UNITED STATES DISTRICT COURT EASTERN DISTRICT OF TEXAS MARSHALL DIVISION

ARIGNA TECHNOLOGY LIMITED,

Case No. 2:21-cv-00173-JRG

Plaintiff,

VS.

JURY TRIAL DEMANDED

BAYERISCHE MOTOREN WERKE AG,

Defendant.

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

This is an action for patent infringement in which Arigna Technology Limited makes the following allegations against Defendant Bayerische Motoren Werke AG, who is a manufacturer and distributor who, without authority, makes, imports, offers for sales and/or sells in the United States automobiles and components thereof that infringe the Asserted United States Patent No. 8,289,082.

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. 8,289,082 (the "'082 Patent" or "Asserted Patent").

BMW

2. Upon information and belief, Bayerische Motoren Werke AG ("BMW") is a

foreign corporation organized and existing under the laws of Germany with its headquarters at Petuelring 130, D-80788, Munich, Germany.

- 3. On information and belief, BMW AG does business itself, or through its subsidiaries, affiliates, and agents, in the State of Texas and the Eastern District of Texas, including through its wholly owned U.S. subsidiary BMW of North America, LLC ("BMW NA"), which participates in importing, marketing, distributing, and selling automotive vehicles and components from BMW-managed brands (e.g., BMW, Rolls-Royce, etc.) in the United States. *See, e.g.*, BMW NA Public Answer to ITC Complaint, Inv. 337-TA-1267, at ¶¶ 3-4 (July 29, 2021) (admitting that BMW NA is BMW AG's wholly owned subsidiary and an importer of BMW vehicles to the United States); BMW AG Public Answer to ITC Complaint, Inv. 337-TA-1267, at ¶ 3 (July 29, 2021) (similar).
- 4. On information and belief, BMW's wholly owned subsidiary BMW NA has hundreds of employees based in and does business across the State of Texas, including at the Vehicle Distribution Center in Galveston and the Parts Distribution Center in Lancaster.
- 5. On information and belief, BMW 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 '082 Patent, and/or induces others to commit acts of patent infringement in the State of Texas and the Eastern District of Texas.
- 6. BMW 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., BMW of Tyler, Classic BMW, and BMW of Beaumont.
 - 7. Upon information and belief, each of these authorized BMW dealers in this District

are regular, continuous, and established physical places of business of Defendant BMW, being established, ratified, and/or controlled by BMW as authorized dealers, which are the exclusive places of business at which BMW offers for sale, sells, and provides authorized maintenance, warranty, and recall services for the BMW automotive vehicles and components that infringe the '082 Patent.

- 8. Upon information and belief, BMW granted each of these authorized BMW dealers in this District the exclusive right to offer for sale, sell, and service the infringing BMW 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 BMW vehicles in this District on these authorized dealers' continued presence in this District, at these particular geographical locations, so that the infringing BMW automobiles and components are offered for sale, sold, and/or distributed in this District.
- 9. BMW ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW in this District by listing each of them in BMW's sales directories and on BMW's website(s), including, e.g., as shown below:

FIGURE 1

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

FIGURE 2

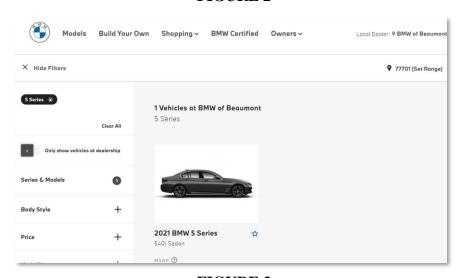
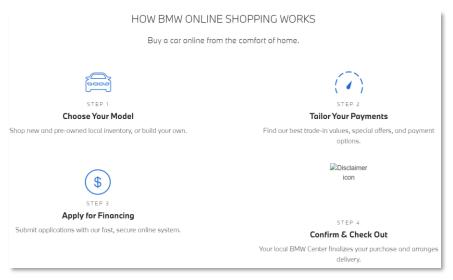


FIGURE 3



11. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW in this District by requiring these authorized dealers to feature and use BMW names, branding, trademarks, and/or trade dress, in each of these authorized dealers' names, including BMW of Tyler, Classic BMW, and BMW of Beaumont, 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.

12. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW 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 BMW automobiles and components, including, e.g., as shown below:

Beaumont

1855

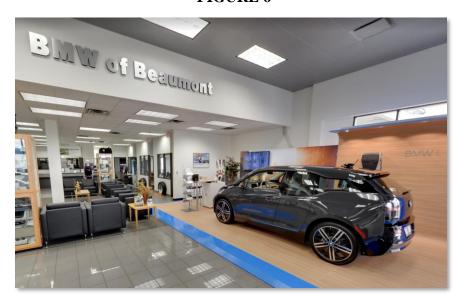
FIGURE 4

FIGURE 5

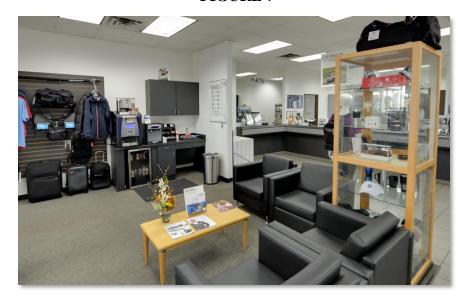


13. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW in this District by requiring these businesses to store, display, distribute, and/or offer for sale marketing materials, brochures, product specifications, service information,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

FIGURE 6







- 14. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW 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, BMW financial services and products, BMW warranties, BMW service from BMW certified and/or trained technicians, BMW parts, and BMW accessories.
- 15. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW in this District by establishing, authorizing, and requiring consumers in this District to visit and use these authorized dealers in order to obtain authorized BMW service, obtain scheduled maintenance under any BMW Ultimate Care plan or Ultimate Service program, make repairs pursuant to any BMW warranty, or obtain any recall/campaign work for all new BMW automobiles and components, including the infringing automobiles and components.
- 16. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW in this District by recruiting, hiring, training, offering

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

- 17. BMW further ratifies and holds these authorized BMW dealers out as the regular and established places of business of BMW by providing these dealers sales promotions, providing these dealers financing for dealership improvements directed by BMW, and sharing customer data with these dealers to provide customized BMW services.
- 18. BMW has established and ratified and holds these authorized BMW dealers out as the regular and established places of business of BMW by directing and controlling these authorized dealers' actions, sales, and services in the foregoing manner, and has consented to these authorized dealers acting on BMW'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 BMW's behalf pursuant to the foregoing terms of control and direction in order to be able to provide these BMW automobiles, components, and services to consumers in this District.

JURISDICTION AND VENUE

- 19. 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).
- 20. This Court has personal jurisdiction over Defendant because 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, 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 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. 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 does 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.

- 21. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b)-(c) and 1400(b), because Defendant 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.
- 22. 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 Defendant's substantial business in the State of Texas and this District, including through its past infringing activities, because Defendant regularly does and solicits business herein, and/or because 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.

THE ASSERTED PATENT

- 23. This action asserts a cause of action for infringement of U.S. Patent No. 8,289,082. The Asserted Patent is a valid and enforceable United States Patent, the entire right, title, and interest to which Arigna owns by assignment.
- 24. The Asserted Patent relates to novel offset cancellation techniques for high-voltage current amplifiers.
- 25. On October 16, 2012, the U.S. Patent and Trademark Office duly and legally issued the '082 Patent, which is entitled "Circuit and Method for Adjusting an Offset Output Current for an Input Current Amplifier." Plaintiff holds all rights and title to the '082 Patent, including the sole and exclusive right to bring a claim for its infringement. A true and correct copy of the '082 Patent is attached as **Exhibit A**.
- 26. The '082 Patent generally claims a circuit and a method for correcting an offset that includes a current amplifier and an adjusting circuit for correcting an offset of an output current of the current amplifier. This current amplifier and adjusting circuit are used in, as one example, a vehicle's 48-volt to 12-volt voltage converter to, among other things, measure current, correct offset, and protect against high and low voltages, reverse polarity, and high temperatures to produce higher precision current amplification and less error in the face of rapidly changing common-mode voltages. The patented technology enables automotive vehicle manufacturers like Defendant to add electrical systems to their latest vehicles in order to implement, for example, hybrid systems with advanced "start-stop" and/or power recuperation functions, as well as other high-power-load automotive components such as electronic anti-roll stabilization systems, electronic turbo chargers, or even air conditioner compressors.
 - 27. On March 16, 2022, the U.S. Patent and Trademark Office instituted an *inter partes*

review as to Claims 1-32 of the '082 Patent based on a petition by Volkswagen Group of America, Inc., which BMW NA and other parties later joined. On March 9, 2023, the U.S. Patent and Trademark Office issued its final written decision in that *inter partes* review concluding that BMW NA had failed to show that any claim of the '082 Patent is unpatentable.

28. Plaintiff owns all rights, title, and interest in and to the '082 Patent and possesses all rights of recovery.

FACTUAL ALLEGATIONS

- 29. 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."
- 30. Defendant does not have any right to practice the intellectual property protected by the Asserted Patent.
- 31. Defendant makes, uses, offers to sell, sells, and/or imports into the United States, products made in accordance with the '082 Patent—including but not limited to the BMW X5, BMW 3 Series, BMW 5 Series, and BMW 7 Series, in addition to other vehicles—and/or induces others to commit acts of patent infringement in the United States.
- 32. 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. 8,289,082

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

BMW

34. BMW has infringed and continues to infringe at least claim 1 of the '082 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 1 of the '082 Patent. BMW is liable for its infringement of the '082 Patent pursuant to 35 U.S.C. § 271(a), (b), and (c).

- 35. More specifically, BMW designs, manufactures, assembles, imports, offers for sale, and/or sells automotive vehicles and components thereof that incorporate the Analog Devices AD8418, which infringes at least independent claim 1 of the '082 Patent, and/or induces others to commit acts of infringement of at least independent claim 1 of the '082 Patent.
- 36. Claim 1 is illustrative of the '082 Patent. It recites "[a] circuit comprising a current amplifier; and an adjusting circuit configured to correct an offset of an output current of the current amplifier, the adjusting circuit having a controlled current source and a first switching device, wherein an output of the controlled current source is connectable to the current amplifier for producing an output current of the controlled current source in the current amplifier, wherein an input of the controlled current source is connectable by the first switching device of the adjusting circuit to an output of the current amplifier to form a regulation element of a control loop, wherein the input of the controlled current source is disconnected from the output of the current amplifier by the first switching device to form a holding element, wherein the controlled current source, acting as a regulation element in the control loop, is configured to regulate the offset to a minimum by setting a current value of the output current, and wherein the controlled current source, acting as a holding element, is configured to hold the current value, associated with the minimum, of the output current."
- 37. The Analog Devices AD8418 meets every element of this claim. The AD8418 is a high voltage, high resolution current sense amplifier and circuit for use in a variety of automotive

¹ This description of infringement is illustrative and not intended to be an exhaustive or limiting explanation of every manner in which BMW's products infringe the '082 Patent.

applications, including current sensing, motor control, power management, and solenoid control. As explained in the device's datasheet, the AD8418 is used to measure current by converting a current to a voltage shunted to its inputs.

FIGURE 8

GENERAL DESCRIPTION

The AD8418 is a high voltage, high resolution current shunt amplifier. It features an initial gain of 20 V/V, with a maximum ±0.15% gain error over the entire temperature range. The buffered output voltage directly interfaces with any typical converter. The AD8418 offers excellent input common-mode rejection from -2 V to +70 V. The AD8418 performs bidirectional current measurements across a shunt resistor in a variety of automotive and industrial applications, including motor control, battery management, and solenoid control.

Source: https://www.analog.com/media/en/technical-documentation/data-sheets/AD8418.pdf

- 38. Further, the AD8418 comprises an adjusting circuit, having a controlled current source and a first switching device, configured to correct an offset of an output of the current amplifier wherein an output of the controlled current source is connectable to the current amplifier for producing an output current of the controlled current source in the current amplifier, an input of the controlled current source is connectable by the first switching device of the adjusting circuit to an output of the current amplifier to form a regulation element of a control loop, and the input of the controlled current source is disconnected from the output of the current amplifier by the first switching device to form a holding element.
- 39. Moreover, the AD8418 controlled current source, acting as a regulation element in the control loop, is configured to regulate the offset to a minimum by setting a current value of the output current, and the AD8418, acting as a holding element, is configured to hold the current value, associated with the minimum, of the output current. For example, the AD8418's datasheet

states that the device is configured for eliminating "the negative effects of such fast changing external common-mode variations."

FIGURE 9

THEORY OF OPERATION

The AD8418 is a single-supply, zero drift, difference amplifier that uses a unique architecture to accurately amplify small differential current shunt voltages in the presence of rapidly changing common-mode voltages.

In typical applications, the AD8418 is used to measure current by amplifying the voltage across a shunt resistor connected to its inputs by a gain of 20 V/V (see Figure 26).

The AD8418 is designed to provide excellent common-mode rejection, even with PWM common-mode inputs that can change at very fast rates, for example, 1 V/ns. The AD8418 contains patented technology to eliminate the negative effects of such fast changing external common-mode variations.

Source: https://www.analog.com/media/en/technical-documentation/data-sheets/AD8418.pdf

- 40. BMW makes, uses, imports, offers for sale, and/or sells automotive vehicles and components thereof that incorporate the infringing AD8418, including but not limited to the BMW X5, BMW 3 Series, BMW 5 Series, and BMW 7 Series.
- 41. BMW has imported and sold, and continues to import, offer for sale, and sell, these vehicles and components thereof in the United States, including through, e.g., BMW authorized dealers in the Eastern District of Texas.
- 42. BMW also knowingly and intentionally induces infringement, literally and/or under the doctrine of equivalents, of at least claim 1 of the '082 Patent in violation of 35 U.S.C. § 271(b). No later than the filing and service of the Complaint (Dkt. 1), BMW has had knowledge of the '082 Patent and the infringing nature of the accused automotive vehicles and components thereof. Despite this knowledge of the '082 Patent, BMW 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 '082 Patent literally and/or under the doctrine of equivalents. BMW also actively directs and/or contracts with its dealers to sell and offer for sale the accused vehicles at BMW-branded dealerships in the United States. BMW does so knowing and intending that its customers, end users, and dealers will commit these infringing acts. BMW also continues to make, use, import, offer for sale, and/or sell the accused automotive vehicles and components thereof, despite its knowledge of the '082 Patent, thereby specifically intending for and inducing its customers to infringe the '082 Patent through the customers' normal and customary use of the accused automotive vehicles and components thereof.

43. As one non-limiting example, BMW, with knowledge that the accused automotive vehicles and components thereof infringe at least as of the date of Plaintiffs' May 20, 2021 Complaint for Patent Infringement, knowingly and intentionally induced, and continues to knowingly and intentionally induce, direct infringement of the '082 Patent by providing product manuals that instruct end users how to use the BMW X5's "Auto Start/Stop function" and "Engine-Off / Coasting" function, including specifically how to initiate such functions. BMW has 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 is a high probability that others, including end users, infringe the '082 Patent, but while remaining willfully blind to the infringement.

FIGURE 10



FIGURE 11



- 44. BMW also contributorily infringes the '082 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 '082 Patent, including the BMW LEB450 Inverter, the AD8418, and the vehicles that incorporate the same. BMW does so knowing that these products are especially made or especially adapted for uses that infringe the '082 Patent, and not staple articles or commodities of commerce suitable for substantial non-infringing use. For example, the BMW LEB450 Inverter implements circuitry and designs that directly infringe the technologies protected by the '082 Patent, and that infringing use is necessary for the inverter to function and to ensure the operation of the accused BMW vehicles' powertrain systems. Without the use of these infringing components, the accused vehicles would not be able to perform the functions and features that are central to their operation.
- 45. BMW has had actual knowledge of the '082 Patent since at least the filing of the May 20, 2021 Complaint (Dkt. 1), which asserted that BMW infringes the '082 Patent, including based on its use of the substantially identical Analog Devices AD8417. *See, e.g.*, Dkt. 1 at ¶¶ 139-50.
- 46. Despite this knowledge, BMW continues to willfully infringe the '082 Patent by continuing to manufacture, import, sell, and offer for sale, automotive vehicles and components thereof that incorporate the infringing AD8418, including but not limited to, the vehicles and components identified herein.
- 47. BMW committed the foregoing infringing activities without license from Arigna. BMW's acts of infringement have damaged Arigna, as owner and assignee of the '082 Patent. Arigna is entitled to recover from BMW the damages it has sustained as a result of BMW's

wrongful acts in an amount subject to proof at trial. BMW's infringement of Arigna's rights under the '082 Patent will continue to damage Arigna.

DEMAND FOR JURY TRIAL

48. 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 Defendant as follows:

- A. Declaring that Defendant BMW has infringed United States Patent No. 8,289,082;
- B. Declaring that BMW's infringement of United States Patent No. 8,289,082 has been willful and deliberate, at least from the filing of the Complaint, Dkt. 1;
- C. Awarding damages to Plaintiff in an amount no less than a reasonable royalty for each Defendant's infringement of United States Patent No. 8,289,082, 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: March 31, 2023

By: /s/ Matthew R. Berry

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service on this the 31st day of March, 2023.

/s/ Matthew R. Berry
Matthew R. Berry

Counsel for Plaintiff