

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

FUNDAMENTAL INNOVATION
SYSTEMS INTERNATIONAL LLC,

Plaintiff,

vs.

GENERAL MOTORS COMPANY,
GENERAL MOTORS LLC, APTIV PLC,

Defendants.

Civil Action No. 2:21-cv-282

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 General Motors Company and General Motors LLC (collectively, “GM”) and Defendant Aptiv PLC (“Aptiv”) 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. 1), 7,239,111 (the “’111 Patent” attached as Ex. 2),

7,453,233 (the “’233 Patent” attached as Ex. 3), and 8,624,550 (the “’550 Patent” attached as Ex. 4) (collectively, the “Patents-in-Suit”).

3. On information and belief, Defendant General Motors Company is a corporation organized and existing under the laws of the state of Delaware. On information and belief, General Motors Company may be served with process through its registered agent, Corporation Service Company, 251 Little Falls Drive, Wilmington, DE, 19808. On information and belief, General Motors Company does business itself, or through its subsidiaries, affiliates, and agents, in the State of Texas and the Eastern District of Texas.

4. On information and belief, General Motors LLC is a limited liability company organized and existing under the laws of Delaware. General Motors LLC 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.

5. On information and belief, General Motors LLC is a wholly owned subsidiary of General Motors Company. On information and belief, General Motors Company and General Motors LLC (“GM”) are collectively responsible for manufacturing, marketing, distributing, importing, selling, leasing, offering for sale/lease Buick, Cadillac, Chevrolet and GMC branded vehicles (“GM vehicles”). On information and belief, GM manufactures and assembles GM vehicles, and distributes them through Buick, Cadillac, Chevrolet and GMC dealerships throughout the United States, including in this judicial district. On information and belief, GM also sources parts for GM vehicles and markets, distributes, offers for sale, and sells such parts.

6. On information and belief, GM maintains at least one “facility[y] in the Eastern District of Texas.” Ex. 57. On further information and belief, GM has “employees in the State of Texas and in th[e] [Eastern] District [of Texas].” Ex. 58 at 2. For example, on information

and belief, GM maintains in this judicial district a parts distribution center located at 301 Freedom Drive, Roanoke, Texas 76262.

7. On information and belief, GM also maintains facilities throughout the State of Texas, including an automotive assembly factory in Arlington, Texas, a customer engagement center in Austin, Texas; an IT innovation center also in Austin, Texas, a South Central Regional Office in Irving, Texas, and GM Financial Headquarters in Fort Worth, among others. *See* Ex. 10; Ex. 58 at 2.

8. On information and belief, GM also maintains numerous dealerships in this judicial district, including for example, Gabriel/Jordan Buick GMC located in Kilgore, Texas; Maverick Chevrolet in Marshall, Texas; ORR Cadillac GMC in Longview, Texas; Hall Buick in Tyler, Texas; and Yates Buick GMC in Henderson, Texas. *See* Ex. 5; Ex. 6; Ex. 7; Ex. 8; Ex.9.

9. On information and belief, GM authorizes the dealers to include trademarks associated with the GM vehicles in its store display and on building exteriors. Partial screenshots of Google Maps for the dealerships are shown:



1

<https://www.google.com/maps/place/4801+EAST+END+BLVD.+SOUTH+MARSHALL+TX+75672/@32.5015758,-94.3568379,3a,75y,280.75h,90t/data=!3m4!1e1!3m2!1s-X3iuRl2O9ez9aU9OUHo-w!2e0!4m2!3m1!1s0x8636f7aa20bea7ff:0x471365841a31dc02?sa=X&ved=2ahUKEwjQxbf1v-HxAhVRgp4KHSi8Dg8QxB0wAHoECAsQAq>

2

<https://www.google.com/maps/place/Gabriel%2FJordan+Buick+GMC/@32.3929861,-94.8604416,205m/data=!3m1!1e3!4m5!3m4!1s0x8636311a75ff5c81:0xccc2a4f9decd5c2f!8m2!3d32.3927444!4d-94.8602916>

³ <https://www.google.com/maps/place/400+TX-63+Spur,+Longview,+TX+75601/@32.504611,-94.7492886,3a,25.6y,181.23h,94.63t/data=!3m6!1e1!3m4!1siQhEP7FyReJGM4WgDbzDBQ!2e0!7i13312!8i6656!4m5!3m4!1s0x863638ed55770bb3:0x28d43bc7103865fc!8m2!3d32.5044403!4d-94.7485731>

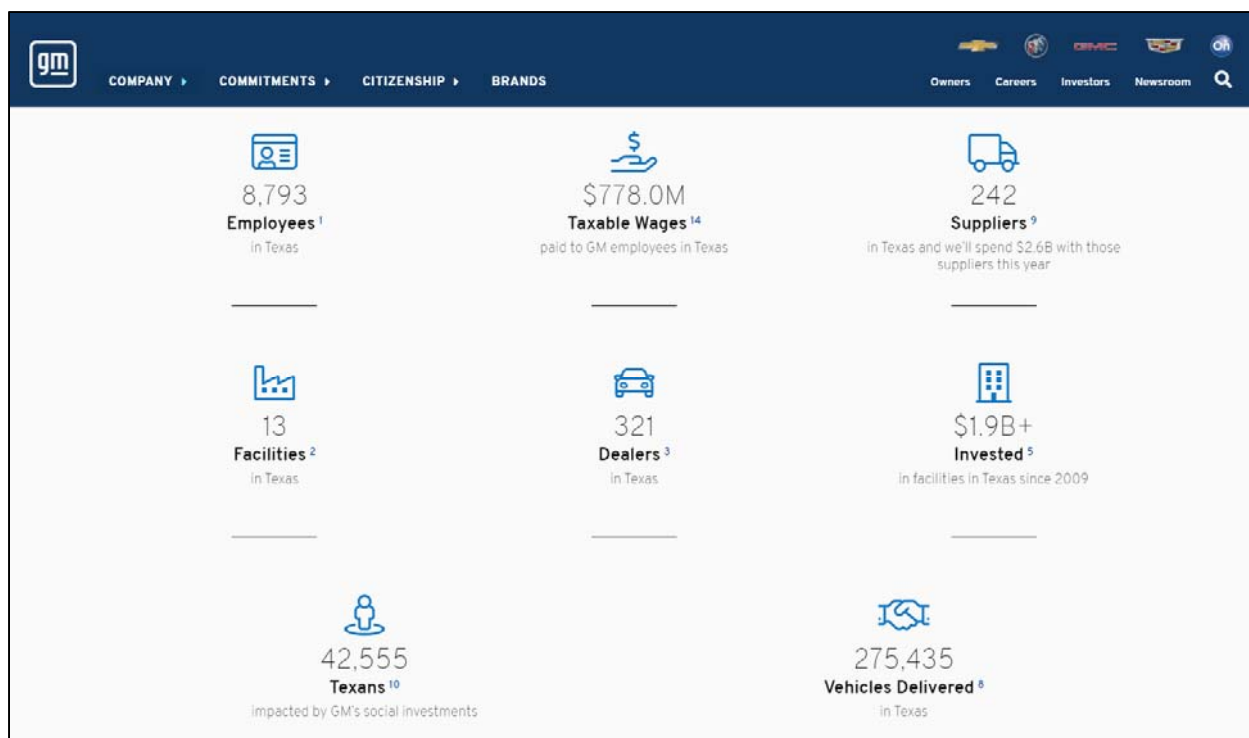
⁴ https://www.google.com/maps/place/215+US-79,+Henderson,+TX+75654/@32.1499389,-94.7865685,3a,17.4y,140.58h,92.51t/data=!3m7!1e1!3m5!1szyvw1CU7Fv09j--f8OlaFg!2e0!6shttps:%2F%2Fstreetviewpixels-pa.googleapis.com%2Fv1%2Fthumbnail%3Fpanoid%3Dzyvw1CU7Fv09j--f8OlaFg%26cb_client%3Dmaps_sv.tactile.gps%26w%3D203%26h%3D100%26yaw%3D116.42217%26pitch%3D0%26thumbfov%3D100!7i13312!8i6656!4m5!3m4!1s0x8637c914f51737c5:0x290b9c0423a464a5!8m2!3d32.1497123!4d-94.7862313



10. On information and belief, GM and the dealers function as one for the purpose of selling, leasing and servicing GM vehicles. For example, on information and belief, GM sells, offers for sale or otherwise distributes through the dealerships products at issue in this complaint (such as vehicles with charging capability through USB charger ports and/or media ports that can supply more than the amounts of current permitted under the USB 2.0 specification and parts enabling such charging functionality). GM directs the interested consumers to authorized dealers to purchase cars. On GM's web site describing its presence in Texas, Ex. 10, GM specifically lists the 321 dealers in Texas in addition to 13 GM-operated facilities. On information and belief, GM regards its dealers as maintaining the primary sales and service interface with the end consumer of its products.

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https://www.google.com/maps/uv?pb=!1s0x86363892aa73ddf9%3A0x64cda9f30e630a72!3m1!7e115!4shttps%3A%2F%2Flh5.googleusercontent.com%2Fp%2FAF1QipPlxjaYu_Mkhiz8TD3kZfvJ732p9iWr0Hxup2eB%3Dw251-h176-k-no!5sorr%20cadillac%20gmc%20-%20Google%20Search!15sCgIgaQ&imagekey=!1e10!2sAF1QipOb2r5VqQSOFSwpcNz3W_o wY_qh-2V3T0ZtSLFd&hl=en&sa=X&ved=2ahUKEwjdn2CweHxAhVzMX0KHRRqBpsQoiowEnoE CFwQAw



11. On information and belief, a dealer must be authorized by GM before it can sell or service GM vehicles. For example, on information and belief, GM enters into a contract with each authorized dealer agreeing to sell to the dealer one or more specified product lines at wholesale prices and granting the dealer the right to sell those vehicles to retail customers from an approved location. On information and belief, GM's dealers, including the ones located in this judicial district, have to comply with GM's requirements on location, space, appearance, layout and equipment.

12. On information and belief, GM's authorized dealers offer parts, accessories, service and repairs for GM vehicles in the product lines that they sell using GM parts and accessories. On information and belief, the authorized dealers are authorized to service GM vehicles under GM's limited warranty program, and those repairs are made only with GM parts. On further information and belief, GM's dealers generally provide GM's customers with access to credit or lease financing, vehicle insurance and extended service contracts provided by *e.g.*,

GM Financial. On further information and belief, through these authorized sales and services, GM's authorized dealerships, including those located in this judicial district, distribute infringing vehicles and parts, perform infringing services through their wide range of sales and service activities, such as maintenance, vehicle accessories, repairs, and replacement by GM certified technicians.

13. On information and belief, GM provides warranties upon sales of new vehicles that warrant to the original and each subsequent owner of new GM vehicles that GM will make any repairs or replacements necessary to correct defects in material or workmanship arising during the warranty period with the dealer acting as the agent; and these dealerships, including those in this District, perform new car warranty service paid for by GM, directed and controlled by GM, and on GM's behalf. On information and belief, these warranty services are performed by technicians certified by GM. On further information and belief, these technicians have also participated in GM-sponsored training programs or events. These technicians when performing warranty repairs act as agents or employees of GM.

14. On information and belief, GM regularly, continuously and systematically provides support and control over its dealers, including those located in this judicial district. Upon further information and belief, GM requires certain of its employees to work with and at its dealership locations, including at the locations in this District. For example, on information and belief, GM employees travel to the dealerships located in this District to ensure compliance with GM dealers standards, ensure that advertising is consistent with GM corporate message and branding guidelines, train dealership personnel on new products, assist dealers with problem solving, diagnose technical concerns, provide on-site assistance, assist dealers with sales, marketing, business development, and business planning, ensure dealer orders meet market

demand, manage monthly vehicle allocation, review and analyze dealer financial statements, and consult with dealers to improve their operations and retail business.

15. On information and belief, Defendant Aptiv PLC is registered public company organized and existing under the laws of the Bailiwick of Jersey with a principal place of business at 5 Hanover Quay, Grand Canal Dock, Dublin D02 VY79 Ireland. On information and belief, Aptiv was formerly Delphi Automotive plc. On information and belief, Aptiv has operations in El Paso, Texas. On information and belief, Aptiv regularly, continuously and systematically transacts business in the State of Texas, such as, making, selling, leasing or offering to sell/lease to businesses and consumers located in the State of Texas, including in this judicial district, parts, modules, and systems that enable charging of a mobile device through USB ports installed in vehicles. On information and belief, businesses to which Aptiv's parts, modules and systems are sold, offered for sale, or distributed include, but are not limited to, GM's assembly factory in Arlington, Texas, GM's parts distribution center in Roanoke, Texas located in this judicial district, and GM's dealers in the State of Texas, including the dealers in this judicial district.

JURISDICTION AND VENUE

16. 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).

17. Defendants GM 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 Arlington assembly plant, Fort Worth Parts Distribution Center and GM Financial

Headquarters. For example, Defendants GM have regular, systematic and continuous contacts in this District through their continuous and systematic business. Such continuous and systematic business includes manufacturing, selling, leasing, offering to sell, and/or otherwise distributing infringing vehicles and parts and providing services to businesses and residents of the State of Texas (including those in this District) that Defendants GM knew or should have known would be used within this District.

18. For example, on information and belief, Defendants GM operate in the State of Texas from several regular and established places of business, including the Arlington assembly factory at 2525 E. Abram Street, Arlington, Texas 76010; the Fort Worth Parts Distribution Center, at 301 Freedom Drive, Roanoke, Texas 76262 (in this judicial district); and GM Financial Headquarters at 801 Cherry Street, Fort Worth, Texas 76102. *See Exs. 57, 58.*

19. On information and belief, GM's Arlington factory employs 5278 hourly workers and 399 salaried employees. *Ex. 11 at 1.* The vehicles built at the site include GMC Yukon and Yukon XL, Cadillac Escalade and Escalade ESV, Chevrolet Tahoe and Chevrolet Suburban. *Id.* at 2. On information and belief, each of these models includes USB ports that comply with Battery Charging Specification and act as CDP-type ports and optionally USB charging ports. *See Ex. 12 at 3, Ex. 13 at 7, 10; Ex. 14 at 3, 13; Ex. 15 at 24* (standard equipment includes two USB ports on center stack, two in center console, two in second row on rear of center console and two in third row). On information and belief, the vehicles manufactured at GM's Arlington Assembly Plant are distributed to businesses and consumers located in the State of Texas, including to those located in this judicial district. Defendants GM derive financial benefits from their manufacturing activity at the Arlington Assembly plant of infringing articles containing USB ports that practice one or more claims of the asserted patents.

20. On information and belief, GM's Fort Worth Parts Distribution Center at 301 Freedom Drive in Roanoke, Texas 76262 is located within the Eastern District of Texas and is a customer care and aftersales facility that is designed to provide "[e]xceptional customer service through industry leading performance in Supply Chain, Logistics, Warehousing and Distribution." *See Ex. 16.* On information and belief, the Fort Worth Parts Distribution Center distributes GM parts, including USB ports sourced from GM's suppliers, to consumers and businesses located throughout the State of Texas, including in this judicial district. Defendants GM derive financial benefits from their sales at Fort Worth Parts Distribution Center of parts, modules, or systems containing USB ports that practice one or more claims of the asserted patents.

21. On information and belief, GM Financial Headquarters in Fort Worth is a wholly owned captive finance subsidiary of General Motors Company and works with auto dealers, including those located in the State of Texas and in this District, to provide retail financing and lease programs. On information and belief, GM Financial Headquarters also offers commercial lending programs to dealers to help them finance and grow their businesses, thereby facilitating the dealers' sales and services of GM vehicles and parts containing USB ports that practice one or more claims of the asserted patents. Defendants GM benefit financially from GM Financial Headquarters' activity in the State of Texas which is at least partly responsible for financing the distribution and service of GM vehicles and parts containing USB ports that practice one or more claims of the asserted patents in the State of Texas and in this District.

22. On further information and belief, Defendants GM have systemic, regular, and continuous contact with the State of Texas, including this judicial district, by functioning as one for the purpose of sales and service with its dealers located in the State Texas, including the ones

located in this judicial district. These dealers bear GM's business names or logos. Defendants GM benefit financially from the sales and services by the dealers of GM vehicles and parts containing USB ports that practice one or more claims of the asserted patents, including those in this District.

23. Defendants GM 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) in an attempt to derive financial benefit from residents of this District, including, for example, via advertisements or marketing targeting residents of this District and the rest of the State of Texas. The benefit that Defendants GM derive from their business transactions includes those directly related to sales and service of GM vehicles and parts containing USB ports that practice one or more claims of the asserted patents.

24. On information and belief, Defendants GM 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 set forth herein 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 GM have purposefully and voluntarily placed products equipped with or comprising infringing USB ports (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 ports, original or replacement parts, modules or systems having infringing USB ports. The Accused Products have been and continue to be made in, distributed to and used in this District. Defendants GM also have been and continue to

operate the Accused Products in an infringing manner, including when they assemble the infringing vehicles at their Arlington Assembly plant and when they operate, service or repair the Accused Products for USB charging in an infringing manner.

25. Defendants GM's acts cause and have caused injury to Fundamental, including within this District. On further information and belief, Defendants GM have purposefully directed activities at citizens of the State of Texas including those located within this District, including advertising, promoting, selling, leasing, offering to sell or lease, and servicing Accused Products that infringe one or more claims of the Patents-in-Suit or performing one or more activities using GM-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 Defendant GM's business contacts and other activities in the State of Texas.

26. On information and belief, Defendants GM have availed themselves of the privilege of 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 their agents and/or representatives in this judicial 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.

27. This Court has personal jurisdiction over Defendant Aptiv, in part because it transacts continuous and systematic business and has substantial, systematic and continuous contacts in this State, including in this judicial district. Such contacts include supplying parts, modules, or systems with infringing USB ports that practice one or more claims of the asserted patents, including to dealers located in this district and to GM's parts distribution center located

at 301 Freedom Drive in Roanoke, Texas 76262 within this judicial district. On information and belief, Aptiv also supplied and continues to supply at least some of the USB ports used in vehicles assembled at GM's Arlington Assembly plant with knowledge that at least some of those parts would be shipped to or used in this District and that vehicles containing such USB ports would be distributed within the State of Texas, including in this District.

28. Defendant Aptiv is also subject to the personal jurisdiction of this Court because, on information and belief, it directly and/or through agents regularly, solicits and transacts business in the Eastern District of Texas (and elsewhere in the State of Texas) in an attempt to derive financial benefit from residents of this District and State including from Defendants GM. On information and belief, such solicitations and transactions include, but are not limited to, sales, offers for sale, repairs, services, distributions, advertisements, and/or marketing targeting residents of this District and the rest of the State of Texas. The benefit that Defendant Aptiv derives from its business transactions includes those directly related to the infringement of the Patents-in-Suit as set forth herein.

29. Aptiv is also subject to the personal jurisdiction of this Court because it has a regular and established place of business in El Paso, Texas. *See* Ex. 17; *see also* screen shot below. The court may exercise personal jurisdiction under Texas's long-arm statute.

The screenshot shows the Aptiv website's job listing page. At the top, the Aptiv logo is on the left, and navigation links for 'ABOUT', 'SOLUTIONS', 'CAREERS', 'INSIGHTS', 'INVESTORS', 'NEWSROOM', 'EN', and 'SAVED JOBS' are on the right. Below the navigation is a horizontal menu with tabs for 'OVERVIEW', 'DESCRIPTION', 'TEAM', 'CULTURE', 'LOCATION', and 'SOLUTIONS'. The main content area features the job title 'Operational Excellence/Continuous Improvement Leader' in large text. To the right of the title are links for 'Save job' (with a heart icon) and 'Share job' (with a share icon), and a prominent 'APPLY NOW' button with a right-pointing arrow. Below the title, the location is listed as 'CIUDAD JUÁREZ, CHIHUAHUA, MEXICO; EL PASO, TEXAS, UNITED STATES' and the 'JOB ID' is 'J000610143'. A small black square with a white plus sign is visible on the right side of the job listing area. Below the job listing, the 'Overview' section begins with a paragraph: 'At Aptiv, we know that the only clear path forward for the software-defined vehicles of the future is through smarter, more flexible factories, supported by a more dynamic logistics network. Join our Manufacturing team and help us drive lean and continuous improvement practices.'

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

31. On further information and belief, Defendant Aptiv has purposefully directed activities at citizens of the State of Texas including those located within this District, including

advertising, promoting, selling, leasing, 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 Defendant Aptiv's business contacts and other activities in the State of Texas.

32. On information and belief, Defendant Aptiv has availed itself of the privilege of 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 Defendant Aptiv'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.

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

34. Venue is proper in this District under the provisions of 28 U.S.C. §§ 1391 and 1400(b). For example, venue is proper in this District against Aptiv because venue in a patent infringement action against a foreign defendant is proper in any judicial district. *Brunette Mach. Works, Ltd. v. Kochum Indus., Inc.*, 406 U.S. 706, 711–714 (1972) (cited by *TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 137 S. Ct. 1514, 1520 n.2 (2017)); see also *In re HTC Corp.*, 889 F.3d 1349, 1354 (Fed. Cir. 2018) (citing *Brunette Mach. Works*, 406 U.S. at 711). Aptiv is has also regularly conducted business in this district and is subject to personal jurisdiction in this

judicial district; and certain of the acts complained of herein occurred in this judicial district. As another example, venue is proper for Defendants GM because they have committed acts of infringement in this District and maintain regular and established places of business located in this District.

FACTUAL ALLEGATIONS

The Patents-in-Suit

35. The Patents-in-Suit relate to, among other things, novel techniques for using Universal Serial Bus (“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.

36. 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.

37. 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

38. On information and belief, Defendants 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 ports for both data and charging that can provide more than 500mA of current (*e.g.*, charging downstream ports (“CDP”)) and/or USB ports for only charging, as well as original or replacement parts, modules, or systems that are or include such USB ports for both data and charging (“USB media ports”) or USB ports for charging only (“USB charge ports”).

39. On information and belief, GMC vehicles starting from at least model year 2019 each have at least one infringing USB port. For example, on information and belief, the front center console of a GMC vehicle has one or two USB media ports that can supply more than 500 mA of current (*e.g.*, up to 1.5A) without or before completion of enumeration. As another example, GMC vehicles may also have USB ports located inside storage compartments behind touch screens of infotainment systems. As yet another example, on information and beliefs, if a GMC vehicle has a rear-seat entertainment system, then USB ports on the rear of the center console are also USB media ports that can supply more than 500 mA of current (*e.g.*, up to 1.5A) without or before completion of enumeration. Otherwise, USB ports on the rear of center console would be for charging only and can supply more than 500 mA of current (*e.g.*, up to 1.5A) without or before completion of enumeration. On information and belief, certain models USB ports may also exist in other locations of the vehicle such as USB media ports on the center stack in some model or on either side of the vehicle in the trim panels near a third row in large vehicles. *See, e.g.*, Ex. 18 at 8, 10 (“USB ports are located in the console front storage bin and inside the console”); Ex. 19 at 3, 10 (noting the existence of “USB data port located at the front of the center console or inside the center console storage compartment” and “[t]he USB ports on

the rear of the center console are for charging only”); Ex. 20 at 3; Ex. 21 at 3, 15; Ex.22 at 3; Ex. 23 at 3; Ex. 24 at 3; Ex. 13 at 7, 10; Ex. 25 at 3, 10; Ex. 26 at 3; Ex. 14 at 3, 13; Ex. 27 at 3, 11; Ex. 28 at 3, 9; Ex. 12 at 3; Ex. 29 at 3; Ex. 30 at 21 (PDF 23); Ex. 31 at 18 (PDF at 20); Ex. 15 at PDF 25 (standard equipment includes two USB ports on center stack, two in center console, two in second row on rear of center console and two in third row); Ex. 32 (listing USB ports locations for Chevrolet vehicles); Ex. 33 (same).

40. Examples of GM high-volume models with infringing USB ports include, but are not limited to, Chevrolet Silverado and Silverado HD, Chevrolet Equinox, Chevrolet Traverse, Chevrolet Trax, Chevrolet Tahoe, Chevrolet Suburban, GMC Sierra and Sierra HD, GMC Terrain, GMC Yukon and Yukon XL, and Cadillac Escalade and Escalade ESV, for at least model years 2019 and thereafter. *Id.*

41. 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 USB media ports or USB charge ports, such as 13529873, 13529869, 13524653, 13525889, 13598459, 13519224, 13529862, 13529865, 13509945, 13539082, and any other parts, modules or systems with similar functionality.

42. On information and belief, Defendant Aptiv supplies at least some of the infringing USB ports and components to Defendants GM (in addition to other automakers). On information and belief, Defendant Aptiv makes, uses, sells, offers for sale, distributes and/or imports into the United States auto parts that are or include USB charge ports and/or USB media ports, which infringe one or more claims of the Patents-in-Suit. Aptiv’s making, using, selling, leasing, offering to sell/lease, distributing, and importing of the accused parts into the United States constitute infringement under 35 U.S.C. §§ 271(a)–(c).

43. The Accused Products are or incorporate USB charging adapters having USB ports 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 the USB Battery Charging Specification. *See* Ex. 31 at 18 (PDF 20) (“The vehicle may be equipped with two USB ports in the center console and another two on the center stack. These ports are for data and charging.”); Ex. 30 [Chevrolet information guide] at 21 (PDF 23) (same); Ex. 32 (noting USB ports on the second row may be for both data and charging or for charging only depending on whether rear-seat entertainment is supported); Ex. 33 (same); Ex. 34 (same); Ex. 35 (same).

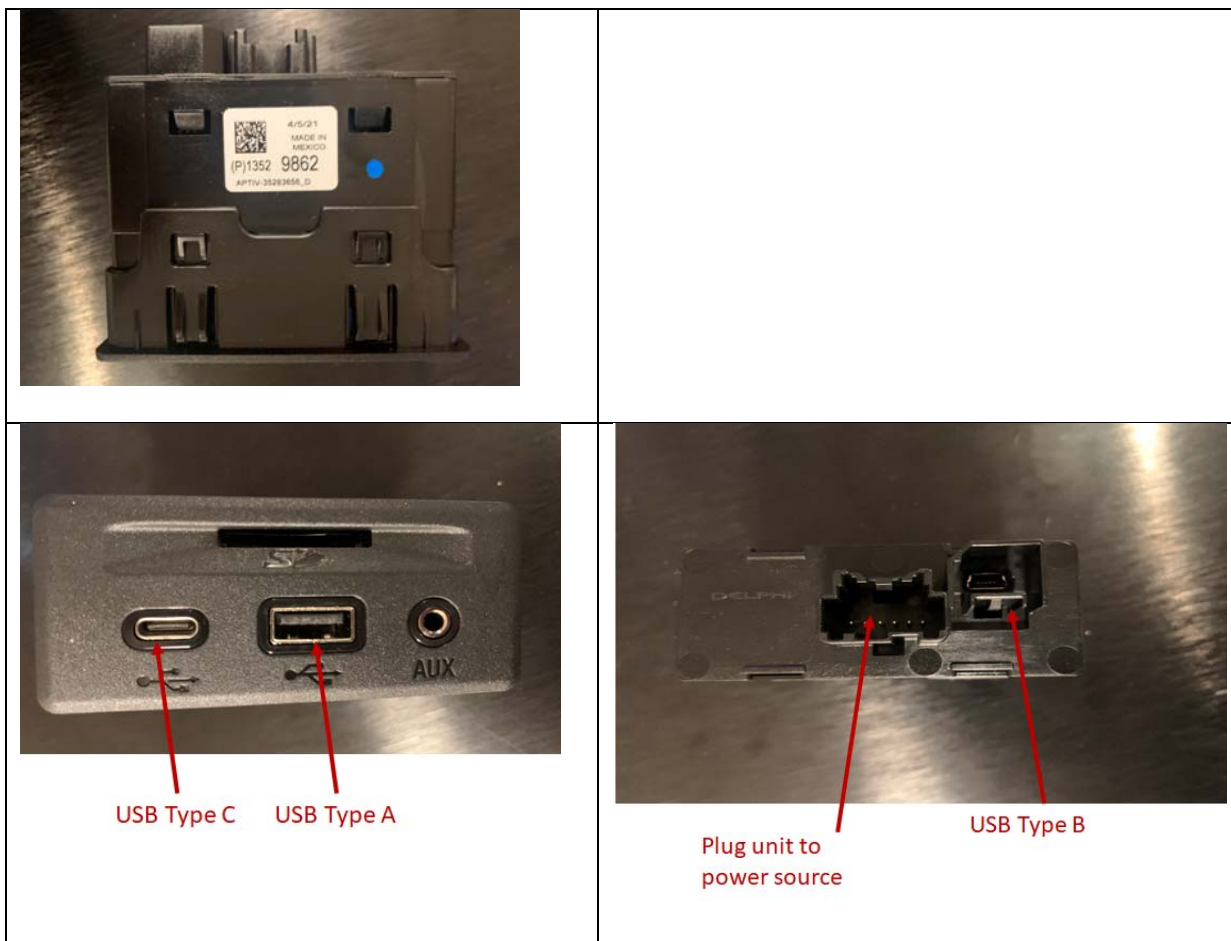
44. As another example, certain accused vehicles also each include one or more USB charge ports designed for USB charging only and not for data transfer or media play. *See, e.g.,* *See* Ex. 31 at 18 (PDF 20) (In addition to USB media port, “[t]here may also be two USB ports for charging only at the rear of the center console.”); Ex. 30 at 21 (PDF 23) (same); Ex. 32 (USB ports on the rear of the center console may be for charging only, and there may also be USB charging ports on either side of the vehicle in the trim panels near the third row); Ex. 33 (same); Ex. 34 (same); Ex. 35 (same); Ex. 36 at PDF 20 (all Equinox models include rear seat “charge-only USB ports”); Ex. 37 at PDF 13 (most Traverse models include hidden storage behind touch screen including a USB port “for charging”); Ex. 38 at PDF 9 (up to six USB ports are available and the rear ports are visibly marked as charging ports); Ex. 39 at PDF 42 (several models include “charge-only USB ports” in the second row); Ex. 40 at PDF 45 (same); Ex. 41 at PDF 21 (same).

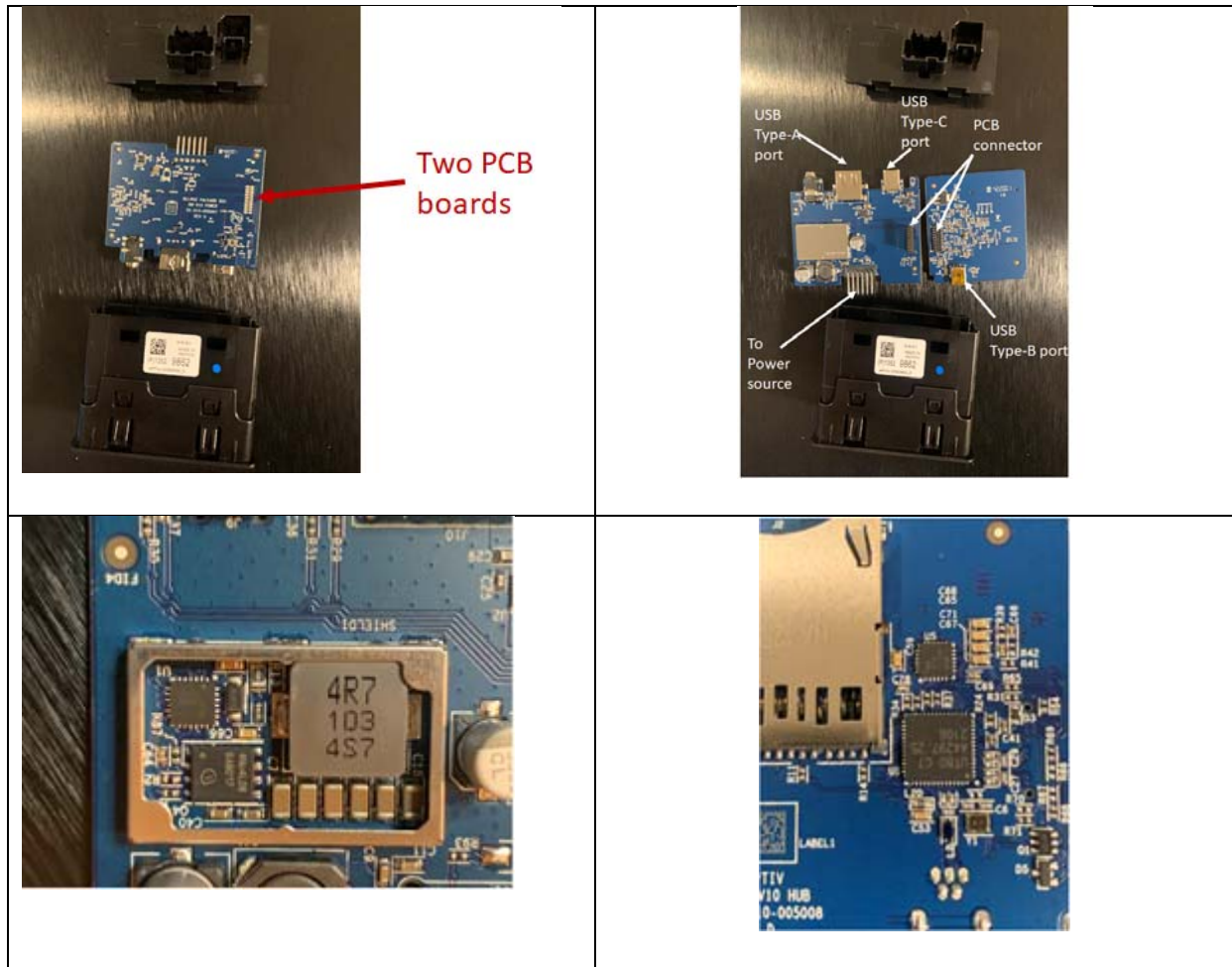
45. As another example, GM's support websites each include this answer to the frequently asked question, "Can I play back music using the rear seat USB port": "It depends. If your vehicle has RSE [rear seat entertainment], then that USB port supports the RSE system and can be used to play audio, video and pictures. These ports can also be used for charging. They charge at up to 1.5 amps for the first device connected and up to 0.5 amps for the second device. Even if there is no RSE system there may be USB ports there. These are for charging only and can charge at 2.1 amps for standard USB ports and 3.0 amps for USB-C ports." See Ex. 32; Ex. 33 (same); Ex. 34 (same); Ex. 35 (same).

46. Parts having USB ports (each part, a USB charging adapter) incorporated into GM 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 device may draw an amount of current in excess of that allowed 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.

47. On information and belief, infringing USB charging adapters containing USB media ports in the accused GM vehicles are capable of supplying more than 500mA of current, for example, up to 1.5A to a first connected device, in response to abnormal data conditions on D+ or D- lines, without relying on enumeration. For instance, on information and belief, USB charging adapters containing USB media ports in GM vehicles can supply more than 100 mA or even more than 500 mA without enumeration, before start of enumeration or before completion of enumeration.

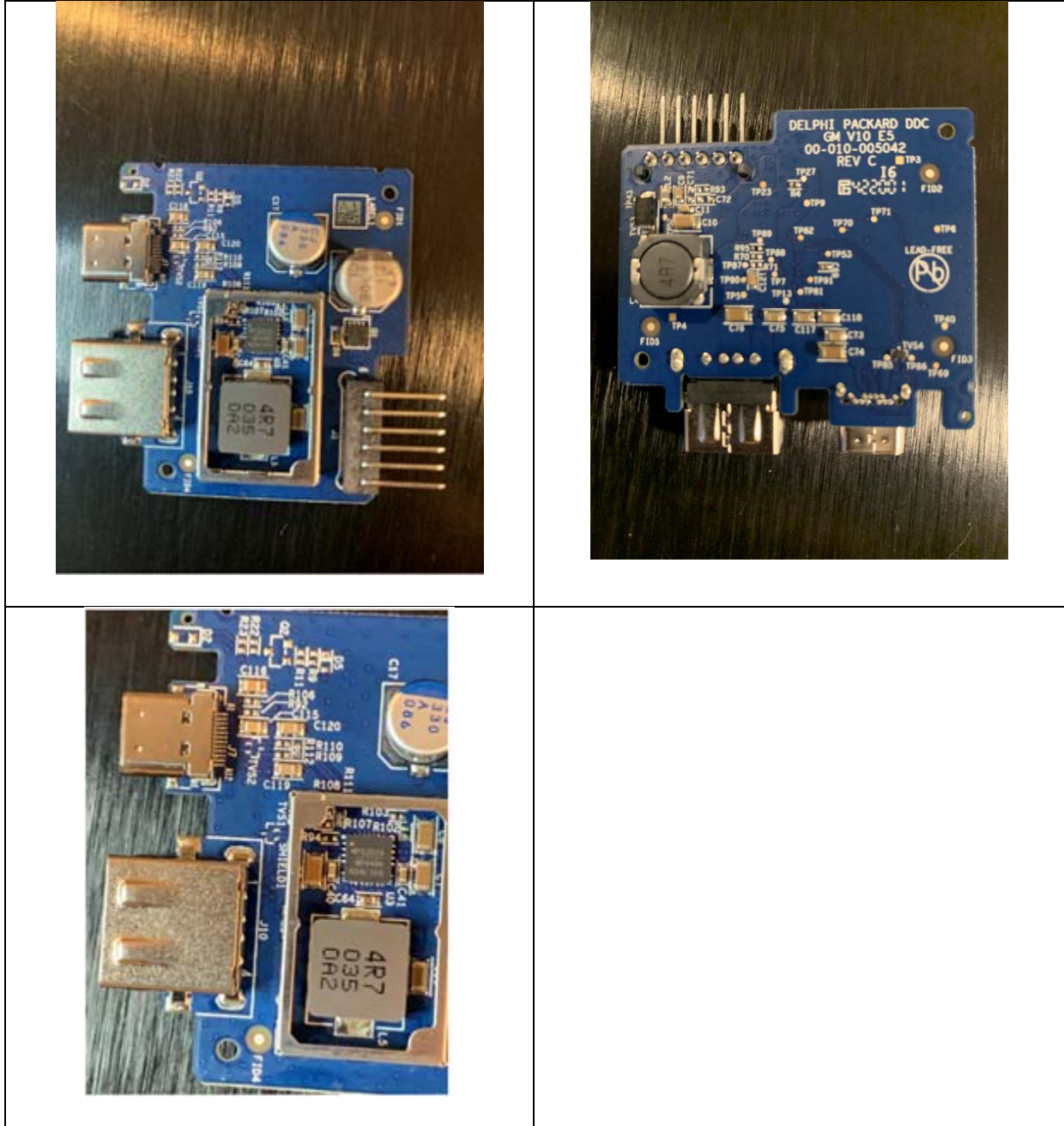




48. On information and belief, the above part, 13529862, is used in Chevrolet Silverado and GMC Sierra, among others.

49. On information and belief, infringing USB charging adapters having USB charge ports in the accused GM 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 enumeration. An example of an infringing USB charging adapter with two USB ports is shown below.





50. On information and belief, the above part, 13525889, is used in Chevrolet Silverado and GMC Sierra, among others.

51. On information and belief, GM recognize the importance of USB media ports and USB charging ports to its customers and promote the feature. For example, a 2013 blog on www.car.com noted that “With USB ports now commonplace in new cars, trucks and SUVs, it

didn't take long for engineers to realize more is better." Ex. 42 at 2. The blog called out 2014 GMC Sierra SLT 1500 and Chevrolet Silverado LTZ 1500 in particular, noting both were packed with USB ports (5). *Id.* The author of the blog observed that, according to a Chevrolet representative, all five USB ports could "read devices as well as charge them." *Id.* The author found that fact noteworthy, remarking "[o]ften extra USB ports are merely charging docks and aren't capable of reading a device for music." *Id.* GM continues to provide multiple USB media ports for data and charging even as wireless charging has become more popular. Each of GM's quick reference guide calls out USB ports. *E.g.*, Ex. 18 at 8, 10; Ex. 19 at 3; Ex. 20 at 3; Ex. 21 at 3, 15; Ex. 22 at 3; Ex. 23 at 3; Ex. 24 at 3; Ex. 13 at 7, 10; Ex. 25 at 3; Ex. 26 at 3; Ex. 14 at 3, 13; Ex. 27 at 3, 11; Ex. 28 at 3, 9; Ex. 12 at 3; Ex. 29 at 3.

52. As another example, Buick, Cadillac, Chevrolet and GMC all have identical support page for "Media and USB Ports" that explains "the different types of ports in [a GM] vehicle and what they can do." Exs. 43–46. The first example of use listed on this support page is "Charging," and states: "Plugging into the USB ports lets you charge your device while on the go" *Id.*

53. As another example, a GM dealer's web site on 2021 Chevrolet Malibu notes the "top-level Premier comes packed with upgrades like AC and DC power outlets, and 2 *USB ports.*" Ex. 47 at PDF 2 (emphasis added). Another dealer site touts "Surprising Distinctions that Set New Chevy Models Ahead of the Pack." Ex. 48. One of the features mentioned is the presence of "two USB ports so that you never have to worry about not being able to charge your phone. Even if everyone is in the car together." *Id.* at PDF 4.

54. As another example, GM’s brochure on Terrain advertises the availability of “up to six USB ports.” It also includes a close up of a pair of USB ports that are marked as charging ports—i.e., with a battery and lightning bolt. *See* Ex. 38 at PDF 9.



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

55. On or around October 31, 2019, Fundamental provided Defendant GM with a specific notice that its vehicles with USB charge ports, including but not limited to Chevrolet Silverado, infringe one or more of the claims of the ‘111, ‘233 and ‘550 patents. *See* Ex. 49. These patents claim priority to and reference the ‘936 patent. Fundamental assured GM that its “intention is to allow GM to continue its use of these patents through a license from Fundamental.” *Id.* at PDF 3. Fundamental also sought a meeting with GM to discuss the patents and license terms. *Id.* GM acknowledged the receipt of the letter on November 19, 2019. Ex. 50.

56. On January 7, 2020, GM declined the license offer on the ground that “it is unclear how the USB charging ports of the Chevrolet Silverado allegedly infringe any of [Fundamental’s] patents.” Ex. 51.

57. In response, on January 20, 2020, Fundamental provided GM with four claim charts mapping structure and operation of Chevrolet Silverado’s USB ports to one or more

claims of each of the four patents-in-suit. Ex. 52. Thus, by no later than January 20, 2020, GM had notice of infringement of the patents-in-suit.

58. After several follow-up emails from Fundamental, on July 30, 2020, GM wrote and referred Fundamental to its part supplier, Aptiv PLC. Ex. 53. The letter specifically requests that Fundamental direct all its future communications regarding licensing of USB charging ports to Aptiv PLC. *Id.*

59. Fundamental promptly contacted Aptiv PLC as requested by GM. Aptiv observed:

We did not discuss or reach agreement with GM about how this should be handled. They unilaterally sent the letter you received. Not surprisingly, we generally believe that these issues are more nuanced than our customers do in terms of whether or when we have an obligation to intervene. Ex. 54 at PDF 2.

60. After an initial call at which Fundamental provided a presentation on its licensing program as requested by Aptiv, little happened for months while Aptiv conducted its internal investigation. Ex. 55.

61. Aptiv then informed Fundamental in December 18, 2020 that it “will be informing several of [its] suppliers in January 2021 of [Fundamental’s] claim(s).” Ex. 56. Throughout 2021, Fundamental has continued to engage Aptiv in licensing negotiation, but little progress has been made. As a result, Fundamental is forced to bring this suit to vindicate its rights.

62. Throughout the nearly two years of negotiation with GM and Aptiv, neither GM nor Aptiv has provided Fundamental with any basis for believing that they do not infringe the Patents-in-Suit.

63. 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, leasing, offering to sell/lease, distributing, and importing of the Accused Products into the United States constitute direct infringement under 35 U.S.C. § 271(a). On information and belief, Defendant GM also directly infringes one or more method claims of the Patents-in-Suit by testing, repairing, servicing or using the Accused Products in the United States.

64. 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 its instructions and inducement, in violation of 35 U.S.C. § 271(b).

65. 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, provide literature featuring USB charging ports to customers, dealers and partners, and advise 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 GM vehicle that uses the USB port for charging in accordance with the instructions provided by GM directly infringes one or more claims of the Patents-in-Suit as a result of the active inducement by GM. GM provides instructions through, for example, user manuals, support pages on its web site, and brochures, among other things. As another example, a purchaser of an infringing USB adapter from GM or Aptiv 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 GM or Aptiv.

66. 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

67. 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/leasing of the same accused products or processes and (b) questions of fact common to all Defendants will arise in the action. For example, Aptiv and GM jointly design and implement the Accused Products.

FIRST CLAIM FOR RELIEF

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

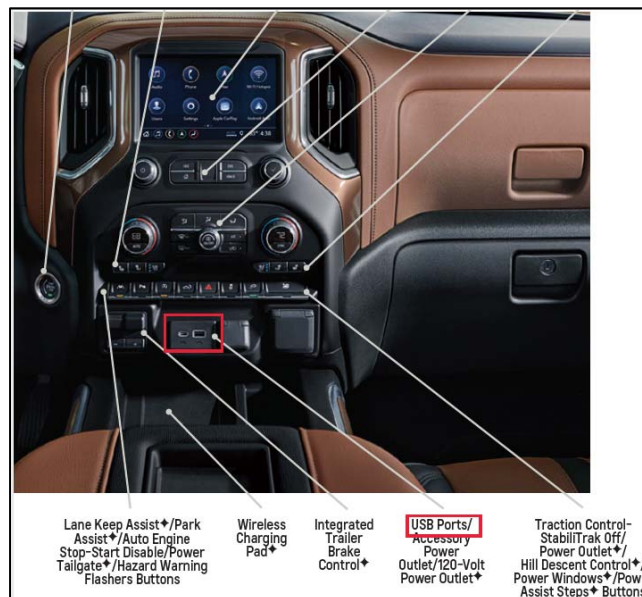
68. Fundamental re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

69. 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 1.

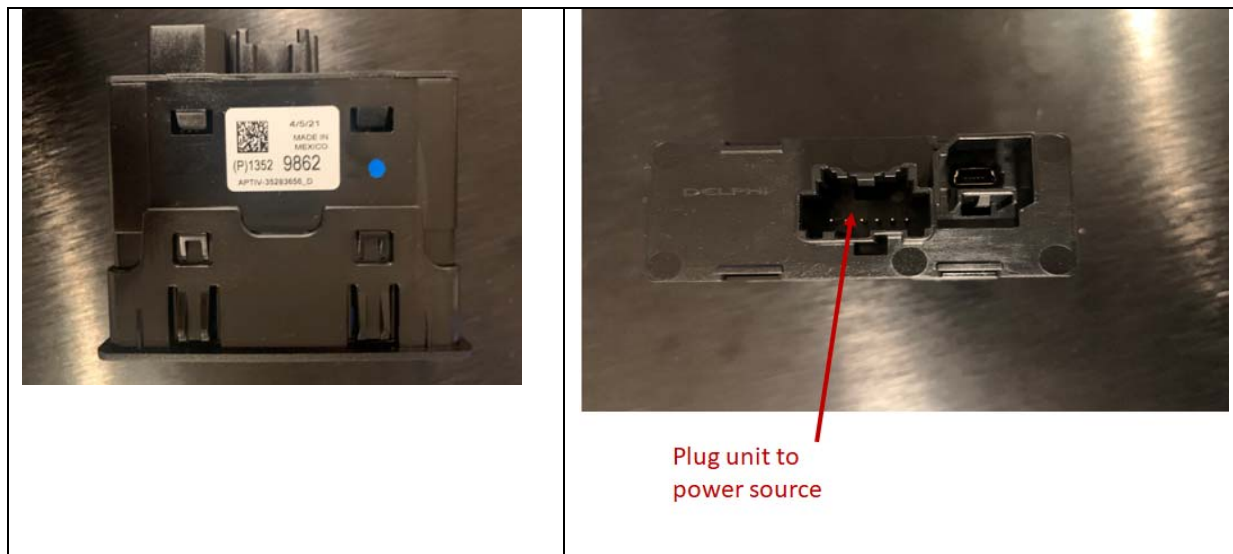
70. The '936 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

71. 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.

72. 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 port. On information and belief, each accused GM vehicle has at least a USB charging adapter with a USB media port that can supply up to 1.5A of current. An example is shown below. *See* Ex. 26 at 3. On information and belief, other GM vehicles' USB media ports on central console are the same in material parts.



73. On information and belief, each USB charging adapter with a USB media port 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.

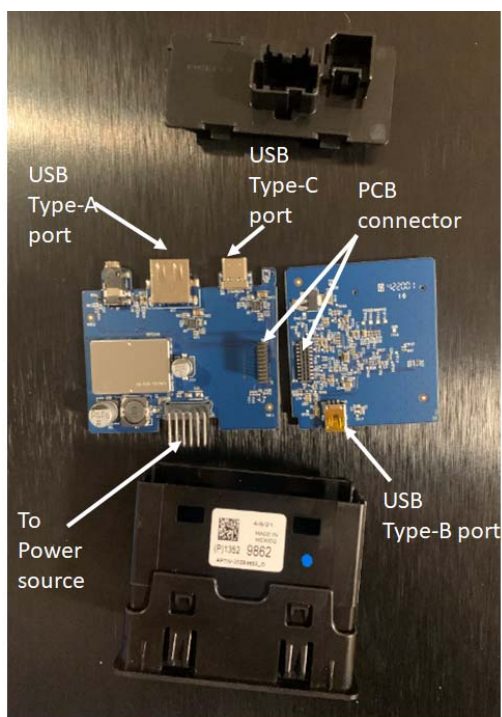


74. On information and belief, each USB charging adapter with a USB media port has one or more USB connector for connecting to a USB mobile device, as illustrated below. When coupled to a USB device, such as a handset, the device can be charged by drawing power from the USB connector. A power requirement is thus delivered to the handset.



75. 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 as illustrated above. 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.

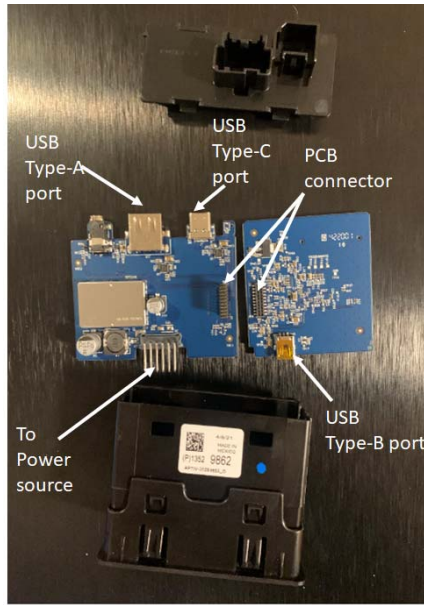


76. On information and belief, each USB charging adapter with a USB media port also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. The identification subsystem provides an identification signal at one or both of the D+ and D- line. For example, in accordance with the Battery Charging Specification, during primary detection, both D+ and D- of a CDP port are expected to display a voltage above 0.4V. During secondary detection, the voltage on the D- line of a CDP is expected to be above 0.4V and that on the D+ line is expected to be less than 0.4V,

as illustrated below. On information and belief, during operation, USB media ports in GM vehicles provide similar voltage signals.

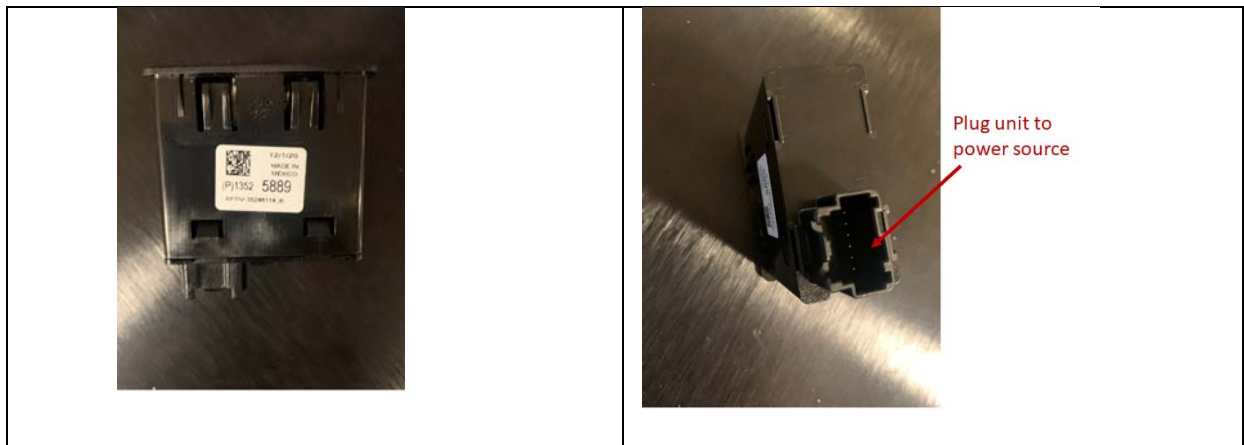


77. On information and belief, the USB media port is a CDP port that can provide both data and power, and the USB charging adapter includes at least one USB controller (*e.g.*, a USB hub controller). For instance, on information and belief, each USB charging adapter with a USB media port in GM vehicles has both USB Type A or C ports interfacing with USB devices such as handsets and at least one USB Type B port connecting to a USB host. On information and belief, a USB hub controller passes information between the USB Type B port and the USB Type-A and Type-C ports. On information and belief, the USB hub controller is configured to provide an identification signal on the D+ and D- lines in the USB connector.

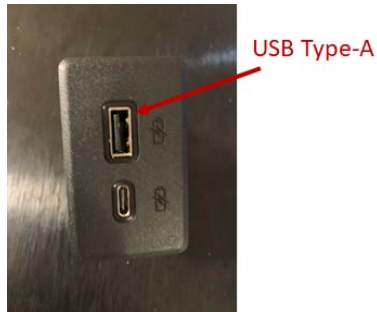


78. On further information and belief, certain GM vehicles additionally contain USB charging ports that do not participate in USB communications. For example, both the Chevrolet and GMC Infotainment Guides state that “[t]here may also be two USB ports for charging only at the rear of the center console.” Ex. 30 at 21 (PDF 23); Ex. 31 at 18 (PDF 20).

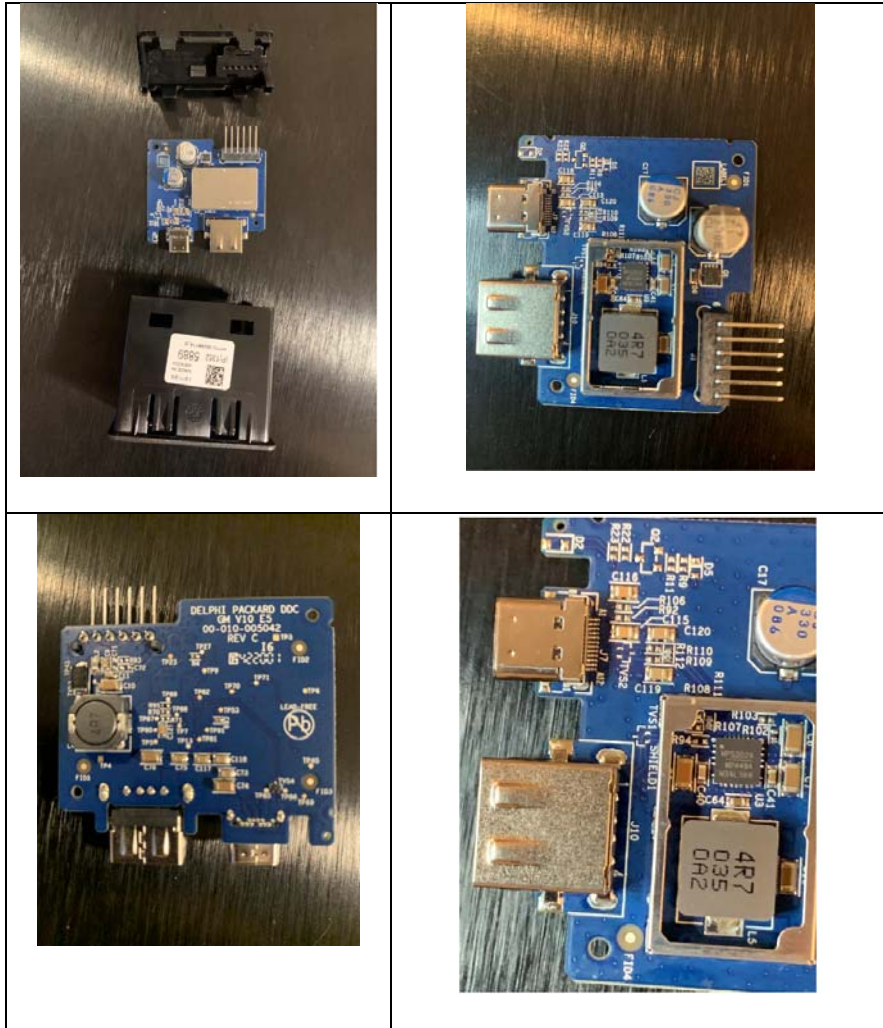
79. On information and belief, each USB charging adapter with a USB charging port includes a plug unit that can be coupled to an infringing vehicle’s battery power output socket to receive energy from the socket. An example is provided below for illustration



80. One information and belief, each USB charging adapter with a USB charge port has one or more USB connector for connecting to a USB mobile device, as illustrated below. When coupled to a USB device, such as a handset, the device can be charged by drawing power from the USB connector. A power requirement is thus delivered to the handset.



81. 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 as illustrated above. 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 (*e.g.*, part of MPQ4484 and similar controller), current limiters (*e.g.*, part of MPQ4484 and similar controller), power switches (*e.g.*, TPS2561), and load detectors, among other things. A representative example is shown below.



82. On information and belief, each USB charging adapter with a USB charging port also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. 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, the identification subsystem, such as a controller with charging port identification circuitry, is configured to provide an identification signal comprised of voltages equal to or greater than about 2V on D+ or D- lines. For example, in infringing USB

charging adapters with a USB charging port, the voltages on D+ and D- lines may be about 2.5-2.7V on D+ and D-.

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, 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.

84. On information and belief, Defendants infringe at least claims 25 and 84 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/leasing, offering to sell/lease, 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 '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.

86. 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/leasing, offering to sell/lease, 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).

87. 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.

88. 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/leasing, offering to sell/lease, 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).

89. 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.

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

91. On information and belief, Defendants have had actual knowledge of their infringement of the '936 Patent since no later than January 20, 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)

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

93. 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 2.

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

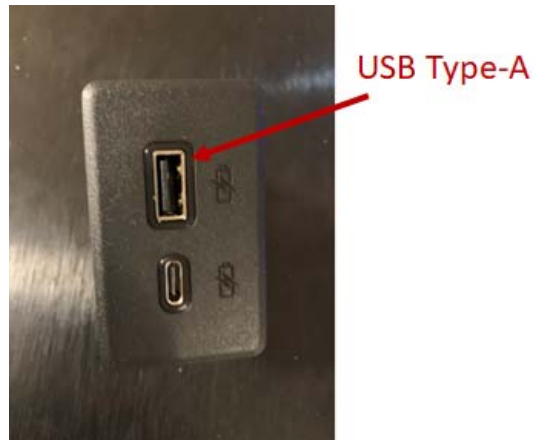
95. The '111 Patent has been in full force and effect since its issuance. Fundamental owns by assignment the entire right, title, and interest in and to the '111 Patent, including the exclusive right to seek damages for past, current and future infringement thereof.

96. On further information and belief, certain GM vehicles contain USB charging ports that do not participate in USB communications. For example, both the Chevrolet and GMC Infotainment Guides state that “[t]here may also be two USB ports for charging only at the rear of the center console.” Ex. 30 at 21 (PDF 23); Ex. 31 at 18 (PDF 20).

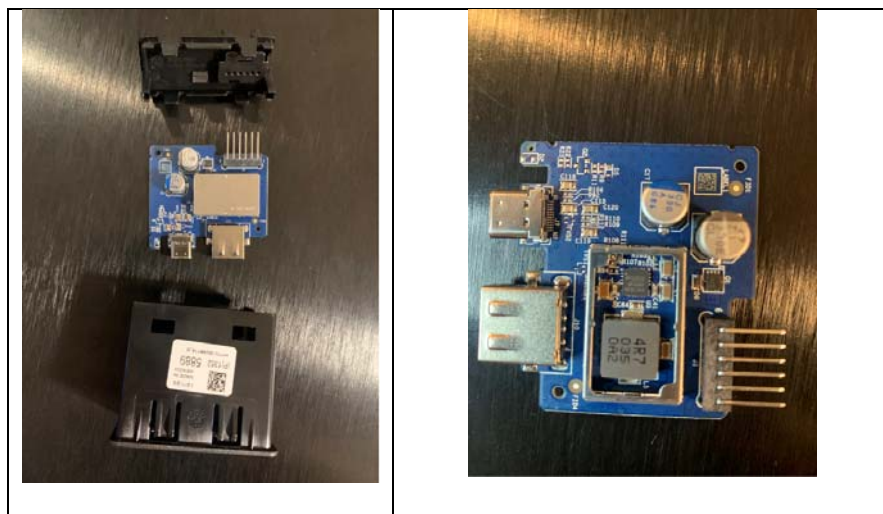
97. On information and belief, each USB charging adapter with a USB charging port includes a plug unit that can be coupled to an infringing vehicle’s battery power output socket to receive energy from the socket. An example is illustrated below.

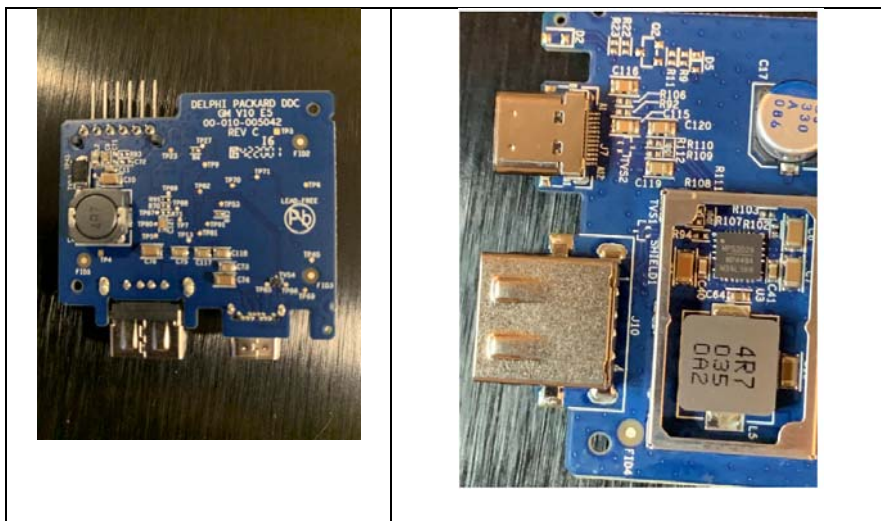


98. On information and belief, each USB charging adapter with a USB charge port has one or more USB connector for connecting to a USB mobile device, as illustrated below. When coupled to a USB device, such as a handset, the device can be charged by drawing power from the USB connector. A power requirement is thus delivered to the handset.



99. 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 as illustrated above. 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 (*e.g.*, part of MPQ4484 and similar controller), current limiters (*e.g.*, part of MPQ4484 and similar controller), power switches (*e.g.*, TPS2561), and load detectors, among other things. A representative example is shown below.





100. On information and belief, each USB charging adapter with a USB charging port also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. 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, the identification subsystem, such as a controller with charging port identification circuitry, is configured to provide an identification signal comprised of voltages equal to or greater than about 2V on D+ or D- lines. For example, in infringing USB charging adapters with a USB charging port, the voltages on D+ and D- lines may be about 2.5-2.7V on D+ and D-.

101. When charging, a USB device, such as a smartphone, is connected to the 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.

102. 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/leasing, offering to sell/lease, and/or importing into the United States the Accused Products.

103. 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.

104. 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/leasing, offering to sell/lease, 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).

105. 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.

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

107. On information and belief, Defendants have had actual knowledge of their infringement of the '111 Patent since no later than October 2019. 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)

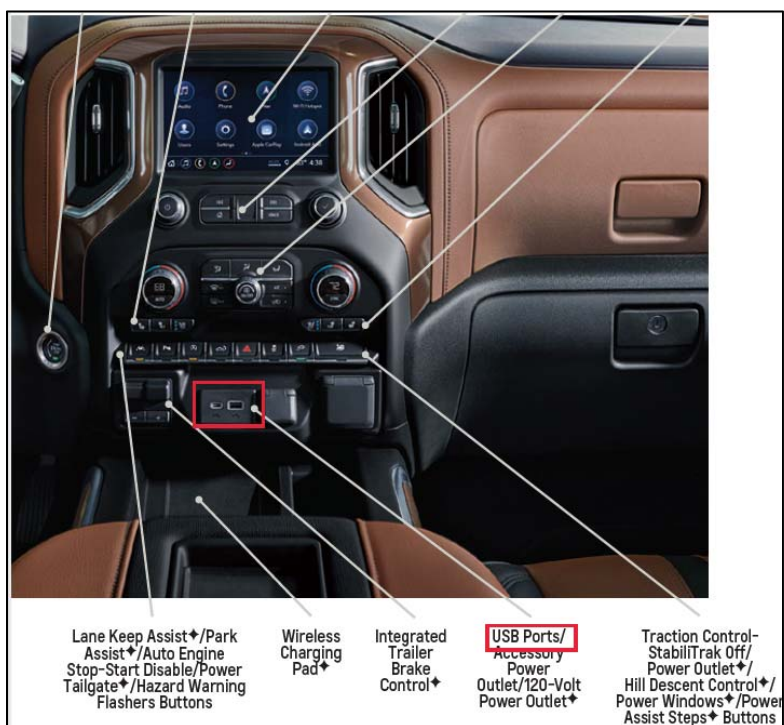
108. Fundamental re-alleges and incorporates by reference the allegations of the preceding paragraphs of this Complaint as if fully set forth herein.

109. 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 3.

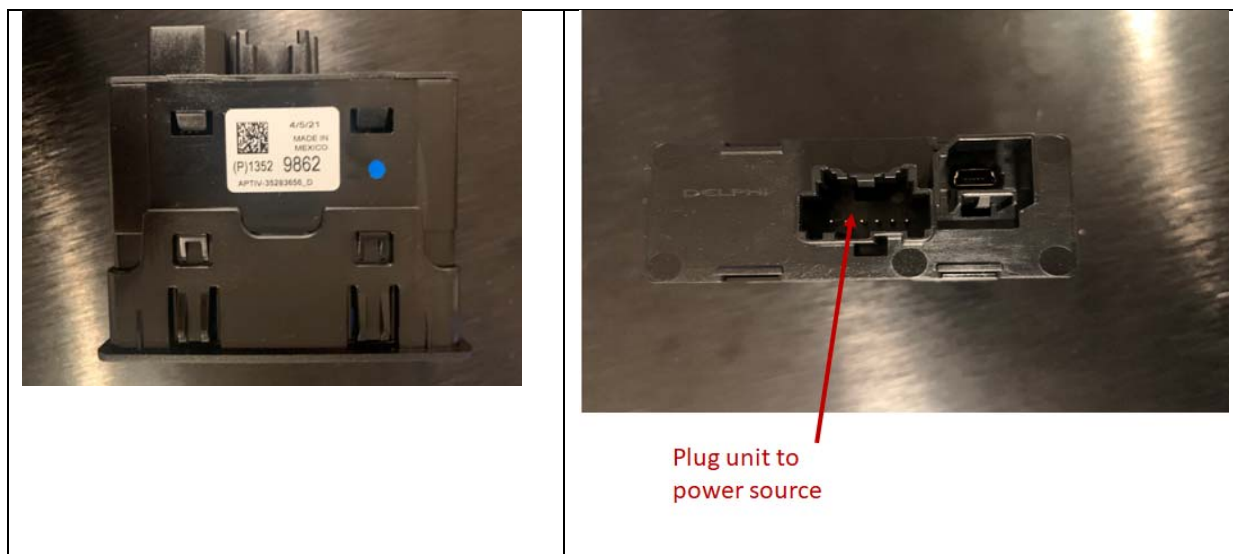
110. The '233 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

111. 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.

112. 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. On information and belief, each accused GM vehicle has at least a USB charging adapter with a USB media port that can supply up to 1.5A of current. An example is shown below. See Ex. 26 at 3. On information and belief, other GM vehicles' USB media ports on central console are the same in material parts.



113. On information and belief, each USB charging adapter with a USB media port 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.



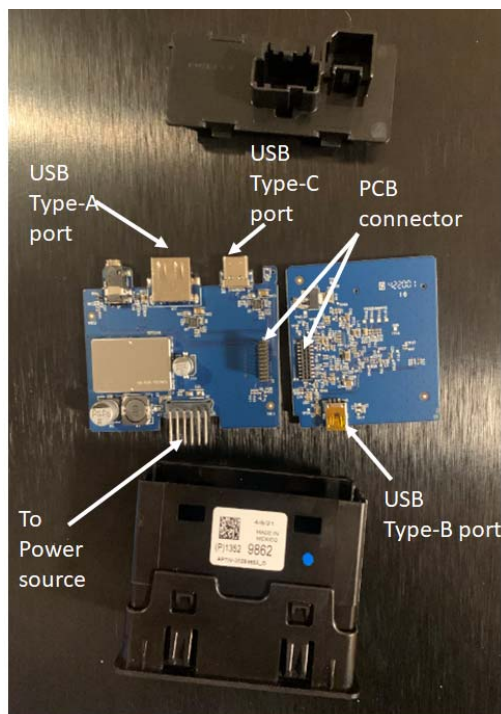
114. One information and belief, each USB charging adapter with a USB media port has one or more USB connector for connecting to a USB mobile device, as illustrated below. When coupled to a USB device, such as a handset, the device can be charged by drawing power from the USB connector. A power requirement is thus delivered to the handset.



USB Type A

115. On information and belief, 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 as illustrated above. 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



116. On information and belief, each USB charging adapter with a USB media port 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 provides an identification signal at one or both of the D+ and D- line. For example, in accordance with the Battery Charging Specification, during primary detection, both D+ and D- of a CDP port are expected to display a voltage above 0.4V. During secondary detection, the voltage on the D- line of a CDP is expected to be above 0.4V and that on the D+ line is expected to be less than 0.4V, as illustrated below. On information and belief, during operation, USB media ports in GM vehicles provide similar voltage signals as below.



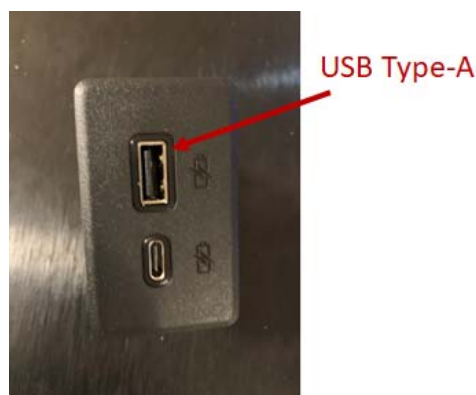
117. On information and belief, an identification signal identifying the port as a CDP port is configured to indicate to a connected USB mobile device that the USB charging adapter is configured to send substantial energy, e.g., an amount in excess of what is permitted under the USB 2.0 Specification, through the USB connector before completing device enumeration. For example, as illustrated above, an amount of current in excess of 500mA is drawn before completion of enumeration.

118. As another example, on further information and belief, certain GM vehicles additionally contain USB charging ports that do not participate in USB communications. For example, both the Chevrolet and GMC Infotainment Guides state that “[t]here may also be two USB ports for charging only at the rear of the center console.” Ex. 30 at 21 (PDF 23); Ex. 31 at 18 (PDF 20).

119. On information and belief, each USB charging adapter with a USB charging port 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 illustrated below.

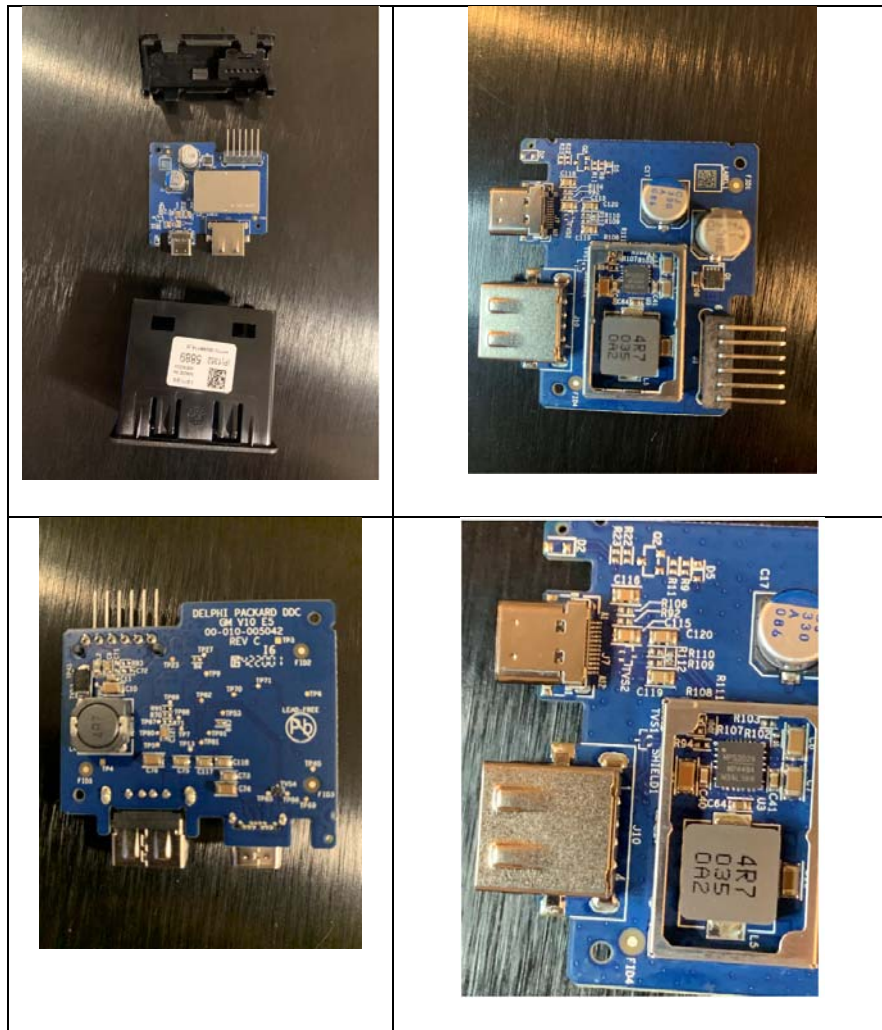


120. One information and belief, each USB charging adapter with a USB charge port has one or more USB connector for connecting to a USB mobile device, as illustrated below. When coupled to a USB device, such as a handset, the device can be charged by drawing power from the USB connector.



121. 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 as illustrated above. 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 (*e.g.*, part of MPQ4484 and similar controller), current limiters (*e.g.*, part of MPQ4484

and similar controller), power switches (e.g., TPS2561), and load detectors, among other things. A representative example is shown below.



122. On information and belief, each USB charging adapter with a USB charging port also includes an identification subsystem electrically connected to the USB connector, including to the D+ and D- pins of the USB connector. 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, the identification subsystem, such as a controller with

charging port identification circuitry, is configured to provide an identification signal comprised of voltages equal to or greater than about 2V on D+ or D- lines. For example, in infringing USB charging adapters with a USB charging port, the voltages on D+ and D- lines may be about 2.5-2.7V on D+ and D-. 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 the USB 2.0 Specification, through the USB connector before completing device enumeration, including without USB enumeration.

123. When charging, a USB device, such as a smartphone, is connected to a USB connector of an accused 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 conventional USB 2.0 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 GM 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.

124. 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/leasing, offering to sell/lease, and/or importing into the United States the Accused Products.

125. 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.

126. 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/leasing, offering to sell/lease, 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).

127. 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.

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

129. On information and belief, Defendants have had actual knowledge of their infringement of the '233 Patent since no later than October 2019. 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)

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

131. 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 4.

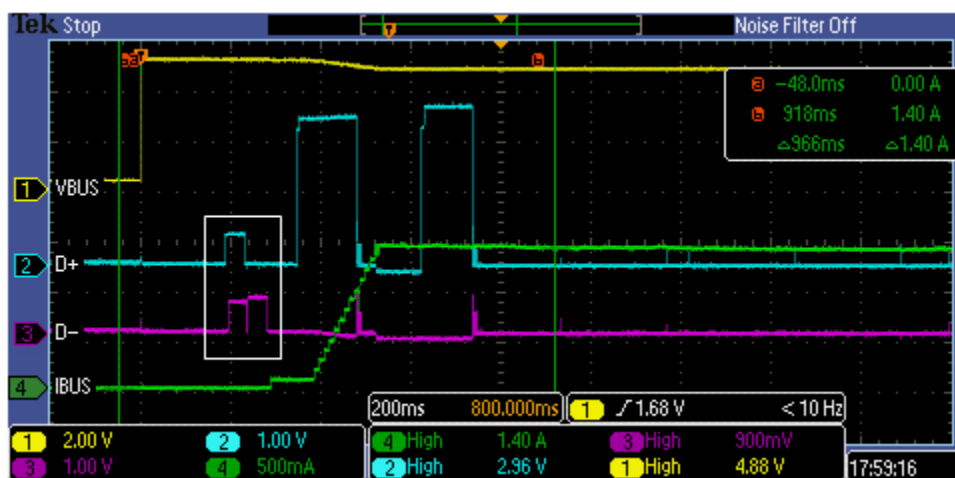
132. The '550 Patent names Daniel M. Fischer, Dan G. Radut, Michael F. Habicher, Quang A. Luong, and Jonathan T. Malton as co-inventors.

133. 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.

134. 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.

135. 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.

136. For example, on information and belief, each accused GM vehicle has at least a USB charging adapter with a USB media port that can supply up to 1.5A of current. On information and belief, 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. An example of signals on D+ and D- lines for a USB charging adapter with a USB media port is shown below.



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

138. As another example, certain GM vehicles additionally contain USB charging ports that do not participate in USB communications. For example, both the Chevrolet and GMC Infotainment Guides state that “[t]here may also be two USB ports for charging only at the rear of the center console.” Ex. 30 at 21 (PDF 23); Ex. 31 at 18 (PDF 20). On information and belief, USB charging adapters with USB charging ports are configured to provide an identification signal comprised of equal to or greater than about 2.0V on the D+ and D- lines.

For example, accused charging adapters may provide a voltage of 2.5-2.7V on the D+ and D- lines. These voltages are regarded as abnormal data conditions in the USB 2.0 Specification.

139. In response to the abnormal data conditions, a mobile device draws and the adapter supplies current on the VBUS line of greater than 500 mA. For example, Defendants provide USB charging adapters with USB media ports that can supply 1.5A of current to a connected device and USB charging adapters with USB charging ports that can supply 2.1A of current to a connected device. No enumeration is required in this process.

140. 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/leasing, offering to sell/lease, and/or importing into the United States the Accused Products.

141. 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.

142. 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/leasing, offering to sell/lease, 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).

143. 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.

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

145. On information and belief, Defendants have had actual knowledge of their infringement of the '550 Patent since no later than October 2019. 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 GM and Aptiv 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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