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ANNEXES 1 to 6

ANNEX

to the

Regulation of the European Parliament and the Council

on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7) and repealing Regulations (EC) No 715/2007 and (EC) No 595/2009

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ANNEX I
EMISSION LIMITS

Table 1: Exhaust emission limits for M₁, N₁ vehicles with internal combustion engine

P o l l u t a n t emissions	M ₁ , N ₁ vehicles	Only for N ₁ vehicles with power to mass ratio less than 35 kW/t	Emission budget for all trips less than 10 km for M ₁ , N ₁ vehicles	Emission budget for all trips less than 10 km only for N ₁ vehicles with power to
	(mg/km)	(mg/km)	(mg)	(mg)
NO _x	x	x	x	x
PM	x	x	x	x
PN _{>10nm} (#/km)	x	x	x	x
CO	x	x	x	x
THC	x	x	x	x
NMHC	x	x	x	x
NH ₃	x	x	x	x

Table 2: Exhaust emission limits for M₂, M₃, N₂ and N₃ vehicles with internal combustion engine and internal combustion engines used in those vehicles

P o l l u t a n t emissions	Cold emissions*	Hot emissions**	Emission budget for all trips less	Optional idle emission limits***
	(mg/kWh)	(mg/kWh)	(mg)	(g/h)
NO _x	x	x	x	x
PM	x	x	x	Not applicable
PN _{>10nm} (#/	x	x	x	Not applicable
CO	x	x	x	Not applicable
NMOG	x	x	x	Not applicable
NH ₃	x	x	x	Not applicable
CH ₄ + N ₂ O	x	x	x	Not applicable
HCHO	x	x	x	Not applicable

* Cold emissions take into account 100% of moving windows (MW) of 1 WHTC for vehicles, or WHTC_{cold} for engines

** Hot emission take into account 90% of moving windows (MW) of 1 WHTC for vehicles or WHTC_{hot} for engines

*** Applicable only if a system is not present that automatically shuts down the engine after 300 seconds of continuous idling operation (once the vehicle is stopped and brakes applied)

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Table 3: Evaporative emission limits for petrol fuelled M₁, N₁ vehicles

Pollutant emissions	M₁, N₁ class I/II	N₁ class III
Evaporative emissions (in hot soak +	X g at worst day + hot soak	X g at worst day + hot soak
Refuelling emissions	X g/L of fuel	X g/L of fuel

Table 4: Brake Particle Emission limits in standard driving cycle applying until 31/12/2034

Emission limits in mg/km	M₁, N₁ vehicles	M₂, M₃ vehicles	N₂, N₃ vehicles
Brake particle emissions	X		
Brake particle emissions			

Table 5: Brake Particle Emission limits in applying from 1/1/2035

Emission limits in mg/km	M₁, N₁ vehicles	M₂, M₃ vehicles	N₂, N₃ vehicles
Brake particle emissions	x		
Brake particle emissions			

Table 6: Tyre Abrasion limits

Tyre mass lost in g/	C1 tyres	C2 tyres	C3 tyres
All season and			
Snow tyres			
Special use tyres			

ANNEX II

MINIMUM PERFORMANCE REQUIREMENTS FOR BATTERY DURABILITY

Table 1: Minimum performance requirements (MPR) for battery durability for M₁ vehicles

Battery Energy based MPR	Start of life to 5 years or 100 000 km whichever comes first	Vehicles more than 5 years or 100 000 km, and up to whichever comes first of 8 years
OVC-HEV	x%	x%
PEV	x%	x%

Range based MPR	Start of life to 5 years or 100 000 km whichever comes first	Vehicles more than 5 years or 100 000 km, and up to whichever comes first of 8 years
OVC-HEV		
PEV		

Table 1: Minimum performance requirements (MPR) for battery durability for N₁ vehicles

Battery Energy based MPR	Start of life to 5 years or 100 000 km whichever comes first	Vehicles more than 5 years or 100 000 km, and up to whichever comes first of 8 years
OVC-HEV	x%	x%
PEV	x%	x%

Range based MPR	Start of life to 5 years or 100 000 km whichever comes first	Vehicles more than 5 years or 100 000 km, and up to whichever comes first of 8 years
OVC-HEV		
PEV		

Table 2: Minimum performance requirements (MPR) for battery durability for M₂, M₃, N₂, N₃ vehicles

Battery Energy based MPR	Vehicles in main lifetime*	Vehicles in additional lifetime*
OVC-HEV		
PEV		

*As specified in Annex IV

ANNEX III

TEST CONDITIONS

Table 1: Conditions for testing compliance of M₁, N₁ vehicles¹ with exhaust emission limits

Parameter	Normal driving	Extended driving conditions*
Extended Driving Divider	-	x (applies to measured emissions only during the time when one of
Ambient temperature	-x°C to x°C	-x°C to -x°C or x°C to x°C
Maximum altitude	x m	More than x m and below x m
Maximum speed	Up to x km/h	Between x and x km/h
Towing/aerodynamic	Not allowed	Allowed**
Auxiliaries	Possible as per normal use	-
Maximum average wheel power during	Lower than x% of maximum wheel power	Higher than x% of maximum wheel power
Trip composition	Any	-
Minimum mileage	x km	Between x and x km

* The same emission strategy shall be used when a vehicle is run outside those conditions, unless there is an approved technical reason.

**According to manufacturer specification up to GCVW and up to the regulated speed.

¹ With any market fuel and lubricant within the specifications issued by the manufacturer of the vehicle.

Table 2: Conditions for testing compliance of M₂, M₃, N₂ and N₃ vehicles² with exhaust emission limits

Parameter	Normal driving conditions	Extended driving conditions*
Extended Driving	-	x (applies to measured emissions only during the time when one of the
Ambient	-x°C to x°C	-x°C to -x°C or x°C to x°C
Maximum	x m	From x to x m
Towing/ aerodynamic	Not allowed	Allowed**
Vehicle	Higher or equal than x%	Less than x%
Auxiliaries	Possible as per normal use	-
Internal Combustion Engine	Any	-
Trip	As per usual use	-
Minimum mileage	x km for <16t TPMLM x km for > 16t TPMLM	Between x km and x km for <16t TPMLM

*The same emission strategy shall be used when a vehicle is run outside those conditions, unless there is an approved technical reason.

**According to manufacturer specification up to GCVW and up to the regulated speed.

² With any market fuel and lubricant within the specifications issued by the manufacturer of the vehicle.

Table 3: Conditions for testing compliance with evaporative emission limits

	Testing conditions
Evaporative emission SHED test	<ul style="list-style-type: none"> • Baking of entire vehicle or of individual components (optional) • Vehicle canister preconditioning + fuel refilling and vehicle precondition drive • Drive temperature and hot soak test between x and x°C (x °C for type
Refuelling emission test	<p>Vehicle preconditioning</p> <ul style="list-style-type: none"> • Fuel drain and fill to x% • x h min soak at x°C • preconditioning drive <p>Canister preconditioning</p> <ul style="list-style-type: none"> • Fuel drain and fill to x% • x h soak • Load canister with HC vapors until xg breakthrough at x0 g/h 50% butane/N2 • Exhaust test: WLTP (recording emissions) • x h soak at x°C • Canister purge drive at x°C <p>Refuelling event</p> <ul style="list-style-type: none"> • Disconnect canister(s) • Fuel drain and fill to x% • xh soak at x°C. • Reconnect canister(s) • Dispense fuel at x l/min until automatic shut-off. If < x% of total tank capacity is dispensed, continue auto-refuelling until fuel dispensed is

Table 4: Conditions for testing compliance with brake particle emission limits

	M ₁ , N ₁ vehicles	M ₂ , M ₃ , N ₂ and N ₃ vehicles
Emissions in a standard driving	Testing according to the UN GTR on brake emissions	

Table 5: Conditions for testing compliance with tyre abrasion limits

	M ₁ , N ₁ vehicles	M ₂ , M ₃ , N ₂ and N ₃ vehicles
Tyre Abrasion limits	Based on the testing methodologies developed in UN for testing tyre abrasion	

ANNEX IV

LIFETIME REQUIREMENTS

Table 1: Lifetime of vehicles, engines and pollution control systems

L i f e t i m e o f v e h i c l e s , e n g i n e s a n d r e p l a c e m e n t	M₁, N₁ and M₂	N₂, N₃<16t, M₃<7.5t:	N₃>16t, M₃>7.5t
Main lifetime	Up to 160 000 km or 8 years, whichever comes first	300 000 km or 8 years, whichever comes first	700 000 km or 15 years, whichever
A d d i t i o n a l l i f e t i m e	After main lifetime and up to x km or x years whichever comes first	After main lifetime and up to x km	After main lifetime and up to

Table 2: Applicable durability multipliers for adjusting exhaust emission limits under Annex 1 when testing vehicles, engines and replacement pollution control devices during additional lifetime.

D u r a b i l i t y	M₁, N₁ and M₂	N₂, N₃<16t, M₃<7.5t:	N₃>16t, M₃>7.5t
Durability multiplier for	x for gaseous pollutant emissions		

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ANNEX V

APPLICATION OF TEST REQUIREMENTS AND DECLARATIONS

Table 1: Application of test requirements and declarations for M₁, N₁ vehicles for vehicle manufacturers

Test requirements	Tests at initial Emissions Type	Tests at Conformity of	Tests at In-Service Conformity (ISC)
Gaseous pollutants and PN in road testing (RDE)	Required demonstration test for all fuels for which the type approval is granted + declaration of compliance for all	Not required	Optional*
Gaseous pollutants, PM and PN in RDE cycles in the laboratory and CO ₂ emissions, fuel consumption (OBFCM), electric energy consumption and electric	Required**	Required	Required**
CO ₂ Ambient Temperature correction	Declaration*	Not required	Optional*
Crankcase emissions	Declaration*	Required	Optional*
Evaporative emissions SHED	Required	Required	Optional*
Refuelling emissions	Required	Not required	Not required
Evaporative leak detection	Required	Not required	Not required
Refuelling emissions	Required	Not required	Not required
Emissions Durability	Declaration	Not required	Not required
Battery durability	Declaration	Not required	Not required
Laboratory test of low temperature for emissions and	Required	Not required	Optional*
On-board diagnostics	Declaration	Not required	Optional*
On-board monitoring	Demonstration	Not required	Required
Engine power	Required	Not required	Optional*
Anti-tampering / Security /	Declaration and	Not required	Not required
Adaptive controls (where	Declaration	Not required	Not required

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Geofencing technologies (where	Declaration and	Not required	Not required
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* The type approval authority may request the test to be performed.

** Required if all relevant pollutants cannot be measured on the road.

Table 2: Application of test requirements and declarations for M₁, N₁ vehicles for Member States and recognised third parties/Commission

Test requirements	Tests at initial ETA	Tests at CoP	Tests at ISC	Tests at Market
Responsible/Other Actor	<i>TAA* for issuing the type</i>	<i>TAA</i>	<i>TAA/third parties and</i>	<i>MaSA**/third parties and</i>
Gaseous pollutants and PN in road testing (RDE)	Required demonstration test for all fuels for which the type approval is granted + declaration of compliance for all family	Not required	Required / Optional	Required / Optional
Gaseous pollutants, PM and PN in RDE cycles in the laboratory and CO ₂ emissions, fuel consumption (OBFCM), electric energy	Required	Audits or optional testing	Optional / Optional	Optional / Optional
CO ₂ Ambient Temperature correction	Declaration	Not required	Optional / Optional	Required / Optional
Crankcase emissions	Declaration	Audits or	Optional /	Optional /
Evaporative emissions	Required	Audits or	Optional /	Required /
Refuelling emissions	Required	Not required	Optional /	Required /
Evaporative leak	Not required	Not required	Optional /	Optional /
Emissions Durability	Declaration	Not required	Required /	Required /
Battery Durability	Declaration	Not required	Required /	Required /
Laboratory test of Low temperature for emissions	Required	Not required	Optional / Optional	Required / Optional
On-board diagnostics	Declaration	Not required	Optional /	Required /
On-board monitoring	Demonstration +Declaration	Not required	Required / Optional	Required / Optional
Engine power	Required	Not required	Optional /	Optional /

Anti-tampering /Security / Cybersecurity	Declaration and documentation	Not required	Not required	Required / Optional
Adaptive controls (where	Declaration	Not required	Not required	Optional /
Geofencing technologies (where applicable)	Declaration and demonstration	Not required	Not required	Required / Optional

* Where TAA means the Type Approval Authority, acting through a Technical Service.

** Where MaSA means the Market Surveillance Authority.

Table 3: Application of tests, declarations and other requirements for type-approval and extensions for M₂, M₃, N₂ and N₃ vehicles for manufacturers

Test requirements	Requirements and Tests at	Tests at CoP	Tests at ISC
Gaseous pollutants, PM and PN in road testing (PEMS) for each fuel and for the applicable vehicle categories (M ₂ , M ₃ , N ₂ and N ₃) +Low Load test (if applicable)	Required demonstration tests for all fuels for which the type approval is granted on a vehicle equipped with the parent engine per vehicle type and a payload between x and x% and at least x WHTC work with cold engine system	(see engine requirements)	Required test on a vehicle equipped with any engine out of the family, on any fuel and on any vehicle category and a payload between 0 and 100% for all engine families
CO ₂ and fuel consumption	VECTO licence	Not required	Not required
Verification Testing	Not required	Required	Not Required
Crankcase emissions	Declaration*	Not required	Optional*
Emissions Durability	Declaration	Not required	Not required
Battery Durability	Declaration	Not required	Not required
On-board diagnostics (OBD family level)	Declaration	Not required	Optional*
On-board monitoring (OBM family level)	Demonstration +Declaration	Not required	Required
Anti-tampering / Security /	Declaration and documentation	Not required	Not required
Adaptive controls (where applicable)	Declaration	Not required	Not required
Geofencing technologies (where	Declaration and demonstration	Not required	Not required

* The type approval authority may request a test to be performed.

Table 4: Application of test requirements and declarations for type-approval and extensions for M₂, M₃, N₂ and N₃ vehicles for Member States and recognised third parties/Commission

Test requirements	Tests at initial ETA	Tests at CoP	Tests at ISC	Tests at MaS
Responsible/Other Actor	<i>TAA for issuing the type approval *</i>	<i>TAA</i>	<i>TAA/third parties and</i>	<i>MaSA**/third parties and</i>
Gaseous pollutants, PM and PN in road testing (PEMS) for each fuel and for the applicable vehicle categories (M ₂ , M ₃ , N ₂ and N ₃) + Low Load test (if applicable)	Required demonstration tests for all fuels for which the type approval is granted on a vehicle equipped with the parent engine per vehicle type and a payload between x and x% and at least x WHTC work with cold engine system	(see engine requirements)	Required yearly on a vehicle equipped with any engine out of the family, on any fuel and on any vehicle category and a payload between 0 and 100% for an adequate number of	Required / Optional
CO ₂ and fuel consumption	Issue VECTO licence	Not relevant	Not relevant	Not relevant
Verification Testing	Not required	Audit or	Not required	Not required
Crankcase emissions	Declaration*	Not required	Optional /	Optional /
Emissions Durability	Declaration	Not required	Optional /	Required /
Battery Durability	Declaration	Not required	Optional /	Optional /
On-board diagnostics (OBD family level)	Declaration	Not required	Optional / Optional	Required / Optional
On-board monitoring (OBM family level)	Demonstration +Declaration	Not required	Not required	Required / Optional
Anti-tampering / Security /	Declaration and documentation	Not required	Not required	Required / Optional
Adaptive controls (where applicable)	Declaration	Not required	Not required	Optional / Optional
Geofencing technologies (where	Declaration and demonstration	Not required	Not required	Required / Optional

* Where TAA means the Type Approval Authority, acting through a Technical Service.

** Where MaSA means the Market Surveillance Authority.

Table 5: Application of test requirements and declarations for type-approval and extensions of engines intended for M₂, M₃, N₂ and N₃ vehicles for manufacturers

Test requirements for each	Tests at initial	Tests at CoP	Tests at ISC
Gaseous pollutants, PM and PN and CO ₂ emissions, fuel consumption on transient cycle (WHTC Cold and Hot)	Required on the parent engine of the emission family + Declaration for all	Required on an engine out of the family	<vehicle level only>
Verifying engine data according to Annex V to 2017/2400: -Engine full load curve (1,2,3) -Engine motoring curve (1,3) -WHTC test (1,2,3) -WHSC test (1,2,3) -Fuel Consumption Mapping	On the parent engine of each CO ₂ family (1) On other engines within the CO ₂ family (2)	On the two CO ₂ families with the highest production volumes and, where applicable, additional randomly selected CO ₂ families (3)	
Continuous / periodic regeneration	Declaration	Not required	
Crankcase emissions	Installation of closed crankcase	Not required	
Emissions Durability	Declaration	Not required	
On-board diagnostics (OBD)	Declaration	Not required	
On-board monitoring (OBM)	<vehicle level>	Not required	
Engine power	Required		

* The type approval authority may request a test to be performed during initial type approval.

** Supported by data of engine testing of all power ratings.

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Table 6: Application of test requirements and declarations for type-approval and extensions of engines intended for M₂, M₃, N₂ and N₃ vehicles for Member States and recognised third parties/Commission

Test requirements for	Tests at initial	Tests at CoP	Tests at ISC	Tests at MaS
Responsible	<i>TAA for issuing TA</i>	<i>TAA</i>	<i>TAA/third parties and</i>	<i>MaSA**/third parties and</i>
Gaseous pollutants, PM and PN and CO ₂ emissions, fuel	Required on the parent engine + Declaration for	Audit or optional testing	<vehicle level only>	<vehicle level
Verifying engine data according to Annex V to 2017/2400:	On the parent engine of each CO ₂ family (1)	Audit or optional testing		
-Engine full load curve (1,2)	On other engines within the CO ₂ family (2)			
-Engine motoring curve (1)				
-WHTC test (1,2)				
-WHSC test (1,2)				
Continuous/periodic	Declaration	Not required		
Crankcase emissions	Installation of closed	Not required		
Emissions Durability	Declaration	Not required		
On-board diagnostics	Declaration	Not required		
On-board monitoring (OBM family level)	<vehicle level>			
Engine power	Required	Not required		

Table 7: Application of test requirements and declarations for type-approval of pollution control systems for manufacturers

Test requirements	Tests at initial	Tests at CoP	Tests at ISC
Demonstration of performance and durability with aged parts	R e q u i r e d / Declaration	Not required	Optional
Durability requirement check in real life (Type 1a test with aged	Declaration	Not required	Optional

Table 8: Application of test requirements and declarations for type-approval of pollution control systems for Member States and recognised third parties/Commission

Test requirements	Tests at initial	Tests at CoP	Tests at ISC	Tests at MaS
Responsible/Other Actor	<i>TAA*</i>	<i>TAA</i>	<i>TAA/third parties and</i>	<i>MaSA**/third parties and</i>
Demonstration of performance and	Required	Optional	Optional / Optional	Optional / Optional
Durability requirement check in real life (RDE)	Declaration	Not required	Optional / Optional	Required / Optional

Table 9: Application of test requirements for type-approval of brake systems for manufacturers

Test requirements	Tests at initial	Tests at CoP	Tests at ISC
Brake system emissions test in	Required	Required	Required

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Table 10: Application of test requirements for type-approval of brake systems for Member States and recognised third parties/Commission

Test requirements	Tests at initial	Tests at CoP	Tests at ISC	Tests at MaS
Responsible/Other Actor	<i>TAA*</i>	<i>TAA</i>	<i>TAA/third parties and</i>	<i>MaSA**/third parties and</i>
Brake system emissions test in WLTP brake cycle	Required	Audit or optional testing	Required / Optional	Optional / Optional

ANNEX VI

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CORRELATION TABLE

1. Regulation (EC) No 715/2007

Regulation (EC) No 715/2007	This Regulation
Article 1(1)	Article 1(1)
Article 1(2)	Article 1(2)
Article 2(1)	Article 2(1)
Article 2(2)	Article 5(6)
Article 3	Article 3
Article 4(1), first subparagraph	Article 4(1), first subparagraph
Article 4(1), second subparagraph	Article 4(1), second subparagraph
Article 4(2)	Article 7(1)
Article 4(3)	Article 7(4)
Article 4(4)	Article 7(6)
Article 5(1)	Article 4(2)
Article 5(2)	Article 4(3)
Article 5(3)	Article 14(2)
Article 5(3), last subparagraph	Article 6 (1), second subparagraph
Article 10	Article 10
Article 11	Article 11
Article 12	—
Article 13	—
Article 14	—
Article 15	Article 17
Article 16	—
Article 17	Article 19
Article 18	Article 20
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2. Regulation (EC) No 595/2009

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Regulation (EC) No 595/2009	This Regulation
Article 1	Article 1
Article 2, first subparagraph	Article 2, first subparagraph
Article 2, second subparagraph	—
Article 2, third subparagraph	—
Article 2, fourth subparagraph	—
Article 3	Article 3
Article 4(1)	Article 4(1)
Article 4(2)	Article 7(1)
Article 4(3)	Article 7(6)
Article 5(1)	Article 4(1), second subparagraph
Article 5(2)	Article 4(2)
Article 5(3)	Article 4(3)
Article 5(4)	Article 14(2)
Article 5a	Article 4(4)
Article 5b	Article 10(5)
Article 5c(a)	Article 14(4)(d)
Article 5c(b)	Article 14(4)(i)
Article 5c (c)	Article 14(4)(b)
Article 7	Article 12
Article 8	Article 10(4) and Article 10(5)
Article 9	Article 11
Article 10	—
Article 11	—
Article 12	—
Article 13	Article 17
Article 13a	Article 17
Article 14	—
Article 15	—
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