

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT7229198

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| <b>SUBMISSION TYPE:</b>   | NEW ASSIGNMENT                           |
| <b>NATURE OF CONVEYANCE:</b>  | ASSIGNMENT                               |
| <b>CONVEYING PARTY DATA</b>   |  |
| <b>Name</b>   | <b>Execution Date</b>                    |
| GAUTAM SHARMA   | 08/26/2019                               |
| DEEPAK JOY FRANK  | 08/26/2019                               |
| JAMES HYUNGSUK KANG   | 08/26/2019                               |
| ABHIJEET NANDE  | 08/27/2019                               |
| JINQIAN GONG  | 09/04/2019                               |
| FARSHAD FARID   | 08/29/2019                               |
| CHANGSHENG C. SU  | 08/26/2019                               |
| BRYON D. STAEBLER   | 08/23/2019                               |
| <b>RECEIVING PARTY DATA</b>   |  |
| <b>Name:</b>  | CUMMINS EMISSION SOLUTIONS INC.          |
| <b>Street Address:</b>  | 500 JACKSON STREET                       |
| <b>City:</b>  | COLUMBUS                                 |
| <b>State/Country:</b>   | INDIANA                                  |
| <b>Postal Code:</b>   | 47201                                    |
| <b>PROPERTY NUMBERS Total: 1</b>  |  |
| <b>Property Type</b>  | <b>Number</b>                            |
| Application Number:   | 17617815                                 |
| <b>CORRESPONDENCE DATA</b>  |  |
| <b>Fax Number:</b>  |  |
| <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i> |  |
| <b>Phone:</b>   | 3128324530                               |
| <b>Email:</b>   | jwiggins@foley.com                       |
| <b>Correspondent Name:</b>  | ROBERTO J. FERNANDEZ/FOLEY & LARDNER LLP |
| <b>Address Line 1:</b>  | 321 N. CLARK STREET                      |
| <b>Address Line 2:</b>  | SUITE 3000                               |
| <b>Address Line 4:</b>  | CHICAGO, ILLINOIS 60654                  |
| <b>ATTORNEY DOCKET NUMBER:</b>  | 106389-7050                              |
| <b>NAME OF SUBMITTER:</b>   | ROBERTO J. FERNANDEZ                     |
| <b>SIGNATURE:</b>   | /Roberto J. Fernandez/                   |

PATENT

|   |            |
|---|------------|
| <b>DATE SIGNED:</b>   | 03/17/2022 |
| <b>Total Attachments: 10</b><br>source=106389-7050-Executed-Assignment#page1.tif<br>source=106389-7050-Executed-Assignment#page2.tif<br>source=106389-7050-Executed-Assignment#page3.tif<br>source=106389-7050-Executed-Assignment#page4.tif<br>source=106389-7050-Executed-Assignment#page5.tif<br>source=106389-7050-Executed-Assignment#page6.tif<br>source=106389-7050-Executed-Assignment#page7.tif<br>source=106389-7050-Executed-Assignment#page8.tif<br>source=106389-7050-Executed-Assignment#page9.tif<br>source=106389-7050-Executed-Assignment#page10.tif |            |

**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

Fuel Analysis Systems and Methods

as set forth in this PCT Application

*check one*     ☐ executed concurrently herewith,  
                  ☐ executed on \_\_\_\_\_,  
                  ☒ Serial No. PCT/CN2019/090473    Filed 6/10/2019

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.

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 26<sup>th</sup> day of AUGUST, 2019.

Gautam Sharma  
GAUTAM SHARMA

State of Indiana )  
County of Bartholomew )

On Aug. 26, 2019, before me, Carmelita Kay Kohl-Smith/Notary Public  
Date Here insert Name and Title of the Officer (Notary Public)

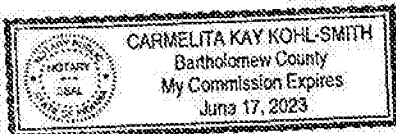
personally appeared GAUTAM SHARMA  
Name(s) of Signer(s)

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 Carmelita Kay Kohl-Smith  
Signature of Notary Public



Place Notary Seal Above

Executed this 26th day of August, 2019.



DEEPAK JOY FRANK

State of Indiana )  
County of Bartholomew )

On Aug 26, 2019, before me, Carmelita Kay Kohl-Smith/Notary Public  
*Date Here insert Name and Title of the Officer (Notary Public)*

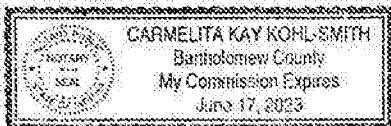
personally appeared DEEPAK JOY FRANK  
Name(s) of Signer(s)

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 Carmelita Kay Kohl-Smith  
Signature of Notary Public



Place Notary Seal Above

Executed this 26 day of August, 2019

James Kang

JAMES HYUNGSUK KANG

NAME AND SIGNATURE OF WITNESSES

NAME: IN SUN LEE SIGNATURE: [Signature] DATE: 08-26-19

NAME: LU QIU SIGNATURE: [Signature] DATE: Aug-26-2019

Executed this 27 day of AUGUST, 2019.

ABHJEET NANDE

ABHJEET NANDE

State of Indiana  
County of Bartholomew

On Aug. 27, 2019, before me, Carmelita Kay Kohi-Smith/Notary Public  
*Date Here insert Name and Title of the Officer (Notary Public)*

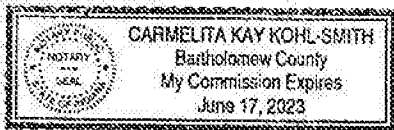
personally appeared ABHJEET NANDE  
Name(s) of Signer(s)

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 Carmelita K Kohi-Smith  
Signature of Notary Public



Place Notary Seal Above



Executed this 4 day of Sept, 2019.

Jin Qian Gong  
JINQIAN GONG

NAME AND SIGNATURE OF WITNESSES

NAME: HUIHUA GAN SIGNATURE: Huihua Gan DATE: 09/04/2019

NAME: LIGUANG ZHANG SIGNATURE: Liguang Zhang DATE: 09/04/2019

Any Use No. 100789-8403

Executed at 28 day of August, 2019.

E. F. Fink  
Witness

State of Illinois  
County of Jefferson

on 27 day of August, 2019, before me, William M. Heide,  
Notary Public in and for the State of Illinois.

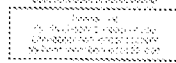
personally appeared LARRY L. LARSEN  
(Name of Signer)

who, acknowledged 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/it executed the same in his/her/its authorized capacity, and that he/she/it is/are the person(s) named in the instrument for purposes, or for any other purpose in which the person(s) acted, in executing the instrument.

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

WITNESS my hand and official seal.

Signature William M. Heide  
Notary Public in and for the State of Illinois



Place Name, Notary Seal

Executed this 26th day of Aug, 2019

  
CHANGSHENG C. SU

State of Indiana)  
County of Bartholomew)

On Aug. 26, 2019 before me, Carmelita Kay Kohl-Smith/Notary Public  
*Date Here insert Name and Title of the Officer (Notary Public)*

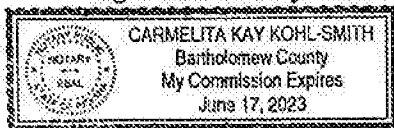
personally appeared CHANGSHENG C. SU  
Name(s) of Signer(s)

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 Carmelita Kay Kohl-Smith  
Signature of Notary Public



Place Notary Seal Above

Executed this 23<sup>rd</sup> day of August, 2019.



BRYON D. STAEBLER

State of Indiana  
County of Bartholomew

On Aug 23, 2019, before me, Carmelita Kay Kohl-Smith/Notary  
*Date Here insert Name and Title of the Officer (Notary Public)*

personally appeared BRYON D. STAEBLER  
Name(s) of Signer(s)

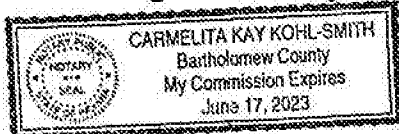
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s),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

Carmelita Kay Kohl-Smith  
Signature of Notary Public



Place Notary Seal Above