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**UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION**

ECOFACOR, INC.,
Plaintiff,
v.
LG ELECTRONICS U.S.A., INC.
Defendant.

**Case No. 8:22-cv-00103-MEMF-
KES**
**AMENDED COMPLAINT FOR
PATENT INFRINGEMENT**
JURY TRIAL DEMANDED

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1. Plaintiff EcoFactor, Inc. (“EcoFactor” or “Plaintiff”), for its Complaint¹ against Defendant LG Electronics U.S.A., Inc. (“LGEUS” or “Defendant”), hereby alleges as follows:

PARTIES

2. Plaintiff EcoFactor is a privately held company, having its principal place of business at 441 California Avenue, Number 2, Palo Alto, CA 94301. EcoFactor was founded in 2006 and is headquartered in Palo Alto, California.

3. Defendant LGEUS is a Delaware limited liability company with a principal place of business at 111 Sylvan Avenue, Englewood Cliffs, New Jersey, 07632. LGEUS operates a division named LG Air Conditioning Technologies. LGEUS may be served with process through its registered agent, the Corporation Service Company Which Will Do Business In California as CSC-Lawyers Incorporating Service, ID No. C1592199, at 2710 Gateway Oaks Drive, Suite 150N, Sacramento, CA 95833. LGEUS is registered to do business in the State of California and has been since at least December 3, 1981.

NATURE OF THE ACTION

4. This action arises from Defendant’s unlawful infringement of the following United States patents owned by EcoFactor: U.S. Patent No. 8,740,100 (“’100 Patent”); and U.S. Patent No. 8,019,567 (“’567 Patent”) (collectively the “Asserted Patents”), under the patent laws of the United States, 35 U.S.C. § 1, et seq. EcoFactor owns all right, title, and interest in each of the Asserted Patents.

5. EcoFactor is a privately held company, having its principal place of business at 441 California Avenue, Number 2, Palo Alto, CA 94301. EcoFactor was founded in 2006 and is headquartered in Palo Alto, California. EcoFactor is a leader in smart home energy management services. EcoFactor delivers smart home energy

¹ This is Plaintiff’s first amended complaint pursuant to written consent of Defendant LGEUS under Fed. R. Civ. P. 15(a)(2). The initial complaint was filed on January 21, 2022 and served at least as of January 26, 2022.

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1 management services that improve energy efficiency, reduce energy bills and vastly
2 increase demand response efficacy – all while maintaining consumer comfort.
3 EcoFactor’s patented big-data analytics and machine learning algorithms collect and
4 process massive amounts of residential data – including home thermodynamics,
5 family comfort preferences and schedules, plus external data such as weather – to
6 continually monitor, adapt and learn for optimum energy savings. The company
7 provides homeowners significant cost savings and energy usage benefits.
8 EcoFactor’s award-winning service has been offered through channel partners such
9 as utilities, energy retailers, broadband service providers and HVAC companies.

10 6. EcoFactor transformed how homes use energy by applying advanced
11 analytics to connected devices in the home. EcoFactor developed a suite of software
12 known as the “EcoFactor Platform” that incorporates EcoFactor’s patented data
13 analytics and machine learning algorithms, as well as EcoFactor’s award-winning
14 smart HVAC control technologies. The EcoFactor Platform is software that runs on
15 servers, including cloud servers, in the United States, and provides service to
16 customers in the United States. The source code of the EcoFactor Platform was
17 designed by, created by, and is continuously maintained and improved by EcoFactor
18 employees working in the United States. The EcoFactor Platform actively manages
19 thermostats on occupants’ behalf in intelligent ways that improve comfort while
20 helping them save time, energy and money. Utilities, home service providers and
21 homeowners rely on EcoFactor for demand response, energy efficiency, and HVAC
22 performance monitoring services. The EcoFactor Platform includes the software that
23 practices EcoFactor’s patents on these features. For example, the EcoFactor Platform
24 includes EcoFactor’s patented techniques for monitoring the health and performance
25 of HVAC systems over time, smart thermostat scheduling to improve energy savings
26 and optimize comfort for occupants, and thermodynamic modeling of the user’s
27 home and HVAC system to enable dynamic pre-cooling and pre-heating to further
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1 improve comfort, save energy, or both, by creating comfortable schedules that also
2 shift energy usage out of periods of peak energy demand.

3 7. The patented innovations at issue in this action were invented by
4 EcoFactor engineers and researchers. EcoFactor has played a significant role in the
5 development and advancement of such improvements to energy management
6 technology—and the domestic market for them. EcoFactor has expended tens of
7 millions of dollars of research and development and technical services and support
8 in the United States. In recent years, an explosion of imported products that infringe
9 EcoFactor’s innovative Asserted Patents has significantly eroded EcoFactor’s
10 market standing. This infringement action is about several patented improvements
11 to smart thermostat systems, smart HVAC systems, and smart HVAC control
12 systems—which took years of research and millions of dollars in U.S. investments
13 to develop, and which are infringed by Defendant’s accused products.

14 **JURISDICTION AND VENUE**

15 8. This action arises under the patent laws of the United States, Title 35 of
16 the United States Code. This Court has original subject matter jurisdiction pursuant
17 to 28 U.S.C. §§ 1331 and 1338(a).

18 9. This Court has personal jurisdiction over Defendant in this action
19 because Defendant has committed acts within this District giving rise to this action,
20 and has established minimum contacts with this forum such that the exercise of
21 jurisdiction over Defendant would not offend traditional notions of fair play and
22 substantial justice. Defendant, directly and through subsidiaries or intermediaries,
23 has committed and continue to commit acts of infringement in this District by,
24 among other things, using, importing, offering to sell, and selling products that
25 infringe the Asserted Patents.

26 10. Venue is proper in this District under 28 U.S.C. § 1400(b). Upon
27 information and belief, Defendant has transacted business in this District and has
28 committed acts of direct and indirect infringement in this District by, among other

1 things, making, using, offering to sell, selling, and importing products that infringe
2 the asserted patents. Defendant has at least one regular and established place of
3 business in the District. For example, LGEUS operates a division known as LG US
4 Air Conditioning Technologies at its corporate facility at 790 The City Drive, Suite
5 300, Orange, CA 92868, on the third floor of The City Drive building. According to
6 <https://lghvac.com/home> and <https://lghvac.com/training/> (last visited Jan. 20,
7 2022), LGEUS’s regular and established place of business in Orange, California is
8 used for a number of purposes relevant to the Accused Products and the LG US Air
9 Conditioning Technologies division of LGEUS. For example, at this facility,
10 LGEUS employees “teach air conditioning training classes in ductless, VRF, and
11 controls solutions, with topics covering everything from installation to service for
12 the full range of LG air conditioning products.” <https://lghvac.com/training/>.

13 **THE TECHNOLOGY AND PRODUCTS AT ISSUE**

14 11. The products accused of infringing one or more of the Asserted Patents
15 are smart thermostat systems, smart HVAC systems, smart HVAC control systems,
16 and all components (including accessories) thereof offered for sale by Defendant.

17 12. The Accused Products include thermostat systems that connect to and
18 control an HVAC system, they include smart HVAC systems, and they include
19 components of such systems such as, for example, hubs, panels, and remote sensors.
20 These thermostat devices and/or HVAC control systems communicate over a
21 network with other devices and systems offered by Defendant. The Accused
22 Products connect to the network managed by Defendant via the Internet. For
23 example, the Accused Products connect to Defendant’s networked servers and data
24 centers, online interfaces, and related accessories.

25 13. When connected as designed, the Accused Products form a smart
26 thermostat system, smart HVAC system, and/or smart HVAC control system.
27 Defendant’s systems are “smart” because they are designed to connect to
28 Defendant’s servers and data centers (including, e.g., cloud-based servers and

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1 backend support), related online interfaces (including, e.g., mobile apps and web
2 portals), and related accessories (e.g., remote temperature sensors), upon importation
3 in the United States. Further, Defendant’s smart thermostat systems are “smart”
4 because they support and are marketed as providing features to end users that analyze
5 thermostat and HVAC system data gathered by the smart thermostat systems.

6 14. Defendant’s Accused Products are designed and specially made and
7 adapted to infringe claims of the Asserted Patents and to embody a material part of
8 the claimed inventions. The Accused Products are installed and used in the United
9 States according to Defendant’s design and instructions. Defendant has knowledge
10 as well as notice of its infringement of each asserted patent at least as of the filing of
11 this Complaint. Defendant knowingly induces and encourages the use of the
12 Accused Products in the United States in a manner that infringes the asserted claims
13 of the Asserted Patents. Defendant infringes the Asserted Patents directly, through
14 making, using, selling, and/or offering for sale the Accused Products. Defendant also
15 infringes the Asserted Patents indirectly, both for example through contributory
16 infringement as well as through induced infringement. The infringement of the
17 Asserted Patents is also attributable to Defendant. Defendant and/or users of the
18 Accused Products directs and controls use of the Accused Products to perform acts
19 that result in infringement the Asserted Patents, conditioning benefits on
20 participation in the infringement and establishing the timing and manner of the
21 infringement.

22 **COUNT I**

23 **INFRINGEMENT OF U.S. PATENT NO. 8,740,100**

24 15. Plaintiff realleges and incorporates by reference the foregoing
25 paragraphs as if fully set forth herein.

26 16. Plaintiff owns all rights, title, and interest in United States Patent No.
27 8,740,100, titled “System, method and apparatus for dynamically variable
28 compressor delay in thermostat to reduce energy consumption.” The ’100 Patent was

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1 duly and legally issued by the United States Patent and Trademark Office on June 3,
2 2014. Plaintiff is the owner and assignee, possessing all substantial rights, to the '100
3 Patent. A true and correct copy of the '100 Patent is attached as Exhibit 1.

4 17. On information and belief, Defendant makes, uses, offers for sale, sells,
5 and/or imports certain smart HVAC products and services (“Accused Products”),
6 including without limitation smart thermostats, smart HVAC controllers, HVAC
7 systems, control hubs or panels, backend or cloud servers and data centers for the
8 foregoing (e.g., cloud-based servers and backend support) controlled by Defendant,
9 and related accessories, including, without limitation LG’s BECON HVAC Solution
10 products, including, without limitation, LG’s connected thermostats and/or HVAC
11 controllers and control systems, backend cloud servers and systems and data centers
12 for supporting connected thermostats and/or HVAC controllers and/or HVAC
13 systems, LG’s compatible HVAC systems, all user interfaces for the product features
14 (e.g., ThinQ app), and accessories (e.g., sensors). LG’s BECON HVAC Solution
15 products include, without limitation, PDI (e.g., PQNUD1S40 / PPWRDB000), AC
16 Smart 5 (e.g., PACS5A000), AC Manager 5 (e.g., PACM5A000), AC Ez Touch
17 (e.g., PACEZA000, PQCSZ250S0), Wired Remote Controllers (e.g., Standard III
18 Remote Controllers PREMTB100, PREMTBB10 and Standard II PREMTB001,
19 PREMTBB01), Premium Remote Controller (e.g., PREMTA000, PREMTA000A,
20 PREMTA000B), Wi-Fi Modem with LG ThinQ (e.g., PWFMD200), Modbus
21 Gateway (PMBUSB00A), ACP LonWorks (PLNWKB000), Dry Contact (e.g.,
22 PDRYCB000, PDRYCB400, PDRYCB300, PDRYCB320, PDRYCB500), ACP 5,
23 ACS IO Module (e.g., PEXPMB000, PEXPMB100, PEXPMB200, PEXPMB300),
24 ACU IO Module, AHU Kits (PAHCMR000, PAHCMS000, PAHCNM000), IO
25 modules (PVDSMN000), PI485 (PMNFP14A1, PHNFP14AO), LG’s HVAC
26 systems (e.g., Chillers, Single Splits, Multi Splits, VRF units including Multi V 5
27 indoor or outdoor units, ERV, AHU, etc. with at least one compressor), and all
28 versions or variations of BECON HVAC Solution products thereof since the

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issuance of the asserted patent, that directly infringe, literally and/or under the doctrine of equivalents, claims 1-16 of the '100 Patent.

18. The infringement of the '100 Patent is also attributable to Defendant. Defendant and/or users of the Accused Products directs and controls use of the Accused Products to perform acts that result in infringement of the patent, conditioning benefits on participation in the infringement and establishing the timing and manner of the infringement.

19. Defendant also knowingly and intentionally induces infringement of claims of the '100 Patent in violation of 35 U.S.C. § 271(b). Through at least the filing and service of the initial Complaint on January 26, 2022, Defendant has had knowledge of the '100 Patent and the infringing nature of the Accused Products. Despite this knowledge of the '100 Patent, Defendant continues to actively encourage and instruct its customers and end users (for example, through user manuals and online instruction materials on its website) to use the Accused Products in ways that directly infringe the '100 Patent. Defendant does so knowing and intending that its customers and end users will commit these infringing acts. Defendant also continues to make, use, offer for sale, sell, and/or import the Accused Products, despite its knowledge of the '100 Patent, thereby specifically intending for and inducing its customers to infringe the '100 Patent through the customers' normal and customary use of the Accused Products.

20. Defendant has also infringed, and continue to infringe, claims of the '100 Patent by offering to commercially distribute, commercially distributing, making, and/or importing the Accused Products, which are used in practicing the process, or using the systems, of the patent, and constitute a material part of the invention. Defendant knows the components in the Accused Products to be especially made or especially adapted for use in infringement of the patent, not a staple article, and not a commodity of commerce suitable for substantial

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1 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily
2 infringing the '100 Patent, in violation of 35 U.S.C. § 271(c).

3 21. The Accused Products satisfy all claim limitations of claims of the '100
4 Patent. A claim chart comparing claim elements of the '100 Patent to representative
5 Accused Products is attached as Exhibit 2.

6 22. By making, using, offering for sale, selling and/or importing into the
7 United States the Accused Products, Defendant has injured Plaintiff and are liable
8 for infringement of the '100 Patent pursuant to 35 U.S.C. § 271.

9 23. As a result of Defendant's infringement of the '100 Patent, Plaintiff is
10 entitled to monetary damages in an amount adequate to compensate for Defendant's
11 infringement, but in no event less than a reasonable royalty for the use made of the
12 invention by Defendant, together with interest and costs as fixed by the Court.

13 24. Defendant's infringing activities have injured and will continue to
14 injure Plaintiff, unless and until this Court enters an injunction prohibiting further
15 infringement of the '100 Patent, and, specifically, enjoining further manufacture,
16 use, sale, importation, and/or offers for sale that come within the scope of the patent
17 claims.

18 **COUNT II**

19 **INFRINGEMENT OF U.S. PATENT NO. 8,019,567**

20 25. Plaintiff realleges and incorporates by reference the foregoing
21 paragraphs as if fully set forth herein.

22 26. Plaintiff owns all rights, title, and interest in United States Patent No.
23 8,019,567, titled "System and method for evaluating changes in the efficiency of an
24 HVAC system." The '567 Patent was duly and legally issued by the United States
25 Patent and Trademark Office on September 13, 2011. Plaintiff is the owner and
26 assignee, possessing all substantial rights, to the '567 Patent. A true and correct copy
27 of the '567 Patent is attached as Exhibit 3.
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1 27. On information and belief, Defendant makes, uses, offers for sale, sells,
2 and/or imports certain smart HVAC products and services (“Accused Products”),
3 including without limitation smart thermostats, smart HVAC controllers, HVAC
4 systems, control hubs or panels, backend or cloud servers and data centers for the
5 foregoing (e.g., cloud-based servers and backend support) controlled by Defendant,
6 and related accessories, including, without limitation LG’s BECON HVAC Solution
7 products, including, without limitation, LG’s connected thermostats and/or HVAC
8 controllers and control systems, backend cloud servers and systems and data centers
9 for supporting connected thermostats and/or HVAC controllers and/or HVAC
10 systems, LG’s compatible HVAC systems, all user interfaces for the product features
11 (e.g., ThinQ app), and accessories (e.g., sensors). LG’s BECON HVAC Solution
12 products include, without limitation, PDI (e.g., PQNUD1S40 / PPWRDB000), AC
13 Smart 5 (e.g., PACS5A000), AC Manager 5 (e.g., PACM5A000), AC Ez Touch
14 (e.g., PACEZA000, PQCSZ250S0), Wired Remote Controllers (e.g., Standard III
15 Remote Controllers PREMTB100, PREMTBB10 and Standard II PREMTB001,
16 PREMTBB01), Premium Remote Controller (e.g., PREMTA000, PREMTA000A,
17 PREMTA000B), Wi-Fi Modem with LG ThinQ (e.g., PWFMD200), Modbus
18 Gateway (PMBUSB00A), ACP LonWorks (PLNWKB000), Dry Contact (e.g.,
19 PDRYCB000, PDRYCB400, PDRYCB300, PDRYCB320, PDRYCB500), ACP 5,
20 ACS IO Module (e.g., PEXPMB000, PEXPMB100, PEXPMB200, PEXPMB300),
21 ACU IO Module, AHU Kits (PAHCMR000, PAHCMS000, PAHCNM000), IO
22 modules (PVDSMN000), PI485 (PMNFP14A1, PHNFP14AO), LG’s HVAC
23 systems (e.g., Chillers, Single Splits, Multi Splits, VRF units including Multi V 5
24 indoor or outdoor units, ERV, AHU, etc. with at least one compressor), and all
25 versions or variations of BECON HVAC Solution products thereof since the
26 issuance of the asserted patent, that directly infringe, literally and/or under the
27 doctrine of equivalents, claims 1-20 of the ’567 Patent.

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1 28. The infringement of the '567 Patent is also attributable to Defendant.
2 Defendant and/or users of the Accused Products directs and controls use of the
3 Accused Products to perform acts that result in infringement of the patent,
4 conditioning benefits on participation in the infringement and establishing the timing
5 and manner of the infringement.

6 29. Defendant also knowingly and intentionally induces infringement of
7 claims of the '567 Patent in violation of 35 U.S.C. § 271(b). Through at least the
8 filing and service of the initial Complaint on January 26, 2022, Defendant has had
9 knowledge of the '567 Patent and the infringing nature of the Accused Products.
10 Despite this knowledge of the '567 Patent, Defendant continues to actively
11 encourage and instruct its customers and end users (for example, through user
12 manuals and online instruction materials on its website) to use the Accused Products
13 in ways that directly infringe the '567 Patent. Defendant does so knowing and
14 intending that its customers and end users will commit these infringing acts.
15 Defendant also continues to make, use, offer for sale, sell, and/or import the Accused
16 Products, despite its knowledge of the '567 Patent, thereby specifically intending for
17 and inducing its customers to infringe the '567 Patent through the customers' normal
18 and customary use of the Accused Products.

19 30. Defendant has also infringed, and continue to infringe, claims of the
20 '567 Patent by offering to commercially distribute, commercially distributing,
21 making, and/or importing the Accused Products, which are used in practicing the
22 process, or using the systems, of the patent, and constitute a material part of the
23 invention. Defendant knows the components in the Accused Products to be
24 especially made or especially adapted for use in infringement of the patent, not a
25 staple article, and not a commodity of commerce suitable for substantial
26 noninfringing use. Accordingly, Defendant has been, and currently is, contributorily
27 infringing the '567 Patent, in violation of 35 U.S.C. § 271(c).
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1 31. The Accused Products satisfy all claim limitations of claims of the '567
2 Patent. A claim chart comparing claim elements of the '567 Patent to representative
3 Accused Products is attached as Exhibit 4.

4 32. By making, using, offering for sale, selling and/or importing into the
5 United States the Accused Products, Defendant has injured Plaintiff and are liable
6 for infringement of the '567 Patent pursuant to 35 U.S.C. § 271.

7 33. As a result of Defendant's infringement of the '567 Patent, Plaintiff is
8 entitled to monetary damages in an amount adequate to compensate for Defendant's
9 infringement, but in no event less than a reasonable royalty for the use made of the
10 invention by Defendant, together with interest and costs as fixed by the Court.

11 34. Defendant's infringing activities have injured and will continue to
12 injure Plaintiff, unless and until this Court enters an injunction prohibiting further
13 infringement of the '567 Patent, and, specifically, enjoining further manufacture,
14 use, sale, importation, and/or offers for sale that come within the scope of the patent
15 claims.

16 **PRAYER FOR RELIEF**

17 Wherefore, Plaintiff respectfully requests that this Court enter:

- 18 a) A judgment in favor of Plaintiff that Defendant has infringed, literally and/or
19 under the doctrine of equivalents, the '100 Patent and the '567 Patent;
- 20 b) A judgment and order requiring Defendant to pay Plaintiff its damages,
21 enhanced damages, costs, expenses, and pre-judgment and post-judgment
22 interest for Defendant's infringement of the '100 Patent and the '567 Patent;
- 23 c) A judgment and order requiring Defendant to provide accountings and to pay
24 supplemental damages to Plaintiff, including without limitation, pre-judgment
25 and post-judgment interest;
- 26 d) A judgment and order finding that this is an exceptional case within the
27 meaning of 35 U.S.C. § 285 and awarding to Plaintiff its reasonable attorneys'
28 fees against Defendant; and

1 e) Any and all other relief as the Court may deem appropriate and just under the
2 circumstances.

3 **DEMAND FOR JURY TRIAL**

4 Plaintiff, under Rule 38 of the Federal Rules of Civil Procedure, requests a
5 trial by jury of any issues so triable by right.

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8 Respectfully submitted,
9 DATED: June 10, 2022 **RUSS, AUGUST & KABAT**

10
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