

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

ARIGNA TECHNOLOGY LIMITED,

Plaintiff,

vs.

Daimler AG; Mercedes-Benz USA, LLC;  
Volkswagen AG; and Volkswagen Group of  
America, Inc.,

Defendants.

Case No. 2:21-cv-175

JURY TRIAL DEMANDED

**COMPLAINT FOR PATENT INFRINGEMENT**

This is an action for patent infringement in which Arigna Technology Limited makes the following allegations against Defendants Volkswagen AG; Volkswagen Group of America, Inc.; Daimler AG; and Mercedes-Benz USA, LLC, each of whom is a manufacturer and/or distributor who, without authority, imports, makes, offers for sales and/or sells in the United States automobiles and components thereof that infringe the Asserted Patent:

**PARTIES**

**Arigna**

1. Plaintiff Arigna Technology Limited (“Plaintiff” or “Arigna”) is an Irish company conducting business at The Hyde Building, Carrickmines, Suite 23, Dublin 18, Ireland. Arigna owns a portfolio of patents that cover power semiconductors for applications in the automotive, industrial automation, and energy industries, and radio frequency amplifiers and circuits with applications in a wide variety of automobiles and consumer electronics products, including

smartphones and laptops. Arigna is the owner of all rights, title, and interest in and to U.S. Patent No. 7,049,850 (the “’850 Patent” or “Asserted Patent”).

### **Volkswagen**

2. Upon information and belief, Defendant Volkswagen AG is a foreign corporation organized and existing under the laws of Germany with its headquarters at Berliner Ring 2, 38440 Wolfsburg, Germany. On information and belief, Volkswagen AG does business itself, or through its subsidiaries, affiliates, and agents, in the State of Texas and the Eastern District of Texas.

3. Upon information and belief, Defendant Volkswagen Group of America, Inc. (“Volkswagen of America”) is a corporation organized and existing under the laws of New Jersey. On information and belief, Volkswagen of America is a wholly owned subsidiary of Volkswagen AG and is responsible for importing, making, marketing, distributing, offering for sale, and/or selling automotive vehicles and components from Volkswagen-managed brands (e.g., VW, Audi—including Audi of America, Inc.—Porsche, Bentley, Lamborghini, etc.) in the United States. On information and belief, Volkswagen of America has hundreds of employees based in and does business across the State of Texas and in this District, including at the port in Houston, a parts distribution center and a racing school in Fort Worth, a South Central Region office in Prosper, and charging stations in this District including, for example, charging stations owned and operated by Volkswagen of America located in Beaumont, Denton, and Mt. Pleasant.

4. The Complaint refers to Defendants Volkswagen AG and Volkswagen of America collectively as “Volkswagen”. On information and belief, Volkswagen designs, manufactures, distributes, imports, offers for sale, and/or sells in the State of Texas and the Eastern District of Texas automotive vehicles and components thereof that infringe the ’850 Patent, and/or induces others to commit acts of patent infringement in the State of Texas and the Eastern District of Texas.

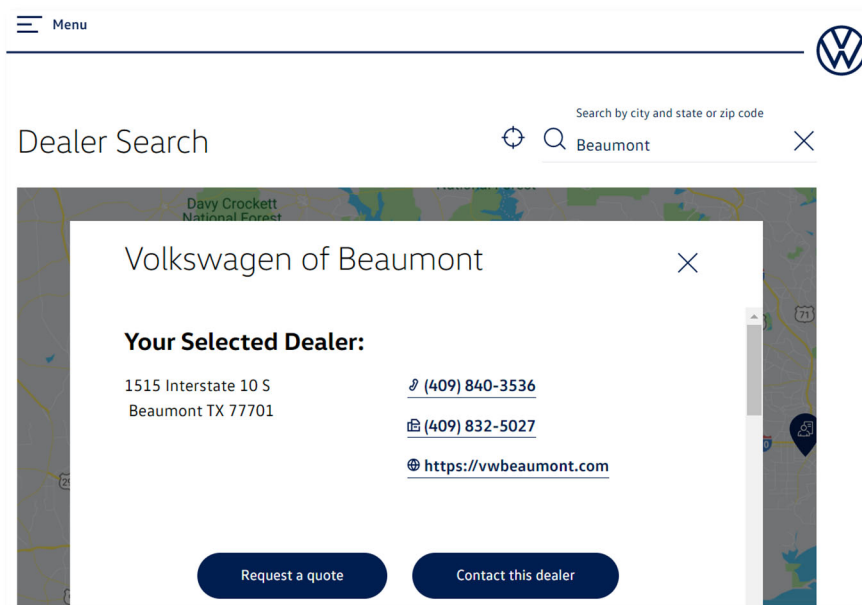
5. Volkswagen has regular and established places of business, at which it has committed acts of infringement and placed the accused products into the stream of commerce, throughout the State of Texas and in the Eastern District of Texas, including at, e.g., Volkswagen of Beaumont, Brandon Tomes VW of McKinney, Patterson Volkswagen of Tyler, Gorman-McCracken Volkswagen, Orr Volkswagen of Texarkana, Audi McKinney, and Audi Plano.

6. Upon information and belief, each of these authorized Volkswagen or Audi dealers in this District are regular, continuous, and established physical places of business of Defendants Volkswagen, being established, ratified, and/or controlled by Volkswagen as authorized dealers, which are the exclusive places of business at which Volkswagen offers for sale, sells, and provides authorized maintenance, warranty, and recall services for the Volkswagen and Audi automotive vehicles and components that infringe the '850 Patent.

7. Upon information and belief, Volkswagen granted each of these authorized Volkswagen and Audi dealers in this District the exclusive right to offer for sale, sell, and service the infringing Volkswagen and Audi vehicles in this District, at these particular geographical locations, and has further conditioned these authorized dealers' continued offering for sale, sale, and service of the infringing Volkswagen and Audi vehicles in this District on these authorized dealers' continued presence in this District, at these particular geographical locations, so that the infringing Volkswagen and Audi automobiles and components are offered for sale, sold, and/or distributed in this District.

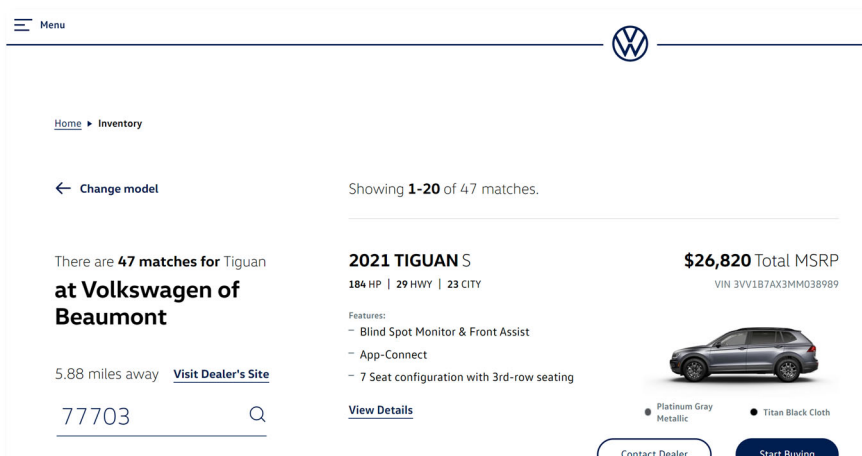
8. Volkswagen ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by listing each of them in Volkswagen's sales directories and on Volkswagen's website(s), including, e.g., as shown below:

FIGURE 1



9. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by offering for sale on Volkswagen’s website(s) the infringing automobiles and components at the physical, geographical locations of these authorized Volkswagen and Audi dealers, including, e.g., as shown below:

FIGURE 2



10. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by

requiring these authorized dealers to feature and use Volkswagen names, branding, trademarks, and/or trade dress, in each of these authorized dealers' names, including Volkswagen of Beaumont, Brandon Tomes VW of McKinney, Patterson Volkswagen of Tyler, Gorman-McCracken Volkswagen, Orr Volkswagen of Texarkana, Audi McKinney, and Audi Plano, as well as in the marketing and advertising materials that these authorized dealers use and make to offer for sale and sell the infringing automobiles and components in this District, such as on each authorized dealer's website hosted and shown to consumers in this District.

11. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by controlling in whole or in part the name, geographical location, layout, structure, marketing, branding, and overall look and feel of these exclusive places to test drive and purchase the infringing Volkswagen and Audi automobiles and components, including, e.g., as shown below:

**FIGURE 3**



**FIGURE 4**



12. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by requiring these businesses to store, display, distribute, and/or offer for sale marketing materials, brochures, product specifications, service information, warranty information, financing information, and various other literature, as well as Volkswagen authorized service, parts, and accessories, for the infringing automobiles and components, including, e.g., as shown below:

**FIGURE 5**





**FIGURE 6**



13. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by establishing, authorizing, and requiring these places of business to offer to consumers in this District, at the time of sale and/or distribution of the infringing automobiles and components, Volkswagen financial services and products, Volkswagen warranties, Volkswagen service from Volkswagen certified and/or trained technicians, Volkswagen parts, and Volkswagen accessories.

14. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by establishing, authorizing, and requiring consumers in this District to visit and use these authorized dealers in order to obtain authorized Volkswagen service, obtain scheduled maintenance under any Volkswagen Care plan, make repairs pursuant to any Volkswagen warranty, or obtain any recall/campaign work for all new Volkswagen automobiles and components, including the infringing automobiles and components.

15. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen in this District by

recruiting, hiring, training, offering compensation and benefits to, controlling, and/or labeling as authorized or certified Volkswagen employees and agents some or all of the employees or agents employed in this District by these authorized dealers—including for example, Volkswagen certified brand advisors, Volkswagen certified geniuses or experts, Volkswagen certified technicians, and Volkswagen certified service advisors.

16. Volkswagen further ratifies and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen by providing these dealers sales promotions, financing for dealership improvements directed by Volkswagen, and modernized processes and IT systems that reduce the time needed for administrative tasks in providing after-sales certified Volkswagen services, and by sharing customer data with these dealers to provide customized Volkswagen services.

17. Volkswagen has established and ratified and holds these authorized Volkswagen and Audi dealers out as the regular and established places of business of Volkswagen by directing and controlling these authorized dealers' actions, sales, and services in the foregoing manner, and has consented to these authorized dealers acting on Volkswagen's behalf and being the exclusive places of business whereby the infringing automobiles and components are distributed, offered for sale, sold, and serviced in order to place these infringing articles into the stream of commerce in this District, and these authorized dealers have consented to act on Volkswagen's behalf pursuant to the foregoing terms of control and direction in order to be able to provide these Volkswagen and Audi automobiles, components, and services to consumers in this District.

**Mercedes-Benz**

18. Upon information and belief, Defendant Daimler AG is a foreign corporation organized and existing under the laws of Germany with its headquarters at Mercedesstrasse 120,



70372 Stuttgart, Germany. On information and belief, Daimler AG does business itself, or through its subsidiaries, affiliates, and agents, in the State of Texas and the Eastern District of Texas.

19. Upon information and belief, Defendant Mercedes-Benz USA, LLC (“Mercedes-Benz USA”) is a limited liability company organized under the laws of Delaware. On information and belief, Mercedes-Benz USA is a wholly owned subsidiary of Daimler AG and is responsible for importing, making, marketing, distributing, offering for sale, and/or selling Mercedes-Benz and Mercedes-AMG automotive vehicles and components in the United States. On information and belief, Mercedes-Benz USA has hundreds of employees based in and does business across the State of Texas and in this District, including at Mercedes-Benz/Daimler in Austin, Mercedes-Benz Learning and Performance Center in Grapevine, Mercedes-Benz Parts Distribution Center in Grapevine, Mercedes-Benz Financial Services Business Center in Fort Worth, and Dealer Support Team in Fort Worth.

20. The Complaint refers to Defendants Daimler AG and Mercedes-Benz USA collectively as “Mercedes-Benz”. On information and belief, Mercedes-Benz designs, manufactures, distributes, imports, offers for sale, and/or sells in the State of Texas and the Eastern District of Texas automobiles and components thereof that infringe the ’850 Patent, and/or induces others to commit acts of patent infringement in the State of Texas and the Eastern District of Texas.

21. Mercedes-Benz has regular and established places of business, at which it has committed acts of infringement and placed the accused products into the stream of commerce, throughout the State of Texas and in the Eastern District of Texas, including at, e.g., Mercedes-Benz of Tyler, Mercedes-Benz of Beaumont, Mercedes-Benz of Texarkana, Mercedes-Benz of McKinney, and Mercedes-Benz of Plano.

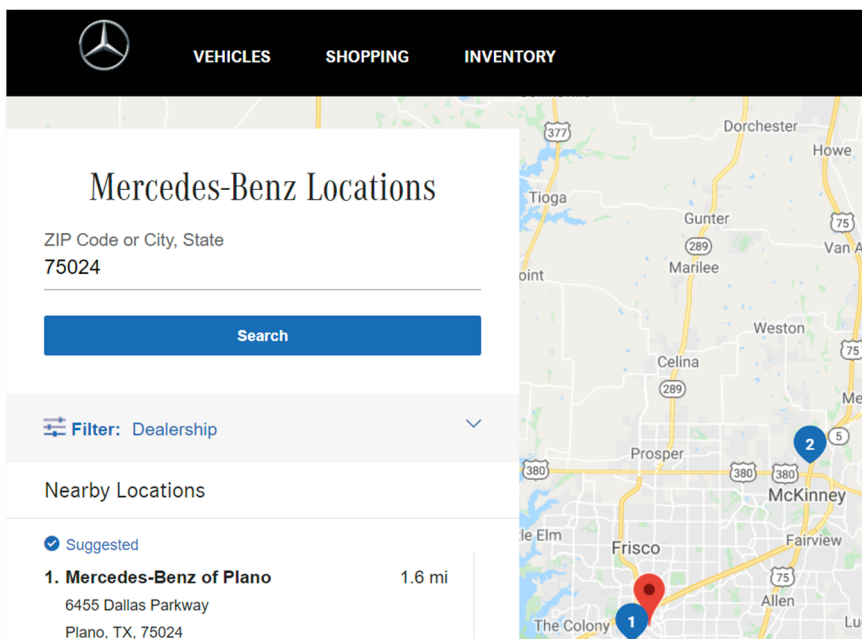
22. Upon information and belief, each of these authorized Mercedes-Benz dealers in

this District are regular, continuous, and established physical places of business of Defendants Mercedes-Benz, being established, ratified, and/or controlled by Mercedes-Benz as authorized dealers, which are the exclusive places of business at which Mercedes-Benz offers for sale, sells, and provides authorized maintenance, warranty, and recall services for the Mercedes-Benz automotive vehicles and components that infringe the '850 Patent.

23. Upon information and belief, Mercedes-Benz granted each of these authorized Mercedes-Benz dealers in this District the exclusive right to offer for sale, sell, and service the infringing Mercedes-Benz vehicles in this District, at these particular geographical locations, and has further conditioned these authorized dealers' continued offering for sale, sale, and service of the infringing Mercedes-Benz vehicles in this District on these authorized dealers' continued presence in this District, at these particular geographical locations, so that the infringing Mercedes-Benz automobiles and components are offered for sale, sold, and/or distributed in this District.

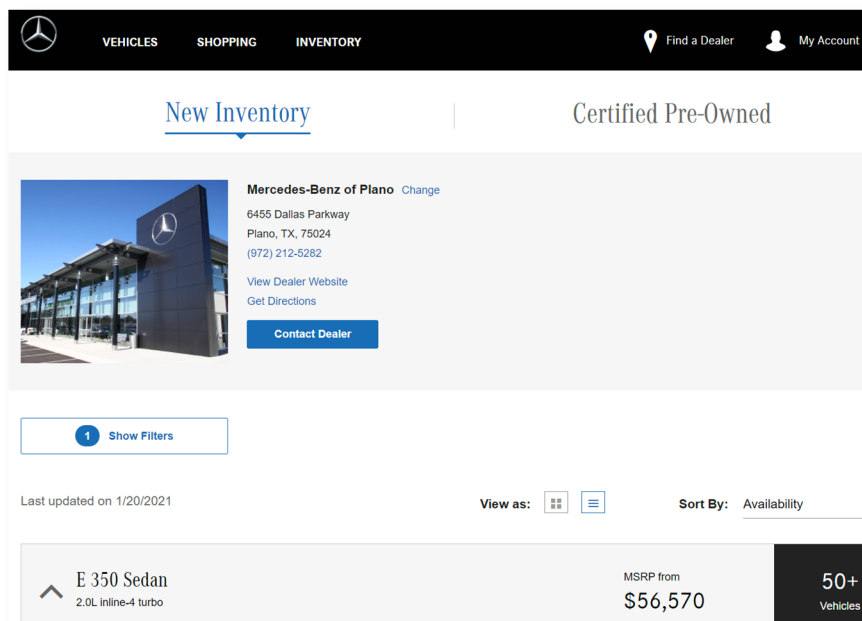
24. Mercedes-Benz ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by listing each of them in Mercedes-Benz's sales directories and on Mercedes-Benz's website(s), including, e.g., as shown below:

FIGURE 7



25. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by offering for sale on Mercedes-Benz's website(s) the infringing automobiles and components at the physical, geographical locations of these authorized Mercedes-Benz dealers, including, e.g., as shown below:

FIGURE 8



26. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by requiring these authorized dealers to feature and use Mercedes-Benz names, branding, trademarks, and/or trade dress, in each of these authorized dealers' names, including Mercedes-Benz of Tyler, Mercedes-Benz of Beaumont, Mercedes-Benz of Texarkana, Mercedes-Benz of McKinney, and Mercedes-Benz of Plano, as well as in the marketing and advertising materials that these authorized dealers use and make to offer for sale and sell the infringing automobiles and components in this District, such as on each authorized dealer's website hosted and shown to consumers in this District.

27. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by controlling in whole or in part the name, geographical location, layout, structure, marketing, branding, and overall look and feel of these exclusive places to test drive and purchase the infringing Mercedes-Benz automobiles and components, including, e.g., as shown below:

**FIGURE 9**



**FIGURE 10**



28. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by requiring these businesses to store, display, distribute, and/or offer for sale marketing materials, brochures, product specifications, service information, warranty information, financing information, and various other literature, as well as Mercedes-Benz authorized service, parts, and accessories, for the infringing automobiles and components, including, e.g., as shown below:

**FIGURE 11**



29. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by establishing, authorizing, and requiring these places of business to offer to consumers in this District, at the time of sale and/or distribution of the infringing automobiles and components, Mercedes-Benz financial services and products, Mercedes-Benz warranties, Mercedes-Benz service from Mercedes-Benz certified and/or trained technicians, Mercedes-Benz parts, and Mercedes-Benz accessories.

30. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by establishing, authorizing, and requiring consumers in this District to visit and use these authorized dealers in order to obtain authorized Mercedes-Benz service, obtain scheduled maintenance under any Mercedes-Benz Prepaid Maintenance plan, make repairs pursuant to any Mercedes-Benz warranty, or obtain any recall/campaign work for all new Mercedes-Benz automobiles and components, including the infringing automobiles and components.

31. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz in this District by



recruiting, hiring, training, offering compensation and benefits to, controlling, and/or labeling as authorized or certified Mercedes-Benz employees and agents some or all of the employees or agents employed in this District by these authorized dealers—including for example, Mercedes-Benz certified brand advisors, Mercedes-Benz certified geniuses or experts, Mercedes-Benz certified technicians, and Mercedes-Benz certified service advisors.

32. Mercedes-Benz further ratifies and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz by providing these dealers sales promotions as well as financing for dealership improvements directed by Mercedes-Benz—such as Mercedes-Benz’s “Best Customer Experience” sales strategy through which Mercedes-Benz provides customers a seamless experience whenever they come into contact with the Mercedes-Benz brand—and by sharing customer data with these dealers to provide customized Mercedes-Benz services.

33. Mercedes-Benz has established and ratified and holds these authorized Mercedes-Benz dealers out as the regular and established places of business of Mercedes-Benz by directing and controlling these authorized dealers’ actions, sales, and services in the foregoing manner, and has consented to these authorized dealers acting on Mercedes-Benz’s behalf and being the exclusive places of business whereby the infringing automobiles and components are distributed, offered for sale, sold, and serviced in order to place these infringing articles into the stream of commerce in this District, and these authorized dealers have consented to act on Mercedes-Benz’s behalf pursuant to the foregoing terms of control and direction in order to be able to provide these Mercedes-Benz automobiles, components, and services to consumers in this District.

**JURISDICTION AND VENUE**

34. This is an action for patent infringement arising under the patent laws of the United States. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

35. This Court has personal jurisdiction over each Defendant because each Defendant conducts business in and has committed acts of patent infringement and/or induced others to commit acts of patent infringement in this District, the State of Texas, and elsewhere in the United States and has established minimum contacts with this forum state such that the exercise of jurisdiction over each Defendant would not offend the traditional notions of fair play and substantial justice. Upon information and belief, each Defendant transacts substantial business with entities and individuals in the State of Texas and the Eastern District of Texas, by among other things, importing, offering to sell, distributing, and selling products that infringe the Asserted Patent, including the infringing automotive vehicles and components thereof that each Defendant purposefully directs into the State of Texas and this District as alleged herein, as well as by providing service and support to its customers in this District. Each Defendant places the accused automotive vehicles and components thereof into the stream of commerce via authorized and established distribution channels with the knowledge and expectation that they will be sold in the State of Texas, including this District, and do not otherwise permit the sale of the accused automotive vehicles and components thereof in the State of Texas, or in this District, outside of these established, authorized, and ratified distribution channels and dealer networks.

36. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b)-(c) and 1400(b), because each and every Defendant either is a foreign corporation who is not a resident of the United States and is subject to personal jurisdiction in this District, and thus is subject to venue in any judicial district including this District, and/or has committed acts of infringement in this District

and has a regular and established place of business in this District.

37. Each Defendant is subject to this Court's general and specific jurisdiction pursuant to due process and/or the Texas Long Arm Statute due at least to each Defendant's substantial business in the State of Texas and this District, including through its past infringing activities, because each Defendant regularly does and solicits business herein, and/or because each Defendant has engaged in persistent conduct and/or has derived substantial revenues from goods and services provided to customers in the State of Texas and this District.

### **SINGLE ACTION**

38. This suit is commenced against Defendants pursuant to 35 U.S.C. § 299 in a single action because (a) a right to relief is asserted against Defendants jointly, severally, or in the alternative with respect to or arising out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing into the United States, offering for sale, and/or selling of the same accused products or processes and (b) questions of fact common to all Defendants will arise in the action.

39. Plaintiff is informed and believes, and on that basis alleges, that Defendants Volkswagen and Mercedes-Benz import, manufacture, offer for sale, and/or sell the same products and processes accused in this action, including because, as alleged below, each Defendant designs, manufactures, assembles, imports, offers for sale, and/or sells automotive vehicles and components thereof that incorporate the STMicroelectronics L9959T chip.

### THE ASSERTED PATENT

40. This action asserts causes of action for infringement of U.S. Patent No. 7,049,850. The Asserted Patent is a valid and enforceable United States Patent, the entire right, title, and interest to which Arigna owns by assignment.

41. The Asserted Patent relates to novel fault detection techniques for high-voltage switching devices.

42. On May 23, 2006, the U.S. Patent and Trademark Office duly and legally issued the '850 Patent, which is entitled "Semiconductor Device with a Voltage Detecting Device to Prevent Shoot-Through Phenomenon in First and Second Complementary Switching Devices." Plaintiff holds all rights and title to the '850 Patent, including the sole and exclusive right to bring a claim for its infringement. A true and correct copy of the '850 Patent is attached as **Exhibit A**.

43. The '850 Patent generally claims a semiconductor device that consists of a voltage detecting device configured to control the conduction and non-conduction of a high side switching device by detecting a potential and supplying a logic value based on that potential. This semiconductor device is used in, as one example, a vehicle's engine control module to control the throttle plate of the engine. In a traditional gasoline engine, the throttle regulates the amount of air that flows into the engine. When a driver applies pressure to the accelerator (gas pedal), the throttle plate opens and allows air into the vehicle's engine. The semiconductor device protected by the '850 Patent is used in an engine's control module to control the throttle plate and ensure it can properly open and close.

44. Plaintiff owns all rights, title, and interest in and to the Asserted Patent and possesses all rights of recovery.

**FACTUAL ALLEGATIONS**

45. As referred to in this Complaint, and consistent with 35 U.S.C. § 100(c), the “United States” means “the United States of America, its territories and possessions.”

46. None of the Defendants has any right to practice the intellectual property protected by the Asserted Patent.

47. Each Defendant makes, uses, offers to sell, sells, and/or imports into the United States, products made in accordance with the '850 Patent, including but not limited to the Volkswagen Tiguan and Mercedes-Benz E-Class, in addition to other vehicles, and/or induces others to commit acts of patent infringement in the United States.

48. Further, Plaintiff has not made, used, offered for sale, sold, and/or imported into the United States any product that practices the Asserted Patent.

**COUNT 1**  
**INFRINGEMENT OF U.S. PATENT NO. 7,049,850**

49. Plaintiff repeats and incorporates by reference each preceding paragraph as if fully set forth herein and further states:

**Volkswagen**

50. Volkswagen has infringed and continues to infringe at least claim 7 of the '850 Patent in violation of 35 U.S.C. § 271, either literally or through the doctrine of equivalents, by making, using, selling, or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice at least claim 7 of the '850 Patent. Volkswagen is liable for its infringement of the '850 Patent pursuant to 35 U.S.C. § 271(a), (b), and (c).

51. More specifically, Volkswagen designs, manufactures, assembles, imports, offers for sale, and/or sells automotive vehicles and components thereof that incorporate the STMicroelectronics (“STM”) L9959T that infringes at least independent claim 7 of the '850

Patent, and/or induces others to commit acts of infringement of at least independent claim 7 of the '850 Patent.

52. The STM L9959T is an integrated H-Bridge driver featuring output current direction and supervising functions. The target applications of the STM L9959T include throttle control in automotive vehicles.

## FIGURE 12

### Description

L9959S/L9959U and L9959T are single and dual integrated H-bridges for resistive and inductive loads featuring output current direction and supervising functions.

The PowerSSO24 houses one full H-Bridge, while the PowerSSO36 houses both two H-Bridges that can work in parallel, through independent input driving commands, and one full H-bridge, by improving PCB footprint design versus different target applications.

Target application ranges from throttle control actuators to exhaust gas recirculation control valves in automotive domain to a more general use to drive DC and Stepper motors.

Source: <https://www.st.com/resource/en/datasheet/l9959.pdf>

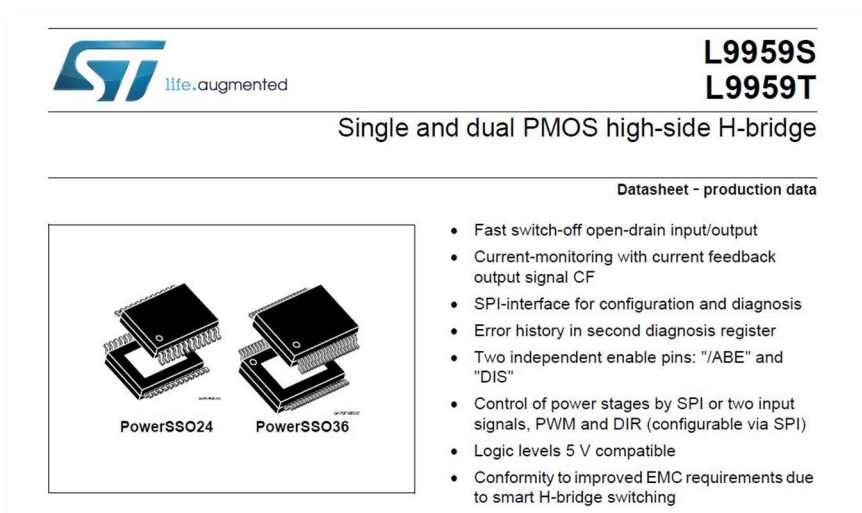
53. Claim 7 is illustrative of the '850 Patent. Claim 7 recites “[a] semiconductor device performing drive control of first and second switching devices connected in series and interposed between a high main power potential and a low main power potential, comprising: a high potential part including a control part configured to control conduction/non-conduction of a high side switching device which is one of said first and second switching devices; a reverse level shift part configured to level-shift a signal from said high potential part to supply the level-shifted signal to a low side logic circuit operating on the basis of said low main power potential; and a voltage detecting device provided in said high potential part and configured to detect a potential at an output line of said reverse level shift part and to supply a logic value based on said potential for



said control part, thereby causing said control part to control conduction/non-conduction of said high side switching device.”

54. The STM L9959T meets every element of this claim.<sup>1</sup> The STM L9959T is a semiconductor device that controls first and second switching devices connected in series and interposed between a high main power potential and a low main power potential.

**FIGURE 13**



55. The STM L9959T includes a high potential part that is configured to control the conduction/non-conduction of a high side switching device and a reverse level shift part that is configured to level shift a signal from a high potential part to a low side logic circuit operating on the basis of said low main power potential.

56. Further, a voltage detecting device in the STM L9959T is configured to detect a potential at an output of the reverse level shift part and to supply a logic value, based on the potential of the output, to the control part, thereby allowing the STM L9959T to control the conduction/non-conduction of the high side switching device.

57. Volkswagen makes, uses, imports, sells, and/or offers for sale in the United States

<sup>1</sup> This description of infringement is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which Volkswagen’s products infringe the ’850 Patent.

automotive vehicles and components thereof that incorporate the infringing STM L9959T.

58. For example, the engine control module of the Volkswagen Tiguan incorporates the STM L9959T.

**FIGURE 14**



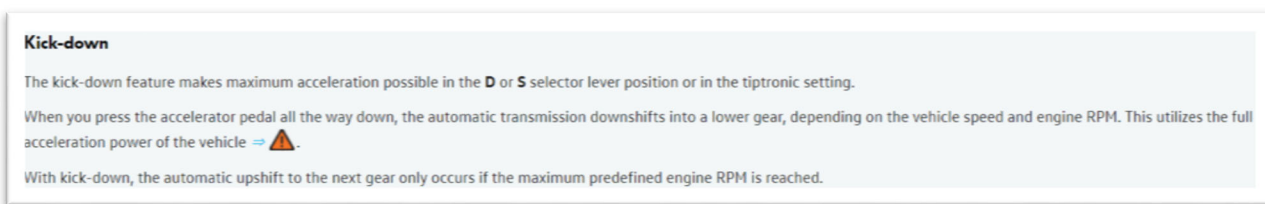
59. Volkswagen has imported and sold, and continues to import, offer for sale, and sell, the Volkswagen Tiguan and components thereof in the United States, including through, e.g., Volkswagen authorized dealers in the Eastern District of Texas.

60. Volkswagen also knowingly and intentionally induces infringement, literally and/or under the doctrine of equivalents, of at least claim 7 of the '850 Patent in violation of 35 U.S.C. § 271(b). No later than the filing and service of this Complaint, Volkswagen has had knowledge of the '850 Patent and the infringing nature of the accused automotive vehicles and components thereof. Despite this knowledge of the '850 Patent, Volkswagen continues to actively encourage and instruct its customers and end users (for example, through its marketing, user manuals, and online instruction materials) to use the accused automotive vehicles and components thereof in ways that directly infringe the '850 Patent literally and/or under the doctrine of equivalents. Volkswagen does so knowing and intending that its customers and end users will

commit these infringing acts. Volkswagen also continues to make, use, import, offer for sale, and/or sell the accused automotive vehicles and components thereof, despite its knowledge of the '850 Patent, thereby specifically intending for and inducing its customers to infringe the '850 Patent through the customers' normal and customary use of the accused automotive vehicles and components thereof.

61. As one non-limiting example, Volkswagen, with knowledge that the accused automotive vehicles and components thereof infringe at least as of the date of this Complaint, knowingly and intentionally induced, and continue to knowingly and intentionally induce, direct infringement of the '850 Patent by providing product manuals that instruct end users how to use the Volkswagen Tiguan's "Kick-down" and "maximum acceleration" functions, including specifically how to initiate such functions. Volkswagen induced infringement by others, including end users, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end users, infringe the '850 Patent, but while remaining willfully blind to the infringement.

### FIGURE 15



62. Volkswagen also contributorily infringes the '850 Patent in violation of 35 U.S.C. § 271(c) by making, using, selling or offering to sell within the United States or importing into the United States vehicles and components thereof that incorporate or constitute a material part of the inventions claimed by the '850 Patent, such as, for example, vehicles and components thereof that incorporate, for example, the STM L9959T. Volkswagen does so knowing that these components

are especially made or especially adapted for uses that infringe the '850 Patent, and not staple articles or commodities of commerce suitable for substantial non-infringing use.

63. Volkswagen committed the foregoing infringing activities without license from Plaintiff. Volkswagen's acts of infringement have damaged Arigna, as owner and assignee of the '850 Patent. Arigna is entitled to recover from Volkswagen the damages it has sustained as a result of Volkswagen's wrongful acts in an amount subject to proof at trial. Volkswagen's infringement of Arigna's rights under the '850 Patent will continue to damage Arigna.

64. No later than the filing of this Complaint, Volkswagen has had actual knowledge of the '850 Patent.

#### **Mercedes-Benz**

65. Mercedes-Benz has infringed and continues to infringe at least claim 7 of the '850 Patent in violation of 35 U.S.C. § 271, either literally or through the doctrine of equivalents, by making, using, selling, or offering for sale in the United States, and/or importing into the United States, without authorization, products that practice at least claim 7 of the '850 Patent. Mercedes-Benz is liable for its infringement of the '850 Patent pursuant to 35 U.S.C. § 271(a), (b), and (c).

66. More specifically, Mercedes-Benz designs, manufactures, assembles, imports, offers for sale, and/or sells automotive vehicles and components thereof that incorporate the STM L9959T and L9959S that infringe at least independent claim 7 of the '850 Patent, and/or induces others to commit acts of infringement of at least independent claim 7 of the '850 Patent.

67. The STM L9959T and L9959S are integrated H-Bridge drivers featuring output current direction and supervising functions. The target applications of the STM L9959T and L9959S include throttle control in automotive vehicles.

## FIGURE 16

### Description

L9959S/L9959U and L9959T are single and dual integrated H-bridges for resistive and inductive loads featuring output current direction and supervising functions.

The PowerSSO24 houses one full H-Bridge, while the PowerSSO36 houses both two H-Bridges that can work in parallel, through independent input driving commands, and one full H-bridge, by improving PCB footprint design versus different target applications.

Target application ranges from throttle control actuators to exhaust gas recirculation control valves in automotive domain to a more general use to drive DC and Stepper motors.

Source: <https://www.st.com/resource/en/datasheet/l9959.pdf>

68. Claim 7 is illustrative of the '850 Patent. Claim 7 recites “[a] semiconductor device performing drive control of first and second switching devices connected in series and interposed between a high main power potential and a low main power potential, comprising: a high potential part including a control part configured to control conduction/non-conduction of a high side switching device which is one of said first and second switching devices; a reverse level shift part configured to level-shift a signal from said high potential part to supply the level-shifted signal to a low side logic circuit operating on the basis of said low main power potential; and a voltage detecting device provided in said high potential part and configured to detect a potential at an output line of said reverse level shift part and to supply a logic value based on said potential for said control part, thereby causing said control part to control conduction/non-conduction of said high side switching device.”

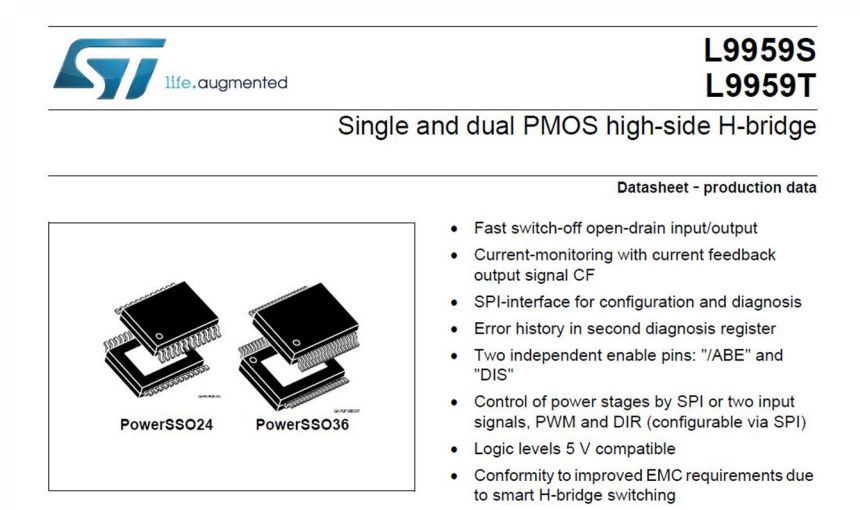
69. The STM L9959T and L9959S meet every element of this claim.<sup>2</sup> The STM L9959T and L9959S are semiconductor devices that control first and second switching devices

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<sup>2</sup> This description of infringement is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which Mercedes-Benz's products infringe the '850 Patent.

connected in series and interposed between a high main power potential and a low main power potential.

**FIGURE 17**



70. The STM L9959T and L9959S include a high potential part that is configured to control the conduction/non-conduction of a high side switching device, and a reverse level shift part that is configured to level shift a signal from a high potential part to a low side logic circuit operating on the basis of said low main power potential.

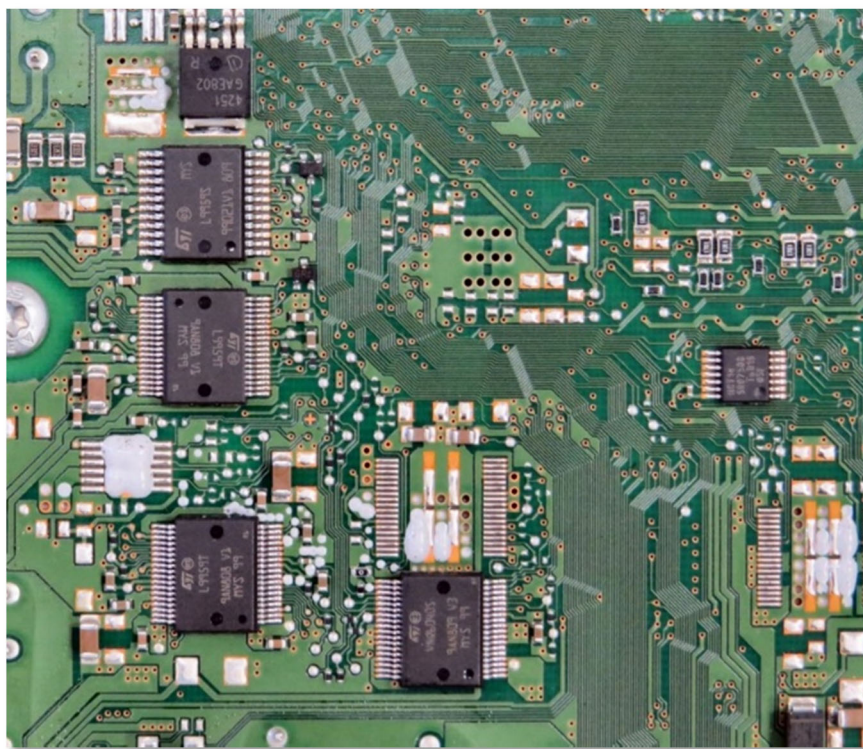
71. Further, a voltage detecting device in the STM L9959T and L9959S is configured to detect a potential at an output of the reverse level shift part and to supply a logic value, based on the potential of the output, to the control part, thereby allowing the STM L9959T and L9959S to control the conduction/non-conduction of the high side switching device.

72. Mercedes-Benz makes, uses, imports, sells, and/or offers for sale in the United States automotive vehicles and components thereof that incorporate the infringing STM L9959T and L9959S.

73. For example, the engine control module of the Mercedes-Benz E Class incorporates both the STM L9959T and L9959S.



**FIGURE 18**



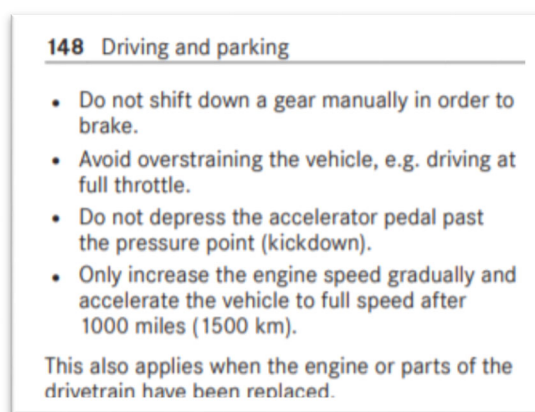
74. Mercedes-Benz has imported and sold, and continues to import, offer for sale, and sell, the Mercedes-Benz E Class in the United States, including through, e.g., its authorized dealers in the Eastern District of Texas.

75. Mercedes-Benz also knowingly and intentionally induces infringement, literally and/or under the doctrine of equivalents, of at least claim 7 of the '850 Patent in violation of 35 U.S.C. § 271(b). No later than the filing and service of this Complaint, Mercedes-Benz has had knowledge of the '850 Patent and the infringing nature of the accused automotive vehicles and components thereof. Despite this knowledge of the '850 Patent, Mercedes-Benz continues to actively encourage and instruct its customers and end users (for example, through its marketing, user manuals, and online instruction materials) to use the accused automotive vehicles and components thereof in ways that directly infringe the '850 Patent literally and/or under the doctrine of equivalents. Mercedes-Benz does so knowing and intending that its customers and end users

will commit these infringing acts. Mercedes-Benz also continues to make, use, import, offer for sale, and/or sell the accused automotive vehicles and components thereof, despite its knowledge of the '850 Patent, thereby specifically intending for and inducing its customers to infringe the '850 Patent through the customers' normal and customary use of the accused automotive vehicles and components thereof.

76. As one non-limiting example, Mercedes-Benz, with knowledge that the accused automotive vehicles and components thereof infringe at least as of the date of this Complaint, knowingly and intentionally induced, and continue to knowingly and intentionally induce, direct infringement of the '850 Patent by providing product manuals that instruct end users how to use the Mercedes-Benz E Class's accelerator pedal during, for example, the vehicle's first 1,000 miles, including specifically how to initiate such functions. Mercedes-Benz induced infringement by others, including end users, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end users, infringe the '850 Patent, but while remaining willfully blind to the infringement.

**FIGURE 19**



77. Mercedes-Benz also contributorily infringes the '850 Patent in violation of 35 U.S.C. § 271(c) by making, using, selling or offering to sell within the United States or importing

into the United States vehicles and components thereof that incorporate or constitute a material part of the inventions claimed by the '850 Patent, such as, for example, vehicles and components thereof that incorporate, for example, the STM L9959T. Mercedes-Benz does so knowing that these components are especially made or especially adapted for uses that infringe the '850 Patent, and not staple articles or commodities of commerce suitable for substantial non-infringing use.

78. Mercedes-Benz committed the foregoing infringing activities without license from Plaintiff. Mercedes-Benz's acts of infringement have damaged Arigna, as owner and assignee of the '850 Patent. Arigna is entitled to recover from Mercedes-Benz the damages it has sustained as a result of Mercedes-Benz's wrongful acts in an amount subject to proof at trial. Mercedes-Benz's infringement of Arigna's rights under the '850 Patent will continue to damage Arigna.

79. No later than the filing of this Complaint, Mercedes-Benz has had actual knowledge of the '850 Patent.

#### **DEMAND FOR JURY TRIAL**

80. Plaintiff Arigna hereby demands a jury trial for all issues so triable.

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiff Arigna requests entry of judgment in its favor and against Defendants as follows:

- A. Declaring that Defendants Volkswagen and Mercedes-Benz have each infringed United States Patent No. 7,049,850.
- B. Declaring that Volkswagen's and Mercedes-Benz's infringement of United States Patent No. 7,049,850 has been willful and deliberate, at least from the filing of this Complaint;
- C. Awarding damages to Plaintiff in an amount no less than a reasonable royalty for each

Defendant's infringement of United States Patent No. 7,049,850, together with prejudgment and post-judgment interest and without limitation under 35 U.S.C. § 287;

- D. Awarding attorney's fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law;  
and
- E. Awarding such other costs and further relief as the Court may deem just and proper.

Dated: May 20, 2021

By: */s/ Matthew R. Berry w/permission Claire  
Abernathy Henry*

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