

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

FUNDAMENTAL INNOVATION
SYSTEMS INTERNATIONAL LLC,

Plaintiff,

vs.

TOYOTA MOTOR CORPORATION,
TOYOTA MOTOR NORTH AMERICA,
INC., TOYOTA MOTOR ENGINEERING
& MANUFACTURING NORTH
AMERICA, INC., TOYOTA MOTOR
SALES, USA, INC., DENSO
CORPORATION, DENSO
INTERNATIONAL AMERICA, INC.,

Defendants.

Civil Action No. 2:21-cv-281

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT AND JURY DEMAND

Plaintiff Fundamental Innovation Systems International LLC (“Fundamental”), by and through its undersigned counsel, brings this action against Defendants Toyota Motor Corporation, Toyota Motor North America, Inc., Toyota Motor Engineering & Manufacturing North America, Inc., and Toyota Motor Sales USA, Inc. (collectively, “Toyota”), and Denso Corporation and Denso International America, Inc. (collectively, “Denso”) to prevent the Defendants’ continued use of Plaintiff’s patents without authorization and to recover damages resulting from such unauthorized use.

PARTIES

1. Plaintiff Fundamental is a Delaware limited liability company with its principal place of business located at 2990 Long Prairie Road, Suite B, Flower Mound, Texas 75022.

2. Fundamental is the assignee of all right, title, and interest in U.S. Patent Nos. 6,936,936 (the “’936 Patent” attached as Ex. A), 7,239,111 (the “’111 Patent” attached as Ex. B), 7,453,233 (the “’233 Patent” attached as Ex. C), and 8,624,550 (the “’550 Patent” attached as Ex. D) (collectively, the “Patents-in-Suit”).

3. On information and belief, Defendant Toyota Motor Corporation is a corporation organized and existing under the laws of Japan with its principal place of business at 1 Toyota-Cho, Toyota City, Aichi Prefecture 471-8571, Japan.

4. On information and belief, Defendant Toyota Motor North America, Inc. is a subsidiary of Toyota Motor Corporation and a corporation organized and existing under the laws of the State of California with its principal place of business at 6565 Headquarters Drive W1-3C, Plano, TX 75024. Toyota Motor North America, Inc. may be served with process through its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

5. On information and belief, Defendant Toyota Motor Engineering & Manufacturing North America, Inc. is a subsidiary of Toyota Motor Corporation and a corporation organized and existing under the laws of the State of Kentucky with its principal place of business at 6565 Headquarters Drive W1-3C, Plano, TX 75024. Toyota Motor Engineering & Manufacturing North America, Inc. may be served with process through its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

6. On information and belief, Defendant Toyota Motor Sales, U.S.A., Inc. is a subsidiary of Toyota Motor Corporation and a corporation organized and existing under the laws of the State of California with its principal place of business at 6565 Headquarters Drive W1-3C, Plano, TX 75024. Toyota Motor Sales, U.S.A. may be served with process through its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

7. On information and belief, Defendant Denso Corporation is a corporation organized and existing under the laws of Japan with a principal place of business at 1-1, Showacho, Kariya, Aichi Prefecture, 448-0029, Japan.

8. On information and belief, Defendant Denso International America, Inc. is a subsidiary of Denso Corporation and a corporation organized and existing under the laws of the State of Delaware. On information and belief, Denso International America, Inc. maintains a regular and established place of business at 2701 W Plano Pkwy, Plano, TX 75075, and transacts business, including those that infringe or cause infringement of the Patents-in-Suit, from that location. Denso International America, Inc. may be served with process through its registered agent, Corporation Service Company d/b/a CSC Lawyers Incorporating Service Company, 211 E. 7th Street, Suite 620, Austin, TX 78701.

JURISDICTION AND VENUE

9. This is an action for patent infringement arising under the patent laws of the United States of America, 35 U.S.C. § 1, et. seq., including 35 U.S.C. § 271. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

10. This Court has personal jurisdiction over Defendants Toyota, in part because they transact continuous and systematic business and have substantial, systematic, and continuous contacts in this District, including by providing infringing products and services to the residents of the Eastern District of Texas that Defendants Toyota knew would be used within this District, and by soliciting business from the residents of the Eastern District of Texas. For example, on information and belief, Defendants Toyota operate in the United States from their principal place of business at 6565 Headquarters Drive W1-3C, Plano, TX 75024. Defendants Toyota are subject to personal jurisdiction in this Court because, *inter alia*, and on information and belief,

they have and continue to operate directly or through their wholly owned subsidiaries, representatives, intermediaries and/or agents in the State of Texas, including at 6565 Headquarters Drive W1-3C, Plano, TX 75024.

11. Defendants Toyota are also subject to the personal jurisdiction of this Court because, on information and belief, they directly and/or through agents regularly, solicit and transact business in the Eastern District of Texas (and elsewhere in the State of Texas) with an attempt to derive financial benefit from residents of this District, including, for example, through various dealerships that bear Toyota's business names or logos in particular and residents of the State of Texas in general and via advertisements or marketing targeting residents of this District and the rest of the State of Texas. The benefit that Defendants Toyota derives from their business transactions includes those directly related to the infringement of the Patents-in-Suit as set forth herein.

12. On information and belief, Defendants Toyota have committed and continue to commit acts of infringement in violation of 35 U.S.C. § 271, and have made, used, marketed, distributed, offered for sale, sold, and/or imported products that are alleged herein to infringe one or more of the Patents-in-Suit in the State of Texas, including in this District, and engaged in infringing conduct within and directed at or from this District. For example, Defendants Toyota have purposefully and voluntarily placed products equipped with or comprising infringing Universal Serial Bus ("USB") chargers or adapters (the "Accused Products") into the stream of commerce with the expectation that the Accused Products will be used in this District. These Accused Products include, but are not limited to, cars containing infringing USB chargers or adapters, and original or replacement parts having infringing USB chargers or adapters. The Accused Products have been and continue to be distributed to and used in this District.

Defendants Toyota also have been and continue to operate the Accused Products in an infringing manner, including when they operate, service, or repair the Accused Products for USB charging in an infringing manner. Defendants Toyota's acts cause and have caused injury to Fundamental, including within this District. On further information and belief, Defendants Toyota have purposefully directed activities at citizens of the State of Texas including those located within this District, including advertising, promoting, selling, and servicing Accused Products that infringe one or more claims of the Patents-in-Suit or performing one or more activities using Toyota-provided Accused Products in a manner that infringes one or more claims of the Patents-in-Suit. On information and belief, Plaintiff's cause of action arises directly from Defendants Toyota's business contacts and other activities in the State of Texas.

13. On information and belief, Defendants Toyota have availed themselves of the privilege conducting and soliciting business within this State, including engaging in at least some of the infringing activities in this State, and directing others acting as Defendants Toyota's agents and/or representatives in this District and the State of Texas, such that it would be reasonable for this Court to exercise jurisdiction consistent with principles underlying the U.S. Constitution, and the exercise of jurisdiction by this Court would not offend traditional notions of fair play and substantial justice.

14. Each of Toyota Motor North America, Inc., Toyota Motor Engineering & Manufacturing North America, Inc., and Toyota Motor Sales, U.S.A., is further subject to this Court's personal jurisdiction by locating its principal place of business within the district at 6565 Headquarters Drive W1-3C, Plano, TX 75024.

15. The Court also has personal jurisdiction over Defendant Toyota Motor Corporation under Federal Rule of Civil Procedure 4(k)(2) if Defendants allege that Defendant

Toyota Motor Corporation is not subject to general jurisdiction in any one state. The exercise of jurisdiction in this patent infringement action over Defendants Toyota under the federal law is consistent with the United States Constitution.

16. This Court has personal jurisdiction over Defendants Denso, in part because they transact continuous and systematic business and have substantial, systematic, and continuous contacts in this District, including by providing infringing products and services to the residents of the Eastern District of Texas (including Defendants Toyota) that Defendants Denso knew would be used within this District, and by soliciting business from the residents of the Eastern District of Texas, and operate in this District from a regular and established place of business at 2701 W Plano Pkwy, Plano TX 75075. On further information and belief, Defendants Denso also operate a distribution center at 801 South Ware Rd, Suite 200, McAllen, TX 78503 U.S.A. On information and belief, the transactions conducted at Defendants Denso's Texas locations include, but are not limited to, "[m]arketing, product planning, procurement, sale, quality control, servicing, development, and design of automobile related equipment and parts." *See* Ex. E. Defendants Denso are subject to personal jurisdiction in this Court because, *inter alia*, and on information and belief, they have and continue to operate directly or through their wholly owned subsidiaries, representatives, intermediaries and/or agents in the State of Texas, including at 2701 W Plano Pkwy, Plano TX 75075 and 801 South Ware Rd, Suite 200, McAllen, TX 78503.

17. Defendants Denso are also subject to the personal jurisdiction of this Court because, on information and belief, they directly and/or through agents regularly, solicit and transact business in the Eastern District of Texas (and elsewhere in the State of Texas) with an attempt to derive financial benefit from residents of this District including from Defendants Toyota. On information and belief, such solicitations and transactions include, but are not

limited to, sales, offer for sales, repairs, services, distributions, advertisements and/or marketing targeting residents of this District and the rest of the State of Texas. The benefit that Defendants Denso derives from their business transactions includes those directly related to the infringement of the Patents-in-Suit as set forth herein.

18. On information and belief, Defendants Denso have committed and continue to commit acts of infringement in violation of 35 U.S.C. § 271, and have made, used, marketed, distributed, offered for sale, sold, and/or imported products that are alleged herein to infringe one or more of the Patents-in-Suit in the State of Texas, including in this District, and engaged in infringing conduct within and directed at or from this District. For example, Defendants Denso have purposefully and voluntarily placed Accused Products, such as parts comprising infringing USB chargers/adapters, into the stream of commerce with the expectation that the Accused Products will be used in this District. The Accused Products have been and continue to be distributed to and used in this District. Defendants Denso's acts cause and have caused injury to Fundamental, including within this District.

19. On further information and belief, Defendants Denso have purposefully directed activities at citizens of the State of Texas including those located within this District, including advertising, promoting, selling, and servicing Accused Products that infringe one or more claims of the Patents-in-Suit or using the Accused Products in a manner that infringes one or more claims of the Patents-in-Suit. On information and belief, Plaintiff's cause of action arises directly from Defendants Denso's business contacts and other activities in the State of Texas.

20. On information and belief, Defendants Denso have availed themselves of the privilege conducting and soliciting business within this State, including engaging in at least some of the infringing activities in this State, and directing others acting as Defendants Denso's agents

and/or representatives in this District and the State of Texas, such that it would be reasonable for this Court to exercise jurisdiction consistent with principles underlying the U.S. Constitution, and the exercise of jurisdiction by this Court would not offend traditional notions of fair play and substantial justice.

21. Defendant Denso International America, Inc. is further subject to this Court's personal jurisdiction because it operates out the State of Texas at regular and established places of businesses such as at 2701 W Plano Pkwy, Plano TX 75075 and 801 South Ware Rd, Suite 200, McAllen, TX 78503.

22. The Court also has personal jurisdiction over Defendant Denso Corporation under Federal Rule of Civil Procedure 4(k)(2) if Defendants allege that Defendant Denso Corporation is not subject to general jurisdiction in any one state. The exercise of jurisdiction in this patent infringement action under the federal law over Defendants Denso is consistent with the United States Constitution.

23. Venue is proper in this District under the provisions of 28 U.S.C. §§ 1391 and 1400(b). For example, Defendant Toyota Motor Corporation and Defendant Denso Corporation are foreign corporations and not residents of the United States, and may therefore be sued in any judicial district, including this one. As another example, the venue is proper for the remaining Defendants Toyota because they have committed acts of infringement in this District and maintain a regular and established place of business at 6565 Headquarters Drive W1-3C, Plano, TX 75024 located in this District. As a further example, the venue is proper with respect for Defendant Denso International America, Inc. because it has committed acts of infringement in this District and maintains a regular and established place of business at 2701 W Plano Pkwy, Plano TX 75075 located in this District.

FACTUAL ALLEGATIONS

The Patents-in-Suit

24. The Patents-in-Suit relate to, among other things, novel techniques for using USB in connection with mobile devices to both facilitate data communication and allow for the charging of certain classes of devices. This technology represented a fundamental break from previous techniques for mobile device charging and has provided for faster charging times, improved user experiences, and a dramatic increase in performance and features.

25. The Patents-in-Suit resulted from a large scale research and development program at Research In Motion Limited (“RIM”), later reorganized as BlackBerry Limited (“BlackBerry”). At the time of the inventions, RIM was a global leader and pioneer in the field of wireless mobile communications. The company was founded in 1984 and revolutionized the mobile industry when it launched the BlackBerry® 850 in 1999. Fundamental is responsible for protecting and licensing seminal BlackBerry innovations in the field of USB charging.

26. The value of the inventions claimed by the Patents-in-Suit has been widely recognized. Over fifty companies have taken licenses to the Patents-in-Suit, including in the market for automotive USB ports.

The Accused Products and Infringing Acts

27. On information and belief, Defendants Toyota, make, use, sell, offer for sale, lease, rent, distribute, service, repair and/or import Accused Products in the United States. Examples of the Accused Products include, but are not limited to, vehicles with USB media ports that can provide more than 500mA of current (*e.g.*, charging downstream ports (“CDP”)) or USB charge ports, and original or replacement parts that are or include such USB media ports or USB charge ports. Examples of vehicles with infringing USB ports include, but are not limited to,

Rav4, Camry, Tacoma, Corolla, Highlander, Prius, and Avalon, starting from at least the 2019 model year, and Lexus cars such as RX and LS models, starting from at least the 2019 model year, and any other infringing vehicles made, sold, offered for sale, or otherwise distributed by Defendants Toyota that include USB charge ports with similar functionality. Examples of infringing parts include, but are not limited, to components that enable USB charging functionality in the accused vehicles, including but not limited to media ports or USB charging parts or chargers/adapters, such as 85532-42010, 85532-12010, 855332-15010, 85332-06010, 85332-06020, 85332-06030, 85332-06050, 85332-0E010, 86190-12070, 86190-06060, 86190-0R010, PT976-03201, 85532-08040, 85532-08050, 86190-35020, and any other parts with similar functionality.

28. On information and belief, Defendants Denso supply at least some of the infringing USB ports and components to Defendants Toyota. On information and belief, Defendants Denso make, use, sell, offer for sale, distribute and/or import into the United States auto parts that are or include USB charge ports and/or CDP-type USB media ports, which infringe one or more claims of the Patents-in-Suit. Denso's making, using, selling, offering to sell, distributing and importing of the accused parts into the United States constitute infringement under 35 U.S.C. §§ 271(a)–(c).

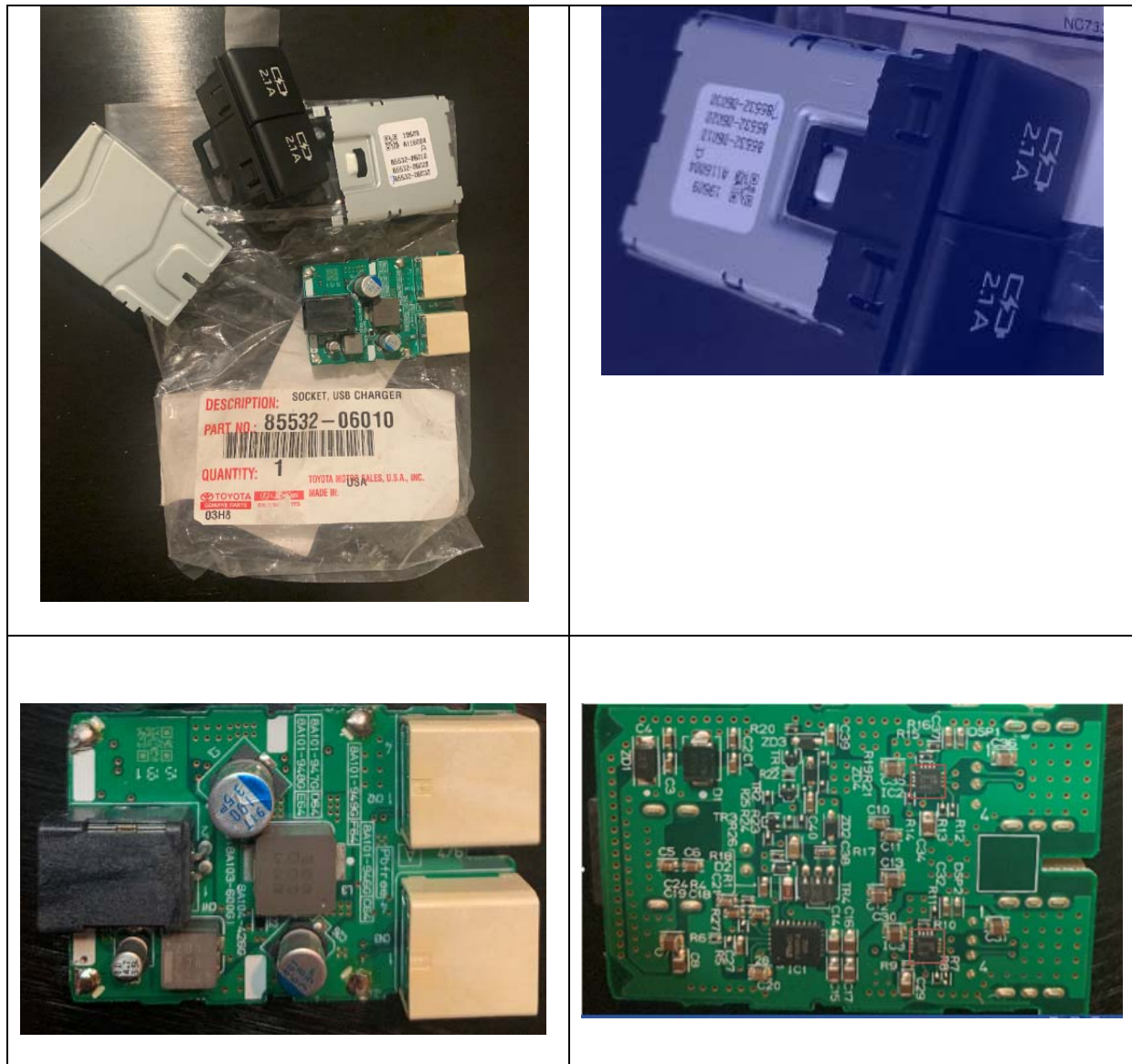
29. The Accused Products are or incorporate USB charging adapters that are designed to provide current to USB devices in excess of that permitted under the USB 2.0 Specification and often without the need for enumeration or before completing enumeration. For example, the accused vehicles each include at least one USB media port that, on information and belief, supports USB Battery Charging Specifications. As another example, the accused vehicles generally each include one or more USB charge ports designed for USB charging only and not

for data transfer or media play. *See, e.g.*, Ex. F at 18 (all Avalon models include at least two USB-A charge ports); Ex. G at 18 (all Camry models include one USB media port capable of supplying more than 1.5A of current and two USB charge ports); Ex. H at 17 (all Corolla models are equipped with multimedia modules having at least one USB charge port); Ex. I (all Highlander models have five USB ports, including 4 USB charge ports); Ex. J at 5 (each Prius sports two 2.1A rear charging ports); Ex. K at 20 (each RAV4 has at least one USB media port believed to capable of delivering more than 500mA of current and most models include 4 charge ports); Ex. L at 17 (all Tacoma models include two USB charge ports).

30. The USB charging adapters incorporated into Toyota vehicles or sold separately as parts each include a VBUS line, a USB communication path and a USB connector for connecting to a USB device. The USB charging adapters each include a plug unit for receiving energy from a power socket, such as a power socket from a vehicle's power system. The USB charging adapters also each include a power converter coupled to the plug unit for regulating the energy received from the power socket to a suitable power output, such as a 5V output suitable for USB charging. The USB charging adapters are further each configured with an identification subsystem that is coupled to the USB connector and that is configured to provide an identification signal. The identification signal or signals indicate to a connected USB device that the USB charging adapter is receiving power from a source that is not a USB host or hub, and/or that the device may draw an amount of current in excess of that permitted under the USB 2.0 Specification without or before completion of enumeration. In the Accused Products, the identification signals are provided, *inter alia*, as voltages on a D+ line and/or on a D- line. An example of the identification signal is one comprising a logic high signal on both the D+ and D- data lines. In some instances, the logic high signal is a signal greater than 2V. A claimed

identification signal generally corresponds to a data or data line condition regarded as abnormal by the USB 2.0 Specification.

31. On information and belief, infringing USB charging adapters in the accused Toyota vehicles are capable of supplying more than 500mA of current, such as 2.1A, in response to abnormal data conditions on D+ or D- lines, without relying on enumeration. An example of an infringing USB charging adapter with two USB ports is shown below.



32. On information and belief, Toyota promotes the USB charging port features in its vehicles. For example, one Toyota advertisements specifically mentions the “5 USB charge ports” that each provide 2.1A of current. *See* Ex. M.



33. As another example, Toyota’s brochure on Prius calls out the USB charge port feature. *See* Ex. J at 5.

Three USB ports

Put an end to the power struggle. You and your passengers can charge your compatible devices through the two 2.1A rear charging ports⁸ in the back, and play your music through Prius’ audio system via the media port in the front.

Defendants’ Knowledge of the Patents-in-Suit and Infringement

34. On or around February 27, 2020, Fundamental provided Defendant Toyota Motor North America with a specific notice that its vehicles with USB charge ports infringe one or more of the claims of the ‘111, ‘233 and ‘550 patents. *See* Ex. N. These patents claim priority to and reference the ‘936 patent. Fundamental assured Toyota that its “intention is to allow Toyota to continue its use of these patents through a license from Fundamental.” *Id.* at 2. Fundamental also sought a meeting with Toyota to discuss the patents and license terms. *Id.* Toyota did not respond to the notice letter or any of the follow-up emails and letter. *See* Ex. O. Toyota has also

never contacted Fundamental to provide Fundamental with any basis for believing that it did not infringe the Patents-in-Suit.

35. On information and belief, Toyota has informed Denso of the notice of infringement. Denso also did not respond to Fundamental's notice letter.

36. Despite having received notice of infringement of the Patents-in-Suit, Defendants have continued to make, use, sell, offer for sale, and import into the United States the Accused Products. Defendants' making, using, selling, offering to sell and importing of the Accused Products into the United States constitute direct infringement under 35 U.S.C. § 271(a). On information and belief, Defendants Toyota also directly infringe one or more method claims of the Patents-in-Suit by testing, repairing, servicing or using the Accused Products in the United States.

37. Despite having received notice of infringement of the Patents-in-Suit, Defendants have remained willfully blind to the risk of infringement by their customers, partners, dealers, representatives and agents, despite believing there to be a high probability of infringement due to their instructions and inducement, in violation of 35 U.S.C. § 271(b).

38. After having received notice of infringement of the Patents-in-Suit, Defendants have continued to advertise the infringing features, distribute the Accused Products, offer technical assistance, publish user manuals or instructions describing the use of the infringing features, providing literature featuring USB charging ports to customers, dealers and partners, and advising them to use the Accused Products in a manner that directly infringes the Patents-in-Suit, in violation of 35 U.S.C. § 271(b). For examples, a user of an infringing Toyota vehicle that uses the USB port for charging in accordance with the instructions provided by Toyota directly infringes one or more claims of the Patents-in-Suit as a result of the active inducement

by Toyota. Toyota provides instructions through, for example, user manuals or brochures. As another example, a purchaser of an infringing USB adapter from Toyota or Denso who installs and uses the adapter in accordance with the instructions directly infringes one or more claims of the Patents-in-Suit as a result of the active inducement by Toyota or Denso.

39. After having received notice of infringement of the Patents-in-Suit, Defendants have continued to make, use, sell, offer for sale, and import into the United States infringing USB charge ports and USB media ports with knowledge that these USB charging adapters are a material part of the inventions claimed by the Patents-in-Suit and are especially made or adapted for use in an infringement of the Patents-in-Suit. On information and belief, Defendants know that the accused USB charging adapters are not a staple article or commodity of commerce suitable for substantial non-infringing use. Defendants' actions therefore contribute to the direct infringement of the Patents-in-Suit by others, including customers of the accused vehicles incorporating the USB charging adapters, in violation of 35 U.S.C. § 271(c).

SINGLE ACTION

40. 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. For example, Denso and Toyota jointly design and implement the Accused Products.

FIRST CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 6,936,936)

41. Fundamental re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

42. The '936 Patent, titled "Multifunctional charger system and method," was duly and legally issued on August 30, 2005. A true and correct copy of the '936 Patent is attached as Exhibit A.

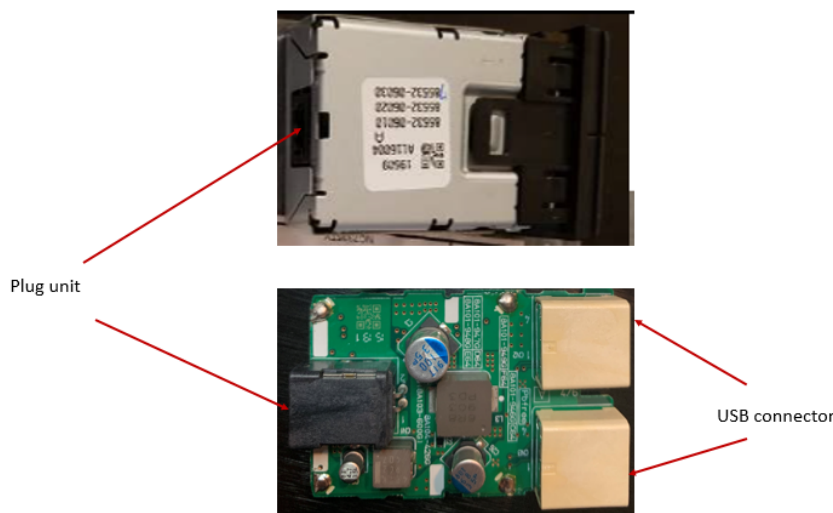
43. The '936 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

44. The '936 Patent has been in full force and effect since its issuance. Fundamental owns by assignment the entire right, title, and interest in and to the '936 Patent, including the exclusive right to seek damages for past, current and future infringement thereof.

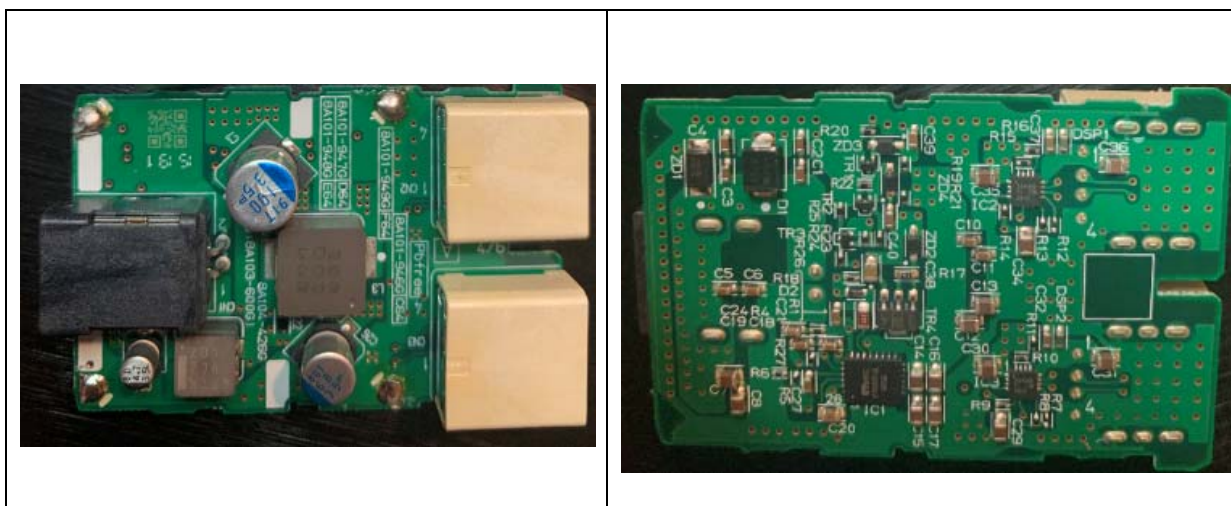
45. On information and belief, the Accused Products either are or incorporate USB charging adapters that are able to provide power to a mobile device through a USB charging port, as shown below.



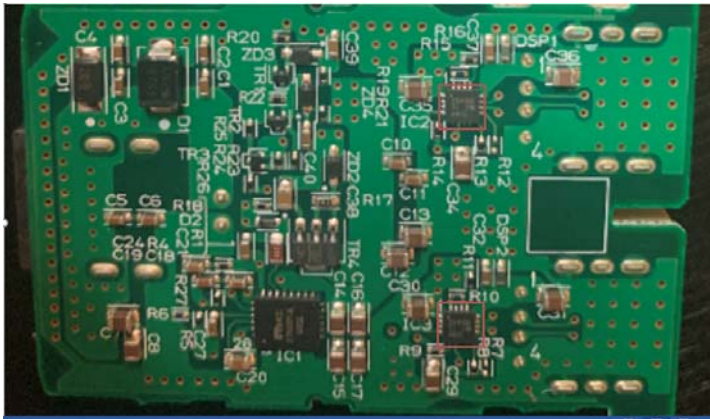
46. Each accused USB charging adapter includes a plug unit that can be coupled to an infringing vehicle's battery power output socket to receive energy from the socket. A representative example is provided below for illustration.



47. Each accused USB charging adapter also includes a power converter that is electrically connected to the plug unit and to at least one USB connector, *e.g.*, a USB type-A connector. The power converter converts a vehicle electrical system's DC voltage input at the plug end of the adapter to a 5V DC voltage output at the USB connector for charging a mobile device. The power converter comprises numerous electrical parts on the motherboard, including inductors, diodes, switch mode power switch controllers and voltage regulators, current limiters, power switches, and load detectors, among other things. A representative example is shown below.



48. Each accused USB charging adapter also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. The identification subsystem includes at least a USB charging port controller, such as TPS2546 from Texas Instruments or its equivalent. A USB charging adapter with two or more ports or connectors may include two or more USB charge controllers, one for each port, as illustrated below.



49. On information and belief, when in operation, the identification subsystem provides an identification signal that comprises voltage levels on the D+ and D- lines to a USB device connected for charging, via the USB connector's D+ and D- pins. For example, on information and belief, infringing USB charging adapters are configured to provide, among others, an identification signal comprised of 2.0V on D+ line and 2.7V on D- line or an identification signal comprised of 2.7V on D+ line and 2.0V on D- line. On information and belief, some infringing USB adapters are also configured to provide an identification signal comprised of 2.7V on each of D+ and D- lines.

50. When charging, a USB device, such as a smartphone, is connected to a USB connector of the USB adapter via a USB cable. The D+ and D- data lines of the mobile device are connected to the D+ and D- pins of the USB connector to detect identification signals, and

the VBUS and ground lines of the mobile device are connected to the VBUS and ground pins of the USB connector to receive power.

51. On information and belief, Defendants infringe at least claim 1 of the '936 Patent. Defendants have been, and currently are, directly infringing the '936 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing into the United States the Accused Products.

52. On information and belief, Defendants have been, and currently are, inducing infringement of the '936 Patent, in violation of 35 U.S.C. § 271(b), by knowingly encouraging or aiding others to make, use, sell, or offer to sell the Accused Products in the United States, or to import the Accused Products into the United States, without license or authority from Fundamental, with knowledge of or willful blindness to the fact that their actions will induce others, including but not limited to their customers, partners, and/or end users, to directly infringe the '936 Patent. Defendants induce others to infringe the '936 Patent by encouraging and facilitating others to perform actions that they know to be acts of infringement of the '936 Patent with specific intent that those performing the acts infringe the '936 Patent.

53. On information and belief, Defendants have been, and currently are, contributorily infringing the '936 Patent, in violation of 35 U.S.C. § 271(c), by selling or offering for sale, in this judicial district and throughout the United States, components that embody a material part of the inventions described in the '936 Patent, are known by Defendants to be especially made or especially adapted for use in infringement of the '936 Patent, and are not staple articles of commerce or commodities suitable for substantial, non-infringing use, including at least the Accused Products. Defendants' actions contribute to the direct infringement of the

Patents-in-Suit by others, including customers of the Accused Products, in violation of 35 U.S.C. § 271(c).

54. As a result of Defendants' infringement of the '936 Patent, Fundamental has been damaged. Fundamental is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount to be determined.

55. In addition, Defendants' infringing acts have caused and are causing immediate and irreparable harm to Fundamental.

56. On information and belief, Defendants have had actual knowledge of their infringement of the '936 Patent since no later than February 2020. On information and belief, Defendants' infringement of the '936 Patent has been and continues to be deliberate and willful, and, therefore, this is an exceptional case warranting an award of treble damages and attorney's fees to Fundamental pursuant to 35 U.S.C. §§ 284–285.

SECOND CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 7,239,111)

57. Fundamental re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

58. The '111 Patent, titled "Universal Serial Bus Adapter for a Mobile Device," was duly and legally issued on July 3, 2007. A true and correct copy of the '111 Patent is attached as Exhibit B.

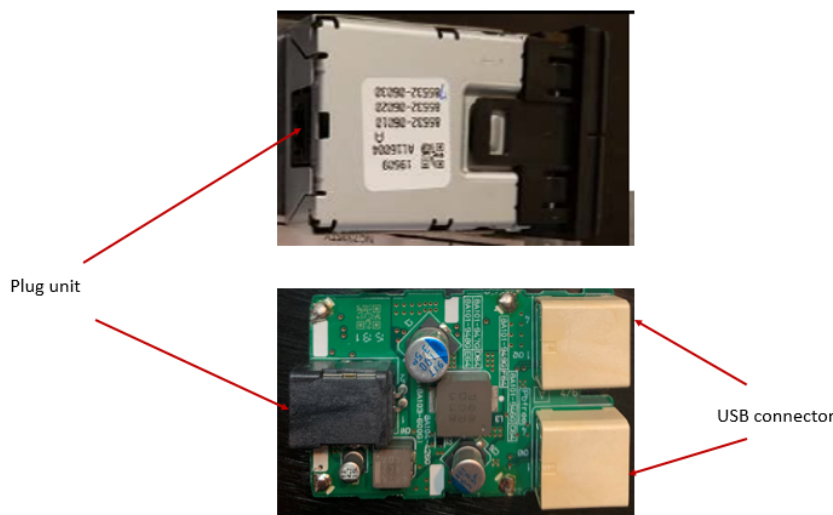
59. The '111 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

60. The '111 Patent has been in full force and effect since its issuance. Fundamental owns by assignment the entire right, title, and interest in and to the '111 Patent, including the exclusive right to seek damages for past, current and future infringement thereof.

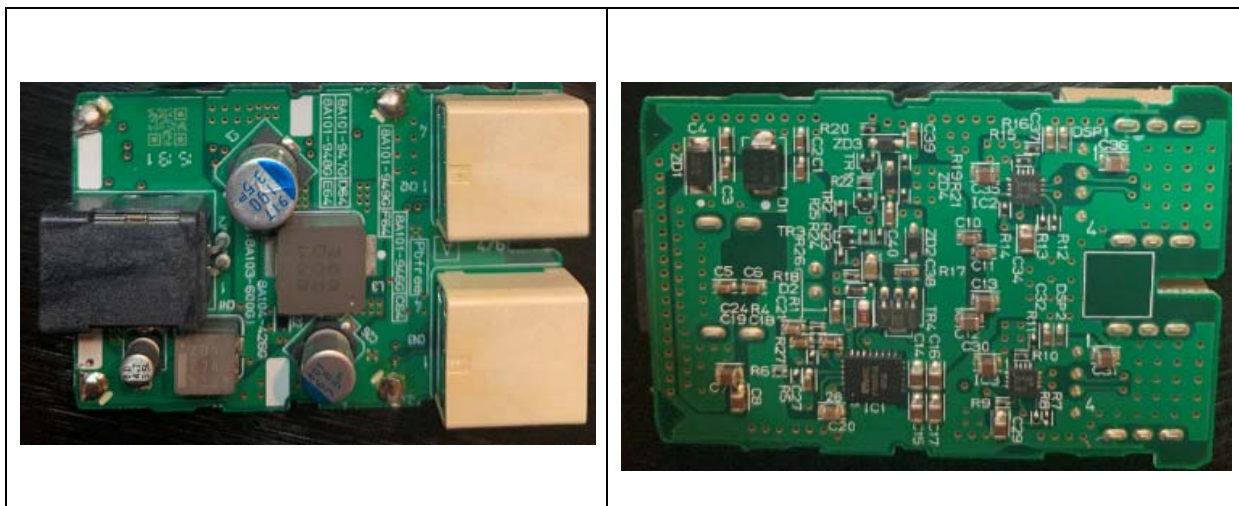
61. On information and belief, the Accused Products either are or incorporate USB charging adapters that are able to provide power to a mobile device through a USB charging port as shown below.



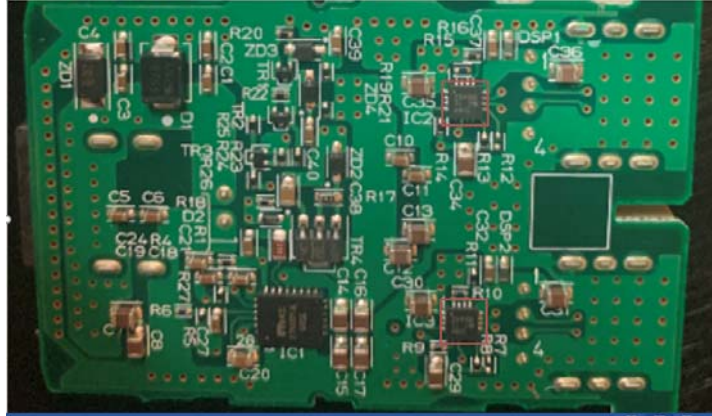
62. Each accused USB charging adapter includes a plug unit that can be coupled to an infringing vehicle's battery power output socket to receive energy from the socket. A representative example is provided below for illustration.



63. Each accused USB charging adapter also includes a power converter that is electrically connected to the plug unit and to at least one USB connector. The power converter can convert a vehicle's DC voltage input at the plug end of the adapter to a 5V DC voltage output at the USB connector for charging a mobile device. The power converter comprises numerous electrical parts on the motherboard, including inductors, diodes, switch mode power switch controllers and voltage regulators, current limiters, power switches, and load detectors, among other things. A representative example is shown below.



64. Each accused USB charging adapter also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. The identification subsystem includes at least a USB charging port controller, such as TPS2546 from Texas Instruments or its equivalent. A USB charging adapter with two or more ports or connectors may include two or more USB charge controllers, one for each port, as illustrated below.



65. On information and belief, when in operation, the identification subsystem provides an identification signal that comprises voltage levels on the D+ and D- lines to a USB mobile device connected for charging, via the USB connector's D+ and D- pins. For example, on information and belief, infringing USB charging adapters are configured to provide, among others, an identification signal comprised of 2.0V on D+ line and 2.7V on D- line or an identification signal comprised of 2.7V on D+ line and 2.0V on D- line. On information and belief, some infringing USB adapters are also configured to provide an identification signal comprised of 2.7V on each of D+ and D- lines. These voltages indicate to a connected USB mobile device that the device is not drawing energy from a USB host or hub, but from a charging adapter connected to the vehicle's electrical system that does not participate in USB data transfer.

66. When charging, a USB device, such as a smartphone, is connected to a USB connector of the USB adapter via a USB cable. The D+ and D- data lines of the mobile device are connected to the D+ and D- pins of the USB connector to detect identification signals that indicate to the mobile device that the power socket is not a USB hub or host, and the VBUS and ground lines of the mobile device are connected to the VBUS and ground pins of the USB connector to receive power.

67. On information and belief, Defendants infringe at least claim 17 of the '111 Patent. Defendants have been, and currently are, directly infringing the '111 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing into the United States the Accused Products.

68. On information and belief, Defendants have been, and currently are, inducing infringement of the '111 Patent, in violation of 35 U.S.C. § 271(b), by knowingly encouraging or aiding others to make, use, sell, or offer to sell the Accused Products in the United States, or to import the Accused Products into the United States, without license or authority from Fundamental, with knowledge of or willful blindness to the fact that their actions will induce others, including but not limited to their customers, partners, and/or end users, to directly infringe the '111 Patent. Defendants induce others to infringe the '111 Patent by encouraging and facilitating others to perform actions that they know to be acts of infringement of the '111 Patent with specific intent that those performing the acts infringe the '111 Patent.

69. On information and belief, Defendants have been, and currently are, contributorily infringing the '111 Patent, in violation of 35 U.S.C. § 271(c), by selling or offering for sale, in this judicial district and throughout the United States, components that embody a material part of the inventions described in the '111 Patent, are known by Defendants to be especially made or especially adapted for use in infringement of the '111 Patent, and are not staple articles of commerce or commodities suitable for substantial, non-infringing use, including at least the Accused Products. Defendants' actions contribute to the direct infringement of the Patents-in-Suit by others, including customers of the Accused Products, in violation of 35 U.S.C. § 271(c).

70. As a result of Defendants' infringement of the '111 Patent, Fundamental has been damaged. Fundamental is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount to be determined.

71. In addition, Defendants' infringing acts have caused and are causing immediate and irreparable harm to Fundamental.

72. On information and belief, Defendants have had actual knowledge of their infringement of the '111 Patent since no later than February 2020. On information and belief, Defendants' infringement of the '111 Patent has been and continues to be deliberate and willful, and, therefore, this is an exceptional case warranting an award of treble damages and attorney's fees to Fundamental pursuant to 35 U.S.C. §§ 284–285.

THIRD CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 7,453,233)

73. Fundamental re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

74. The '233 Patent, titled "Adapter System and Method for Powering a Device," was duly and legally issued on November 18, 2008. A true and correct copy of the '233 Patent is attached as Exhibit C.

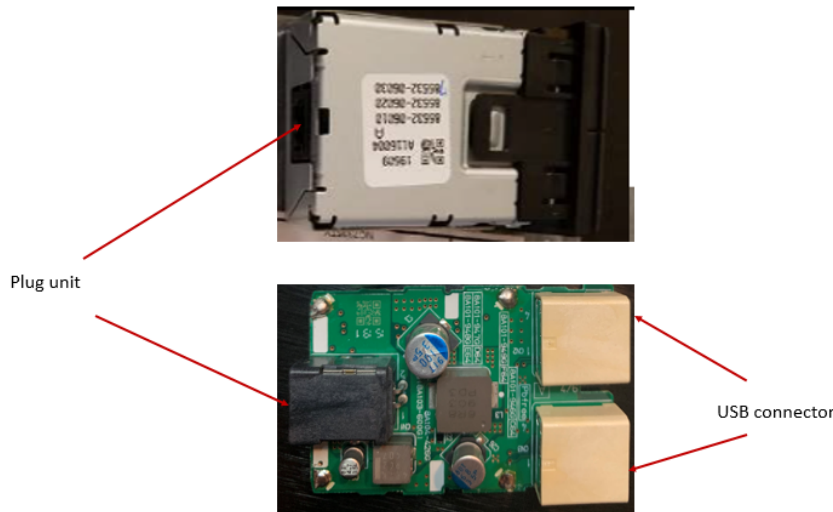
75. The '233 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

76. The '233 Patent has been in full force and effect since its issuance. Fundamental owns by assignment the entire right, title, and interest in and to the '233 Patent, including the exclusive right to seek damages for past, current and future infringement thereof.

77. On information and belief, the Accused Products either are or incorporate USB charging adapters that are able to provide power to a mobile device through a USB charging or media (CDP-type) port, as shown below.

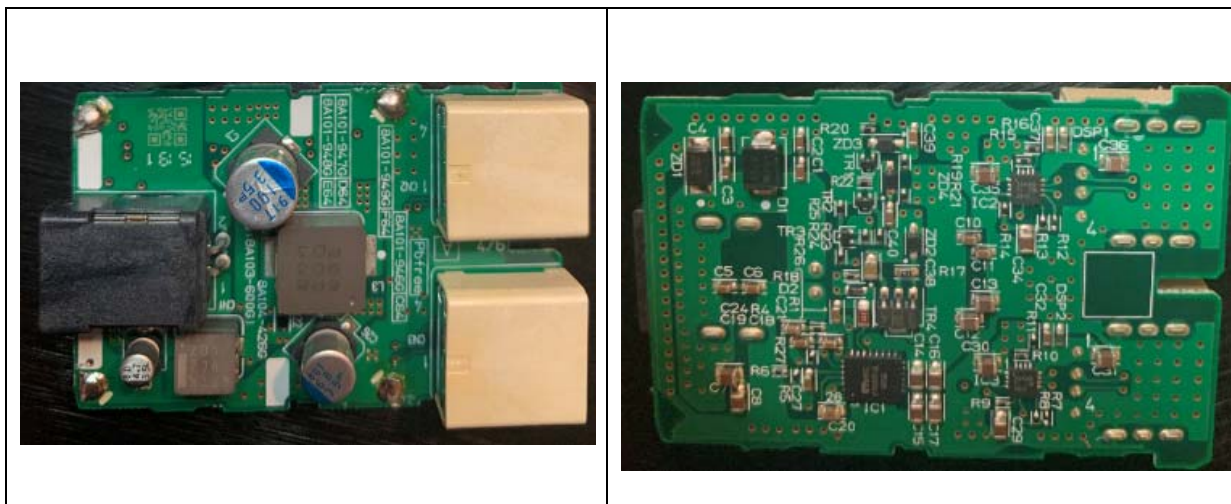


78. Each accused USB charging adapter includes a plug unit that can be coupled to an infringing vehicle's battery power output socket to receive energy from the socket. An example is provided below for illustration.

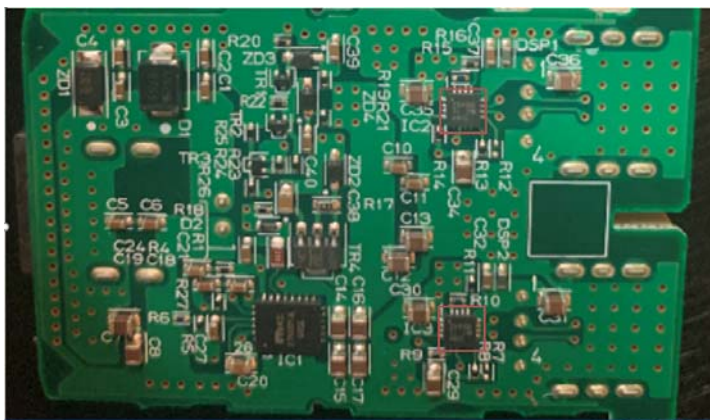


79. Each accused USB charging adapter also includes a power converter that is electrically connected to the plug unit and to at least one USB connector. The power converter can convert a vehicle's DC voltage input at the plug end of the adapter to a 5V DC voltage output at the USB connector for charging a mobile device. The power converter comprises numerous electrical parts on the motherboard, including passive components such as inductors,

diodes, switch mode power switch controllers and voltage regulators, current limiters, power switches, and load detectors, among other things. A representative example is shown below.



80. Each accused USB charging adapter also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. The identification subsystem includes at least a USB charging port controller, such as TPS2546 from Texas Instruments or its equivalents. A USB charging adapter with two or more ports or connectors may include two or more USB charge controllers, one for each port, as illustrated below.



81. On information and belief, when in operation, the identification subsystem provides an identification signal that comprises voltage levels on the D+ and D- lines to a USB

mobile device connected for charging, via the USB connector's D+ and D- pins. For example, on information and belief, infringing USB charging adapters are configured to provide, among others, an identification signal comprised of 2.0V on D+ line and 2.7V on D- line or an identification signal comprised of 2.7V on D+ line and 2.0V on D- line. On information and belief, some infringing USB adapters are also configured to provide an identification signal comprised of 2.7V on each of D+ and D- lines. These voltages indicate to a connected USB mobile device that the USB charging adapter is configured to send substantial energy, e.g., an amount in excess of what is permitted under USB 2.0 Specification, through the USB connector before completing device enumeration, including without USB enumeration.

82. As another example, on information and belief, a CDP-type media port has a plug unit for coupling to the vehicle's electrical system, a power converter for converting an output from the vehicle electrical system to 5V suitable for USB applications, an identification subsystem with D+ and D- lines that support Battery Charging Specifications and support supplying current in excess of that permitted under USB 2.0 Specification before completion of enumeration.

83. When charging, a USB device, such as a smartphone, is connected to a USB connector of the USB adapter via a USB cable. The D+ and D- data lines of the mobile device are connected to the D+ and D- pins of the USB connector to detect identification signals. The identification signals indicate to the mobile device that the USB adapter is not a convention USB hub or host and is configured to provide an amount of energy in excess of that permitted by the USB 2.0 Specification before completing device enumeration (including without USB enumeration). The identification signals provided by Toyota vehicle's USB ports indicate

invalid USB 2.0 states using D+ and D- data lines. The VBUS and ground lines of the mobile device are connected to the VBUS and ground pins of the USB connector to receive power.

84. On information and belief, Defendants infringe at least claim 15 of the '233 Patent. Defendants have been, and currently are, directly infringing the '233 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing into the United States the Accused Products.

85. On information and belief, Defendants have been, and currently are, inducing infringement of the '233 Patent, in violation of 35 U.S.C. § 271(b), by knowingly encouraging or aiding others to make, use, sell, or offer to sell the Accused Products in the United States, or to import the Accused Products into the United States, without license or authority from Fundamental, with knowledge of or willful blindness to the fact that their actions will induce others, including but not limited to their customers, partners, and/or end users, to directly infringe the '233 Patent. Defendants induce others to infringe the '233 Patent by encouraging and facilitating others to perform actions that they know to be acts of infringement of the '233 Patent with specific intent that those performing the acts infringe the '233 Patent.

86. On information and belief, Defendants have been, and currently are, contributorily infringing the '233 Patent, in violation of 35 U.S.C. § 271(c), by selling or offering for sale, in this judicial district and throughout the United States, components that embody a material part of the inventions described in the '233 Patent, are known by Defendants to be especially made or especially adapted for use in infringement of the '233 Patent, and are not staple articles of commerce or commodities suitable for substantial, non-infringing use, including at least the Accused Products. Defendants' actions contribute to the direct infringement of the

Patents-in-Suit by others, including customers of the Accused Products, in violation of 35 U.S.C. § 271(c).

87. As a result of Defendants' infringement of the '233 Patent, Fundamental has been damaged. Fundamental is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount to be determined.

88. In addition, Defendants' infringing acts have caused and are causing immediate and irreparable harm to Fundamental.

89. On information and belief, Defendants have had actual knowledge of their infringement of the '233 Patent since no later than February 2020. On information and belief, Defendants' infringement of the '233 Patent has been and continues to be deliberate and willful, and, therefore, this is an exceptional case warranting an award of treble damages and attorney's fees to Fundamental pursuant to 35 U.S.C. §§ 284–285.

FOURTH CLAIM FOR RELIEF

(Infringement of U.S. Patent No. 8,624,550)

90. Fundamental re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

91. The '550 Patent, titled "Multifunctional Charger System and Method," was duly and legally issued on January 7, 2014. A true and correct copy of the '550 Patent is attached as Exhibit D.

92. The '550 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

93. The '550 Patent has been in full force and effect since its issuance. Fundamental owns by assignment the entire right, title, and interest in and to the '550 Patent, including the exclusive right to seek damages for past, current and future infringement thereof.

94. The Accused Products either are or incorporate charging adapters that include a USB VBUS line and D+/D- lines that are a USB communication path. The charging adapters, when connected to a power source, generate voltages on the D+ and D- lines.

95. The accused charging adapters are each configured to signal to the mobile device, through voltage levels on the D+ and D- considered abnormal under the USB 2.0 Specification, that they can supply current of greater than 500mA, which is without regard to the current limits in at least the USB 2.0 specification. For example, on information and belief, infringing USB charging adapters are configured to provide, among others, an identification signal comprised of 2.0V on D+ line and 2.7V on D- line or an identification signal comprised of 2.7V on D+ line and 2.0V on D- line. On information and belief, some infringing USB adapters are also configured to provide an identification signal comprised of 2.7V on each of D+ and D- lines.

96. In response to the abnormal data conditions, the mobile device draws and the adapter supplies current on the VBUS line of greater than 500 mA. For example, Defendants supply USB charging adapters/ports that provide up to 2.1A, as discussed above, or even more. No enumeration is required in this process.

97. As another example, on information and belief, a CDP-type media port has D+ and D- lines as well as VBUS and ground lines. The media port supports Battery Charging Specifications and, in response to the signal on the D+ and D- lines indicating that the media port is a CDP port, supply more than 100mA of current before completing enumeration (or without enumeration) or more than 500mA of current without regard to the USB 2.0 Specification. The

signal indicating that the media port is a CDP port is regarded as abnormal data condition under USB 2.0 Specification.

98. On information and belief, Defendants infringe at least claims 3–8 and 12–17 of the '550 Patent. Defendants have been, and currently are, directly infringing the '550 Patent in violation of 35 U.S.C. § 271(a) by making, using, selling, offering to sell, and/or importing into the United States the Accused Products.

99. On information and belief, Defendants have been, and currently are, inducing infringement of the '550 Patent, in violation of 35 U.S.C. § 271(b), by knowingly encouraging or aiding others to make, use, sell, or offer to sell the Accused Products in the United States, or to import the Accused Products into the United States, without license or authority from Fundamental, with knowledge of or willful blindness to the fact that their actions will induce others, including but not limited to their customers, partners, and/or end users, to directly infringe the '550 Patent. Defendants induce others to infringe the '550 Patent by encouraging and facilitating others to perform actions that they know to be acts of infringement of the '550 Patent with specific intent that those performing the acts infringe the '550 Patent.

100. On information and belief, Defendants have been, and currently are, contributorily infringing the '550 Patent, in violation of 35 U.S.C. § 271(c), by selling or offering for sale, in this judicial district and throughout the United States, components that embody a material part of the inventions described in the '550 Patent, are known by Defendants to be especially made or especially adapted for use in infringement of the '550 Patent, and are not staple articles of commerce or commodities suitable for substantial, non-infringing use, including at least the Accused Products. Defendants' actions contribute to the direct infringement of the

Patents-in-Suit by others, including customers of the Accused Products, in violation of 35 U.S.C. § 271(c).

101. As a result of Defendants' infringement of the '550 Patent, Fundamental has been damaged. Fundamental is entitled to recover for damages sustained as a result of Defendants' wrongful acts in an amount to be determined.

102. In addition, Defendants' infringing acts have caused and are causing immediate and irreparable harm to Fundamental.

103. On information and belief, Defendants have had actual knowledge of their infringement of the '550 Patent since no later than February 2020. On information and belief, Defendants' infringement of the '550 Patent has been and continues to be deliberate and willful, and, therefore, this is an exceptional case warranting an award of treble damages and attorney's fees to Fundamental pursuant to 35 U.S.C. §§ 284–285.

PRAYER FOR RELIEF

WHEREFORE, Fundamental prays for judgment against Toyota and Denso as follows:

A. That Defendants have infringed, and continue to infringe, each of the Patents-in-Suit;

B. That Defendants pay Fundamental damages adequate to compensate Fundamental for their infringement of the Patents-in-Suit, together with interest and costs under 35 U.S.C. § 284;

C. That Defendants be ordered to pay pre-judgment and post-judgment interest on the damages assessed;

D. That Defendants be ordered to pay supplemental damages to Fundamental, including interest, with an accounting, as needed;

E. That Defendants' infringement is willful and that the damages awarded to Fundamental should be trebled;

F. That this is an exceptional case under 35 U.S.C. § 285 and that Defendants pay Fundamental's attorney's fees and costs in this action;

G. That the Court grant such equitable relief as it deems proper for the acts of infringing the Patents-in-Suit; and

H. That Fundamental be awarded such other and further relief, including other monetary and equitable relief, as this Court deems just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Federal Rule of Civil Procedure 38(b), Fundamental hereby demands a trial by jury on all issues triable by jury.

Respectfully submitted,

/s/ Robert Christopher Bunt

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