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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MINMING ZHAO	12/16/2016
JOSH SI SHAO	11/01/2016
SRIRAM MADHAVAN	11/01/2016
MATTHEW JOHN ZANKER	11/07/2016

RECEIVING PARTY DATA

Name:	CUMMINS INC.
Street Address:	500 JACKSON STREET
City:	COLUMBUS
State/Country:	INDIANA
Postal Code:	47201

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15294347

CORRESPONDENCE DATA

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Email: IPDocketing@foley.com, bgesiakowski@foley.com DAVID G. LUETTGEN - FOLEY & LARDNER, LLP **Correspondent Name:**

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ATTORNEY DOCKET NUMBER:	106389-4019
NAME OF SUBMITTER:	DAVID G. LUETTGEN
SIGNATURE:	/David G. Luettgen/
DATE SIGNED:	10/03/2017

Total Attachments: 6

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PATENT REEL: 043768 FRAME: 0680 504577631

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PATENT REEL: 043768 FRAME: 0681

ASSIGNMENT - WORLDWIDE

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to singly and collectively as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

Cummins Inc. 500 Jackson Street Columbus, Indiana 47201

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions, and all foreign countries in and to this invention relating to

SYSTEMS AND METHODS FOR IDLE FUEL ECONOMY MODE

check one	[] executed concurrently herewith,
	[] executed on
	[X] Serial No. 15/294.347 Filed 10/14/2016

as set forth in this United States Patent Application

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States and countries foreign thereto for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States and countries foreign thereto, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES ASSIGNEE to file patent applications in any or all countries on the above-identified invention or inventions in the name of the undersigned or in the name of ASSIGNEE or otherwise as ASSIGNEE may deem advisable under the International Convention or otherwise.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

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ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States or a country foreign thereto; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of Foley & Lardner LLP the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of Foley & Lardner LLP do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

E	executed this 1/2 day of 10 (2000), 20 10.	
	Lin	Minz Ureno
	<u> </u>	IINMINO ZHAO
	INDIANA)	
County of	BARTHOLOMEN)	- A
C	On <u>Dec. 14, 2016</u> , before me, <u>TOBY REECE JOH</u> Date Here insert Name and Tit	INSON, NOTTINY LABLIC, le of the Officer (Notary Public)
F	personally appeared <u>MINMING ZHAO</u> Name(s) of Signer(s)	
to the with capacity(ie	who proved to me on the basis of satisfactory evidence to be the person nin instrument and acknowledged to me that he/she/their executed the es), and that by his/her/their signature(s) on the instrument the person person(s) acted, executed the instrument.	same in his/her/their authorized
[1]	certify under PENALTY OF PERJURY that the foregoing paragraph	is true and correct.
Signature	S my hand and official scal. Signature of Notary Public	
	TOBY REECE JOHNSON Notary Public - Seal State of Indiana Bartholomew County My Commission Expires Sep 10, 2022	

Atty. Dkt. No. 106389-4019

Executed this 1 day of 20 v 20	0 <u>16</u> .	20
	di	Sh
	JOSH SI	SHAO

State of *INDIANA*County of *BARTHOLOMEN*

, before me, TOBY REECE JOHNSON, NOTAR Here insert Name and Title of the Officer (Notary Public)

personally appeared JOSH SI SHAO Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature]

Signature of Notary Public

TOBY REECE JOHNSON Notary Public - Seal State of Indiana Place Notary Seal ABB(tholomew County My Commission Expires Sep 10, 2022

Executed this 1 day of NOV , 2016
Jauro-
SRIRAM MADHAVAN
State of INDIANA
County of BARTHOLOMEW
On NOV 1, 2016, before me, TOBY REECE TO HNSON, NOTARY FUBLIC, Date Here insert Name and Title of the Officer (Notary Public)
personally appeared SRIRAM MADHAVAN Name(s) of Signer(s)
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.
I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.
WITNESS my harter and official seal.
Signature of Notary Public

TOBY REECE JOHNSON Notary Public - Seal State of Indiana Place No ary Seal Ab8atholomew County My Commission Expires Sep 10, 2022 Executed this 7th day of Navanham 2016.

MATTHEW JOHN ZANKER

State of <u>INDIANA</u>
County of <u>BARTHOLOME</u>

On NOVEMBER 7, 2016 before me, TOBY REECE

Here insert Name and Title of the Officer (Notary Public)

personally appeared MATTHEW JOHN ZANKER Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my bange and official leal.

Signature

Votary Public

Notary Public - Seal State of Indiana Place Notally Seal AborBartholomew County

TOBY REECE JOHNSON

My Commission Expires Sep 10, 2022

RECORDED: 10/03/2017