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16 Attorneys for Plaintiff
17 NORTH STAR INNOVATIONS INC.

18 **UNITED STATES DISTRICT COURT**
19 **CENTRAL DISTRICT OF CALIFORNIA**

20 NORTH STAR INNOVATIONS
21 INC.,

22 Plaintiff,

23 vs.

24 ETRON TECHNOLOGY
25 AMERICA, INC.,

26 Defendant.

27 CASE NO. 8:16-cv-00599 SJO
28 (FFM)

**SECOND AMENDED
COMPLAINT**

JURY TRIAL DEMANDED

1 Plaintiff North Star Innovations Inc. ("Plaintiff" or "North Star"), by and
2 through its attorneys, files this Second Amended Complaint for Patent
3 Infringement against Defendant Etron Technology America, Inc. ("Etron
4 America"), and alleges as follows:
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6 **PARTIES**

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8 1. Plaintiff North Star is a corporation organized and existing under the
9 laws of the State of Delaware, with a principal place of business at 600 Anton
10 Blvd., Costa Mesa, California 92626. Plaintiff is the owner of seminal patents in
11 the fields of integrated circuits, semiconductor memory architecture, and
12 semiconductor memory devices, including patents that address volatile memory,
13 such as DRAM and SRAM. Plaintiff's portfolio includes patents that teach
14 valuable innovations and improvements related to speed, power consumption,
15 density, reliability, and cost. Plaintiff is actively engaged in licensing efforts with
16 respect to such technologies.
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20 2. Defendant Etron America is a corporation organized and existing
21 under the laws of the State of California, with a place of business at 3375 Scott
22 Blvd., Suite 128, Santa Clara, California 95054. Defendant may be served with
23 process by serving it registered agent for service of process, Eleanor Weng, 3375
24 Scott Blvd., Suite 128, Santa Clara, California 95054, or by serving its counsel of
25 record, Christopher Hanba, who has appeared in this action. According to its
26 website, Etron Technology, Inc. (Etron America's Taiwanese parent company) "is
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1 a world-class fabless IC design and product company founded in February 1991,
2 specializing in buffer memory and system-on-chips.” “Etron ... conducts active
3 business with companies in the US” and elsewhere. “As a leading manufacturer
4 of buffer memories, Etron offers cutting-edge Known-Good-Die-Memory
5 (KGDM) and Consumer Electronic DRAM (CEDRAM). Etron’s full line of
6 Buffer DRAM chips - available in densities ranging from 8Mb to 1Gb - is designed
7 to ensure high processing speeds and low-power consumption for Consumer,
8 Communication, Computer, and Car (4C) applications.”

11 **JURISDICTION AND VENUE**

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13 3. This action arises under the patent laws of the United States, 35
14 U.S.C. § 1 *et seq.*, including §§ 271, 281, 282, 283, 284, and 285. This Court has
15 subject matter jurisdiction over this patent infringement action pursuant to 28
16 U.S.C. §§ 1331, and 1338(a).

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18 4. This Court has personal jurisdiction over Etron America. Upon
19 information and belief, Defendant has regularly conducted and continues to
20 conduct business in the U.S., in the State of California, and in this judicial district.
21 On information and belief, Defendant has committed infringing activities in
22 California and in this judicial district by using, marketing, offering for sale, selling,
23 and/or importing products and systems that infringe the Patents-In-Suit (as defined
24 below) or by placing such infringing products and systems into the stream of
25 commerce with the awareness, knowledge, and intent that they would be used,
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1 offered for sale, or sold by others in this judicial district and/or purchased by
2 consumers in this judicial district. Further, this Court has personal jurisdiction over
3 Defendant because Defendant is incorporated under the laws of the State of
4 California. Defendant has thereby availed itself of the privileges of conducting
5 business in the State of California and has sought protection and benefit from the
6 laws of the State of California. This Court’s exercise of personal jurisdiction over
7 Defendant would therefore comport with due process.
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10 5. Venue is proper pursuant to 28 U.S.C. §§ 1391(b) and 1400(b).

11 **THE PATENTS-IN-SUIT**

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13 6. On February 23, 1999, U.S. Patent No. 5,875,143 (“the ’143 Patent”)
14 – entitled “Dynamic Memory Device with Refresh Circuit and Refresh Method”
15 – was lawfully and properly issued by the United States Patent and Trademark
16 Office (“USPTO”), after a full and fair examination. The named inventor on the
17 ’143 Patent is Jacob Ben-Svi of Austin, Texas. A true and correct copy of the ’143
18 Patent is attached hereto as Exhibit A and incorporated by reference.
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21 7. Generally speaking, the ’143 Patent teaches, among other things, an
22 optimized, flexible, programmable refresh circuit that reduces size and power
23 consumption in a DRAM or SDRAM memory device by allowing for partial
24 refresh of a memory array.
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26 8. On August 24, 1999, U.S. Patent No. 5,943,274 (“the ’274 Patent”) –
27 entitled “Method and Apparatus For Amplifying a Signal to Produce A Latched
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1 Digital Signal” – was lawfully and properly issued by the United States Patent and
2 Trademark Office (“USPTO”), after a full and fair examination. The named
3 inventors on the ’274 Patent are Alan S. Roth and Scott G. Nogle, both of Austin,
4 Texas. A true and correct copy of the ’274 Patent is attached hereto as Exhibit B
5 and incorporated by reference.
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7 9. Generally speaking, the ’274 Patent teaches, among other things, an
8 improved circuit design for the output stage of a memory device, such as SDRAM,
9 and an improved circuit design for a differential amplifier that provides a more
10 reliable timing mechanism and thereby facilitates the use of a clock-free latch.
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12 10. On October 3, 2000, U.S. Patent No. 6,127,875 (“the ’875 Patent”) –
13 entitled “Complimentary Double Pumping Voltage Boost Converter” – was
14 lawfully and properly issued by the United States Patent and Trademark Office
15 (“USPTO”), after a full and fair examination. The named inventors on the ’875
16 Patent are Steven Peter Allen, Ahmad H. Atriss, Gerald Lee Walcott, and Walter
17 C. Seelbach, all of Arizona. A true and correct copy of the ’875 Patent is attached
18 hereto as Exhibit C and incorporated by reference.
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20 11. Generally speaking, the ’875 Patent teaches, among other things, an
21 efficient and compact voltage boosting circuit that boosts the available supply
22 voltage and limits output distortion.
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24 12. On July 12, 2005, U.S. Patent No. 6,917,555 (“the ’555 Patent”) –
25 entitled “Integrated Circuit Power Management for Reducing Leakage Current in
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1 Circuit Arrays and Method Therefor” – was lawfully and properly issued by the
2 United States Patent and Trademark Office (“USPTO”), after a full and fair
3 examination. The named inventors on the ’555 Patent are Ryan D. Bedwell,
4 Christopher K.Y. Chun, Qadeer A. Qureshi, and John J. Vaglica, all of Texas. A
5 true and correct copy of the ’555 Patent is attached hereto as Exhibit D and
6 incorporated by reference.
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9 13. Generally speaking, the ’555 Patent teaches, among other things, a
10 novel design for an integrated circuit with power management capabilities, where,
11 in certain embodiments, multiple, independent power planes are used to eliminate
12 or reduce leakage current.
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14 14. The ’143 Patent, the ’274 Patent, the ’875 Patent, and the ’555 Patent
15 may be referred to individually as a “Patent-in-Suit” or collectively as the
16 “Patents-in-Suit.”
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18 15. By way of assignment, Plaintiff is the owner of all right, title, and
19 interest in and to the Patents-in-Suit, including the rights to prosecute this action
20 and to collect and receive damages for all past, present, and future infringements.
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22 **COUNT ONE: INFRINGEMENT OF THE ’143 PATENT**

23 16. Plaintiff incorporates the above allegations as if set forth here in full.
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25 17. The ’143 Patent is valid and enforceable. Defendant does not have a
26 license to practice the patented inventions of the ’143 Patent.
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1 18. Defendant has infringed and is currently infringing, either literally or
2 under the doctrine of equivalents, the '143 Patent by, among other things, making,
3 using, offering for sale, selling, and/or importing within this judicial district and
4 elsewhere in the United States – without license or authority – products, devices,
5 or systems falling within the scope of one or more claims of the '143 Patent, in
6 violation of at least 35 U.S.C. § 271(a). For example, Defendant's 512Mb DDR2
7 SDRAM, Etron Part Number EM68B16CWQC-3IH ("Etron's 512Mb DDR2
8 SDRAM") directly infringes at least Claim 2 of the '143 Patent, either literally or
9 under the doctrine of equivalents.
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12 19. More specifically, Etron's 512Mb DDR2 SDRAM infringes at least
13 Claim 2 because it meets each and every limitation of Claim 2, either literally or
14 under the doctrine of equivalents. For example, the referenced product includes,
15 among other things: "A dynamic memory device comprising:¹ (a) a plurality of
16 storage elements; (b) a signal provider for sending refresh signals to said storage
17 elements; and (c) a programmable signal controller coupled to said signal provider
18 for controlling said signal provider so that, during a particular refresh cycle, only
19 a first sub-set of storage elements are refreshed and a second sub-set of storage
20 elements are not refreshed, said signal provider having (i) an address generator for
21 providing addresses for said storage elements; and (ii) a decoder for receiving said
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27 ¹ Plaintiff does not hereby suggest or concede that the preamble of this or any other asserted
28 claim of any Patent-in-Suit constitutes a substantive limitation. That issue is expressly reserved
for the claim construction stage.

1 addresses from said address generator and, in response to a control signal received
2 from said signal controller, sending refresh signals to said first sub-set of storage
3 elements but not to said second sub-set of storage elements, said signal controller
4 having a reference register for storing a reference address and control logic
5 coupled to said reference register, to said address generator, and to said decoder,
6 wherein said control logic uses said addresses generated by said address generator
7 and said reference address to determine which storage elements are in said first
8 sub-set and which storage elements are in said second sub-set.” Thus, the
9 referenced product satisfies all of the recited limitations, and its components are
10 designed and arranged to form an optimized, flexible, programmable refresh
11 circuit that reduces size and power consumption in an SDRAM memory device
12 by allowing for partial refresh of a memory array. Further, the referenced product
13 not only has the capability to infringe but, in fact, necessarily infringes by virtue
14 of satisfying all of the recited limitations such that the referenced product operates
15 in a way that allows for partial refresh. By way of further explanation, see the
16 preliminary claim chart attached hereto as Exh. E, incorporated by reference.²
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23 ² Plaintiff respectfully renews the objections raised in its Response (Dkt. 35) to Etron’s Motion
24 to Dismiss. Federal Rule of Civil Procedure 8(a), as interpreted and applied by *Twombly*, *Iqbal*,
25 and their progeny, does not require the level of detail provided here. Nevertheless, out of an
26 abundance of caution, and to comply with the Court’s order (Dkt. 44), Plaintiff has attached
27 *preliminary* claim charts – incorporated here by reference – for at least one claim for each of
28 the Patents-in-Suit. Plaintiff expressly reserves the right to amend its charts as may be
necessary or permitted under the rules, for example, in connection with Plaintiff’s infringement
contentions.

Where applicable or helpful, the charts provide pinpoint citations to datasheets for the
Accused Products, which are publicly available. By contrast, Etron’s highly confidential

1 20. On information and belief, additional, similar models of Defendant’s
2 memory products are believed to infringe one or more claims of the ’143 Patent.
3 Plaintiff expressly reserves the right to assert additional claims and to identify
4 additional infringing products in accordance with the Federal Rules of Civil
5 Procedure, the Court’s scheduling order, and the Court’s local rules.

7 21. Plaintiff has been damaged by Defendant’s infringing conduct and
8 will continue to be damaged unless Defendant is enjoined from further
9 infringement. Accordingly, upon finding for Plaintiff, the Court should award to
10 Plaintiff damages adequate to compensate for the infringement, in an amount to
11 be determined at trial, but in no event less than a reasonable royalty for the use
12 made of the invention by the infringer, together with interest and costs as fixed by
13 the Court. Further, upon judgment in favor of Plaintiff, the Court should
14 permanently enjoin Defendant from committing the infringing acts.

18 **COUNT TWO: INFRINGEMENT OF THE ’274 PATENT**

19 22. Plaintiff incorporates the above allegations as if set forth here in full.
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23 schematic diagrams are *not* publicly available. The schematics included in the charts were
24 created by, or at the direction of, North Star’s consultant, and the references to various
25 “figures” refer to figures within the confidential reverse-engineering reports created by or for
26 North Star’s consultant. North Star does not hereby waive any applicable privileges or work
27 product protections. On information and belief, the schematics accurately represent or describe,
28 in detail, how the relevant portions of Etron’s Accused Products operate and/or how the
relevant components of such products are arranged or connected. Further, the charts include
color-coded labels and arrows to tie each claim limitation to the corresponding structure(s),
component(s), or functionality(ies). Plaintiff reserves the right to amend or supplement upon
receipt of Etron’s technical documentation.

1 23. The '274 Patent is valid and enforceable. Etron America does not
2 have a license to practice the patented inventions of the '274 Patent.

3 24. Etron America has infringed and is currently infringing, either
4 literally or under the doctrine of equivalents, the '274 Patent by, among other
5 things, making, using, offering for sale, selling, and/or importing within this
6 judicial district and elsewhere in the United States – without license or authority
7 – products, devices, or systems falling within the scope of one or more claims of
8 the '274 Patent, in violation of at least 35 U.S.C. § 271(a). For example, Etron
9 America's 256Mb DDR SDRAM, Etron Part No. EM6AA160TSB-4G ("Etron's
10 256Mb DDR SDRAM") directly infringes at least Claim 1 of the '274 Patent,
11 either literally or under the doctrine of equivalents. More specifically, Etron's
12 256Mb DDR SDRAM infringes at least that claim because it meets each and every
13 limitation of that claim, either literally or under the doctrine of equivalents. For
14 example, Etron's 256Mb DDR SDRAM is a memory device that includes circuitry
15 that is properly characterized as: "an apparatus for use as an output stage of a
16 memory device, the apparatus comprising: a timing circuit; a differential amplifier
17 responsive to the timing circuit; an impedance control circuit; a level converter
18 responsive to the differential amplifier and the impedance control circuit; and a
19 clock-free latch responsive to the level converter." Thus, the referenced product
20 (a memory device) satisfies all of the recited structural limitations such that the
21 memory device includes an output stage that incorporates an improved circuit
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1 design for a differential amplifier that provides a more reliable timing mechanism
2 and thereby facilitates the use of a clock-free latch. The referenced product not
3 only has the capability of infringing but, in fact, necessarily infringes by virtue of
4 satisfying all of the recited limitations and necessarily operates in a way that
5 utilizes a more reliable timing mechanism and thereby facilitates the use of a
6 clock-free latch. By way of further explanation, see the preliminary claim chart
7 attached hereto as Exh. F, incorporated by reference. *See also* footnote 2, *supra*.

10 25. On information and belief, additional products of Etron America are
11 believed to infringe one or more claims of the '274 Patent, because, for example,
12 they include components, such as memory devices and/or controllers, that include
13 the same or substantially the same circuitry. Plaintiff expressly reserves the right
14 to assert additional patents and additional claims and to identify additional
15 infringing products, in accordance with the Federal Rules of Civil Procedure, the
16 Court's scheduling order, and the Court's local rules.

19 26. Plaintiff has been damaged by Etron America's infringing conduct
20 and will continue to be damaged unless Etron America is enjoined from further
21 infringement. Accordingly, upon finding for Plaintiff, the Court should award to
22 Plaintiff damages adequate to compensate for the infringement, in an amount to
23 be determined at trial, but in no event less than a reasonable royalty for the use
24 made of the invention by the infringer, together with interest and costs as fixed by
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1 the Court. Further, upon judgment in favor of Plaintiff, the Court should
2 permanently enjoin Defendant from committing the infringing acts.

3 **COUNT THREE: INFRINGEMENT OF THE '875 PATENT**

4 27. Plaintiff incorporates the above allegations as if set forth here in full.

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6 28. The '875 Patent is valid and enforceable. Defendant does not have a
7 license to practice the patented inventions of the '875 Patent.

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9 29. Defendant has infringed and is currently infringing the '875 Patent
10 by, among other things, making, using, offering for sale, selling, and/or importing
11 within this judicial district and elsewhere in the United States – without license or
12 authority – products, devices, and/or systems falling within the scope of one or
13 more claims of the '875 Patent, in violation of at least 35 U.S.C. § 271(a). For
14 example, Etron America's Etron's 256Mb DDR SDRAM directly infringes at
15 least Claim 1 of the '875 Patent, either literally or under the doctrine of
16 equivalents.
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19 30. More specifically, the referenced product infringes at least Claim 1
20 because it meets each and every limitation of Claim 1, either literally or under the
21 doctrine of equivalents. For example, the referenced product includes, among
22 other things, a boost circuit that includes “a first switch coupled between the input
23 terminal and the output terminal and operated by a first phase signal; a second
24 switch coupled between the input terminal and the output terminal and operated
25 by a second phase signal that is opposite to the first phase signal; a first capacitor
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1 having a first terminal coupled to the output terminal and a second terminal
2 coupled for receiving a boost signal; and a second capacitor having a first terminal
3 coupled to the output terminal and a second terminal coupled for receiving the
4 boost signal.” Thus, the referenced product includes an efficient and compact
5 voltage boosting circuit that boosts the available supply voltage and limits output
6 distortion. The referenced product not only has the capability of infringing but, in
7 fact, necessarily infringes by virtue of satisfying all of the recited limitations and
8 necessarily operates in a way that utilizes a boosting circuit to boost the available
9 supply voltage and to limit output distortion. By way of further explanation, see
10 the preliminary claim chart attached hereto as Exh. G, incorporated by reference.

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14 *See also* footnote 2, *supra*.

15 31. On information and belief, additional, similar models of Etron
16 America’s memory products are believed to infringe one or more claims of the
17 ’875 Patent. Plaintiff expressly reserves the right to assert additional claims and
18 to identify additional infringing products in accordance with the Federal Rules of
19 Civil Procedure, the Court’s scheduling order, and the Court’s local rules.

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22 32. Plaintiff has been damaged by Defendant’s infringing conduct and
23 will continue to be damaged unless Defendant is enjoined from further
24 infringement. Accordingly, upon finding for Plaintiff, the Court should award to
25 Plaintiff damages adequate to compensate for the infringement, in an amount to
26 be determined at trial, but in no event less than a reasonable royalty for the use
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1 made of the invention by the infringers, together with interest and costs as fixed
2 by the Court. Further, upon judgment in favor of Plaintiff, the Court should
3 permanently enjoin Defendant from committing the infringing acts.
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5 **COUNT FOUR: INFRINGEMENT OF THE '555 PATENT**

6 33. Plaintiff incorporates the above allegations as if set forth here in full.

7 34. The '555 Patent is valid and enforceable. Defendant does not have a
8 license to practice the patented inventions of the '555 Patent.
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10 35. Defendant has infringed and is currently infringing the '555 Patent
11 by, among other things, making, using, offering for sale, selling, and/or importing
12 within this judicial district and elsewhere in the United States – without license or
13 authority – products, devices, and/or systems falling within the scope of one or
14 more claims of the '555 Patent, in violation of at least 35 U.S.C. § 271(a). For
15 example, Etron's 256Mb DDR SDRAM directly infringes at least Claim 15 of the
16 '555 Patent, either literally or under the doctrine of equivalents.
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19 36. More specifically, the referenced product infringes at least Claim 15
20 because it meets each and every limitation of Claim 15, either literally or under
21 the doctrine of equivalents. For example, the above-referenced accused product
22 is: "An integrated circuit having power management comprising: processing
23 circuitry for executing instructions; a plurality of memory bit cells contained
24 within a memory array, the plurality of memory bit cells being coupled to a power
25 supply terminal for creating a first power plane; memory array peripheral circuitry
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1 that is peripheral to the plurality of memory bit cells, the memory array peripheral
2 circuitry being selectively coupled to the power supply terminal for creating a
3 second power plane that is independent of the first power plane; and control
4 circuitry coupled to the memory array peripheral circuitry that is peripheral to the
5 plurality of memory bit cells, the control circuitry selectively removing electrical
6 connectivity to the power supply terminal of the memory array peripheral circuitry
7 that is peripheral to the plurality of memory bit cells.” Thus, the referenced
8 product includes power management capabilities whereby multiple, independent
9 power planes are used to eliminate or reduce leakage current. The referenced
10 product not only has the capability of infringing but, in fact, necessarily infringes
11 by virtue of satisfying all of the recited limitations and necessarily operates in a
12 way that utilizes multiple, independent power planes to eliminate or reduce
13 leakage current. By way of further explanation, see the preliminary claim chart
14 attached hereto as Exh. H, incorporated by reference. *See also* footnote 2, *supra*.

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20 37. On information and belief, additional, similar models of Etron
21 America’s memory products are believed to infringe one or more claims of the
22 ’555 Patent. Plaintiff expressly reserves the right to assert additional claims and
23 to identify additional infringing products in accordance with the Federal Rules of
24 Civil Procedure, the Court’s scheduling order, and the Court’s local rules.

25
26 38. Plaintiff has been damaged by Defendant’s infringing conduct and
27 will continue to be damaged unless Defendant is enjoined from further
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1 infringement. Accordingly, upon finding for Plaintiff, the Court should award to
2 Plaintiff damages adequate to compensate for the infringement, in an amount to
3 be determined at trial, but in no event less than a reasonable royalty for the use
4 made of the invention by the infringers, together with interest and costs as fixed
5 by the Court. Further, upon judgment in favor of Plaintiff, the Court should
6 permanently enjoin Defendant from committing the infringing acts.
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9 **DEMAND FOR JURY TRIAL**

10 39. Plaintiff hereby demands a trial by jury on all issues.

11 **PRAYER FOR RELIEF**

12 WHEREFORE, Plaintiff respectfully prays for entry of judgment as
13 follows:
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15 1. That Defendant has directly infringed, either literally or under the
16 doctrine of equivalents, one or more claims of the Patents-In-Suit;
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18 2. That Defendant is permanently enjoined from further infringement of
19 the Patents-in-Suit;
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21 3. That Plaintiff is entitled to, and should recover, all damages to which
22 Plaintiff is entitled under 35 U.S.C. § 284, but in no event less than a reasonable
23 royalty;
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25 4. That Defendant be ordered to provide an accounting;

26 5. That Plaintiff, as the prevailing party, shall recover from Defendant
27 all taxable costs of court;
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DEMAND FOR JURY TRIAL

Plaintiff hereby demands a trial by jury on all issues properly triable by jury.

Dated: October 3, 2016

/s/ Brandon C. Fernald
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