California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER A-021-0366-1 New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board (ARB) by Health and Safety Code (HSC) Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 and 39516 and Executive Order (EO) G-02-003; and

Pursuant to the December 15, 1998 Settlement Agreement (SA) between ARB and the manufacturer, and any modifications thereof to the Settlement Agreement;

IT IS ORDERED AND RESOLVED: That 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 SIZE (liter)	FUEL TYPE (CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas)	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS (L/M/H HDD=light/medium/heavy heavy-duty [HD] diesel; UB=urban bus; HDO=HD Otto)
2004	4CEXH0661MAT	10.8	Diesel	Diesel	HHDD

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	ENGINE MODELS / CODES (rated power in horsepower, hp)
DDI, EGR, TC, CAC, PCM	SEE ATTACHMENT

GVWR=gross vehicle weight rating TWC/OC=three-way/oxidizing catalyst WU (prefix) =warm-up cat. O2S=oxygen sensor HO2S=heated O2S TBI=throttle body fuel injection MFI=multi port fuel injection SFI=sequentialMFI DDI/IDI=direct /indirect diesel injection TC/SC=turbo/super charger CAC=charge air cooler EGR=exhaust gas recirculation AIR=secondary air injection PAIR=pulsed AIR SPL=smoke puff limiter ECM/PCM=engine /powertrain control module EM=engine modification 2 (prefix)=parallel (2) (suffix)=in series HC=hydrocarbon NMHC=non-methane HC NOx=oxides of nitrogen CO=carbon monoxide PM=particulate matter HCHO=formaldehyde g/bhp-hr=grams per brake horsepower-hour

The following are the exhaust emission standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT), in g/bhp-hr, for this engine family under the "Federal Test Procedure" (FTP) (Title 13, California Code of Regulations, (13 CCR) Section 1956.1 (urban bus) or 1956.8 (other than urban bus)), and under the "Euro III Test Procedure" (EURO) in the Settlement Agreement, including EURO's "Not-to-Exceed" standard(s). "Diesel" CO certification compliance may have been demonstrated pursuant to Code of Federal Regulations, Title 40, Part 86, Subpart A, Section 86.091-23(c)(2)(i) 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 Section 1956.1 or 1956.8 are in parentheses.)

	EURO'S NTE		NMHC: 0.625		NOx: *		NMHC+NOx: 3.0		PM: 0.125					
* = not applicable	HC		NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
(DIRECT) STD	*	*	0.5	0.5	*	*	*	*	15.5	15.5	0.10	0.10	*	*
AVERAGE STD	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FEL	*	*	*	*	*	*	2.4	2.4	*	*	*	*	*	*
CERT	*	*	0.2	0.1	*	*	2.0	2.2	0.6	0.4	0.10	0.08	*	*

BE IT FURTHER RESOLVED: That 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: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR Sections 1965 (emission control labels), and 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: That the listed engine models are conditionally certified subject to the following conditions: (1) The SA is in effect; (2) The manufacturer is in compliance with all applicable certification requirements of the SA and any modifications thereof.

Engines certified under this Executive Order shall conform to all applicable California emission regulations and all requirements under the Settlement Agreement and any modifications thereof.

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

This Executive Order hereby supersedes Executive Order A-021-0366 dated January 26, 2004.

Executed at El Monte, California on this 30TH day of August 2004.

Allen Lyons, Chief
Mobile Source Operations Division

Engine Model Summary Form

Attachment 1

A-021-0366-1

Manufacturer: **Cummins Inc.**

Engine category: **On-highway HDDE**

EPA Engine Family: **4CEXH0661MAT**

Mfr Family Name: **353T**

Process Code: **New Submission**

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
8271;FR2989	ISM 450	450@1800	269	163	1450@1200	291	118	DDI PCM, EGR, TC, CAC
8271;FR2964	ISM 450	450@1800	269	163	1450@1200	291	118	PCM, EGR, TC,
8271;FR2990	ISM 400	400@1800	231	140	1450@1200	291	118	PCM, EGR, TC,
8271;FR2983	ISM 400	400@1800	231	140	1450@1200	291	118	PCM, EGR, TC,
8271;FR2984	ISM 400	400@1800	231	140	1350@1200	267	108	PCM, EGR, TC,
8271;FR2986	ISM 385	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8271;FR2978	ISM 385V	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8271;FR2979	ISM 385V	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8271;FR2953	ISM 370	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8271;FR2972	ISM 370	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8271;FR2987	ISM 365	365@1800	213	129	1350@1200	267	108	PCM, EGR, TC,
8271;FR2991	ISM 350	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8271;FR9980	ISM 350V	350@1800	204	124	1450@1200	291	118	PCM, EGR, TC,
8271;FR2963	ISM 350V	350@1800	204	124	1350@1200	267	108	PCM, EGR, TC,
8271;FR2973	ISM 350	365@1800	213	129	1350@1200	267	108	PCM, EGR, TC,
8271;FR2974	ISM 350ST	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8271;FR2988	ISM 340	450@1800	269	163	1350@1200	267	108	PCM, EGR, TC,
8271;FR2960	ISM 330	340@1800	199	121	1350@1200	267	108	PCM, EGR, TC,
8271;FR2992	ISM 330ST	370@1800	215	131	1350@1200	267	108	PCM, EGR, TC,
8377;FR2993	ISM 500	500@2000	270	182	1450@1300	285	125	PCM, EGR, TC,
8377;FR2994	ISM 500	500@2000	270	182	1450@1300	285	125	PCM, EGR, TC,
8377;FR20009	ISM 450	450@1800	267	162	1450@1300	285	125	PCM, EGR, TC,
8377;FR20010	ISM 430	450@1800	267	162	1450@1300	285	125	PCM, EGR, TC,
8377;FR20011	ISM 400	400@1800	241	146	1450@1300	285	125	PCM, EGR, TC,
8377;FR20012	ISM 450	450@1800	241	146	1450@1300	285	125	PCM, EGR, TC,
8503;FR2989	ISM 450	450@1800	269	163	1450@1200	291	118	PCM, EGR, TC,
8503;FR2964	ISM 450	450@1800	269	163	1450@1200	291	118	PCM, EGR, TC,
8503;FR2990	ISM 400	400@1800	231	140	1450@1200	291	118	PCM, EGR, TC,

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8503;FR[redacted]	ISM 400	400@1800	231	[redacted]	1450@1200	291	118	PC[redacted]GR, TC,
8503;FR29[redacted]	ISM 400	400@1800	231	140	1350@1200	267	108	PCM, EGR, TC,
8503;FR2986	ISM 385	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8503;FR2978	ISM 385V	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8503;FR2979	ISM 385V	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8503;FR2953	ISM 370	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8503;FR2972	ISM 370	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8503;FR2987	ISM 365	365@1800	213	129	1350@1200	267	108	PCM, EGR, TC,
8503;FR2991	ISM 350	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8503;FR9980	ISM 350V	350@1800	204	124	1450@1200	291	118	PCM, EGR, TC,
8503;FR2963	ISM 350V	350@1800	204	124	1350@1200	267	108	PCM, EGR, TC,
8503;FR2973	ISM 350	365@1800	213	129	1350@1200	267	108	PCM, EGR, TC,
8503;FR2974	ISM 350ST	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8503;FR2988	ISM 340	450@1800	269	163	1350@1200	267	108	PCM, EGR, TC,
8503;FR2960	ISM 330	340@1800	199	121	1350@1200	267	108	PCM, EGR, TC,
8503;FR2992	ISM 330ST	370@1800	215	131	1350@1200	267	108	PCM, EGR, TC,
FEDERAL								
8272;FR2989	ISM 450	450@1800	269	163	1450@1200	291	118	PCM, EGR, TC,
8272;FR2978	ISM 385V	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8272;FR2979	ISM 385V	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8272;FR2953	ISM 370	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8272;FR2972	ISM 370	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8272;FR9980	ISM 350V	350@1800	204	124	1450@1200	291	118	PCM, EGR, TC,
8272;FR2963	ISM 350V	350@1800	204	124	1350@1200	267	108	PCM, EGR, TC,
8272;FR2973	ISM 350	365@1800	213	129	1350@1200	267	108	PCM, EGR, TC,
8272;FR2974	ISM 350ST	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
8272;FR2960	ISM 330	340@1800	199	121	1350@1200	267	108	PCM, EGR, TC,
8504;FR2989	ISM 450	450@1800	269	163	1450@1200	291	118	PCM, EGR, TC,
8504;FR2978	ISM 385V	385@1800	224	136	1450@1200	291	118	PCM, EGR, TC,
8504;FR2979	ISM 385V	385@1800	224	136	1350@1200	267	108	PCM, EGR, TC,
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