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UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

ECIMOS, LLC,

Plaintiff-Appellee/Cross-Appellant,

v.

CARRIER CORPORATION,

Defendant-Appellant/Cross-Appellee.

Nos. 19-5436/5519

Appeal from the United States District Court
for the Western District of Tennessee at Memphis.
No. 2:15-cv-02726—Jon Phipps McCalla, District Judge.

Argued: March 13, 2020

Decided and Filed: August 21, 2020

Before: BOGGS, CLAY, and GIBBONS, Circuit Judges

COUNSEL

ARGUED: K. Winn Allen, KIRKLAND & ELLIS LLP, Washington, D.C., for Appellant/Cross-Appellee. Jason O’Neal Perryman, GIBSON PERRYMAN LAW FIRM, Memphis, Tennessee, for Appellee/Cross-Appellant. **ON BRIEF:** K. Winn Allen, Michael A. Francus, KIRKLAND & ELLIS LLP, Washington, D.C., for Appellant/Cross-Appellee. Jason O’Neal Perryman, Ralph T. Gibson, GIBSON PERRYMAN LAW FIRM, Memphis, Tennessee, for Appellee/Cross-Appellant.

OPINION

BOGGS, Circuit Judge. Carrier and ECIMOS once had a long-standing business relationship that has now deteriorated. Carrier is a leading manufacturer of residential Heating,

Ventilation, and Air Conditioning (“HVAC”) systems and ECIMOS once produced the quality-control system that tested completed HVAC units at the end of Carrier’s assembly line. The present dispute centers on Carrier’s alleged infringement of ECIMOS’s copyright on its database-script source code—a part of ECIMOS’s software that stores test results. ECIMOS alleges that Carrier improperly used the database—indeed copied certain aspects of the code—to aid a third-party’s development of a new testing software that Carrier now employs in its Collierville, Tennessee manufacturing facility. ECIMOS sued for copyright infringement and breach of contract and won a \$7.5 million jury award.

Following trial, Carrier filed a renewed Rule 50 motion for a judgment as a matter of law or, in the alternative, a Rule 59(e) motion to amend the judgment or for a new trial. It contended that it did not infringe on ECIMOS’s copyright as a matter of law and objected to most of the \$7.5 million jury award. The district court denied most of the motion, finding that there was no basis to conclude that there was no infringement as a matter of law; but it granted the motion in part, reducing Carrier’s total damages liability to \$6,782,800. Carrier now appeals those decisions.

ECIMOS also filed a post-trial motion and asked the court to enjoin Carrier from using or disclosing ECIMOS’s trade secrets and from using its third-party-developed database until a new, non-infringing database could be developed from scratch. ECIMOS also moved to amend the jury award so that it could receive even more damages from Carrier. The district court: (1) enjoined Carrier from using its new database, but stayed the injunction until Carrier could develop a new, non-infringing database subject to the supervision of a special master; (2) enjoined Carrier from disclosing ECIMOS’s trade secrets, but also held that certain elements of ECIMOS’s system were not protectable as trade secrets (such as ECIMOS’s assembled hardware) and thus did not enjoin Carrier from using ECIMOS’s system; and (3) rejected ECIMOS’s motion to amend the jury award. ECIMOS now appeals those decisions.

We hold that there are sufficient reasons to conclude that Carrier *did* infringe on ECIMOS’s copyright, but that Carrier’s liability to ECIMOS based on its copyright infringement and its breach of contract can total no more than \$5,566,050. We also hold that the district court

did not err when it crafted its post-trial injunctions. For the reasons that follow, we therefore affirm in part and reverse in part the district court's rulings.

I. BACKGROUND

A. Factual Background

Carrier is a leading manufacturer of residential HVAC systems. ECIMOS—originally founded as “ECI” by a former Carrier employee—is the owner of an automated quality-control-testing system that assesses each HVAC unit at the end of a manufacturer’s assembly line. The system, called the Integrated Process Control System (“IPCS”), consists of a software program and associated hardware that interacts with the HVAC unit to perform various tests. Carrier has “runtest” stations at the end of its manufacturing line where an employee connects a completed HVAC unit to the IPCS to perform quality-control tests to check for defects. The IPCS software pulls up the tests that the employee wants the system to perform, and the hardware performs those tests. The test results are then stored on a database within the IPCS software. The IPCS aided Carrier by automating and speeding up much of the quality-control process. At the time this dispute began, ECIMOS’s IPCS was installed in each one of Carrier’s 103 runtest stations in its Collierville, Tennessee plant, with Carrier paying ECIMOS a licensing fee for each one.

The Carrier-ECIMOS relationship began in 1992, when ECIMOS first installed its IPCS in Carrier’s Collierville plant. Originally, the IPCS software ran on Microsoft’s “MS-DOS” operating system. In 2002, Carrier purchased an upgraded system from ECIMOS for \$1.4 million. The upgrade included ECIMOS’s Visual Basic 6 (“VB6”) software which ran on Microsoft’s Windows XP operating system. Throughout this first part of their relationship, Carrier and ECIMOS had a practice under which ECIMOS performed regular maintenance on the IPCS and then submitted a proposal for the maintenance work to Carrier, who then issued a purchase order for the service. Carrier sometimes also purchased “service pack” hours from ECIMOS in bulk, to pre-pay for expected maintenance work.

In 2004, ECIMOS began formally incorporating licensing terms into the proposals that it sent to Carrier. These terms prohibited the “[u]nauthorized copying, reverse engineering, decompiling, disassembling, decrypting, translating, renting, sub-licensing, leasing, distributing,

and/or creating derivative works based on the software, in whole or in part.” This 2004 iteration of the Carrier-ECIMOS contract is the operative contract that underlies the contract-breach-damages argument on appeal.

After 2004, each party’s account of the state of the relationship begins to diverge. ECIMOS claims that its relationship with Carrier was “ongoing” and “iterative.” In this relationship, according to ECIMOS, Carrier developed new products and asked ECIMOS to develop quality-control tests and procedures for them. In contrast, Carrier claims that it viewed ECIMOS’s products and services as “poor” and “inadequate.” Carrier believed the IPCS storage database was inefficient because it recorded results for every possible test that could be performed, even if some tests were not actually run on a particular Carrier unit. Thus, even if Carrier wanted to perform just one test on one component of an HVAC unit, the IPCS logged the result as if every possible test had been performed, with the unperformed tests giving a result of “0” that was then stored in its database. According to Carrier, this created a bulky and unmanageable database file that often caused the system to lock up and delay production.

In August 2011, ECIMOS announced that it would no longer provide service or routine maintenance to the IPCS VB6 software because Microsoft no longer supported Windows XP, which was the operating system that VB6 ran on. ECIMOS claims that, at the time of the announcement, it had already developed an upgraded software program for the IPCS called VB.Net that ran on Windows 7—the new Microsoft operating system—and that it was planning on submitting a proposal to Carrier to sell the upgrade. ECIMOS claims that it expected Carrier to agree to the proposal just as it had done before, when the IPCS upgraded to VB6 and Windows XP in 2002. However, unbeknownst to ECIMOS at the time, Carrier had already installed the VB6 software directly onto the Windows 7 operating system in April 2011. And Carrier continued operating the IPCS as before, even asking ECIMOS for maintenance of the IPCS when initial problems with the migrated software arose. ECIMOS claimed that this action breached the parties’ licensing agreement, which prohibited Carrier from copying or duplicating the software without ECIMOS’s consent, or from making any “updates” or “upgrades” without paying ECIMOS an additional licensing fee.

Moreover, in late 2011, unbeknownst to ECIMOS, Carrier began discussing the development of a new quality-control software with a third-party developer, Amtec Solutions Group (“Amtec”). Ostensibly, Carrier wanted Amtec to develop a software and storage database similar to the IPCS’s, but one that would run more smoothly. ECIMOS states that it suspected that Carrier’s requests for maintenance during this time were actually veiled attempts at getting ECIMOS to divulge more trade secrets to aid the development of the competing software. It is during this period that ECIMOS accuses Carrier of improperly sharing its copyrights and trade secrets. ECIMOS also claims that these actions breached the parties’ licensing contract.

Despite these developments, the two parties apparently interacted with each other without change for a few years, with Carrier using the VB6 software on Windows 7 and ECIMOS completing periodic maintenance on the IPCS. On March 6, 2014, ECIMOS formally submitted a proposal to Carrier to sell the upgraded VB.Net software, along with several maintenance-related repairs and upgrades to the IPCS hardware. The total quote for the entire upgrade was \$1,021,000. However, the proposal stipulated that the fee for the “[s]oftware migration from VB6 to VB.Net” for all of Collierville’s runtest stations was only \$118,000. ECIMOS believed that Carrier would accept the upgrade just as it did in 2002 when ECIMOS migrated the IPCS software from the MS-DOS operating system to Windows XP. However, Carrier never accepted the proposal. Instead, in early 2015, Carrier accelerated its work with Amtec to develop a new, competing quality-control system. This Amtec-developed system included both a software application (the “Runtest Execution System” or “RES”) and a new storage database (the “Manufacturing Execution System” or “MES”). For simplicity’s sake, we will refer to all components of the Amtec-developed system as the “RES.” The RES went live at Carrier’s Collierville plant in October 2015.

B. Procedural Background

ECIMOS filed suit against Carrier on October 26, 2015 in Tennessee state court. Carrier later removed the case to federal court. Of note for this appeal, ECIMOS claimed that (1) Carrier breached the parties’ software-licensing contract by disclosing confidential information to third parties and by not paying a software-migration fee when it installed VB6

onto Windows 7; (2) Carrier misappropriated ECIMOS's trade secrets in the development of the RES; and (3) Carrier violated ECIMOS's copyright on the IPCS database.¹

The case proceeded to trial, where the jury found for ECIMOS and against Carrier on all three claims. On the contract-breach claim, the jury found that Carrier breached its contract with ECIMOS “by failing to pay ECIMOS a licensing fee for installing and using ECIMOS's software on the Windows 7 operating system” and by “failing to maintain the confidentiality of ECIMOS's materials relating to ECIMOS's software and/or hardware drawings.” On the trade-secrets claim, the jury found that Carrier misappropriated “ECIMOS's software source code including the algorithms for the valid test and test procedures and the way the software source code interacts with ECIMOS's database” as well as “ECIMOS's assembled hardware drawings and wiring diagrams.” And on the copyright claim, the jury found that Carrier infringed on ECIMOS's copyright on its “runtest database script source code.” Notably, the question of whether Carrier also infringed on ECIMOS's copyright on the IPCS *software-source code* was submitted to the jury, but the jury found that—as a factual matter—Carrier did *not* infringe on that copyright.

During trial, as part of its copyright-damages claim, ECIMOS sought disgorgement damages for all of Carrier's profits from its Collierville plant for a fifteen-month period (October 2015 to December 2016). ECIMOS presented evidence of Carrier's gross revenue from Collierville for the period, which totaled more than \$1.25 billion. At closing, it asked the jury to award it disgorgement damages for Carrier's entire profits from the plant, which amounted to asking the jury for over \$225 million. Carrier objected but was overruled. ECIMOS also submitted a \$1.5 million contract-breach amount to the jury, to which Carrier also objected. Carrier contended that the \$1.5 million amount improperly included the \$1,021,000 that ECIMOS would have charged Carrier had Carrier agreed to the system upgrade included in ECIMOS's 2014 proposal. Carrier insisted that it never agreed to the full system upgrade (including maintenance and upgrades to the IPCS hardware) and that ECIMOS should be limited

¹ECIMOS originally made four claims against Carrier: breach of contract, misappropriation of trade secrets, a violation of the Digital Millennium Copyright Act, and copyright infringement. Carrier made a breach-of-contract counterclaim against ECIMOS.

to asking the jury for only the licensing fees that Carrier failed to pay when it used the VB6 software on Windows 7. The district court also overruled this objection. The jury ultimately awarded a total of \$7.5 million to ECIMOS: \$1.5 million on the contract-breach claim, \$1 million for actual damages arising from Carrier's copyright infringement, and \$5 million for disgorgement of Carrier's profits because of the infringement. The jury also found that ECIMOS did not suffer any damages as a result of Carrier's misappropriation of trade secrets and so it awarded no damages based on that claim.

Immediately following trial, Carrier filed a renewed Rule 50 motion for judgment as a matter of law (it had previously filed the initial motion following ECIMOS's presentation of its evidence) or, in the alternative, a Rule 59(e) motion for an amended judgment or a new trial. In addition to repeating the same objections that it had made at trial, Carrier argued that the \$1 million award for actual damages arising from the copyright infringement should be reduced. The district court denied Carrier's motion on the disgorgement and breach-of-contract claims. However, it reduced the actual damages from the copyright infringement from \$1 million to \$282,800, ruling that the maximum supportable amount of actual damages attributable to Carrier's infringement was \$164,800 in licensing fees for the 103 run-test stations that the IPCS was installed on, plus the \$118,000 software-migration fee. Thus, the total amount of damages awarded to ECIMOS was reduced from \$7.5 million (\$1.5 million for contract breach, \$1 million for copyright infringement, \$5 million for disgorgement) to \$6,782,800 (\$1.5 million for contract breach, \$282,800 for copyright infringement, \$5 million for disgorgement).

ECIMOS also filed a post-trial motion to permanently enjoin Carrier from using its Amtec-developed RES database. Additionally, ECIMOS requested that the court enjoin Carrier from using or disclosing the trade secrets that the jury found Carrier had improperly disclosed (ECIMOS's software source code and its assembled hardware drawings and wiring diagrams). The district court granted the injunction to enjoin Carrier from using the RES, but it immediately stayed the injunction until a point at which Carrier could implement a new, non-infringing database for its runtest stations. The district court appointed a special master to oversee this process. At the time this case was argued on appeal, Carrier was still using the RES and the injunction was still stayed. The district court also enjoined ECIMOS from any further disclosure

of ECIMOS's trade secrets but did not enjoin Carrier from *using* those trade secrets. The district court concluded that because the jury found that ECIMOS suffered no damages as a result of Carrier's misappropriation of its trade secrets, Carrier could continue using ECIMOS's trade secrets as long as it paid ECIMOS a reasonable monthly licensing fee of \$50 per runtest station per month. This rate is from the amount that ECIMOS quoted Carrier in 2014 for the licensing fees associated with its software (\$600 per station per year).

In its post-trial motion, ECIMOS also sought to amend the disgorgement award. In addition to the \$5 million disgorgement amount that it had received for the fifteen-month period between October 2015 and December 2016, ECIMOS sought further disgorgement for another period, beginning from January 1, 2017 and continuing until a time when Carrier no longer used the RES database. Specifically, ECIMOS sought a rate of \$4 million per year for every year that Carrier uses its RES "until a new database can be developed from scratch." The district court denied this motion, holding that the jury only awarded past profits, and that it would "not extrapolate additional disgorgement of profits from the jury's verdict." This appeal followed.

Carrier's arguments on appeal can be summarized thusly: (1) Carrier did not infringe on ECIMOS's copyright as a matter of law, and thus neither the disgorgement award nor copyright-infringement award were proper; (2) regardless of whether any infringement occurred, the actual-damages award attributable to the infringement should be further reduced from \$282,800 to \$164,800; (3) regardless of whether any infringement occurred, the district court erred by allowing ECIMOS to ask the jury for \$225 million in disgorgement, and the entire \$5 million disgorgement award should be vacated; and (4) the contract-breach damages of \$1.5 million should be reduced to only \$283,250 because that is the only supportable amount of damages that could be attributable to Carrier's breach. Carrier does not dispute the jury's finding that it breached its licensing contract with ECIMOS.

ECIMOS cross appeals by arguing: (1) the actual-damages award attributable to the copyright infringement should never have been reduced and the \$1 million award should be reinstated; (2) the disgorgement time period should be extended indefinitely from a period beginning January 1, 2017 until a time when Carrier stops using the infringing RES database; (3) the district court abused its discretion by staying the permanent injunction so that Carrier was

allowed to continue using the RES; and (4) the district court abused its discretion by not enjoining Carrier's use of ECIMOS's trade secrets.

II. DISCUSSION

A. Copyright Infringement

We begin our analysis by addressing whether there was any copyright infringement as a matter of law, which we review *de novo*. See *Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 387 F.3d 552, 534 (6th Cir. 2004). At trial, the jury found that Carrier had infringed protectable elements of ECIMOS's *database-script source code*. ECIMOS also argued that Carrier had infringed on the IPSC *software-script source code*, but the jury rejected that argument and found—as a matter of fact—that Carrier did not infringe on that copyright. On appeal, Carrier contends that it also did not infringe on ECIMOS's copyright for its database-script source code as a *matter of law*, and that the district court erred when it rejected this claim in Carrier's Rule 50 and Rule 59 motions. We also review a denial of a judgment as a matter of law and denial of a motion to alter or amend judgment based on claims of legal error *de novo*. See, e.g., *Mosby-Meacham v. Memphis Light, Gas & Water Div.*, 883 F.3d 595, 602 (6th Cir. 2018); *Tchankpa v. Ascena Retail Grp.*, 951 F.3d 805, 811 (6th Cir. 2020). A judgment as a matter of law is warranted only if “a reasonable jury would not have a legally sufficient evidentiary basis to find for the party” that prevailed. Fed. R. Civ. P. 50(a)(1). When making this determination, we “must view the evidence in the light most favorable to the nonmovant,” and must grant all reasonable inferences in the nonmovant's favor. *Mosby-Meacham*, 883 F.3d at 602. “A motion for judgment as a matter of law should be granted ‘only if reasonable minds could not come to a conclusion other than one favoring the movant.’” *Ibid.* (citation omitted).

To succeed on a copyright-infringement claim, a plaintiff must establish “(1) ownership of a valid copyright, and (2) copying of constituent elements of the work that are original.” *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 361 (1991). The first part “tests the originality and non-functionality of the work” to ensure that it is a protectable expression rather than an unprotectable idea. Registration of a valid copyright (as ECIMOS has done for its IPSC database) is *prima facie* evidence that the work is entitled to protection. *Lexmark*, 387 F.3d at

534. The second part of the analysis “test[s] whether any copying occurred (a factual matter) and whether the portions of the work copied were entitled to copyright protection (a legal matter).” *Ibid.* It is undisputed that ECIMOS holds a valid copyright in its IPCS database-script source code. However, Carrier contends that it did not infringe upon any protectable element of that copyright, and that—even if it did—any copying was *de minimis* and was not actionable as a matter of law.

Testimony at trial established that Carrier had indeed copied certain aspects of ECIMOS’s database-script source code and used it (or a variant of it) in developing the code for the RES database. For example, it is uncontested that Carrier’s former IT manager, David Hoal, used the IPCS database-script source code to create a similar data-storage procedure and data-storage “results table” (the “Hoal Table”), which he sent to Amtec to aid Amtec’s development of the RES database. A results table is a part of a quality-control system’s software that stores the results of the tests run by the system. Peter O’Connor, a senior business analyst at Carrier, testified that the Hoal Table “looked similar to the run test results data table” from the IPCS that Carrier was “using at the time” that it was in correspondence with Amtec. O’Connor further testified that the Hoal Table was later transferred directly into the RES database, but that it was never used nor became a functional aspect of the RES database.

However, another trial witness, J.C. Stewart, a Carrier engineer, testified that a common typo (“reults” instead of “results”) that originated from an error in the Hoal Table was likely to have also been found throughout the *usable* portions of the RES database. Specifically, Stewart noted that there were many stored procedures—saved portions of code that can be reused over and over again to run the same procedure—with the same typo throughout the portions of the RES database that were functional. Moreover, ECIMOS’s expert witness, William Carr, testified that he performed a script-code analysis comparing the RES database’s code with the IPCS database’s code, and concluded that the two programs were substantially similar.² He noted the

²Carr’s analysis followed this court’s dictates for an “abstraction-filtration comparison” when evaluating whether there has been a copyright infringement in cases where evidence of direct copying—the actual sale of copyrighted material—is sparse. *See Kohus v. Mariol*, 328 F.3d 848, 855 & n.1 (6th Cir. 2003). Developed by the Second Circuit in its opinion in *Computer Associates Int’l, Inc. v. Altai Inc.*, 982 F.2d 693, 706 (2d Cir. 1992), the comparison proceeds (by most accounts) in three steps. First, protectable expression is separated from abstract ideas. For example, the general function of a computer program—at the highest level—is an unprotectable idea, but

presence of sixty-two or sixty-three fields from each program's results table that were exact matches, and another ninety or so fields that were "aliased"—meaning that all of the substantive aspects of the fields were identical with only slight distinctions between the two that did not change the functional aspects of the code. Carr concluded that his analysis led him to believe that there had been "direct copying" of the IPCS code into the Hoal Table, and Carr's testimony was buttressed by trial exhibits that showed several areas where the codes for the results tables of the IPCS database and the RES database were identical.

At trial, ECIMOS contended that these pieces of evidence demonstrated that Carrier impermissibly used ECIMOS's copyrighted database-script source code to develop the RES database. The jury agreed with ECIMOS as it found that "Carrier copied the protected elements of ECIMOS's runtest database script source code." On appeal, Carrier does not dispute that the Hoal Table has been incorporated into the RES code—in other words, it acknowledges that elements of the IPCS database-script source code have been copied and incorporated into the RES database. Indeed, Carrier cannot contest this point without arguing that the jury came to an incorrect conclusion of fact. Instead, Carrier insists that the Hoal Table has never been a necessary or even functional aspect of the RES database, and that it was inadvertently transferred into the final version of the RES code. Carrier thus argues that the Hoal Table was not a *protectable element* of ECIMOS's copyright because any copying of ECIMOS's database code that led to the development of the Hoal Table (and its subsequent incorporation into the RES database) was unintentional and *de minimis*, and that copyright protection is unwarranted for the

the code of the program that expresses a unique way to achieve the goals of the program is generally considered a protectable form of expression. *Id.* at 706–07. Next, unprotectable elements of the work are "filtered" out from the protectable expressive form. These unprotectable elements include "elements dictated by efficiency," "stock" elements that are common or expected in any type of code on that subject, and elements from the public domain. *Id.* at 707–10. Finally, once the unprotectable elements of the work are filtered out, the remaining elements of both programs are compared to see if they are substantially similar. *Id.* at 710–11. Carrier argues on appeal that the district court erred by not performing an abstraction-filtration analysis to identify precisely which elements of the IPCS database were entitled to copyright protection. However, Carrier never made this argument in any of its dispositive motions before the district court before trial. Moreover, it seems quite apparent that the database-script source code that contained the results table qualifies as a protectable copyright. The database-script source code, and the results table in particular, are parts of ECIMOS's IPCS results-storage database, and are not elements that would be "filtered" out for being unoriginal (i.e., not "dictated by efficiency," not a "stock" element common to all types of code, etc.). Expert testimony such as that provided by Carr at trial furthered this conclusion, which we often rely on in making such determinations. *See Kohus*, 328 F.3d at 857–58; *see also MiTek Holdings, Inc. v. Arce Eng'g Co.*, 89 F.3d 1548, 1555 (11th Cir. 1996) (suggesting that the district court did not err when it performed the abstraction-filtration test for the first instance during trial, when it had the assistance of expert testimony).

Hoal Table as a matter of law. See *Ringgold v. Black Ent. Television, Inc.*, 126 F.3d 70, 74 (2d Cir. 1997) (“[D]e minimis in the copyright context can mean what it means in most legal contexts: a technical violation of a right so trivial that the law will not impose legal consequences.”).

This court recognizes the de minimis defense to copyright-infringement claims. *Gordon v. Nextel Commc’ns*, 345 F.3d 922, 924 (6th Cir. 2003). The de minimis defense insulates a defendant’s technical violations of a copyright from liability if the copying is “so trivial ‘as to fall below the quantitative threshold of substantial similarity, which is always a required element of actionable copying.’” *Ibid.* (quoting *Ringgold* 126 F.3d at 74). In determining whether the allegedly infringing work is substantially similar, we “look to the amount of the copyrighted work that was copied, as well as the observability of the copyrighted work in the allegedly infringing work.” *Ibid.* For example, in *Gordon*, we held that the defendant’s use of an artist’s “dental illustrations” in a television commercial advertising text messaging was de minimis because the illustrations were not very observable in the advertisement and did not appear for a very long time (less than a second). *Ibid.*

Carrier contends that any technical copyright violation that occurred from its development and use of the Hoal Table was de minimis. In support, it notes that the Hoal Table contained only 167 lines of code, whereas the IPCS database-script source code contained 2008 lines, and the entire IPCS software had around 27 million lines of code. Carrier also insists that the Hoal Table has never been a functional or significant aspect of the RES database, and that it is not needed for the RES database to run effectively. Carrier also points to a report drafted by Carr, ECIMOS’s expert witness, who concluded that the Hoal Table was “unnecessary (and nonfunctional)” in the RES due to several incompatible codes; although that same report also concluded that the “table appears to be a derivative of the copyright-protected ECIMOS . . . table . . . from the ECIMOS database.”

We reject Carrier’s de minimis defense. The fact that the Hoal Table only took up 167 lines of code is immaterial. What matters is not the quantity of code that was copied, but the significance of the code to the program, and—more importantly—the inferences that can be drawn from the copying. For example, in *Oracle America, Inc. v. Google Inc.*, the Federal

Circuit upheld a jury’s finding of a copyright infringement against Google even though it had copied only nine lines of code for a function that represented a tiny fraction of the millions of lines of code across the infringing application. 750 F.3d 1339, 1378–79 (Fed. Cir. 2014). The Federal Circuit emphasized that although the copied code only took up nine lines, the lines were significant because the code governed a function that was used “2,600 times just in powering on the device.” *Id.* at 1379. Other courts have also emphasized that “[a] de minimis defense does not apply where the *qualitative* value of the copying is material.” *Dun & Bradstreet Software Servs. Inc., v. Grace Consulting Inc.*, 307 F.3d 197, 208 (3d Cir. 2002); *see also MiTek Holdings, Inc. v. Arce Eng’g Co.*, 89 F.3d 1548, 1560 (11th Cir. 1996) (noting that although parts of the computer program at issue were unquestionably copied, the copied aspects “were not of such significance to the overall program to warrant” a finding of infringement). Carrier thus cannot rely solely on the fact that only a small number of lines of code were copied to claim that the copyright violation was de minimis.

Carrier insists that the Hoal Table was not a qualitative infringement because—although it was incorporated into the RES database code—it was never a significant enough part of the RES database to qualify as infringement. However, the problem for Carrier is that the Hoal Table was not the only piece of evidence that the jury heard regarding Carrier’s infringement. ECIMOS’s contention is not that Carrier infringed its copyright on the IPCS database-script source code by copying *only* the Hoal Table. Instead, ECIMOS’s argument is that Carrier infringed by using the database-script source code without authorization and then presenting the copyrighted code to Amtec to develop a competing database, and that the Hoal Table was but one piece of evidence to prove that theory. Under this view, the Hoal Table is merely indicative of the copying of the overall database-script source code and should not be considered as the only act of copying that occurred. We agree.

For example, the jury heard testimony that a common typo in the code that had originated from the Hoal Table (“reults” instead of “results”) would likely have been found in many stored procedures throughout the RES database, and that the error was not confined to only the Hoal Table. The jury could have reasoned that the common typo was evidence that other aspects of the Amtec-developed database had been copied from the IPCS database as well. In

addition to the Hoal Table and the “results” to “reults” typo, the jury also heard evidence that Carrier had “aliased” the RES’s database tables by changing field names to be different from similar fields in the IPCS database. For example, William Carr, ECIMOS’s expert witness, testified that he found multiple instances in which the RES code simply changed field names to be different from the IPCS code, but that the change did not change the functionality of the program. These changes did nothing more than simply make the RES code appear different from the IPCS code, and the jury could have credited this testimony as evidence of Carrier’s attempts to hide its use of the database-code copying beyond just the Hoal Table. Thus, even if the Hoal Table itself was nonfunctional and insignificant in the RES system, the jury heard evidence that could have led them to infer that Carrier impermissibly copied certain aspects of the IPCS code to help create the RES database, including the fact that the Hoal Table “appears to be a derivative of the copyright-protected ECIMOS” database.

Indeed, the jury could have used any of these pieces of evidence to reason that Carrier had used the IPCS database-script source code without authorization to create similar procedures in the RES, which constitutes copyright infringement. *See, e.g.*, 17 U.S.C. § 106(2)–(3) (noting that the copyright owner has the exclusive right to prepare derivative works and to distribute copies); *Stromback v. New Line Cinema*, 384 F.3d 283, 301 (6th Cir. 2004) (noting that a copyright owner has the “exclusive right to ‘use’ a work”); *Design Data Corp. v. Unigate Enter., Inc.*, 847 F.3d 1169, 1172 (9th Cir. 2017) (noting that unauthorized use of a copyrighted work is actionable if it is “significant enough to constitute infringement” (citation omitted)). We therefore affirm the district court’s refusal to overturn the jury’s verdict finding that Carrier infringed upon ECIMOS’s copyright.

B. Actual and Disgorgement Damages Related to the Infringement

We next consider whether the district court erred in its rulings on the actual and disgorgement damages to which ECIMOS was entitled as a result of Carrier’s infringement. Our analysis is guided by the copyright statute. 17 U.S.C. § 504(b) states:

The copyright owner is entitled to recover the actual damages suffered by him or her as a result of the infringement, and any profits of the infringer that are attributable to the infringement and are not taken into account in computing the

actual damages. In establishing the infringer's profits, the copyright owner is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work.

The statute's text makes clear that Congress wished to make two distinct types of monetary recovery available to injured parties—"the actual damages suffered" as a result of the infringement, and the disgorgement of the infringer's profits that were "attributable to the infringement." 17 U.S.C. § 504(b).

In terms of the actual damages resulting from the infringement, the jury originally returned a \$1 million award, which the district court reduced to \$282,800 after concluding that was the total amount ECIMOS lost due to Carrier's infringement. In terms of disgorgement, the district court permitted ECIMOS to ask the jury for \$225 million in disgorged profits from Carrier, and the jury returned an overall award of \$5 million. Aspects of both damages awards are challenged on appeal. Carrier argues that the already reduced actual-damages award of \$282,800 should be further reduced to \$164,250 while ECIMOS contends that the \$1 million amount should be reinstated. Carrier also contends that the \$5 million disgorgement award should be vacated entirely while ECIMOS claims that the amount should be increased. We address each issue in turn.

1. Actual Copyright Damages

Following the post-trial motions, the district court reduced ECIMOS's \$1 million actual-damages award to \$282,800. "In the absence of undue passion and prejudice on the part of the jury, we review for abuse of discretion the district court's decision on the issue of remittitur," but "a jury verdict should not be remitted by a court 'unless it is beyond the maximum damages that the jury reasonably could find to be compensatory for a party's loss.'" *Gregory v. Shelby Cnty.*, 220 F.3d 433, 443 (6th Cir. 2000) (quoting *Jackson v. City of Cookeville*, 31 F.3d 1354, 1358 (6th Cir. 1994)). "[A]n award must stand unless it is (1) beyond the range supportable by proof; or (2) so excessive as to shock the conscience; or (3) the result of a mistake." *Ibid.* Generally, the amount of actual damages is "calculated with reference to the loss in the fair market value of the copyright, often measured by the profits lost as a result of the infringement." *Cotter v.*

Christus Gardens, Inc., 238 F.3d 420 (Table), 2000 WL 1871698 at *3 (6th Cir. 2000) (quoting *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1170 (1st Cir. 1994), *overruled on other grounds by Reed Elsevier, Inc. v. Muchnick*, 559 U.S. 154 (2010)). Actual damages can thus be thought of as the anticipated amount that the copyright holder would have received had the infringer not infringed. See *Thoroughbred Software Int'l, Inc. v. Dice Corp.*, 488 F.3d 352, 358 (6th Cir. 2007) (acknowledging that the parties agreed that the actual damages should be the amount the plaintiff would have received “but for” the defendant’s “unlawful copying of the software”). “A plaintiff seeking actual damages ‘must prove the existence of a causal connection between the . . . alleged infringement and some loss of anticipated revenue.’” *Ibid.* (alteration in original) (citation omitted).

At trial, ECIMOS asked the jury for \$1,521,250 in actual copyright damages, which represented \$1,021,000 for the total upgrade fee of the IPCS that ECIMOS quoted Carrier in 2014, and \$474,150 in lost licensing fees for the period from April 2011 (the time when Carrier installed the VB6 software onto Windows 7) through June 2018 (the beginning of trial). The jury returned an award of \$1 million and—following each parties’ post-trial motions—the district court reduced the \$1 million to \$282,800. The district court concluded that the record only supported \$282,800 in lost money that ECIMOS would have earned as a result of the infringement: \$164,800 in unpaid licensing fees for the IPCS (at a rate of \$50 per month for each of the 103 runtest stations) from October 2015 (when the RES went online at Collierville) to July 2018 (when the trial concluded), and \$118,000 for the one-time “software migration fee” that ECIMOS quoted Carrier in its 2014 proposal for upgrading VB6 to VB.Net when the IPCS transitioned to Windows 7. Carrier now contends that it should only be required to pay copyright-infringement damages of \$164,800 (only the cost of the lost licensing fees) while ECIMOS claims that the full \$1 million should be reinstated.

In calculating whether the district erred in reducing the actual-damages award, we must calculate what ECIMOS would have earned had Carrier not infringed on the IPCS *database-script* source code. Neither party disputes that an accurate assessment of actual damages would include the \$164,800 that ECIMOS lost in licensing fees that Carrier never paid for using its infringing RES database. Nor does either party dispute that Carrier migrated the VB6 software

from Windows XP to Windows 7 in early 2011 but that it did not pay ECIMOS for the migration. However, contrary to the district court's conclusion, the software migration cannot be a basis for actual copyright damages because the jury found that Carrier did *not* infringe on ECIMOS's *software-script* source code. Indeed, the jury was specifically asked to find whether Carrier had infringed on aspects of ECIMOS's "software script-source code," and it concluded that Carrier did not. Thus, the only foundation for a calculation of actual damages from the infringement must be the profit that ECIMOS expected to receive from its database-script source code; the award cannot be based on anything related to the IPCS software application.

The district court held that the history of proposals and purchase orders between the two parties established that ECIMOS would have received the one-time software migration fee from Carrier, because Carrier actually installed VB6 onto Windows 7, in contravention of the licensing terms of the software. Yet, just because Carrier breached the terms of the licensing agreement does not mean that such action can be the basis of a copyright-damages award. ECIMOS does not provide any reason to suggest that the software migration from VB6 to Windows 7 infringed its copyright on the database-script source code, and indeed acknowledges in its briefing on appeal that the district court appears to have conflated "ECIMOS's software application with the database scripts." The district court thus erred by including the \$118,000 software-migration fee into the actual-damages award.

Yet this conclusion does not end the inquiry, as ECIMOS insists that the \$1 million can be supported from other evidence in the record. As quoted in the 2014 proposal to Carrier, ECIMOS insists that the entire IPCS upgrade/system is worth \$1,021,000. ECIMOS claims that the entire system could not function without the infringed-upon database-script source code and that the system's hardware, software, and database were "inextricably linked." However, that is not how actual damages should be calculated. The \$1,021,000 quote from ECIMOS contained approximately \$834,000 for runtest station repairs as well as other work associated with the IPCS hardware. It also included a \$3,600 for a software add-on that Carrier apparently did not use. These additional aspects cannot support actual copyright damages for ECIMOS's database-script source code. Contrary to ECIMOS's insistence, it can only recover damages that resulted from "the loss in the fair market value of the *copyright*, measured by the profits lost due to the

infringement or by the value of the use of the *copyrighted work* to the infringer.” *McRoberts Software, Inc. v. Media 100, Inc.*, 329 F.3d 557, 566 (7th Cir. 2003) (emphasis added). The only copyright that was infringed was ECIMOS’s database-script source code. Even if the IPCS hardware and software applications were linked to the database, there is no evidence that the database, by itself, had a fair-market value of anywhere close to \$1 million. Although ECIMOS provided Carrier with the 2014 proposal for a system upgrade, which *totaled* more than \$1 million, there was nothing in the proposal that adverted to ECIMOS’s valuation of the database. The only reasonable basis upon which to calculate the amount is ECIMOS’s valuation of how much its IPCS software (which included the database) was worth on a license-per-station basis. This amount was \$50 per month for each of the 103 runtest stations at Carrier’s Collierville plant. When this rate is factored alongside the amount of time that the infringement was ongoing at Collierville before trial (32 months—from the time that the infringing RES database went live at Collierville to the time that the trial started), the maximum supportable amount of actual copyright damages is \$164,800.

2. Disgorgement Damages

In addition to the actual damages suffered from the infringement, 17 U.S.C. § 504(b) also permits the copyright owner to recover “any profits of the infringer that are attributable to the infringement and are not taken into account in computing the actual damages.” At trial, ECIMOS submitted evidence—in the form of financial records and accompanying testimony—of Carrier’s gross *revenues* from its Collierville plant for a fifteen-month period (October 2015 to December 2016), which totaled more than \$1.25 billion. The district court also permitted ECIMOS to ask the jury to disgorge Carrier of the entirety of its *profits* from its Collierville plant, which totaled \$225,483,000. The jury concluded that damages worth \$5 million were attributable to Carrier’s infringement of ECIMOS’s database-script source code. Carrier now claims that the \$5 million award should be vacated, arguing that ECIMOS did not meet its purported burden of showing that Carrier’s profits were reasonably related to the infringing activity. Whether the district court erred in submitting a theory of disgorgement damages to the jury is an issue of law we review *de novo*. *Thoroughbred Software*, 488 F.3d at 358.

i. Submitting Carrier's Gross Profits to the Jury Was Not Legal Error

Carrier contends that ECIMOS should have been required to show the amount of Carrier's profits that were attributable to the infringement. In Carrier's view, 17 U.S.C. § 504(b) requires the copyright holder to show the "profits of the infringer that are attributable to the infringement," and ECIMOS never met this burden. Carrier further argues that the infringed-upon code constituted only a small part of Carrier's operations at Collierville. Carrier claims that it uses hundreds of different software packages and numerous other inputs that go into the manufacturing of HVAC units. Carrier therefore insists that its infringement of a particularly minor piece of code could not possibly have affected its entire profits.

However, Carrier's position is directly refuted by both the text of 17 U.S.C. § 504(b) and the cases that have addressed it. Section 504(b) states clearly that, "[i]n establishing the infringer's profits, the copyright owner is required to present proof *only of the infringer's gross revenue*, and the *infringer* is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work" (emphasis added). Thus, the burden is on *Carrier* to prove the level of profits that were not attributable to the copyrighted work. All that *ECIMOS* must prove is Carrier's *gross revenue*. Notwithstanding this explicit, textual directive, Carrier insists—relying on our decision in *Balsley v. LFP, Inc.*—that ECIMOS has the burden of showing that the "gross revenue number [submitted by the copyright holder to the jury] must have a reasonable relationship—relevance, in other words—to the infringing activity." 691 F.3d 747, 769 (6th Cir. 2012). However, a deeper reading of *Balsley* defeats Carrier's point. The plaintiff in *Balsley* won a copyright-infringement suit against *Hustler* magazine for publishing a photograph of her dancing in a "wet T-shirt contest." *Id.* at 755. During the damages calculation, the defendant acknowledged that the gross revenue for the issue of *Hustler* in which the picture appeared was \$1,148,000 and that "[t]he relationship of the infringement to that gross revenue number was demonstrated by the parties' stipulation that the . . . photograph was published in" the issue. *Id.* at 770. We held that "[t]his evidence was *all that was required of Plaintiffs* under the statute." *Ibid* (emphasis added). And we "reject[ed] Defendant's contention that it is Plaintiffs' burden to prove that Defendant profited from the . . . photograph, or to prove which portions of *Hustler's* profit, if any, are attributable to the . . .

photograph. Plaintiffs have only one requirement: to prove Defendant’s gross revenue.” *Id.* at 769.

Indeed, we held that “Section 504(b) *unambiguously provides* that the burden on the copyright owner is ‘to present proof *only of the infringer’s gross revenue*’ of the infringing product, while the infringer must show not only ‘expenses’ but also the amount of the ‘profit attributable to factors other than the copyrighted work.’” *Id.* at 767 (emphasis added) (quoting 17 U.S.C. § 504(b)); *see also id.* at 768 (“The only statutory requirement on a copyright owner is proving gross revenue, which is presumed to be the infringer’s profits until the infringer proves otherwise.”). Put simply, the burden is on the copyright *infringer* to prove whatever portion of its gross revenue was *not* attributable to the infringement:

The phrase “attributable to” appears twice in the statute: First, the statute provides that a copyright owner is “entitled” to recover only those profits that are “attributable to” the infringement of its copyrighted material. *The final sentence of the statute explains that the burden of proving which portions of that gross revenue are “attributable to” or not attributable to the infringement is on the infringer—not the copyright owner.* “Where there is a commingling of gains, [the defendant] must abide the consequences, unless he can make a separation of the profits so as to assure to the injured party all that justly belongs to him.”

Id. at 768–69 (alteration in original) (emphasis added) (quoting *Sheldon v. Metro-Goldwyn Pictures Corp.*, 309 U.S. 390, 406 (1940)). And although *Balsley* suggested that the gross revenues must be “reasonably related” to the infringement, our full analysis of the issue stated:

To the extent the phrase ‘attributable to’ is applicable to the copyright owner’s burden (*though we believe that phrase should not be used in reference to the copyright owner’s burden in order to prevent confusion*), it simply means that the gross revenue number that the copyright owner presents must have a reasonable relationship to the infringing activity.

Id. at 769 (emphasis added). In other words, any relevant *revenue* that could be traced back to the infringement can be submitted to the jury, and that it is ultimately for the jury to decide how much *profit*—after hearing the infringer’s mitigating evidence—must be disgorged.

That Section 504(b) requires the copyright holder to only present proof of the infringer’s gross revenues is a conclusion affirmed by other opinions from this court. For example, in *Bridgeport Music, Inc. v. Justin Combs Publ’g*, we affirmed a jury’s disgorgement award after

concluding that the plaintiffs had “met their initial burden of presenting proof of defendants’ gross revenue” by presenting “evidence of defendants’ profits” from the infringing album, even though the infringer had used the plaintiff’s copyrighted material only on one part of one song.³ 507 F.3d 470, 483 (6th Cir. 2007). Although the jury returned a disgorgement award that reflected a calculation of “dividing the album profits by the number of tracks on the album”—effectively allowing plaintiffs to recover only for profits received from the one song that had infringed—evidence of the entire album’s profits were presented to the jury for consideration. *Id.* at 483. In affirming the award, we noted that the jury could have simply rejected the defendant’s proposed allocation of profits attributable to the infringement, but that the plaintiffs had met their burden under the copyright statute. *Id.* at 483–84. Indeed, the jury here seemed to have taken a similar approach to the jury in *Bridgeport Music*. Carrier’s entire revenues from Collierville were submitted to the jury, and ECIMOS asked for an award of \$225,483,000. But the jury’s award of only \$5 million, represented approximately only 2.2% of Carrier’s \$225,483,000 profit or 0.4% of Carrier’s over \$1.25 billion in revenue.

When evaluated under this framework, there is ample evidence to conclude that ECIMOS met its burden of presenting proof of Carrier’s gross revenues, and that it was reasonably related to the infringement. The jury was presented with Carrier’s financial records from October 2015 to December 2016, and the jury heard testimony that the records were “created by Carrier’s finance department” and were prepared “in accordance with Generally Accepted Accounting Principles.” The testimony discusses estimates of Carrier’s monthly revenues, costs, and liabilities for the period in question. ECIMOS also limited its revenue presentation to the Collierville plant and, notably, Carrier does not dispute that Carrier’s estimates of its gross revenue or profits were accurate. Thus, ECIMOS clearly met its burden of presenting “proof only of the infringer’s gross revenue.” 17 U.S.C. § 504(b).

³ *Bridgeport Music* suggests that the copyright holder can meet its “initial burden of presenting proof of defendants’ gross revenue” by presenting evidence of the infringer’s profits. 507 F.3d at 483. We found no fault in this process and indeed, the plaintiffs arguably went beyond what was required of them under the copyright statute.

ii. The Jury Could Have Inferred from the Trial Evidence that at Least \$5 Million of Carrier's Profits Were Attributable to the Infringing Activity

Carrier next argues that, even if there was no error in permitting ECIMOS to ask the jury for the disgorgement of all of Carrier's profits from Collierville, the \$5 million disgorgement award was still excessive as there was insufficient evidence to suggest that even that amount was attributable to the infringement. We disagree. The \$5 million awarded constituted only 2.2% of Carrier's \$225,483,000 in profits or 0.4% of Carrier's over \$1.25 billion in revenue from Collierville for the fifteen-month period in question (October 2015 to December 2016). These calculations reflect the jury's assessment that only 0.4% of Carrier's Collierville revenues were earned as a result of its infringing use of ECIMOS's database-script source code. "[A] verdict is not excessive unless it clearly exceeds the maximum that a jury could reasonably find to be compensatory for the plaintiff's loss," and we will not disturb a disgorgement award "[u]nless the award is (1) beyond the range supportable by proof or (2) so excessive as to shock the conscience, or (3) the result of a mistake." *Balsley*, 691 F.3d at 772 (first alteration in original) (citation omitted).

In *Balsley*, we noted that the jury's disgorgement award of \$135,000 was only "8.5% . . . of the over one-million dollars that Defendant made from the" issue of *Hustler* in which the copyrighted photograph appeared, and we concluded that the "amount does not clearly exceed the maximum or shock the conscience, so it must be left intact." *Id.* at 771. *Balsley* is particularly instructive, as we were not distressed by the jury's conclusion that one photograph in a magazine that is likely to have contained dozens of similar photographs could have been responsible for 8.5% of the issue's entire revenues. In our case, there is no dispute as to the fact that *every* Carrier HVAC unit would have undergone tests on the IPCS—and thus would have necessarily utilized aspects of the database where the test results were stored—before being shipped for sale. Thus, the impact of ECIMOS's intellectual property on Carrier's profits likely had an even larger impact than the copyrighted photograph had on *Hustler's* profits in *Balsley* and yet the jury concluded that only 0.4% of Carrier's revenues were attributable to its infringing use of the IPCS database. This is not excessive.

Bridgeport Music provides further support. The jury in *Bridgeport Music* had awarded the plaintiffs \$733,878 in disgorgement damages, but the defendant argued that the amount was not attributable to the infringement. 507 F.3d at 483. The defendant's expert had testified that the value of the infringing material to the entire album was very low and, on appeal, the defendants argued that the large disgorgement award was not reflective of that testimony. However, we concluded that "the jury could have simply not believed the testimony of defendants' expert witnesses in light of the jurors' having heard the song" and in light of the fact that a plaintiffs' witness had testified that the value of the infringing material would likely increase over time. *Id.* at 483–84. The jury's decision to award the plaintiffs \$733,878 was simply a reflection of its view of the evidence, and "permitting the jury to determine that defendants failed to meet their burden of proving profits attributable to factors other than the infringing material was not reversible error." *Id.* at 484. In short, if there was at least plausible evidence from which the jury could have based the disgorgement award—or the disgorgement percentage—the award should be upheld.

The same principle applies to this case. The jury heard ample evidence that the IPCS, as a whole, was an integral part of Carrier's quality-control operations and that any inability to use the system would have resulted in decreased profits. For example, Steve Youngblood, Carrier's Associate Director of Operations for Assembly at Collierville, testified that if Carrier were unable to use the IPCS to run its quality-control tests, the plant would have to "shut down" "until [Carrier] could find an alternative means to test our product." Carrier claims that had the IPCS not been in place, it could have manually performed many of its quality-control tests, and that it had manually tested HVAC units for many years before first purchasing the IPCS in 1992. But this assertion strains credulity.

Given the changes in technology and Carrier's growth in business, it seems highly unlikely that Carrier could have maintained a similar level of revenue and profits if it were required to manually test its units. Moreover, there was no assurance that any alternative to the IPCS could have been implemented quickly. For example, the jury also heard evidence that the Amtec-developed RES "took thirteen months to develop, even with a copied database as a shortcut," and so it seems unlikely that it would have been easy for Carrier to quickly replace the

IPCS with something of comparable quality. Even if Carrier chose to manually test all of its products, the jury heard evidence that manual testing would have dramatically slowed the manufacturing process because of the complexity of the tests that were performed. The jury could have thus quite reasonably concluded that the manual tests—even if they were an option—would have taken much longer to perform than the automated tests. The jury also heard evidence that the infringed-upon database code was an integral part of the IPCS, as the database stored test results. And although it is unlikely that the database code would have been responsible for the *entirety* of Carrier’s profits, that is not what the jury award reflected. The \$5 million award constituted only 2.2% of Carrier’s Collierville profits or 0.4% of Carrier’s revenues which—given the evidence presented at trial—is not so unreasonable that it would shock the conscience or is “beyond the range supportable by proof.” *Balsley*, 691 F.3d at 771 (citation omitted).

iii. *The District Court Did Not Abuse Its Discretion by Refusing to Expand the Scope of the Disgorgement Award*

Despite being awarded \$5 million from Carrier’s disgorged profits, ECIMOS remains unsatisfied. It contends that the district court should have granted its post-trial motion for additional disgorgement of Carrier’s future profits, for a period beginning January 1, 2017 and running until Carrier stopped using the infringing RES database. The district court denied the request, holding that it would not extrapolate additional disgorgement from the jury’s verdict as the jury was not asked to determine which portions of Carrier’s *future* profits could be attributable to the infringement. Because ECIMOS is seeking to alter or amend the judgment, we review the district court’s decision for an abuse of discretion. *See Intera Corp. v. Henderson*, 428 F.3d 605, 619 (6th Cir. 2005). “A district court abuses its discretion when it relies on clearly erroneous findings of fact, or when it improperly applies the law or uses an[] erroneous legal standard.” *Id.* at 619–20 (alteration in original) (citation omitted).

We hold that the district court did not abuse its discretion when it rejected ECIMOS’s motion for additional disgorgement. First, ECIMOS is already being compensated for any post-trial use of its copyright by Carrier. The district court’s post-trial injunction requires Carrier to pay the equivalent of a licensing fee (\$50 per month) for a period beginning August 1, 2018 for

each runtest station in its Collierville plant, and continuing until Carrier stops using its RES database. The \$50 per station per month is a reasonable rate that was based on ECIMOS's quoted figure for licensing fees in its 2014 proposal to Carrier. In short, the district court concluded that requiring Carrier to pay licensing fees for continued use of the RES database would put ECIMOS in no worse a position than if Carrier had actually obtained a valid license for use of the database at each runtest station. This is not unreasonable.

Second, and more importantly, although courts can require the infringing party to pay reasonable royalty or licensing rates post-verdict where “the amount is not based on ‘undue speculation,’” any grant of future disgorgement would be highly speculative in this instance. *Oracle Corp. v. SAP AG*, 765 F.3d 1081, 1088 (9th Cir. 2014) (citation omitted). We acknowledge that the jury’s \$5 million disgorgement award suggested that it believed 2.2% of Carrier’s over \$225 million in profits were attributable to the infringement. But that amount was limited to the jury’s consideration of the fifteen-month period between October 2015 to December 2016, a period where the jury had access to Carrier’s financial records and other analyses to aid its decisionmaking. The 2.2% rate does not represent the jury’s consideration of whether any *future* profits would still be attributable to Carrier’s continued use of the infringing RES database at the same rate. Importantly, ECIMOS cites to no case that uses *past disgorgement* as the basis for a future licensing fee. Instead, all of the cases ECIMOS cites discuss whether licensing fees—calculated from hypothetical fair-market values of the copyright—are reasonable. They do not involve instances in which a jury’s disgorgement calculation became the basis for the licensing fee. *See Amado v. Microsoft Corp.*, 517 F.3d 1353, 1361 (Fed. Cir. 2008); *Veracode Inc. v. Appthority, Inc.*, 137 F. Supp. 3d 17, 84 (D. Mass. 2015). And although there are instances in which a court’s award of additional licensing fees either matched or exceeded the infringer’s profits, the awards were calculated based off of the fair-market value of the intellectual property, and were not calculated based on the infringer’s profits. *See, e.g., Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1338 (Fed. Cir. 2004).

In a case like this, where it is unclear how the jury arrived at its disgorgement rate and whether that rate would apply to future profits and where the district court has already ordered Carrier to pay a reasonable licensing fees to ECIMOS going forward, the court was not required

to impose additional disgorgement damages. Thus, the district court did not abuse its discretion, and we affirm the its decisions regarding the \$5 million disgorgement in full.

C. Breach-of-Contract Damages

We next evaluate the \$1.5 million that the jury awarded ECIMOS for Carrier’s breach of the parties’ licensing agreement. Carrier argues that, as a matter of law, the most that the jury could have awarded for the breach of contract was \$283,250. We review a district court’s decision on possible remittitur for an abuse of discretion. *Gregory*, 220 F.3d at 443.

“The purpose of assessing damages in a breach of contract suit is to place the plaintiff, as nearly as possible, in the same position he would have had if the contract had been performed.” *Wilhite v. Brownsville Concrete Co.*, 798 S.W.2d 772, 775 (Tenn. Ct. App. 1990). And under Tennessee law, “[t]o support an award of damages there must exist proof of these ‘damages within a reasonable degree of certainty.’” *Airline Constr. Inc. v. Barr*, 807 S.W.2d 247, 256 (Tenn. Ct. App. 1990) (citation omitted). During closing arguments, ECIMOS asked the jury to award it \$1,521,250 in contract-breach damages (the same amount that it asked for as actual-copyright damages)—\$1,021,000 for the total upgrade fee of the IPCS and \$474,150 for lost licensing fees (from April 2011 through June 2018).⁴ The jury returned a verdict finding that Carrier breached the parties’ 2004 licensing agreement in two ways: (1) “by failing to maintain the confidentiality of ECIMOS’s materials” and (2) by “failing to pay ECIMOS a licensing fee for installing and using ECIMOS’s software on the Windows 7 operating system.” The jury awarded ECIMOS \$1.5 million. On appeal, Carrier does not contest the jury’s finding that it breached the parties’ contract, and it acknowledges that it owes ECIMOS at least \$283,250 in unpaid licensing fees for using the IPCS software on Windows 7, which represents the \$50/month licensing fee for each of Carrier’s 103 runtest stations between April 2011 to October 2015 (the period between when the software was migrated onto Windows 7 to when the RES went live at Collierville). However, Carrier argues that the \$1.5 million award was “beyond the

⁴The licensing fee of \$50/month for the use of 103 stations for the 87 months from April 2011 through June 2018 adds up to \$448,050, not \$474,150. The \$474,150 number is likely calculated from the \$50/month licensing fee for 109 stations for 87 months. However, on appeal it appears that Carrier’s use of the ECIMOS system at only 103 stations is undisputed.

maximum damages that the jury reasonably could find to be compensatory” for ECIMOS’s loss and must be reduced. *Bridgeport Music*, 507 F.3d at 484 (citation omitted).

It may be helpful to re-summarize the facts. In 2004, ECIMOS began incorporating terms into its IPCS licensing contract that prohibited the “[u]nauthorized copying, reverse engineering, decompiling, disassembling, decrypting, translating, renting, sub-licensing, leasing, distributing, and/or creating derivative works based on the software, in whole or in part.” The terms also stated that “[t]he Software may not be duplicated or copied” except for specific purposes, and that “[n]o part of the software . . . may be reproduced or transmitted in any form or by any means.” It is undisputed that, in 2011, Carrier installed the VB6 software directly onto Windows 7, which the jury found to be a breach of the parties’ licensing contract. In 2014, ECIMOS proposed to sell Carrier an upgrade to the entire IPCS, which it quoted as costing a total of \$1,021,000. The \$1,021,000 figure included a \$118,000 fee for “Software migration from VB6 to VB.net” for all runtest stations, as well as assorted other fees for: (1) software licensing (quoted at \$600/year per station, which is \$50/month); (2) specialized licensing fees (for special programs associated with VB.Net); and (3) hardware-repair fees to the runtest stations. Carrier rejected the proposal and, apart from the software migration of VB6 onto Windows 7, the record does not show that Carrier received any of the hardware repairs or the special software upgrades that ECIMOS offered in the proposal.

These facts suggest that the only non-speculative damages that ECIMOS could be awarded must relate to Carrier’s actions in improperly migrating the VB6 software to Windows 7. The jury found that one aspect of Carrier’s breach was that it failed to pay “a licensing fee for installing and using ECIMOS’s software on the Windows 7 operating system.” Carrier and ECIMOS agree that the amount of licensing fees based on this aspect of the breach is \$283,250, and the record demonstrates that ECIMOS’s assessment of the value of “installing and using” the VB6 software on Windows 7—from its own proposal—was \$118,000. Thus, the only non-speculative damages that can be supported from Carrier installing and using ECIMOS’s software on Windows 7 amount to \$401,250.

ECIMOS contends that the parties’ course of dealings going back to 1992 suggest that the full \$1.5 million award is appropriate and, in support, it offers the fact that Carrier had paid over

\$1 million for a similar IPCS upgrade in 2002 and that the total quoted price for the 2014 upgrade was \$1,021,000. Although ECIMOS claims that it intentionally offered lower licensing fees to Carrier with the expectation that every few years Carrier would purchase a full system “upgrade” at an increased fee of around \$1 million, it does not appear that Carrier ever agreed to any of the hardware-upgrade proposals that ECIMOS submitted in 2014. Indeed, the cost of the hardware upgrades cannot be factored into the calculation of contract-breach damages because the jury found only that Carrier breached the parties’ contract by “installing and using ECIMOS’s *software*” on Windows 7.

ECIMOS also argues that the \$1.5 million can be supported based on the jury’s other finding of breach—that Carrier “fail[ed] to maintain the confidentiality of ECIMOS’s materials.” ECIMOS argues that because it is especially jealous of its trade secrets with regard to its competitors, any breach of confidentiality would have had the effect of harming ECIMOS’s business. However, any assessment of damages based on potential lost profits from a breach of confidentiality would be speculative at best. Under Tennessee law, “[t]he party seeking damages has the burden of proving them,” and “[d]amages may never be based on speculation or conjecture.” *Waggoner Motors, Inc. v. Waverly Church of Christ*, 159 S.W.3d 42, 57 (Tenn. Ct. App. 1987). Although ECIMOS presented testimony at trial advertent to the fierce competition it faced, that testimony did not establish non-speculative proof of the *level* of damages that could be attributed to a breach in confidentiality. Put differently, ECIMOS never presented any evidence detailing how much profit it may have lost as a direct result of Carrier’s breach of confidentiality. Simply suggesting that it lost business or that its reputation was harmed is insufficient. Although “damages become too speculative only when the existence of damages is uncertain, not when the precise amount is uncertain,” the evidence in support of an award must still “prove the amount of damages with reasonable certainty.” *Ibid.* Here, the amount of damages related to the breach of confidentiality is not reasonably certain. ECIMOS did not present any witnesses that testified regarding the amount of damages that could be attributed to Carrier’s breach of confidentiality, nor presented any evidence regarding whether the breach led to a decrease in profit from customers other than Carrier.

Accordingly, we reverse the district court's upholding of the contract-breach damages award and reduce the amount to \$401,250, as that is the only non-speculative amount of damages supported by the record.

D. Stay of Injunction and Associated Trade-Secret Claims

The last issue on appeal is ECIMOS's claim that the scope of the district court's post-trial injunction should be altered. We review the scope of a district court's grant or stay of a permanent injunction for an abuse of discretion. *Howe v. City of Akron*, 801 F.3d 718, 753 (6th Cir. 2015).

After trial, the district court granted a permanent injunction enjoining Carrier from using its RES database. However, it stayed the injunction until Carrier could implement a new, non-infringing database, meaning that Carrier was permitted to continue using the RES—subject to its payment of licensing fees—until then. The district court appointed a special master to oversee the process. At trial, the jury found that ECIMOS held a trade secret in (1) its software source code⁵ and (2) its assembled hardware drawings and wiring diagrams and that Carrier misappropriated these trade secrets by sharing information with Amtec. The district court thus also enjoined Carrier from disclosing the trade secrets but permitted Carrier to continue using them as long as Carrier paid ECIMOS a licensing fee. ECIMOS now objects to the scope of the injunction, arguing that (1) the stay of the injunction was an abuse of discretion; (2) the injunction should have prohibited Carrier from *using* ECIMOS's trade secrets, not just from disclosing them; and (3) the injunction should have been expanded to prohibit Carrier's disclosure and use of ECIMOS's assembled *hardware* (not just the hardware drawings and wiring diagrams). We affirm the district court's decisions regarding the injunction in full.

The stay of the injunction was not an abuse of discretion. A district court abuses its discretion with regards to grants or stays of permanent injunctions only “when it relies on clearly

⁵The jury found that Carrier did not infringe on ECIMOS's *copyright* on its software-script source code, but it did find that ECIMOS held a *trade secret* in its “software source code including the algorithms for the valid test and test procedures and the way the software source code interacts with ECIMOS's database.” The jury found that Carrier misappropriated those trade secrets by sharing them with Amtec, but that ECIMOS did not suffer any harm as a result of Carrier's misappropriation and awarded no damages on that basis.

erroneous findings of fact or when it improperly applies the law.” *Herman Miller, Inc. v. Palazzetti Imps. & Exps., Inc.*, 270 F.3d 298, 317 (6th Cir. 2001). Here, ECIMOS does not suggest that the district court improperly applied the law. Instead, it submits that because Carrier is still using the RES database—almost two years after the jury verdict at the time of oral argument on appeal—that Carrier is not acting in good faith to develop a non-infringing database under the supervision of the special master. Carrier asserts that any delay in developing a new database is because ECIMOS has, in bad faith, attempted to delay it at every turn by filing frivolous objections before the district court. None of these arguments pertain to the *legal* implications of the district court’s decision to grant the stay. Nor do they point to any potentially erroneous factual basis upon which the original stay was granted. Indeed, it is a general principle that “[i]njunctive relief frequently demand ‘continuing supervision by the issuing court.’” *See LFP IP, LLC v. Hustler Cincinnati, Inc.*, 810 F.3d 424, 426 (6th Cir. 2016) (quoting *Sys. Fed’n No. 91, Ry. Emps.’ Dep’t v. Wright*, 364 U.S. 642, 647 (1961)). And it appears that, to date, the special master has filed twenty reports updating the district court on the progress that the parties have made in coming to a satisfactory conclusion on the implementation of a non-infringing database. We therefore find no reason why this issue should not remain reserved for the district court to shepherd. In any event, given the deferential standard of review, we find no abuse of discretion in the district court’s decision to stay the injunction.

We also hold that the district court did not abuse its discretion when it refused to enjoin Carrier from using ECIMOS’s trade secrets. Two facts regarding the district court’s injunction are important to note at the outset. First, ECIMOS never requested submission of the question of whether its assembled hardware was a trade secret to the jury. Instead, it first introduced the argument during its post-trial motions, and now it argues that—as a matter of law—the district court erred in failing to hold that the hardware was a trade secret. Second, even though the jury found that Carrier had misappropriated ECIMOS’s protectable trade secrets in its hardware drawings and wiring diagrams, the jury also found that ECIMOS did not suffer any detriment as a result of Carrier’s misappropriation. Based on these findings, the district court concluded that enjoining Carrier’s use of any of ECIMOS’s trade secrets—even if it agreed to pay ECIMOS a reasonable license fee for the use—would not aid ECIMOS, as it would not prevent any additional harm. ECIMOS argues that this conclusion was erroneous as a matter of law. More

specifically, it claims that the district court erred (1) by holding that ECIMOS's assembled hardware (not just its hardware drawings or wiring diagrams) were not protectable copyrights or trade secrets and (2) by ruling that, in the alternative, the hardware was not a "derivative trade secret."

As an initial matter, it is important to note that there is no "derivative trade secret" as a matter of law, and that ECIMOS is essentially conflating two areas of intellectual property law: derivative works (which are protected by copyright) and trade secrets (which are protected under the common law). See *Intera Co. v. Dow Corning Corp.*, 19 F.3d 19 (Table), 1994 WL 69582, at *2 (6th Cir. 1994) (per curiam) (noting that plaintiff's claim was a "state law tort of trade secret misappropriation"). Thus, for ECIMOS's arguments to succeed, it must demonstrate that its assembled hardware is *either* a derivative work or a trade secret. It can do neither.

First, there is no evidence to support that the assembled hardware is derivative of any of ECIMOS's protected *copyrights*. Trade secrets and copyrights are not the same, and ECIMOS has never claimed that its hardware drawings or wiring diagrams were protectable copyrights. It therefore cannot now claim that its actual hardware is a "derivative work" of the drawings or diagrams that is protected under copyright law. See *Stewart v. Abend*, 495 U.S. 207, 220 (1990) (noting that a copyright holder "holds a bundle of exclusive rights in the *copyrighted work*, among them the right to copy and the right to incorporate the work into derivative works" (emphasis added)).

Second, ECIMOS's assembled hardware is also not a trade secret. Under Tennessee law, a "trade secret" has a statutory definition. It is any:

[I]nformation, without regard to form, including, but not limited to, technical, nontechnical or financial data, a formula, pattern, compilation, program, device, method, technique, process, or plan that:

- (A) Derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use; and
- (B) Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Tenn. Code Ann. § 47-25-1702(4). What constitutes a trade secret is a question of fact and Tennessee courts have looked to several factors in making this determination, the most important of which is whether the information has been publicly disclosed or is easily acquired or duplicated by others. *See Eagle Vision, Inc. v. Odyssey Med., Inc.*, 2002 WL 1925615, at *4 (Tenn. Ct. App. Aug. 14, 2002). “Matters of public knowledge or general knowledge in the industry or ideas which are well known or easily ascertainable, cannot be trade secrets. Similarly, matters disclosed by a marketed product cannot be secret.” *Hickory Specialties, Inc. v. B&L Laboratories, Inc.*, 592 S.W.2d 583, 587 (Tenn. Ct. App. 1979) (citation omitted); *see also* Restatement (Third) of Unfair Competition § 39 cmt. F (1995) (“[I]nformation readily ascertainable from an examination of a product . . . is not a trade secret.”). In short, “if a matter is ‘disclosed by a marketed product [it] cannot be a secret.’” *Eagle Vision*, 2002 WL 1925615 at *4 (quoting *Hickory Specialties*, 592 S.W.2d at 587). Here, ECIMOS voluntarily disclosed its assembled hardware to third parties, including Carrier, by selling it as a product. Indeed, ECIMOS claimed throughout trial that it had customers other than Carrier, and so it is safe to presume that other third parties also received the hardware. Put simply, ECIMOS’s hardware was a marketed product that was sold and freely shared, and it is not a trade secret.

Finally, ECIMOS argues that the court should invoke the “safe-distance rule”—a concept imported from trademark law—to prohibit Carrier from having even the possibility of future infringement. The safe-distance rule allows courts—after concluding that a defendant has infringed on a trademark—to “proscribe activities that, standing alone, would have been unassailable” thus “prevent[ing] known infringers from using trademarks whose use by non-infringers would not necessarily be actionable.” *Innovation Ventures, LLC v. N2G Distrib., Inc.*, 763 F.3d 524, 544 (6th Cir. 2014) (citations omitted). However, the rule was crafted to address the fact that, in the trademark context, an infringing mark is likely to confuse consumers, and “that once an infringer has confused the public, that confusion is not magically remedied by a name change.” *Taubman Co. v. Webfeats*, 319 F.3d 770, 779 (6th Cir. 2003). Thus, the plaintiff can ask the court to craft equitable remedies to prohibit otherwise innocuous conduct or to require the infringer to secure a new mark “so far removed from any characteristic of the plaintiff so as to put the public on notice that the two are not related.” *Ibid.* The same concern of limiting confusion of different products is not apparent in the copyright context, and thus courts have

generally been reluctant to expand the rule to other areas of intellectual property. *See PRL USA Holdings, Inc. v. U.S. Polo Ass'n, Inc.*, 520 F.3d 109, 118 (2d Cir. 2008) (collecting cases and concluding that plaintiffs “cite[d] no authority establishing that [a safe-distance rule] instruction must be given” in regard to the unique type of trademark claim the plaintiffs were asserting). Indeed, this lack of an expansion is likely because a safe-distance rule is most effective in the trademark context, where “the secondary mark is likely to cause confusion.” *Ibid.* ECIMOS does not cite any authority that would require an expansion of this rule into claims for software infringement. We thus hold that the district court did not err in failing to invoke the safe-distance rule.

III. CONCLUSION

For the foregoing reasons, we conclude that the district court did not err in denying Carrier’s motion for judgment as a matter of law or for a new trial, because ECIMOS’s database-script source code was a protectable copyright that the jury determined Carrier had infringed upon. We also conclude that ECIMOS properly met its burden of presenting proof of Carrier’s gross revenue during the period of infringement, and thus the district court did not err in allowing ECIMOS to ask the jury to disgorge Carrier of its entire profits from its Collierville plant under 17 U.S.C. § 504(b). We therefore affirm the \$5 million disgorgement award. However, we conclude that the district court erred when it conflated aspects of ECIMOS’s software package with its database-script source code in calculating the actual damages as a result of the infringement. We therefore reduce the actual-damages award for Carrier’s infringement to \$164,250.

On the contract-breach damages, we hold that the district court abused its discretion in upholding the entire \$1.5 million jury award. The only non-speculative amount of damages that could be related to Carrier’s breach by failing to maintain the confidentiality of ECIMOS’s materials or by improperly installing and using ECIMOS’s software on Windows 7 is \$401,250. Our holding on damages thus further reduces ECIMOS’s total damages award from the district court’s \$6,782,800 to \$5,566,050.

We affirm the district court's decisions regarding its post-trial injunctions in full. It did not abuse its discretion when it issued an indefinite stay of the injunction prohibiting Carrier from utilizing its infringing database. It also did not err when it concluded that ECIMOS's assembled hardware items were not protectable derivative works or trade secrets as a matter of law, or in concluding that the safe-distance rule did not apply.

Accordingly, we affirm in part and reverse in part the district court's rulings, and we remand for further proceedings consistent with this opinion.