

## TRADEMARK ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

ETAS ID: TM314158

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST

## CONVEYING PARTY DATA

Name	Formerly	Execution Date	Entity Type
AVL Michigan Holding Corporation		06/20/2014	CORPORATION: MICHIGAN
AVL Powertrain Engineering, Inc.		06/20/2014	CORPORATION: MICHIGAN
AVL Test Systems, Inc.		06/20/2014	CORPORATION: DELAWARE
AVL California Technology Center, Inc.		06/20/2014	CORPORATION: MICHIGAN
AVL Strategic Analytic Services, Inc.		06/20/2014	CORPORATION: MICHIGAN
AVL Properties, Inc.		06/20/2014	CORPORATION: MICHIGAN
AVL TSI Equipment, LLC		06/20/2014	LIMITED LIABILITY COMPANY: MICHIGAN
AVL PEI Equipment, LLC		06/20/2014	LIMITED LIABILITY COMPANY: MICHIGAN

## RECEIVING PARTY DATA

<b>Name:</b>	RBS Citizens, N.A., as agent
<b>Street Address:</b>	27777 Franklin Road
<b>City:</b>	Southfield
<b>State/Country:</b>	MICHIGAN
<b>Postal Code:</b>	48034
<b>Entity Type:</b>	national banking association: UNITED STATES

## PROPERTY NUMBERS Total: 9

Property Type	Number	Word Mark
<b>Registration Number:</b>	3031039	BENCHMARK SERIES
<b>Registration Number:</b>	1856201	HYPERCELL
<b>Registration Number:</b>	1680200	CELLMATE
<b>Registration Number:</b>	1787874	DIGALOG
<b>Registration Number:</b>	1357859	D
<b>Registration Number:</b>	1363062	CELLMATE
<b>Registration Number:</b>	1285870	D
<b>Registration Number:</b>	1285869	DIGALOG
<b>Registration Number:</b>	4189571	SCENARIA

TRADEMARK

**CORRESPONDENCE DATA****Fax Number:** 2026591559*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:** 202-659-6962**Email:** kbazil@dickinsonwright.com**Correspondent Name:** Kathy Bazil, Paralegal**Address Line 1:** 1875 Eye Street NW**Address Line 2:** Suite 1200**Address Line 4:** Washington, D.C. 20006

<b>ATTORNEY DOCKET NUMBER:</b>	37390-34
<b>NAME OF SUBMITTER:</b>	Kathy Bazil, Paralegal
<b>SIGNATURE:</b>	/Kathy Bazil/
<b>DATE SIGNED:</b>	08/15/2014

**Total Attachments: 62**

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## REAFFIRMATION OF COLLATERAL DOCUMENTS

June 20, 2014

In connection with that certain Credit Agreement dated as of June 13, 2011 (as amended or modified from time to time, the "*Prior Credit Agreement*") by and among AVL Michigan Holding Corporation, a Michigan corporation (the "*Borrower*"), RBS Citizens, N.A., a national banking association ("*RBS*"), as agent for the Lenders (in such capacity, the "*Agent*"), and the lenders party thereto from time to time (the "*Lenders*"), the Borrower and certain of the Borrower's Subsidiaries have made the following documents (collectively, the "*Collateral Documents*") in favor of the Agent:

1. Security Agreement dated as of June 13, 2011 (the "*Security Agreement*") by and among the Borrower, AVL Powertrain Engineering, Inc., a Michigan corporation ("*AVL Powertrain*"), AVL Test Systems, Inc., a Delaware corporation ("*AVL Test Systems*"), AVL California Technology Center, Inc., a Michigan corporation ("*AVL California*"), AVL Strategic Analytic Services, Inc., a Michigan corporation ("*AVL Strategic*"), AVL Properties, Inc. a Michigan corporation ("*AVL Properties*"), AVL TSI Equipment, LLC, a Michigan limited liability company ("*AVL TSI Equipment*"), AVL PEI Equipment, LLC, a Michigan limited liability company ("*AVL PEI Equipment*", and together with the Borrower, AVL Powertrain, AVL Test Systems, AVL California, AVL Strategic, AVL Properties, AVL TSI Equipment, and AVL PEI Equipment, collectively, the "*Loan Parties*"), and the Agent;
2. Patent and Trademark Security Agreement dated as of June 13, 2011, as amended by a First Amendment to Patent and Trademark Security Agreement dated as of December 12, 2012 (the "*Patent and Trademark Security Agreement*") by and among the Loan Parties and the Agent;
3. Mortgage dated as of June 13, 2011 and recorded on June 22, 2011 at Liber 49239, Page 595 of the Wayne County, Michigan Register of Deeds (the "*Plymouth Mortgage*") made by AVL Properties in favor of the Agent; and
4. Mortgage dated as of June 13, 2011 and recorded on June 23, 2011 at Liber 4853, Page 403 of the Washtenaw County, Michigan Register of Deeds (the "*Ann Arbor Mortgage*") made by AVL Properties in favor of the Agent.

In order to induce the Agent and the Lenders to amend and restate the Prior Credit Agreement pursuant to that certain Amended and Restated Credit Agreement dated as of the date hereof by and among the Borrower, the Agent, and the Lenders (as amended or modified from time to time, including any agreement entered into in replacement thereof, the "*Amended and Restated Credit Agreement*"), and for other good and valuable consideration, the adequacy and receipt of which hereby is acknowledged, each Loan Party acknowledges and agrees, for the benefit of the Agent and the Lenders, as follows:

1. Each Collateral Document remains in full force and effect, is ratified and confirmed by the applicable Loan Parties, and secures, without limitation, (a) any and all indebtedness, obligations, and liabilities of the Loan Parties, and of any of them individually, to the Secured Creditors (as defined below), and to any of them individually, under or in connection with or evidenced by the Amended and Restated Credit Agreement or any other Loan Documents, including, without limitation, all obligations evidenced by the Notes of the Borrower heretofore or hereafter issued under the Amended and Restated Credit Agreement, all obligations of the Borrower to reimburse the Secured Creditors for the amount of all drawings on all Letters of Credit issued pursuant to the Amended and Restated Credit Agreement and all other obligations of the Borrower under all applications for Letters of Credit, all obligations of the Loan Parties, and of any of them individually, with respect to any Hedging Liability, all obligations of the Loan Parties, and of any of them individually, with respect to any Funds Transfer and Deposit Account Liability, and all obligations of the Loan Parties, and of any of them individually, arising under any guaranty

issued by it relating to the foregoing or any part thereof, in each case whether now existing or hereafter arising (and whether arising before or after the filing of a petition in bankruptcy and including all interest accrued after the petition date), due or to become due, direct or indirect, absolute or contingent, and howsoever evidenced, held or acquired and (b) any and all expenses and charges, legal or otherwise, suffered or incurred by the Secured Creditors, and any of them individually, in collecting or enforcing any of such indebtedness, obligations, and liabilities or in realizing on or protecting or preserving any security therefor, including, without limitation, the liens and security interests granted under the Collateral Documents. Notwithstanding anything to the contrary in any of the Collateral Documents, solely with respect to any Loan Party in its capacity as a Guarantor, Hedging Liabilities secured by the grant of a security interest by such Loan Party shall exclude all Excluded Swap Obligations (as defined below) of such Loan Party.

2. Each and every reference in the Collateral Documents to the Prior Credit Agreement shall be deemed to mean the Amended and Restated Credit Agreement.

3. No Loan Party currently has, and will not in the future have, any material equipment or inventory at the office, located in the building commonly known as 10 East Doty Street, Madison, Wisconsin, that is leased by AVL Powertrain from Urban Land Executive Suites, LLC.

4. Each and every reference in the Plymouth Mortgage and the Ann Arbor Mortgage to the Guaranty shall be deemed to mean the Amended and Restated Subsidiary Guaranty Agreement dated as of the date hereof.

5. Each of Schedules A through F to the Security Agreement are replaced and restated in their entirety by the applicable Schedules set forth in **Exhibit A** attached hereto.

6. Each of Schedules 1 and 2 to the Patent and Trademark Security Agreement are replaced and restated in their entirety by the applicable Schedules set forth in **Exhibit B** attached hereto.

7. No Loan Party has any setoff, defense or counterclaim with respect to its obligations under the Collateral Documents.

8. All capitalized terms used herein without definition shall have the same meanings herein as such terms have in the Amended and Restated Credit Agreement. As used herein:

- (a) “*Commodity Exchange Act*” means the Commodity Exchange Act (7 U.S.C. § 1 et seq.), as amended from time to time, and any successor statute.
- (b) “*Excluded Swap Obligation*” means, with respect to any Loan Party, any Swap Obligation if, and to the extent that, all or a portion of the guarantee under the Guaranty of such Loan Party of, or the grant by such Loan Party of a security interest to secure, such Swap Obligation (or such guarantee thereof) is or becomes illegal under the Commodity Exchange Act or any rule, regulation or order of the Commodity Futures Trading Commission (or the application or official interpretation of any thereof) by virtue of such Loan Party’s failure for any reason to constitute an “eligible contract participant” as defined in the Commodity Exchange Act and the regulations thereunder at the time such Guaranty or the grant of such security interest becomes effective with respect to such Swap Obligation. If a Swap Obligation arises under a master agreement governing more than one swap, such exclusion shall apply only to the portion of such Swap

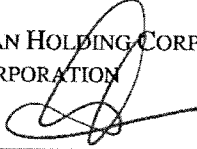
Obligation that is attributable to swaps for which such guarantee or security interest is or becomes illegal.

- (c) “*Secured Creditors*” means the Agent, the L/C Issuers, and the Lenders, together with any Affiliates of the Lenders party to (i) one or more agreements with respect to, among other things, interest rate, foreign currency and/or commodity exchange, swap, cap, collar, floor, forward, option or other similar agreements for the purpose of hedging or otherwise protecting against interest rate, foreign currency and/or commodity exposure, and/or (ii) one or more agreements with respect to the execution or processing of electronic transfer of funds by automatic clearing house transfer, wire transfer or otherwise to or from any deposit account of the Borrower or any of its Affiliates now or hereafter maintained with any of the Secured Creditors, the acceptance for deposit or the honoring for payment of any check, draft or other item with respect to any such deposit accounts, and other deposit, disbursement, and cash management services afforded to the Borrower or any of its Affiliates by any of the Secured Creditors.
- (d) “*Swap Obligation*” means, with respect to a Loan Party, any obligation to pay or perform under any agreement, contract or transaction that constitutes a “swap” within the meaning of section 1a(47) of the Commodity Exchange Act.


[*Signature Pages Follow*]

IN WITNESS WHEREOF, the Loan Parties have caused this Reaffirmation of Collateral Documents to be executed and delivered as of the date first above written.

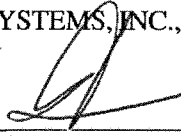
AVL MICHIGAN HOLDING CORPORATION, A  
MICHIGAN CORPORATION

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


AVL POWERTRAIN ENGINEERING, INC., A  
MICHIGAN CORPORATION

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

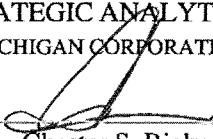
AVL TEST SYSTEMS, INC., A DELAWARE  
CORPORATION

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

AVL CALIFORNIA TECHNOLOGY CENTER,  
INC., A MICHIGAN CORPORATION

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

AVL STRATEGIC ANALYTIC SERVICES,  
INC., A MICHIGAN CORPORATION

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

Signature Page  
Reaffirmation of Collateral Documents

**TRADEMARK**  
**REEL: 005344 FRAME: 0813**

AVL PROPERTIES, INC., A MICHIGAN CORPORATION

By \_\_\_\_\_

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

AVL TSI EQUIPMENT, LLC, A MICHIGAN LIMITED LIABILITY COMPANY

By \_\_\_\_\_

Name: Chester S. Ricker  
Title: Manager

AVL PEI EQUIPMENT, LLC, A MICHIGAN LIMITED LIABILITY COMPANY

By \_\_\_\_\_

Name: Chester S. Ricker  
Title: Manager

Accepted and agreed:

RBS CITIZENS, N.A., as Agent

By: \_\_\_\_\_  
Name: Frederic W. Terrell  
Title: SENIOR VICE PRESIDENT

Signature Page  
Reaffirmation of Collateral Documents



**EXHIBIT A- UPDATED SECURITY AGREEMENT SCHEDULES**

Schedule A- Locations (see attached)

Schedule B- Other Names (see attached)

Schedule C- Intellectual Property Rights (see attached)

Schedule D- Real Estate Legal Descriptions (see attached)

Schedule E- Investment Property and Deposits (see attached)

Schedule F- Commercial Tort Claims (see attached)

SCHEDULE A

LOCATIONS

Name of Debtor (and State of Organization and Organizational Registration Number)	Chief Executive Office (and Name of Record Owner of such Location)	Additional Places of Business and Collateral Locations (and Name of Record Owner of such Locations)
AVL Michigan Holding Corporation, a Michigan corporation CID-530-823	47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI) LLC	
AVL Test Systems, Inc., a Delaware corporation File No. 0579506 CID-631-227	47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI) LLC	2285 Franklin Road West Bloomfield, MI 48302 Owner: Ambrose Properties, LLC, a Michigan limited liability company
AVL Properties, Inc., a Michigan corporation CID-582-036	47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI) LLC	47519 Halyard Drive Plymouth, MI 48170  1801 Ellsworth Road Ann Arbor, MI 48106
AVL Powertrain Engineering, Inc., a Michigan corporation CID-450-788	47519 Halyard Drive Plymouth, MI 48170 Owner: AVL Properties, Inc.	1801 Ellsworth Road Ann Arbor, MI 48106 Owner: AVL Properties, Inc.  46097 Commerce Center Dr. Plymouth Twp., MI 48170 Owner: Plymouth Technology Park, LLC, a Michigan limited liability company  25111 Arctic Ocean Blvd. Lake Forest, CA 92630 Owner: Whittle Investors – State College LP, a California limited partnership
AVL PEI Equipment, LLC, a Michigan limited liability company State ID No. D40616	47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI) LLC	Additional Collateral Location: 47519 Halyard Drive Plymouth, MI 48170 Owner: AVL Properties, Inc.

		<p>Additional Collateral Location: 1801 E. Ellsworth Rd. Ann Arbor, MI 48108 Owner: AVL Properties, Inc.</p> <p>Additional Collateral Location: 25111 Arctic Ocean Blvd. Lake Forest, CA 92630 Owner: Whittle Investors – State College LP, a California limited partnership</p> <p>Additional Collateral Location: 701 White Avenue Beloit, WI Owner: Fairbanks Morse Engine</p> <p>Additional Collateral Location: 46097 Commerce Center Dr. Plymouth Twp., MI 48170 Owner: Plymouth Technology Park, LLC, a Michigan limited liability company</p>
<p>AVL TSI Equipment, LLC a Michigan limited liability company State ID No. D41470</p>	<p>47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI) LLC</p>	<p>Additional Collateral Location: 46097 Commerce Center Dr. Plymouth Twp., MI 48170 Owner: Plymouth Technology Park, LLC, a Michigan limited liability company</p> <p>Additional Collateral Location: 2285 Franklin Road West Bloomfield, MI 48302 Owner: Ambrose Properties, LLC, a Michigan limited liability company</p>
<p>AVL California Technology Center, Inc., a Michigan corporation</p>	<p>47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI)</p>	<p>25111 Arctic Ocean Blvd. Lake Forest, CA 92630 Owner: Whittle Investors –</p>

State ID No. 09935C	LLC	State College LP, a California limited partnership
AVL Strategic Analytic Services Inc., a Michigan corporation State ID No. 03169R	47603 Halyard Drive Plymouth, MI 48170 Owner/Lessor: Metalply, (MI) LLC	

SCHEDULE B

**OTHER NAMES**

A. Prior Legal Names

AVL Michigan Holding Corporation

AVL Americas, Inc.

AVL Test Systems, Inc.

AVL Instrumentation & Test Systems, Inc.  
AVL North America, Inc.

AVL California Technology Center, Inc.

AVL Services & Consulting, Inc.

Schrick, LLC

Schrick, Inc.

B. Trade Names

AVL Test Systems, Inc. also transacted business as:

AVLNA  
AVL Instrumentation & Test Systems, Inc.  
Digalog Corp.  
Pierburg Instruments, Inc.  
Peus-Systems, Inc.  
AVL North America, Inc.

AVL Powertrain Engineering, Inc.  
also transacted business as:

Schrick, Inc.  
AVL PEI  
AVL Powertrain Technologies, Inc.  
AVL California Technology  
AVL California Technical

AVL Michigan Holding Corporation  
also transacted business as:

AVL Americas, Inc.

AVL Strategic Analytic Services, Inc.  
also transacted business as:

Scenaria, Inc.  
Scenaria

SCHEDULE C  
INTELLECTUAL PROPERTY RIGHTS

COPYRIGHTS

The Debtors have not registered any of their copyrightable works.

PATENTS

See attached Exhibit C-1

TRADEMARKS

See attached Exhibit C-2

Exhibit C-1  
ISSUED PATENTS

Patent Number	Issue Date	Company
Active Pulsation Cancellation Device For Diesel		
Particulate Sampling Systems	EP 1249695	AVL North America Inc.
Exhaust Emissions Analysis System	EP 13333270	AVL North America Inc.
Exhaust Gas Sampling System	EP 2492662	AVL North America Inc.
Active Pulsation Cancellation Device For Diesel		
Particulate Sampling Systems	JP 3737776	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	US 6,481,299	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	US 6,742,407	AVL North America Inc.
Engine Exhaust Emissions Measurement Correction	US 6,823,268	AVL North America Inc.
Active Pulsation Cancellation Device For Diesel		
Particulate Sampling Systems	US 6,823,748	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	US 6,857,327	AVL North America Inc.
Heated Stainless Steel Emissions Canister	US 6,962,090	AVL North America Inc.
Diesel Particulate Filter Monitoring Using Acoustic Sensing	US 6,964,694	AVL North America Inc.
Exhaust Volume Measurement Device	US 6,973,818	AVL North America Inc.
Exhaust Volume Measurement Device	US 7,000,449	AVL North America Inc.
Exhaust Volume Measurement Device	US 7,055,364	AVL North America Inc.
Active Filter Temperature Control	US 7,141,090	AVL North America Inc.
Particulate Deposit Avoidance And Probe Positioning	US 7,191,671	AVL North America Inc.
Flat Track Chassis Dynamometer	US 7,213,449	AVL North America Inc.
Particulate Sampler And Dilution Gas Flow Device		
Arrangement For An Exhaust Sampling System	US 7,565,846	AVL North America Inc.
Engine Exhaust Emissions Measurement Correction	US 7,574,307	AVL North America Inc.
Particulate Sampler Flow Calibration	US 7,607,335	AVL North America Inc.
Transmission Headstock For Test Stands	US 7,610,819	AVL North America Inc.
CVS System Sample Water Vapor Management	US 8,181,543	AVL North America Inc.
Polymer Base For Hybrid Powertrain & NVH Test Installations	US 8,186,206	AVL North America Inc.
Hybrid Power Plant With Waste Heat Recovery System	US 8,739,531	AVL North America Inc.
Particulate Deposit Avoidance And Probe Positioning	GP 6020040379220	AVL North America Inc.
Exhaust Gas Sampling System	GP 6020040440027	AVL North America Inc.
Suspended Single Roll Dynamometer	US 5,522,257	AVL North America, Inc.
SCR Ammonia Slip Detection	US 8,607,548	AVL North America, Inc.
Wind Turbine Gearbox Testing System	US 8,584,530	AVL Test Systems, Inc.

Exhibit C-1  
ISSUED PATENTS

Patent Title	Patent Number	Issue Date	Company
Exhaust Power Turbine Driven EGR Pump For Diesel Engines	US 8,584,458	11/19/2013	AVL Powertrain Engineering, Inc.
Air Turbine Driven EGR Pump For Diesel Engines	US 8,726,657	5/20/2014	AVL Powertrain Engineering, Inc.
Fuel Delivery Measurement System with Automatic Pump Matching	US 5,708,201	1/13/1998	Pierberg Instruments - AVL North America, Inc.
Diesel Aircraft Engine	EP 1864008	3/14/2012	Schrick LLC
Diesel Aircraft Engine	CP 2598106	6/11/2013	Schrick, Inc.
Diesel Aircraft Engine	US 7,191,742	3/20/2007	Schrick, Inc.
Misfire Detection Using Acoustic Sensors	Inactive US 7,021,128	4/4/2006	AVL North America, Inc.
Internal Combustion Engine with Low Viscosity Fuel System	Inactive US 6,189,517	2/20/2001	AVL Powertrain Engineering, Inc.
Fuel Injection System for Clean Low Viscosity Fuels	Inactive US 6,119,664	9/19/2000	AVL Powertrain Engineering, Inc.
Fuel Injection System for Clean Low Viscosity Fuels	Inactive US 5,816,228	10/6/1998	AVL Powertrain Engineering, Inc.



Exhibit C-1  
PATENT APPLICATIONS

	PubNumber	AppNumber	Date Filed	Company
Sliding Vane Rotary Expander For Waste Heat Recovery System	2011-0271674	13/143562	7/7/2011	AVL North America Inc.
Battery Cooling Plate And Cooling System	2013-0143093	13/652530	10/16/2012	AVL North America Inc.
Particulate Measurement System		4143DELNP2012 India	5/10/2012	AVL North America Inc.
CVS System Sample Water Vapor Management	2012-0210803	13/463226	5/3/2012	AVL North America Inc.
Particulate Measurement System	2012-0225488	13/509043	5/10/2012	AVL North America Inc.
Particulate Measurement System	CN102656344	2010800569421 China	6/15/2012	AVL North America Inc.
Particulate Measurement System	2504536	108557117 Europe	5/2/2012	AVL North America Inc.
Exhaust Sampling System And Method For Water Vapor Management				
	2013-0317757	13/478170	5/23/2012	AVL North America Inc.
	2011-0265772	13/143561	7/7/2011	AVL North America Inc.
Ejector Type EGR Mixer	2584644	12/1888903 Europe	10/17/2012	AVL North America Inc.
Battery Cooling Plate And Cooling System	2013101926	2012232002 Japan	10/19/2012	AVL North America Inc.
Battery Cooling Plate And Cooling System	CN103066342	201210543855X China	10/19/2012	AVL North America Inc.
Transmission Including Dog Clutch Arrangement And Method		61/817486	4/30/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management		1020130057894 Korea	5/22/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management		1798MUM2013 India	5/21/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management	2013246169	2013108467 Japan	5/23/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management	2667175	1316886040 Europe	5/21/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management	CN103424286	2013101942570 China	5/23/2013	AVL North America, Inc.
Decoupling Method For Emissions Measurement	2691901	127646255 Europe	9/27/2013	AVL Test System Inc.
High Power Battery Cells Having Improved Cooling	WO2014/036227	PCT/US2013/057236	8/29/2013	AVL Test Systems Inc.
Exhaust Sampling System And Method For Synchronizing Time Alignment And Dilation	WO2013/188346	PCT/US2013/045094	6/11/2013	AVL Test Systems Inc.
Emissions Measurement Equipment And Method	WO2014/008040	PCT/US2013/047578	6/25/2013	AVL Test Systems Inc.

Exhibit C-1  
PATENT APPLICATIONS

	PubNumber	AppNumber	Date Filed	Company
Deconvolution Method For Emissions Measurement		2014502616 Japan	9/27/2013	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement		2012800200736 China	10/24/2013	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement		2831593 Canada	9/26/2013	AVL Test Systems, Inc.
Intelligent Bag Filling For Exhaust Sampling System	WO2013/181145	PCT/US2013/042871	5/28/2013	AVL Test Systems, Inc.
Deconvolution Method For Emissions Measurement	2014-0019077	14/007111	9/24/2013	AVL Test Systems, Inc.
SCR Ammonia Slip Detection	2439386	111842118 Europe	10/6/2011	AVL Test Systems, Inc.
Engine Turbo-Compounding Apparatus And Method		61/981251	4/18/2014	AVL Powertrain Engineering, Inc.
Two-Speed Transmission For Electric Vehicle		61/912163	12/5/2013	AVL Powertrain Engineering, Inc.
Altitude Fuel Limiter For Engine And Method Of Using The Same		61/905906	11/19/2013	AVL Powertrain Engineering, Inc.
Fuel Injection System And Method Combining Port Fuel Injection With Direct Fuel Injection		61/912174	12/5/2013	AVL Powertrain Engineering, Inc.
Automatic Transmission Having A Continuously Variable Transmission Assembly		61/922214	12/31/2013	AVL Powertrain Engineering, Inc.
Natural Gas Quality Sensor And Method For Using The Same		61/981260	4/18/2014	AVL Powertrain Engineering, Inc.
Manual Transmission With Torque Converter		61/915695	12/13/2013	AVL Powertrain Engineering, Inc.
Oil Sump Having Temperature-Controlled Jalousie Divider		61/980222	4/16/2014	AVL Powertrain Engineering, Inc.
System And Method For Aerating Lubricant In An Internal Combustion Engine		61/969323	3/24/2014	AVL Powertrain Engineering, Inc.
Transmission Sump Screen		61/980233	4/16/2014	AVL Powertrain Engineering, Inc.
Transmission Including Dog Clutch Arrangement And Air Turbine Driven EGR Pump For Diesel Engines		14/264521	4/29/2014	AVL Powertrain Engineering, Inc.
Exhaust Power Turbine Driven EGR Pump For Diesel Engines	2014-0075936	14/082699	4/29/2014	AVL Powertrain Engineering, Inc.
Diesel Aircraft Engine		PI05198364 Brazil	12/7/2005	Schrack, Inc.

**Exhibit C-2  
FEDERALLY REGISTERED TRADEMARKS**

<b>MARK</b>	<b>REG. NO.</b>	<b>COMPANY</b>
BENCHMARK SERIES	3031039	AVL Test Systems, Inc.
HYPERCELL	1856201	AVL Test Systems, Inc.
CELLMATE	1680200	AVL Test Systems, Inc.
DIGALOG	1787874	AVL Test Systems, Inc.
D	1357859	AVL Test Systems, Inc.
CELLMATE	1363062	AVL Test Systems, Inc.
D	1285870	AVL Test Systems, Inc.
DIGALOG	1285869	AVL Test Systems, Inc.
SCENARIA	4189571	AVL Strategic Analytic Services, Inc.

SECURITY AGREEMENT

SCHEDULE D

REAL ESTATE LEGAL DESCRIPTIONS

1. Property located at 47519 Halyard Drive, in the Township of Plymouth, Wayne County, Michigan described as follows:

Lot 34 and that part of Lot 33 described as: Beginning at the Northeast corner of Lot 33, "Metro West Technology Park" located in Section 20, Township 1 South, Range 8 East, Plymouth Township, and recorded in Liber 102 of Plats, Pages 8 through 13, Wayne County Records, Wayne County, Michigan; thence South 41 degrees 10 minutes 00 seconds West 175.00 feet along the Southerly right of way of Halyard Drive; thence continuing along said right of way 39.27 feet along the arc of a 543.00 feet radius circular curve to the right with a delta of 04 degrees 08 minutes 36 seconds, a degree of curve of 10 degrees 33 minutes 06 seconds, and a chord bearing South 43 degrees 14 minutes 18 seconds West 39.26 feet; thence South 35 degrees 52 minutes 33 seconds East 512.93 feet; thence the following two courses along the Southerly line of said Lot 33 North 52 degrees 20 minutes 00 seconds East 259.76 feet, and North 29 degrees 20 minutes 00 seconds East 76.02 feet; thence North 48 degrees 50 minutes 00 seconds West 533.17 feet to the place of beginning.

2. Property located at 1801 Ellsworth Road, in the City of Ann Arbor, Washtenaw County, Michigan described as follows:

Commencing at the Southeast corner of Section 9, Town 3 South, Range 6 East, City of Ann Arbor, Washtenaw County, Michigan; thence South 87 degrees 43 minutes 45 seconds West 399.36 feet along the South line of said Section 9 and the centerline of Ellsworth Road (120 feet wide) to the Point of Beginning; thence continuing along said line South 87 degrees 43 minutes 45 seconds West 479.62 feet; thence North 01 degrees 31 minutes 40 seconds West 562.65 feet; thence North 87 degrees 36 minutes 20 seconds East 478.02 feet; thence South 01 degrees 41 minutes 30 seconds East 563.64 feet to the Point of Beginning, being a part of the Southeast  $\frac{1}{4}$  of said Section 9.

Together with a 20.00 foot wide easement for egress, the centerline of said easement described as follows: Commencing at the Southeast corner of Section 9, Town 3 South, Range 6 East, city of Ann Arbor, Washtenaw County, Michigan; thence North 01 degrees 41 minutes 30 seconds West 533.88 feet along the East line of said Section 9 and the centerline of Stone School Road (66 feet wide); then South 88 degrees 18 minutes 30 seconds West 33.00 feet to the Westerly right-of-way line of said Stone School Road and the Point of Beginning; thence South 87 degrees 36 minutes 20 seconds West 366.37 feet to the Point of Ending, as recorded in Liber \_\_\_\_, Page \_\_\_\_, Washtenaw County Records.

3. Property located at 46097 Commerce Center Drive, Plymouth, Wayne County, Michigan described as follows:

Parcel 1 Part of Commencing at the S. E.  $\frac{1}{4}$  of Section 21, T.1S, R.8#, Plymouth Township, Wayne County, Michigan, being described as: Beginning at a point on the Northerly right-of-way line of M-14 Expressway (418.00 feet wide), distant N.  $02^{\circ} 10' 31''$  W., 962.06 feet, and S.  $87^{\circ} 07' 29''$  W., 1542.05 feet from the S.E. corner of said Section 21; thence continuing along the Northerly right-of-way line of M-14 Expressway S.  $87^{\circ} 07' 29''$  W., 351.89 feet; thence N.  $01^{\circ} 58' 47''$  W., 327.16 feet; thence N.  $87^{\circ} 07' 25''$  E., 71.58 feet; thence 66.83 feet along an arc of a curve to the right (radius 74.50 feet, central angle  $51^{\circ} 23' 46''$ , chord bears S.  $67^{\circ} 10' 42''$  E., 64.61 feet); thence S.  $41^{\circ} 28' 49''$  E., 189.16 feet; thence S.  $44^{\circ} 42' 16''$  E., 88.90 feet; thence S.  $41^{\circ} 28' 49''$  E., 31.59 feet; thence 28.55 feet along an arc of a curve to left (radius 140.50 feet, central angle  $11^{\circ} 38' 38''$ , chord bears S.  $47^{\circ} 18' 08''$  E., 28.50 feet); thence S.  $02^{\circ} 52' 31''$  E., 40.00 feet to the point of beginning. Containing 78.807 square feet or 1.809 Acres and subject to easements of record.

4. Property consisting of office space located at 25111 Arctic Ocean Circle, Lake Forest California, 92130 described as follows:

Parcel 3 of parcel map no. 98-109 in the city of Lake Forest, County of Orange, State of California, as per map filed in Book 303, Pages 13, 14, 15 of parcel maps, in the office of the County recorder of said county.

5. Property located at 701 White Avenue, City of Beloit, Rock County, Wisconsin described as follows:

- A. Approximately 59,000 square feet of manufacturing and testing space in the western-most bay of the building formerly known as Fairbanks Morse Engine Building No. 160 located in the southwest quadrant of the intersection of Morse Avenue and Park Avenue in the City of Beloit, Rock County, Wisconsin

Located on:

- B. Parcel 1: PART OF LOT 4 OF CERTIFIED SURVEY MAP DOCUMENT NO. 806967 AS RECORDED IN VOLUME 3 ON PAGES 232 THROUGH 235 AND LOTS 13-22 AND THE SOUTH  $\frac{1}{2}$  OF LOT 23, BLOCK 5, ECLIPSE PARK, CITY OF БЕЛОИТ, ROCK COUNTY, WISCONSIN, DESCRIBED AS FOLLOWS: Beginning at the Northeasterly corner on Lot 4, aforesaid, said point being the Southwesterly right-of-way corner of Park Avenue and Morse Street; thence South  $00^{\circ}00'39''$  West 960.10 feet; thence South  $89^{\circ}59'55''$  West 455.39 feet; thence South  $73^{\circ}01'31''$  West 111.98 feet; thence North  $89^{\circ}54'23''$  West 34.00 feet; thence South  $00^{\circ}05'37''$  West 39.03 feet; thence North  $89^{\circ}54'23''$  West 214.02 feet; thence South  $01^{\circ}19'06''$  West 500.96 feet; thence North  $88^{\circ}31'38''$  West 483.31 feet; thence North  $01^{\circ}21'46''$  East 32.71 feet; thence North  $87^{\circ}48'49''$  West 83.59 feet; thence North  $01^{\circ}38'23''$  East 449.00 feet; thence North  $01^{\circ}30'50''$  East 488.71 feet to an on-tangent curve to the right; thence North and Northeasterly along said curve having a radius of 325.78 feet and a chord which bears North  $25^{\circ}34'31''$  East

265.68 feet to non-tangent curve to the right; thence Northeasterly and Easterly along said curve having a radius of 346.86 feet and a chord which bears North 62°34'01" East 190.52 feet to a point of non-tangency; thence North 00°26'39" East 109.39 feet; thence South 89°33'22" East 216.75 feet; thence North 45°24'39" East 420.79 feet; thence South 44°36'13" East 43.96 feet; thence North 45°24'04" East 180.05 feet; thence South 44°35'25" East 357.26 feet; thence South 00°16'49" West 23.52 feet; thence South 89°34'24" East 151.61 feet; thence North 00°00'39" East 80.00 feet; thence North 89°33'47" West 94.34 feet; thence North 44°38'01" West 24.32 feet to a curve to the right; thence Northwesterly and Northerly along said curve having a radius of 310.06 feet and a chord which bears North 22°07'04" West 237.31 feet; thence North 00°25'12" East 109.85 feet; thence South 89°37'10" East 90.09 feet; thence North 2°25'45" West 1.20 feet; thence South 89°40'18" East 110.00 feet; thence South 00°00'39" West 347.70 feet; thence continuing South 00°00'39" West 80.00 feet to the place of beginning. Said parcel containing 38.555 acres, more or less.

6. Property located at 47603 Halyard Drive 48170 described as follows:

Lot 32 of "Metro West Technology Park" as recorded in Liber 102 of Plats, pages 8-13, Wayne County Records, Wayne County, State of Michigan,  
and

Part of Lot 33 of "Metro West Technology Park" as recorded in Liber 102 of Plats, pages 8-13, Wayne County Records, Wayne County, State of Michigan described as: Beginning at the N.W. corner of said Lot 33; thence nontangentially 83.53 feet along the arc of a 543.00 feet radius circular curve concave to the north, delta 08° 48'49", chord bearing N. 49° 43'01"E, 83.45 feet along the southerly right-of-way of Halyard Drive; thence S 35° 52'33" E, 512.93 feet; thence S 52° 20' 00" W, 83.24 feet along the northerly right-of-way of M-14, a limited access highway; thence N 35° 52' 33" W, 509.12 feet to the place of beginning.

Being part of the southeast 1/4 of Section 20, T1S-R8E, Plymouth Township, Wayne County, Michigan.

7. Property consisting of office number 803 located at 10 East Doty Street, Madison, Wisconsin.

**SCHEDULE E**

**INVESTMENT PROPERTY AND DEPOSITS**

**A. INVESTMENT PROPERTY**

**PLEGDED STOCK**

Name and Location of Pledgor	Name of Issuer	Jurisdiction of Incorporation	No. of Shares	Class	Certificate No.	Percentage of Issuer's Stock
AVL Michigan Holding Corporation	AVL Test Systems, Inc.	Delaware	48	Common	3	100%
AVL Michigan Holding Corporation	AVL Powertrain Engineering, Inc.	Michigan	1,000	Common	3	100%
AVL Michigan Holding Corporation	AVL California Technology Center, Inc.	Michigan	10,000	Common	2	100%
AVL Michigan Holding Corporation	AVL Strategic Analytic Services, Inc.	Michigan	1,000	Common	1	100%
AVL Michigan Holding Corporation	AVL Properties, Inc.	Michigan	1,000	Common	1	100%

**PARTNERSHIP INTEREST COLLATERAL**

Name and Location of Pledgor	Name of Partnership	Type of Organization	Jurisdiction of Organization	Percent of Ownership
None				

**LLC COLLATERAL**

Name and Location of Pledgor	Name of LLC	Jurisdiction of Organization	Percentage of Equity Interest Owned by Pledgor
AVL Michigan Holding Corporation	AVL PEI Equipment, LLC	Michigan	100%
AVL Michigan Holding Corporation	AVL TSI Equipment, LLC	Michigan	100%
AVL Powertrain Engineering, Inc.	Schrick, LLC	Michigan	100%

**B. DEPOSITS**

Name of Depositor/Debtor	Name of Depository Institution	Account Numbers
AVL Michigan Holding Corporation	Comerica Bank	Account No. 1850246040 ABA No. 072000096 Swift No. MNBDUS33
AVL Michigan Holding Corporation	Charter One Bank	Account No. 4518586181 ABA No. 241070417 SWIFT No. CTZIUS33

Name of Depositor/Debtor	Name of Depository Institution	Account Numbers
AVL Test Systems, Inc.	Charter One Bank	Account No. 4518586203 ABA No. 241070417 SWIFT No. CTZIUS33
AVL Powertrain Engineering, Inc.	Charter One Bank	Account No. 4518586211 ABA No. 241070417 SWIFT No. CTZIUS33
AVL California Technology Center	Charter One Bank	Account No. 4518586238 ABA No. 241070417 SWIFT No. CTZIUS33
AVL Strategic Analytic Services, Inc. d/b/a Scenaria, Inc.	Charter One Bank	Account No. 4522323203 ABA No. 241070417 SWIFT No. CTZIUS33
AVL Properties, Inc.	Charter One Bank	Account No. 4522323971 ABA No. 241070417 SWIFT No. CTZIUS33
AVL Test Systems, Inc.	Charter One Bank – Foreign Currency Account (Euro)	Account No. 2011061400108 SWIFT No. RBOS GB 2L IBAN No: GB74RBOS16107510000470
AVL Powertrain Engineering Inc.	Charter One Bank – Foreign Currency Account (Euro)	Account No. 2012112700610 SWIFT No. RBOSGB2L IBAN No: GB74RBOS16107510000470
AVL Test Systems, Inc.	Comerica – Foreign Currency Account (Euro)	Account No. 329022 SWIFT No. CITIGB2L IBAN No: GB91CITI8500811334190



INCORPORATED UNDER THE LAWS OF THE STATE OF  
**Delaware**



NUMBER  
**3**

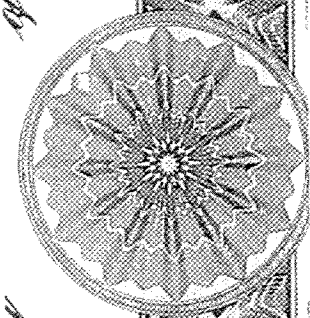
SHARES  
**48**

**AVL Test Systems, Inc.**

AUTHORIZED CAPITAL \_\_\_\_\_ SHARES \_\_\_\_\_ PAR VALUE \_\_\_\_\_  
**This Certifies That AVL Michigan Holding Corporation**  
**Forty-Eight (48) ----- full paid and non-assessable**

SHARES OF THE CAPITAL STOCK OF **AVL Test Systems, Inc.**  
*transferable on the books of the Corporation in person or by duly authorized attorney upon*  
*surrender of this Certificate properly endorsed.*

*In Witness Whereof, the said Corporation has caused this Certificate to be signed by its duly*  
*authorized officers and sealed with the Seal of the Corporation,*  
*this 25th day of February A. D. 2010*



Chester Ricker  
SECRETARY

*[Signature]*  
Gregory Hopton  
PRESIDENT

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 CORPORATION SUPPLY CO.  
 205 W. RANDOLPH ST.  
 CHICAGO, ILLINOIS 60606

(RESERVE THIS SPACE TO PASTE BACK CANCELLED STOCK CERTIFICATE)

Certificate No. 3 For 48 Shares

AVL Test Systems, Inc.

Dated Effective February 25, 2010

Issued to AVL Michigan Holding Corporation

IF NOT AN ORIGINAL ISSUE SHOW DETAILS OF TRANSFER BELOW				
Transferred from	Original Certificate		No. of Orig. Shares	No of Shrs. Transf'd.
	No.	Date		
Reissue to reflect name change to AVL Test Systems, Inc. effective February 25, 2010	2	5/20/93	48	48

IF THIS CERTIFICATE IS SURRENDERED FOR TRANSFER SHOW DETAILS		
New Certificate Issued to	No. of New Certificate	No. of Shares Transferred

Received this Certificate Effective February 25, 2010  
 (DATE)

  
 (SIGNATURE)

Gregory Hopton

Surrendered this Certificate

(DATE)

(SIGNATURE)

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CHICAGO  
PATENT PENDING

INCORPORATED UNDER THE LAWS OF THE STATE OF

MICHIGAN



SERIAL  
NUMBER  
3

SHARES  
1,000

AVL POWERTRAIN ENGINEERING, INC.

AUTHORIZED CAPITAL 60,000 SHARES without PAR VALUE

This Certifies That AVL MICHIGAN HOLDING CORPORATION is the owner of full paid and non-assessable One Thousand (1,000) -----

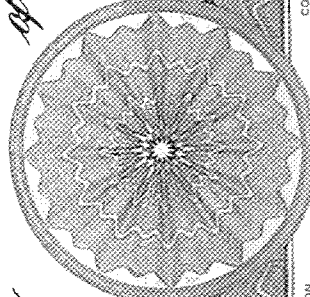
SHARES OF THE CAPITAL STOCK OF AVL POWERTRAIN ENGINEERING, INC. transferable on the books of the Corporation in person or by duly authorized Attorney upon surrender of this Certificate properly endorsed.

In Witness Whereof, the said Corporation has caused this Certificate to be signed by its duly authorized officers and sealed with the Seal of the Corporation,

this 15<sup>th</sup> day of April A.D. 1999

*Josef Maier*  
JOSEF MAIER  
SECRETARY

*Helmut C. List*  
HELMUT C. LIST  
PRESIDENT



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DWIGHT & M. H. JACKSON  
 CORPORATION SUPPLY CO.  
 205 W. RANDOLPH ST.  
 CHICAGO, ILLINOIS 60606

( RESERVE THIS SPACE TO PASTE BACK CANCELLED STOCK CERTIFICATE )

Certificate No. 3 For 1,000 Shares  
 AVL POWERTRAIN ENGINEERING, INC.  
 Dated 19 99  
 Issued to AVL MICHIGAN HOLDING CORPORATION  
 a Michigan corporation

IF NOT AN ORIGINAL ISSUE SHOW DETAILS OF TRANSFER BELOW

Transferred from	Original Certificate No.	Date	No. of Original Shares	No. of Shares Transferred
AVL Michigan Holding Corporation	2	4/1/99	1,000	1,000

Received this Certificate No. 3 19 99  
 AVL Michigan Holding Corporation  
 By: Helmut List  
 Its: President  
 Surrendered this Certificate 19 99

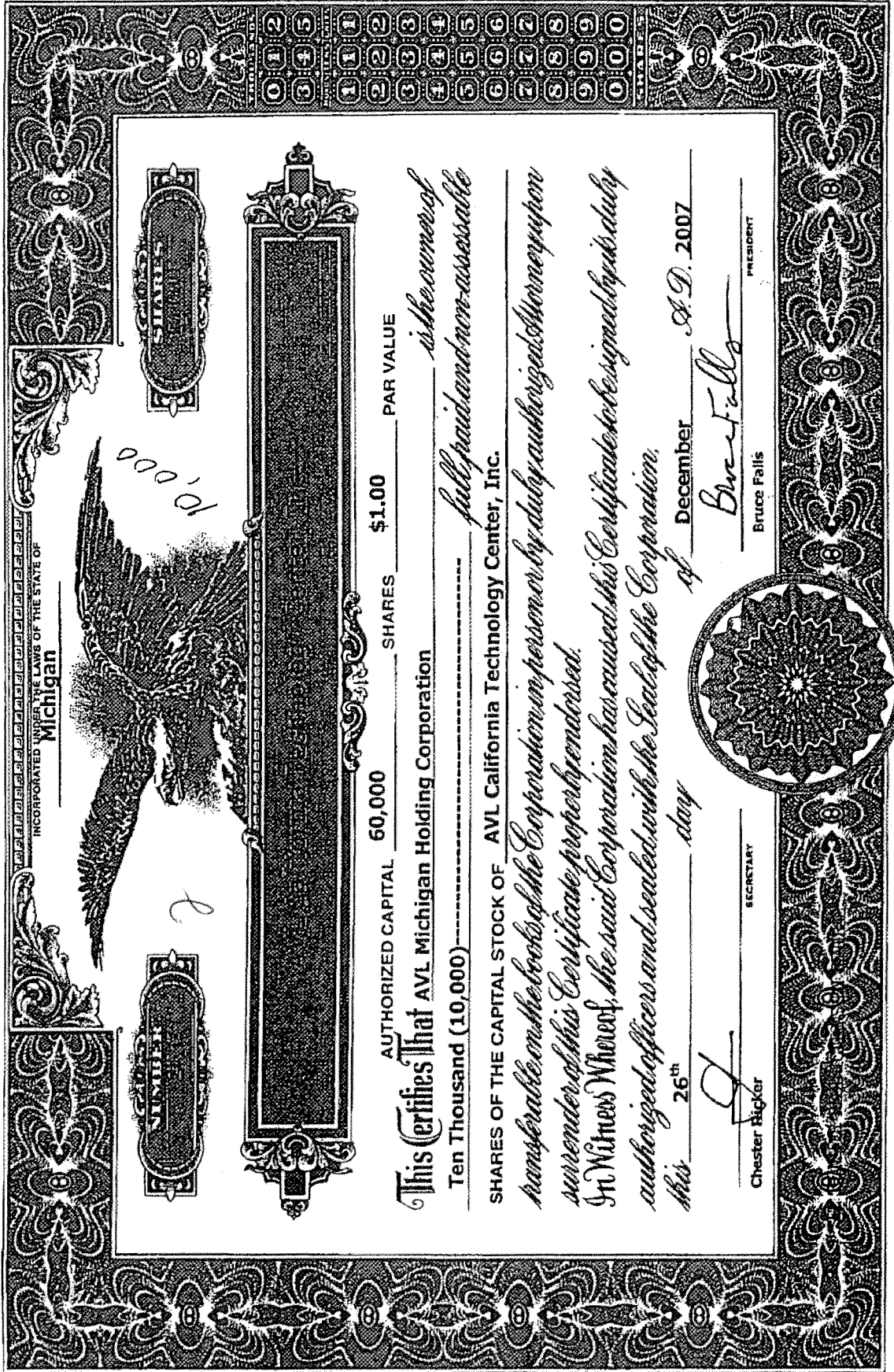
IF THIS CERTIFICATE IS SURRENDERED FOR TRANSFER SHOW DETAILS

New Certificate Issued to	No. of New Certificate	No. of Shares Transferred



JT 1334  
S-4

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DINGCHT & M. JACKSON  
ATTORNEYS AT LAW



SHARES  
10,000

SUMMER

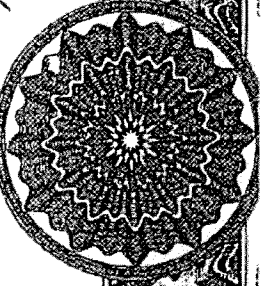
AVL MICHIGAN HOLDING CORPORATION

AUTHORIZED CAPITAL 60,000 SHARES \$1.00 PAR VALUE

This Certifies That AVL Michigan Holding Corporation  
Ten Thousand (10,000) *is the owner of*  
*fully paid and non-assessable*

SHARES OF THE CAPITAL STOCK OF AVL California Technology Center, Inc.  
*transferable on the books of the Corporation in person or by duly authorized attorney upon*  
*surrender of this Certificate properly endorsed.*

In Witness Whereof, the said Corporation has caused this Certificate to be signed by its duly  
authorized officers and sealed with the Seal of the Corporation,  
this 26<sup>th</sup> day of December A.D. 2007



Chester Rigger  
SECRETARY

*Bruce Falls*  
Bruce Falls  
PRESIDENT

DWIGHT & M. H. JACKSON  
 CORPORATION SUPPLY CO.  
 205 W. RANDOLPH ST.  
 CHICAGO, ILLINOIS 60606

( RESERVE THIS SPACE TO PASTE BACK CANCELLED STOCK CERTIFICATE )

*Certificates No.* 2 *For* 10,000 *Shares*

of AVL California Technology Center, Inc.

*Dated* effective December 26, 2007

*Issued to* \_\_\_\_\_

IF NOT AN ORIGINAL ISSUE SHOW DETAILS OF TRANSFER BELOW			
Original Certificate No.	Date	No. of Original Shares	No. of Shares Transferred
<i>Transferred from</i> Reissue to reflect on name change from AVL Services & Consulting, Inc. to AVL California Technology Center, Inc. effective 12/26/07			

IF THIS CERTIFICATE IS SURRENDERED FOR TRANSFER SHOW DETAILS		
New Certificate Issued to	No. of New Certificate	No. of Shares Transferred

*Received this Certificate* effective December 26, 2007  
 (DATE)

*Bruce Falls*

Bruce Falls (SIGNATURE)

*Surrendered this Certificate* \_\_\_\_\_  
 (DATE)

(SIGNATURE)

JT 1334  
S-4

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DWIGHT L. M. JACKSON  
CHICAGO  
34" BY 5 1/2" (INC. 14)

INCORPORATED UNDER THE LAWS OF THE STATE OF  
**MICHIGAN**



**STAMP NUMBER**  
1

**STAMP VALUE**  
1000

**AVL Strategic Analytic Services, Inc.**

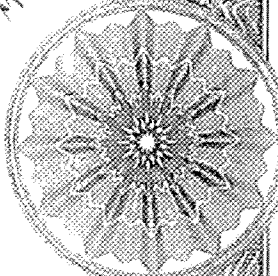
AUTHORIZED CAPITAL **60,000** SHARES **0** PAR VALUE

This Certifies That **AVL Michigan Holding Corporation**  
One Thousand (1,000) \_\_\_\_\_ is the owner of  
\_\_\_\_\_ full-paid and non-assessable

SHARES OF THE CAPITAL STOCK OF **AVL Strategic Analytic Services, Inc.**  
transferable in the books of the Corporation in person or by duly authorized attorney upon  
surrender of this Certificate properly endorsed.

In Witness Whereof, the said Corporation has caused this Certificate to be signed by its duly  
authorized officers and sealed with the Seal of the Corporation.

this **1<sup>st</sup>** day of **July** **A.D. 2010**



*[Signature]*  
Chester Ricker

SECRETARY

*[Signature]*  
Sandy Stojkowski  
PRESIDENT

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96 97 98 99  
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 CORPORATION SUPPLY CO.  
 205 W. RANDOLPH ST.  
 CHICAGO, ILLINOIS 60606

(RESERVE THIS SPACE TO PASTE BACK CANCELLED STOCK CERTIFICATE)

IF NOT AN ORIGINAL ISSUE SHOW DETAILS OF TRANSFER BELOW				
Transferred from	Original Certificate		No. of Orig. Shares	No. of Shares Transf'd.
	No.	Date		
Original Issue				

Certificate No. 1 For 1,000 Shares  
 AVL Strategic Analytic Services, Inc.  
 Dated July, 2010  
 Issued to AVL Michigan Holding Corporation

IF THIS CERTIFICATE IS SURRENDERED FOR TRANSFER SHOW DETAILS	
No. of New Certificate	No. of Shares Transferred
<i>New Certificate Issued to</i>	

Received this Certificate July 14, 2010 (DATE)  
 (SIGNATURE)  
 AVL Michigan Holding Corporation  
 by Chester Ricker, Vice President and CFO  
 Surrendered this Certificate \_\_\_\_\_ (DATE)  
 (SIGNATURE)



JT 1334  
S-4

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CHICAGO  
PATENT PENDING

INCORPORATED UNDER THE LAWS OF THE STATE OF  
Michigan



CERTIFICATE NUMBER  
1

SHARES  
1,000

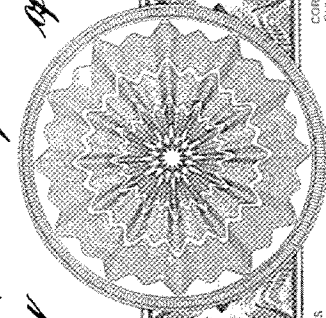
AVL PROPERTIES, INC.

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1 2 3 4 5 6 7 8 9 0

AUTHORIZED CAPITAL 60,000 Common        SHARES        No        PAR VALUE  
This Certifies That AVL Michigan Holding Corporation is the owner of  
One Thousand (1,000) Common full paid and non-assessable  
SHARES OF THE CAPITAL STOCK OF AVL Properties, Inc.

*transferable on the books of the Corporation in person or by duly authorized authority upon  
surrender of this Certificate, properly endorsed.*  
In Witness Whereof, the said Corporation has caused this Certificate to be signed by its duly  
authorized officers and sealed with the Seal of the Corporation,  
this 1st day of August, 1927

Donald Manvel (Chairman)  
August 1st, 1927



Chester Ricker SECRETARY

DWIGHT & M. H. JACKSON  
205 W. RANDOLPH STREET  
CHICAGO, ILLINOIS 60606

TRADEMARK  
REEL: 005344 FRAME: 0839

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 CORPORATION SUPPLY CO.  
 205 W. RANDOLPH ST.  
 CHICAGO, ILLINOIS 60606

(RESERVE THIS SPACE TO PASTE BACK CANCELLED STOCK CERTIFICATE)

IF NOT AN ORIGINAL ISSUE SHOW DETAILS OF TRANSFER BELOW				
Transferred from	Original Certificate		No. of Original Shares	No. of Shares Transf'd.
	No.	Date		
Certificate No. <u>1</u> For <u>1,000</u> Shares  Dated _____  Issued to <u>AVL Michigan Holding Corporation</u> _____ _____				
Original Issue				

IF THIS CERTIFICATE IS SURRENDERED FOR TRANSFER SHOW DETAILS			
New Certificate Issued to	No. of New Certificate		No. of Shares Transferred
Received this Certificate _____ (DATE) _____ (SIGNATURE)			
Surrendered this Certificate _____ (DATE) _____ (SIGNATURE)			

SCHEDULE F

COMMERCIAL TORT CLAIMS

NONE

**EXHIBIT B – UPDATED PATENT AND TRADEMARK  
SECURITY AGREEMENT SCHEDULES**

See attached.

ISSUED PATENTS

Patent Number	Issue Date	Company
Active Pulsation Cancellation Device For Diesel Particulate Sampling Systems	3/1/2006	AVL North America Inc.
Exhaust Emissions Analysis System	8/3/2005	AVL North America Inc.
Exhaust Gas Sampling System	12/11/2013	AVL North America Inc.
Active Pulsation Cancellation Device For Diesel Particulate Sampling Systems	11/4/2005	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	11/19/2002	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	6/1/2004	AVL North America Inc.
Engine Exhaust Emissions Measurement Correction	11/23/2004	AVL North America Inc.
Active Pulsation Cancellation Device For Diesel Particulate Sampling Systems	11/30/2004	AVL North America Inc.
Particulate Sampling Probe And Dilution Tunnel	2/22/2005	AVL North America Inc.
Heated Stainless Steel Emissions Canister	11/8/2005	AVL North America Inc.
Diesel Particulate Filter Monitoring Using Acoustic Sensing	11/15/2005	AVL North America Inc.
Exhaust Volume Measurement Device	12/13/2005	AVL North America Inc.
Exhaust Volume Measurement Device	2/21/2006	AVL North America Inc.
Exhaust Volume Measurement Device	6/6/2006	AVL North America Inc.
Active Filter Temperature Control	11/28/2006	AVL North America Inc.
Particulate Deposit Avoidance And Probe Positioning	3/20/2007	AVL North America Inc.
Flat Track Chassis Dynamometer	5/8/2007	AVL North America Inc.
Particulate Sampler And Dilution Gas Flow Device Arrangement For An Exhaust Sampling System	7/28/2009	AVL North America Inc.
Engine Exhaust Emissions Measurement Correction	8/11/2009	AVL North America Inc.
Particulate Sampler System Flow Calibration	10/27/2009	AVL North America Inc.
Transmission Headstock For Test Stands	11/3/2009	AVL North America Inc.
CVS System Sample Water Vapor Management	5/22/2012	AVL North America Inc.
Polymer Base For Hybrid Powertrain & NVH Test Installations	5/29/2012	AVL North America Inc.
Hybrid Power Plant With Waste Heat Recovery System	6/3/2014	AVL North America Inc.
Particulate Deposit Avoidance And Probe Positioning	5/23/2012	AVL North America Inc.
Exhaust Gas Sampling System	12/11/2013	AVL North America Inc.
Suspended Single Roll Dynamometer	6/4/1996	AVL North America, Inc.
SCR Ammonia Slip Detection	12/17/2013	AVL North America, Inc.
Wind Turbine Gearbox Testing System	11/19/2013	AVL Test Systems, Inc.

TRADEMARK

REEL: 005344 FRAME: 0843

ISSUED PATENTS

Patent Number	Issue Date	Company
US 8,584,458	11/19/2013	AVL Powertrain Engineering, Inc.
US 8,726,657	5/20/2014	AVL Powertrain Engineering, Inc.
US 5,708,201	1/13/1998	Pierberg Instruments - AVL North America, Inc.
EP 1864008	3/14/2012	Schrack LLC
CP 2598106	6/11/2013	Schrack, Inc.
US 7,191,742	3/20/2007	Schrack, Inc.
Inactive US 7,021,128	4/4/2006	AVL North America, Inc.
Inactive US 6,189,517	2/20/2001	AVL Powertrain Engineering, Inc.
Inactive US 6,119,664	9/19/2000	AVL Powertrain Engineering, Inc.
Inactive US 5,816,228	10/6/1998	AVL Powertrain Engineering, Inc.

PATENT APPLICATIONS

	PubNumber	AppNumber	Date Filed	Company
Sliding Vane Rotary Expander For Waste Heat Recovery System	2011-0271674	13/143562	7/7/2011	AVL North America Inc.
Battery Cooling Plate And Cooling System	2013-0143093	13/652530	10/16/2012	AVL North America Inc.
Particulate Measurement System		4143DELNP2012 India	5/10/2012	AVL North America Inc.
CVS System Sample Water Vapor Management	2012-0210803	13/463226	5/3/2012	AVL North America Inc.
Particulate Measurement System	2012-0225488	13/509043	5/10/2012	AVL North America Inc.
Particulate Measurement System	CN102656344	2010800569421 China	6/15/2012	AVL North America Inc.
Particulate Measurement System	2504536	108557117 Europe	5/2/2012	AVL North America Inc.
Exhaust Sampling System And Method For Water Vapor Management				
Ejector Type EGR Mixer	2013-0317757	13/478170	5/23/2012	AVL North America Inc.
Battery Cooling Plate And Cooling System	2011-0265772	13/143561	7/7/2011	AVL North America Inc.
Battery Cooling Plate And Cooling System	2584644	121888903 Europe	10/17/2012	AVL North America Inc.
Battery Cooling Plate And Cooling System	2013101926	2012232002 Japan	10/19/2012	AVL North America Inc.
Battery Cooling Plate And Cooling System	CN103066342	201210543855X China	10/19/2012	AVL North America Inc.
Transmission Including Dog Clutch Arrangement And Method				
Exhaust Sampling System And Method For Water Vapor Management		61/817486	4/30/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management		1020130057894 Korea	5/22/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management		1798MUM2013 India	5/21/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management	2013246169	2013108467 Japan	5/23/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management	2667175	131686040 Europe	5/21/2013	AVL North America, Inc.
Exhaust Sampling System And Method For Water Vapor Management				
Deconvolution Method For Emissions Measurement	CN103424286	2013101942570 China	5/23/2013	AVL North America, Inc.
High Power Battery Cells Having Improved Cooling	2691901	127646255 Europe	9/27/2013	AVL Test System Inc.
Exhaust Sampling System And Method For Synchronizing Time Alignment And Dilution Emissions Measurement Equipment And Method	WO2014/036227	PCT/US2013/057236	8/29/2013	AVL Test Systems Inc.
	WO2013/188346	PCT/US2013/045094	6/11/2013	AVL Test Systems Inc.
	WO2014/008040	PCT/US2013/047578	6/25/2013	AVL Test Systems Inc.

TRADEMARK

REEL: 005344 FRAME: 0845

PATENT APPLICATIONS

PubNumber	AppNumber	Date Filed	Company
	2014502616 Japan	9/27/2013	AVL Test Systems, Inc.
	2012800200736 China	10/24/2013	AVL Test Systems, Inc.
	2831593 Canada	9/26/2013	AVL Test Systems, Inc.
WO2013/181145	PCT/US2013/042871	5/28/2013	AVL Test Systems, Inc.
2014-0019077	14/007111	9/24/2013	AVL Test Systems, Inc.
2439386	111842118 Europe	10/6/2011	AVL Test Systems, Inc.
Engine Turbo-Compounding Apparatus And Method	61/981251	4/18/2014	AVL Powertrain Engineering, Inc.
Two-Speed Transmission For Electric Vehicle	61/912163	12/5/2013	AVL Powertrain Engineering, Inc.
Altitude Fuel Limiter For Engine And Method Of Using The Same	61/905906	11/19/2013	AVL Powertrain Engineering, Inc.
Fuel Injection System And Method Combining Port Fuel Injection With Direct Fuel Injection	61/912174	12/5/2013	AVL Powertrain Engineering, Inc.
Automatic Transmission Having A Continuously Variable Transmission Assembly	61/922214	12/31/2013	AVL Powertrain Engineering, Inc.
Natural Gas Quality Sensor And Method For Using The Same	61/981260	4/18/2014	AVL Powertrain Engineering, Inc.
Manual Transmission With Torque Converter	61/915695	12/13/2013	AVL Powertrain Engineering, Inc.
Oil Sump Having Temperature-Controlled Jalousie Divider	61/980222	4/16/2014	AVL Powertrain Engineering, Inc.
System And Method For Aerating Lubricant In An Internal Combustion Engine	61/969323	3/24/2014	AVL Powertrain Engineering, Inc.
Transmission Sump Screen	61/980233	4/16/2014	AVL Powertrain Engineering, Inc.
Transmission Including Dog Clutch Arrangement And Air Turbine Driven EGR Pump For Diesel Engines	14/264521	4/29/2014	AVL Powertrain Engineering, Inc.
Exhaust Power Turbine Driven EGR Pump For Diesel Engines	14/264164	4/29/2014	AVL Powertrain Engineering, Inc.
	14/082699	11/18/2013	AVL Powertrain Engineering, Inc.
2014-0075936			
Diesel Aircraft Engine	PI05198364 Brazil	12/7/2005	Schrick, Inc.

TRADEMARK

REEL: 005344 FRAME: 0846



**EXHIBIT B- UPDATED PATENT AND TRADEMARK  
SECURITY AGREEMENT SCHEDULES**

**SCHEDULE 2**

**PATENT AND TRADEMARK SECURITY AGREEMENT**

See attached.

FEDERALLY REGISTERED TRADEMARKS

MARK	REG. NO.	COMPANY
BENCHMARK SERIES	3031039	AVL Test Systems, Inc.
HYPERCELL	1856201	AVL Test Systems, Inc.
CELLMATE	1680200	AVL Test Systems, Inc.
DIGALOG	1787874	AVL Test Systems, Inc.
D	1357859	AVL Test Systems, Inc.
CELLMATE	1363062	AVL Test Systems, Inc.
D	1285870	AVL Test Systems, Inc.
DIGALOG	1285869	AVL Test Systems, Inc.
SCENARIA	4189571	AVL Strategic Analytic Services, Inc.

## PATENT AND TRADEMARK SECURITY AGREEMENT

This Patent and Trademark Security Agreement (this "Agreement") is entered into as of June 13, 2011 by and among AVL Michigan Holding Corporation, a Michigan corporation ("Borrower"), AVL Powertrain Engineering, Inc., a Michigan corporation ("AVL Powertrain"), AVL California Technology Center, Inc., a Michigan corporation ("AVL California"), AVL Test Systems, Inc., a Delaware corporation ("AVL Test Systems"), AVL Strategic Analytic Services, Inc., a Michigan corporation ("AVL Strategic"), 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 California, AVL Test Systems, AVL Strategic, AVL Properties, AVL TSI Equipment and AVL PEI Equipment are hereinafter referred to collectively as the "Grantors" and individually as a "Grantor"), in favor of RBS Citizens, N.A., a national banking association ("RBS"), acting as agent hereunder for the Secured Creditors referred to below (RBS acting as such agent and any successor or successors to RBS acting in such capacity being hereinafter referred to as the "Agent"), pursuant to the Credit Agreement referred to below.

### Recitals

A. The Borrower and RBS, as Agent, entered into a 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 RBS and the other banks, financial institutions and letter of credit issuer(s) from time to time party to the Credit Agreement (RBS, 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 referred to below, being hereinafter referred to collectively as the "Secured Creditors" and individually as a "Secured Creditor").

B. In connection with the Credit Agreement, the Grantors and the Agent entered into a Security 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 "Security Agreement"), pursuant to which the Grantors have granted to the Agent, for the benefit of the Secured Creditors, a security interest in each Grantor's assets to secure all present and future Secured Obligations.

C. Pursuant to the terms of the Security Agreement, the Grantors pledged, assigned and granted to the Lender a security interest in, among other assets, all patents and patent applications and all trademarks and trademark applications of each Grantor.

## Agreement

In consideration of the recitals set forth above and the mutual agreements contained herein and in the Credit Agreement and the other Loan Documents, the Grantors hereby grant to the Agent, for the benefit of the Secured Creditors, to secure the Secured Obligations, a continuing security interest in all of each Grantor's right, title and interest in, to and under the following, whether now owned by or owing to, or hereafter acquired by or arising in favor of any Grantor (including as identified by any trade name or any derivations thereof):

- (1) each unregistered patent, patent registration and patent application, including, without limitation, each patent and patent application referred to in Schedule 1 attached hereto, together with any renewal thereof;
- (2) each patent license to which any Grantor is a party, including, without limitation, each patent license listed on Schedule 1 attached hereto;
- (3) all products and proceeds of the foregoing, including, without limitation, any and all claims by any Grantor against third parties for past, present or future infringement of any patent, including, without limitation, any patent referred to in Schedule 1 attached hereto, any patent issued pursuant to a patent application referred to in Schedule 1 attached hereto and any patent licensed under any patent license listed on Schedule 1 attached hereto (items 1 through 3 being herein collectively referred to as the "Patent Collateral");
- (4) each unregistered trademark, trademark registration and trademark application, including, without limitation, each trademark and trademark application referred to in Schedule 2 attached hereto, together with any renewal thereof;
- (5) each trademark license to which any Grantor is a party, including, without limitation, each trademark license listed on Schedule 2 attached hereto;
- (6) all products and proceeds of the foregoing, including, without limitation, any and all claims by any Grantor against third parties for past, present or future infringement of any trademark, including, without limitation, any trademark referred to in Schedule 2 attached hereto, any trademark issued pursuant to a trademark application referred to in Schedule 2 attached hereto and any trademark licensed under any trademark license listed on Schedule 2 attached hereto (items 4 through 6 being herein collectively referred to as the "Trademark Collateral");

The security interest granted to the Agent herein is granted in furtherance, and not in limitation of, the security interests granted to the Agent pursuant to the Security Agreement and nothing in this Agreement shall limit or otherwise modify the security interests granted in the Security Agreement. Each Grantor acknowledges and affirms that the rights and remedies of the Agent with respect to the security interest in the Patent Collateral and the Trademark Collateral made and granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which are incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Agreement and the Security Agreement, the terms of the

Security Agreement shall govern. All capitalized terms used but not defined herein shall have the respective meanings ascribed thereto in the Security Agreement.

*[Signature pages follow]*

IN WITNESS WHEREOF, the Grantors have executed this Agreement as of the date first set forth above.

**AVL MICHIGAN HOLDING CORPORATION**

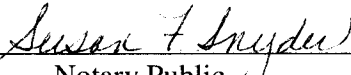
By: 

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 13<sup>th</sup> day of June, 2011, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Michigan Holding Corporation, a Michigan corporation, on behalf of the corporation.

  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, Mi  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**AVL POWERTRAIN ENGINEERING, INC.**

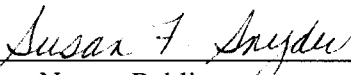
By: 

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 13<sup>th</sup> day of June, 2011, 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

**Susan F. Snyder**  
Notary Public, Oakland County, Mi  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**AVL CALIFORNIA TECHNOLOGY  
CENTER, INC.**

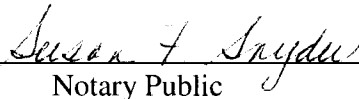
By: 

Name: Chester S. Ricker

Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN )  
)SS  
COUNTY OF Oakland )

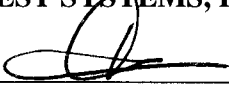
The foregoing instrument was acknowledged before me this 13<sup>th</sup> day of June, 2011, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL California Technology Center, Inc., a Michigan corporation, on behalf of the corporation.

  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**AVL TEST SYSTEMS, INC.**

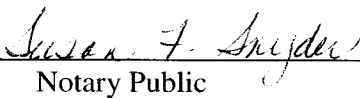
By: 

Name: Chester S. Ricker

Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN )  
)SS  
COUNTY OF Oakland )

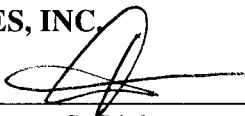
The foregoing instrument was acknowledged before me this 13<sup>th</sup> day of June, 2011, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Test Systems, Inc., a Delaware corporation, on behalf of the corporation.

  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

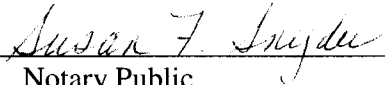
(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**AVL STRATEGIC ANALYTIC SERVICES, INC.**

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

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Oakland )

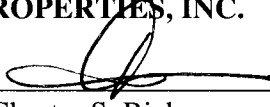
The foregoing instrument was acknowledged before me this 13<sup>th</sup> day of June, 2011, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Strategic Analytic Services, Inc., a Michigan corporation, on behalf of the corporation.

  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

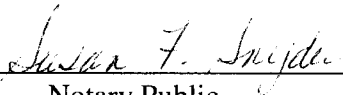
(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**AVL PROPERTIES, INC.**

By:   
Name: Chester S. Ricker  
Title: Secretary and Treasurer

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Oakland )

The foregoing instrument was acknowledged before me this 13<sup>th</sup> day of June, 2011, by Chester S. Ricker, the Secretary and Treasurer of AVL Properties, Inc., a Michigan corporation, on behalf of the corporation.

  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_



**AVL TSI EQUIPMENT, LLC**

By: \_\_\_\_\_

Name: Chester S. Ricker

Title: Manager

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Oakland )

The foregoing instrument was acknowledged before me this 3<sup>rd</sup> day of June, 2011, by Chester S. Ricker, the Manager of AVL TSI Equipment, LLC, a Michigan limited liability company, on behalf of the company.

\_\_\_\_\_  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**AVL PEI EQUIPMENT, LLC**

By: \_\_\_\_\_

Name: Chester S. Ricker

Title: Manager

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Oakland )

The foregoing instrument was acknowledged before me this 3<sup>rd</sup> day of June, 2011, by Chester S. Ricker, the Manager of AVL PEI Equipment, LLC, a Michigan limited liability company, on behalf of the company.

\_\_\_\_\_  
Notary Public

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

Acknowledged and Agreed:

RBS CITIZENS, N.A.

By: [Signature]  
Name: Charles Harris  
Title: Vice President - Michigan Corporate  
Banking

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Oakland )

The foregoing instrument was acknowledged before me this 13<sup>th</sup> day of June, 2011, by Charles Harris, the Vice President - Michigan Corporate Banking of RBS Citizens, N.A., a national banking association, on behalf of the association.

**Susan F. Snyder**  
Notary Public, Oakland County, MI  
Acting In Oakland County, Michigan  
My Commission Expires on 07-05-2015

[Signature]  
Notary Public  
(SEAL)  
Printed Name: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

**SCHEDULE 1**  
**to**  
**PATENT AND TRADEMARK SECURITY AGREEMENT**

See attached.

ISSUED PATENTS

	PATENT NO.	ISSUE DATE	COMPANY
Flat Track Chassis Dynamometer	US 7,213,449	05/08/2007	AVL North America, Inc. and AVL Zoellner GmbH
Particulate Deposit Avoidance and Probe Positioning	US 7,191,871	03/20/2007	AVL North America, Inc.
Active Filter Temperature Control	US 7,141,090	11/28/2006	AVL North America, Inc.
Exhaust Volume Measurement Device	US 7,055,364	06/06/2006	AVL North America, Inc.
Misfire Detection Using Acoustic Sensors	US 7,021,128	04/04/2006	AVL North America, Inc.
Exhaust Volume Measurement Device	US 7,000,449	02/21/2006	AVL North America, Inc.
Exhaust Volume Measurement Device	US 6,973,818	12/13/2005	AVL North America, Inc.
Diesel Particulate Filter Monitoring Using Acoustic Sensing	US 6,964,694	11/15/2005	AVL North America, Inc.
Heated Stainless Steel Emissions Canister	US 6,962,090	11/09/2005	AVL North America, Inc.
Particulate Sampling Probe and Dilution Tunnel	US 6,957,327	02/22/2005	AVL North America, Inc.
Active Pulsation Cancellation Device for Diesel Particulate Sampling Systems	US 6,823,748	11/30/2004	AVL North America, Inc.
Engine Exhaust Emissions Measurement Correction	US 6,823,268	11/23/2004	AVL North America, Inc.
Particulate Sampling Probe and Dilution Tunnel	US 6,742,407	06/01/2004	AVL North America, Inc.
Particulate Sampling Probe and Dilution Tunnel	US 6,481,299	11/19/2002	AVL North America, Inc.
Suspended Single Roll Dynamometer	US 5,522,257	06/04/1996	AVL North America, Inc.
Internal Combustion Engine with Low Viscosity Fuel System	US 6,189,517	02/20/2001	AVL Powertrain Engineering, Inc.
Fuel Injection System for Clean Low Viscosity Fuels	US 6,119,664	08/19/2000	AVL Powertrain Engineering, Inc.
Fuel Injection System for Clean Low Viscosity Fuels	US 5,816,228	10/06/1998	AVL Powertrain Engineering, Inc.
Diesel Aircraft Engine	US 7,191,742	03/20/2007	Schrick, Inc.
Fuel Delivery Measurement System with Automatic Pump Matching	US 5,708,201	01/13/1998	Pierburg Instruments, Inc./AVL North America, Inc.

Active Pulsation Cancellation Device for Diesel Particulate Sampling Systems	EP 1249695	AVL North America, Inc.
Active Pulsation Cancellation Device for Diesel Particulate Sampling Systems	JP 3737776	AVL North America, Inc.
Engine Exhaust Emissions Measurement Correction	EP 1333270	AVL North America, Inc.

PATENT APPLICATIONS

DESCRIPTION	PUBLICATION NO.	APPLICATION NO.	DATE FILED	COMPANY
Exhaust Volume Measurement Device	20060225482	11/447490	06/06/2006	AVL North America, Inc.
Particulate Sampler System Flow Calibration	20060216826	11/388911	03/22/2006	AVL North America, Inc.
Particulate Sampler and Dilution Gas Flow Device Arrangement for an Exhaust Sampling System		11/546048		AVL North America, Inc.
CVS System Sample Water Vapor Management		60/845271		AVL North America, Inc.
Diesel Aircraft Engine Transmission Headstock for Test Stands		11/687325		Schrick, Inc.
		11/496804		AVL North America, Inc.
	Docket Number: 67023-307 PAT 67023-307 PBR 67023-307 PCA 67023-307 PCN 67023-307 POE 67023-307 PGB			Schrick, Inc. Schrick, Inc. Schrick, Inc. Schrick, Inc. Schrick, Inc. Schrick, Inc.
Air Turbine Driven EGR Pump for Diesel Engines		12/85,071	05/21/2010	AVL Powertrain Engineering, Inc.
Hybrid Powerplant with Waste Heat Recovery System		PCT/US2010/20876	06/13/2010	AVL Powertrain Engineering, Inc.
Ejector Type EGR Mixer		PCT/US2010/20732	01/12/2010	AVL Powertrain Engineering, Inc.
Sliding Vane Rotary Expander for Waste Heat Recovery System		PCT/US2010/20736	01/12/2010	AVL Powertrain Engineering, Inc.
Exhaust Power Turbine Driver EGR Pump for Diesel Engines		12/785095	06/24/2010	AVL Powertrain Engineering, Inc.
Particulate Measurement System		10/44633	09/06/2010	AVL North America, Inc.

**SCHEDULE 2**  
**to**  
**PATENT AND TRADEMARK SECURITY AGREEMENT**

See attached.

FEDERALLY REGISTERED TRADEMARKS

MARK	REG. NO.	COMPANY
BENCHMARK SERIES	3031039	DIGALOG, AN AVL COMPANY
DIGALOG	2876490	DIGALOG, AN AVL COMPANY
HYPERCELL	1896201	DIGALOG, AN AVL COMPANY
CELLMATE	1890200	DIGALOG, AN AVL COMPANY
DIGALOG	1787874	DIGALOG, AN AVL COMPANY
D	1357859	DIGALOG, AN AVL COMPANY
CELLMATE	1363062	DIGALOG, AN AVL COMPANY
D	1285870	DIGALOG, AN AVL COMPANY
DIGALOG	1285869	DIGALOG, AN AVL COMPANY



## FIRST AMENDMENT TO PATENT AND TRADEMARK SECURITY AGREEMENT

This First Amendment to Patent and Trademark Security Agreement (this "Amendment") is entered into as of June 12, 2012 by and among AVL Michigan Holding Corporation, a Michigan corporation ("Borrower"), AVL Powertrain Engineering, Inc., a Michigan corporation ("AVL Powertrain"), AVL California Technology Center, Inc., a Michigan corporation ("AVL California"), AVL Test Systems, Inc., a Delaware corporation ("AVL Test Systems"), AVL Strategic Analytic Services, Inc., a Michigan corporation ("AVL Strategic"), 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 California, AVL Test Systems, AVL Strategic, AVL Properties, AVL TSI Equipment and AVL PEI Equipment are hereinafter referred to collectively as the "Grantors" and individually as a "Grantor"), and RBS Citizens, N.A., a national banking association ("RBS"), acting as agent hereunder for the Secured Creditors referred to below (RBS acting as such agent and any successor or successors to RBS acting in such capacity being hereinafter referred to as the "Agent"), pursuant to the Credit Agreement referred to below.

### INTRODUCTION

A. The Grantors have made in favor of the Agent the Patent and Trademark Security Agreement dated as of June 13, 2011 (the "Security Agreement").

B. The Borrower and the Agent have entered into the Credit Agreement dated as of June 13, 2011 (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 RBS and the other banks, financial institutions and letter of credit issuer(s) from time to time party to the Credit Agreement (RBS, 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. The Grantors (other than the Borrower) have made in favor of the Agent, for the benefit of the Secured Creditors, the Subsidiary Guaranty Agreement dated as of June 13, 2011.

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 hereby is amended as follows:

1.1 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 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

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.

*[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: [Signature]  
Name: Chester S. Ricker  
Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN )  
                                  )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 12<sup>th</sup> day of November 2012, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Michigan Holding Corporation, a Michigan corporation, on behalf of the corporation.

[Signature]  
Notary Public  
(SEAL)  
Printed Name: Lori A. Brown  
My Commission Expires: 8/12/17

AVL POWERTRAIN ENGINEERING, INC.  
By: [Signature]  
Name: Chester S. Ricker  
Title: Vice President and Chief Financial Officer

STATE OF MICHIGAN )  
                                  )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 12<sup>th</sup> day of November 2012, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Powertrain Engineering, Inc., a Michigan corporation, on behalf of the corporation.

[Signature]  
Notary Public  
(SEAL)  
Printed Name: Lori A. Brown  
My Commission Expires: 8/12/17

AVL CALIFORNIA TECHNOLOGY  
CENTER, INC.

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

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 12<sup>th</sup> day of November 2012, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL California Technology Center, Inc., a Michigan corporation, on behalf of the corporation.

[Signature]  
Notary Public  
(SEAL)  
Printed Name: Lori A. Brown  
My Commission Expires: 8/12/17

AVL TEST SYSTEMS, INC.

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

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 12<sup>th</sup> day of November 2012, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Test Systems, Inc., a Delaware corporation, on behalf of the corporation.

[Signature]  
Notary Public  
(SEAL)  
Printed Name: Lori A. Brown  
My Commission Expires: 8/12/17

AVL STRATEGIC ANALYTIC SERVICES, INC.

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

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 2<sup>nd</sup> day of November 2012, by Chester S. Ricker, the Vice President and Chief Financial Officer of AVL Strategic Analytic Services, Inc., a Michigan corporation, on behalf of the corporation.

[Signature]  
Notary Public  
(SEAL)  
Printed Name: Lori A. Brown  
My Commission Expires: 8/12/17

AVL PROPERTIES, INC.

By: [Signature]  
Name: Chester S. Ricker  
Title: Secretary and Treasurer

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 2<sup>nd</sup> day of November 2012, by Chester S. Ricker, the Secretary and Treasurer of AVL Properties, Inc., a Michigan corporation, on behalf of the corporation.

[Signature]  
Notary Public  
(SEAL)  
Printed Name: Lori A. Brown  
My Commission Expires: 8/12/17

AVL TSI EQUIPMENT, LLC

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

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 12<sup>th</sup> day of December, 2012, 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: Lori A. Brown  
My Commission Expires: 8/12/17

AVL PEI EQUIPMENT, LLC

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

STATE OF MICHIGAN )  
 )SS  
COUNTY OF Wayne )

The foregoing instrument was acknowledged before me this 12<sup>th</sup> day of December, 2012, 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: Lori A. Brown  
My Commission Expires: 8/12/17

RBS CITIZENS, N.A.

By: [Signature]

Name: Charles Harris

Title: Vice President - Michigan Corporate  
Banking

STATE OF MICHIGAN )

COUNTY OF Oakland )SS

The foregoing instrument was acknowledged before me this 14 day of December, 2012, by Charles Harris, the Vice President - Michigan Corporate Banking of RBS Citizens, N.A., a national banking association, on behalf of the association.

[Signature]  
Notary Public

(SEAL)

Printed Name: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

JENELLE GARAVAGLIA  
NOTARY PUBLIC - STATE OF MICHIGAN  
COUNTY OF MACOMB  
My Comm. Exp: 1/27/2018  
Acting in the County of Oakland  
Date 12/14/12



**SCHEDULE 2**  
to  
**PATENT AND TRADEMARK SECURITY AGREEMENT**

**Federally Registered Trademarks**

<u>Mark</u>	<u>Reg No.</u>	<u>Company</u>
Hypercell	1856201	AVL Test Systems, Inc.
Cellmate	1680200	AVL Test Systems, Inc.
Digalog	1787874	AVL Test Systems, Inc.
D	1357859	AVL Test Systems, Inc.
Cellmate	1363062	AVL Test Systems, Inc.
D	1285870	AVL Test Systems, Inc.
Digalog	1285869	AVL Test Systems, Inc.
Scenaria	4189571	AVL Strategic Analytic Services, Inc.