

TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

ETAS ID: TM557802

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Formerly	Execution Date	Entity Type
AVL Michigan Holding Corporation		12/18/2019	Corporation: MICHIGAN
AVL Powertrain Engineering, Inc.		12/18/2019	Corporation: MICHIGAN
AVL North America Corporate Services, Inc.		12/18/2019	Corporation: MICHIGAN
AVL Test Systems, Inc.		12/18/2019	Corporation: DELAWARE
AVL Properties, Inc.		12/18/2019	Corporation: MICHIGAN
AVL TSI Equipment, LLC		12/18/2019	Limited Liability Company: MICHIGAN
AVL PEI Equipment, LLC		12/18/2019	Limited Liability Company: MICHIGAN

RECEIVING PARTY DATA

Name:	Citizens Bank formerly RBS Citizens, N.A.
Doing Business As:	
Street Address:	27777 FRANKLIN ROAD
City:	Southfield
State/Country:	MICHIGAN
Postal Code:	48034
Entity Type:	National Banking Association: MICHIGAN

PROPERTY NUMBERS Total: 8

Property Type	Number	Word Mark
Registration Number:	1680200	CELLMATE
Registration Number:	1363062	CELLMATE
Registration Number:	1357859	D
Registration Number:	1285870	D
Registration Number:	1787874	DIGALOG
Registration Number:	1285869	DIGALOG
Registration Number:	1856201	HYPERCELL
Registration Number:	4189571	SCENARIA

CH \$215.00 1680200

CORRESPONDENCE DATA**Fax Number:**

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.

Phone: 3132233518
Email: nlevine@dickinsonwright.com
Correspondent Name: Rebecca Papi, Dickinson Wright PLLC
Address Line 1: 500 Woodward Avenue
Address Line 2: Suite 4000
Address Line 4: Detroit, MICHIGAN 48226

ATTORNEY DOCKET NUMBER:	037390-00034
NAME OF SUBMITTER:	Rebecca S. Papi
SIGNATURE:	/Rebecca S. Papi/
DATE SIGNED:	01/16/2020

Total Attachments: 18

source=DETROIT-#1525027-1-Second Amendment to Joinder to Patent and Trademark Security Agreement (executed)#page1.tif
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SECOND AMENDMENT AND JOINDER TO PATENT AND TRADEMARK SECURITY AGREEMENT

This Second Amendment and Joinder to Patent and Trademark Security Agreement (this "Amendment") is entered into as of December 18, 2019 by and among AVL Michigan Holding Corporation, a Michigan corporation ("Borrower"), AVL Powertrain Engineering, Inc., a Michigan corporation ("AVL Powertrain"), AVL North America Corporate Services, Inc., a Michigan corporation ("AVL North America"), AVL Test Systems, Inc., a Delaware corporation ("AVL Test Systems"), AVL Properties, Inc., a Michigan corporation ("AVL Properties"), AVL TSI Equipment, LLC, a Michigan limited liability company ("AVL TSI Equipment"), and AVL PEI Equipment, LLC, a Michigan limited liability company ("AVL PEI Equipment") (the Borrower, AVL Powertrain, AVL North America, AVL Test Systems, AVL Properties, AVL TSI Equipment and AVL PEI Equipment are hereinafter referred to collectively as the "Grantors" and individually as a "Grantor"), and Citizens Bank, National Association, a national banking association (formerly known as RBS Citizens, N.A.) ("Citizens"), acting as agent hereunder for the Secured Creditors referred to below (Citizens acting as such agent and any successor or successors to Citizens acting in such capacity being hereinafter referred to as the "Agent"), pursuant to the Credit Agreement referred to below.

INTRODUCTION

A. The Borrower, AVL Powertrain, AVL Test Systems, AVL Strategic Analytic Services, Inc., a Michigan corporation that has since merged with and into AVL PEI Equipment, AVL Properties, AVL TSI Equipment, AVL PEI Equipment and AVL California Technology Center, Inc., a Michigan corporation that has since been dissolved (the "Prior Grantors") have made in favor of the Agent the Patent and Trademark Security Agreement dated as of June 13, 2011, as amended by the First Amendment to Patent and Trademark Security Agreement dated as of December 12, 2012 (as amended, supplemented, restated or otherwise modified from time to time, including any agreement entered into in replacement thereof, the "Security Agreement").

B. The Borrower and the Agent have entered into that certain Amended and Restated Credit Agreement dated as of June 20, 2014, as amended by the First Amendment to Amended and Restated Credit Agreement dated as of December 18, 2014, the Second Amendment to Amended and Restated Credit Agreement dated as of December 19, 2016, and the Third Amendment to Amended and Restated Credit Agreement dated as of the date hereof (as amended, supplemented, restated or otherwise modified from time to time, including any agreement entered into in replacement thereof, the "Credit Agreement"), pursuant to which Citizens and the other banks, financial institutions and letter of credit issuer(s) from time to time party to the Credit Agreement (Citizens, in its individual capacity, and such other banks and financial institutions being hereinafter referred to collectively as the "Lenders" and each is individually a "Lender" and such letter of credit issuer(s) being hereinafter referred to collectively as the "L/C Issuers" and individually as a "L/C Issuer") have agreed, subject to certain terms and conditions, to extend credit and make certain other financial accommodations available to the Borrower (the Agent, the L/C Issuers and the Lenders, together with any Affiliates of the Lenders party to any Hedging Agreements and/or Funds Transfer and Deposit

Account Agreements (as each such term is defined in the Credit Agreement) being hereinafter referred to collectively as the "Secured Creditors" and individually as a "Secured Creditor").

C. In connection with the Credit Agreement, (i) the Prior Grantors have executed in favor of the Agent the Reaffirmation of Collateral Documents dated as of June 20, 2014 under which the Prior Grantors reaffirmed the Security Agreement and certain other documents and (ii) the Grantors have executed in favor of the Agent the Acknowledgement and Reaffirmation of Guaranty Agreement and Collateral Documents dated as of the date hereof under which the Grantors reaffirmed the Security Agreement and certain other documents.

D. The Agent and the Grantors desire to amend the Security Agreement on the terms and conditions herein set forth.

NOW, THEREFORE, in consideration of the premises and of the mutual agreements contained herein, in the Security Agreement and in the Credit Agreement, the parties agree as follows:

ARTICLE 1. AMENDMENTS

The Security Agreement is hereby amended as follows:

1.1 Schedule 1 to the Security Agreement is hereby amended by replacing such schedule in its entirety with Schedule 1 attached to this Amendment.

1.2 Schedule 2 to the Security Agreement is hereby amended by replacing such schedule in its entirety with Schedule 2 attached to this Amendment.

ARTICLE 2. REPRESENTATIONS AND WARRANTIES

Each of the Grantors represents and warrants that:

2.1 The execution, delivery and performance by it of this Amendment are within its corporate or limited liability company powers, have been duly authorized by all necessary corporate or limited liability company action and are not in contravention of any law, rule or regulation, or any judgment, decree, writ, injunction, order or award of any arbitrator, court or governmental authority, or of the terms of its articles of incorporation, articles of organization, by-laws, or operating agreement or of any contract or undertaking to which it is a party or by which it or its property is or may be bound or affected.

2.2 This Amendment is its legal, valid and binding obligation, enforceable against such party in accordance with the terms of this Amendment.

2.3 After giving effect to the amendments contained in Article 1 of this Amendment, the representations and warranties contained in the Security Agreement are true with the same

force and effect as if made on and as of the date hereof, and no default under the Security Agreement has occurred and is continuing or will exist as of the date hereof.

2.4 No consent, approval or authorization of or declaration or filing with any governmental authority or any non-governmental person or entity, including without limitation any creditor, shareholder, or member of the Grantors, is required on the part of the Grantors in connection with the execution, delivery and performance of this Amendment or the transactions contemplated hereby.

ARTICLE 3. MISCELLANEOUS AND JOINDER

3.1 Each Grantor agrees that the Security Agreement, as amended by this Amendment, is ratified and confirmed and shall remain in full force and effect, enforceable against the Grantors in accordance with its terms, and that no Grantor has any set off, counterclaim or defense with respect to any of the foregoing.

3.2 All references to the Security Agreement in any Loan Document (as defined in the Credit Agreement) or any other document, instrument or certificate referred to in the Security Agreement or delivered in connection therewith or pursuant thereto, hereafter shall be deemed references to the Security Agreement, as amended hereby.

3.3 Capitalized terms used but not defined herein shall have the respective meanings ascribed thereto in the Security Agreement.

3.4 This Amendment shall be governed by and construed in accordance with the laws of the State of Michigan.

3.5 The Grantors jointly and severally agree to pay the reasonable fees and expenses of Dickinson Wright PLLC, counsel for the Agent, in connection with the negotiation and preparation of this Amendment and the documents referred to herein and the consummation of the transactions contemplated hereby, and in connection with advising the Agent as to its rights and responsibilities with respect thereto.

3.6 This Amendment may be executed upon any number of counterparts with the same effect as if the signatures thereto were upon the same instrument.

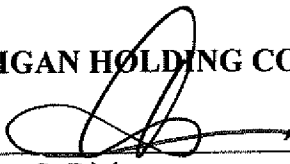
3.7 AVL North America acknowledges and agrees that, upon execution of this Amendment and the delivery of this Amendment to the Agent, it shall become a "Grantor" party to the Security Agreement and that all references in the Security Agreement to the terms "Grantor" or "Grantors" shall be deemed to include AVL North America. Without limiting the generality of the foregoing, AVL North America hereby repeats and reaffirms all grants (including the grant of a lien and security interest), covenants, agreements, representations, and warranties contained in the Security Agreement as modified hereby, each and all of which are and shall remain applicable to AVL North America and to the Patent Collateral and the Trademark Collateral from time to time owned by AVL North America or in which AVL North

America from time to time has any rights. Without limiting the foregoing, in order to secure payment of the Secured Obligations, whether now existing or hereafter arising, AVL North America does hereby grant to the Agent for the benefit of the Secured Creditors, and hereby agrees that the Agent has and shall continue to have for the benefit of the Secured Creditors a continuing lien on and security interest in, among other things, all of AVL North America's Patent Collateral and Trademark Collateral (as such terms are defined in the Security Agreement). Nothing contained herein shall in any manner impair the priority of the liens and security interests heretofore granted in favor of the Agent under the Security Agreement.

[Signature Pages Follow]

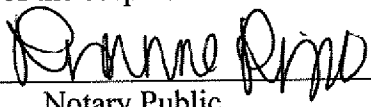
IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed and delivered as of the date first set forth above.

AVL MICHIGAN HOLDING CORPORATION

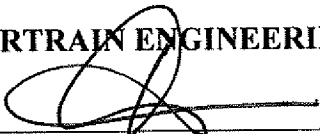
By: 
Name: Chester S. Ricker
Title: Executive Vice President and Chief Financial Officer

STATE OF MICHIGAN)
)SS
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this 10 day of December, 2019, by Chester S. Ricker, the Executive Vice President and Chief Financial Officer of AVL Michigan Holding Corporation, a Michigan corporation, on behalf of the corporation.

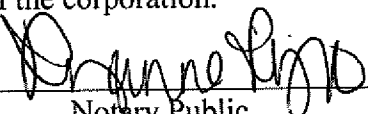

Notary Public
(SEAL)
Printed Name: RYANNE RIZZO
My Commission Expires: APRIL 23, 2025

AVL POWERTRAIN ENGINEERING, INC.


By: 
Name: Chester S. Ricker
Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN)
)SS
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this 18 day of December, 2019, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Powertrain Engineering, Inc., a Michigan corporation, on behalf of the corporation.

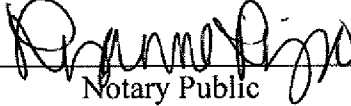

Notary Public
(SEAL)
Printed Name: RYANNE RIZZO
My Commission Expires: APRIL 23, 2025

AVL NORTH AMERICA CORPORATE SERVICES, INC.

By: 
Name: Chester S. Ricker
Title: President and Chief Financial Officer


STATE OF MICHIGAN)
)SS
COUNTY OF DAKOTA)

The foregoing instrument was acknowledged before me this 18 day of December, 2019, by Chester S. Ricker, the President and Chief Financial Officer of AVL North America Corporate Services, Inc., a Michigan corporation, on behalf of the corporation.


Notary Public

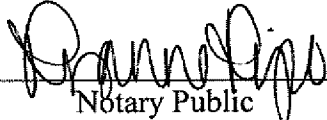
(SEAL)
Printed Name: RYANNE PIZZO
My Commission Expires: APRIL 23, 2025

AVL TEST SYSTEMS, INC.

By: 
Name: Chester S. Ricker
Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN)
)SS
COUNTY OF DAKOTA)

The foregoing instrument was acknowledged before me this 18 day of December, 2019, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Test Systems, Inc., a Delaware corporation, on behalf of the corporation.


Notary Public

(SEAL)
Printed Name: RYANNE PIZZO
My Commission Expires: APRIL 23, 2025

AVL PROPERTIES, INC.

By: _____
Name: Chester S. Ricker
Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN)
)SS
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this 12 day of December, 2019, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Properties, Inc., a Michigan corporation, on behalf of the corporation.

Notary Public

(SEAL)
Printed Name: RYANNE RIZZO
My Commission Expires: APRIL 23, 2025

AVL TSI EQUIPMENT, LLC

By: [Signature]
Name: Chester S. Ricker
Title: Manager

STATE OF MICHIGAN)
)SS
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this 16 day of December, 2019, by Chester S. Ricker, the Manager of AVL TSI Equipment, LLC, a Michigan limited liability company, on behalf of the company.

[Signature]
Notary Public

(SEAL)
Printed Name: RYANNE RIZZO
My Commission Expires: APRIL 23, 2025

AVL PEI EQUIPMENT, LLC

By: [Signature]
Name: Chester S. Ricker
Title: Manager

STATE OF MICHIGAN)
)SS
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this 16 day of December, 2019, by Chester S. Ricker, the Manager of AVL PEI Equipment, LLC, a Michigan limited liability company, on behalf of the company.

[Signature]
Notary Public

(SEAL)
Printed Name: RYANNE RIZZO
My Commission Expires: APRIL 23, 2025

**CITIZENS BANK, NATIONAL ASSOCIATION
(formerly known as RBS Citizens, N.A.)**

By: Michael S. Farley
Name: Michael S. Farley
Title: Senior Vice President

STATE OF MICHIGAN)
)SS
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this 12 day of December, 2019, by Michael S. Farley, the Senior Vice President of Citizens Bank, National Association, a national banking association, on behalf of the association.

Ryanne Pizzo
Notary Public

(SEAL)
Printed Name: RYANNE PIZZO
My Commission Expires: APRIL 23, 2025

SCHEDULE 1

to

Patent and Trademark Security Agreement

See attached.

Exhibit C-1
ISSUED US PATENTS

Title	Patent No.	Issue Date	Company
Emissions Measurement Equipment And Method	US9829413	28-Nov-2017	AVL Test Systems, Inc.
High Power Battery Cells Having Improved Cooling	US10396414	27-Aug-2019	AVL Powertrain Engineering, Inc.
System And Method For Controlling Fuel Injection Characteristics In An Engine	US9840998	12-Dec-2017	AVL Powertrain Engineering, Inc.
Engine Exhaust Emissions Measurement Correction	US6823268	23-Nov-2004	AVL North America Inc.
Engine Exhaust Emissions Measurement Correction	US7574307	11-Aug-2009	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	US6481299	19-Nov-2002	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	US6742407	1-Jun-2004	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	US6857327	22-Feb-2005	AVL North America Inc.
Exhaust Volume Measurement Device	US6973818	13-Dec-2005	AVL Test Systems, Inc.
Exhaust Volume Measurement Device	US7055364	6-Jun-2006	AVL Test Systems, Inc.
Exhaust Volume Measurement Device	US7000449	21-Feb-2006	AVL Test Systems, Inc.
Exhaust Volume Measurement Device	US7555928	7-Jul-2009	AVL Test Systems, Inc.
Heated Stainless Steel Emissions Canister	US6962090	8-Nov-2005	AVL North America Inc.
Active Filter Temperature Control	US7141090	28-Nov-2006	AVL North America Inc.
Particulate Deposit Avoidance And Probe Positioning	US7191671	20-Mar-2007	AVL North America Inc.
Particulate Sampler System Flow Calibration	US7607335	27-Oct-2009	AVL North America Inc.
Particulate Sampler And Dilution Gas Flow Device Arrangement For An Exhaust Sampling System	US7565846	28-Jul-2009	AVL North America Inc.
CVS System Sample Water Vapor Management	US7559262	14-Jul-2009	AVL North America Inc.
CVS System Sample Water Vapor Management	US8181543	22-May-2012	AVL North America Inc.
CVS System Sample Water Vapor Management	US9097623	4-Aug-2015	AVL Test Systems, Inc.
CVS System Sample Water Vapor Management	US10151670	11-Dec-2018	AVL Test Systems, Inc.
Particulate Measurement System	US9194274	24-Nov-2015	AVL North America Inc.
Exhaust Sampling System And Method For Water Vapor Management	US9297726	29-Mar-2016	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	US9518897	13-Dec-2016	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	US10422726	24-Sep-2019	AVL Test Systems, Inc.
Exhaust Sampling System And Method For Synchronizing Time Alignment And Dilution	US9347926	24-May-2016	AVL Test Systems, Inc.
Diesel Aircraft Engine	US7191742	20-Mar-2007	Schrick, Inc.
Diesel Aircraft Engine	US8453611	4-Jun-2013	Schrick, Inc.
Diesel Aircraft Engine	US7373905	20-May-2008	AVL North America Inc.
Hybrid Power Plant With Waste Heat Recovery System	US8739531	3-Jun-2014	AVL Powertrain Engineering, Inc.
Ejector Type EGR Mixer	US9051900	9-Jun-2015	AVL North America Inc.
Sliding Vane Rotary Expander For Waste Heat Recovery System	US8839620	23-Sep-2014	AVL North America Inc.
Air Turbine Driven EGR Pump For Diesel Engines	US9347365	24-May-2016	AVL Powertrain Engineering, Inc.
Exhaust Power Turbine Driven EGR Pump For Diesel Engines	US6584458	19-Nov-2013	AVL Powertrain Engineering, Inc.
Exhaust Power Turbine Driven EGR Pump For Diesel Engines	US9677509	13-Jun-2017	AVL Powertrain Engineering, Inc.

Exhibit C-1
ISSUED US PATENTS (Continued)

Title	Patent No.	Issue Date	Company
SCR Ammonia Slip Detection	US8607548	17-Dec-2013	AVL Powertrain Engineering, Inc.
Battery Cooling Plate And Cooling System	US8835039	16-Sep-2014	AVL North America Inc.
Flat Track Chassis Dynamometer	US7213449	8-May-2007	AVL North America Inc.
Transmission Headstock For Test Stands	US7610819	3-Nov-2009	AVL North America Inc.
Polymer Base For Hybrid Powertrain & NVH Test Installations	US8186206	29-May-2012	AVL North America Inc.
Transmission Including Dog Clutch Arrangement And Method	US9267553	23-Feb-2016	AVL Powertrain Engineering, Inc.
Two-Speed Transmission For Electric Vehicle	US10208837	19-Feb-2019	AVL Powertrain Engineering, Inc.
Altitude Fuel Limiter For Engine And Method Of Using The Same	US9765708	19-Sep-2017	AVL Powertrain Engineering, Inc.
Fuel Injection System And Method Combining Port Fuel Injection With Direct Fuel Injection	US9938922	10-Apr-2018	AVL Powertrain Engineering, Inc.
Natural Gas Quality Sensor And Method For Using The Same	US9932910	3-Apr-2018	AVL Powertrain Engineering, Inc.
Fuel Injector	US9856841	2-Jan-2018	AVL Powertrain Engineering, Inc.
Manual Transmission With Torque Converter	US9599207	21-Mar-2017	AVL Powertrain Engineering, Inc.
Sump Having Temperature-Controlled Jalousie Divider	US9677436	13-Jun-2017	AVL Powertrain Engineering, Inc.
Torque Converter For Manual Transmission And Method Of Controlling The Same	US10012298	3-Jul-2018	AVL Powertrain Engineering, Inc.
Dual-Purpose Dynamometer	US9752961	5-Sep-2017	AVL Test Systems, Inc.
Turbocharger With Electrically Coupled Fully Variable Turbo-Compound Capability And Method Of Controlling The Same	US9752496	5-Sep-2017	AVL Powertrain Engineering, Inc.
Opposed Piston Two-Stroke Engine With Thermal Barrier	US9771861	26-Sep-2017	AVL Powertrain Engineering, Inc.
Variable Two-Way Over-Running Clutch	US9933024	3-Apr-2018	AVL Powertrain Engineering, Inc.
Cylinder Arrangement For Opposed Piston Engine	US9903270	27-Feb-2018	AVL Powertrain Engineering, Inc.
Torque Split Dual-Clutch Transmission	US10221921	5-Mar-2019	AVL Powertrain Engineering, Inc.
Dual-Clutch Transmission With Multiple First Gears	US9897165	20-Feb-2018	AVL Powertrain Engineering, Inc.
Engine Block Construction For Opposed Piston Engine	US10072604	11-Sep-2018	AVL Powertrain Engineering, Inc.
Opposed Piston Two Stroke Engine Liner Construction	US10036344	31-Jul-2018	AVL Powertrain Engineering, Inc.
Multi-Level Torque Clutch	US9920795	20-Mar-2018	AVL Powertrain Engineering, Inc.
Opposed Piston Three Nozzle Combustion Chamber Design	US10066590	4-Sep-2018	AVL Powertrain Engineering, Inc.
Rankine Cycle Pump And Recuperator Design For Multiple Boiler Systems	US10161270	25-Dec-2018	AVL Powertrain Engineering, Inc.
Clutch With Incremental Torque Function	US10288128	14-May-2019	AVL Powertrain Engineering, Inc.
Clutch With Opposite Load Application	US9677622	13-Jun-2017	AVL Powertrain Engineering, Inc.
Opposed Piston Three Nozzle Piston Bowl Design	US10161371	25-Dec-2018	AVL Powertrain Engineering, Inc.
Integrated Fuel And Cooling Circuit For An Internal Combustion Engine	US10138850	27-Nov-2018	AVL Powertrain Engineering, Inc.
Engine Turbo-Compounding System	US10072562	11-Sep-2018	AVL Powertrain Engineering, Inc.

Exhibit C-1
FOREIGN PATENT APPLICATIONS

Title	Country	Application No.	Publication No.	Filing Date	Company
Emissions Measurement Equipment And Method	Europe	138138037	2864753	7-Jan-2015	AVL Test Systems, Inc.
System And Method For Controlling Fuel Injection Characteristics In An Engine	Europe	151705175	2955358	3-Jun-2015	AVL Powertrain Engineering, Inc.
Particulate Measurement System	Europe	191623016	3517746	12-Mar-2019	AVL Test Systems, Inc.
Exhaust Sampling System And Method For Water Vapor Management	Europe	131686040	2667175	21-May-2013	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	Europe	137966784	2856103	17-Nov-2014	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	India	2299MUMNP2014		13-Nov-2014	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	Japan	2018159102		28-Aug-2018	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	Korea	1020147036336	1020150023486	24-Dec-2014	AVL Test Systems, Inc.
Exhaust Sampling System And Method For Synchronizing Time Alignment And Dilution	Europe	138048996	2859321	21-Nov-2014	AVL Test Systems, Inc.
Torque Converter For Manual Transmission And Method Of Controlling The Same	India	3134MUM2015		18-Aug-2015	AVL Powertrain Engineering, Inc.
System And Method For Detecting A Leak In An Exhaust Gas Sampling Apparatus	Germany	1120160003056		10-Jul-2017	AVL Test Systems, Inc.
System And Method For Detecting A Leak In An Exhaust Gas Sampling Apparatus	Japan	2017555426	2018507417	7-Jul-2017	AVL Test Systems, Inc.
Rankine Cycle Pump And Recuperator Design For Multiple Boiler System	Germany	1020161162124	1020161162124	31-Aug-2016	AVL Powertrain Engineering, Inc.
Opposed Piston Three Nozzle Piston Bowl Design	Europe	161575394	3061908	26-Feb-2016	AVL Powertrain Engineering, Inc.
Integrated Fuel And Cooling Circuit For An Internal Combustion Engine	Europe	161575238	3061938	26-Feb-2016	AVL Powertrain Engineering, Inc.
Waste Heat Recovery And Boost Systems Including Variable Drive Mechanisms	Europe	191882059		24-Jul-2019	AVL Powertrain Engineering, Inc.
Oil Cooled Internal Combustion Engine Cylinder Liner And Method Of Use	Germany	1020171239154	1020171239154	13-Oct-2017	AVL Powertrain Engineering, Inc.
System And Method For Determining Whether An Engine Is On Or Off Based On A Pressure Of Exhaust Gas Produced By The Engine	Germany	1020181221681	1020181221681	11-Sep-2018	AVL Test Systems, Inc.
System And Method For Determining Whether An Engine Is On Or Off Based On A Pressure Of Exhaust Gas Produced By The Engine	Japan	2018170752	2019053059	12-Sep-2018	AVL Test Systems, Inc.
System And Method For Tracking Vehicle Activity And Reporting Vehicle Issues	Germany	1020181110979	1020181110979	9-May-2018	AVL Powertrain Engineering, Inc.
System And Method For Determining A Fuel Vapor Concentration In A Canister Of A Vehicle Evaporative Emissions System And For Evaluating The Canister Based On The Fuel Vapor Concentration	Germany	1020181286074	1020181286074	14-Nov-2018	AVL Test Systems, Inc.
System And Method For Determining A Fuel Vapor Concentration In A Canister Of A Vehicle Evaporative Emissions System And For Evaluating The Canister Based On The Fuel Vapor Concentration	Japan	2018210412	2019090409	8-Nov-2018	AVL Test Systems, Inc.
Block Structure And Fastening Features For Opposed-Piston Four-Stroke Engines	Germany	1020181236786	1020181236786	26-Sep-2018	AVL Powertrain Engineering, Inc.
Valve Train For Opposed-Piston Four-Stroke Engine	Germany	1020181236859	1020181236859	26-Sep-2018	AVL Powertrain Engineering, Inc.
System And Method For Collecting Clean And Dirty Exhaust Samples	China	2019209552104		24-Jun-2019	AVL Test Systems, Inc.
System And Method For Collecting Clean And Dirty Exhaust Samples	Germany	1020191168309		21-Jun-2019	AVL Test Systems, Inc.
System And Method For Collecting Clean And Dirty Exhaust Samples	Japan	2019115327		21-Jun-2019	AVL Test Systems, Inc.
System And Method For Determining A Contamination Level In An Emissions Measurement Device Or System	China	2019209552439		24-Jun-2019	AVL Test Systems, Inc.
System And Method For Determining A Contamination Level In An Emissions Measurement Device Or System	Germany	1020191168317		21-Jun-2019	AVL Test Systems, Inc.
System And Method For Determining A Contamination Level In An Emissions Measurement Device Or System	Japan	2019115334		21-Jun-2019	AVL Test Systems, Inc.
System And Method For Controlling The Flow Rate Of Dilution Air Through A Porous Wall In An Exhaust Sampling System	China	2019218933482		5-Nov-2019	AVL Test Systems, Inc.

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REEL: 006839 FRAME: 0287

Exhibit C-1
 FOREIGN PATENT APPLICATIONS (Continued)

Title	Country	Application No.	Publication No.	Filing Date	Company
System And Method For Controlling The Flow Rate Of Dilution Air Through A Porous Wall In An Exhaust Sampling System.	China	2019110720463		5-Nov-2019	AVL Test Systems, Inc.
System And Method For Controlling The Flow Rate Of Dilution Air Through A Porous Wall In An Exhaust Sampling System.	Germany	1020191297966		5-Nov-2019	AVL Test Systems, Inc.
System And Method For Controlling The Flow Rate Of Dilution Air Through A Porous Wall In An Exhaust Sampling System.	Japan	2019200841		5-Nov-2019	AVL Test Systems, Inc.

Exhibit C-1
US AND PCT PATENT APPLICATIONS

Title	Application No.	Publication No.	Filing Date	Company
High Power Battery Cells Having Improved Cooling	16/540512		14-Aug-2019	AVL Powertrain Engineering, Inc.
Intelligent Bag Filling For Exhaust Sampling System	16/559186		3-Sep-2019	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement	16/036458	2018-0321205	16-Jul-2018	AVL Test Systems, Inc.
Two-Speed Transmission For Electric Vehicle	16/216272	2019-0113109	11-Dec-2018	AVL Powertrain Engineering, Inc.
Opposed Piston Two-Stroke Engine With Thermal Barrier	16/582391		25-Sep-2019	AVL Powertrain Engineering, Inc.
Control Method For Dual-Clutch Transmission With Multiple First Gears	15/850796	2018-0112741	21-Dec-2017	AVL Powertrain Engineering, Inc.
System And Method For Detecting A Leak In An Exhaust Gas Sampling Apparatus	15/638666	2018-0195927	30-Jun-2017	AVL Test Systems, Inc.
Method Of Actuating A Clutch With Incremental Torque Function	16/377386	2019-0234466	8-Apr-2019	AVL Powertrain Engineering, Inc.
Waste Heat Recovery And Boost Systems Including Variable Drive Mechanisms	15/050847	2016-0252053	23-Feb-2016	AVL Powertrain Engineering, Inc.
Oil Cooled Internal Combustion Engine Cylinder Liner And Method Of Use	15/782356	2018-0106210	12-Oct-2017	AVL Powertrain Engineering, Inc.
System And Method For Determining Whether An Engine Is On Or Off Based On A Pressure Of Exhaust Gas Produced By The Engine	16/117180	2019-0078978	30-Aug-2018	AVL Test Systems, Inc.
System And Method For Tracking Vehicle Activity And Reporting Vehicle Issues	15/972298	2018-0330558	7-May-2018	AVL Powertrain Engineering, Inc.
System And Method For Determining A Fuel Vapor Concentration In A Canister Of A Vehicle Evaporative Emissions System And For Evaluating The Canister Based On The Fuel Vapor Concentration	16/129303	2019-0145355	12-Sep-2018	AVL Test Systems, Inc.
Block Structure And Fastening Features For Opposed-Piston Four-Stroke Engines	16/135813	2019-0093478	19-Sep-2018	AVL Powertrain Engineering, Inc.
Valve Train For Opposed-Piston Four-Stroke Engine	16/135871	2019-0093479	19-Sep-2018	AVL Powertrain Engineering, Inc.
System And Method For Collecting Clean And Dirty Exhaust Samples	16/443010		17-Jun-2019	AVL Test Systems, Inc.
System And Method For Determining A Contamination Level In An Emissions Measurement Device Or System	16/443060		17-Jun-2019	AVL Test Systems, Inc.
System And Method For Controlling The Flow Rate Of Dilution Air Through A Porous Wall In An Exhaust Sampling System	16/668058		30-Oct-2019	AVL Test Systems, Inc.
Power Supply Control Systems and Methods	62/898304		10-Sep-2019	AVL Powertrain Engineering, Inc.
Vehicle Axle Assembly	62/857692		5-Jun-2019	AVL Powertrain Engineering, Inc.
Vehicle Frame and Power Supply Assembly and Related Systems and Methods	62/857689		5-Jun-2019	AVL Powertrain Engineering, Inc.
Vehicle Frame Assembly and Power Supply Tray	62/857690		5-Jun-2019	AVL Powertrain Engineering, Inc.

Exhibit C-1
ISSUED FOREIGN PATENTS

Title	Country	Patent No.	Issue Date	Company
Emissions Measurement Equipment And Method	Japan	6181175	28-Jul-2017	AVL Test Systems, Inc.
Particulate Measurement System	Europe	2504536	13-Mar-2019	AVL Test Systems, Inc.
Particulate Measurement System	Germany	6020100576337	13-Mar-2019	AVL Test Systems, Inc.
Exhaust Sampling System And Method For Water Vapor Management	Japan	6288947	16-Feb-2018	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	China	ZL2013800284613	27-Mar-2018	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	Japan	6396292	7-Sep-2018	AVL Test Systems, Inc.
Exhaust Sampling System And Method For Synchronizing Time Alignment And Dilution	Japan	6154463	9-Jun-2017	AVL Test Systems, Inc.
Diesel Aircraft Engine	Germany	6020050332030	14-Mar-2012	Schrick LLC
Deconvolution Method For Emissions Measurement	China	ZL2012800200736	17-May-2017	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement	Germany	6020120215380	10-Aug-2016	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement	Germany	6020120505389	29-Aug-2018	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement	Japan	5932018	13-May-2016	AVL Test Systems, Inc.
Battery Cooling Plate And Cooling System	China	ZL201210543855X	16-Nov-2016	AVL Powertrain Engineering
Battery Cooling Plate And Cooling System	Germany	6020120276584	11-Jan-2017	AVL Powertrain Engineering, Inc.
Battery Cooling Plate And Cooling System	Japan	6118531	31-Mar-2017	AVL Powertrain Engineering, Inc.
Altitude Fuel Limiter For Engine And Method Of Using The Same	Germany	6020140196314	10-Jan-2018	AVL Powertrain Engineering, Inc.
Torque Converter For Manual Transmission And Method Of Controlling The Same	China	ZL2015206461656	17-Feb-2016	AVL Powertrain Engineering, Inc.
Engine Block Construction For Opposed Piston Engine	Germany	6020160003597	13-Sep-2017	AVL Powertrain Engineering, Inc.
System And Method For Detecting A Leak In An Exhaust Gas Sampling Apparatus	China	ZL2016900004363	23-Oct-2018	AVL Test Systems, Inc.
Multi-Level Torque Clutch	China	ZL2015210756373	12-Oct-2016	AVL Powertrain Engineering, Inc.
Opposed Piston Three Nozzle Combustion Chamber Design	Europe	3061906	10-Jul-2019	AVL Powertrain Engineering, Inc.
Opposed Piston Three Nozzle Combustion Chamber Design	Germany	6020160165120	10-Jul-2019	AVL Powertrain Engineering, Inc.
Clutch With Incremental Torque Function	Europe	3061983	12-Dec-2018	AVL Powertrain Engineering, Inc.
Clutch With Incremental Torque Function	Germany	6020160079380	12-Dec-2018	AVL Powertrain Engineering, Inc.
Clutch With Opposite Load Application	Germany	6020160024551	18-Apr-2018	AVL Powertrain Engineering, Inc.
Waste Heat Recovery And Boost Systems Including Variable Drive Mechanisms	Europe	3364009	18-Sep-2019	AVL Powertrain Engineering, Inc.
Waste Heat Recovery And Boost Systems Including Variable Drive Mechanisms	Germany	6020160028131	9-May-2018	AVL Powertrain Engineering, Inc.
Waste Heat Recovery And Boost Systems Including Variable Drive Mechanisms	Germany	6020160210924	18-Sep-2019	AVL Powertrain Engineering, Inc.
Engine Turbo-Compounding System	Germany	6020160003600	13-Sep-2017	AVL Powertrain Engineering, Inc.
System For Determining Whether An Engine Is On Or Off Based On A Pressure Of Exhaust Gas Produced By The Engine	China	ZL2018215023334	5-Nov-2019	AVL Test Systems, Inc.
System For Testing An Evaporative Emissions Canister Of A Vehicle	China	ZL2018218770207	1-Nov-2019	AVL Test Systems, Inc.

SCHEDULE 2

to

Patent and Trademark Security Agreement

See attached.

Serial Number	Reg. Number	Word Mark	Check Status	Live/Dead	Company
74162330	1680200	CELLMATE	TSDR	LIVE	AVL TEST SYSTEMS, INC.
73520307	1363062	CELLMATE	TSDR	LIVE	AVL TEST SYSTEMS, INC.
73525759	1357859	D	TSDR	LIVE	AVL TEST SYSTEMS, INC.
73378061	1285870	D	TSDR	LIVE	AVL TEST SYSTEMS, INC.
74162323	1787874	DIGALOG	TSDR	LIVE	AVL TEST SYSTEMS, INC.
73378060	1285869	DIGALOG	TSDR	LIVE	AVL TEST SYSTEMS, INC.
74319339	1856201	HYPERCELL	TSDR	LIVE	AVL TEST SYSTEMS, INC.
85463346	4189571	SCENARIA	TSDR	LIVE	AVL Michigan Holding Corporation