IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

RADIAN MEMORY SYSTEMS LLC, *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD., AND SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	Civil Action No.: 2:24-cv-1073 **JURY TRIAL DEMANDED**

PLAINTIFF'S CORRECTED MOTION FOR PRELIMINARY INJUNCTION[1]

[1] The only change to Plaintiff's Motion for Preliminary Injunction was to add the Tables of Contents and Table of Authorities.

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I. INTRODUCTION

Radian Memory Systems LLC ("Radian") moves for a preliminary injunction to restrain Defendants Samsung Electronics Co., Ltd., and Samsung Electronics America, Inc. (collectively, "Samsung") from infringing its asserted patents—U.S. 11,544,183 ("the '183 patent") and U.S. 11,347,656 ("the '656 patent"). Radian developed and patented its innovative Symphonic Cooperative Flash Management technology to improve flash solid-state drives ("SSDs"), particularly for enterprise and data-center operations. Despite Radian's best efforts to participate in the market, Samsung and others iced Radian out of the industry. They did so in part by coalescing around key concepts of Radian's technology, including some of its patented inventions, and incorporating them into standardized specifications. Samsung was a top-tier member of NVM Express ("NVMe"), the organization in which these specifications were developed. It is also the organization that others in the industry tried to pressure Radian to join. Radian refused because NVMe's policies would have required Radian to give royalty-free licenses to any of its patented technology that was incorporated into the specifications. Now, Samsung markets and sells infringing NVMe SSDs, causing irreparable harm to Radian. Unrestrained, Samsung will continue its infringement during the pendency of this suit, resulting in more irreparable harm to Radian. Radian respectfully requests an oral hearing on its Motion.

As discussed below, Radian owns valid patents that Samsung has infringed and continues to infringe. Irreparable harm during the pendency of this suit is likely on two grounds. First, traditional principles of equity—which the Supreme Court has ruled must guide a court's analysis of whether to grant equitable relief and which must be drawn from the English Court of Chancery circa 1789—state that the prospect of ongoing future violations alone renders damages inadequate. Second, even under a more contemporary analysis, Radian will continue to suffer injury to its market position as a pioneer, suffer loss of market opportunities, suffer injury to its

reputation and goodwill, and suffer irretrievable loss of its patent term. And, importantly, under either the traditional or contemporary framework for evaluating irreparable harm, Supreme Court precedent prohibits discrimination against nonuser patent owners seeking injunctive relief. By contrast, a preliminary injunction will not unduly harm the Samsung defendants as they would not lose their businesses or their ability to market non-infringing SSDs. Nor does the public interest counsel against an injunction. This case does not involve public-health or national-security risks, and an injunction would serve the public interest by promoting Congress's adoption of a public policy favoring exclusive rights.

II. STATEMENT OF FACTS

A. Radian and Its Symphonic Cooperative Flash Management Technology

Radian is a small company with grand aspirations (with about 17 employees at its height, and now down to 3). *See* Jadon Decl. at ⁋⁋ 8-9, 11. Founded in 2010, Radian sought to create and deliver more efficient flash-management storage solutions for large data-center operations. *See id.* at ⁋⁋ 8-9. Its co-founders, Mike Jadon, Robert Lercari, and Andrey Kuzmin, believed that technological efficiencies would be valuable to the industry. *See id.* Even when others were focused on higher-margin server applications, Radian believed the best approach was to provide solutions that made SSDs better performing, more cost effective, and longer lasting. *See id.* After many years of toil and expensive development, Radian succeeded, paving the way for SSDs to more widely replace traditional hard disk drives in large data centers.

Radian built what became known as its Symphonic Cooperative Flash Management technology. *See* Jadon Decl. at ⁋ 12. Radian accomplished this by breaking down the long-standing barrier between storage devices (*e.g.*, SSDs) and the host computer system software that used them (e.g., a server in a data center). *See id.* Radian cracked open what was commonly known as a "black box" of embedded technology found on every flash SSD and instead

reworked the conventional allocation of responsibilities and tasks between the host and the flash SSD. *See id.* In short, Cooperative Flash Management and its associated inventions allowed for a smarter division of labor between SSDs and their hosts. *See id.* Among other things, Radian's approach gave the host primary responsibility for things like scheduling tasks and commands and allocating data placement, while it gave the SSD's internal memory controller primary responsibility for things like monitoring and handling maintenance of the NAND flash. *See id.* This improved the efficiency, reliability, and performance of SSDs, which also resulted in cost savings that made SSDs with Radian's technology an even more appealing option in data centers. *See* Jadon Decl. at ⁋⁋ 8, 12. Radian's approach opened up new possibilities and also created new technical challenges that the industry had not previously faced. *See id.* at ⁋⁋ 12, 15. As Radian undertook the challenges of building real-world implementations of its products, Radian continued to innovate, all the while patenting its inventions. *See id*. at ⁋⁋ 12-14.

B. <u>Industry and NVM Express Consortium</u>

Radian went on to not only evangelize its patented inventions to the industry, but it also did the hard work of proving the value of its inventions using real-world devices and well-accepted industry benchmarks. *See* Jadon Decl. at ⁋⁋ 15-17, 19-22. Radian's technology eclipsed the competition at every turn, and the industry praised Radian and bestowed awards and acclaim upon it at conferences and in publications. *See id.* Yet, despite Radian's technological innovation and superiority to alternatives at the time, the industry was not content dealing with Radian at arms-length. *See id.* at ⁋ 23. Instead, it wanted Radian—as a precondition to doing business in the market—to agree to join the NVM Express (NVMe) organization. *See id.* A consortium of companies, NVMe sets standards for how host systems communicate and interact with the non-volatile memory in SSDs. *See id.* at ⁋ 20. The consortium manages various NVMe specifications, including the one at issue in this Motion: the Zoned Namespace Command Specification (ZNS).

See id. at ⁋⁋ 20, 23. Samsung was and continues to be a top-tier member of NVMe. *See* Jadon Decl. at ⁋ 24. Importantly, NVMe requires members to grant each other royalty-free licenses to their patents that read on its specifications. *See id*. at ⁋ 23.

Things turned for the worse for Radian at a major industry conference in 2017, when Microsoft—a major data-center operator looking to lower its costs—called on participants, particularly SSD suppliers like Samsung, to collaborate on a new common interface for communicating with SSDs. *See* Jadon Decl. at ⁋ 21. That motivated major industry players, like Samsung, to work toward a standard that incorporated Radian's technology and architecture. *See id.* at ⁋⁋ 21, 28-29. When Radian refused to join the consortium in 2019, the NVMe consortium plowed ahead with Radian's innovations anyway, having learned about those innovations from Radian over a number of years under confidential discussions and evaluations and during conferences and product demonstrations. *See id.* at ⁋⁋ 22-23. Samsung was a major contributor to this industry effort, and its own representatives were authors on key specifications, including ZNS. *See id.* at ⁋ 24. NVMe excluded Radian from meetings and withheld draft specifications from it, which made it hard for Radian to detect encroachment on its innovations. *See id.* at ⁋ 23.

Once the ZNS specification was first published to the world in June 2020, Radian saw that key aspects of its Cooperative Flash Management technology had made their way into the NVMe ZNS specification. *See* Jadon Decl. at ⁋ 23.[2] Further demonstrating how far ahead of the curve it was, Radian was the first company in the world to have its SSD successfully pass the full suite of functional verification tests, as conducted by an independent lab, in compliance with the ZNS specification after its publication by NVMe. *See id*. It would take over a year for other

[2] Later, Radian would see aspects of its Cooperative Flash Management technology in the Flexible Data Placement ("FDP") specification (not at issue in this current case). *See* Jadon Decl. at ⁋ 23.

NVMe members to catch up when the first non-Radian SSD passed compliance tests with an independent lab under the NVMe's own specification. *See id.*

Radian's patents at issue in this motion issued on January 3, 2023 ('183 patent) and May 31, 2022 ('656 patent) with priority dates of January 28, 2013, and October 13, 2014,[3] respectively. *See* Jones Decl., Ex. Q ('183 patent) and Ex. R ('656 patent).

C. <u>Samsung's Infringement</u>

In addition to being a key contributor and author on various NVMe specifications (including ZNS), Samsung was a frequent attendee at Radian's conference booths, inquiring about Radian's technology. Jadon Decl. at ¶ 24. Samsung publicly announced its ZNS-capable SSD products and proceeded to market them in June 2021. *See id.* at ¶¶ 25-27. Samsung's Accused Instrumentalities, SSDs with ZNS capabilities, infringe claim 1 of the '183 patent and claim 1 of the '656 patent that are the subject of this Motion.

Samsung is also likely to continue its infringement throughout this litigation and beyond. *See* Jadon Decl. at ¶¶ 26-30. Samsung is a heavily invested and influential participant in SSDs, software-defined flash, and ZNS-capable SSD markets. *See id.* at ¶ 24. Samsung has the largest market share in SSDs in the United States for conventional SSDs, and Radian reasonably believes Samsung to also hold the largest market share for software-defined flash drives, including ZNS-capable SSDs specifically, as well as for enterprise and data-center SSDs. *See id.* Also, as a supplier of SSDs (including ZNS-capable SSDs) to hyperscalers with massive data-center operations, Samsung has to fulfill purchase orders and contracts for ongoing service and maintenance obligations. *See id.* at ¶¶ 27-20. Samsung's market share, market investments, standards-setting activity, and supply chain role and obligations make Samsung's continued

[3] Claim 20 of the '656 patent has a priority date of July 31, 2015, whereas the other asserted claims, including claim 1 at issue in this Motion, have a priority date of October 13, 2014.

infringement of Radian's patents very likely.

III. LEGAL STANDARD

The Patent Act authorizes courts to grant injunctions to "prevent the violation of any right secured by patent." 35 U.S.C. § 283. "A plaintiff seeking a preliminary injunction must establish that he is likely to succeed on the merits, that he is likely to suffer irreparable harm in the absence of preliminary relief, that the balance of equities tips in his favor, and that an injunction is in the public interest." *Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7, 20 (2008). This standard depends in part on Federal Circuit law and in part on regional circuit law. The former applies insofar as a motion calls for "considerations specific to patent issues," *Natera, Inc. v. Neogenomics Labs, Inc.*, 106 F.4th 1369, 1375 (Fed. Cir. 2024), such as whether the plaintiff is likely to succeed on an infringement claim. But Fifth Circuit law binds this court to the extent that equitable principles are trans-substantive, *i.e.*, principles that apply regardless of the subject area. *See ABC Corp. v. P'ship & Uninc. Ass'ns*, 52 F.4th 934, 941 (Fed. Cir. 2022). Importantly, the Supreme Court has clarified that much of what occurs on a request for a patent injunction is unexceptional. Speaking of injunctions in broad terms, the Court ruled in *eBay* that "whether to grant or deny injunctive relief rests within the equitable discretion of the district courts, and that such discretion must be exercised consistent with traditional principles of equity, in patent disputes no less than in other cases governed by such standards." *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 394 (2006); *Romag Fasteners, Inc. v. Fossil, Inc.*, 590 U.S. 212, 217 (2020) (confirming that "principles of equity" as used in *eBay* refers to "transsubstantive" rules); *see also Titan Tire Corp. v. Case New Holland, Inc.*, 566 F.3d 1372, 1380 (Fed. Cir. 2009).[4]

[4] *eBay* involved a permanent injunction, but the Court has also ruled that "[t]he standard for a preliminary injunction is essentially the same as for a permanent injunction with the exception

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IV. ARGUMENT

A. Likelihood of Success on the Merits

To prevail on a claim for patent infringement, a plaintiff must demonstrate that it owns a valid patent and that a defendant has infringed the patent. Radian is more likely than not to succeed at trial for at least claim 1 of the '183 patent and claim 1 of the '656 patent.

1. Radian Owns Valid Patents.

Radian holds all necessary ownership, title, and interest in and to the asserted '183 patent and '656 patent, such that it has the legal right and ability to bring claims for infringement of those patents in its name. *See* US Patent Office Assignment Database at Reel/Frame Nos. 053547/0946, 053548/0154, and 067471/0240, available at https://tinyurl.com/s27sphkb (assignment history for the '183 patent); US Patent Office Assignment Database at Reel/Frame Nos. 057617/0300, 057533/0180, and 067471/0240, available at https://tinyurl.com/rzbjz24d (assignment history for the '656 patent); *see also* 35 U.S.C. §§ 261, 262.

Radian's asserted patents enjoy a presumption of validity that extends to all aspects of validity. *See* 35 U.S.C. § 282(a); *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1570 (Fed. Cir. 1987) ("The presumption mandated by § 282 is applicable to all of the many bases for challenging a patent's validity."). The presumption of validity and the corresponding burden of challenging validity by clear and convincing evidence apply equally at the preliminary injunction stage. *See Gonzales v. O Centro Espirita Beneficente Uniao do Vegetal*, 546 U.S. 418, 429 (2006) ("[T]he burdens at the preliminary injunction stage track the burdens at trial."); *Gillette*

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that the plaintiff must show a likelihood of success on the merits rather than actual success." *Amoco Prod. Co. v. Vill. of Gambell, AK*, 480 U.S. 531, 546 n.12 (1987); *accord Winter*, 555 U.S. at 32; *Dresser-Rand Co. v. Virtual Automation, Inc.*, 361 F.3d 831, 847 (5th Cir. 2023). Thus, the "substantive analysis" for irreparable harm is the same whether on a final injunction or preliminary injunction. *Apple Inc. v. Samsung Elecs. Co.*, 809 F.3d 633, 652 n.3 (Fed. Cir. 2015) (Reyna, J., concurring); *Apple Inc. v. Samsung Elecs. Co.*, 735 F.3d 1352, 1361 (Fed. Cir. 2013).

Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1370 (Fed. Cir. 2005) (evaluating likelihood of success on the merits "in light of the presumptions and burdens that will inhere at trial").

2. <u>Samsung's Accused Instrumentalities Infringe.</u>

To establish infringement of a patent, a patent owner must prove either "literal infringement" or infringement under the "doctrine of equivalents." *Under Sea Indus. Inc. v. Dacor Corp.*, 833 F.2d 1551, 1557 (Fed. Cir. 1987). For a claim to be infringed, each limitation set forth in a valid claim must be found in the accused device literally or by a substantial equivalent. *See Zodiac Pool Care Inc. v. Hoffinger Industries, Inc.*, 206 F.3d 1408, 1415 (Fed Cir. 2000); *Becton Dickinson and Co. v. C.R. Bard. Inc.*, 922 F.2d 792, 796 (Fed. Cir. 1989).

(a) <u>Claim 1 of the '183 Patent</u>

Samsung infringes claim 1 of the '183 patent with its ZNS-capable SSDs, both literally and under the doctrine of equivalents. This includes Samsung's PM1731a, PM1733, PM1735, PM9731a, and PB SSD products, as well as any other Samsung SSDs that have ZNS capabilities. Each complies with the relevant NVMe specifications, and the devices with these included capabilities infringe claim 1 of the '183 patent. *See* Jones Decl. at ¶¶ 41–81.

Radian's technical expert, Dr. Mark Jones, analyzed the relevant NVMe specifications and publicly available documents and materials from Samsung, NVMe, and other sources. *See* Jones Decl. at ¶¶ 53–81. Dr. Jones determined that Samsung's Accused Instrumentalities meet each element of claim 1 of the '183 patent. *See id*. at ¶¶ 57–81. Dr. Jones also performed an element-by-element infringement analysis to substantiate his opinion:

i. [1 preamble] A memory controller to control flash memory, the flash memory having subdivisions, each of the subdivisions corresponding to a respective group of erase blocks, each of the erase blocks such that it must be erased before storage locations in that erase block can be reprogrammed, the memory controller comprising:

Samsung's Accused Instrumentalities meet claim 1's preamble as they are SSDs that include flash memory and a memory controller that controls the flash memory. *See* Jones Decl. at ¶¶ 57–58. In his infringement report (*i.e.*, his declaration in support of Radian's Motion), Dr. Jones explains that the flash memory has zones (subdivisions) and that each zone corresponds to a respective group of erase blocks. Dr. Jones further explains that the erase blocks must be erased before reprogramming because of the inherent features of NAND flash. *See id*. at ¶ 59.

ii. [1a] a host interface;
[1b] a memory interface;

In his report, Dr. Jones lays out how Samsung's Accused Instrumentalities meet element [1a] because they implement protocols in the PCIe and NVMe specifications that allow the SSD controller to communicate with the host. *See* Jones Decl. at ¶¶ 60–61. Dr. Jones also details how Samsung's Accused Instrumentalities meet element [1b] because they all have a memory interface (*e.g.*, Toggle NAND). *See id*. at ¶¶ 62–63.

iii. [1c] logic to track information indicating extent of page utilization of each of the subdivisions;

With respect to claim element [1c], Dr. Jones explains how Samsung's Accused Instrumentalities meet the element because they contain logic that allows them to maintain a write pointer for each zone which represents the next available writable logical block address ("LBA") in the zone. *See* Jones Decl. at ¶¶ 64–66. Dr. Jones further explains that the write pointer indicates that all lower numbered LBAs are written and that all higher numbered LBAs are not written and that it indicates extent of page utilization. *See id.* at ¶ 66.

iv. [1d.1] logic to receive a write request from a host via the host interface, the write request accompanied by an address that designates a specific one of the subdivisions,
v. [1d.2] wherein the logic to track is to, in association with execution of the write request, update the information indicating extent of page utilization of the specific one of the subdivisions;

With respect to claim elements [1d.1] and [1d.2], Dr. Jones explains that Samsung's Accused Instrumentalities meet these elements because they contain logic that allows them to receive and execute a Write command or a Zone Append command (both are write requests) from a host via the host interface. *See* Jones Decl. at ¶¶ 67–68. Dr. Jones further explains that the received Write or Zone Append command contains a NSID (indicating a namespace) and an SLBA or ZSLBA (indicating a starting storage location), which together designate a zone to which data will be written. *See id.* at ¶¶ 69–70. Dr. Jones also details that, after the write request is executed, the Accused Instrumentalities update the zone's write pointer. *See id.* at ¶¶ 71–72.

vi. [1e] logic to send the host the information indicating extent of page utilization of the specific one of the subdivisions and an address corresponding to the specific one of the subdivisions;

For his analysis for claim element [1e], Dr. Jones explains that Samsung's Accused Instrumentalities meet the element because they contain logic that allows them to report to the host the write pointer (which indicates extent of page utilization) and the ZSLBA of a zone (address corresponding to the specific one of the subdivisions), for example, in response to a Zone Management Receive command specifying a Report Zones action as part of a Zone Descriptor. *See* Jones Decl. at ¶¶ 73–74.

vii. [1f.1] logic to receive an erasure request from the host, via the host interface, the erasure request accompanied by the address corresponding to the specific one of the subdivisions,

viii. [1f.2] to responsively control erasure of each unerased erase block in the group respective to the specific one of the subdivisions, and to update the information indicating extent of page utilization of the specific one of the subdivisions; and

For claim elements [1f.1] and [1f.2], Dr. Jones explains that Samsung's Accused

Instrumentalities meet these elements because they contain logic that allows them to receive and execute a Zone Management Send command specifying a Reset Zone action (an erasure request) from the host. Dr. Jones further explains that the Zone Management Send command has a starting LBA, which is the lowest LBA of the specific zone. *See* Jones Decl. at ¶¶ 75–76. And Dr. Jones also explains that the Reset Zone action results in the zone being reset, which means that the zone state will be set to Empty, the unerased erase blocks in the zone will be erased, and the write pointer (information indicating extent of page utilization) of the zone will be set to the ZSLBA (meaning the write pointer will be at the beginning of the empty zone). *See id.* at ¶¶ 77–78.

> ix. [1g] logic to, in connection with the erasure, detect a defect in one of the erase blocks in the group respective to the specific one of the subdivisions, to responsively substitute one or more different erase blocks of the flash memory for the one of the erase blocks for which the defect was detected;

With respect to claim element [1g], Dr. Jones explains that Samsung's Accused Instrumentalities meet the element because they contain logic that allows them to detect a defect in connection with an erasure operation and, in response to such detection, are able to retire the bad erase block and replace it with one or more other erase blocks. *See* Jones Decl. at ¶¶ 79–80.

> x. [1h] wherein each said logic comprises at least one of hardware circuitry or instructions stored on non-transitory, machine-readable media that when executed are to control the operation of hardware circuitry.

Lastly, Dr. Jones explains that, for claim element [1h], Samsung's Accused Instrumentalities meet the element because their logic is made up of hardware circuity (*e.g.*, a controller) and/or instructions (*e.g.*, firmware) stored on non-transitory, machine-readable media that control the operations of the controller when executed. *See* Jones Decl. at ¶ 81.

Having an expert report establishing infringement, Radian has more than met its burden

of showing that it is more likely than not to succeed at trial in proving that Samsung infringes claim 1 of the '183 patent.

(b) Claim 1 of the '656 Patent

Samsung infringes claim 1 of the '656 patent with its ZNS-capable SSDs, both literally and under the doctrine of equivalents. This includes the PM1731a, PM1733, PM1735, PM9731a, and PB SSD products, as well as any other Samsung SSDs that have ZNS capabilities. Each complies with the relevant NVMe specifications, and the devices with these included capabilities infringe claim 1 of the '656 patent. *See* Jones Decl. at ¶¶ 41–56, 82–103.

Radian's technical expert, Dr. Mark Jones, analyzed the relevant NVMe specifications and publicly available documents and materials from Samsung, NVMe, and other sources. *See* Jones Decl. at ¶¶ 53–56, 82–103. Dr. Jones determined that Samsung's Accused Instrumentalities meet each element of claim 1 of the '656 patent. *See id*. at ¶¶ 82–103.

i. [1 preamble] A storage device comprising:
[1a] flash memory having physical erase units; and

Samsung's Accused Instrumentalities satisfy the preamble of claim 1 as they are SSDs, which are storage devices. *See* Jones Decl. at ¶ 82. And Samsung's Accused Instrumentalities meet element [1a] because they include flash memory that has physical erase blocks (erase units). *See id.* at ¶¶ 83–84.

ii. [1b] circuitry to receive incoming data access requests and for each of the incoming data access requests, accompanying address information, wherein said circuitry is to:

Dr. Jones establishes that Samsung's Accused Instrumentalities meet element [1b], explaining that they include circuitry that allows them to receive and execute incoming Write commands and Read commands (both are incoming data access requests). *See* Jones Decl. at ¶¶ 85–86. As Dr. Jones details in his report, both Write and Read commands have accompanying

address information (NSID and SLBA) that indicate the starting storage location to which data is to be written or from which data is to be read. *See id*. at ¶ 87.

iii. [1c] derive, from the accompanying address information, a first address portion, a second address portion and a third address portion,

With respect to claim element [1c], Dr. Jones explains that Samsung's Accused Instrumentalities meet the element because they include circuitry that allows them to derive from the accompanying address information: the NSID (a first address portion); a zone identifier (a second address portion); and an LBA and/or alternatively a zone offset (a third address portion). *See* Jones Decl. at ¶¶ 88–89.

iv. [1d] identify an addressed block device from the first address portion,

And Dr. Jones explains that Samsung's Accused Instrumentalities meet element [1d] because they include circuitry that allows them to identify an addressed namespace (block device) from the NSID (the first address portion). *See* Jones Decl. at ¶¶ 90–91.

v. [1e] identify an addressed segment within the addressed block device from the second address portion, and

With respect to claim element [1e], Dr. Jones establishes that Samsung's Accused Instrumentalities meet the element because they include circuitry that allows them to identify an addressed zone (segment) within the addressed namespace from a zone identifier (the second address portion). *See* Jones Decl. at ¶¶ 92–93. And as Dr. Jones further details, the zone identifier is derived from the SLBA (which identifies an addressed zone), for example, to specify the zone to which the incoming data access request applies and to detect errors such as zone boundary errors and inapplicable zone state errors. *See id.* at ¶ 93.

vi. [1f] identify an addressed storage location within the addressed segment from the third address portion,

For claim element [1f], Dr. Jones establishes that Samsung's Accused Instrumentalities meet the element because they include circuitry that allows them to identify a location within a zone, such as a logical block, page, and/or erase unit (an addressed storage location) within the addressed zone from the LBA and/or alternatively the zone offset (third address portion). *See* Jones Decl. at ¶¶ 94–95.

vii. [1g] wherein the circuitry is to use a division operation to identify a logical erase unit within the addressed segment,

For claim element [1g], Dr. Jones details how Samsung's Accused Instrumentalities meet the element because they include circuitry that can use a division operation to identify a logical erase unit within the addressed zone. *See* Jones Decl. at ¶¶ 96–98. Dr. Jones further explains that the zones in Samsung's Accused Instrumentalities comprise multiple equally sized erase units and that a division operation is used to identify a particular erase unit within a zone. *See id.* at ¶ 97. Dr. Jones provides further analysis for this claim element, explaining that Samsung's Accused Instrumentalities maintain logical erase unit to physical erase unit mapping to enable them to detect a failure condition of the physical blocks, map out the bad blocks, and substitute different blocks for the bad ones. *See id*. at ¶ 98.

viii. [1h] wherein the circuitry is to identify one of the physical erase units that corresponds to the identified logical erase unit;

Dr. Jones also establishes that Samsung's Accused Instrumentalities meet element [1h] because they include circuitry that can identify a physical erase unit that corresponds to the logical erase unit. *See* Jones Decl. at ¶¶ 99–100. As Dr. Jones explains, Samsung's Accused Instrumentalities maintain logical erase unit to physical erase unit mapping to enable them to detect a failure condition of the physical blocks, map out the bad blocks, and substitute different blocks for the bad ones. *See id.* at ¶ 100.

ix. [1i] wherein the storage device is to detect a failure condition of the physical erase units and is to remap each logical erase unit which corresponds to one of the physical erase units for which the failure condition is detected to instead correspond to one of the physical erase units for which the failure condition has not been detected and is to utilize the remapped correspondence to service one or more of the incoming data access requests.

Finally, Dr. Jones establishes that Samsung's Accused Instrumentalities meet element [1i] because they can maintain logical erase unit to physical erase unit mapping to enable them to detect a failure condition of the physical blocks, map out the bad blocks, and substitute different blocks for the bad ones. *See* Jones Decl. at ¶¶ 101–102. Dr. Jones explains that, after the logical erase unit is remapped to a new physical erase unit, the remapped correspondence (of the logical erase unit to the new physical erase unit) is used to service one or more Write or Read commands (incoming data access requests). *See id*. at ¶¶ 102–103.

Having an expert report establishing infringement, Radian has more than met its burden of showing that it is more likely than not to succeed at trial in proving that Samsung infringes claim 1 of the '656 patent.

* * *

Because Radian has established that it is likely to succeed on the merits, the first *Winter* factor favors granting a preliminary injunction. The Court should find a likelihood of success on the merits as to claim 1 of the '183 patent, claim 1 of the '656 patent, or both.[5]

[5] Radian notes that its expert's infringement analysis was done only with publicly available information and without the benefit of discovery or code analysis. Radian respectfully submits that at the preliminary injunction stage, this is more than sufficient to meet the burden to show likelihood of success on the merits. *Cf. Pfizer, Inc. v. Teva Pharms., USA, Inc.*, 429 F.3d 1364, 1377 (Fed. Cir. 2005) ("But it is particularly appropriate at the preliminary injunction stage not to set a hard and fast rule that infringement can only be shown through quantitative testing of an accused product."). To the extent the Court has any questions about the merits analysis after briefing, Radian would respectfully request that the Court order expedited discovery on targeted issues to address these questions rather than outright deny the motion.

B. Irreparable Harm

Irreparable harm requires two showings. First, that a defendant is likely to harm the plaintiff in the future, and second, that the harm would be irreparable. "In general, a harm is irreparable where there is no adequate remedy at law, such as monetary damages." *Janvey v. Alguire*, 647 F.3d 585, 600 (5th Cir. 2011); *accord Louisiana v. Biden*, 55 F.4th 1017, 1033–34 (5th Cir. 2022); *H.H. Robertson, Co. v. United Steel Deck, Inc.*, 820 F.2d 384, 390 (Fed. Cir. 1987). Awarding Radian damages at trial, whether lost profits or a reasonable royalty, will fall far short of an adequate remedy at law here, for two reasons.[6] The first, which suffices alone, is that under *traditional* principles of equity, the likelihood of ongoing violations, once proven, renders damages inadequate. The Supreme Court has said so, as has the Fifth Circuit. Moreover, under *contemporary* principles of equity, Radian has suffered and will continue to suffer damage to its market position, market opportunities, reputation, goodwill, and patent term.

1. Radian Will Be Irreparably Harmed, According to Traditional Principles of Equity.

(a) Unless Congress Directs Otherwise, Federal Courts Must Exercise Their Equitable Powers According to Traditional Principles of Equity.

Under Supreme Court precedent, which has never been overruled or questioned by Congress, the issue of whether a plaintiff has an adequate remedy at law depends on "traditional principles of equity," *eBay*, 547 U.S. at 394, which must be drawn from the time when the Judiciary Act of 1789 first created the lower federal courts and co-opted the remedies available in the English Court of Chancery, *Sprague v. Tictonic Nat'l Bank*, 307 U.S. 161, 164–65 (1939).

[6] Courts lost the ability to award a disgorgement of a defendant's profits (an equitable remedy) in utility-patent cases in 1946. *Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 654 (1983). An ongoing royalty (also an equitable remedy) is prospective and does not cover infringements occurring before judgment. Additionally, ongoing royalties do not have a basis in the traditional principles of equity. *See* H.T. Gómez-Arostegui, *Prospective Compensation in Lieu of a Final Injunction in Patent and Copyright Cases*, 78 FORDHAM L. REV. 1661, 1701 (2010).

The equitable powers conferred by the 1789 Act cabin a federal court's default authority to administering "the principles of the system of judicial remedies which had been devised and was being administered by the English Court of Chancery at the time of the separation of the two countries." *Atlas Life Ins. Co. v. W. I. Southern, Inc.*, 306 U.S. 563, 568 (1939). Thus, absent a congressional act that alters those traditional principles, the "substantive prerequisites for obtaining an equitable remedy as well as the general availability of injunctive relief" have not changed since 1789. *Grupo Mexicano de Desarrollo S.A. v. All. Bond Fund, Inc.*, 527 U.S. 308, 318–19 (1999); *see also id.* at 318 ("[T]he equity jurisdiction of the federal courts is the jurisdiction in equity exercised by the High Court of Chancery in England at the time of the adoption of the Constitution and the enactment of the original Judiciary Act, 1789 . . . .").[7]

This "body of doctrine" adopted by Congress in 1789 is not merely the "power or authority to hear and decide" but must also "guide [the court's] decisions." *Atlas Life*, 306 U.S. at 568. In other words, equitable discretion "must be exercised consistent with traditional principles of equity," *eBay*, 547 U.S. at 394, and must be "administered . . . according to the practice of courts of equity in [England]," *Boyle v. Zacharie*, 31 U.S. 648, 658 (1832). Following that maxim, the Court has held that whether there is an "adequate remedy at law" for a particular

[7] *Accord Guaranty Tr. Co. v. York,* 326 U.S. 99, 105 (1945); *Matthews v. Rodgers*, 284 U.S. 521, 529 (1932); *Waterman v. Cana-Louisiana Bank & Tr. Co.*, 215 U.S. 33, 43 (1909); *Fontain v. Ravenel*, 58 U.S. 369, 384 (1855); *Robinson v. Campbell*, 16 U.S. 212, 222–23 (1818).

Several members of the Court have reminded courts recently to follow 18th-century principles unless Congress says otherwise. *E.g.*, *Bessent v. Dellinger*, 145 S. Ct. 515, 517 (2025) (Gorsuch, J., joined by Alito, J., dissenting) ("Under this Court's precedents . . . a federal court may issue an equitable remedy only if, at the time of the Nation's founding, it was a remedy 'traditionally accorded by courts of equity.'"); *Labrador v. Poe*, 144 S. Ct. 921, 923 (2024) (Gorsuch, J., joined by Thomas & Alito, JJ., concurring) ("This Court has long held that a federal court's authority to fashion equitable relief is ordinarily constrained by the rules of equity known 'at the time of the separation of' this country from Great Britain."); *accord Trump v. Hawaii*, 585 U.S. 667, 714 (2018) (Thomas, J., concurring) ("to be administered" according to equity *c*.1789).

wrong, must be assessed against the legal remedies that "existed [for the wrong] when the Judiciary Act of 1789 was adopted," except insofar as Congress has "subsequently changed" the legal remedies. *McConihay v. Wright*, 121 U.S. 201, 206 (1887). Notably, the Federal Circuit has never discussed this ruling nor any others directing courts to apply 18th-century principles. But the Fifth Circuit has, ruling that "[w]hether a plaintiff has a plain, adequate, and complete, remedy at law depends not upon the law at the time the suit is brought, but upon what it was when the Constitution of the United States drew the line of demarcation between legal and equitable jurisdiction." *Humble Oil & Refining Co. v. Sun Oil Co.*, 191 F.2d 705, 710–11 (5th Cir. 1951); *see also* 3 P. Edmunds et al., *Cyclopedia of Federal Procedure* § 857, at 666–67 (2d ed. 1943) ("[C]ourts have universally held that federal equity jurisdiction is to be tested by those rules, principles and usages as they were administered by the federal courts in 1789. . . . In other words, a case which would have been cognizable by a federal court of equity for inadequacy of legal remedy then, is still cognizable in such a court for the same reason [today] . . . ."); 13 *id.* § 6537, at 88 ("Where, under the English Chancery system, relief by injunction can be given, the same or similar relief may be given by a federal court [today] . . . .").

(b) <u>At the Founding, It Was Settled that Legal Remedies Like Damages Were Inadequate in Patent-Infringement Cases.</u>

At the time of the founding, the established practice in the Court of Chancery was to consider ongoing future infringement itself, including patent infringement, a cognizable future injury for purposes of equitable relief, and to also consider the remedies available at law (which included damages and punitive damages) inadequate to redress that injury. For example, in *Donaldson v. Becket,* Chief Justice De Grey rejected an argument in a copyright-infringement suit that a copyright owner facing future infringement could ever have an adequate remedy at law. *See Donaldson v. Becket* (H.L. 1774), *reprinted in* 17 *The Parliamentary History of*

England from the Earliest Period to the Year 1803, at 953, 989 (W. Cobbett ed., London, 1813) (De Grey, C.J.) (explaining that, when opposing a motion for an interlocutory injunction in a copyright-infringement case, it is no "objection that the party applying for it has a remedy at law"). Similarly, in *Horton v. Maltby*, LI Misc MS 112, p. 10 (Ch. 1783), the inadequacy of damages in invention-patent disputes was so clear that even the accused infringer agreed that equitable jurisdiction would arise, and equitable remedies would become available, after a patentee had first proved liability in a court of law. Specifically, the Chancery stated as a general principle that any infringements expected to occur while a case was being litigated constituted irreparable injury. Likening patent infringement to copyright infringement, the Chancery noted that the infringer "may in the mean time print a number of copies to the irreparable injury of the Owner." *Id.* at 12 (Ashurst, L. Cr.). This holding arose from the infringement itself—not any claim of lost sales, market erosion, or other harms stemming from the infringement.

Not surprisingly, preliminary injunctions were common in patent cases, being denied only when the Chancery doubted liability or feared hardship to the defendant. H.T. Gómez-Arostegui & S. Bottomley, *The Traditional Burdens for Final Injunctions in Patent Cases* c.*1789 and Some Modern Implications*, 71 CASE W. RSRV. L. REV. 403, 420 n.70 (2020) (citing *Stationers v. Carnan* (Ch. 1774); *Liardet v. Johnson* (Ch. 1777)). As Baron Smythe noted in 1780, "[t]he ordinary relief in Case of Rights upon Patents is [an] Injunction & an Account. [Equity] [s]eldom refuse[s] [to grant an] Injunction till [the] hearing [*i.e.*, a preliminary injunction]." *Liardet v. Johnson* (Ch. 1780), *as printed in* H.T. Gómez-Arostegui & S. Bottomley, *Patent-Infringement Suits and the Right to a Jury Trial*, 72 AM. U. L. REV. 1293, 1343 (2023); *see also Horton v. Maltby* (Ch. 1783) (arg.) ("[T]he usual way of proceeding in these [invention] Cases [i]s to get an [interim] Injunction . . . ."), *as printed in id.* at 1344 n.250; R. Hinde, *The Modern*

Practice of the High Court of Chancery 584 (London, 1785) ("Injunctions are usually granted in . . . cases . . . *On patents*, &c."); *cf. Tonson v Walker*, 3 Swans. 672, 679 (Ch. 1752) (copyright case) ("[Even] if the case is doubtful, that may be a ground to grant an injunction until the matter can be considered at the hearing [*i.e.*, the bench trial]; thus [like] in waste, not a clear right, but probability of right, may be, and is, a ground for an [interlocutory] injunction.").

Nothing suggests that the Chancery believed that these irreparable injuries were inflicted only on patent-practicing patentees, only if patentees established they had refused to license their patents, or only if the patentees established some other sort of special follow-on harm. In point of fact, Matthew Boulton and James Watt, who regularly received interlocutory injunctions in the late 18th century, operated their business in large part by offering licenses to all comers who wished to implement Watt's separate-condenser improvement to the steam engine. *See* S. Bottomley, *The British Patent System During the Industrial Revolution*, 1700–1852, at 117 (2014) (mentioning 15 injunctions); *id.* at 251–55 (describing licensing business). Instead, the Chancery enjoined ongoing infringement because future infringement itself was irreparable.

(c) <u>The Basis for Inadequacy Stemmed from the Nature of the Right and the Prospect of Continuing Infringement.</u>

The Chancery viewed the likelihood of future infringement, when proven, as irreparable in part because infringement constituted a type of waste to property, something in which the plaintiff held an exclusive right. Typically, a defendant who engaged in equitable waste possessed real property as a tenant and threatened to damage or destroy it by removing trees or other resources, all to the injury of a person (the plaintiff) who held a reversion in the land. *See Black's Law Dictionary* 1906 (11th ed. 2019) (describing how waste "involves some positive act of injury to the property, diminishing its value for the person next in succession; it is a deliberate and active change to the property. Examples are altering the character of premises by

demolishing internal walls and fittings or opening and working a mine on the land"). The Chancery observed that its jurisdiction to enjoin infringement—which, again, was triggered when damages were an inadequate remedy—sprung from its jurisdiction to stay waste. *See Goodeson v. Gallatin*, 2 Dick. 455, 455 (Ch. 1771) (Lord Apsley, L.C.); *see also Doolittle v. Walton*, 2 Dick. 442, 442 (Ch. 1771) (Lord Apsley, L.C.) (categorizing injunctions in intellectual-property infringement cases as falling "under the head of waste"); *Donaldson v. Becket* (H.L. 1774), *reprinted in* 17 *Parliamentary History*, at 996 (Lord Camden, L.C.) (noting that interlocutory injunctions in copyright and printing-patent cases were "obtained for the purpose of staying waste, and the prevention of irreparable damage").

In fact, the Attorney General for England, John Scott (who later became Lord Chancellor Eldon), successfully used this analogy in *Boulton v. Bull*, 3 Ves. Jr. 140, 141 (Ch. 1796), a patent-infringement suit, to explain why a preliminary injunction should not be dissolved:

> In the case of waste it is the specific right of the party to have the interference of the Court [of Chancery]. In [those cases] the Court [does] not permit the timber to be cut upon security for the value [*i.e.*, even if the defendant offers to post security for the timber]. So here[, in the case of patents,] there is a specific right, which the law will protect . . . .
>
> *Lord Chancellor* [Loughborough]. . . . [The] injunction must be continued [while the patent is tried in an action at law]. I will not put [plaintiffs] to compensation. I will not disturb the possession of their specific right.

Additionally, to receive a preliminary injunction, merely holding an exclusive right in property was not enough. It had to be coupled with the prospect of a future violation of that right, such as infringement. Damages were limited to redressing torts that occurred *before* an action was filed. Thus, common-law courts could not award damages for infringements that occurred after an action commenced, leading to the possible prospect of a multiplicity of suits stemming from the constant grievance of continuing infringement. Gómez & Bottomley, *Traditional Burdens*, 71 CASE W. RSRV. L. REV. at 422. As Justice Story observed:

> It is quite plain that, if no other remedy could be given in cases of patents and copyrights than an action at law for damages, the inventor or author might be ruined by the necessity of perpetual litigation, without ever being able to have a final establishment of his rights.

1 Justice Story & A.E. Randall, *Commentaries on Equity Jurisprudence* § 931 (3d ed. 1920); *see also id.* § 930 ("It is upon similar principles, to prevent irreparable mischief, or to suppress multiplicity of suits . . . that courts of equity interfere in cases of patent for inventions[.]"); 4 J.N. Pomeroy & J.N. Pomeroy Jr., *Pomeroy's Equity Jurisprudence* § 1352 (4th ed. 1919) ("From the nature of the right and of the wrong,—the violation being a continuous act,—the legal remedy is necessarily inadequate."); H. Givington & A. Fountaine, *Snell's Principles of Equity* 583 (20th ed. 1929) ("to prevent multiplicity of suits, equity habitually interfered by injunction to secure the rights of inventors").[8]

Moreover, the inability of the courts of law to restrain infringement of intellectual property, alongside other injuries, was a notorious point of failure:

> It is the known and experienced imbecility of the resort to the ordinary courts, and their failure in administrative power to secure justice to their suitors, which in modern times has brought so many of those suitors to the court of the Chancellor. The common cases of injunctions to stay waste, to restrain ruinous damage to partnership property, and, the violation of patents and of copyright, may be taken as examples.

1 George Spence, *The Equitable Jurisdiction of the Court of Chancery* 706 (1846); *accord* Story & Randall, *Commentaries on Equity Jurisprudence* § 933 ("[T]he plaintiff could at law have no preventative remedy, which should restrain the future use of his invention, or the future publication of his work, injuriously to his title and interest."). All things considered, being that damages as a remedy was not as "clear and certain" and as "effectual and complete" as injunctive relief, that rendered the former an inadequate remedy at law. 1 J. Harrison & J.G.

[8] The best sources for determining 18th-century Chancery principles are primary sources from that period. Sources after 1789 may be useful so long as they discuss or reflect earlier practice.

Williams, *The Practice of the Court of Chancery* 396 (London, 7th ed. 1790).

(d) Ongoing Infringements *Per Se* (and Ongoing Trespasses of All Sorts) Remain Cognizable and Irreparable Injuries Today.

Consistent with this history, the statute codifying a federal court's power to enjoin patent infringement—which itself stretches back to the first federal statute expressly allowing injunctive relief in 1819—explicitly states that the point of an injunction is to restrain infringement itself:

> The several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable.

35 U.S.C. § 283. The statute does not authorize courts to grant injunctions solely to prevent *special harms caused by* future violations of a patent, such as loss of reputation or market share. Injunctions are instead meant to "prevent the violation"—*i.e.*, the infringement—itself. *See Joy Techs., Inc. v. Flakt, Inc.*, 6 F.3d 770, 772–73 (Fed. Cir. 1993) ("[S]ection 283 requires that the purpose behind the injunction must be to 'prevent the violation of any right secured by patent.'"); *I.N.S. v. Pangilinan*, 486 U.S. 875, 883 (1988) ("[I]t is well established that '[c]ourts of equity can no more disregard statutory . . . requirements and provisions than can courts of law.'").

This focus has never changed. Congress enacted the first statute allowing injunctions in patent suits in 1819 "to prevent the violation of the rights of any . . . inventors." Act of Feb. 15, 1819, ch. 19, 3 Stat. 481, 481–82. That language has persisted with no material changes in the patent statutes enacted through to the 1952 Patent Act.[9] There has been no suggestion—let alone an "unequivocal statement"—that Congress intended to implement what would be a "drastic departure from the traditions of equity practice." *Hecht Co. v. Bowles*, 321 U.S. 321, 329 (1944).

[9] *See* Act of July 4, 1836, ch. 357, § 17, 5 Stat. 117, 124; Act of July 8, 1870, ch. 230, § 55, 16 Stat. 198, 206; Act of Mar. 3, 1897, ch. 391, § 6, 29 Stat. 692, 694; Act of Feb. 18, 1922, ch. 58, § 8, 42 Stat. 389, 392; Act of Aug. 1, 1946, ch. 726, 60 Stat. 778, 778.

Also consistent with Chancery practice, the Supreme Court and Fifth Circuit have embraced the equitable principle that continuing infringements or trespasses constitute irreparable injuries as a matter of law. In 1908, the Court stated that "it hardly need[ed] to be pointed out that the [patent] right can only retain its attribute of exclusiveness by a prevention of its violation" and that "trespasses and continuing wrongs and the vexation of many actions" were "well-recognized grounds of equity jurisdiction" in patent cases. *Cont'l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 430 (1908).[10] The Court has also repeatedly deemed damages inadequate in cases of continuing trespasses generally. *Rondeau v. Mosinee Paper Corp.*, 422 U.S. 49, 59 (1975); *United States v. W.T. Grant Co.*, 345 U.S. 629, 633 (1953); *Donovan v. Pennsylvania Co.*, 199 U.S. 279, 304–05 (1905); *City of Walla Walla v. Walla Walla Water Co.*, 172 U.S. 1, 12 (1898); *Parker v. Winnipiseogee Lake Cotton & Woolen Co.*, 67 U.S. 545, 551 (1863); *Pennsylvania v. Wheeling & Belmont Bridge Co.*, 54 U.S. 518, 562 (1852). Indeed, showing that damages are inadequate was never meant to be difficult. "[I]n order to exclude a concurrent remedy [in] equity," damages "must be as complete, as practical and as efficient to the ends of justice and its prompt administration, as the remedy in equity." *Walla Walla*, 172 U.S. at 12; *accord Twp. of Hillsborough v. Cromwell*, 326 U.S. 620, 629 (1946); *Activated Sludge, Inc. v. City of Fort Worth*, 89 F.2d 278, 279 (5th Cir. 1937) (patent case).

Just last year, the Fifth Circuit applied this trans-substantive principle—that ongoing wrongs constitute irreparable injuries—to reverse the denial of a preliminary injunction in a case

[10] *See also Stearns-Roger Mfg. Co. v. Brown*, 114 F. 939, 945 (8th Cir. 1902) (affirming preliminary injunction in a patent case; rejecting argument of insufficient irreparable injury, stating that "a continuing trespass is always a good ground for the issue of an injunction . . . because a multiplicity of suits for damages is never an adequate remedy for the loss which constantly repeated trespasses entail"); *Allington & Curtis Mfg. Co. v. Booth*, 78 F. 878, 879 (2d Cir. 1897) (affirming preliminary injunction and stating that the "infringement of a patent is a constantly recurring grievance, which cannot be adequately prevented but by an injunction").

involving trespass to chattels. *Texas v. U.S. Dept. of Homeland Security*, 123 F.4th 186, 212 (5th Cir. 2024) ("When a trespass is continuous such that stopping it would require a multiplicity of suits, a[] [preliminary] injunction is justified because monetary relief is inadequate."); *see also Rojas-Adam Corp. v. Young*, 13 F.2d 988, 989–90 (5th Cir. 1926) (continuous trespass to land). Holding that this traditional principle does not apply here would create a special, ahistorical rule, limited to patent cases, something the Court has directed courts not to do. *eBay*, 547 U.S. at 394.

(e) This Traditional Equitable Principle Is Not a Presumption of Irreparable Harm Nor Is It an Impermissible Categorical Rule.

The equitable principles laid out above do not constitute a presumption of irreparable harm. The Court in *Amoco Prod. Co. v. Vill. of Gambell*, 480 U.S. 531, 544–45 (1987), rejected a presumption of irreparable injury on a showing of likelihood of success on the merits in an environmental case. And the Federal Circuit rejected one in a patent case, albeit in *obiter dictum*, on a showing that the plaintiff actually succeeded on the merits. *See Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1148–49 (Fed. Cir. 2011) (patentee did not rely on a presumption at the trial court or on appeal, and the Federal Circuit concluded that the patentee would suffer irreparable injury under contemporary principles of equity, namely loss of market share). But those presumptions did not require any proof of future harm whatsoever to the plaintiff by the defendant, and instead presumed from the proof of one fact—that the defendant was liable or likely liable—the existence of another fact—that the defendant would harm the patentee again in the future. *See Routen v. West*, 142 F.3d 1434, 1440 (Fed. Cir. 1998) (defining presumptions); *Francis v. Franklin,* 471 U.S. 307, 314 (1985) (describing presuming one fact from another).

Here, by contrast, Radian has set forth evidence that Samsung plans to continue its conduct during the pendency of this suit and beyond, and that such conduct infringes. *See* Sections II.C and IV.A.2 *supra*. Concluding that a type of *proven* future harm constitutes

irreparable injury simply raises an issue of law, and it is a move that the Supreme Court has itself employed recently. *Roman Cath. Diocese of Brooklyn v. Cuomo*, 592 U.S. 14, 19 (2020) (*per curiam*) ("The loss of First Amendment freedoms, for even minimal periods of time, unquestionably constitutes irreparable injury.");[11] *cf. Maryland v. King*, 567 U.S. 1301, 1303 (2012) (Roberts, C.J., in chambers) ("[A]ny time a State is enjoined by a court from effectuating statutes enacted by representatives of its people, it suffers a form of irreparable injury."); 13 Edmunds et al., *Cyclopedia* § 6583, at 146 (noting that it is common to "allege irreparable injury and absence of an adequate remedy as a conclusion of law, after setting out the facts in support of such conclusion"); *Harris County v. CarMax Auto Superstores, Inc.*, 177 F.3d 306, 312 (5th Cir. 1999) ("Each of these [injunction] elements is a mixed question of fact and law . . . ."); *see also Black's Law Dictionary*, at 362 ("conclusion of law" is an "inference on a question of law, made as a result of a factual showing, no further evidence being required"). Indeed, if the irreparability of a harm could never be a conclusion of law, then the Federal Circuit would be unable to rule as a general principle, which it has, that certain types of future harms (when proven)—such as loss of reputation, loss of market share, and price erosion—are irreparable. *See Bosch*, 659 F.3d at 1152 ("An injury is either of the irreparable sort, or it is not."); *see also* Section IV.B.2 *infra*.

Similarly, *eBay*'s rejection of "categorical" rules, 547 U.S. at 393–94, cannot be read to mean that traditional equitable principles do not apply.[12] To do so would place *eBay* into a

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[11] *Accord Missouri v. Biden*, 83 F.4th 350, 392–93 (5th Cir. 2023) (requiring proof of a future First Amendment violation only), *rev'd on other grounds*, *Murthy v. Missouri*, 603 U.S. 43 (2024).

[12] In a nonprecedential opinion issued by a motions panel, the Federal Circuit granted a motion for summary affirmance against a patentee who had argued that ongoing infringement was irreparable injury under the traditional principles of equity at the founding. *See VidStream LLC v.*

(continued on next page)

hopeless conflict. Traditional principles are themselves rules, as the Court has confirmed. *See Starbucks Corp. v. McKinney*, 602 U.S. 339, 348 (2020); *Romag*, 590 U.S. at 217; *see also Grupo*, 527 U.S. at 318–23 (describing equity practice as principles and rules interchangeably); Mark P. Gergen et al., *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 Colum. L. Rev. 203, 224 (2012) ("[T]he *eBay* Court's simultaneous embrace of supposedly 'well-established principles of equity' entails an acknowledgment that equity contains confining standards or rules."). So traditional 18th-century equitable principles cannot run afoul of *eBay*'s categorical-rules exclusion when *eBay* itself directs courts to apply these principles. *eBay*'s criticism of the lower court in that case reinforces the point. The problem with the district court's rule—that a nonuser patent owner cannot establish irreparable harm if it is willing to license—was that it could not "be squared with the principles of equity adopted by Congress." *eBay*, 547 U.S. at 393. More generally, the "abolition of categorical rules and the district court's inherent discretion to fashion equitable relief . . . do not mandate that district courts must act on a clean slate." *Bosch*, 659 F.3d at 1149.

Nor will recognizing continuing future acts of infringement as irreparable harm lead to automatic preliminary injunctions. Irreparable harm is one of several factors. An injunction might still fail due to a weak merits case, the defendant ceasing to infringe, undue hardship, the public interest, or an equitable defense (such as laches or unclean hands).

In light of the foregoing, Radian respectfully requests that the Court apply the traditional principles of equity, as dictated by Supreme Court and Fifth Circuit precedent, and conclude that

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Twitter, Inc., No. 2024-2265, 2024 WL 4820802, at *1 (Fed. Cir. Nov. 19, 2024). Notably, the patentee did not argue for a presumption of irreparable injury or an automatic injunction. In any event, the *VidStream* opinion is nonprecedential and does not address Radian's arguments.

Radian will be irreparably harmed, on Radian's showing that *future* and ongoing infringement is likely, and not just on showing of likelihood of success on the merits of *past* infringement.

2. <u>Radian Will Be Irreparably Harmed, According to Contemporary Principles of Equity.</u>

The Federal Circuit has yet to discern or apply the traditional principles of equity and has instead applied more contemporary principles. Under its current framework, the prospect of infringement itself no longer qualifies as a cognizable injury for obtaining a preliminary injunction. Instead, the Federal Circuit requires a plaintiff to demonstrate that it will suffer some additional, special harm *caused by* anticipated infringements. That is to say, a patentee must demonstrate that future infringement is likely *and* that the infringement will cause the patentee to suffer an additional, special harm. The Federal Circuit has then held that at least the following special harms (when proven) are irreparable: price erosion, loss of market share, loss of market opportunities, damage to reputation, and loss of goodwill. *See, e.g.*, *TEK Global, S.R.L. v. Sealant Sys. Int'l*, 920 F.3d 777, 792–93 (Fed. Cir. 2019); *Texas Advanced Optoelectronic Sols., Inc. v. Renesas Elecs. Am., Inc.*, 895 F.3d 1304, 1331–32 (Fed. Cir. 2018); *Douglas Dynamics, LLC v. Buyers Prods. Co.*, 717 F.3d 1336, 1344–45 (Fed. Cir. 2013); *Celsis in Vitro, Inc. v. CellzDirect, Inc.*, 664 F.3d 922, 930 (Fed. Cir. 2012); *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 861 (Fed. Cir. 2010); *Abbott Labs. v. Sandoz, Inc.*, 544 F.3d 1341, 1362 (Fed. Cir. 2008). Moreover, although injunctive relief aims to prevent future harms, the Federal Circuit has held that courts can consider past harm in assessing the likelihood and extent of future harm. *i4i*, 598 F.3d at 861.

Even under this contemporary approach to equity, Radian is likely to be irreparably harmed absent injunctive relief. Radian has already demonstrated that Samsung is likely to continue its infringing conduct. *See* Sections II.C and IV.A.2 *supra*. And in the wake of

Samsung's infringement, Radian will likely continue to suffer irreparable harm at least in the form of loss of market opportunities, loss of goodwill, loss of reputation, and loss of market position. *See* Jadon Decl. at ¶¶ 31–50. These types of harm cannot be quantified or reduced to calculable money damages, and accordingly, proof of these harms qualifies as irreparable harm. Radian has also suffered irreparable harm in the form of permanent loss of patent term and will likely continue to suffer such harm absent an injunction. *See id.* at ¶ 38. An injunction would help protect against these harms and potentially give Radian a chance to continue to innovate. *See id.* at ¶¶ 51-58.

Since suspecting Samsung's infringement of the asserted '183 patent and '656 patent, Radian diligently began investigating Samsung's infringement and pursuing enforcement in federal court. *See* Jadon Decl. at ¶ 58. Given that Samsung took for itself the opportunity that Radian had created, Radian expected (and still expects) that Samsung will not agree to pay value for Radian's inventions but will instead choose to extensively litigate. *See id.* at ¶¶ 55-56. To brace for this prospect and the possibility that the legal system might not enforce Radian's patent rights with an injunction, Radian had to restructure and recapitalize to be able to withstand protracted litigation. *See id*. at ¶ 58. In the time between Samsung's first infringement of the asserted patents on the dates of their issuance on January 3, 2023 ('183 patent) and May 31, 2022 ('656 patent) and when Radian filed suit in this case on December 24, 2024, Radian was diligently engaged in this effort. *See id*. at ¶¶ 18, 58; Dkt. 1.

(a) <u>Radian Suffered and Likely Will Continue to Suffer Loss in Market Opportunities and in Its Market Position as a Leader in the Software-Defined Flash Market, including for ZNS-compatible SSDs.</u>

As explained by inventor and founder Mike Jadon, Samsung exploited a market opportunity created by Radian's research and development, Radian's inventions, and Radian's efforts to evangelize its technology. *See* Jadon Decl. at ¶¶ 8-32. Radian was a pioneering leader

in the software-defined flash market for data centers (including, *e.g.*, enterprise, cloud, and hyperscale). Radian easily bested other technologies with its superior Symphonic Cooperative Flash Management technology, which embodied its patented inventions. *See id*. at ¶ 17. Radian had filed its first patent application in January 2013 and spent years evangelizing its technology and inventions before the rest of the industry had even begun to grapple with the technological problems Radian had already solved. *See id.* at ¶¶ 14-22. By the time Microsoft first made a public call-to-arms in 2017 to encourage the industry to adopt Radian's technology and architecture, Radian had already won a "most innovative" award for its inventive technology at an industry conference two years earlier in 2015. *See id*. at ¶¶ 17, 21. And by the time NVMe first finalized and published the ZNS command set specification in 2020, Radian had already racked up another major conference award a year before in 2019. *See id*. at ¶ 22. Samsung itself did not announce its intention to release a ZNS-compatible product until 2021. *See id*. at ¶ 25.

During this time, Samsung was (and still is) the largest conventional SSD manufacturer by market share, meaning that Samsung had massive manufacturing and assembly capabilities already at its fingertips with which it could infringe Radian's patents. *See* Jadon Decl. at ¶¶ 24-25. With Samsung's ongoing infringement of Radian's patents, Radian will also continue to lose pathways to market opportunities in addition to the market opportunities it already lost, including potential deals with existing and prospective customers. *See id.* at ¶¶ 33-37, 48-50. Samsung's infringement also caused Radian to suffer damage to it position as the market pioneer for its inventive technology in the software-defined flash market, including for ZNS-compatible SSDs. *See id.* at ¶¶ 37, 45. Samsung's ongoing infringement will continue to erode what is left of Radian's market position as the technology pioneer. *See id.* at ⁋ 33. Samsung's infringement was overwhelming. Radian was unable to compete against its own patented inventions when they

were wielded by Samsung with its massively larger manufacturing capabilities, built-in economies of scale, and human and capital resources. *See id*. at ¶¶ 25, 34-35; *compare id. with TEK Global*, 920 F.3d at 792–93 (in considering hardships, noting that the "district court determined that, without the injunction, TEK would be forced to compete with its own patented invention"). Radian also was trying to compete in a specialized segment where infringement was particularly damaging. *Cf. id.* at 792 (noting that patentee's "lack of diversification exposes it to a particular risk of lowered market share" when infringing sales affected its central business). Innovation was Radian's competitive edge in that marketplace. By infringing Radian's patented innovation, Samsung stripped Radian of that edge and forced it to compete with Samsung on scale. *See* Jadon Decl. at ¶¶ 25, 34-35.

Additionally, as an influential market participant, Samsung's infringement encouraged other companies to release ZNS-compatible SSDs that resulted in Radian facing the prospect of competing against its own technology with other market entrants. *See* Jadon Decl. at ¶¶ 36-37. This impact was amplified by Samsung's collaborative efforts with other members of the NVMe organization to include Radian's patented inventions in NVMe's specifications—leading to the market wrongly treating Radian's patented inventions as fair game to be freely used as commodities at will, further eroding Radian's position as a market pioneer for this technology. *See id*. at ¶¶ 37, 50; *compare id. with i4i*, 598 F.3d at 861–62 ("In this case, the district court properly considered strong circumstantial evidence that Microsoft's infringement rendered i4i's product obsolete for much of the custom XML market, causing i4i to lose market share and change its business strategy to survive. i4i was not required to prove that its specific customers stopped using i4i's products because they switched to the infringing Word products.").

(b) Radian Suffered and Likely Will Continue to Suffer Loss to Its Goodwill and Reputation.

In addition to having the market opportunity that Radian created taken by Samsung with its infringement, Radian's goodwill and reputation were also damaged (and continue to be so) as a result of Samsung's infringement. As Mr. Jadon explains in his declaration, Radian strenuously and diligently built its reputation and goodwill over the course of a decade. *See* Jadon Decl. at ¶¶ 40-43, 47-48. But that all came crashing down after Samsung's infringement. *See id.* at ¶¶ 39, 45-46, 49-50.

The industry recognized and knew of Radian's reputation as a pioneer in this technology space with one of the largest storage software companies in the industry telling Radian that it appeared to be the frontrunner in the space. *See* Jadon Decl. at ¶ 18; *compare id. with Douglas Dynamics*, 717 F.3d at 1344–45 (recognizing harm to a patentee's "reputation as an innovator"). Radian had spent years presenting to and educating the industry (including Samsung) about its patented inventions and novel approaches through direct bilateral engagements as well as industry-wide conferences. *See* Jadon Decl. at ¶ 41. Beyond that, Radian proved to the industry (repeatedly) the benefits and performance of its patented inventions in real products and with industry-standard device-level and system-level benchmarks. *See id*. at ¶ 42. The status of Radian's reputation was also endorsed and affirmed by the industry itself, including industry awards and publicity in relevant industry publications. *See id*. at ¶¶ 17, 21-22, 43. Samsung and other members of the NVMe organization also knew of Radian prior to their collaborative efforts to include Radian's patented inventions in standards specifications. *See id*. at ¶¶ 15-17, 19-23, 44. And again, the industry tried to persuade (and then pressure) Radian to join NVMe—the result of which would have given NVMe members, like Samsung, a royalty-free license to any of Radian's patents practiced by the NVMe standards. *See id*. at ¶¶ 23, 44. Radian did not join

because it did not want to freely license the industry, and infringement ensued.

Having the largest market share in SSDs and being a key leader in the NVMe organization, Samsung's infringement was particularly harmful to Radian's reputation. *See* Jadon Decl. at ¶ 45. Had Samsung not infringed Radian's patents, the rest of the industry, including Samsung's customers and Radian's customers, would have seen a major market participant respecting Radian's patent rights and would have likewise also continued to respect Radian's reputation as the pioneer of this technology. *See id.*; *compare id. with Douglas Dynamics*, 717 F.3d at 1345 (recognizing that a patentee's "reputation would be damaged if its dealers and distributors believed it did not enforce its intellectual property rights"); *see also Harmer v. Plane*, 14 Ves. Jr. 130, 133 (Ch. 1807) (Lord Eldon, L.C.) ("[B]y dissolving the Injunction in the mean time [*i.e.*, before trial] I should act both against principle and practice; not only enabling this Defendant against Law to exercise a right in opposition to the patent; but also encouraging all mankind to take the same liberty.").

Relatedly, Radian had customer relationships with various companies for other products (not embodying the claims of the asserted patents). *See* Jadon Decl. at ¶ 48. Radian sold tens of millions of dollars' worth of these other products. *See id*. Radian also engaged with its largest existing customer regarding potential opportunities for that customer to purchase Radian products embodying the patented inventions. *See id.* Radian also entered into an evaluation agreement with this customer, providing an actual product for evaluation, detailed technical documentation, and support. *See id.* Radian entered into similar discussions and evaluation agreements with prospective customers as well for Radian products embodying the patented inventions. *See id.* But just as its reputation was damaged, Radian's goodwill and relationships with existing and prospective customers were also damaged. *See id*. at ¶ 49. Samsung's

infringement was particularly destructive because of Samsung's visibility, market share, and role in standards activities. *See id*. Samsung's infringement effectively greenlit indifference to Radian's patent rights by the industry, including some of Radian's own customers. *See id.* at ¶ 50. This eroded Radian's goodwill and customer relationships, and these existing and prospective customers did not consummate agreements with Radian to purchase products embodying its patented inventions. *See id*.; *compare id. with SynQor, Inc v. Artesyn Techs.*, *Inc.*, No. 2:07-CV-497, 2011 WL 238645, at *3 (E.D. Tex. Jan. 24, 2011) ("One example of the loss of goodwill is demonstrated by Defendants' customer [Cisco's] recent attempt to qualify unregulated bus converters made by non-party competitors of SynQor, even though SynQor has three bus converters that have been fully qualified by Cisco. Thus, the Court agrees that the evidence shows that SynQor will continue to suffer harm to its customer relationships, good will, and the opportunity to expand its business without an injunction."); *see also LEGO A/S v. ZURU Inc.*, 799 F. App'x 823, 832 (Fed. Cir. 2020) (district court did not err in finding irreparable harm from loss of customer relationships, goodwill, and reputation for copyright-infringement claims).

(c) Radian Suffered and Likely Will Continue to Suffer Permanent Loss of Patent Term and Exclusivity.

Radian's patent term and exclusivity will likely continue to be destroyed irreversibly by Samsung's infringement if it continues unabated. *See* Jadon Decl. at ¶ 38. Loss of Radian's patent term is permanent, and monetary damages cannot restore a loss of patent-supported exclusivity after years of litigation. *See Masimo Corp. v. True Wearables, Inc.*, No. 2021-2146, 2022 WL 205485, at *6 n.4 (Fed. Cir. Jan. 24, 2022) (recognizing that "a loss of patent term is permanent"); *Apple*, 809 F.3d at 642 ("The right to exclude competitors from using one's property rights is important. And the right to maintain exclusivity—a hallmark and crucial guarantee of patent rights deriving from the Constitution itself—is likewise important."); *see*

also H.H. Robertson, 820 F.2d at 390 (recognizing that "the finite term of the patent grant," that "patent expiration is not suspended during litigation, and the passage of time can work irremediable harm" as part of the basis for the erstwhile presumption of irreparable harm). Samsung's unrestrained infringement would cause Radian to suffer further loss of patent term and deprive Radian of patent-supported exclusivity to participate in the market on its own terms. *See* Jadon Decl. at ¶¶ 38, 51-58. An injunction stops Samsung's infringement and protects Radian's patent term from permanent loss, better enabling it to continue to innovate. *See id.* at ¶¶ 38, 58.

(d) Radian's Patented Inventions Drive Demand for Samsung's Infringing Products.

Samsung's infringement of Radian's patents also satisfies the causal nexus requirement of the Federal Circuit's contemporary approach, which requires a patentee to show that "the infringing feature drives consumer demand for the accused product." *Apple Inc. v. Samsung Elecs. Co.*, 695 F.3d 1370, 1375–76 (Fed. Cir. 2012). "Driving demand, however, does not require a patented feature to be the only basis of consumer demand," and it is enough "to show that a significant reason consumers bought its device was the presence of the patented features." *TEK Global*, 920 F.3d at 792 (citation omitted); *see also Apple*, 735 F.3d at 1364 ("However, these principles do not mean Apple must show that a patented feature is the one and only reason for consumer demand. Consumer preferences are too complex—and the principles of equity are too flexible—for that to be the correct standard. Indeed, such a rigid standard could, in practice, amount to a categorical rule barring injunctive relief in most cases involving multi-function products, in contravention of *eBay.*") (citation omitted). In *TEK Global*, for instance, the Federal Circuit found sufficient evidence to support that the patented features drove demand when there was evidence that a customer required the patented features to be in its repair kits and that its

purchase of those kits was contingent on having the patented features. 920 F.3d at 792.

Similarly, here, Radian's inventions drove demand for Samsung's infringing SSD products. In fact, as described above, Radian's patented inventions not only drove demand but created this market opportunity—years ahead of anyone else in the industry. *See* Jadon Decl. at ¶¶ 8-25. Samsung's customers for software-defined flash drives, including ZNS-capable SSDs, are primarily hyperscalers with large data-center operations. *See id*. at ¶¶ 27, 29. For example, Microsoft runs the Azure cloud platform, which runs on massive data centers, requiring millions of SSDs. *See id*. at ¶ 28. In 2017, Microsoft called on the industry to work toward adoption of the next generation of a high-density storage interface for cloud-scale data-center applications. *See id*. at ¶ 27-28. The architecture that Microsoft wanted the industry to adopt embodied Radian's patented features. *See id*. at ¶ 29. Prior to Microsoft's call to the industry, Samsung urged and promoted alternative technologies in conferences. *See id*. It was not until after Microsoft publicly expressed its demand for technology that embodied Radian's patented features that Samsung began to seriously pursue production of ZNS products. *See id*. Of the SSD manufacturers that have announced ZNS products, Samsung has the largest market share by far and the necessary production scale to meet Microsoft's requirements. *See id*. Microsoft purchases ZNS-capable SSDs from Samsung precisely because Microsoft wants the infringing features in Samsung's ZNS-capable SSDs. *See id*. at ¶ 30. As such, Radian satisfies the causal nexus requirement.

3. <u>Discrimination Against Nonuser Patent Owners Is Prohibited.</u>

Discrimination against nonuser patent owners has emerged as a particularly prominent feature of the post-*eBay* approach to granting injunctive relief. Numerous courts that have considered preliminary injunctions involving non-practicing entities have almost universally placed a heavy thumb on the scale in weighing that factor against the grant of injunctive relief. *See, e.g.*, *Bianco v. Globus Med., Inc.*, No. 2:12-CV-00147, 2014 WL 1049067, at *5-6 (E.D.

Tex. Mar. 17, 2014) (Bryson, J., sitting by designation) ("In fact, with only a few exceptions, courts have denied injunctive relief in cases in which the patentee does not practice the patent and compete with the alleged infringer.") (collecting cases). This discrimination is improper.

The law does not permit discrimination against nonuser patent owners when considering whether to grant injunctive relief. This is clear from *eBay*, which criticized the district court for being out of line with the traditional principles of equity and *Continental Paper* by denying injunctive relief because of the plaintiff's lack of commercial activity. *See eBay*, 547 U.S. at 393. In *Continental Paper*, the parties agreed that mere nonuse could not justify denying injunctive relief to a patent owner; rather, the dispute was whether a patent owner's nonuse could be so unreasonable that a court could deny injunctive relief and permit the infringement to continue. *See Cont'l Paper*, 210 U.S. at 422. The Supreme Court rejected the view that unreasonable nonuse could justify withholding injunctive relief, and in doing so, the Court correctly distinguished between a patent owner's right to exclude and the privilege to use. "[I]t is the privilege of any owner of property to use or not use it, without question of motive." *Id.* at 429.

The Court further stated that it was the deliberate policy of the United States not to discriminate against nonuser patent owners, specifically with respect to injunctive relief:

> We have seen that it has been the judgment of Congress from the beginning that the sciences and the useful arts could be best advanced by giving an exclusive right to an inventor. The only qualification ever made [to penalize nonuse] was against aliens [in 1832, but that] act was repealed in 1836. It is manifest . . . that Congress has not 'overlooked the subject of nonuser of patented inventions.' And another fact may be mentioned. In some foreign countries the right granted to an inventor is affected by nonuse. This policy, we must assume, Congress has not been ignorant of nor of its effects. It has, nevertheless, selected another policy; it has continued that policy through many years. We may assume that experience has demonstrated its wisdom and beneficial effect upon the arts and sciences.

Id. at 429–30 (citation and quotation omitted). The *eBay* Court unequivocally reaffirmed this policy, endorsing *Continental Paper* without qualification. *See eBay*, 547 U.S. at 393. And no act

of Congress has established a policy to the contrary.

In the face of clear Supreme Court precedent specifically prohibiting this practice, it is astonishing that so many courts improperly discriminate against nonuser patent owners when deciding whether to grant injunctive relief. It appears that lower courts have latched onto Justice Kennedy's concurrence in *eBay* as justification for a new rule—one that departs from *eBay*, *Continental Paper*, and the traditional principles of equity—that permits discrimination against nonuser patent owners. *See, e.g.*, *Apple*, 809 F.3d at 650 (Reyna, J., concurring) ("As Justice Kennedy explained, however, this traditional model does not always apply, particularly when the patentee is a non-practicing entity.") (cleaned up); *Bianco*, 2014 WL 1049067, at *5-6 ("In fact, in his concurring opinion Justice Kennedy suggested that the analysis of the four-factor test for permanent injunctions would be different for parties whose business is based on licensing their patents rather than practicing them.") (citations omitted). But Justice Kennedy's nonprecedential concurring opinion in *eBay* does not and cannot authorize courts to discriminate against nonuser patent owners in the face of *eBay* and *Continental Paper's* precedent to the contrary.

In sum, *any* discrimination against nonuser patent owners—not merely discrimination in the form of a per se rule that nonuser patent owners cannot obtain equitable relief—would violate *eBay* and *Continental Paper*.

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Radian has established that it is likely to suffer irreparable harm under both the traditional principles of equity and the contemporary principles of equity. As such, the second *Winter* factor favors granting a preliminary injunction.

C. <u>Balance of Hardships</u>

The third *Winter* factor considers the hardship the plaintiff would face in the absence of injunctive relief versus the hardship the defendant would face if enjoined. *See Winter*, 555 U.S.

at 26. The hardships that Radian would face in the absence of injunctive relief vastly outweigh any hardship that Samsung might face if it were prohibited from continuing its infringement.

Absent an injunction, Radian will endure significant hardships from irreparable harm to its market position, market opportunities, reputation, goodwill, and loss of patent term. These hardships have been detailed above. *See* Section IV.B.2 *supra*. Additionally, in the absence of an injunction, Radian will suffer hardship from a multiplicity of suits—being forced to bring perpetual suits to seek monetary redress for each new tranche of Samsung's future infringement. *See Gruma Corp. v. Mex. Rests., Inc.*, No. 4:09-CV-488, 2013 WL 12134147, at *7 (E.D. Tex. Sept. 27, 2013) ("Requiring [plaintiff] to sue again and again for future infringement would cause undue hardship.") (trademark infringement case). Mr. Jadon's declaration confirms what Justice Story observed about the need for injunctions in patent and copyright cases: "It is quite plain, that, if no other remedy could be given in cases of patents and copyrights than an action at law for damages, the inventor or author might be ruined by the necessity of perpetual litigation, without ever being able to have a final establishment of his rights." Story & Randall, *Commentaries on Equity Jurisprudence* § 931.

Before Samsung's infringement, Radian had a robust virtuous cycle—reinvesting its revenue dollars back into research, design, and development to tackle challenging technological problems. *See* Jadon Decl. at ¶ 58. As detailed above, Samsung took for itself the market opportunity created entirely by Radian's research and development, Radian's inventions, and Radian's efforts to evangelize its technology. Not enjoining Samsung would lock in this harm—allowing Samsung to continue infringing indefinitely without ever needing Radian's permission. *See id*. at ¶¶ 53-55. If Radian's patent rights were honored, Radian would be able to decline to enter into undesirable transactions with Samsung or other market participants if Radian was not

satisfied with the terms. *See id*. at ¶ 56. Without the injunction, Radian is deprived of the full value of its patent rights to determine with whom to enter license agreements and on what terms. This, in turn, depletes Radian of the flexibility, time, and motivation to invest effort and resources to develop more innovations. *See id*. at ¶ 58.

Any hardships to Samsung, on the other hand, do not come close to what Radian will have to endure. As an initial matter, in its patent-infringement cases, the 18th-century English Court of Chancery generally took a no-nonsense view of the defendant's hardship in ceasing its infringement:

> Where it restrains in Cases of Patents it takes nothing from the Individuals restrained which is their right. It only hinders them from invading anothers [right] . . . . As to tying up the Party[,] the Right to do so is established.
>
> [As to the argument] that it will be a hardship to tie the Defendant up for ever from making this Cement[,] ... if the Plaintiffs have established their Right at Law, they are intitled to tie him up. This is not different from other Injunctions in like Cases.

Liardet v. Johnson (Ch. 1780), *printed in* Gómez-Arostegui & Bottomley, *Traditional Burdens*, 71 CASE W. RSRV. L. REV. at 431; *accord Windsurfing Int'l Inc. v. AMF, Inc.*, 782 F.2d 995, 1003 n.12 (Fed. Cir. 1986) ("One who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected.").

Even if enjoined, Samsung's business would not be destroyed. Samsung is a massive multinational corporation with numerous constituent business lines.[13] Samsung's memory and storage business would not be destroyed as Samsung has multiple lines and product models.[14] Even the specific enterprise and data center subsegment of Samsung's memory and storage

[13] *See, e.g.*, https://news.samsung.com/global/fast-facts.
[14] *See, e.g.*, https://www.samsung.com/us/memory-storage/; https://semiconductor.samsung.com/us/ssd/.

business would not be destroyed.[15] Radian's proposed injunction is reasonably tailored to Samsung's infringement. *See* Jones Decl. at ¶¶ 114-17. Specifically, the proposed injunction, if granted, would not prevent Samsung from selling all SSDs; rather, it would prohibit only SSDs with software-defined flash functionalities, like ZNS, that infringe Radian's patents. *See id.* at ¶ 117. Samsung could continue selling conventional SSDs, including those in the enterprise and data-center markets. *See id.* at ¶ 123.

Additionally, Radian proposes an injunction that gives Samsung a reasonable amount of time to bring its infringing activities to a complete end. *See* Proposed Injunction Order; Jones Decl. at ¶¶ 118-24 . Specifically, the proposed injunction would give Samsung enough time to update the firmware for any SSDs that have not yet shipped such that they would be unable to accept or respond to ZNS commands and would otherwise be unable to provide any ZNS-based information. *See id.*.

Finally, Radian has negotiated terms so that it can post a bond of $10,000,000 if the court determines that security is appropriate to address any hardship faced by Samsung in complying with an injunction and in the event it is later found to have been wrongfully enjoined per Fed. R. Civ. P. 65(c). *See* Curry Decl. at ¶ 3. Rule 65(c) vests wide discretion in the trial court for setting the bond amount. Indeed, the Fifth Circuit has recognized that the trial judge "may elect to require no security at all." *Corrigan Dispatch Co. v. Casa Guzman, S.A.*, 569 F.2d 300, 303 (5th Cir. 1978) (*per curiam*); *see also Kaepa, Inc. v. Achilles Corp.*, 76 F.3d 624, 628 (5th Cir. 1996). Moreover, it is Samsung's burden to establish a rational basis for larger security. *See Appalachian Reg'l Healthcare, Inc. v. Coventry Health & Life Ins. Co.*, 714 F.3d 424, 432 (6th

[15] *See, e.g.*, https://semiconductor.samsung.com/us/ssd/datacenter-ssd/; https://semiconductor.samsung.com/us/ssd/enterprise-ssd/.

Cir. 2013) ("Although no rule formally requires it, a party seeking a security bond regularly estimates the damages it will suffer if it complies with a preliminary injunction."); *accord LEGO A/S*, 799 F. App'x at 837–38 ("The party against whom a preliminary injunction is sought has the burden of establishing the amount of a bond necessary . . . .").

Because Radian has established that the hardship to Radian in the absence of an injunction greatly outweighs any hardship to Samsung if enjoined, the third *Winter* factor favors granting a preliminary injunction.

D. <u>Public Interest</u>

The final *Winter* factor considers the impact of the injunction on the public interest. *See Winter*, 555 U.S. at 24. The public interest weighs in favor of granting an injunction here. The Court's decision in *eBay* is most instructive on this factor. As discussed above, *eBay* criticized the Federal Circuit for stating that courts could deny an injunction on public policy grounds "only in the unusual case, under exceptional circumstances and in rare instances[.]" *eBay*, 547 U.S. at 393–94 (cleaned up). In finding that the Federal Circuit erred, the Supreme Court cited favorably to an earlier Federal Circuit opinion, *Roche Prod., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858 (Fed. Cir. 1984), which rejected the argument that a permanent injunction automatically followed a finding of infringement. *See eBay*, 547 U.S. at 394. In *Roche*, the Federal Circuit observed that the "essence of equity jurisdiction has been the power of the Chancellor to do equity and to mould each decree to the necessities of the particular case." *Roche*, 733 F.2d at 866–67 (quoting *Hecht*, 321 U.S. at 329–30). "The qualities of mercy and practicality have made equity the instrument for nice adjustment and reconciliation between the public interest and private needs as well as between competing private claims." *Id*. In other words, *Winter* factor 4 asks whether the injunction needs to be tailored or denied as an "adjustment and reconciliation between the public interest and private needs." *Id*.

1. **The Public Policy Adopted by the Constitution and by Congress Favors Enforcement of Patent Rights with Injunctive Relief.**

Here, the public interest favors entry of a preliminary injunction. The public interest favoring the enforcement of patent rights has been expressed in the statutes passed by Congress. *See* 35 U.S.C. § 154(a) ("Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, of the right to exclude others . . ."); *see also* 35 U.S.C. § 261 (recognizing patents as personal property). The Supreme Court has recognized that a patent's monopoly grant (*i.e.*, the right to exclude) is, itself, an expression of public policy. *See Morton Salt Co. v. G. S. Suppiger Co.*, 314 U.S. 488, 492 (1942), *abrogated on different grounds by Illinois Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006) ("The grant to the inventor of the special privilege of a patent monopoly carries out a public policy adopted by the Constitution and laws of the United States[.]"); *see also Mazer v. Stein*, 347 U.S. 201, 219 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights [in the U.S. Constitution] is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts.' Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered."). Professor Adam Mossoff has elaborated on the public policy underlying the U.S. patent system, explaining that the ownership of inventions as a property right—and the attendant enforcement of that right via injunction—has been critical to our nation's prosperity since its inception:

> Property rights in all assets, including patents, foster commercial activities in innovation markets, as market participants engage in specialization and division of labor in maximizing value creation all along the production and distribution value chain. This key economic insight was first formulated by Adam Smith in 1776 in *The Wealth of Nations*.
>
> Property rights can achieve this economic function only when property owners have reliable and effective control over their property. If anyone can violate a

> property right by trespassing, and the only consequence they suffer is that they must pay the property owner some form of monetary compensation set by a government official following a legal or regulatory process, then property owners can no longer determine how best to use their property in the marketplace. Contracts are replaced by "efficient infringement" in which putative licensees can exploit costly judicial or regulatory processes to depress licensing rates, which reduces the willingness of innovators to create new inventions and invest in new commercial mechanisms for deploying these inventions in the marketplace.

Adam Mossoff, *The Injunction Function: How and Why Courts Secure Property Rights in Patents*, 96 NOTRE DAME L. REV. 1581, 1594–95 (2021).

2. **Granting Preliminary Injunctions in Patent Cases Alleviates the Burden on the U.S. Court System Stemming from Defendants' Believing They Risk Only the Possibility of Paying Money Damages after Trial.**

Granting injunctions in patent cases more regularly, including to nonuser patentees, also serves the public interest by alleviating the burden defendants have put on the U.S. court system. Defendants like Samsung assume they will face no risk of being enjoined preliminarily or permanently, and thus they have no incentive to mediate or settle, particularly when the patentee is a small company like Radian. As explained by Professor Kristen Jakobsen Osenga:

> This predictable system had, built within it, a set of beneficial outcomes. First, an accused infringer who feared a possible future court order enjoining its behavior would often engage in pre-infringement negotiations in an attempt to license the technology before embarking on potentially infringing behavior. Second, if the accused infringer did not obtain a license ahead of time, when facing a lawsuit in which injunctive relief is the likely outcome if infringement is found, the accused infringer and the patent owner may be more likely to engage in pre-lawsuit (or at least pre-decision) settlement negotiations. Finally, even if the lawsuit drew to a conclusion, these regularly-granted injunctions would serve as a place from which post-lawsuit negotiations would begin.

Kristen Jakobsen Osenga, *"Efficient" Infringement and Other Lies*, 52 SETON HALL L. REV. 1085, 1090–91 (2022); *see also id.* at 1103. Applying the traditional practice of enjoining patent infringement would encourage parties in lawsuits to negotiate resolutions directly instead of using the court system as a negotiation forum. Instead of efficient infringement, the United States would have an efficient court system. This would of course advance the public interest.

3. An Injunction in This Case Would Not Negatively Impact the Public.

The proposed injunction does not jeopardize public health, public safety, or national security. *See Xerox Corp. v. 3Com Corp.*, 61 F. App'x 680, 685 (Fed. Cir. 2003) (recognizing public health and safety as public interests to consider); *see also Winter*, 555 U.S. at 33 (vacating a preliminary injunction that jeopardized national security). For the sake of completeness, the closest that the proposed injunction comes to implicating the public interest is that this might impact Samsung's data-center operator customers in that it will cost them more money to procure conventional SSDs from Samsung than they are currently spending on Samsung's infringing SSDs. But granting Radian's proposed injunction would not grind data centers to a halt. Because Radian has established that the public interest would be unharmed and actually improved with an injunction, the fourth *Winter* factor favors granting a preliminary injunction.

V. CONCLUSION

The four-factor *Winter* test supports a preliminary injunction. Using expert testimony, Radian has demonstrated a likelihood of success on its patent-infringement claims. Whether the Court prefers to analyze irreparable harm under the traditional principles of equity or the more contemporary framework, Radian has shown that it will likely continue to be irreparably harmed. Radian has shown the likelihood of continued infringement in the future by Samsung under the traditional principles of equity. And Radian has shown irreparable harm from loss of market position, market opportunities, goodwill, reputation, and patent term under the more contemporary framework. The balance of hardships also favors the grant of injunctive relief as any burden to Samsung is dwarfed by the harm and hardship to Radian. Finally, there is no compelling public interest here that would warrant denying injunctive relief. Radian thus respectfully requests that this Court grant its Motion for a preliminary injunction.

Dated: April 18, 2025

Respectfully submitted,

/s/ *Austin Curry*

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CERTIFICATE OF SERVICE

I certify that on April 19, 2025 a true and correct copy of the above and foregoing document was served on counsel of record via the Court's CM/ECF system per Local Rule CV-5(a)(3).

/s/ *Austin Curry*
Austin Curry

CERTIFICATE OF CONFERENCE

I certify that counsel for Radian met and conferred with counsel for Samsung to discuss the substantive relief sought in this Motion pursuant to Local Rule CV-7(h). Counsel for Samsung indicated that it was opposed to the relief sought in this Motion.

/s/ *Austin Curry*
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