California Environmental Protection Agency **Air Resources Board**	CUMMINS INC.	EXECUTIVE ORDER A-021-0619 New On-Road Heavy-Duty Engines Page 1 of 2 Pages

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE [1]	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS [2]	ECS & SPECIAL FEATURES [3]	DIAGNOSTIC [6]
2015	FCEXH0912XAU	14.9	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-U, AMOX	OBD($)

PRIMARY ENGINE'S IDLE EMISSIONS CONTROL [5]	ADDITIONAL IDLE EMISSIONS CONTROL [5]
30g	N/A

ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
14.9	See attachment for engine models and ratings

* =not applicable; **GVWR**=gross vehicle weight rating; **13 CCR xyz**=Title 13, California Code of Regulations, Section xyz; **40 CFR 86.abc**=Title 40, Code of Federal Regulations, Section 86.abc; **L**=liter; **hp**=horsepower; **kw**=kilowatt; **hr**=hour;

[1] **CNG/LNG**=compressed/liquefied natural gas; **LPG**=liquefied petroleum gas; **E85**=85% ethanol fuel; **MF**=multi fuel a.k.a. **BF**=bi fuel; **DF**=dual fuel; **FF**=flexible fuel;

[2] **L/M/H HDD**=light/medium/heavy heavy-duty diesel; **UB**=urban bus; **HDO**=heavy duty Otto;

[3] **ECS**=emission control system; **TWC/OC**=three-way/oxidizing catalyst; **NAC**=NOx adsorption catalyst; **SCR-U / SCR-N**=selective catalytic reduction – urea / – ammonia; **WU (prefix)** =warm-up catalyst; **DPF**=diesel particulate filter; **PTOX**=periodic trap oxidizer; **HO2S/O2S**=heated/oxygen sensor; **HAFS/AFS**=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); **TBI**=throttle body fuel injection; **SFI/MFI**=sequential/multi port fuel injection; **DGI**=direct gasoline injection; **GCARB**=gaseous carburetor; **IDI/DDI**=indirect/direct diesel injection; **TC/SC**=turbo/super charger; **CAC**=charge air cooler; **EGR / EGR-C**=exhaust gas recirculation / cooled EGR; **PAIR/AIR**=pulsed/secondary air injection; **SPL**=smoke puff limiter; **ECM/PCM**=engine/powertrain control module; **EM**=engine modification; **2 (prefix)**=parallel; **(2) (suffix)**=in series;

[5] **ESS**=engine shutdown system (per 13 CCR 1956.8(a)(6)(A)(1); **30g**=30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C); **APS** =internal combustion auxiliary power system; **ALT**=alternative method (per 13 CCR 1956.8(a)(6)(D); **Exempt**=exempted per 13 CCR 1956.8(a)(6)(B) or for CNG/LNG fuel systems; **N/A**=not applicable (e.g., Otto engines and vehicles);

[6] **EMD**=engine manufacturer diagnostic system (13 CCR 1971); OBD**(F) / (P) / ($)**=full / partial / partial with a fine / on-board diagnostic;);

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the SET and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, SET and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in parentheses.).[4]

in g/bhp-hr	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET
STD	0.14	0.14	0.20	0.20	*	*	15.5	15.5	0.01	0.01	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	0.03	0.002	0.18	0.11	*	*	1.1	0.8	0.000	0.001	*	*
NTE	0.21		0.30		*		19.4		0.02		*	

[4] **g/bhp-hr**=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **SET**=Supplemental emissions testing; **NTE**=Not-to-Exceed; **STD**=standard or emission test cap; **FEL**=family emission limit; **CERT**=certification level; **NMHC/HC**=non-methane/hydrocarbon; **NOx**=oxides of nitrogen; **CO**=carbon monoxide; **PM**=particulate matter; **HCHO**=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family certified under 13 CCR 1956.8(a)(6)(C) [30 g/hr NOx] and section 35.B.4 of the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted Dec. 12, 2002, as last amended Apr. 18, 2013, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1971.1 (on-board diagnostic, full or partial compliance) and 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: That the manufacturer has elected to include engine models in this engine family which are identified for "emergency vehicle use only". These "emergency vehicle use only" engines are exempt from requirements imposed pursuant to California law and the regulations adopted pursuant thereto for motor vehicle pollution control devices per California Vehicle Code Section 27156.2. The manufacturer must clearly label these engines for "emergency vehicle use only" on the engines' emission control label.

BE IT FURTHER RESOLVED: The listed engine models are conditionally certified in accordance with 13 CCR Section 1971.1(k) (deficiency and fines provisions for certification of malfunction and diagnostic system) because the heavy-duty on-board diagnostic (HD OBD) system of the listed engine models has been determined to have six deficiencies. The listed engine models are approved subject to the manufacturer paying a fine of $175 per engine for the third through sixth deficiencies in the listed engine family that is produced and delivered for sale in California. On a quarterly basis, the manufacturer shall submit to the Air Resources Board reports of the number of engines produced and delivered for sale in California and pay the full fine owed for that quarter pursuant to this conditional certification. Payment shall be made payable to the State Treasurer for deposit in the Air Pollution Control Fund no later than thirty (30) days after the end of each calendar quarter during the 2015 model-year production period. Failure to pay the quarterly fine, in full, in the time provided, may be cause for the Executive Officer to rescind this conditional certification, effective from the start of the quarter in question, in which case all engines covered under this conditional certification for that quarter and all future quarters would be deemed uncertified and subject to a civil penalty of up to $5000 per engine pursuant to HSC Section 43154.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 10 day of October 2014.

Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

EO#: A-021-0619

10-7-2014

Attachment: Page 1 of 2

Engine Model Summary Template

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
CEXH0912XAU	3939;FR11104	ISX15 600	600@1888	334	213	2050@1200	374	151	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11102	ISX15 600	600@1888	334	213	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11098	ISX15 550	560@1888	310	197	2050@1200	374	151	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11101	ISX15 550	560@1888	310	197	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11097	ISX15 525	533@1888	293	186	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11105	ISX15 600	588@1977	320	214	1950@1200	357	145	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11100	ISX15 550	546@1977	294	196	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11092	ISX15 500ST	486@1888	263	167	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11093	ISX15 500	486@1888	263	167	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11091	ISX15 500	486@1888	263	167	1650@1200	300	121	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11089	ISX15 485ST	471@1888	256	163	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11090	ISX15 485	471@1888	256	163	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11088	ISX15 485	471@1888	256	163	1650@1200	300	121	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11096	ISX15 500	486@1888	263	167	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11095	ISX15 500	486@1888	263	167	1650@1200	300	121	SCRC, PTOX, PC
CEXH0912XAU	3938;FR11087	ISX15 455	444@1888	243	155	1650@1200	300	121	SCRC, PTOX, PC
CEXH0912XAU	3939;FR11225	ISX15 560	560@1977	328	209	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11295	ISX15 600	600@1888	334	213	2050@1200	374	151	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11293	ISX15 600	600@1888	334	213	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11289	ISX15 550	560@1888	310	197	2050@1200	374	151	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11292	ISX15 550	560@1888	310	197	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11288	ISX15 525	533@1888	293	186	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11296	ISX15 600	588@1977	320	214	1950@1200	357	145	SCRC, PTOX, PC
CEXH0912XAU	4585;FR11291	ISX15 550	546@1977	294	196	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4584;FR11283	ISX15 500ST	486@1888	263	167	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4584;FR11284	ISX15 500	486@1888	263	167	1850@1200	339	137	SCRC, PTOX, PC
CEXH0912XAU	4584;FR11282	ISX15 500	486@1888	263	167	1650@1200	300	121	SCRC, PTOX, PC
CEXH0912XAU	4584;FR11280	ISX15 485ST	471@1888	256	163	1850@1200	339	137	SCRC, PTOX, PC

DOT_TC_CAC_ECM_EGR_OC_PTOX_SCR-4 Amox

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Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
FCEXH0912XAU	4584;FR11281	ISX15 485	471@1888	256	163	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	4584;FR11279	ISX15 485	471@1888	256	163	1650@1200	300	121	SCRC, PTOX, PC
FCEXH0912XAU	4584;FR11287	ISX15 500	486@1888	263	167	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	4584;FR11286	ISX15 500	486@1888	263	167	1650@1200	300	121	SCRC, PTOX, PC
FCEXH0912XAU	4584;FR11278	ISX15 455	444@1888	243	155	1650@1200	300	121	SCRC, PTOX, PC
FCEXH0912XAU	4585;FR11297	ISX15 560	560@1977	328	209	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU									
FCEXH0912XAU	Emergency	Vehicle	Models	Below					
FCEXH0912XAU	3939;FR11103	ISX15 600EV	587@1977	320	213	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	3939;FR11099	ISX15 550EV	546@1977	294	196	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	3938;FR11094	ISX15 500EV	465@1977	248	166	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	3938;FR11086	ISX15 485EV	428@1977	229	152	1750@1200	319	129	SCRC, PTOX, PC
FCEXH0912XAU	4585;FR11294	ISX15 600EV	587@1977	320	213	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	4585;FR11290	ISX15 550EV	546@1977	294	196	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	4584;FR11285	ISX15 500EV	465@1977	248	166	1850@1200	339	137	SCRC, PTOX, PC
FCEXH0912XAU	4584;FR11277	ISX15 485EV	428@1977	229	152	1750@1200	319	129	SCRC, PTOX, PC

DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-4 NOx