503618713 12/18/2015

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	

CONVEYING PARTY DATA

Name	Execution Date
TONY J. HALL	11/25/2015
YINGHUAN LEI	11/30/2015
WEIWEN WANG	12/01/2015
DANIEL D. WILHELM	12/01/2015

RECEIVING PARTY DATA

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

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14957100

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NAME OF SUBMITTER:	MARSHALL J BROWN	
SIGNATURE:	/marshall j brown/	
DATE SIGNED:	12/18/2015	

Total Attachments: 6

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PATENT 503618713 REEL: 037327 FRAME: 0701



PATENT REEL: 037327 FRAME: 0702

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 Emission Solutions 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

SOOT LOAD ESTIMATION DURING IDLE OR LOW LOAD

as set forth i	this United States Patent Application
check one	[] executed concurrently herewith,
	[] executed on,
	[X] Serial No. <u>14/957,100</u> Filed <u>December 2, 2015</u>

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.

Executed this Z517 day of NOYEMBER. 2015.

Og J Hun TONY J. HALL

State of NEW YORK County of CHAUTHUOUA)

On NOVEMBER 25, 20(S. before me. LINDA M. MLMASTER

Date

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

personally appeared **TONY J. HALL** Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(x) whose name(x) is/axe subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(iss), 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 Synds M. Muntur Signature of Notary Public

Linda M. McMaster Notary Public State Of No.

No. 4720386 Qualified in Chautauqua Co

Place Notar My Gbrimission Exp. Sept. 30, 2018

Executed this 30th day of November, 2015.

State of INDIANA County of BARTHOLOMEW)

On Nov. 30, 2015, before me, DONNA G. SMITH (NOTARY RUBLIC)

Date

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

personally appeared YINGHUAN LEI 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

DONNA G. SMITH **Bartholomew County** My Commission Expires May 18, 2016

Place Notary Seal Above

		Cummins ive. 14-0324-CES
Executed this day o	r December	_, 2015.
		Weiner Wang
State ofCounty of))	
On	before me	
Date	, before me,	Here insert Name and Title of the Officer (Notary Public)
personally appeared WEI N	WEN WANG ame(s) of Signer((s)
to the within instrument and acknow	wledged to me th eir signature(s) o	ory evidence to be the person(s) whose name(s) is/are subscribed at he/she/their executed the same in his/her/their authorized in the instrument the person(s), or the entity upon behalf of
I certify under PENALTY	OF PERJURY t	hat the foregoing paragraph is true and correct.
WITNESS my hand and official se	al.	
Signature Signature of Notary Pub	lic	
Place Notary Seal Above		

Executed this ____ day of Dec_____, 2015.

DANIEL D. WILHELM

State of ___

On December 2015 before me, Toni L. King, Notary Public Here insert Name and Falle of the Officer (Notary Public)

personally appeared **DANIEL D. WILHELM** 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 sea

Signature

TONI L. KING

ATE OF THE PROPERTY Public. State of Indiana

Bartholomew County

Commission # 621281

My Commission Expires

Contember 28, 2018

Place Notary Seal Above

RECORDED: 12/18/2015