

UNITED STATES DISTRICT COURT  
DISTRICT OF NEW MEXICO

STC.UNM,

Plaintiff,

v.

INTEL CORPORATION,

Defendant.

Civil No. 1:10-cv-01077-RB-WDS

**INTEL'S SUR-REPLY ON CLAIM CONSTRUCTION**

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## **Introduction**

As Intel explained in earlier briefs, claim construction focuses on the claim language, the patent's specification, and its prosecution history. Expert testimony can clarify, but it must not contradict that intrinsic evidence and it must be consistent with the law. As shown below, the deposition of STC's expert, Dr. Mack, confirmed that the constructions he and STC propose are contrary to the intrinsic evidence and the law and unnecessarily confusing to boot. For example, to broaden the key "combined mask" limitation, Dr. Mack and STC ignore the language of claim 6 in a legally misguided effort to cover certain Figures, add unwritten steps into the '998 patent's description of those Figures to make them fit their theory, and then dismiss the patent's description of the embodiment that does track claim 6 as a "mistake" because it undermines their theory. Instead of distorting and discrediting what the applicants wrote in the patent and prosecution history, the Court should follow the intrinsic evidence and adopt Intel's constructions.

## **Reply Argument**

### **A. STC and Its Expert's Positions Are Grounded in a Fundamental Legal Error**

The cornerstone of STC's claim construction positions is the bare statement in several Federal Circuit cases that "a claim construction that excludes a preferred embodiment from the scope of the claim 'is rarely, if ever, correct.'" [See Dkt. 133 (STC Response) at 17] Courts do try to construe a patent's claims so that they cover a preferred embodiment described in the patent—where the claim language and prosecution history permit. But STC improperly extrapolates from this limited, common-sense principle a broader, illogical principle that *every* claim must be construed to cover *all* embodiments described in the patent, regardless of the words used in each claim. That broader assumption permeates STC's legal arguments, as STC repeatedly

touts its own constructions, and criticizes Intel's constructions, on the ground that only its constructions cover certain embodiments. [See *id.* at 6, 7 (“high spatial frequencies”), 15, 18 (“parts of said first mask layer”), 18, 19 (“combined mask”)]

As Intel's response brief showed [Dkt. 134 at 7], STC's position has never been the law. Indeed, the cases cited in STC's response (at 17) do not support it.<sup>1</sup> In any event, the Federal Circuit laid the issue to rest this summer, emphasizing that “[t]he mere fact that there is an alternative embodiment disclosed in the [asserted patent] that is not encompassed by [the court's] claim construction does not outweigh the language of the claim, especially when the court's construction is supported by the intrinsic evidence” *August Tech. Corp. v. Camtek, Ltd.*, \_\_\_ F.3d \_\_\_, No. 2010–1458, slip op. 11 (Fed. Cir. Aug. 22, 2011) (citation omitted; emphasis added). Indeed, “[t]his is especially true where, as here, *unasserted claims ... cover the excluded embodiments.*” *Id.* (emphasis added). STC's contention that Intel's constructions must be rejected because claim 6 would not cover *every* disclosed embodiment is simply wrong.

Dr. Mack's similar assumption that every embodiment must be covered by *some* claim [Hur Decl. Ex. A (Mack Dep. Tr.) at 25] is also wrong. For example, patents often describe prior art approaches without claiming them, and they often disclose new techniques without claiming them. See *Johnson & Johnston Assocs., Inc. v. R.E. Service Co.*, 285 F.3d 1046 (Fed. Cir. 2002)

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<sup>1</sup> In *On-Line Technologies, Inc. v. Bodenseewerk Perkin-Elmer GmbH*, 386 F.3d 1133, 1136–40 (Fed. Cir. 2004), the claim term at issue appeared in all the claims, and the court sensibly strove to avoid a construction that would read out the preferred embodiment. In *International Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1370–72 (Fed. Cir. 2004), the court recognized that this principle does *not* justify ignoring the inventor's choice of words: it construed “polygonal” to mean a closed-plane figure bounded by straight lines *even though* one figure showed slight rounding. And in *Modine Manufacturing Co. v. USITC*, 75 F.3d 1545, 1550 (Fed. Cir. 1996), the court simply held that the term “flat side walls” meant non-rounded sidewalls where nothing in the patent or its prosecution history forbade outward projections.

(en banc) (techniques described but not claimed are dedicated to the public). Dr. Mack's mistake of law drove many of the conclusions he drew in his declarations to the Court. [See Dkt. 113–5 ¶¶ 14, 19 (“high spatial frequencies”), 43, 50, 51, 55 (“combined mask”); Dkt. 133–5 ¶ 67 (“combined mask”)] Dr. Mack agreed in deposition that portions of his declaration “would no longer have any force” if his legal assumption was wrong. [Hur Decl. Ex. A at 30–31] Because his legal assumption *was* wrong, the Court should discount his opinions.

**B. STC's Construction of “High Spatial Frequencies” Defies the Prosecution History, and Its Expert Admits that the Construction Is Confusing**

STC's definition of “high spatial frequencies” requires “spatial frequencies ... that are not present in any of the individual exposures.” As Intel has shown, the applicants told the examiner during prosecution that the square and rounded patterns shown in the '998 patent have the *same* spatial frequencies, just different distributions of those frequencies. [See Dkt. 134 at 6] As STC notes [Dkt. 133 at 8], the applicants similarly stated that the “presently claimed invention alters the frequency distribution of the final structure ....” STC's construction, however, does *not* describe altering the *distribution* of spatial frequencies; it talks about adding *new* spatial frequencies not present in any individual exposure. That construction should be rejected as contrary to the applicants' expressed understanding of what “high spatial frequencies” are.

Indeed, Dr. Mack confirmed in deposition that the applicants' statements to the PTO were correct. Dr. Mack admitted that a square shape does *not* have different, higher spatial frequencies than a circle. The spatial frequencies are the same; only the amplitudes (weightings) differ. [Hur Decl. Ex. A at 60] Dr. Mack also agreed that one cannot predict what shape will result from increasing amplitudes of spatial frequency terms and that increasing those amplitudes does *not* necessarily result in the “sharp corners” on which he and STC have focused. [*Id.* at 79]

Dr. Mack also confirmed what Intel has been saying from the beginning: that STC's construction is confusing. Dr. Mack conceded that his own use of the word "magnitude" in ¶ 20 of his declaration was ambiguous, as "magnitude" can mean either the amplitude or the absolute value of a frequency. [*Id.* at 65– 66] In his words, "[t]he problem comes when we use ['magnitude'] without referring to what it is we're taking the magnitude of, and that's where the confusion can come in." [*Id.* at 75 (recognizing that his declaration was "obviously not very well worded on [his] part")] Yet STC persists in using the same confusing word in its construction, which refers to "magnitudes" "larger than the limit of the linear optical system response." The last thing the Court should do is incorporate confusing verbiage into a construction that is supposed to clarify claim meaning for the jury.

**C. STC's Expert Agrees that the "First Mask Material" Cannot Be Photoresist**

Dr. Mack agreed that the "first mask material" cannot be photoresist. [*Id.* at 103] Intel's construction so provides, while STC's construction ignores this important, conceded point.

**D. STC's Expert Agrees that Intel's Construction of "Parts of Said First Mask Layer" Is Sensible**

Dr. Mack acknowledged that a mask layer that has been patterned with the first pattern, but not the second pattern, is fairly described as "parts of said first mask layer." [*Id.* at 111–12] This recognition is fully consistent with Intel's construction of "parts of said first mask layer."

**E. STC's Expert Admits that His Theory of the "Combined Mask" Limitation Requires the Court to Read Additional Steps into the Written Description and to Dismiss the Discussion that Actually Parallels Claim 6 as a "Mistake"**

Claim 6 recites a "combined mask including parts of said first mask layer *and said second photoresist.*" STC admits that its construction of this key limitation is designed to cover all processes that combine two layers of patterns, *regardless* of whether the "combined mask"

includes the remaining portions of the second photoresist. To justify their defiance of the plain claim language, STC and Dr. Mack go through an exercise in legal, verbal, and mathematical gymnastics. Their argument goes essentially as follows: (1) Claim 6 must be read to cover all of the patent's Figures. (2) The patent describes Figures 6, 7, and 8 as applying "multiplication" functions. (3) "Multiplication" is limited to formation of "posts" rather than "holes." (4) The only way to create "posts" is to etch the second pattern from the second photoresist layer into the hard mask and then, in a separate step, etch the newly combined pattern in the hard mask layer into the substrate. So (5) claim 6 cannot mean what it literally says in requiring the "combined mask" to contain both parts of the hard mask layer *and* parts of the second photoresist layer.

The Court should reject these convolutions. The legal premise on which Dr. Mack and STC rely is erroneous. Their theory admittedly depends on reading into the descriptions of Figures 6, 7, and 8 steps that are not there. And the patent's description of the embodiment that actually does track claim 6 flatly contradicts their theory, forcing them to dismiss it as a "mistake." The truth is that the patent is not mistaken. STC and Dr. Mack are mistaken.

1. The legal premise of Dr. Mack and STC's argument—that the Court should ignore the claim language to make the claim cover all embodiments—is wrong. As discussed above, the law does not require each claim to cover each embodiment, or even more than one embodiment. Here, claim 1 was written broadly, without a "combined mask" limitation. But claim 6 was written more narrowly, to cover the particular embodiment that relied on a "combined mask including parts of said first mask layer and said second photoresist."

2. As Intel has previously explained, the law *does* require constructions to focus on and stay true to the claim language. Here, claim 6 expressly requires the combined mask to include



parts of the second photoresist. It does not refer to “posts,” “holes,” “multiplication,” or “addition,” and there is no reason to construe it based on terms that appear nowhere in the claim.

3. Instead of reading the language of claim 6 in light of the corresponding portion of the specification, STC and Dr. Mack contort the specification to make it fit their theory. In relying on Figures 6, 7, and 8, they assume that those configurations were produced by etching the second pattern from the second photoresist layer into the hard mask and then separately etching from the double-patterned hard mask into the substrate after removing the second photoresist. But as Dr. Mack admitted in deposition, nowhere in the discussion of Figures 6, 7, and 8 did the patent describe transferring the second pattern into the hardmask or transferring both patterns into the substrate with none of the second photoresist layer present. [Hur Decl. Ex. A at 113–15, 123–25] Dr. Mack and STC simply read in extra steps that are not there.<sup>2</sup> Moreover, although Dr. Mack insists that Figures 6 through 8 described formation of “posts,” the patent did not say that, either. Indeed, as Intel has shown and Dr. Mack conceded in deposition [*id.* at 135], the applicants repeatedly referred to the patterns of Figure 6 as containing “holes.”

4. The relevant portion of the specification supports Intel’s construction and undermines Dr. Mack and STC’s theory. At column 13 line 63 to column 14 line 29, the applicants expressly described etching both patterns into the substrate using a “combined etch mask” comprising the remaining parts of the first mask layer and the remaining parts of the second photoresist layer—just as in claim 6. In Dr. Mack’s words, “both the photoresist and the hardmask layer are being used as the combined mask to etch in the substrate.” [*Id.* at 140–41] The patent also expressly labeled this combined-mask approach as a “multiplication” operation [’998(14:13–15)] even

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<sup>2</sup> The extra steps are described only in connection with Figure 9, which STC wants to ignore because it focuses on doubling pattern density rather than producing square corners.

though it necessarily results in “holes” rather than “posts.” Dr. Mack admittedly could not reconcile this characterization with his theory that “multiplication” must result in “posts,” not “holes.” All he could say was that the patent’s description of the embodiment that plainly tracks claim 6 had to be a “mistake.” [Hur Decl. Ex. A at 140] But there was no mistake. Intel’s construction tracks both the claim language and the corresponding portion of the specification, and the patent itself refers to this approach as a “multiplication” operation. Even if claim 6 must be read to cover pattern “multiplication,” Intel’s construction can achieve it. [See also Hur Decl. Ex. B (deposition exhibit in which Dr. Mack illustrated “multiplication” in images like Figure 7)]

In the end, Intel’s construction is faithful to the claim language, the relevant portions of the specification, and the prosecution history, while the construction that STC and Dr. Mack promote is not. Intel’s construction should therefore be adopted, and STC’s should not.<sup>3</sup>

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Respectfully submitted,

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<sup>3</sup> In deposition, Dr. Mack also raised a new argument in support of STC’s constructions, one never disclosed in either of his declarations. He now contends that that “ $\tau$ ” in equation 6 of the patent must be assigned a value of “1” if it represents photoresist and “0” if it represents space. Sur-reply briefing is no time to raise new arguments, but even if the Court were to consider this argument, it is a red herring. The scope of claim 6 is not defined by an unclaimed, complex equation in the specification. Instead, it is governed by the plain language of the claim and the portion of the specification (at the bottom of column 13 and the top of column 14) that parallels that claim language. In any event, contrary to Dr. Mack’s assertions, the patent does not define “ $\tau$ ” or set forth any rule about how “1s” and “0s” must be assigned to patterns. Indeed, the patent describes other embodiments in which the polarity of “1s” and “0s” for  $\tau$  is reversed from what Dr. Mack assumes. The space restrictions in this brief do not permit Intel to rebut STC’s new argument here, but if necessary Intel can and will explain Dr. Mack’s errors.

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**Certificate of Service**

The undersigned hereby certifies that on October 7, 2011, the foregoing document and the cited declaration and its exhibits were electronically filed with the Clerk of Court using the CM/ECF system, which will automatically send notification of such filing to all counsel who have entered an appearance in this action.

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