

1 Michael J. Lyons, CA State Bar No. 202284
michael.lyons@morganlewis.com
2 Jason E. Gettleman, CA State Bar No. 269733
jason.gettleman@morganlewis.com
3 Jacob J.O. Minne, CA State Bar No. 294570
jacob.minne@morganlewis.com
4 Karon N. Fowler, CA State Bar No. 308145
karon.fowler@morganlewis.com
5 MORGAN, LEWIS & BOCKIUS LLP
1400 Page Mill Road
6 Palo Alto, CA 94304
Tel: +1.650.843.4000
7 Fax: +1.650.843.4001

8 Attorneys for Plaintiff
HITACHI KOKUSAI ELECTRIC INC.

10 UNITED STATES DISTRICT COURT
11 NORTHERN DISTRICT OF CALIFORNIA
12

13
14 HITACHI KOKUSAI ELECTRIC INC., a
15 Japanese corporation,

16 Plaintiff,

17 vs.

18 ASM INTERNATIONAL, N.V., a Netherlands
corporation, and ASM AMERICA, INC., a
19 Delaware corporation,

20 Defendants.
21

Case No. 5:17-cv-6880

**COMPLAINT FOR PATENT
INFRINGEMENT**

DEMAND FOR JURY TRIAL

22 Plaintiff Hitachi Kokusai Electric Inc. (“Plaintiff” or “HiKE”) for its complaint against
23 Defendants ASM America, Inc. and ASM International, N.V. (“Defendants” or “ASM”), hereby
24 alleges as follows:

25 **PARTIES**

26 1. HiKE is a corporation organized and existing under the laws of Japan with its
27 principal place of business in Tokyo, Japan.

ASM Ex. 1011
IPR Petition - USP 7,808,396

2. Defendant ASM International, N.V. is a corporation organized and existing under the laws of the Netherlands with its principal place of business at Versterkerstraat 8, 1332 AP Almere, Netherlands.

3. Defendant ASM America, Inc. is a Delaware corporation, with its principal place of business at 3340 East University Drive, Phoenix, AZ 85034, and qualified to do business in the State of California, with an office located at 97 East Brokaw Road, Suite 100, San Jose, California, 95112. On information and belief, Defendant ASM America, Inc. is a wholly-owned subsidiary of ASM International, N.V.

4. On information and belief, Defendants jointly make, use, sell, offer for sale or import certain semiconductor process equipment for wafer processing, including the Pulsar XP ALD system, EmerALD XP ALD system, XP8 system, A412 batch vertical furnace system, A400 batch vertical furnace system, Intrepid XP epitaxy product, Epsilon 2000 single wafer epitaxy system, and Epsilon 3200 single wafer epitaxy system (the “Accused Products”).

TECHNOLOGY – PRODUCT MATRIX			
DEPOSITION APPLICATION	ASMI PRODUCT PLATFORM	ASMI PRODUCTS	PROCESS APPLICATION
ALD	XP ¹	Pulsar XP ALD system EmerALD XP ALD system	High-k gate dielectric Metal gate electrode
PEALD	XP8 ¹	Eagle XP8 PEALD system	Spacer for multipatterning Gate spacer Etch stop
PECVD	XP8 ¹	Dragon XP8 PECVD system	Inter-layer dielectric Silicon nitride
Diffusion Oxidation LPCVD ALD	Advance Series	A400 batch vertical furnace system A412 batch vertical furnace system	Furnace: - Diffusion, oxidation - Polysilicon - Silicon nitride
Epitaxy	XP ¹	Intrepid XP epitaxy	Silicon channel Strain layer
	Epsilon	Epsilon 2000 single wafer epitaxy system Epsilon 3200 single wafer epitaxy system	

ASM, *Technology – Product Matrix*, <http://www.asm.com/solutions/products> (last accessed Nov.

1 30, 2017).

2 5. Defendants' actions have caused HiKE harm, and will cause further harm to HiKE
3 if Defendants' actions continue. In addition, Defendants' knowing acts of infringement will
4 frustrate HiKE's continued, strong business relationships, contracts, and potential contracts, with
5 resulting lost sales and profits, and otherwise are or will cause substantial harm to HiKE's
6 business.

7 6. As a result of Defendants' actions, HiKE brings this lawsuit to protect its patented
8 innovation and its reputation as the world-wide leader in the semiconductor manufacturing
9 system industry.

10 **JURISDICTION AND VENUE**

11 7. This is an action for patent infringement arising under the Patent Laws of the
12 United States, 35 U.S.C. § 1 *et seq.* The Court has subject matter jurisdiction over this matter
13 pursuant to 28 U.S.C. §§ 1331 and 1138(a).

14 8. On information and belief, Defendants are subject to the personal jurisdiction of
15 this Court because they are doing and have done substantial business in this District, including
16 business relating to the sale and distribution of the Accused Products. Defendants have
17 continuous and systematic business contacts with the State of California and either directly or
18 through subsidiaries and intermediaries conduct business in California by shipping, distributing,
19 offering for sale, selling, advertising (including the provision of an interactive web page—*e.g.*,
20 <http://www.asm.com/solutions/products>) the Accused Products in the State of California and the
21 Northern District of California. Defendants also directly or through their subsidiaries and
22 intermediaries conduct business in California through their sales and service office located at 97
23 East Brokaw Road, Suite 100, San Jose, California, 95112. Defendants directly or through their
24 subsidiaries and intermediaries have purposefully and voluntarily placed the Accused Products
25 into the stream of commerce with the intention and expectation that the Accused Products will be
26 purchased and used by customers in the Northern District of California. Therefore, the exercise
27 of jurisdiction over Defendants is proper under the applicable jurisdictional statutes and would
28

1 not offend traditional notions of fair play and substantial justice.

2 9. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(a), 1391(c), and/or
3 1400(b) because, among other reasons, Defendants are subject to personal jurisdiction in this
4 District and have committed acts of infringement in this District.

5 **INTRADISTRICT ASSIGNMENT**

6 10. Pursuant to Local Rules 3-2(c) and (e), Intellectual Property Actions are assigned
7 on a district-wide basis. Further, a substantial part of the events giving rise to the claims alleged
8 in this Complaint occurred and are occurring in the city of San Jose, CA and the county of Santa
9 Clara because ASM America, Inc.'s sales and service office is located in San Jose, CA.

10 **BACKGROUND**

11 11. HiKE is a world leader in the design, manufacture, installation, and maintenance
12 of batch and single wafer semiconductor manufacturing systems and equipment.

13 12. HiKE is recognized as a pioneer in the field of thermal processing technology for
14 semiconductor wafers, and HiKE furnaces are found in the majority of semiconductor fabrication
15 plants, commonly known as "fabs," around the world.

16 13. To continually improve its product offerings for its customers, HiKE invests
17 substantial resources in research and development of semiconductor manufacturing systems,
18 including the development of products having improved fabrication processing time, having
19 improved productivity, and resulting in product of superior quality. Over the years, HiKE has
20 received accolades for its role as an innovative leader in this field of technology and has received
21 numerous seminal and valuable patents for its inventions. HiKE relies upon its patents to
22 maintain its reputation as a leader in semiconductor manufacturing systems technology and
23 protect its customers from inferior devices that may result in lesser quality processing and
24 production.

25 14. HiKE's patents in this field include U.S. Patent Nos. 7,033,937 ("the '937
26 patent"), 6,576,063 ("the '063 patent"), 7,808,396 ("the '396 patent"), RE43,023 ("the '023
27 patent"), 6,744,018 ("the '018 patent"), 8,409,988 ("the '988 patent"), and 9,318,316 ("the '316
28

1 patent”) (collectively, “the Asserted Patents”).

2 The Patents-in-Suit

3 15. On April 25, 2006, the United States Patent and Trademark Office (“USPTO”)
 4 duly and legally issued the ’937 patent, which is titled “Apparatus and Method for Use in
 5 Manufacturing a Semiconductor Device.” The ’937 patent has been assigned to HiKE. HiKE
 6 holds all right, title, and interest in the ’937 patent, including the right to collect and receive
 7 damages for past, present, and future infringement of the ’937 patent.

8 16. On June 10, 2003, the USPTO duly and legally issued the ’063 patent, which is
 9 titled “Apparatus and Method for Use in Manufacturing a Semiconductor Device.” The ’063
 10 patent has been assigned to HiKE. HiKE holds all right, title, and interest in the ’063 patent,
 11 including the right to collect and receive damages for past, present, and future infringement of the
 12 ’063 patent.

13 17. On October 5, 2010, the USPTO duly and legally issued the ’396 patent, which is
 14 titled “Substrate Processing Apparatus.” The ’396 patent has been assigned to HiKE. HiKE
 15 holds all right, title, and interest in the ’396 patent, including the right to collect and receive
 16 damages for past, present, and future infringement of the ’396 patent.

17 18. On December 13, 2011, the USPTO duly and legally reissued U.S. Patent No.
 18 6,641,350 as the ’023 patent, which is titled “Dual Loading Port Semiconductor Processing
 19 Equipment.” The ’023 patent has been assigned to HiKE. HiKE holds all right, title, and interest
 20 in the ’023 patent, including the right to collect and receive damages for past, present, and future
 21 infringement of the ’023 patent.

22 19. On June 1, 2004, the USPTO duly and legally issued the ’018 patent, which is
 23 titled “Dual Loading Port Semiconductor Processing Equipment.” The ’018 patent has been
 24 assigned to HiKE. HiKE holds all right, title, and interest in the ’018 patent, including the right
 25 to collect and receive damages for past, present, and future infringement of the ’018 patent.

26 20. On April 2, 2013, the USPTO duly and legally issued the ’988 patent, which is
 27 titled “Method of Manufacturing Semiconductor Device and Substrate Processing Apparatus.”
 28

1 The '988 patent has been assigned to HiKE. HiKE holds all right, title, and interest in the '988
 2 patent, including the right to collect and receive damages for past, present, and future
 3 infringement of the '988 patent.

4 21. On April 19, 2016, the USPTO duly and legally issued the '316 patent, which is
 5 titled "Method of Manufacturing Semiconductor Device, Method of Processing Substrate and
 6 Substrate Processing Apparatus for Forming Thin Film Containing at Least Two Different
 7 Elements." The '316 patent has been assigned to HiKE. HiKE holds all right, title, and interest
 8 in the '316 patent, including the right to collect and receive damages for past, present, and future
 9 infringement of the '316 patent.

COUNT I

Infringement of the '937 Patent

12 22. HiKE incorporates paragraphs 1-21 above by reference.

13 23. HiKE is the owner, by assignment, of all rights, title and interest in the '937 patent,
 14 including the right to recover damages for past infringement.

15 24. By making, using, importing, selling, and/or offering for sale one or more of the
 16 Accused Products, including but not limited to the Pulsar XP ALD system, Defendants have
 17 infringed and continue to infringe the '937 patent in this District and throughout the United
 18 States.

19 25. For example, the Pulsar XP ALD system infringes at least claim 10 of the '937
 20 patent because it practices a semiconductor device manufacturing method that includes the steps
 21 of (a) generating a plasma in at least one plasma source arranged outside a reaction chamber
 22 where the reaction chamber has at least one substrate to be processed; and (b) supplying and
 23 removing active species generated by the plasma source into and from the reaction chamber
 24 through a supply port arranged at a side of the reaction chamber and an exhaust port arranged at a
 25 substantially opposite side to the supply port where the supply port and the exhaust port are
 26 positioned substantially at a same level, and the active species flows in a substantially horizontal
 27 direction from the supply port to the exhaust port.

1 26. Defendants have been aware of the '937 patent and its infringement since at least
2 July 10, 2012.

3 27. On information and belief, Defendants have also induced and/or are inducing the
4 infringement of the '937 patent by making, using, importing, offering for sale, and/or selling one
5 or more of the Accused Products, including but not limited to the Pulsar XP ALD system. At
6 least this product, as provided by Defendants to their customers and used as intended and
7 instructed, infringes the '937 patent. Defendants sold and/or offered for sale one or more of the
8 Accused Products, including but not limited to the Pulsar XP ALD system, and are continuing to
9 do so, to customers with the specific intent to actively encourage them to use one or more of the
10 Accused Products, including but not limited to the Pulsar XP ALD system in the United States in
11 a manner that Defendants know to be infringing.

12 28. On information and belief, Defendants have also contributed to and/or are
13 contributing to the infringement of the '937 patent by making, using, importing, offering for sale,
14 and/or selling one or more of the Accused Products, including but not limited to the Pulsar XP
15 ALD system. Defendants have made and/or sold such products with knowledge that they are
16 especially designed for use in a patented system and/or apparatus for use in a patented process
17 and are not a staple article of commerce suitable for substantial non-infringing use. For example,
18 among other things, on information and belief, Defendants actively and knowingly sell such
19 products and provide customer support, installation and instruction material, and other
20 documentation to customers for such products' use as a component of a patented system and/or
21 apparatus for use in a patented process. On information and belief, Defendants' customers have
22 used and continue to use such products in the United States in this manner and infringed the '937
23 patent.

24 29. As a result of Defendants' infringement of the '937 patent, HiKE has suffered and
25 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
26 to compensate for such infringement in an amount to be determined at trial.

27 30. Defendants' acts of infringement of the '937 patent herein have been committed
28

1 and are being committed with full knowledge of HiKE's rights in the patent. On information and
 2 belief, Defendants have acted and are continuing to act despite knowing that their actions
 3 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
 4 known of this infringement since at least July 10, 2012. Defendants' acts constitute willful and
 5 deliberate infringement, entitling HiKE to enhanced damages under 35 U.S.C. § 284 and
 6 reasonable attorneys' fees and costs.

7 31. Defendants' acts of infringement have caused and will continue to cause
 8 irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to
 9 injunctive relief.

10 **COUNT II**

11 **Infringement of the '063 Patent**

12 32. HiKE incorporates paragraphs 1-31 above by reference.

13 33. HiKE is the owner, by assignment, of all rights, title and interest in the '063 patent,
 14 including the right to recover damages for past infringement.

15 34. By making, using, importing, selling, and/or offering for sale one or more of the
 16 Accused Products, including but not limited to the Pulsar XP ALD system, Defendants have
 17 infringed and continue to infringe the '063 patent in this District and throughout the United
 18 States.

19 35. For example, the Pulsar XP ALD system infringes at least claim 10 of the '063
 20 patent because it meets the claim 10's limitations of a semiconductor manufacturing apparatus
 21 that includes (a) a reaction chamber in which one or more substrates are disposed for processing;
 22 (b) a plasma source arranged outside of and in proximity to the reaction chamber; (c) an active
 23 species supply port for providing active species generated by the plasma source to the reaction
 24 chamber and arranged at a side of the reaction chamber; and (d) an exhaust port at a substantially
 25 opposite side to the active species supply port; (e) where the active species flow substantially
 26 parallel to the surface of each substrate from an edge in proximity to the active species supply
 27 port to another edge in proximity to the exhaust port; and (f) where the reaction chamber includes
 28

1 two openings for introducing and removing the active species into and from the reaction chamber,
2 the openings are positioned substantially at a same level, and the active species flow in a
3 substantially horizontal direction from one opening to the other.

4 36. Defendants have been aware of the '063 patent and its infringement since at least
5 July 10, 2012.

6 37. On information and belief, Defendants have also induced and/or are inducing the
7 infringement of the '063 patent by making, using, importing, offering for sale, and/or selling one
8 or more of the Accused Products, including but not limited to the Pulsar XP ALD system.
9 Defendants sold and/or offered for sale one or more of the Accused Products, including but not
10 limited to the Pulsar XP ALD system, and are continuing to do so, to customers with the specific
11 intent to actively encourage them to use at least one or more of the Accused Products, including
12 but not limited to the Pulsar XP ALD system in the United States in a manner that Defendants
13 know to be infringing.

14 38. On information and belief, Defendants have also contributed to and/or are
15 contributing to the infringement of the '063 patent by making, using, importing, offering for sale,
16 and/or selling one or more of the Accused Products, including but not limited to the Pulsar XP
17 ALD system. Defendants have made and/or sold such products with knowledge that they are
18 especially designed for use in a patented system and/or apparatus for use in a patented process
19 and are not a staple article of commerce suitable for substantial non-infringing use. For example,
20 among other things, on information and belief, Defendants actively and knowingly sell such
21 products and provide customer support, installation and instruction material, and other
22 documentation to customers for such products' use as a component of a patented system and/or
23 apparatus for use in a patented process. On information and belief, Defendants' customers have
24 used and continue to use such products in the United States in this manner and infringed the '063
25 patent.

26 39. As a result of Defendants' infringement of the '063 patent, HiKE has suffered and
27 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
28

1 to compensate for such infringement in an amount to be determined at trial.

2 40. Defendants' acts of infringement of the '063 patent herein have been committed
3 and are being committed with full knowledge of HiKE's rights in the patent. On information and
4 belief, Defendants have acted and are continuing to act despite knowing that their actions
5 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
6 known of this infringement since at least July 10, 2012. Defendants' acts, constitute willful and
7 deliberate infringement, entitling HiKE to enhanced damages under 35 U.S.C. § 284 and
8 reasonable attorneys' fees and costs.

9 41. Defendants' acts of infringement have caused and will continue to cause
10 irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to
11 injunctive relief.

12 **COUNT III**

13 **Infringement of the '396 Patent**

14 42. HiKE incorporates paragraphs 1-41 above by reference.

15 43. HiKE is the owner, by assignment, of all rights, title and interest in the '396 patent,
16 including the right to recover damages for past infringement.

17 44. By making, using, importing, selling, and/or offering for sale one or more of the
18 Accused Products, including but not limited to the Intrepid XP epitaxy system, Defendants have
19 infringed and continue to infringe the '396 patent in this District and throughout the United
20 States.

21 45. For example, the Intrepid XP epitaxy system infringes at least claim 9 of the '396
22 patent because it contains a substrate processing apparatus that includes a signal tower and a
23 buzzer as a plurality of signal indicators for indicating a running state, consisting of (a) a display
24 unit that displays operation conditions, which are not set independently and in advance, that
25 correspond to the signal tower and the buzzer, where (b) the display unit sets the sound of the
26 buzzer as the operational condition of the signal tower.

27 46. Defendants have been aware of the '396 patent and its infringement since at least
28

1 July 10, 2012.

2 47. On information and belief, Defendants have also induced and/or are inducing the
3 infringement of the '396 patent by making, using, importing, offering for sale, and/or selling one
4 or more of the Accused Products, including but not limited to the Intrepid XP epitaxy system.
5 Such products, as provided by Defendants to their customers and used as intended and instructed,
6 infringe the '396 patent. Defendants sold and/or offered for sale one or more of the Accused
7 Products, including but not limited to the Intrepid XP epitaxy system, and are continuing to do so,
8 to customers with the specific intent to actively encourage them to one or more of the Accused
9 Products, including but not limited to the Intrepid XP epitaxy system in the United States in a
10 manner that Defendants know to be infringing.

11 48. On information and belief, Defendants have also contributed to and/or are
12 contributing to the infringement of the '396 patent by making, using, importing, offering for sale,
13 and/or selling one or more of the Accused Products, including but not limited to the Intrepid XP
14 epitaxy system. Defendants have made and/or sold such products with knowledge that they are
15 products are especially designed for use in a patented system and/or apparatus for use in a
16 patented process and are not staple articles of commerce suitable for substantial non-infringing
17 use. For example, among other things, on information and belief, Defendants actively and
18 knowingly sell such products and provide customer support, installation and instruction material,
19 and other documentation to customers for the products' use as a component of a patented system
20 and/or apparatus for use in a patented process. On information and belief, Defendants' customers
21 have used and continue to use such products in the United States in this manner and infringed the
22 '396 patent.

23 49. As a result of Defendants' infringement of the '396 patent, HiKE has suffered and
24 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
25 to compensate for such infringement in an amount to be determined at trial.

26 50. Defendants' acts of infringement of the '396 patent herein have been committed
27 and are being committed with full knowledge of HiKE's rights in the patent. On information and
28

1 belief, Defendants have acted and are continuing to act despite knowing that their actions
 2 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
 3 known of this infringement since at least July 10, 2012. Defendants' acts constitute willful and
 4 deliberate infringement, entitling HiKE to enhanced damages under 35 U.S.C. § 284 and
 5 reasonable attorneys' fees and costs.

6 51. Defendants' acts of infringement have caused and will continue to cause
 7 irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to
 8 injunctive relief.

9 **COUNT IV**

10 **Infringement of the '023 Patent**

11 52. HiKE incorporates paragraphs 1-51 above by reference.

12 53. HiKE is the owner, by assignment, of all rights, title and interest in the '023 patent,
 13 including the right to recover damages for past infringement.

14 54. By making, using, importing, selling, and/or offering for sale one or more of the
 15 Accused Products, including but not limited to the A412 batch vertical furnace system,
 16 Defendants have infringed and continue to infringe the '023 patent in this District and throughout
 17 the United States.

18 55. For example, the A412 batch vertical furnace system infringes at least claim 1 of
 19 the '023 patent because it meets claim 1's limitations of substrate processing equipment that
 20 includes (a) at least two pod supporting stages on which to place a pod for containing substrates
 21 where the pod has a door; (b) at least two independently-operable opening mechanisms for pod
 22 doors, each of which permits access to substrates inside the pod that is placed on a corresponding
 23 one of the pod supporting stages; and (c) each of the pod door opening mechanisms horizontally
 24 removes the door from the corresponding pod to allow the corresponding pod's substrates to be
 25 unloaded from the pod.

26 56. Defendants have been aware of the '023 patent and its infringement since at least
 27 as early as July 10, 2012.

1 57. On information and belief, Defendants have also induced and/or are inducing the
2 infringement of the '023 patent by making, using, importing, offering for sale, and/or selling one
3 or more of the Accused Products, including but not limited to the A412 batch vertical furnace
4 system. Defendants sold and/or offered for sale one or more of the Accused Products, including
5 but not limited to the A412 batch vertical furnace system, and are continuing to do so, to
6 customers with the specific intent to actively encourage them to use one or more of the Accused
7 Products, including but not limited to the A412 batch vertical furnace system in the United States
8 in a manner that Defendants know to be infringing.

9 58. On information and belief, Defendants have also contributed to and/or are
10 contributing to the infringement of the '023 patent by making, using, importing, offering for sale,
11 and/or selling one or more of the Accused Products, including but not limited to the A412 batch
12 vertical furnace system. Defendants have made and/or sold such products with knowledge that
13 they are especially designed for use in a patented system and/or apparatus for use in a patented
14 process and are not a staple article of commerce suitable for substantial non-infringing use. For
15 example, among other things, on information and belief, Defendants actively and knowingly sell
16 such products and provide customer support, installation and instruction material, and other
17 documentation to customers for such products' use as a component of a patented system and/or
18 apparatus for use in a patented process. On information and belief, Defendants' customers have
19 used and continue to use such products in the United States in this manner and infringed the '023
20 patent.

21 59. As a result of Defendants' infringement of the '023 patent, HiKE has suffered and
22 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
23 to compensate for such infringement in an amount to be determined at trial.

24 60. Defendants' acts of infringement of the '023 patent herein have been committed
25 and are being committed with full knowledge of HiKE's rights in the patent. On information and
26 belief, Defendants have acted and are continuing to act despite knowing that their actions
27 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
28

known of this infringement since at least July 10, 2012. Defendants' acts constitute willful and deliberate infringement, entitling HiKE to enhanced damages under 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

61. Defendants' acts of infringement have caused and will continue to cause irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to injunctive relief.

COUNT V

Infringement of the '018 Patent

62. HiKE incorporates paragraphs 1-61 above by reference.

63. HiKE is the owner, by assignment, of all rights, title and interest in the '018 patent, including the right to recover damages for past infringement.

64. By making, using, importing, selling, and/or offering for sale one or more of the Accused Products, including but not limited to the XP8 system, Defendants have infringed and continue to infringe the '018 patent in this District and throughout the United States.

65. For example, the XP8 system infringes at least claim 14 of the '018 patent because it meets claim 14's limitations of a substrate processing apparatus, including (a) a heating member that heats a substrate and is capable of performing an unequal heating in a substrate surface; (b) a controller that controls heating of the substrate at least between a first temperature and a second temperature, which is different from the first temperature, and that controls the heating member such that a temperature deviation in the substrate surface is maintained within a range such that no warpage of the substrate occurs; and (c) where a temperature deviation value in the substrate surface at the first temperature and a temperature deviation value in the substrate surface at the second temperature are different from each other.

66. Defendants have been aware of the '018 patent and its infringement since at least July 10, 2012.

67. On information and belief, Defendants have also induced and/or are inducing the infringement of the '018 patent by making, using, importing, offering for sale, and/or selling one

1 or more of the Accused Products, including but not limited to the XP8 system. Defendants sold
 2 and/or offered for sale one or more of the Accused Products, including but not limited to the XP8
 3 system, and are continuing to do so, to customers with the specific intent to actively encourage
 4 them to use one or more of the Accused Products, including but not limited to the XP8 system, in
 5 the United States in a manner that Defendants know to be infringing.

6 68. On information and belief, Defendants have also contributed to and/or are
 7 contributing to the infringement of the '018 patent by making, using, importing, offering for sale,
 8 and/or selling one or more of the Accused Products, including but not limited to the XP8 system.
 9 Defendants have made and/or sold such products with knowledge that they are especially
 10 designed for use in a patented system and/or apparatus for use in a patented process and are not
 11 staple articles of commerce suitable for substantial non-infringing use. For example, among other
 12 things, on information and belief, Defendants actively and knowingly sell such products and
 13 provide customer support, installation and instruction material, and other documentation to
 14 customers for the products' use as a component of a patented system and/or apparatus for use in a
 15 patented process. On information and belief, Defendants' customers have used and continue to
 16 use such products in the United States in this manner and infringed the '018 patent.

17 69. As a result of Defendants' infringement of the '018 patent, HiKE has suffered and
 18 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
 19 to compensate for such infringement in an amount to be determined at trial.

20 70. Defendants' acts of infringement of the '018 patent herein have been committed
 21 and are being committed with full knowledge of HiKE's rights in the patent. On information and
 22 belief, Defendants have acted and are continuing to act despite knowing that their actions
 23 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
 24 known of this infringement since at least July 10, 2012. Defendants' acts, since at least July 10,
 25 2012, constitute willful and deliberate infringement, entitling HiKE to enhanced damages under
 26 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

27 71. Defendants' acts of infringement have caused and will continue to cause
 28

irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to injunctive relief.

COUNT VI

Infringement of the '988 Patent

72. HiKE incorporates paragraphs 1-71 above by reference.

73. HiKE is the owner, by assignment, of all rights, title and interest in the '988 patent, including the right to recover damages for past infringement.

74. By making, using, importing, selling, and/or offering for sale one or more of the Accused Products, including but not limited to the XP8 system, Defendants have infringed and continue to infringe the '988 patent in this District and throughout the United States.

75. For example, the XP8 system infringes at least claim 1 of the '988 patent because it practices a method of manufacturing a semiconductor device that consists of (a) forming a first layer including a first element that is able to become solid state by itself on a substrate by supplying a gas containing the first element into a process vessel that contains the substrate under a condition where a CVD reaction is caused; (b) modifying the first layer by supplying a gas containing a second element that is unable to become solid state by itself into the process vessel to form a second layer including the first element and the second element; and (c) performing a cycle that consists of steps (a) and (b) at least once to form a thin film having a predetermined thickness and including the first element and the second element.

76. Defendants have been aware of the '988 patent and its infringement since at least as early as October 17, 2014.

77. On information and belief, Defendants have also induced and/or are inducing the infringement of the '988 patent by making, using, importing, offering for sale, and/or selling one or more of the Accused Products, including but not limited to the XP8 system. Defendants sold and/or offered for sale one or more of the Accused Products, including but not limited to the XP8 system, and are continuing to do so, to customers with the specific intent to actively encourage them to use one or more of the Accused Products, including but not limited to the XP8 system, in

1 the United States in a manner that Defendants know to be infringing.

2 78. On information and belief, Defendants have also contributed to and/or are
3 contributing to the infringement of the '988 patent by making, using, importing, offering for sale,
4 and/or selling one or more of the Accused Products, including but not limited to the XP8 system.
5 Defendants have made and/or sold such products with knowledge that they are especially
6 designed for use in a patented system and/or apparatus for use in a patented process and are not a
7 staple article of commerce suitable for substantial non-infringing use. For example, among other
8 things, on information and belief, Defendants actively and knowingly sell such products and
9 provide customer support, installation and instruction material, and other documentation to
10 customers for such products' use as a component of a patented system and/or apparatus for use in
11 a patented process. On information and belief, Defendants' customers have used and continue to
12 use such products in the United States in this manner and infringed the '988 patent.

13 79. As a result of Defendants' infringement of the '988 patent, HiKE has suffered and
14 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
15 to compensate for such infringement in an amount to be determined at trial.

16 80. Defendants' acts of infringement of the '988 patent herein have been committed
17 and are being committed with full knowledge of HiKE's rights in the patent. On information and
18 belief, Defendants have acted and are continuing to act despite knowing that their actions
19 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
20 known of this infringement since at least October 17, 2014. Defendants' acts constitute willful
21 and deliberate infringement, entitling HiKE to enhanced damages under 35 U.S.C. § 284 and
22 reasonable attorneys' fees and costs.

23 81. Defendants' acts of infringement have caused and will continue to cause
24 irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to
25 injunctive relief.

COUNT VII**Infringement of the '316 Patent**

82. HiKE incorporates paragraphs 1-81 above by reference.

83. HiKE is the owner, by assignment, of all rights, title and interest in the '316 patent, including the right to recover damages for past infringement.

84. By making, using, importing, selling, and/or offering for sale one or more of the Accused Products, including but not limited to the XP8 system, Defendants have infringed and continue to infringe the '316 patent in this District and throughout the United States.

85. For example, the XP8 system infringes at least claim 1 of the '316 patent because it practices a semiconductor device manufacturing method that forms a thin film on that substrate where the film is a predetermined thickness, is a predetermined composition, and consists of a first element and a second element different from the first element, by repeating a cycle a plurality of times, and the cycle consists of the following steps: (a) forming a first layer on the substrate that includes the first element and has a thickness of several atomic layers or less than one atomic layer by supplying a gas containing the first element into a process vessel that accommodates the substrate; and (b) forming a second layer that includes the first element and the second element by supplying a gas containing the second element into the process vessel to modify the first layer without the gas containing the second element saturating a modifying reaction of the first layer.

86. Defendants have been aware of the '316 patent and its infringement since at least as early as July 27, 2016.

87. On information and belief, Defendants have also induced and/or are inducing the infringement of the '316 patent by making, using, importing, offering for sale, and/or selling one or more of the Accused Products, including but not limited to the XP8 system. Defendants sold and/or offered for sale one or more of the Accused Products, including but not limited to the XP8 system, and are continuing to do so, to customers with the specific intent to actively encourage them to use one or more of the Accused Products, including but not limited to the XP8 system in

1 the United States in a manner that Defendants know to be infringing.

2 88. On information and belief, Defendants have also contributed to and/or are
3 contributing to the infringement of the '316 patent by making, using, importing, offering for sale,
4 and/or selling one or more of the Accused Products, including but not limited to the XP8 system.
5 Defendants have made and/or sold such products with knowledge that they are especially
6 designed for use in a patented system and/or apparatus for use in a patented process and are not a
7 staple article of commerce suitable for substantial non-infringing use. For example, among other
8 things, on information and belief, Defendants actively and knowingly sell such products and
9 provide customer support, installation and instruction material, and other documentation to
10 customers for such products' use as a component of a patented system and/or apparatus for use in
11 a patented process. On information and belief, Defendants' customers have used and continue to
12 use such products in the United States in this manner and infringed the '316 patent.

13 89. As a result of Defendants' infringement of the '316 patent, HiKE has suffered and
14 continues to suffer damages. HiKE is entitled to recover from Defendants the damages adequate
15 to compensate for such infringement in an amount to be determined at trial.

16 90. Defendants' acts of infringement of the '316 patent herein have been committed
17 and are being committed with full knowledge of HiKE's rights in the patent. On information and
18 belief, Defendants have acted and are continuing to act despite knowing that their actions
19 constituted direct and/or indirect infringement of a valid patent, and they knew or should have
20 known of this infringement since at least July 27, 2016. Defendants' acts, since at least July 27,
21 2016, constitute willful and deliberate infringement, entitling HiKE to enhanced damages under
22 35 U.S.C. § 284 and reasonable attorneys' fees and costs.

23 91. Defendants' acts of infringement have caused and will continue to cause
24 irreparable harm to HiKE for which there is no adequate remedy at law, thereby entitling HiKE to
25 injunctive relief.

PRAYER FOR RELIEF

WHEREFORE, HiKE prays that this Court enters judgment and provides relief as follows:

A. That Defendants have infringed and are infringing the Asserted Patents;

B. That Defendants have induced and are inducing infringement of the Asserted Patents;

C. That Defendants have contributed to and are contributing to infringement of the Asserted Patents;

D. That the Asserted Patents are valid and enforceable;

E. That Defendants, their officers, agents, and employees, and those persons in active concert of participation with any of them, and their successors and assigns be preliminarily and permanently enjoined from infringement of the Asserted Patents, including but not limited to an injunction against making, using, offering to sell, selling within the United States, and importing into the United States, products covered by the Asserted Patents;

F. For an accounting for any infringing sales not presented at trial and an award by the Court of additional damages for any such infringing sales;

G. That Defendants be ordered to account for and pay to HiKE the damages resulting from Defendants' infringement of the Asserted Patents, including lost profits, together with interest and costs, and all other damages permitted by 35 U.S.C. § 284, including enhanced damages up to three times the amount of damages found or measured, but in any event no less than a reasonable royalty;

H. That this action be adjudged an exceptional case and HiKE be awarded its attorneys' fees, expenses and costs in this action pursuant to 35 U.S.C. § 285; and

I. That HiKE be awarded such other equitable or legal relief as this Court deems just and proper under the circumstances.

JURY DEMAND

HiKE demands a trial by jury on all issues so triable.

Respectfully submitted,

Dated: December 1, 2017

/s/ Michael J. Lyons

Michael J. Lyons

Jason E. Gettleman

Jacob J.O. Minne

Karon N. Fowler

MORGAN, LEWIS & BOCKIUS LLP

1400 Page Mill Road

Palo Alto, CA 94304

Tel: +1.650.843.4000

Fax: +1.650.843.4001

Attorneys for Plaintiff

HITACHI KOKUSAI ELECTRIC INC.

CIVIL COVER SHEET

The JS-CAND 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved in its original form by the Judicial Conference of the United States in September 1974, is required for the Clerk of Court to initiate the civil docket sheet. (SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)

I. (a) PLAINTIFFS
HITACHI KOKUSAI ELECTRIC INC.

(b) County of Residence of First Listed Plaintiff
(EXCEPT IN U.S. PLAINTIFF CASES)

(c) Attorneys *(Firm Name, Address, and Telephone Number)*
Michael J. Lyons, MORGAN, LEWIS & BOCKIUS LLP
1400 Page Mill Road, Palo Alto, CA 94304 650.843.4000

DEFENDANTS
ASM INTERNATIONAL, N.V., and
ASM AMERICA, INC.

County of Residence of First Listed Defendant
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.

Attorneys *(If Known)*

II. BASIS OF JURISDICTION *(Place an "X" in One Box Only)*

<input type="checkbox"/> 1 U.S. Government Plaintiff	<input checked="" type="checkbox"/> 3 Federal Question <i>(U.S. Government Not a Party)</i>
<input type="checkbox"/> 2 U.S. Government Defendant	<input type="checkbox"/> 4 Diversity <i>(Indicate Citizenship of Parties in Item III)</i>

III. CITIZENSHIP OF PRINCIPAL PARTIES *(Place an "X" in One Box for Plaintiff and One Box for Defendant)*

	PTF	DEF		PTF	DEF
Citizen of This State	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Incorporated or Principal Place of Business In This State	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Citizen of Another State	<input type="checkbox"/> 2	<input type="checkbox"/> 2	Incorporated and Principal Place of Business In Another State	<input type="checkbox"/> 5	<input type="checkbox"/> 5
Citizen or Subject of a Foreign Country	<input type="checkbox"/> 3	<input type="checkbox"/> 3	Foreign Nation	<input type="checkbox"/> 6	<input type="checkbox"/> 6

IV. NATURE OF SUIT *(Place an "X" in One Box Only)*

CONTRACT	TORTS	FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES	
110 Insurance 120 Marine 130 Miller Act 140 Negotiable Instrument 150 Recovery of Overpayment Of Veteran's Benefits 151 Medicare Act 152 Recovery of Defaulted Student Loans (Excludes Veterans) 153 Recovery of Overpayment of Veteran's Benefits 160 Stockholders' Suits 190 Other Contract 195 Contract Product Liability 196 Franchise	PERSONAL INJURY 310 Airplane 315 Airplane Product Liability 320 Assault, Libel & Slander 330 Federal Employers' Liability 340 Marine 345 Marine Product Liability 350 Motor Vehicle 355 Motor Vehicle Product Liability 360 Other Personal Injury 362 Personal Injury -Medical Malpractice CIVIL RIGHTS 440 Other Civil Rights 441 Voting 442 Employment 443 Housing/ Accommodations 445 Amer. w/Disabilities-- Employment 446 Amer. w/Disabilities--Other 448 Education	PERSONAL INJURY 365 Personal Injury -- Product Liability 367 Health Care/ Pharmaceutical Personal Injury Product Liability 368 Asbestos Personal Injury Product Liability PERSONAL PROPERTY 370 Other Fraud 371 Truth in Lending 380 Other Personal Property Damage 385 Property Damage Product Liability PRISONER PETITIONS HABEAS CORPUS 463 Alien Detainee 510 Motions to Vacate Sentence 530 General 535 Death Penalty OTHER 540 Mandamus & Other 550 Civil Rights 555 Prison Condition 560 Civil Detainee-- Conditions of Confinement	625 Drug Related Seizure of Property 21 USC § 881 690 Other LABOR 710 Fair Labor Standards Act 720 Labor/Management Relations 740 Railway Labor Act 751 Family and Medical Leave Act 790 Other Labor Litigation 791 Employee Retirement Income Security Act IMMIGRATION 462 Naturalization Application 465 Other Immigration Actions	422 Appeal 28 USC § 158 423 Withdrawal 28 USC § 157 PROPERTY RIGHTS 820 Copyrights <input checked="" type="checkbox"/> 830 Patent 835 Patent--Abbreviated New Drug Application 840 Trademark SOCIAL SECURITY 861 HIA (1395ff) 862 Black Lung (923) 863 DIWC/DIWW (405(g)) 864 SSID Title XVI 865 RSI (405(g)) FEDERAL TAX SUITS 870 Taxes (U.S. Plaintiff or Defendant) 871 IRS--Third Party 26 USC § 7609	375 False Claims Act 376 Qui Tam (31 USC § 3729(a)) 400 State Reapportionment 410 Antitrust 430 Banks and Banking 450 Commerce 460 Deportation 470 Racketeer Influenced & Corrupt Organizations 480 Consumer Credit 490 Cable/Sat TV 850 Securities/Commodities/ Exchange 890 Other Statutory Actions 891 Agricultural Acts 893 Environmental Matters 895 Freedom of Information Act 896 Arbitration 899 Administrative Procedure Act/Review or Appeal of Agency Decision 950 Constitutionality of State Statutes

V. ORIGIN *(Place an "X" in One Box Only)*

<input checked="" type="checkbox"/> 1 Original Proceeding	<input type="checkbox"/> 2 Removed from State Court	<input type="checkbox"/> 3 Remanded from Appellate Court	<input type="checkbox"/> 4 Reinstated or Reopened	<input type="checkbox"/> 5 Transferred from Another District <i>(specify)</i>	<input type="checkbox"/> 6 Multidistrict Litigation--Transfer	<input type="checkbox"/> 8 Multidistrict Litigation--Direct File
---	---	--	---	---	---	--

VI. CAUSE OF ACTION
Cite the U.S. Civil Statute under which you are filing *(Do not cite jurisdictional statutes unless diversity):*
35 U.S.C. § 271
Brief description of cause:
Patent Infringement

VII. REQUESTED IN COMPLAINT:
CHECK IF THIS IS A CLASS ACTION UNDER RULE 23, Fed. R. Civ. P. ☐ DEMAND \$ ☐
CHECK YES only if demanded in complaint:
JURY DEMAND: ☒ Yes ☐ No

VIII. RELATED CASE(S), IF ANY *(See instructions):*
JUDGE DOCKET NUMBER

IX. DIVISIONAL ASSIGNMENT (Civil Local Rule 3-2)
(Place an "X" in One Box Only) ☐ SAN FRANCISCO/OAKLAND ☐ SAN JOSE ☐ EUREKA-MCKINLEYVILLE

DATE 12/01/2017 SIGNATURE OF ATTORNEY OF RECORD /s/ Michael J. Lyons

INSTRUCTIONS FOR ATTORNEYS COMPLETING CIVIL COVER SHEET FORM JS-CAND 44

Authority For Civil Cover Sheet. The JS-CAND 44 civil cover sheet and the information contained herein neither replaces nor supplements the filings and service of pleading or other papers as required by law, except as provided by local rules of court. This form, approved in its original form by the Judicial Conference of the United States in September 1974, is required for the Clerk of Court to initiate the civil docket sheet. Consequently, a civil cover sheet is submitted to the Clerk of Court for each civil complaint filed. The attorney filing a case should complete the form as follows:

- I. a) Plaintiffs-Defendants.** Enter names (last, first, middle initial) of plaintiff and defendant. If the plaintiff or defendant is a government agency, use only the full name or standard abbreviations. If the plaintiff or defendant is an official within a government agency, identify first the agency and then the official, giving both name and title.
 - b) County of Residence.** For each civil case filed, except U.S. plaintiff cases, enter the name of the county where the first listed plaintiff resides at the time of filing. In U.S. plaintiff cases, enter the name of the county in which the first listed defendant resides at the time of filing. (NOTE: In land condemnation cases, the county of residence of the “defendant” is the location of the tract of land involved.)
 - c) Attorneys.** Enter the firm name, address, telephone number, and attorney of record. If there are several attorneys, list them on an attachment, noting in this section “(see attachment).”
- II. Jurisdiction.** The basis of jurisdiction is set forth under Federal Rule of Civil Procedure 8(a), which requires that jurisdictions be shown in pleadings. Place an “X” in one of the boxes. If there is more than one basis of jurisdiction, precedence is given in the order shown below.
- (1) United States plaintiff. Jurisdiction based on 28 USC §§ 1345 and 1348. Suits by agencies and officers of the United States are included here.
 - (2) United States defendant. When the plaintiff is suing the United States, its officers or agencies, place an “X” in this box.
 - (3) Federal question. This refers to suits under 28 USC § 1331, where jurisdiction arises under the Constitution of the United States, an amendment to the Constitution, an act of Congress or a treaty of the United States. In cases where the U.S. is a party, the U.S. plaintiff or defendant code takes precedence, and box 1 or 2 should be marked.
 - (4) Diversity of citizenship. This refers to suits under 28 USC § 1332, where parties are citizens of different states. When Box 4 is checked, the citizenship of the different parties must be checked. (See Section III below; **NOTE: federal question actions take precedence over diversity cases.**)
- III. Residence (citizenship) of Principal Parties.** This section of the JS-CAND 44 is to be completed if diversity of citizenship was indicated above. Mark this section for each principal party.
- IV. Nature of Suit.** Place an “X” in the appropriate box. If the nature of suit cannot be determined, be sure the cause of action, in Section VI below, is sufficient to enable the deputy clerk or the statistical clerk(s) in the Administrative Office to determine the nature of suit. If the cause fits more than one nature of suit, select the most definitive.
- V. Origin.** Place an “X” in one of the six boxes.
- (1) Original Proceedings. Cases originating in the United States district courts.
 - (2) Removed from State Court. Proceedings initiated in state courts may be removed to the district courts under Title 28 USC § 1441. When the petition for removal is granted, check this box.
 - (3) Remanded from Appellate Court. Check this box for cases remanded to the district court for further action. Use the date of remand as the filing date.
 - (4) Reinstated or Reopened. Check this box for cases reinstated or reopened in the district court. Use the reopening date as the filing date.
 - (5) Transferred from Another District. For cases transferred under Title 28 USC § 1404(a). Do not use this for within district transfers or multidistrict litigation transfers.
 - (6) Multidistrict Litigation Transfer. Check this box when a multidistrict case is transferred into the district under authority of Title 28 USC § 1407. When this box is checked, do not check (5) above.
 - (8) Multidistrict Litigation Direct File. Check this box when a multidistrict litigation case is filed in the same district as the Master MDL docket.
- Please note that there is no Origin Code 7. Origin Code 7 was used for historical records and is no longer relevant due to changes in statute.
- VI. Cause of Action.** Report the civil statute directly related to the cause of action and give a brief description of the cause. **Do not cite jurisdictional statutes unless diversity.** Example: U.S. Civil Statute: 47 USC § 553. Brief Description: Unauthorized reception of cable service.
- VII. Requested in Complaint.** Class Action. Place an “X” in this box if you are filing a class action under Federal Rule of Civil Procedure 23.
- Demand. In this space enter the actual dollar amount being demanded or indicate other demand, such as a preliminary injunction.
- Jury Demand. Check the appropriate box to indicate whether or not a jury is being demanded.
- VIII. Related Cases.** This section of the JS-CAND 44 is used to identify related pending cases, if any. If there are related pending cases, insert the docket numbers and the corresponding judge names for such cases.
- IX. Divisional Assignment.** If the Nature of Suit is under Property Rights or Prisoner Petitions or the matter is a Securities Class Action, leave this section blank. For all other cases, identify the divisional venue according to Civil Local Rule 3-2: “the county in which a substantial part of the events or omissions which give rise to the claim occurred or in which a substantial part of the property that is the subject of the action is situated.”
- Date and Attorney Signature.** Date and sign the civil cover sheet.