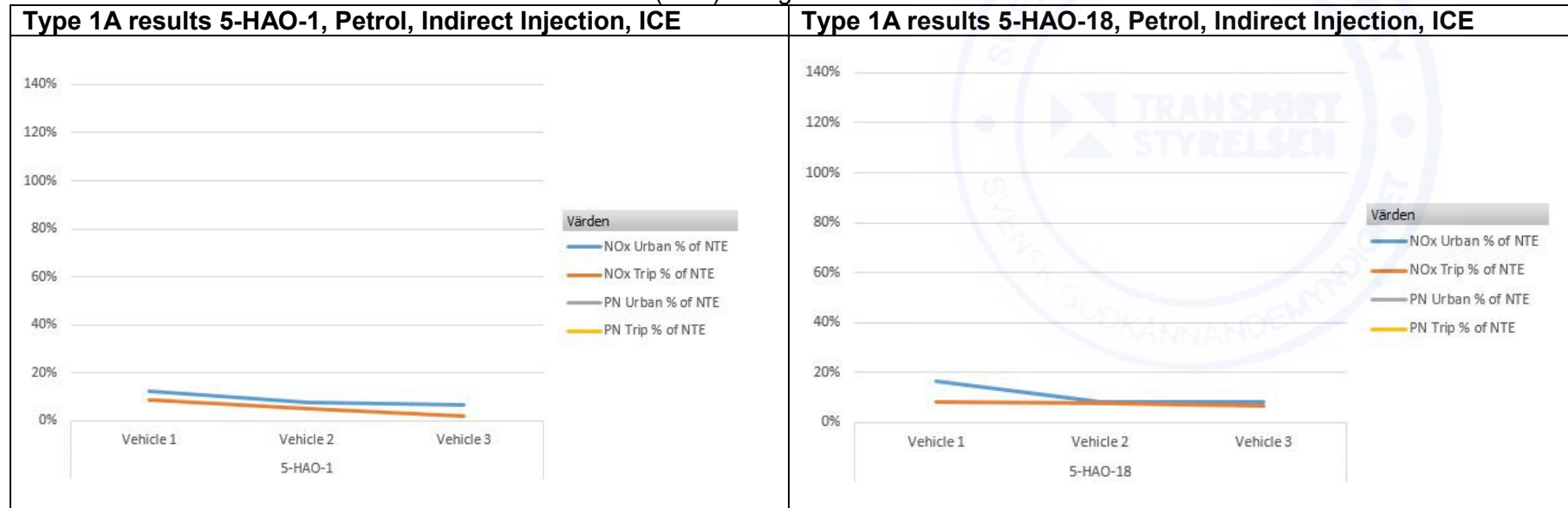
ISC Family	Manufacturer (Section B) 2020→2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
11-HAO-1	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicles tested, Type 1+1A</li> <li>Tested at Dekra in Germany</li> <li>Statistical Folder <b>PASS</b></li> </ul>	
11-HAO-2	<ul style="list-style-type: none"> <li>Qualified for ISC-2020</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
11-HAO-3	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
11-HAO-4	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
5-HAO-1	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-HAO-2	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-HAO-3	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-HAO-4	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-HAO-17	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. <b>PASS-2022</b></li> <li>RDE test on 1 vehicle - OK</li> </ul>		
5-HAO-18	<ul style="list-style-type: none"> <li>Qualified for ISC-2021</li> <li>Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicles tested, Type 1+1A</li> <li>Tested at Dekra in Germany</li> <li>Statistical Folder <b>PASS</b></li> </ul>	

## Annex II – Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş, Final\_rev00 Report ISC-2022

### Detailed Type 1A (RDE) data from STA test (D)

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-HAO-1	Vehicle 1	e5*715/2007*2018/1832AP*0669*01_Rev01	N/A	85,8		109,4	7,6	9%			147,0	10,5	12%		
5-HAO-1	Vehicle 2	e5*715/2007*2018/1832AP*0669*00	N/A	85,8		121,3	4,2	5%			222,3	6,6	8%		
5-HAO-1	Vehicle 3	e5*715/2007*2018/1832AP*0669*00	N/A	85,8		25,8	1,9	2%			42,3	5,9	7%		
5-HAO-18	Vehicle 1	e5*715/2007*2018/1832AP*0538*02	N/A	85,8		90,6	7,1	8%			94,3	14,0	16%		
5-HAO-18	Vehicle 2	e5*715/2007*2018/1832AM*0536*00	N/A	85,8		225,0	6,7	8%			287,9	7,0	8%		
5-HAO-18	Vehicle 3	e5*715/2007*2018/1832AM*0536*00	N/A	85,8		58,7	5,6	7%			46,2	7,3	9%		

Maximum Declared RDE values for NOx and PN in COC (48.2) = Legislation limit

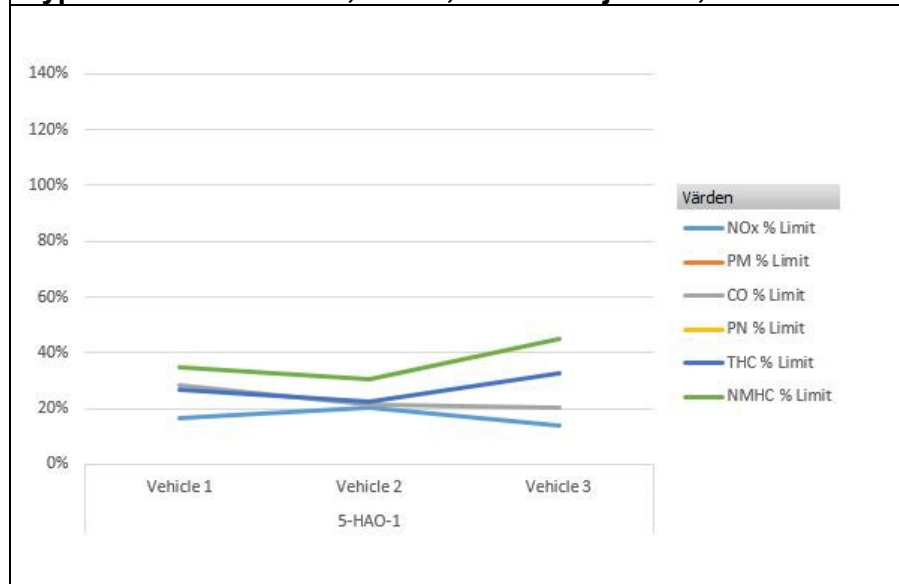


## Annex II – Hyundai Assan Otomotiv Sanayi Ve Ticaret A.Ş, Final\_rev00 Report ISC-2022

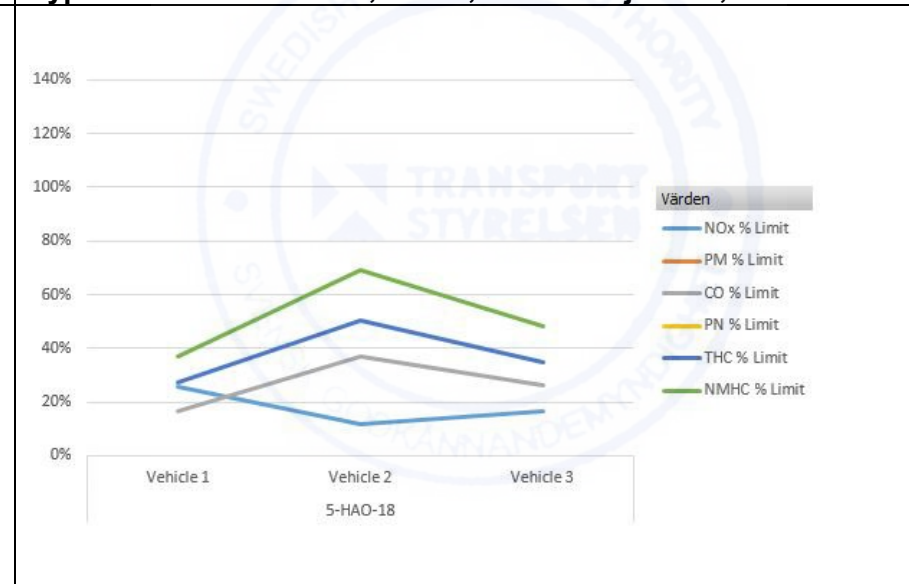
### Detailed Type 1 (WLTP) data from STA test (D)

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	THC (mg/km)	Limit THC (mg/km)	THC % of Limit	NMHC (mg/km)	Limit NMHC (mg/km)	NMHC % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-HAO-1	Vehicle 1	e5*715/2007*2018/1832AP*0669*01_Rev01	283,5	1000	28%	26,9	100	27%	23,8	68	35%	10,0	60	17%						
5-HAO-1	Vehicle 2	e5*715/2007*2018/1832AP*0669*00	211,8	1000	21%	22,3	100	22%	20,8	68	31%	12,1	60	20%						
5-HAO-1	Vehicle 3	e5*715/2007*2018/1832AP*0669*00	203,2	1000	20%	32,7	100	33%	30,6	68	45%	8,3	60	14%						
5-HAO-18	Vehicle 1	e5*715/2007*2018/1832AP*0538*02	165,1	1000	17%	27,3	100	27%	25,2	68	37%	15,4	60	26%						
5-HAO-18	Vehicle 2	e5*715/2007*2018/1832AM*0536*00	372,1	1000	37%	50,6	100	51%	47,2	68	69%	7,1	60	12%						
5-HAO-18	Vehicle 3	e5*715/2007*2018/1832AM*0536*00	260,6	1000	26%	35,0	100	35%	32,7	68	48%	9,8	60	16%						

Type 1 results 5-HAO-1, Petrol, Indirect Injection, ICE



Type 1 results 5-HAO-18, Petrol, Indirect Injection, ICE



**Annex III – Hyundai Motor Manufacturing Czech s.r.o, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Hyundai Motor Manufacturing Czech s.r.o  
Report status: Final\_rev00  
Report number: ISC-2022-03  
Issue date: 2023-03-23



## Annex III – Hyundai Motor Manufacturing Czech s.r.o, Final\_rev00 Report ISC-2022

### Test overview on Hyundai Motor Manufacturing

ISC Family	Manufacturer (Section B) 2020→2021	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
11-HMM-4	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. <b>PASS-2022</b></li> <li>• RDE test on 1 vehicle - pass</li> </ul>		
11-HMM-5	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-HMM-6	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-HMM-8	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-HMM-10	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> <li>• RDE test on 1 vehicle - pass</li> </ul>		
11-HMM-11	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. <b>PASS-2022</b></li> <li>• RDE test on 1 vehicle - pass</li> </ul>		
11-HMM-12	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-HMM-14	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		
11-HMM-15	<ul style="list-style-type: none"> <li>• Qualified for ISC-2020/2021</li> <li>• Statistical folder 1. <b>PASS-2021</b></li> <li>• Statistical folder 2. UND-2022</li> </ul>		



### Annex III – Hyundai Motor Manufacturing Czech s.r.o, Final\_rev00 Report ISC-2022

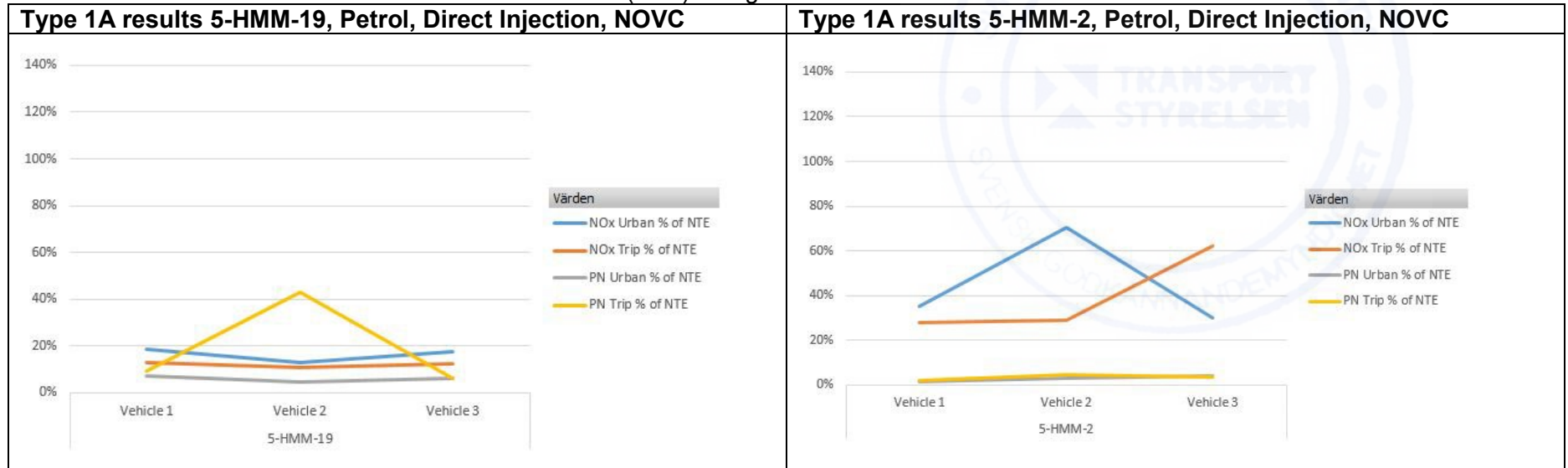
5-HMM-1	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		
5-HMM-2	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>• 3 vehicles tested, Type 1+1A</li> <li>• Tested by Dekra in Germany</li> <li>• Statistical folder <b>PASS</b></li> </ul>	
5-HMM-3	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		
5-HMM-4	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		
5-HMM-5	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. <b>PASS-2022</b></li> </ul>		
5-HMM-12	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		
5-HMM-17	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		<ul style="list-style-type: none"> <li>• 1 vehicle tested, RDE</li> <li>• Emisia in Greece</li> <li>• Meet applicable regulations</li> <li>• STA ref: TSV 2022-2203</li> </ul>
5-HMM-18	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		
5-HMM-19	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>• 3 vehicles tested, Type 1+1A</li> <li>• Tested by Dekra in Germany</li> <li>• Statistical folder <b>PASS</b></li> </ul>	<ul style="list-style-type: none"> <li>• 1 vehicle tested, RDE</li> <li>• Emisia in Greece</li> <li>• Meet applicable regulations</li> <li>• STA ref: TSV 2022-484</li> </ul>
5-HMM-20	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. UND-2022</li> </ul>		

# Annex III – Hyundai Motor Manufacturing Czech s.r.o, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D).

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-HMM-19	Vehicle 1	e5*715/2007*2018/1832AP*0625*01	N/A	85,8	9,0E+11	128,4	11,3	13%	8,3E+10	9%	171,4	16,2	19%	6,7E+10	7%
5-HMM-19	Vehicle 2	e5*715/2007*2018/1832AP*0625*01	N/A	85,8	9,0E+11	87,7	9,3	11%	3,9E+11	43%	44,9	10,9	13%	4,2E+10	5%
5-HMM-19	Vehicle 3	e5*715/2007*2018/1832AP*0625*01	N/A	85,8	9,0E+11	74,2	10,6	12%	5,7E+10	6%	117,8	15,2	18%	5,5E+10	6%
5-HMM-2	Vehicle 1	e5*715/2007*2018/1832AP*00706*04	N/A	85,8	9,0E+11	38,7	23,8	28%	1,9E+10	2%	98,2	30,1	35%	1,2E+10	1%
5-HMM-2	Vehicle 2	e5*715/2007*2018/1832AP*00707*00	N/A	85,8	9,0E+11	1,7	24,8	29%	3,9E+10	4%	0,1	60,3	70%	3,0E+10	3%
5-HMM-2	Vehicle 3	e5*715/2007*2018/1832AP*00707*00	N/A	85,8	9,0E+11	86,8	53,2	62%	3,5E+10	4%	38,7	25,7	30%	3,8E+10	4%

Maximum declared RDE values for NOx and PN in COC (48.2) = Legislation limit

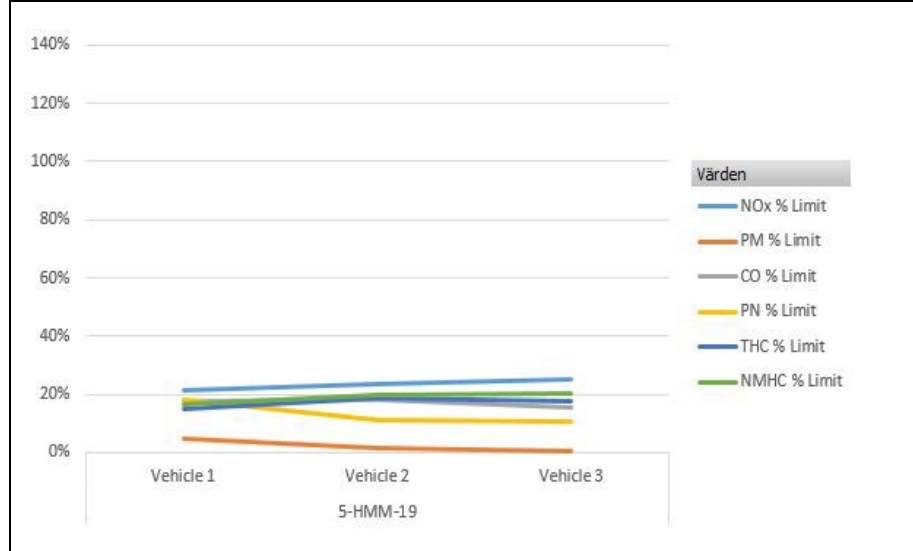


# Annex III – Hyundai Motor Manufacturing Czech s.r.o, Final\_rev00 Report ISC-2022

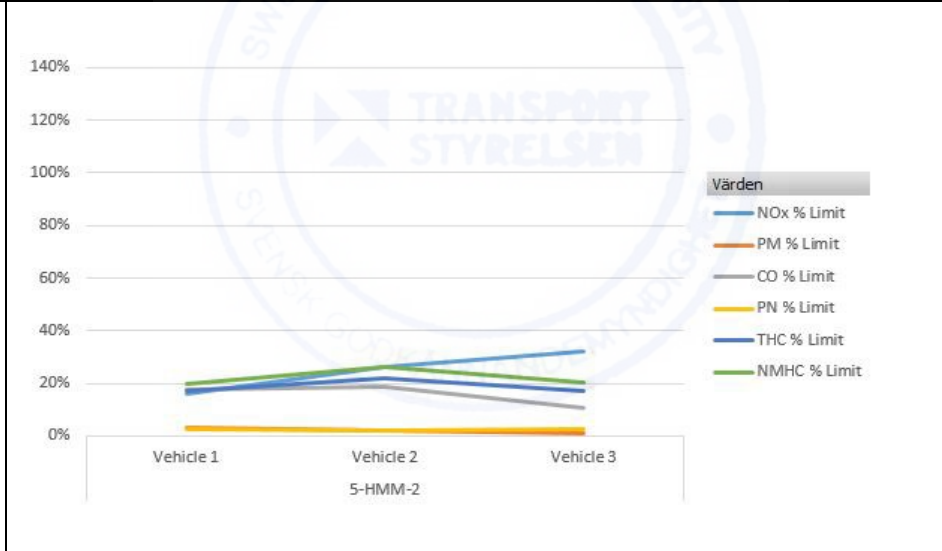
## Detailed Type 1 (WLTP) data from STA test (D).

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	THC (mg/km)	Limit THC (mg/km)	THC % of Limit	NMHC (mg/km)	Limit NMHC (mg/km)	NMHC % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-HMM-19	Vehicle 1	e5*715/2007*2018/1832AP*0625*01	177,4	1000	18%	15,2	100	15%	11,2	68	16%	13,0	60	22%	0,2	4,5	5%	1,1E+11	6E+11	18%
5-HMM-19	Vehicle 2	e5*715/2007*2018/1832AP*0625*01	180,0	1000	18%	18,9	100	19%	13,6	68	20%	14,0	60	23%	0,1	4,5	2%	6,7E+10	6E+11	11%
5-HMM-19	Vehicle 3	e5*715/2007*2018/1832AP*0625*01	155,3	1000	16%	17,7	100	18%	13,9	68	20%	15,0	60	25%	0,0	4,5	0%	6,4E+10	6E+11	11%
5-HMM-2	Vehicle 1	e5*715/2007*2018/1832AP*00706*04	174,8	1000	17%	17,1	100	17%	13,3	68	20%	9,5	60	16%	0,1	4,5	3%	1,5E+10	6E+11	2%
5-HMM-2	Vehicle 2	e5*715/2007*2018/1832AP*00707*00	188,8	1000	19%	21,7	100	22%	17,7	68	26%	15,6	60	26%	0,1	4,5	2%	1,3E+10	6E+11	2%
5-HMM-2	Vehicle 3	e5*715/2007*2018/1832AP*00707*00	107,3	1000	11%	17,4	100	17%	14,0	68	21%	19,2	60	32%	0,1	4,5	1%	1,7E+10	6E+11	3%

Type 1 results 5-HMM-19, Petrol, Direct Injection, NOVC



Type 1 results 5-HMM-2, Petrol, Direct Injection, NOVC



**Annex IV – Jaguar Land Rover Limited, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Jaguar Land Rover Limited  
Report status: Final\_rev00  
Report number: ISC-2022-04  
Issue date: 2023-03-23



## Annex IV – Jaguar Land Rover Limited, Final\_rev00 Report ISC-2022

### Test overview on Jaguar Land Rover Limited

ISC Family	Manufacturer (Section B) 2020→2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
11-SAJ-001	<ul style="list-style-type: none"> <li>Qualified for ISC-2020</li> <li>Statistical folder 1. <b>PASS-2020</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
5-SAJ-026	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicles tested, Type 1+1A</li> <li>Tested by Dekra in Germany</li> <li>Statistical folder <b>PASS</b></li> </ul>	

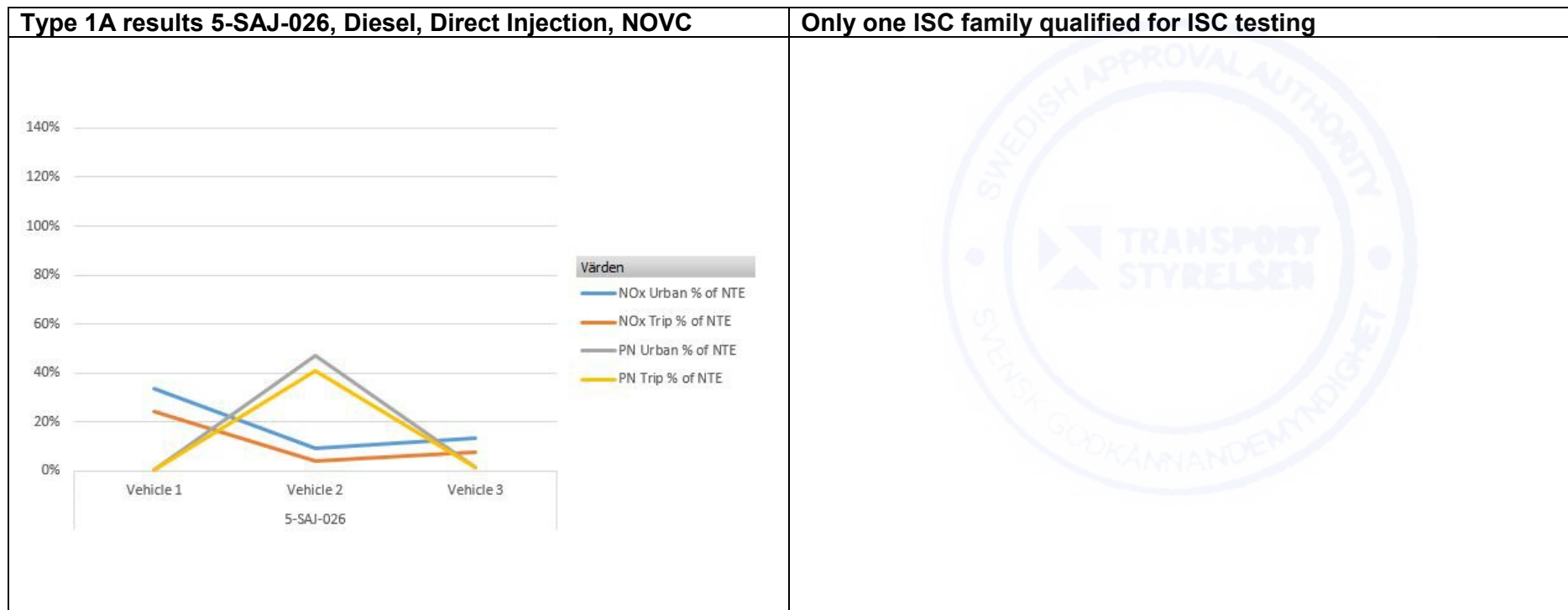


## Annex IV – Jaguar Land Rover Limited, Final\_rev00 Report ISC-2022

Detailed Type 1A (RDE) data from STA test (D), Ki included on vehicle 1 and 3. On vehicle 2 there was a regeneration during the test.

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-SAJ-026	Vehicle 1	e5*715/2007*2018/1832AP*1709*00	N/A	114,4	9,0E+11	56,4	27,8	24%	4,8E+09	1%	104,6	38,4	34%	4,4E+09	0%
5-SAJ-026	Vehicle 2	e5*715/2007*2018/1832AP*1709*00	N/A	114,4	9,0E+11	53,6	5,0	4%	3,7E+11	41%	124,2	10,7	9%	4,3E+11	47%
5-SAJ-026	Vehicle 3	e5*715/2007*2018/1832AP*1710*00	N/A	114,4	9,0E+11	49,7	8,7	8%	1,2E+10	1%	79,6	15,5	14%	1,4E+10	2%

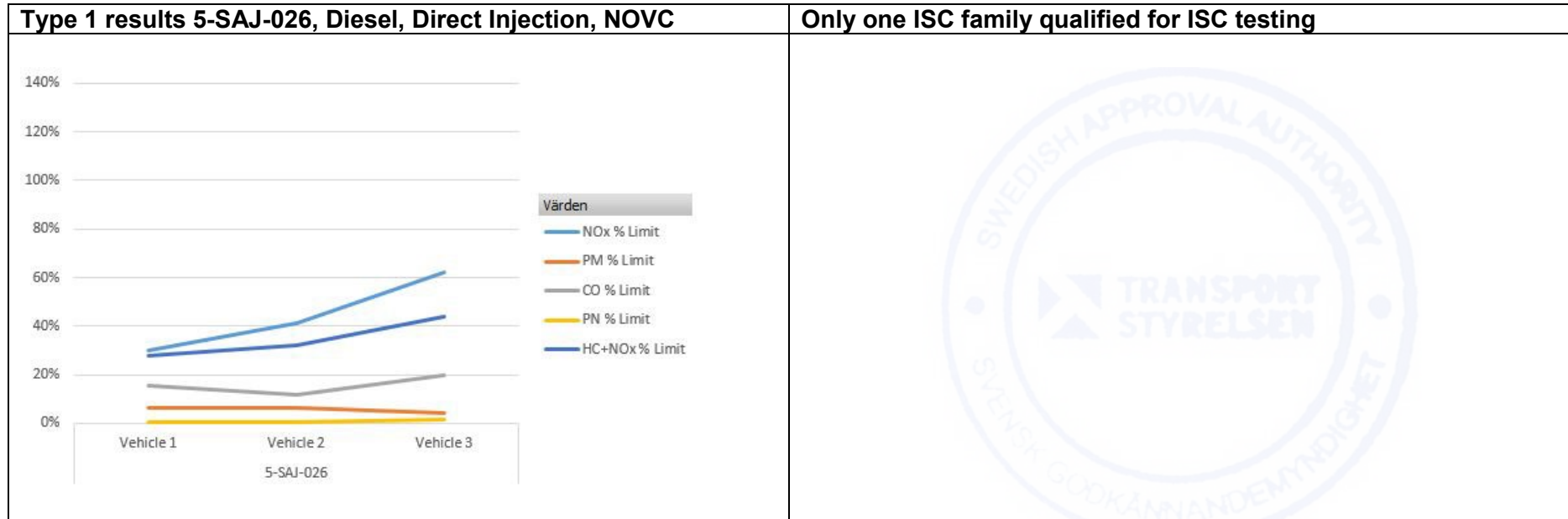
Maximum declared RDE values in COC (48.2) = Legislation limit



# Annex IV – Jaguar Land Rover Limited, Final\_rev00 Report ISC-2022

## Detailed Type 1 (WLTP) data from STA test (D), Ki included.

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	THC+NOx (mg/km)	Limit THC+NOx (mg/km)	THC+NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-SAJ-026	Vehicle 1	e5*715/2007*2018/1832AP*1709*00	76,5	500	15%	24,2	80	30%	47,3	170	28%	0,3	4,5	6%	2,0E+09	6E+11	0%
5-SAJ-026	Vehicle 2	e5*715/2007*2018/1832AP*1709*00	58,9	500	12%	32,9	80	41%	55,1	170	32%	0,3	4,5	6%	2,1E+09	6E+11	0%
5-SAJ-026	Vehicle 3	e5*715/2007*2018/1832AP*1710*00	99,5	500	20%	49,8	80	62%	75,0	170	44%	0,2	4,5	4%	9,7E+09	6E+11	2%



**Annex IV – Jaguar Land Rover Limited, Final\_rev00 Report ISC-2022**

**Additive Ki**

ISC-family	CO (mg/km)	THC (mg/km)	NMHC (mg/km)	NOx (mg/km)	THC+NOx (mg/km)	PM (mg/km)	PN (mg/km)
5-SAJ-026	10,8673	0,9698		0,9722	1,9420	0,0344	1,0000





**Annex V – Kia Corporation, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Kia Corporation  
Report status: Final\_rev00  
Report number: ISC-2022-05  
Issue date: 2023-03-23



## Annex V – Kia Corporation, Final\_rev00 Report ISC-2022

### Test overview on Kia Motor Corporation

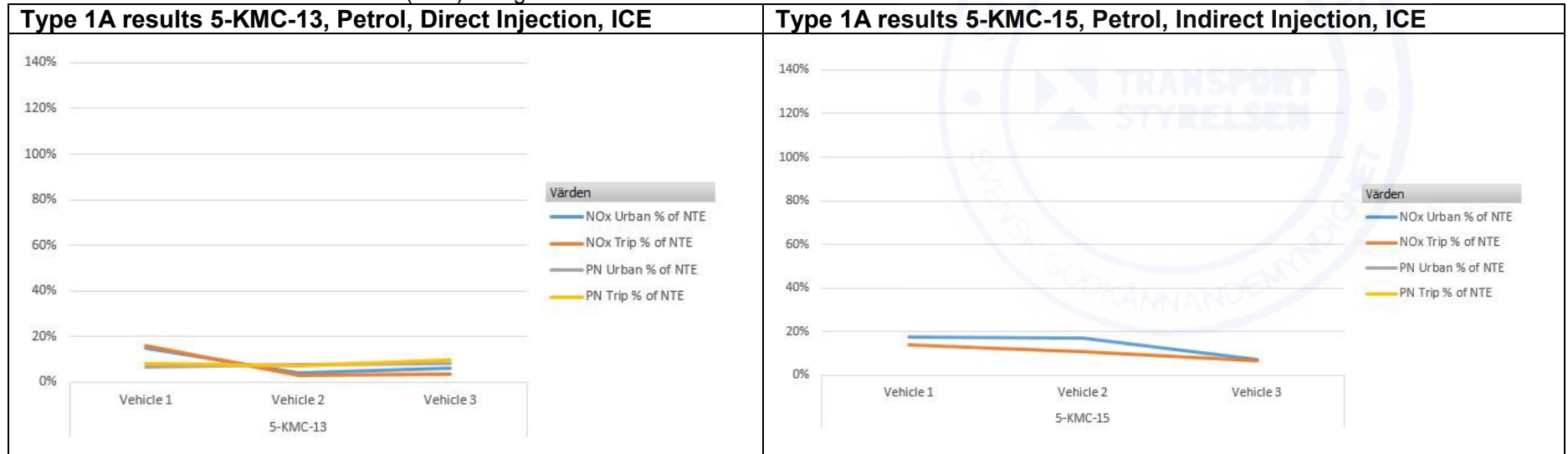
ISC Family	Manufacturer (Section B) 2020→2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
11-KMC-4	<ul style="list-style-type: none"> <li>Qualified for ISC-2021</li> <li>Statistical folder 1. <b>PASS-2022</b></li> <li>1 vehicle RDE tested - pass</li> </ul>		
11-KMC-5	<ul style="list-style-type: none"> <li>Qualified for ISC-2021</li> <li>Statistical folder 1. <b>PASS-2022</b></li> <li>1 vehicle RDE tested - pass</li> </ul>		
11-KMC-7	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND</li> <li>1 vehicle RDE tested - pass</li> </ul>		
11-KMC-8	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> <li>2 vehicles RDE tested - pass</li> </ul>		
5-KMC-12	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-KMC-13	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicles tested, Type 1+1A</li> <li>Tested by Dekra in Germany</li> <li>Statistical folder <b>PASS</b></li> </ul>	
5-KMC-14	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-KMC-15	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicles tested, Type 1+1A</li> <li>Tested by Dekra in Germany</li> <li>Statistical folder <b>PASS</b></li> </ul>	
5-KMC-16	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		

# Annex V – Kia Corporation, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D)

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-KMC-13	Vehicle 1	e5*715/2007*2018/1832AP*0603*02	N/A	85,8	9,0E+11	459,6	13,8	16%	7,6E+10	8%	300,7	12,9	15%	6,2E+10	7%
5-KMC-13	Vehicle 2	e5*715/2007*2018/1832AP*0595*00	N/A	85,8	9,0E+11	60,8	2,5	3%	6,6E+10	7%	11,4	3,5	4%	6,7E+10	7%
5-KMC-13	Vehicle 3	e5*715/2007*2018/1832AP*0595*00	N/A	85,8	9,0E+11	90,1	3,0	3%	9,0E+10	10%	64,8	5,2	6%	7,4E+10	8%
5-KMC-15	Vehicle 1	e5*715/2007*2018*1832AP*0611*00	N/A	85,8	9,0E+11	92,1	11,8	14%			149,6	14,9	17%		
5-KMC-15	Vehicle 2	e5*715/2007*2018*1832AP*0614*01	N/A	85,8	9,0E+11	70,2	9,1	11%			93,6	14,6	17%		
5-KMC-15	Vehicle 3	e5*715/2007*2018*1832AP*0608*00	N/A	85,8	9,0E+11	331,9	5,7	7%			294,6	6,2	7%		

Maximum declared RDE values in COC (48.2) = Legislation limit

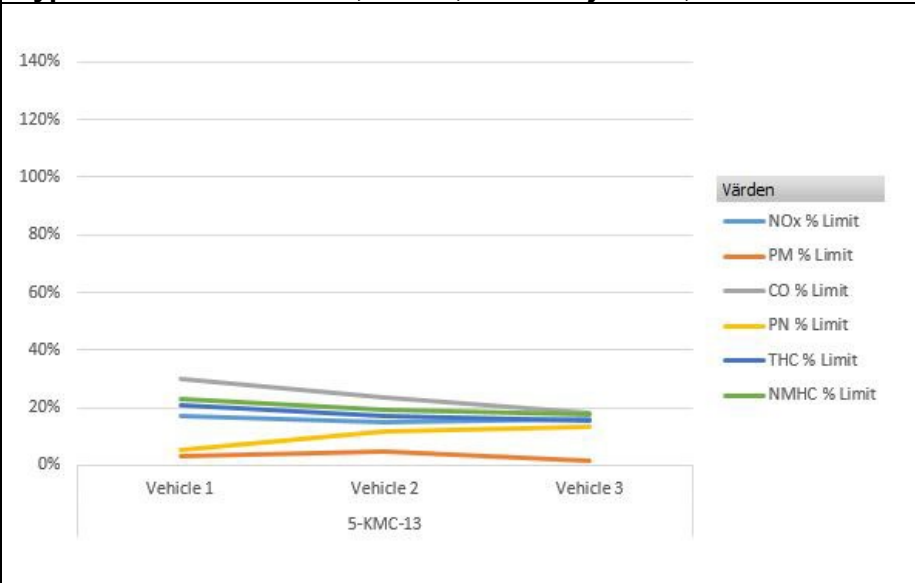


# Annex V – Kia Corporation, Final\_rev00 Report ISC-2022

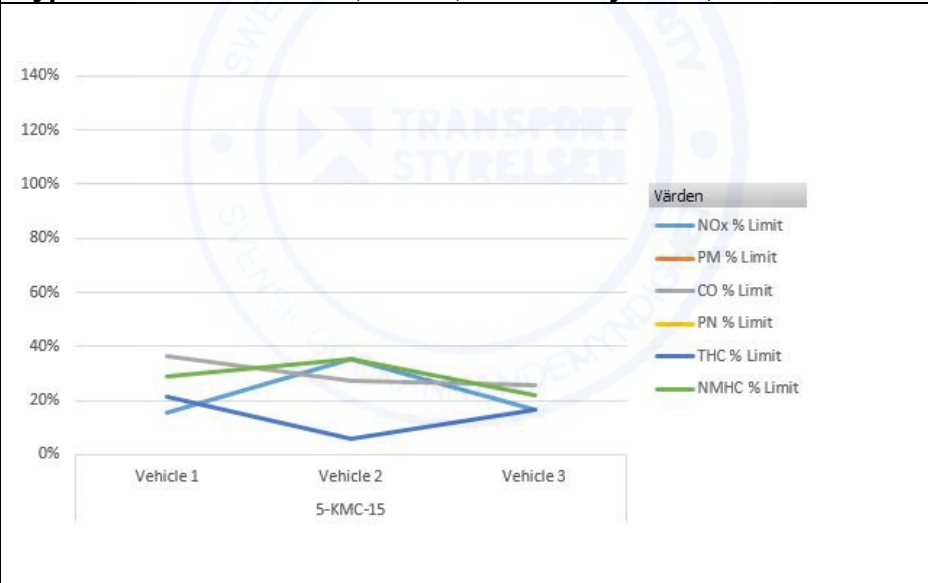
## Detailed Type 1 (WLTP) data from STA test (D)

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	THC (mg/km)	Limit THC (mg/km)	THC % of Limit	NMHC (mg/km)	Limit NMHC (mg/km)	NMHC % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-KMC-13	Vehicle 1	e5*715/2007*2018/1832AP*0603*02	302,2	1000	30%	20,9	100	21%	15,8	68	23%	10,2	60	17%	0,1	4,5	3%	3,1E+10	6E+11	5%
5-KMC-13	Vehicle 2	e5*715/2007*2018/1832AP*0595*00	233,7	1000	23%	17,0	100	17%	13,2	68	19%	8,9	60	15%	0,2	4,5	5%	7,0E+10	6E+11	12%
5-KMC-13	Vehicle 3	e5*715/2007*2018/1832AP*0595*00	182,2	1000	18%	15,7	100	16%	12,0	68	18%	9,8	60	16%	0,1	4,5	2%	7,9E+10	6E+11	13%
5-KMC-15	Vehicle 1	e5*715/2007*2018*1832AP*0611*00	362,2	1000	36%	21,7	100	22%	19,8	68	29%	9,5	60	16%						
5-KMC-15	Vehicle 2	e5*715/2007*2018*1832AP*0614*01	275,4	1000	28%	5,9	100	6%	24,0	68	35%	21,1	60	35%						
5-KMC-15	Vehicle 3	e5*715/2007*2018*1832AP*0608*00	255,7	1000	26%	16,5	100	16%	15,0	68	22%	9,8	60	16%						

Type 1 results 5-KMC-13, Petrol, Direct Injection, ICE



Type 1 results 5-KMC-15, Petrol, Indirect Injection, ICE



**Annex VI – Kia Slovakia s.r.o, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Kia Slovakia s.r.o  
Report status: Final\_rev00  
Report number: ISC-2022-06  
Issue date: 2023-03-23



## Annex VI – Kia Slovakia s.r.o, Final\_rev00 Report ISC-2022

### Test overview on Kia Motors Slovakia s.r.o

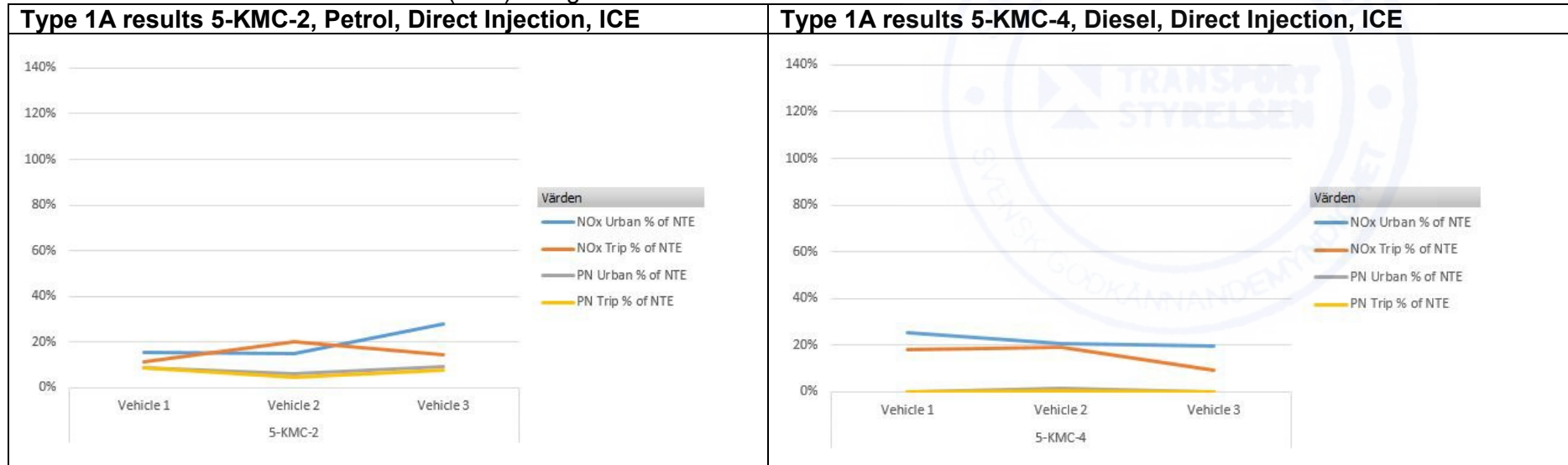
ISC Family	Manufacturer (Section B) 2020 → 2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
11-HMM-5	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> <li>1 vehicle tested, RDE-2022</li> </ul>		
11-HMM-6	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
11-HMM-8	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical Folder 1. <b>PASS-2021</b></li> </ul>		
11-HMM-15	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. UND-2020/2021</li> <li>Statistical folder 2. UND-2022</li> </ul>		<ul style="list-style-type: none"> <li>2 vehicle tested Type 1A</li> <li>1 tested by DTI in Denmark</li> <li>1 tested by TÜV-NORD, in Germany</li> <li>Meets applicable regulations</li> <li>TSV 2021-3005</li> </ul>
5-KMC-1	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		
5-KMC-2	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicle tested, Type 1+1A</li> <li>Tested by Dekra in Germany</li> <li>Statistical folder: <b>PASS</b></li> </ul>	
5-KMC-4	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicle tested, Type 1+1A</li> <li>Tested by Dekra in Germany</li> <li>Statistical folder: <b>PASS</b></li> </ul>	<ul style="list-style-type: none"> <li>1 vehicle tested Type 1A</li> <li>Tested by Emisia in Greece</li> <li>TSV 2022-2206</li> <li>Meets applicable regulations</li> </ul>
5-KMC-5	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		<ul style="list-style-type: none"> <li>1 vehicle tested Type 1A</li> <li>Tested by Emisia in Greece</li> <li>TSV 2022-2207</li> <li>Meets applicable regulations</li> </ul>

# Annex VI – Kia Slovakia s.r.o, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D), Ki included when applicable

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-KMC-2	Vehicle 1	e5*715/2007*2018/1832AP*00726*02	N/A	85,8	9,0E+11	183,2	9,9	12%	8,0E+10	9%	127,5	13,3	16%	8,0E+10	9%
5-KMC-2	Vehicle 2	e5*715/2007*2018/1832AP*00727*00	N/A	85,8	9,0E+11	338,2	17,1	20%	4,3E+10	5%	110,4	13,0	15%	5,4E+10	6%
5-KMC-2	Vehicle 3	e5*715/2007*2018/1832AP*00727*01	N/A	85,8	9,0E+11	333,6	12,4	14%	6,8E+10	8%	285,6	24,2	28%	8,6E+10	10%
5-KMC-4	Vehicle 1	e5*715/2007*2018/1832AP*00716*01	N/A	114,4	9,0E+11	2,8	20,7	18%	8,1E+07	0%	1,4	29,3	26%	1,2E+08	0%
5-KMC-4	Vehicle 2	e5*715/2007*2018/1832AP*00716*01	N/A	114,4	9,0E+11	14,1	21,7	19%	6,0E+09	1%	28,7	23,4	20%	1,3E+10	1%
5-KMC-4	Vehicle 3	e5*715/2007*2018/1832AP*00714*00	N/A	114,4	9,0E+11	52,1	10,8	9%	1,6E+09	0%	113,9	22,6	20%	1,0E+09	0%

Maximum declared RDE values in COC (48.2) = Legislation limit

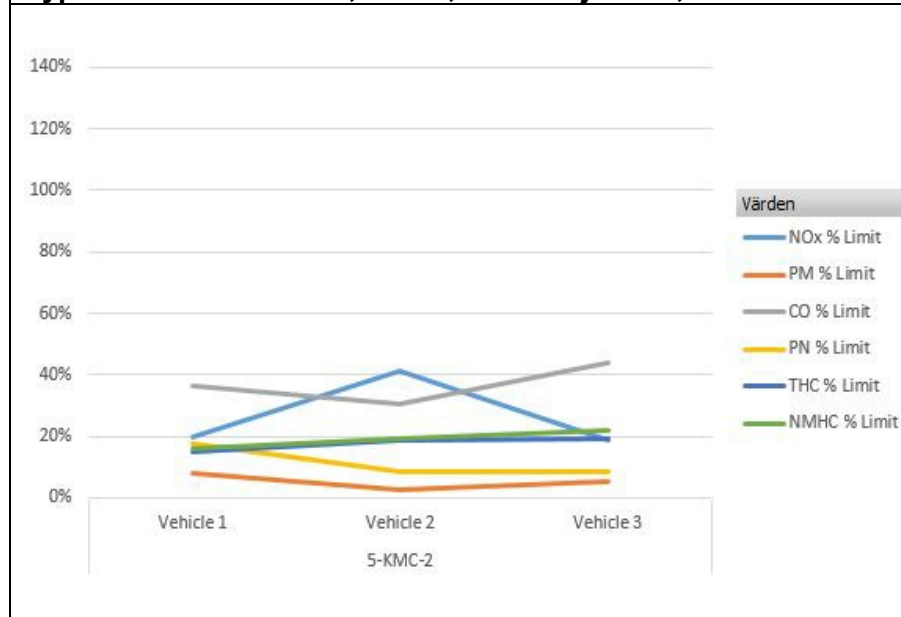


# Annex VI – Kia Slovakia s.r.o, Final\_rev00 Report ISC-2022

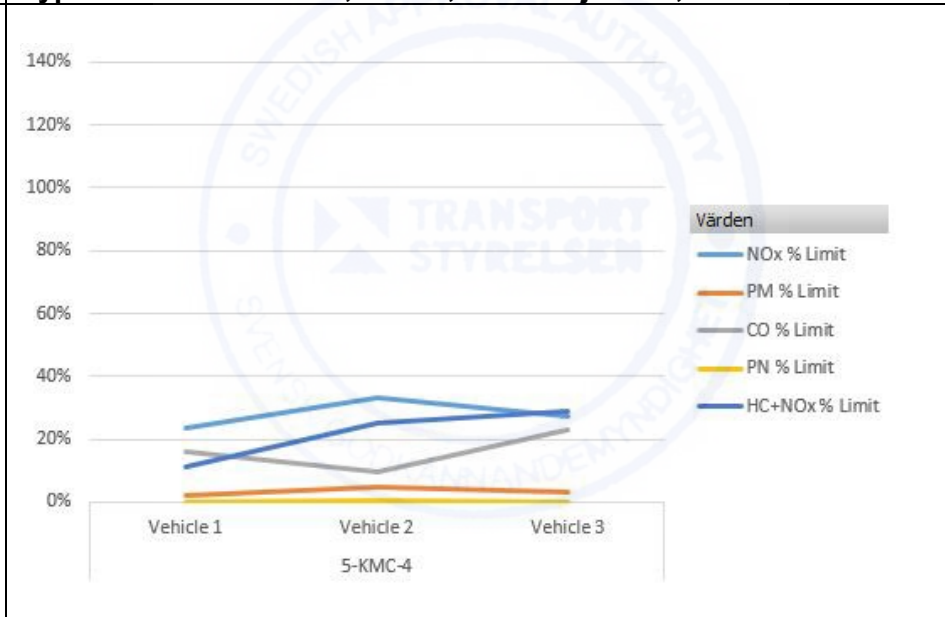
## Detailed Type 1 (WLTP) data from STA test (D), Ki included when applicable

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	THC (mg/km)	Limit THC (mg/km)	THC % of Limit	NMHC (mg/km)	Limit NMHC (mg/km)	NMHC % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	THC+NOx (mg/km)	Limit THC+NOx (mg/km)	THC+NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-KMC-2	Vehicle 1	e5*715/2007*2018/1832AP*00726*02	366,0	1000	37%	15,2	100	15%	11,0	68	16%	11,9	60	20%				0,4	4,5	8%	1,1E+11	6E+11	18%
5-KMC-2	Vehicle 2	e5*715/2007*2018/1832AP*00727*00	305,3	1000	31%	18,8	100	19%	13,2	68	19%	24,9	60	41%				0,1	4,5	3%	5,0E+10	6E+11	8%
5-KMC-2	Vehicle 3	e5*715/2007*2018/1832AP*00727*01	440,3	1000	44%	19,3	100	19%	14,8	68	22%	11,1	60	19%				0,2	4,5	5%	5,1E+10	6E+11	9%
5-KMC-4	Vehicle 1	e5*715/2007*2018/1832AP*00716*01	79,7	500	16%							19,0	80	24%	19,0	170	11%	0,1	4,5	2%	7,6E+08	6E+11	0%
5-KMC-4	Vehicle 2	e5*715/2007*2018/1832AP*00716*01	48,2	500	10%							26,7	80	33%	43,1	170	25%	0,2	4,5	5%	2,2E+09	6E+11	0%
5-KMC-4	Vehicle 3	e5*715/2007*2018/1832AP*00714*00	116,0	500	23%							21,7	80	27%	49,3	170	29%	0,2	4,5	3%	6,4E+08	6E+11	0%

Type 1 results 5-KMC-2, Petrol, Direct Injection, ICE



Type 1 results 5-KMC-4, Diesel, Direct Injection, ICE





# Annex VI – Kia Slovakia s.r.o, Final\_rev00 Report ISC-2022

## Additive Ki

ISC-family	CO (mg/km)	THC (mg/km)	NMHC (mg/km)	NOx (mg/km)	THC+NOx (mg/km)	PM (mg/km)	PN (mg/km)
5-KMC-4	1,4456	2,1908		1,2819	3,4727	0,0609	



**Annex VII – Volvo Cars Corporation, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Volvo Cars Corporation  
Report status: Final\_rev00  
Report number: ISC-2022-07  
Issue date: 2023-03-23



## Annex VII – Volvo Cars Corporation, Final\_rev00 Report ISC-2022

### Test Overview on Volvo Cars Corporation

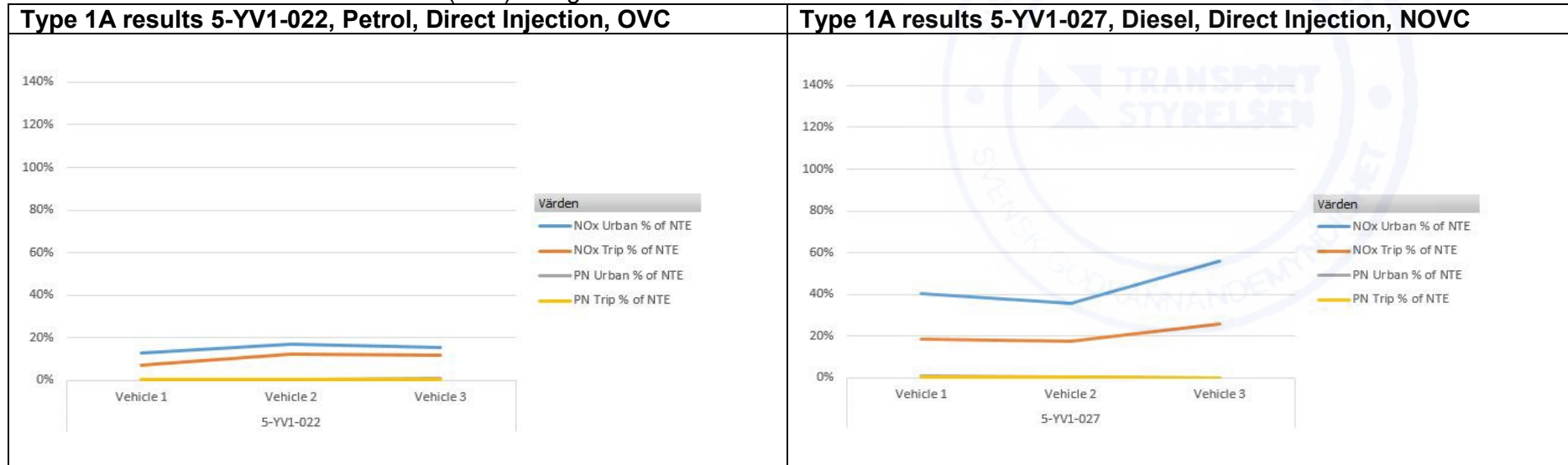
ISC Family	Manufacturer (Section B) 2020 → 2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
5-YV1-012	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2020</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
5-YV1-016	<ul style="list-style-type: none"> <li>Qualified for ISC-2020/2021</li> <li>Statistical folder 1. <b>PASS-2020</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
5-YV1-020	<ul style="list-style-type: none"> <li>Qualified for ISC 2021/2022</li> <li>Statistical folder 1. <b>PASS-2022</b></li> </ul>		
5-YV1-021	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
5-YV1-022	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. <b>PASS-2022</b></li> </ul>	<ul style="list-style-type: none"> <li>3 vehicle tested, Type 1+1A</li> <li>Tested by AVL Sweden</li> <li>Statistical folder <b>PASS</b></li> </ul>	
5-YV1-023	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>		
5-YV1-026	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. <b>PASS-2022</b></li> </ul>		
5-YV1-027	<ul style="list-style-type: none"> <li>Qualified for ISC-2021/2022</li> <li>Statistical folder 1. <b>PASS-2021</b></li> <li>Statistical folder 2. UND-2022</li> </ul>	<ul style="list-style-type: none"> <li>3 vehicle tested, Type 1+1A</li> <li>Tested by AVL Sweden</li> <li>Statistical folder <b>PASS</b></li> </ul>	
5-YV1-031	<ul style="list-style-type: none"> <li>Qualified for ISC-2022</li> <li>Statistical folder 1. UND-2022</li> </ul>		

# Annex VII – Volvo Cars Corporation, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D), Ki included when applicable

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-YV1-022	Vehicle 1	e5*715/2007*2018/1832AP*0183*04	N/A	85,8	9,0E+11	12,7	6,3	7%	3,1E+09	0%	0,0	11,0	13%	2,9E+09	0%
5-YV1-022	Vehicle 2	e5*715/2007*2018/1832AP*0183*04	N/A	85,8	9,0E+11	0,0	10,6	12%	3,4E+09	0%	0,0	14,8	17%	3,7E+09	0%
5-YV1-022	Vehicle 3	e5*715/2007*2018/1832AP*0183*04	N/A	85,8	9,0E+11	34,0	10,3	12%	3,6E+09	0%	54,2	13,4	16%	7,0E+09	1%
5-YV1-027	Vehicle 1	e5*715/2007*2018/1832AP*0681*00	N/A	114,4	9,0E+11	68,4	21,2	19%	6,3E+09	1%	106,9	46,4	41%	8,7E+09	1%
5-YV1-027	Vehicle 2	e5*715/2007*2018/1832AP*0682*00	N/A	114,4	9,0E+11	1,9	20,2	18%	3,1E+09	0%	0,0	40,8	36%	4,7E+09	1%
5-YV1-027	Vehicle 3	e5*715/2007*2018/1832AP*0682*00	N/A	114,4	9,0E+11	5,1	29,8	26%	7,1E+08	0%	2,5	64,2	56%	1,1E+09	0%

Maximum declared RDE values in COC (48.2) = Legislation limit

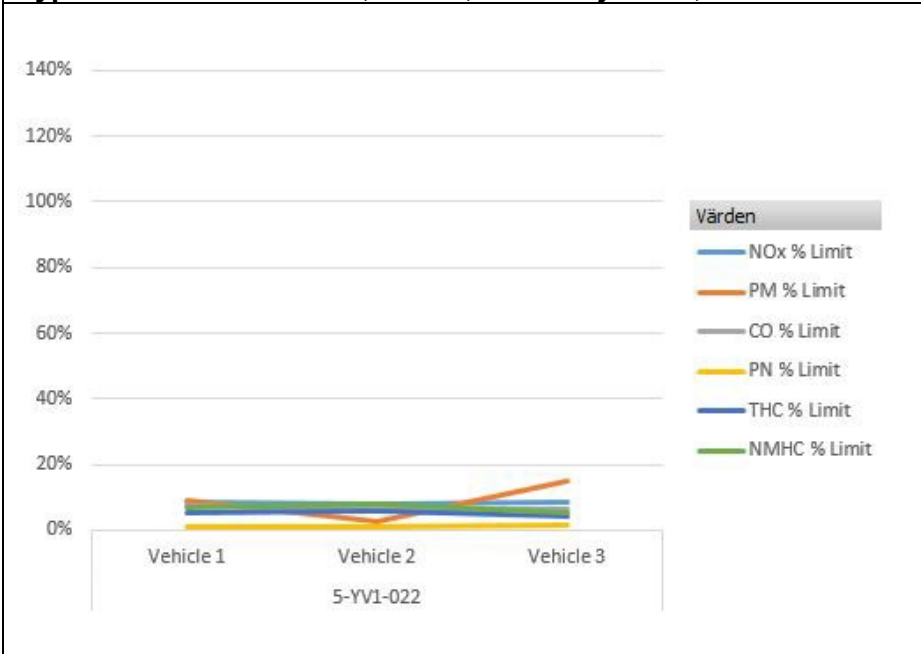


# Annex VII – Volvo Cars Corporation, Final\_rev00 Report ISC-2022

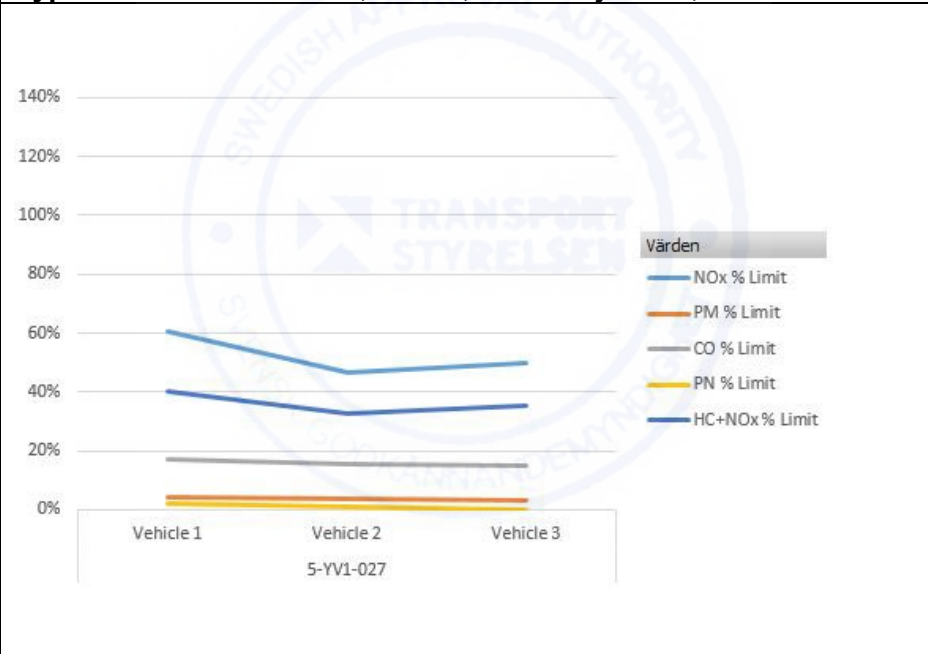
## Detailed Type 1 (WLTP) data from STA test (D), Ki included when applicable

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	THC (mg/km)	Limit THC (mg/km)	THC % of Limit	NMHC (mg/km)	Limit NMHC (mg/km)	NMHC % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	THC+NOx (mg/km)	Limit THC+NOx (mg/km)	THC+NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-YV1-022	Vehicle 1	e5*715/2007*2018/1832AP*0183*04	74,4	1000	7%	5,4	100	5%	4,7	68	7%	5,3	60	9%				0,4	4,5	9%	5,0E+09	6E+11	1%
5-YV1-022	Vehicle 2	e5*715/2007*2018/1832AP*0183*04	63,0	1000	6%	6,1	100	6%	5,5	68	8%	4,9	60	8%				0,1	4,5	3%	7,2E+09	6E+11	1%
5-YV1-022	Vehicle 3	e5*715/2007*2018/1832AP*0183*04	64,0	1000	6%	4,3	100	4%	3,7	68	5%	5,0	60	8%				0,7	4,5	15%	1,1E+10	6E+11	2%
5-YV1-027	Vehicle 1	e5*715/2007*2018/1832AP*0681*00	85,9	500	17%							48,5	80	61%	68,7	170	40%	0,2	4,5	4%	1,2E+10	6E+11	2%
5-YV1-027	Vehicle 2	e5*715/2007*2018/1832AP*0682*00	78,7	500	16%							37,1	80	46%	55,2	170	32%	0,2	4,5	4%	5,8E+09	6E+11	1%
5-YV1-027	Vehicle 3	e5*715/2007*2018/1832AP*0682*00	75,1	500	15%							39,7	80	50%	60,4	170	36%	0,1	4,5	3%	4,4E+08	6E+11	0%

Type 1 results 5-YV1-022, Diesel, Direct Injection, OVC



Type 1 results 5-YV1-027, Diesel, Direct Injection, NOVC



## Annex VII – Volvo Cars Corporation, Final\_rev00 Report ISC-2022

ISC-family	CO (mg/km)	THC (mg/km)	NMHC (mg/km)	NOx (mg/km)	THC+NOx (mg/km)	PM (mg/km)	PN (mg/km)
5-YV1-027	13,5648	N/A	N/A	3,5764	5,9314	0,0246	-



**Annex VIII – Ford Motor Company of Australia Pty Ltd, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: Ford Motor Company of Australia Pty Ltd  
Report status: Final\_rev00  
Report number: ISC-2022-08  
Issue date: 2023-03-23



## Annex VIII – Ford Motor Company of Australia Pty Ltd, Final\_rev00 Report ISC-2022

### Test Overview on Ford Motor Company of Australia Pty Ltd

ISC Family	Manufacturer (Section B) 2020 / 2022	STA (Section D) 2022	3 <sup>rd</sup> part (Section C) 2022
5-6FP-D32	<ul style="list-style-type: none"><li>• Qualified for ISC-2021/2022</li><li>• Statistical folder UND-2022</li></ul>	<ul style="list-style-type: none"><li>• 3 vehicles tested, Type 1+1A</li><li>• Tested by Dekra in Germany</li><li>• Statistical folder <b>PASS</b></li></ul>	
5-6FP-D33	<ul style="list-style-type: none"><li>• Qualified for ISC-2021/2022</li><li>• Statistical folder UND-2022</li></ul>	<ul style="list-style-type: none"><li>• 3 vehicles tested, Type 1+1A</li><li>• Tested by Dekra in Germany</li><li>• Statistical folder <b>PASS</b></li></ul>	



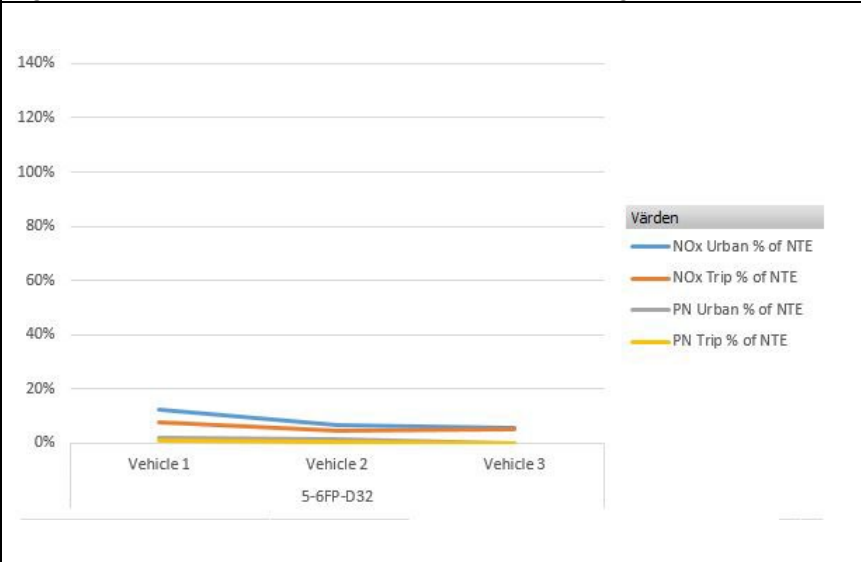


# Annex VIII – Ford Motor Company of Australia Pty Ltd, Final\_rev00 Report ISC-2022

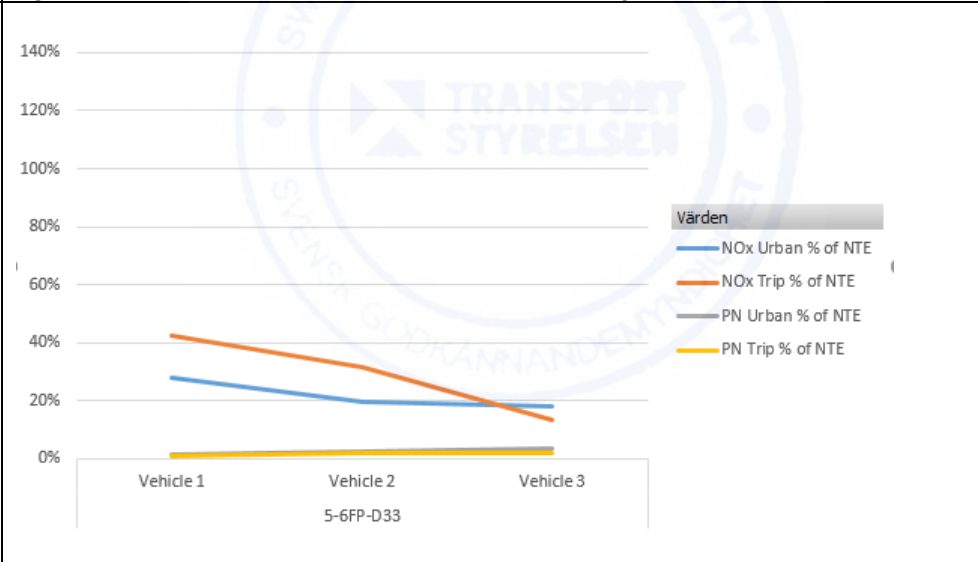
## Detailed Type 1A (RDE) data from STA test (D), Ki included

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-6FP-D32	Vehicle 1	e5_715/2007*2018/1832CI*0218*02	N/A	262,5	9,0E+11	137,9	20,9	8%	9,9E+09	1%	190,3	32,3	12%	1,7E+10	2%
5-6FP-D32	Vehicle 2	e5*715/2007*2018/1832CI*0218*02	N/A	262,5	9,0E+11	55,8	12,3	5%	5,6E+09	1%	86,8	17,5	7%	1,4E+10	2%
5-6FP-D32	Vehicle 3	e5*715/2007*2018/1832CI*0218*02	N/A	262,5	9,0E+11	34,5	13,0	5%	4,7E+08	0%	36,4	14,3	5%	1,6E+08	0%
5-6FP-D33	Vehicle 1	e5*715/2007*2018/1832CI*0214*04	N/A	262,5	9,0E+11	68,4	111,3	42%	8,1E+09	1%	89,1	72,9	28%	1,3E+10	1%
5-6FP-D33	Vehicle 2	e5*715/2007*2018/1832CI*0214*03	N/A	262,5	9,0E+11	39,2	82,9	32%	1,7E+10	2%	46,9	52,2	20%	2,1E+10	2%
5-6FP-D33	Vehicle 3	e5*715/2007*2018/1832CI*0214*04	N/A	262,5	9,0E+11	71,8	35,9	14%	2,0E+10	2%	146,0	47,5	18%	3,1E+10	3%

Type 1A results 5-6FP-D32, Diesel, Direct Injection, ICE



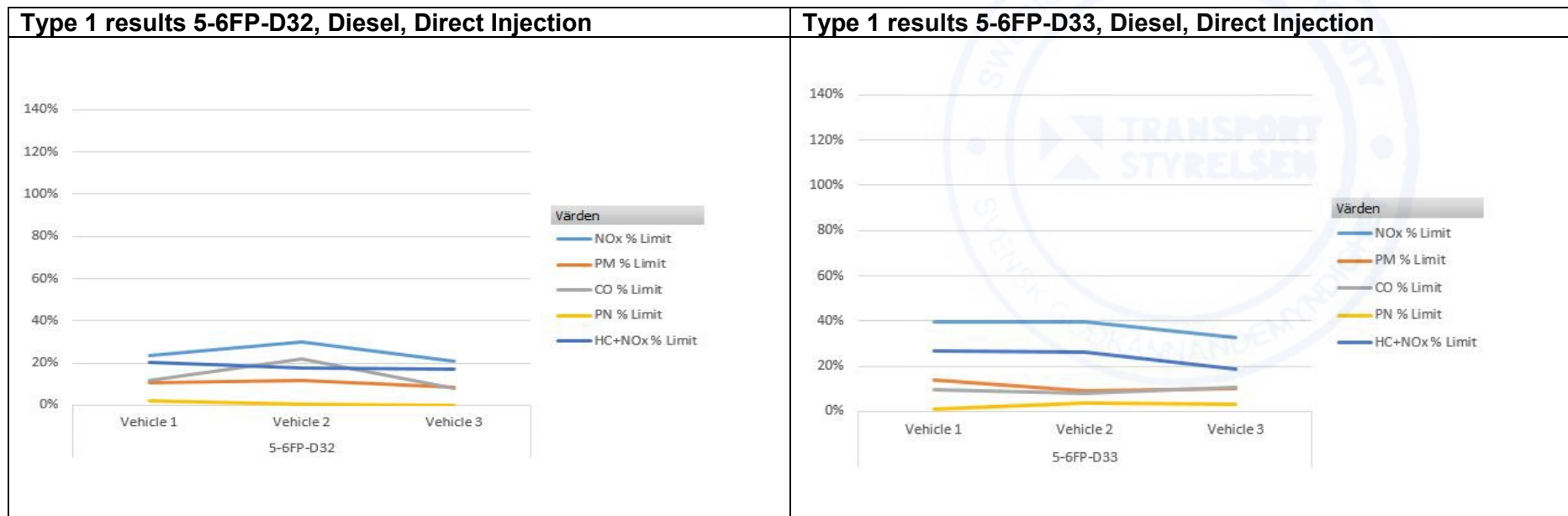
Type 1A results 5-6FP-D33, Diesel, Direct Injection, ICE



# Annex VIII – Ford Motor Company of Australia Pty Ltd, Final\_rev00 Report ISC-2022

## Detailed Type 1 (WLTP) data from STA test (D), Ki included

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	THC+NOx (mg/km)	Limit THC+NOx (mg/km)	THC+NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-6FP-D32	Vehide 1	e5_715/2007*2018/1832Cl*0218*02	88,0	740	12%	29,7	125	24%	43,2	215	20%	0,5	4,5	11%	1,4E+10	6E+11	2%
5-6FP-D32	Vehide 2	e5*715/2007*2018/1832Cl*0218*02	161,3	740	22%	37,4	125	30%	37,4	215	17%	0,5	4,5	12%	1,5E+09	6E+11	0%
5-6FP-D32	Vehide 3	e5*715/2007*2018/1832Cl*0218*02	58,0	740	8%	25,8	125	21%	36,9	215	17%	0,4	4,5	8%	3,6E+08	6E+11	0%
5-6FP-D33	Vehide 1	e5*715/2007*2018/1832Cl*0214*04	70,4	740	10%	49,3	125	39%	57,1	215	27%	0,6	4,5	14%	7,0E+09	6E+11	1%
5-6FP-D33	Vehide 2	e5*715/2007*2018/1832Cl*0214*03	60,3	740	8%	49,5	125	40%	56,9	215	26%	0,4	4,5	9%	2,1E+10	6E+11	4%
5-6FP-D33	Vehide 3	e5*715/2007*2018/1832Cl*0214*04	79,7	740	11%	40,8	125	33%	40,8	215	19%	0,5	4,5	10%	2,0E+10	6E+11	3%



**Annex VIII – Ford Motor Company of Australia Pty Ltd, Final\_rev00 Report ISC-2022**

**Additive Ki**

ISC-family	CO (mg/km)	THC (mg/km)	NMHC (mg/km)	NOx (mg/km)	THC+NOx (mg/km)	PM (mg/km)	PN (mg/km)
5-6FP-D32	32,5324	4,6482		6,4258	11,0739	0,1339	
5-6FP-D33	32,5324	4,6482		6,4258	11,0739	0,1339	



**Annex IX –BMW AG, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: BMW AG  
Report status: Final\_rev00  
Report number: ISC-2022-09  
Issue date: 2023-03-23



# Annex IX –BMW AG, Final\_rev00 Report ISC-2022

## Test overview for BMW AG

ISC Family	Manufacturer (Section B) 2020 → 2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
5-WBA-DH13	<ul style="list-style-type: none"><li>• Qualified for ISC-2022</li><li>• Statistical folder 1. UND</li></ul>	<ul style="list-style-type: none"><li>• 3 vehicle tested, Type 1+1A</li><li>• Tested by Dekra in Germany</li><li>• Statistical folder: <b>PASS</b></li></ul>	

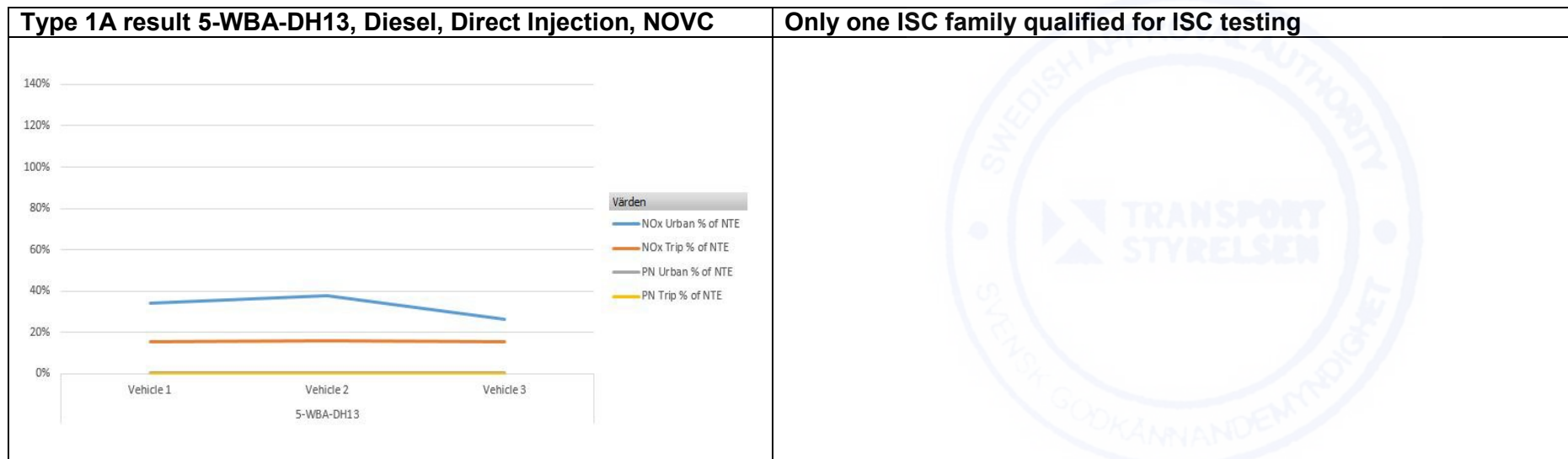


# Annex IX –BMW AG, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D), Ki included

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-WBA-DH13	Vehicle 1	e5*715/2007*2018/1832AP*00757*00	N/A	114,4	9,0E+11	23,9	17,8	16%	2,0E+09	0%	70,1	39,4	34%	5,2E+09	1%
5-WBA-DH13	Vehicle 2	e5*715/2007*2018/1832AP*00759*00	N/A	114,4	9,0E+11	41,0	18,4	16%	1,8E+09	0%	95,7	43,1	38%	4,7E+09	1%
5-WBA-DH13	Vehicle 3	e5*715/2007*2018/1832AP*00759*00	N/A	114,4	9,0E+11	16,8	18,0	16%	1,6E+09	0%	45,3	30,0	26%	3,9E+09	0%

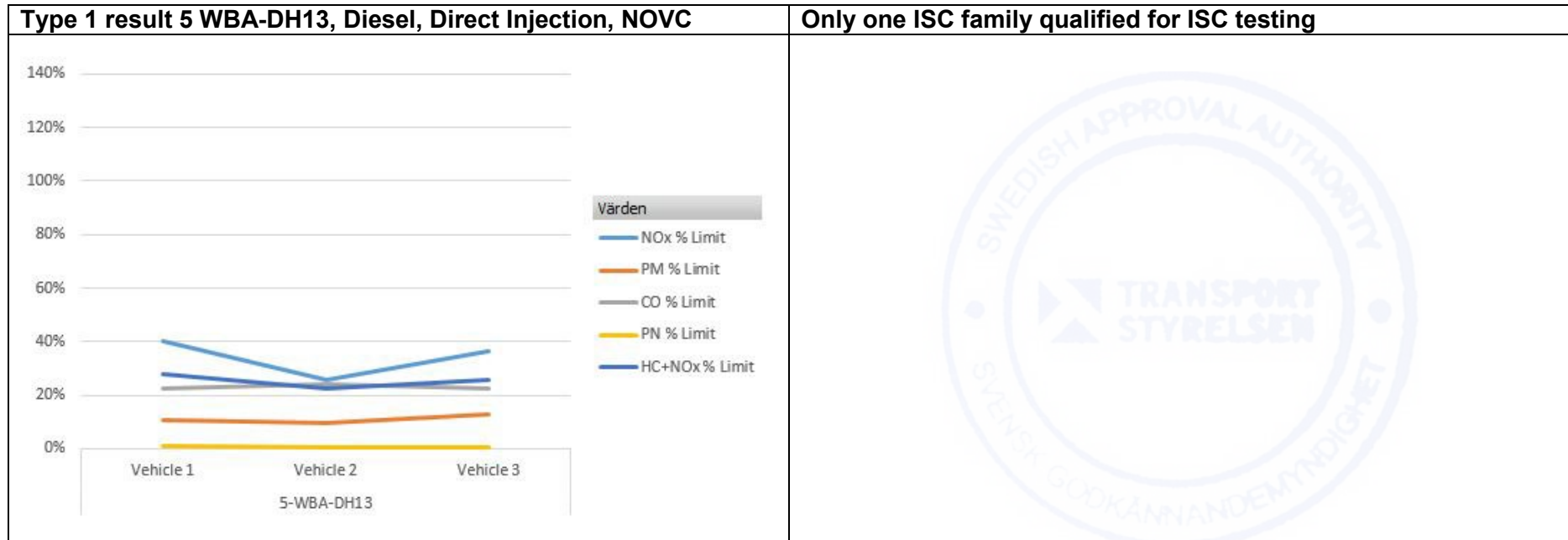
Maximum Declared RDE values in COC (48.2) = Legislation limit



# Annex IX –BMW AG, Final\_rev00 Report ISC-2022

## Detailed Type 1 (WLTP) data from STA test (D), Ki included

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	THC+NOx (mg/km)	Limit THC+NOx (mg/km)	THC+NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-WBA-DH13	Vehicle 1	e5*715/2007*2018/1832AP*00757*00	112,3	500	22%	32,0	80	40%	47,2	170	28%	0,5	4,5	11%	6,6E+09	6E+11	1%
5-WBA-DH13	Vehicle 2	e5*715/2007*2018/1832AP*00759*00	120,7	500	24%	20,6	80	26%	38,4	170	23%	0,4	4,5	10%	3,6E+09	6E+11	1%
5-WBA-DH13	Vehicle 3	e5*715/2007*2018/1832AP*00759*00	112,3	500	22%	29,0	80	36%	43,7	170	26%	0,6	4,5	13%	3,9E+09	6E+11	1%



**Annex IX –BMW AG, Final\_rev00 Report ISC-2022**

Additive Ki

ISC-family	CO (mg/km)	THC (mg/km)	NMHC (mg/km)	NOx (mg/km)	THC+NOx (mg/km)	PM (mg/km)	PN (mg/km)
5-WBA-DH13	0,3272			3,2240	5,6071	0,3576	





**Annex X –SAIC Motor Corporation Limited, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: SAIC Motor Corporation Limited  
Report status: Final\_rev00  
Report number: ISC-2022-10  
Issue date: 2023-03-23



**Annex X –SAIC Motor Corporation Limited, Final\_rev00 Report ISC-2022**

**Test overview on SAIC Motor Corporation Limited**

ISC Family	Manufacturer (Section B) 2022	STA (Section D) ISC-2022	3 <sup>rd</sup> parties (Section C) 2022
5-LSJ-1	<ul style="list-style-type: none"> <li>• Qualified for ISC 2022</li> <li>• Statistical folder 1. <b>PASS</b></li> </ul>	<ul style="list-style-type: none"> <li>• 3 vehicle tested, Type 1+1A</li> <li>• Tested by Dekra in Germany</li> <li>• Statistical folder <b>PASS</b></li> </ul>	

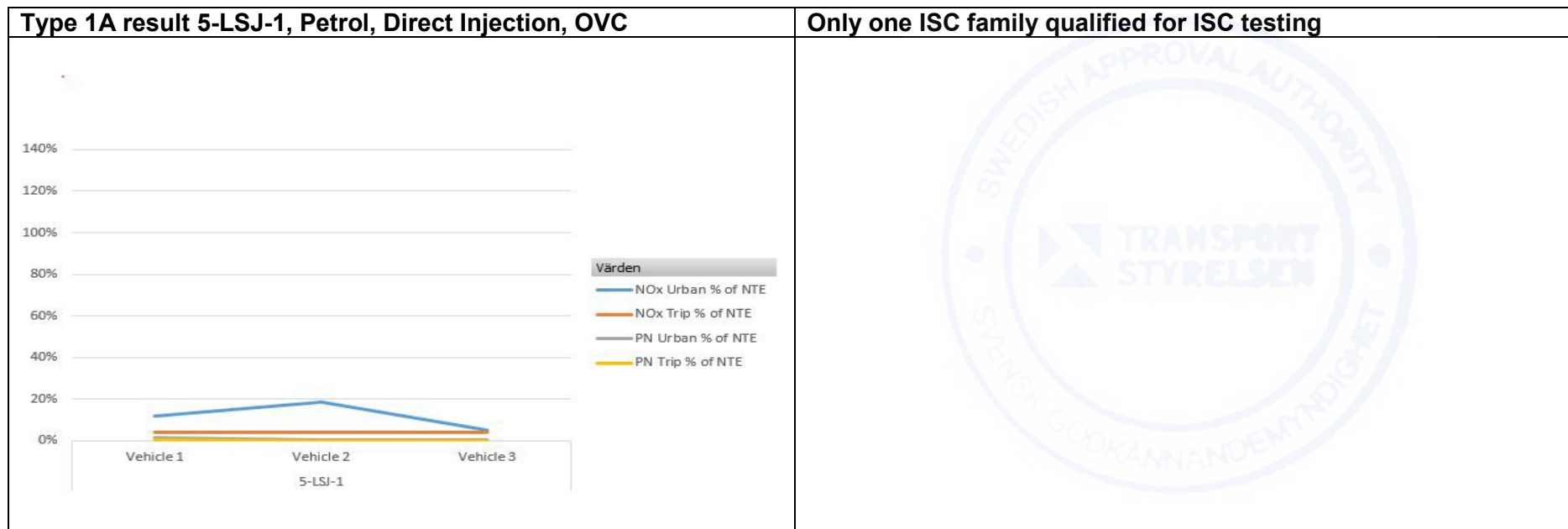


# Annex X –SAIC Motor Corporation Limited, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D)

ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
5-LSJ-1	Vehicle 1	e5*715/2007*2018/1832AP*00743*02	N/A	85,8	9,0E+11	111,1	3,4	4%	5,2E+09	1%	133,9	10,2	12%	1,2E+10	1%
5-LSJ-1	Vehicle 2	e5*715/2007*2018/1832AP*00743*02	N/A	85,8	9,0E+11	57,0	3,4	4%	1,8E+09	0%	86,5	15,8	18%	2,7E+09	0%
5-LSJ-1	Vehicle 3	e5*715/2007*2018/1832AP*00743*02	N/A	85,8	9,0E+11	5,3	3,4	4%	4,4E+00	0%	4,0	4,2	5%	3,6E+09	0%

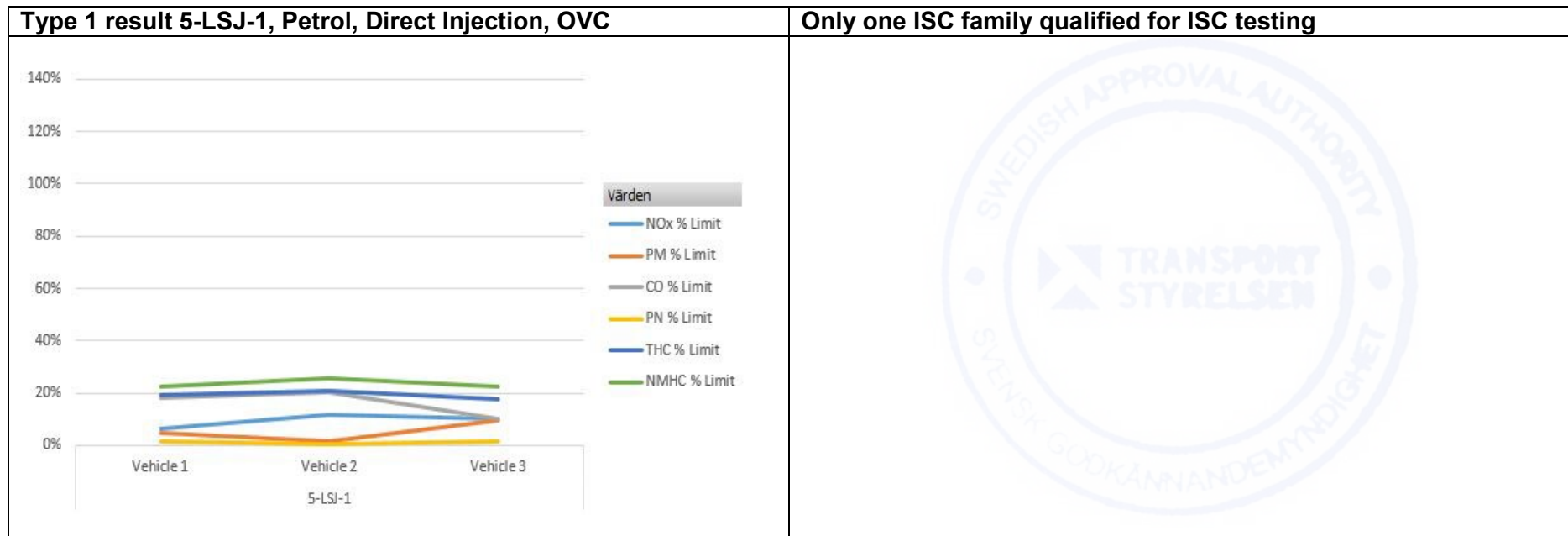
Maximum Declared RDE values in COC (48.2) = Legislation limit



# Annex X –SAIC Motor Corporation Limited, Final\_rev00 Report ISC-2022

## Detailed Type 1 (WLTP) data from STA test (D)

ISC-family	STA ref	Emission Type Approval	CO (mg/km)	Limit CO (mg/km)	CO % of Limit	THC (mg/km)	Limit THC (mg/km)	THC % of Limit	NMHC (mg/km)	Limit NMHC (mg/km)	NMHC % of Limit	NOx (mg/km)	Limit NOx (mg/km)	NOx % of Limit	PM (mg/km)	Limit PM (mg/km)	PM % of Limit	PN (#/km)	Limit PN (#/km)	PN % of Limit
5-LSJ-1	Vehicle 1	e5*715/2007*2018/1832AP*00743*02	179,9	1000	18%	19,2	100	19%	15,3	68	23%	3,9	60	7%	0,2	4,5	5%	8,9E+09	6E+11	1%
5-LSJ-1	Vehicle 2	e5*715/2007*2018/1832AP*00743*02	205,0	1000	20%	20,7	100	21%	17,6	68	26%	7,0	60	12%	0,1	4,5	2%	1,9E+09	6E+11	0%
5-LSJ-1	Vehicle 3	e5*715/2007*2018/1832AP*00743*02	100,6	1000	10%	17,4	100	17%	15,1	68	22%	6,1	60	10%	0,4	4,5	10%	1,0E+10	6E+11	2%



**Annex XI- 3<sup>rd</sup> party, Final\_rev00 Report ISC-2022**

ISC year: 2022  
Manufacturer: 3rd party  
Report status: Final\_rev00  
Report number: ISC-2022-11  
Issue date: 2023-03-23



## Annex XI- 3<sup>rd</sup> party, Final\_rev00 Report ISC-2022

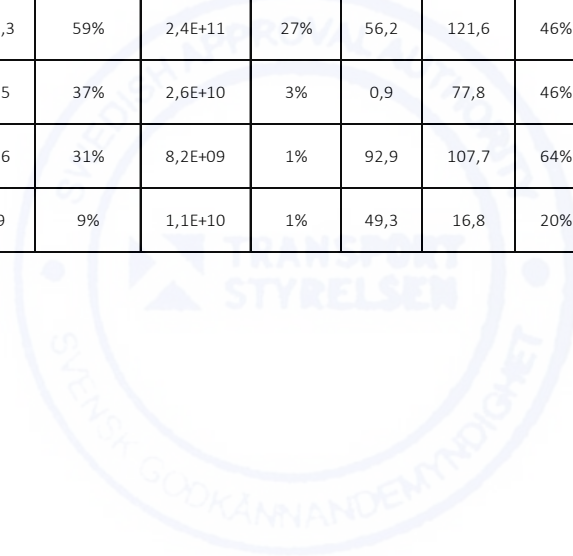
### Test Overview

Test	STA-Ref	Manufacturer	ISC-Family	Technical service	Test type	Status
1	2022-484	Hyundai Motor Manufacturing Czech s.r.o.	5-HMM-19	Emisia	1A	PASS
2	2022-485	Ford-Werke GmbH	5-WF0-P27	Emisia	1A	PASS
3	2022-2203	Hyundai Motor Manufacturing Czech s.r.o.	5-HMM-17	Emisia	1A	PASS
4	2022-2206	Kia Slovakia s.r.o.	5-KMC-4	Emisia	1A	PASS
5	2022-2207	Kia Slovakia s.r.o.	5-KMC-5	Emisia	1A	PASS
6	2022-2294	Ford Motor Company of Australia Pty Ltd	5-6FP-D33	DTI	1A	PASS
7	2021-3005	Kia Slovakia s.r.o.	11-HMM-15	DTI	1A	PASS
8	2021-3005	Kia Slovakia s.r.o.	11-HMM-15	TÜV-NORD	1A	PASS
9	2022-3901	SAIC Motor Corporation Limited	5-LSJ-1	DTI	1A	PASS

# Annex XI- 3<sup>rd</sup> party, Final\_rev00 Report ISC-2022

## Detailed Type 1A (RDE) data from STA test (D)

Test	ISC-Family	STA ref	EmissionTypeApproval	Limit CO NTE (mg/km)	Limit NOx NTE (mg/km)	Limit PN NTE (#/km)	CO Totaltrip (mg/km)	NOx Totaltrip (mg/km)	NOx Totaltrip % of NTE	PN Totaltrip (#/km)	PN Totaltrip % of NTE	CO Urban (mg/km)	NOx Urban (mg/km)	NOx Urban % of NTE	PN Urban (#/km)	PN Urban % of NTE
1	5-HMM-19	TSV 2022-484	e5*715/2007*2018/1832AP*0625*01	N/A	85,8	9,0E+11	64,3	4,2	5%	6,0E+10	7%	97,0	7,5	9%	9,3E+10	10%
2	5-WF0-P27	TSV 2022-485	e5*715/2007*2018/1832DG*0565*00	N/A	126,0	9,0E+11	373,3	10,5	8%	3,0E+10	3%	313,6	17,5	14%	3,3E+10	4%
3	5-HMM-17	TSV 2022-2203	e5*715/2007*2018/1832AP*0623*01	N/A	85,8	9,0E+11	101,9	10,0	12%	1,8E+11	20%	147,3	13,4	16%	1,9E+11	21%
4	5-KMC-4	TSV 2022-2206	e5*715/2007*2018/1832AP*00714*00	N/A	114,4	9,0E+11	194,4	43,4	38%	2,0E+10	2%	237,4	75,9	66%	4,5E+10	5%
5	5-KMC-5	TSV 2022-2207	e5*715/2007*2018/1832AP*00717*01	N/A	114,4	9,0E+11	148,0	84,3	74%	1,9E+09	0%	262,8	86,6	76%	1,6E+09	0%
6	5-6FP-D33	TSV 2022-2294	e5*715/2007*2018/1832CI*0213*02	N/A	262,5	9,0E+11	188,3	155,3	59%	2,4E+11	27%	56,2	121,6	46%	3,0E+10	3%
7	11-HMM-15	TSV 2021-3005	Not in Report	N/A	168,0	9,0E+11	0,0	62,5	37%	2,6E+10	3%	0,9	77,8	46%	5,5E+10	6%
8	11-HMM-15	TSV 2021-3005	e5*715/2007*2018/1832DG*0204*03	N/A	168,0	9,0E+11	126,6	51,6	31%	8,2E+09	1%	92,9	107,7	64%	1,4E+10	2%
9	5-LSJ-1	TSV 2022-3901	e5*715/2007*2018/1832AP*00743*00	N/A	85,8	9,0E+11	40,0	7,9	9%	1,1E+10	1%	49,3	16,8	20%	9,9E+09	1%



## **Annex XI- 3<sup>rd</sup> party, Final\_rev00 Report ISC-2022**

### **Detailed Type 1 (WLTP) data from STA test (D)**

No Type 1 tests performed

