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**NOTE**

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Subject: Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND  
OF THE COUNCIL on requirements relating to emission limits and type-  
approval for internal combustion engines for non-road mobile machinery

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Delegations will find attached an updated version of the Annexes.

New text compared to the Commission's proposal is indicated in **bold** and deletions are marked with ~~strikethrough~~. Highlighted text shows changes compared to the previous document.

## ANNEX I

## Definition of engine sub-categories referred to in Article 4

Table I-1: Sub-categories of engine category NRE defined in Article 4 point (1)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
NRE	CI	variable	$0 < P < 8$	NRE-v-1	Maximum net power
	CI		$8 \leq P < 19$	NRE-v-2	
	CI		$19 \leq P < 37$	NRE-v-3	
	CI		$37 \leq P < 56$	NRE-v-4	
	all		$56 \leq P < 130$	NRE-v-5	
			$130 \leq P \leq 560$	NRE-v-6	
			$P > 560$	NRE-v-7	
	CI	constant	$0 < P < 8$	NRE-c-1	Rated net power
	CI		$8 \leq P < 19$	NRE-c-2	
	CI		$19 \leq P < 37$	NRE-c-3	
	CI		$37 \leq P < 56$	NRE-c-4	
	all		$56 \leq P < 130$	NRE-c-5	
			$130 \leq P \leq 560$	NRE-c-6	
			$P > 560$	NRE-c-7	

Table I-2: Sub-categories of engine category NRG defined in Article 4 point (2)

Category	Ignition type	Speed <del>mode</del> operation	Power range (kW)	Sub-category	Reference power
NRG	all	variable	P>560	NRG-v-1	Maximum net power
		constant	P>560	NRG-c-1	Rated net power

Table I-3: Sub-categories of engine category NRSh defined in Article 4 point (3)

Category	Ignition type	Speed <del>mode</del> operation	Power range (kW)	Swept volume (cm <sup>3</sup> )	Sub-category	Reference power
NRSh	SI	variable or constant	0<P<19	SV<50	NRSh-v-1a	Maximum net power
				SV≥50	NRSh-v-1b	

Table I-4: Sub-categories of engine category NRS defined in Article 4 point (4)

Category	Ignition type	Speed <del>mode</del> operation	Power range (kW)	Swept volume (cm <sup>3</sup> )	Sub-category	Reference power
NRS	SI	variable, <del>rated</del> <b>≥3600 rpm</b> ; or constant	0<P<19	80≤SV<225	NRS-vr-1a	Maximum net power
				SV≥225	NRS-vr-1b	
				80≤SV<225	NRS-vi-1a	
				SV≥225	NRS-vi-1b	
		variable or constant	19≤P<30	SV≤1000	NRS-v-2a	Maximum net power
				SV>1000	NRS-v-2b	
			30≤P<56	any	NRS-v-3	Maximum net power

For engines <19kW with SV<80cm<sup>3</sup> in machinery other than hand-held machinery, engines of the category NRSh shall be used.

Table I-5: Sub-categories of engine category IWP defined in Article 4 point (5)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
IWP	all	variable	<del>3719</del> ≤ P < 75	IWP-v-1	Maximum net power
			75 ≤ P < 130	IWP-v-2	
			130 ≤ P < 300	IWP-v-3	
			<del>P ≥ 300</del> ≤ P < 1000	IWP-v-4	
			<del>P ≥ 1000</del>	<del>IWP-v-5</del>	
		constant	<del>3719</del> ≤ P < 75	IWP-c-1	Rated net power
			75 ≤ P < 130	IWP-c-2	
			130 ≤ P < 300	IWP-c-3	
			<del>P ≥ 300</del> ≤ P < 1000	IWP-c-4	
			<del>P ≥ 1000</del>	<del>IWP-c-5</del>	

Table I-6: Sub-categories of engine category IWA defined in Article 4 point (6)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
IWA	all	variable	<del>560</del> ≤ P < 1000 19 ≤ P < 75	IWA-v-1	Maximum net power
			<del>P ≥ 1000</del> 75 ≤ P < 130	IWA-v-2	
			130 ≤ P < 300	IWA-v-3	
			P ≥ 300	IWA-v-4	
		constant	<del>560</del> ≤ P < 1000 19 ≤ P < 75	IWA-c-1	Rated net power
			<del>P ≥ 1000</del> 75 ≤ P < 130	IWA-c-2	
			130 ≤ P < 300	IWA-c-3	
			P ≥ 300	IWA-c-4	

Table I-7: Sub-categories of engine category RLL defined in Article 4 point (7)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
RLL	all	variable	P>0	RLL-v-1	Maximum net power
		constant	P>0	RLL-c-1	Rated net power

Table I-8: Sub-categories of engine category RLR defined in Article 4 point (8)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
RLR	all	variable	P>0	RLR-v-1	Maximum net power
		constant	P>0	RLR-c-1	Rated net power

Table I-9: Sub-categories of engine category SMB defined in Article 4 point (9)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
SMB	SI	variable or constant	P>0	SMB-v-1	Maximum net power

Table I-10: Sub-categories of engine category ATS defined in Article 4 point (10)

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	Reference power
ATS	SI	variable or constant	P>0	ATS-v-1	Maximum net power

ANNEX II

**Exhaust emission limits referred to in Article 17(2)**

Table II-1: Stage V emission limits for engine category NRE defined in Article 4 point (1)

<b>Emission stage</b>	<b>Engine sub-category</b>	<b>Power range</b>	<b>Engine ignition type</b>	<b>CO</b>	<b>HC</b>	<b>NOx</b>	<b>PM mass</b>	<b>PN</b>	<b>A</b>
		<b>kW</b>		<b>g/kWh</b>	<b>g/kWh</b>	<b>g/kWh</b>	<b>g/kWh</b>	<b>#/kWh</b>	
Stage V	NRE-v-1 NRE-c-1	0<P<8	CI	8,00	(HC+NOx≤7,50)		0,40 <sup>1)</sup>	-	1,10
Stage V	NRE-v-2 NRE-c-2	8≤P<19	CI	6,60	(HC+NOx≤7,50)		0,40	-	1,10
Stage V	NRE-v-3 NRE-c-3	19≤P<37	CI	5,00	(HC+NOx≤4,70)		0,015	1x10 <sup>12</sup>	1,10
Stage V	NRE-v-4 NRE-c-4	37≤P<56	CI	5,00	(HC+NOx≤4,70)		0,015	1x10 <sup>12</sup>	1,10
Stage V	NRE-v-5 NRE-c-5	56≤P<130	all	5,00	0,19	0,40	0,015	1x10 <sup>12</sup>	1,10
Stage V	NRE-v-6 NRE-c-6	130≤P≤560	all	3,50	0,19	0,40	0,015	1x10 <sup>12</sup>	1,10
Stage V	NRE-v-7 NRE-c-7	P>560	all	3,50	0,19	3,50	0,045	-	6,00

<sup>1)</sup> 0,6 for hand-startable, air-cooled direct injection engines

Table II-2: Stage V emission limits for engine category NRG defined in Article 4 point (2)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	NRG-v-1 NRG-c-1	P>560	all	3,50	0,19	0,67	0,035	-	6,00

Table II-3: Stage V emission limits for engine category NRSh defined in Article 4 point (3)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC + NOx
		kW		g/kWh	g/kWh
Stage V	NRSh-v-1a	0<P<19	SI	805	50
Stage V	NRSh-v-1b			603	72

Table II-4: Stage V emission limits for engine category NRS defined in Article 4 point (4)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC + NOx
		kW		g/kWh	g/kWh
Stage V	NRS-vr-1a NRS-vi-1a	0<P<19	SI	610	10
Stage V	NRS-vr-1b NRS-vi-1b			610	8
Stage V	NRS-v-2a	19≤P≤30		610	8
Stage V	NRS-v-2b NRS-v-3	19≤P<56		4,40*	2,70*

\* Optionally, as alternative, any combination of values satisfying the equation  $(HC+NO_x) \times CO^{0.784} \leq 8,57$  as well as the following conditions:  $CO \leq 20,6$  g/kWh and  $(HC+NO_x) \leq 2,7$  g/kWh

Table II-5: Stage V emission limits for engine category IWP defined in Article 4 point (5)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	IWP-v-1 IWP-c-1	<del>37</del> 19≤P<75	all	5,00	(HC+NOx≤4,70)		0,30	-	<del>6,00</del> <b>3,00</b>
Stage V	IWP-v-2 IWP-c-2	75≤P<130	all	5,00	(HC+NOx≤5,40)		0,14	-	<del>6,00</del> <b>3,00</b>
Stage V	IWP-v-3 IWP-c-3	130≤P<300	all	3,50	1,00	2,10	<del>0,11</del> <b>0,10</b>	-	<del>6,00</del> <b>3,00</b>
Stage V	IWP-v-4 IWP-c-4	<del>300≤P&lt;1000</del> <b>P≥300</b>	all	3,50	0,19	<del>1,20</del> <b>1,80</b>	<del>0,02</del> <b>0,015</b>	<del>1x10<sup>12</sup></del> <b>1x10<sup>11</sup></b>	<del>6,00</del> <b>3,00</b>
<del>Stage V</del>	<del>IWP-v-5</del> <del>IWP-c-5</del>	<del>P&gt;1000</del>	<del>all</del>	<del>3,50</del>	<del>0,19</del>	<del>0,40</del>	<del>0,01</del> <b>0,015</b>	<del>1x10<sup>12</sup></del>	<del>6,00</del>



Table II-6: Stage V emission limits for engine category IWA defined in Article 4 point (6)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	IWA-v-1 IWA-e-1	$560 \leq P < 1000$	all	3,50	0,19	1,20	0,02	$1 \times 10^{12}$	6,00
Stage V	IWA-v-2 IWA-e-2	$P \geq 1000$	all	3,50	0,19	1,40	0,01	$1 \times 10^{12}$	6,00
Stage V	IWA-v-1 IWA-c-1	$19 \leq P < 75$	all	5,00	(HC+NOx $\leq$ 4,70)		0,30	-	3,00
Stage V	IWA-v-2 IWA-c-2	$75 \leq P < 130$	all	5,00	(HC+NOx $\leq$ 5,40)		0,14	-	3,00
Stage V	IWA-v-3 IWA-c-3	$130 \leq P < 300$	all	3,50	1,00	2,10	0,10	-	3,00
Stage V	IWA-v-4 IWA-c-4	$P \geq 300$	all	3,50	0,19	1,80	<u>0,015</u>	$1 \times 10^{11}$	3,00

Table II-7: Stage V emission limits for engine category RLL defined in Article 4 point (7)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	RLL-c-1 RLL-v-1	$P > 0$	all	3,50	(HC+NOx $\leq$ 4,00)		0,025	-	6,00

Table II-8: Stage V emission limits for engine category RLR defined in Article 4 point (8)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	RLR-c-1 RLR-v-1	P>0	all	3,50	0,19	2,00	0,015	1x10 <sup>12</sup>	6,00

Table II-9: Stage V emission limits for engine category SMB defined in Article 4 point (9)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	NOx	HC
		kW		g/kWh	g/kWh	g/kWh
Stage V	SMB-v-1	P>0	SI	275	-	75

Table II-10: Stage V emission limits for engine category ATS defined in Article 4 point (10)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC + NOx
		kW		g/kWh	g/kWh
Stage V	ATS-v-1	P>0	SI	400	8

## Specific provisions on hydro-carbon (HC) limits for fully and partially gaseous fuelled engines

1. For the sub-categories where an A factor is defined, the HC limit for fully and partially gaseous fuelled engines indicated in the ~~the~~ Tables II-1 to II-10 is replaced by the one calculated with the following formula:

$$\text{HC} = 0,19 + (1,5 * \text{A} * \text{GER})$$

where GER is the average gas energy ratio over the appropriate cycle. Where both a steady-state and transient test cycle applies, the GER shall be determined from the hot-start transient test cycle. Where more than one steady-state test cycle applies, the average gas energy ratio shall be determined for each cycle individually.

If the calculated limit for HC exceeds the value of  $0,19 + \text{A}$  the limit for HC shall be set to  $0,19 + \text{A}$ .

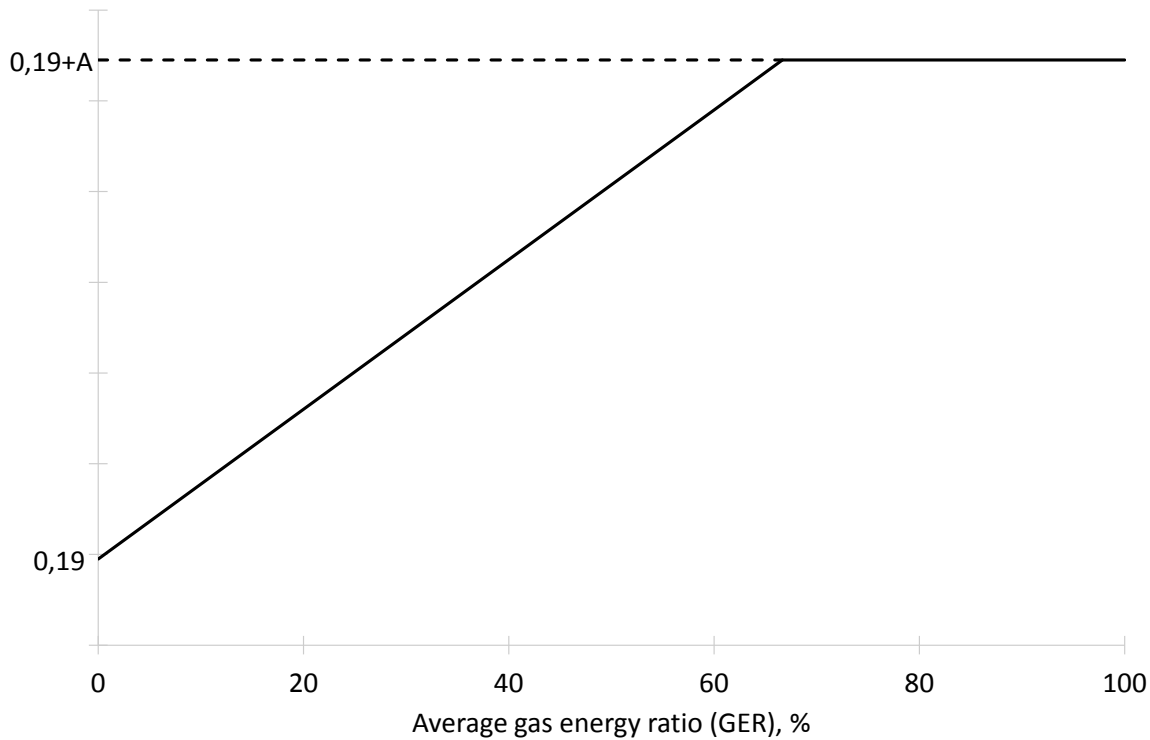


Figure 1. Schematic of HC emission limit as function of average gas energy ratio (GER)

2. For sub-categories with a combined HC and NO<sub>x</sub> limit, the combined limit value for HC and NO<sub>x</sub> shall be reduced by 0,19 g/kWh and apply for NO<sub>x</sub> only.
3. For non-gaseous fuelled engines the formula does not apply.

ANNEX III

**Timetable for the application of this Regulation  
in respect of EU type-approvals and placing on the market**

Table III-1: Dates of application of this Regulation for engine category NRE

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRE	CI	0<P<8	NRE-v-1	1 January 2018	1 January 2019
			NRE-c-1		
	CI	8≤P<19	NRE-v-2	1 January 2018	1 January 2019
			NRE-c-2		
	CI	19≤P<37	NRE-v-3	1 January 2018	1 January 2019
			NRE-c-3		
	CI	37≤P<56	NRE-v-4	1 January 2018	1 January 2019
			NRE-c-4		
	all		56≤P<130	1 January 2019	1 January 2020
130≤P≤560			1 January 2018	1 January 2019	
P>560			1 January 2018	1 January 2019	

Table III-2: Dates of application of this Regulation for engine category NRG

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRG	all	P>560	NRG-v-1 NRG-c-1	1 January 2018	1 January 2019

Table III-3: Dates of application of this Regulation for engine category NRSh

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRSh	SI	0<P<19	NRSh-v-1a NRSh-v-1b	1 January 2018	1 January 2019

Table III-4: Dates of application of this Regulation for engine category NRS

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRS	SI	0<P<56	NRS-vr-1a NRS-vi-1a NRS-vr-1b NRS-vi-1b NRS-v-2a NRS-v-2b NRS-v-3	1 January 2018	1 January 2019

Table III-5: Dates of application of this Regulation for engine category IWP

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
IWP	all	3719 < P < 300	IWP-v-1	1 January 2018	1 January 2019
			IWP-c-1		
			IWP-v-2		
			IWP-c-2		
			IWP-v-3		
			IWP-c-3		
		300 ≤ P < 1000	IWP-v-4	1 January 2019	1 January 2020
		P ≥ 300	IWP-c-4		
		P ≥ 1000	IWP-v-5	1 January 2020	1 January 2021
			IWP-c-5		

Table III-6: Dates of application of this Regulation for engine category IWA

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
IWA	all	560 ≤ P < 1000	IWA-v-1	1 January 2019	1 January 2020
			IWA-c-1		
			IWA-v-2		
		19 ≤ P < 300	IWA-c-2	2018	2019
			IWA-v-3		
			IWA-c-3		
		P ≥ 1000	IWA-v-2	1 January 2020	1 January 2021
			IWA-v-2		
		P ≥ 300	IWA-c-4		
			IWA-c-4		

Table III-7: Dates of application of this Regulation for engine category RLL

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
RLL	all	P>0	RLL-v-1 RLL-c-1	1 January 2020	1 January 2021

Table III-8: Dates of application of this Regulation for engine category RLR

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
RLR	all	P>0	RLR-v-1 RLR-c-1	1 January 2020	1 January 2021

Table III-9: Dates of application of this Regulation for category SMB

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
SMB	SI	P>0	SMB-v-1	1 January 2018	1 January 2019

Table III-10: Dates of application of this Regulation for engine category ATS

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
ATS	SI	P>0	ATS-v-1	1 January 2018	1 January 2019

ANNEX IV

Non-road steady-state test cycles (NRSC)

Table IV-1: NRSC test cycles for engines of category NRE

Category	Speed mode operation	Purpose	Sub-category	NRSC
NRE	variable	Variable speed engine having a reference power less than 19 kW	NRE-v-1 NRE-v-2	G2 or C1
		Variable speed engine having a reference power greater than or equal to 19 kW but not more than 560 kW	NRE-v-3 NRE-v-4 NRE-v-5 NRE-v-6	C1
		Variable speed engine having a reference power greater than 560 kW	NRE-v-7	C1
	constant	Constant speed engine	NRE-c-1 NRE-c-2 NRE-c-3 NRE-c-4 NRE-c-5 NRE-c-6 NRE-c-7	D2

Table IV-2: NRSC test cycles for engines of category NRG

Category	Speed mode operation	Purpose	Sub-category	NRSC
NRG	variable	Variable speed engine for generating set	NRG-v-1	C1
	constant	Constant speed engine for generating set	NRG-c-1	D2

Table IV-3: NRSC test cycles for engines of category NRSh

Category	Speed mode operation	Purpose	Sub-category	NRSC
NRSh	variable or constant	Engine having a reference power of not more than 19 kW, for use in handheld machinery	NRSh-v-1a NRSh-v-1b	G3



Table IV-4: NRSC test cycles for engines of category NRS

Category	Speed mode operation	Purpose	Sub-category	NRSC
NRS	variable, intermediate <3600rpm	Variable speed engine having a reference power of not more than 19 kW, intended for intermediate speed application operation <3600rpm	NRS-vi-1a NRS-vi-1b	G1
	variable, rated ≥3600rpm; or constant	Variable speed engine having a reference power of not more than 19 kW, intended for rated speed application operation ≥3600rpm; constant speed engine having a reference power of not more than 19 kW	NRS-vr-1a NRS-vr-1b	G2
	variable or constant	Engine having both a reference power between 19 kW and 30 kW and a total swept volume of less than 1 litre	NRS-v-2a	G2
		Engine having a reference power of greater than 19 kW, other than engine having both a reference power between 19 kW and 30 kW and a total swept volume of less than 1 litre	NRS-v-2b NRS-v-3	C2

Table IV-5: NRSC test cycles for engines of category IWP

Category	Speed mode operation	Purpose	Sub-category	NRSC
IWP	variable	Variable speed engine intended for propulsion that operates on a fixed-pitch propeller curve	IWP-v-1 IWP-v-2 IWP-v-3 IWP-v-4 <del>IWP-v-5</del>	E3
	constant	Constant speed engine intended for propulsion that operates with a controllable-pitch or electrically coupled propeller	IWP-c-1 IWP-c-2 IWP-c-3 IWP-c-4 <del>IWP-c-5</del>	E2

Table IV-6: NRSC test cycles for engines of category IWA

Category	Speed mode operation	Purpose	Sub-category	NRSC
IWA	variable	Variable speed engine <del>having a reference power that is greater than 560 kW</del> intended for auxiliary use on inland waterway vessels	IWA-v-1 IWA-v-2 <del>IWA-v-3</del> <del>IWA-v-4</del>	C1
	constant	Constant speed engine <del>having a reference power that is greater than 560 kW</del> intended for auxiliary use on inland waterway vessels	IWA-c-1 IWA-c-2 <del>IWA-c-3</del> <del>IWA-c-4</del>	D2

Table IV-7: NRSC test cycles for engines of category RLL

Category	Speed mode operation	Purpose	Sub-category	NRSC
RLL	variable	Variable speed engine for propulsion of locomotives	RLL-v-1	F
	constant	Constant speed engine for propulsion of locomotives	RLL-c-1	D2

Table IV-8: NRSC test cycles for engines of category RLR

Category	Speed mode operation	Purpose	Sub-category	NRSC
RLR	variable	Variable speed engine for propulsion of railcars	RLR-v-1	C1
	constant	Constant speed engine for propulsion of railcars	RLR-c-1	D2

Table IV-9: NRSC test cycles for engines of category SMB

Category	Speed mode operation	Purpose	Sub-category	NRSC
SMB	variable or constant	Engines for propulsion of snowmobiles	SMB-v-1	H

Table IV-10: NRSC test cycle for engines of category ATS

Category	Speed mode operation	Purpose	Sub-category	NRSC
ATS	variable or constant	Engines for propulsion of ATV or SbS	ATS-v-1	G1

### Non-road transient test cycles

Table IV-11: Non-road transient test cycle for engines of category NRE

Category	Speed mode operation	Purpose	Sub-category	
NRE	variable	Variable speed engine having reference power greater than or equal to 19 kW but not more than 560 kW	NRE-v-3 NRE-v-4 NRE-v-5 NRE-v-6	NRTC

Table IV-12: Non-road transient test cycle for engines of category NRS<sup>(1)</sup>

Category	Speed mode operation	Purpose	Sub-category	
NRS	variable or constant	Engine having a reference power of greater than 19 kW, other than engine having both a reference power between 19 kW and 30 kW and a total swept volume of less than 1 litre	NRS-v-2b NRS-v-3	LSI-NRTC

<sup>(1)</sup> Only applicable for engines with maximum test speed  $\leq 3400$ rpm.

## Emission durability periods referred to in Article 24(1)

Table V-1: Emission durability periods (EDP) for engine category **NRE**

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
NRE	CI	variable	$0 < P < 8$	NRE-v-1	3000
	CI		$8 \leq P < 19$	NRE-v-2	
	CI		$19 \leq P < 37$	NRE-v-3	5000
	CI		$37 \leq P < 56$	NRE-v-4	8000
	all		$56 \leq P < 130$	NRE-v-5	
			$130 \leq P \leq 560$	NRE-v-6	
			$P > 560$	NRE-v-7	
	CI	constant	$0 < P < 8$	NRE-c-1	3000
	CI		$8 \leq P < 19$	NRE-c-2	
	CI		$19 \leq P < 37$	NRE-c-3	
	CI		$37 \leq P < 56$	NRE-c-4	8000
	all		$56 \leq P < 130$	NRE-c-5	
			$130 \leq P \leq 560$	NRE-c-6	
			$P > 560$	NRE-c-7	

Table V-2: Emission durability period (EDP) for engine category **NRG**

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
NRG	all	constant	$P > 560$	NRG-v-1	8000
		variable		NRG-c-1	

Table V-3: Emission durability period (EDP) for engine category NRSh

Category	Ignition type	Speed mode operation	Power range (kW)	Swept volume (cm <sup>3</sup> )	Sub-category	EDP (hours)
NRSh	SI	variable or constant	0<P<19	SV<50	NRSh-v-1a	50/125/300 <sup>1)</sup>
				SV≥50	NRSh-v-1b	

<sup>1)</sup> EDP hours correspond to the EDP categories Cat 1/Cat 2/Cat 3 as defined in the delegated acts.

Table V-4: Emission durability period (EDP) for engine category **NRS**

Category	Ignition type	Speed mode operation	Power range (kW)	Swept volume (cm <sup>3</sup> )	Sub-category	EDP (hours)
NRS	SI	variable, <del>rated</del> <b>≥3600rpm</b> ; or constant	0<P<19	80≤SV<225	NRS-vr-1a	125/250/500 <sup>1)</sup>
		variable, <del>intermediate</del> <b>&lt;3600rpm</b>			NRS-vi-1a	
		variable, <del>rated</del> <b>≥3600rpm</b> ; or constant		SV≥225	NRS-vr-1b	250/500/1000 <sup>1)</sup>
		variable, <del>intermediate</del> <b>&lt;3600rpm</b>			NRS-vi-1b	
		variable or constant	19≤P<30	SV≤1000	NRS-v-2a	1000
			30≤P<56	SV>1000	NRS-v-2b	5000
				any	NRS-v-3	5000

<sup>1)</sup> EDP hours correspond to the EDP categories Cat 1/Cat 2/Cat 3 as defined in the delegated acts.

Table V-5: Emission durability period (EDP) for engine category **IWP**

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
IWP	all	variable	<del>3719</del> < P < 75	IWP-v-1	10000
			75 ≤ P < 130	IWP -v-2	
			130 ≤ P < 300	IWP -v-3	
			<del>300 ≤ P &lt; 1000</del> P ≥ 300	IWP -v-4	
			<del>P ≥ 1000</del>	<del>IWP -v-5</del>	
		constant	<del>3719</del> < P < 75	IWP -c-1	10000
			75 ≤ P < 130	IWP -c-2	
			130 ≤ P < 300	IWP -c-3	
			<del>300 ≤ P &lt; 1000</del> P ≥ 300	IWP -c-4	
			<del>P ≥ 1000</del>	<del>IWP -c-5</del>	

Table V-6: Emission durability period (EDP) for engine category IWA

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
IWA	all	variable	$560 \leq P < 1000$	IWA-v-1	10000
			$P \geq 1000$	IWA-v-2	
		constant	$560 \leq P < 1000$	IWA-c-1	
			$P \geq 1000$	IWA-c-2	
IWA	all	variable	$19 \leq P < 75$	IWP-v-1	10000
			$75 \leq P < 130$	IWP-v-2	
			$130 \leq P < 300$	IWP-v-3	
			$P \geq 300$	IWP-v-4	
		constant	$19 \leq P < 75$	IWP-c-1	10000
			$75 \leq P < 130$	IWP-c-2	
			$130 \leq P < 300$	IWP-c-3	
			$P \geq 300$	IWP-c-4	

Table V-7: Emission durability period (EDP) for engine category RLL

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
RLL	all	variable	$P > 0$	RLL-v-1	10000
		constant	$P > 0$	RLL-c-1	

Table V-8: Emission durability period (EDP) for engine category RLR

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
RLR	all	variable	P>0	RLR-v-1	10000
		constant	P>0	RLR-c-1	

Table V-9: Emission durability period (EDP) for category SMB

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
SMB	SI	variable or constant	P>0	SMB-v-1	400

Table V-10: Emission durability period (EDP) for engine category ATS

Category	Ignition type	Speed mode operation	Power range (kW)	Sub-category	EDP (hours)
ATS	SI	variable or constant	P>0	ATS-v-1	500/1000 <sup>2)</sup>

<sup>2)</sup> EDP hours correspond to the following total engine swept volumes: <100 cm<sup>3</sup> / ≥100 cm<sup>3</sup>.



**ATEX Special purpose engine (SPE) emission limit values referred to in Article 32(4)**Table VI-1: ~~ATEX~~ **SPE** emission limit values for engine category NRE

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	THC	NOx	PM mass	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-1 NRE-c-1	0<P<8	CI	8	7,5		0,4	6,0
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-2 NRE-c-2	8≤P<19	CI	6,6	7,5		0,4	6,0
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-3 NRE-c-3	19≤P<37	CI	5,5	7,5		0,6	6,0
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-4 NRE-c-4	37≤P<56	CI	5,0	4,7		0,4	6,0
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-5 NRE-c-5	56≤P<130	all	5,0	4,0		0,3	6,0
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-6 NRE-c-6	130≤P≤560	all	3,5	4,0		0,2	6,0
<del>ATEX</del> <b><u>SPE</u></b>	NRE-v-7 NRE-c-7	P>560	all	3,5	6,4		0,2	6,0

Table VI-2: ~~ATEX~~ **SPE** emission limit values for engine category NRG

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	
<del>ATEX</del> <b>SPE</b>	NRG-c-1	P>560	all	3,5	6.4		0,2	6,0
	NRG-v-1							

Table VI-3: ~~ATEX~~ **SPE** emission limit values for engine category RLL

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	THC	NOx	PM mass	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	
<del>ATEX</del> <b>SPE</b>	RLL-v-1	P≤560	all	3,5	(HC+NOx≤4,0)		0,2	6,0
	RLL-c-1							
<del>ATEX</del> <b>SPE</b>	RLL-v-1	P>560 kW	all	3,5	0,5	6,0	0,2	6,0
	RLL-c-1							
<del>ATEX</del> <b>SPE</b>	RLL-v-1	P>2000 kW and SVC <sup>1)</sup> >5 litres	all	3,5	0,4	7,4	0,2	6,0
	RLL-c-1							

<sup>1)</sup> Swept Volume per cylinder