

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

IN-DEPTH TEST LLC,	:	
	:	
Plaintiff,	:	
	:	
v.	:	Civil Action No. 14-887-CFC
	:	
MAXIM INTEGRATED,	:	
PRODUCTS, INC.,	:	
	:	
Defendant.	:	

IN-DEPTH TEST LLC,	:	
	:	
Plaintiff,	:	
	:	
v.	:	Civil Action No. 14-888-CFC
	:	
VISHAY	:	
INTERTECHNOLOGY INC.	:	
and SILICONIX INC.,	:	
	:	
Defendants.	:	

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MEMORANDUM OPINION

NOVEMBER 1, 2018


CONNOLLY, UNITED STATES DISTRICT JUDGE

In this patent infringement action filed by In-Depth Test, LLC (“Plaintiff”) against Maxim Integrated Products, Inc., Vishay Intertechnology Inc., and Siliconix Inc. (“Defendants”), I have before me the issue of claim construction of a single term in U.S. Patent No. 6,792,373 (“the ‘373 patent”). I have studied the parties’ briefs and joint claim construction chart. D.I. 51, D.I. 54, D.I. 56, D.I. 57, D.I. 58.¹ I held a *Markman* hearing on October 9, 2018.

I. BACKGROUND

The ‘373 patent claims a method and apparatus for testing semiconductors, including integrated circuits. Semiconductors are typically produced in large batches on a “wafer,” a thin slice of semiconductor material usually made of silicon; and they are extensively tested during the manufacturing process for performance and reliability. “Wafer-level” testing is performed before a circuit is cut from the wafer and “packaged” according to the customer’s application requirements. So-called “final testing” of an integrated circuit is performed after

¹ Unless otherwise noted, all D.I. numbers in this Memorandum Order are D.I. numbers in Civil Action 14-887-CFC.

the circuit is packaged. The nub of the parties' dispute is whether the '373 patent claims final testing apparatus or methods.

II. LEGAL STANDARD

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). “[T]here is no magic formula or catechism for conducting claim construction.’ Instead, the court is free to attach the appropriate weight to appropriate sources ‘in light of the statutes and policies that inform patent law.’” *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D.Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324). Construing the claims in a patent is a question of law. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–78 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370, 388–90 (1996).

Unless a patentee acts as his own lexicographer by setting forth a special definition or disavows the full scope of a claim term, the words in a claim are to be given their ordinary and accustomed meaning. *Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the

effective filing date of the patent application.” *Phillips*, 415 F.3d at 1313. “[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* at 1313. “[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.”

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996).²

The court may also consider extrinsic evidence, which “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Phillips*, 415 F.3d at 1317. “Extrinsic evidence is to be used for the court’s understanding of the patent, not for the purpose of varying or contradicting the terms of the claims.” *Markman*, 52 F.3d at 981. “The construction that stays true to the claim language and most

² Section 112(b) of Title 35 provides that “[t]he specification shall conclude with one or more claims[.]” This language makes clear that the specification includes the claims asserted in the patent, and the Federal Circuit has so held. *See Markman*, 52 F.3d at 979 (“Claims must be read in view of the specification, of which they are part”). The Federal Circuit and other courts, however, have also used “specification” on occasion to refer to the written description of the patent as distinct from the claims. *See, e.g., id.* (“To ascertain the meaning of claims, we consider three sources: The claims, the specification, and the prosecution history.”). To avoid confusion, I will refer to the portions of the specification that are not claims as “the written description.”

naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

III. AGREED-UPON CONSTRUCTIONS

The parties agree on the constructions of the following terms in the '373 patent: "outlier," "output report," "test data / semiconductor test data," "tester," and "at run time." D.I. 51 at 2, D.I. 54 at 1, D.I. 56 at 5. The Court accepts the parties' agreed-upon constructions for purposes of this litigation.

IV. CONSTRUCTION OF "COMPONENT"

Claim 1 of the '373 patent is the only disputed claim, and it reads:

1. A test system, comprising:

a tester configured to test a *component* and generate test data; and

a computer connected to the tester and configured to receive the test data, identify an outlier in the test data, and generate an output report including the identified outlier.

'373 patent, claim 1 (disputed term italicized). Plaintiff argues that "component" means a "semiconductor device or integrated circuit." Defendants contend the term means "one of multiple integrated circuits *on a semiconductor wafer*." In other words, Defendants seek to read into claim 1 a limitation that would restrict

the invention to wafer-level testing. I will adopt Plaintiff's proposed claim construction for four reasons.

First, the '373 patent's written description effectively defines "components." In doing so, it distinguishes "devices on a wafer" from "packaged integrated circuits or devices" and expressly states that "components" includes both "integrated circuit dies formed on a wafer" and "packaged integrated circuits or devices":

The test system 100 may be configured for testing *any components 106, such as semiconductor devices on a wafer*, circuit boards, *packaged devices*, or other electrical or optical systems. In the present embodiment, the *components 106* comprise multiple integrated circuit dies *formed on a wafer or packaged integrated circuits or devices*.

'373 patent at 3:27–33 (emphasis added). "The specification acts as a dictionary when it expressly defines terms" and "is the single best guide to the meaning of a disputed term." *Vitronics*, 90 F.3d at 1582. Thus, the above-quoted language from the written description strongly supports Plaintiff's construction of "component."

Second, the written description distinguishes wafer testing from final testing, as it notes that "[t]esting is typically performed before device packaging (at wafer level) as well as upon completion of assembly (final test)." '373 patent at 1:41–43. But nowhere does the written description teach that the testing disclosed by the

‘373 patent is limited to wafer-level testing. Moreover, Figure 1 of the patent shows a block diagram of the invention which, as Defendants concede, is not limited to testing components on a wafer. *See* ‘373 patent at 2:36–38, 3:22–25, Fig. 1; *see also* Tr. of Oct. 9, 2018 Hr’g at 42 (defense counsel conceding, as he should have, that it is “probably correct” that Figure 1 “would allow for testing both on the wafer and off the wafer”). “Where a specification [i.e., written description] does not require a limitation, that limitation should not be read from the specification into the claims.” *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988).

Third, the doctrine of claim differentiation supports Plaintiff’s construction of “component.” The doctrine instructs that “the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). In this case, asserted claim 1 of the ‘373 patent recites a test system comprising “a tester configured to test a component and generate test data.” ‘373 patent at 19:23–24. Claim 3 describes “[a] test system according to claim 1, wherein the test data corresponds to a section group of *components on a wafer*.” *Id.* at 19:34–35 (emphasis added). Because “a section group” exists only on a wafer, *see* Tr. at 51–52, it logically must be the case that

only “components” in claim 3 is limited by “on a wafer.” Thus, claim 3 adds the very limitation on “component” that Defendants seek to read into claim 1. In this circumstance, the presumption that the independent claim does not have the limitation in question “is at its strongest.” *Liebel-Flarsheim*, 358 F.3d at 910; *see also SunRace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003) (presumption that independent claim does not have limitation that is introduced for the first time in a dependent claim “is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim.”).

Fourth, and related to the claim differentiation doctrine, is the claim construction principle that “interpretations that render some portion of the claim language superfluous are disfavored.” *Power Mosfet Techs., LLC v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004). Construing “components” to be necessarily “on a wafer” renders “on a wafer” superfluous in claim 3 as well as in claims 7 and 10, all of which describe “a section group of components on a wafer.”

Defendants urge me to ignore these four considerations and to focus instead on the fact that the preferred embodiments of the invention set forth in the written description do not disclose the testing of components after the components have

been removed from a wafer. *See* D.I. 56 at 6; D.I. 58 at 2–5. The claims of a patent, however, “are not limited to the preferred embodiment, unless by their own language.” *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 978 (Fed. Cir. 1999). Here, not only does the language of the claim not limit the claim’s scope to the preferred embodiment, but the written description expressly states to the contrary that:

[t]he particular implementations shown and described herein are illustrative of the invention and its best mode and are not intended to otherwise limit the scope of the present invention in any way. . . . The present invention has been described above with reference to a preferred embodiment. However, changes and modifications may be made to the preferred embodiment without departing from the scope of the present invention.

‘373 patent at 18:66–19:15. Indeed, immediately after making this point, presumably to emphasize it, the written description makes it again virtually verbatim:

The present invention has been described with reference to a preferred embodiment. Changes and modifications may be made, however, without departing from the scope of the present invention. These and other changes or modifications are intended to be included within the scope of the present invention, as expressed in the following claims.

Id. at 19:16–21.

Defendants are correct that the specification details embodiments that involve testing components only on a wafer, but the specification neither describes the invention as limited to wafer-level testing nor contains a clear disavowal of the final testing of components in packaged form. “Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’” *Liebel-Flarsheim*, 358 F.3d at 906 (citation omitted). In this case, the patentee did not demonstrate a clear intent to limit the invention to wafer-level testing. On the contrary, the specification makes clear that the patentee intended the invention to cover both wafer-level and final testing.

V. CONCLUSION

For the reasons discussed above, I will construe the term “component” to mean a “semiconductor device or integrated circuit.”

The Court will issue an order consistent with this Memorandum Opinion.

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VISHAY INTERTECHNOLOGY
INC. and SILICONIX INC.,

Defendants.

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ORDER

At Wilmington this First day of November in 2018:

For the reasons set forth in the Memorandum Opinion issued this day and during the *Markman* hearing held on October 9, 2018, **IT IS HEREBY ORDERED** that the disputed terms in this case are construed as follows:

'373 PATENT DISPUTED TERM

CLAIM TERM	COURT'S CONSTRUCTION
"component"	Semiconductor device or integrated circuit

'373 PATENT STIPULATED TERMS

CLAIM TERM	COURT'S CONSTRUCTION
"outlier"	A test result whose value strays from a set of test results having statistically similar values, but does not exceed control limits or otherwise fail to be detected
"output report"	Print-out, database entry, operator interface display, or other desired destination to present the identified outlier for use or subsequent analysis
"test data / semiconductor test data"	A set of test results gathered from components sufficient to determine an outlier
"tester"	Equipment used to test semiconductors
"at run time"	Within a matter of seconds or minutes following generation of the test data



CONNOLLY, UNITED STATES DISTRICT JUDGE