

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ISCO INTERNATIONAL, INC.,)	
)	
Plaintiff)	
)	
v.)	C.A. No. 01-487 GMS
)	
CONDUCTUS, INC., AND)	
SUPERCONDUCTOR)	
TECHNOLOGIES, INC.,)	
)	
Defendants.)	

MEMORANDUM AND ORDER

I. INTRODUCTION

The plaintiff, ISCO International, Inc. (“ISCO”), filed the above-captioned suit against Conductus, Inc. (“Conductus”) and Superconductor Technologies, Inc. (“STP”) (collectively “the defendants”) on July 17, 2001. In its complaint, ISCO alleges that Conductus and STI are infringing U.S. Patent No. 6,263,215 (“the ‘215 patent”). Presently before the court is STI’s Motion for Summary Judgment of Invalidity of the ‘215 patent (D.I. 212). For the reasons that follow, the court will deny the motion.

II. STANDARD OF REVIEW

Summary judgment is appropriate in patent suits as in other civil actions. *Rains v. Cascade Industries, Inc.*, 402 F.2d 241, 244 (3d. Cir. 1968). The court may grant summary judgment “if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law.” FED. R. CIV. P. 56(c); *see also Boyle v. County of*

Allegheny Pa., 139 F.3d 386, 392 (3d Cir. 1998). Thus, summary judgment is appropriate only if the moving party shows there are no genuine issues of material fact that would permit a reasonable jury to find for the non-moving party. *Boyle*, 139 F.3d at 392. A fact is material if it might affect the outcome of the suit. *Id.* (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247-248 (1986)). An issue is genuine if a reasonable jury could possibly find in favor of the non-moving party with regard to that issue. *Id.* In deciding the motion, the court must construe all facts and inferences in the light most favorable to the non-moving party. *Id.*; *see also Assaf v. Fields*, 178 F.3d 170, 173-74 (3d Cir. 1999).

When a party challenges a patent's validity, the court begins with the statutory presumption of validity. 35 U.S.C. § 282 ("A patent shall be presumed valid."). Accordingly, "[t]he burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity." *Id.* Invalidity must be shown by clear and convincing evidence. *Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 189 F.3d 1370, 1377 (Fed. Cir. 1999). This evidentiary standard is relevant in the context of a motion for summary judgment because "the judge must view the evidence presented through the prism of the substantive evidentiary burden." *Anderson*, 477 U.S. at 254. As the Court elaborated,

[W]here the . . . 'clear and convincing' evidence requirement applies, the trial judge's summary judgment inquiry as to whether a genuine issue exists will be whether the evidence presented is such that a jury applying that evidentiary standard could reasonably find for either the plaintiff or the defendant. Thus, where the factual dispute concerns [a material issue]. . . the appropriate summary judgment question will be whether the evidence in the record could support a reasonable jury finding either that the [movant] has shown [that material issue] by clear and convincing evidence or that the [movant] has not.

Id. at 255-56. Thus, STI must show that there is no genuine issue as to any material fact that is

necessary for a finding, by clear and convincing evidence, of invalidity. If STI makes such a showing, ISCO may withstand summary judgment by adducing “specific facts” sufficient to create a genuine issue of material fact as to an essential element of STI’s defense of invalidity. FED. R. CIV. P. 56(e); see also *Int’l Ass’n of Heat & Frost Insulators & Asbestos Workers Local Union 42 v. Absolute Env’tl. Serv., Inc., et al.*, 814 F. Supp. 392, 401-02 (D. Del. 1993) (explaining summary judgment standard and burdens).

With these standards in mind, the court will describe the facts that led to the motion presently before the court.

III. BACKGROUND

The invention of the ‘215 patent is a “receiver front end” for receiving telecommunications signals. A receiver front end is a system including filters that transmit certain signals and attenuate others, and amplifiers, which strengthen the desired signals. Telecommunications systems divide geographic areas into “cells,” each of which is supported by a base station. Each base station has preassigned radio frequency (RF) carriers for the communication channels. Wireless signals from mobile telephones arrive at these base stations, which monitor and process the incoming signals. For various reasons including safety concerns and conservation of battery power, mobile telephones transmit signals at limited power. Therefore, the signals arriving at the base stations tend to be weak, causing the cell to become “reverse link limited.” Most of the known solutions to this problem are unappealing or impractical. At the same time, additional demand by mobile telephone users requires more and more frequency channels and base stations. Thus, there was a need for base station front end receivers with increased sensitivity to incoming signals (by limiting losses and noise generated

in the base station receiver) and selectivity (to allow more channels to be accommodated). The invention at hand purports to meet these needs.

As the patent specification provides, the receiver front end itself includes:

(1) a plurality of filtering means for spectrally filtering a plurality of RF signals to form a plurality of filtered RF signals; (2) a plurality of amplifying means, in communication with the plurality of filtering means, for amplifying the plurality of filtered RF signals; and (3) cooling means for cryogenically cooling the filtering means and the amplifying means. . . . At least one of the plurality of filtering means and plurality of amplifying means comprises a superconducting material. . . . Switching means can be used to bypass the RF signal around the receiver front end in the event of malfunction of [the] receiver front end. Monitoring means for monitoring remotely the operation of the various components of the receiver front end can be used to activate the switching means.

(B 372, '215 col. 2, lns. 49-65, B 374, '215 col. 5, ln. 65 to col. 6, ln. 3). The invention is discussed in more detail below in the context of STI's various challenges to the patent.

IV. DISCUSSION

ISCO alleges that the defendants are infringing Claims 10, 12 through 17, and 19 of the patent-in-suit. Of these, only claim 10 is an independent claim. STI first asserts that claim 10 is not entitled to the filing date of provisional application no. 60/002065 ("the '065 application") because that application does not satisfy the written description requirement. In addition, STI alleges that the '215 patent is invalid for lack of enablement, anticipation by prior art, obviousness, and indefiniteness. The court will address each of these issues in turn.

A. Provisional Application '065

STI argues that the patent-in-suit is not entitled to the effective filing date of the provisional

'065 application. Per 35 U.S.C. § 120,¹ a patent application is entitled to the effective filing date of an earlier-filed application if the earlier-filed application meets the written description requirement of 35 U.S.C. § 112. *In re Huston*, 308 F.3d 1267, *20-21 (Fed. Cir. 2002) (quoting *Lockwood v. Am. Airlines Inc.*, 107 F.3d 1565, 1571 (Fed. Cir. 1997)). To satisfy the written description requirement, the patent specification must “contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same” 35 U.S.C. § 112. The policy of the requirement “is to prevent overreaching and *post hoc* claims that were not part of the original invention.” *Purdue Pharma, L.P. v. F.H. Faulding & Co.*, 48 F. Supp. 2d 420, 427 (D. Del. 1999), *aff'd*, 230 F.3d 1320 (Fed. Cir. 2000). Accordingly, if claims in the later-filed application were sufficiently described in the earlier-filed application, the later application is entitled to the filing date of its parent application.

STI contends the '215 application is not entitled to the earlier filing date of the '065 application because the '065 application fails to provide a written description of a “switched bypass circuit around the receiver front end,” a required element of claim 10 of the '215 patent. The '065 application describes only a single switch within the cold space, STI argues, and not a switched

¹ The statute reads, in relevant part:

An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of this title in an application previously filed in the United States . . . which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application

35 U.S.C. § 120.

bypass circuit around the receiver front end, *i.e.*, a bypass circuit located outside of the cold space. Therefore, the '065 application fails to provide a written description of the invention as later claimed in the '215 application.

ISCO responds that the '065 application describes a switched bypass circuit relative to its function of bypassing the cryoelectronic receiver front end circuitry, with no restriction on the bypass circuit's location. For example, the '065 application states: "[T]he invention can include a switching device to permit the RF signal received by the antenna to bypass the cryoelectronic receiver circuitry module(s) in the cryoelectronic receiver front end and thereby avoid loss of the antenna structure(s) connected to the module(s)" '065 provisional at 9, lns 6-12. In another part, the provisional application notes that the bypass circuit "can" pass through the cold space. '065 provisional at 15, lns. 12-16. Other language in original claim 16 of the '065 application also describes the switched bypass circuit in generic terms that do not require a particular location relative to the cold space. *See, e.g.*, '065 provisional at 23. The provisional application therefore encompasses a bypass switch that can be located in either the cold or warm space, ISCO maintains, and a person skilled in the relevant art would understand this. Therefore, the '065 specification supports claim 10 of the '215 application, and the later application is entitled to the filing date of the '065 provisional application.

Based on the information before it at this juncture, the court finds a genuine issue of material fact as to whether the '065 application contains a description of the invention as later claimed in claim 10 of the '215 application. More specifically, there is a genuine issue of material fact as to what a person skilled in the art would understand each application to encompass. This is particularly significant given the highly technical nature of the particular art at issue in this case. Therefore, the

court is unable to grant STI's motion for summary judgment on this issue.

B. Lack of Enablement

STI next moves for summary judgment on the grounds that the '215 patent does not meet the enablement requirements of 35 U.S.C. § 112. As stated earlier, Section 112 requires that patent specifications include a written description of the invention "in such full, clear, concise, and exact terms" that a person skilled in the relevant art can make and use the invention. 35 U.S.C. § 112. Further, courts have concluded that to meet the enablement requirement, "the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.'" *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993) (quoting *In re Vaeck*, 947 F.2d 488, 495 (Fed. Cir. 1991)). That enablement may require some experimentation is acceptable; the amount of necessary experimentation simply must not be undue. *PPG Indus. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1564 (Fed. Cir. 1994) ("[T]he question of undue experimentation is a matter of degree."). Factors to consider in this determination include:

(1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988). Although the question of undue experimentation entails many factual considerations, enablement is a question of law. *Id.* at 735, 737.

STI asserts that the '215 patent specifications do not adequately enable a cryogenically cooled receiver front end. The defendant provides evidence that Superconducting Core Technologies ("SCT"), the original assignee of the patent-in-suit and ISCO's predecessor in interest, experienced difficulties in developing a cryogenically cooled amplifier as described in the specifications. STI

maintains that the patent also fails to disclose enabling information regarding how to make or use a planar filter, although it offers no specific support for this contention. Indeed, in its briefing, STI has offered no support for its claim of lack of enablement other than SCT's difficulties in producing the cryogenically cooled amplifier. The court is unpersuaded that this evidence alone precludes any genuine issue as to any material fact that is necessary for a finding of undue experimentation. There is no evidence as to the state of the prior art; the relative skill of those in the art; or the predictability or unpredictability of the art. Although the *Wands* factors are "illustrative, not mandatory," *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1213 (Fed. Cir. 1991), the court finds that some of this information is necessary for a determination of undue experimentation. For example, ISCO maintains that the work done by SCT was routine engineering and not unduly extensive experimentation. Even the movant recognizes that "[w]hile complex experimentation is not *per se* undue, this is only true up to the norm of the experimentation in the art." Reply Brief at 19. A question of fact remains, then, as to the level of experimentation typically experienced in the relevant art. *See, e.g., Wands*, 858 F.2d at 737 ("[T]he fact that experimentation may be complex . . . does not necessarily make it undue, if the art typically engages in such experimentation."). STI has not carried its burden of showing that no genuine issue exists as to any material fact necessary for a finding of lack of enablement.

C. Anticipation by Prior Art

Next, STI moves for summary judgment on the ground that the invention is anticipated by prior art. A patent is not valid if the associated invention was "described in a printed publication . . . more than one year prior to the date of the application for patent." 35 U.S.C. § 102(b). Each

and every element of the claim must be shown, expressly or inherently, in a single publication. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). To invalidate a patent, the reference also must enable someone skilled in the art to make the claimed invention. *PPG Indus.*, 75 F.3d at 1566. “Anticipation is a question of fact.” *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991).

STI asserts that two publications anticipate various claims of the claimed invention. The court will address each publication in turn.

1. The Robertson Article

The defendant STI argues that an article² (“the Robertson article”) published by Mark A. Robertson, an engineer, contains all of the elements of claim 10 and several of the dependent claims. The Robertson article describes a military surveillance system for installation in an airplane. This system processes microwave frequency signals in the frequency range of 8 to 40 gigahertz. The claims of the patent-in-suit describe a “receiver front end for receiving wireless signals on a plurality of channels.”³ “Wireless” was construed to mean “cellular telecommunications transmitted from a source to a receiver without use of a wire.”⁴ Cellular telecommunications are transmitted via frequencies in the range of 850 to 1900 megahertz. The Robertson article, therefore, does not expressly disclose a receiver front end for receiving

² *Two Applications of HTS Technology on an Airborne Platform*, produced by Advanced Research Projects Agency, SPIE PROCEEDINGS 2156 (Jan. 1994).

³ By the court’s order of October 30, 2002, the preamble to claim 10 was found to be a claim limitation.

⁴ See the court’s order of October 30, 2002 as to claim construction.

wireless signals. Of course, the publication may inherently disclose such a receiver. Indeed, the court may consider extrinsic evidence to understand “what the reference meant to persons of ordinary skill in the field of invention.” *Scripps Clinic & Research Found.*, 927 F.2d at 1576. STI, however, has presented no evidence as to whether someone skilled in the art would perceive the disclosure of a system for receiving microwave frequency signals as an inherent disclosure of a system that receives cellular telecommunications frequencies.

Because there exists a dispute as to at least one genuine issue of material fact necessary for a finding of anticipation by a publication, the court need not continue in this analysis as to claim 10. Furthermore, because claims 13-17 and 19 are dependent on claim 10, the court can not find, on summary judgment, that those claims are anticipated by the Robertson article. STI’s motion for summary judgment is denied as to the Robertson article.

2. The ARPA Report

STI argues that a second publication⁵ (“the ARPA Report”) anticipates claims 10, 13-17, and 19 of the patent-in-suit. The ARPA Report was first presented on February 7, 1995, less than one year prior to the filing date of the ‘065 provisional application.⁶ STI believes the ‘215 patent application is not entitled to the filing date of the provisional application because, as discussed above, the first application fails to meet the written description requirement of 35 U.S.C. § 112. The court has found a genuine issue of material fact as to whether the patent meets the written description requirement. Because STI’s anticipation argument rests, in turn, on a

⁵ *HTSC Dual Use Applications Survey - Progress Report: HTS Filter Applications / Cellular Telephone Base Station Equipment*, produced by Advanced Research Projects Agency (ARPA) (Feb. 1995).

⁶ The ‘065 application was filed on August 5, 1995.

finding as to the written description requirement, the court cannot grant summary judgment regarding anticipation by the ARPA Report.

D. Obviousness

STI moves for summary judgment on the basis that every asserted claim of the patent-in-suit is obvious. Section 103 renders invalid any patent whose “subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art.” 35 U.S.C. § 103. To support a finding of obviousness, there must be a showing of a suggestion or motivation to modify the teachings of a prior art reference. *TIBIA Neuroscience, Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000). This motivation may arise from the prior art, the knowledge of someone of ordinary skill in the art, or the nature of the problem to be solved. *Id.*

As the movant recognizes, a determination of obviousness necessarily rests on underlying factual issues, including the scope and content of the prior art, the level of ordinary skill in the art, and the differences between the prior art and the claimed invention. Opening Brief at 26; *see Monarch Knitting Mac. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 81 (Fed. Cir. 1998). STI has offered no evidence as to any of these issues,⁷ beyond what can be gleaned from the references it argues anticipated the invention or render the invention obvious. Although the prior

⁷ Indeed, it affirmatively “takes no position with regard to the proper level of education, training, etc. of the person of ordinary skill (POS) to whom the ‘215 patent is addressed.” Opening Brief at 17. Later, STI argues that for the purposes of this motion the level of skill in the art is undisputed, or at least cast in the alternative. Either (1) the skilled artisan is skilled enough such that the patent is enabled, but anticipated and obvious; or (2) the artisan is so unskilled that the patent is not anticipated and obvious, but is not enabled. Reply Brief at 17. Such a position does not adequately shed light on the state of the art.

art references selected by STI may help create a selective understanding of the state of the prior art, it is not sufficient in this case to convince the court that there are no genuine issues of material fact that would permit a reasonable jury to find for ISCO regarding obviousness.⁸ This is particularly true because “the level of skill in the art is a prism or lens through which a judge [or] jury . . . views the prior art and the claimed invention. This reference point prevents these factfinders from using their own insight or, worse yet, hindsight, to gauge obviousness.”

Okajima v. Bourdeau, 261 F.3d 1350, 1355. STI’s motion for summary judgment regarding obviousness is denied.

E. Indefiniteness

Finally, STI argues that the patent-in-suit is invalid for indefiniteness. Section 112 of the

⁸ STI cites *Okajima v. Bourdeau*, 261 F.3d 1350 (Fed. Cir. 2001), for the proposition that specific findings regarding the level of skill in the art are not necessary if the prior art itself reflects an appropriate level of skill. Accordingly, the movant argues that it need not produce evidence as to the level of skill in the art for purposes of its summary judgment motion. That may well be true in certain cases. However, *Okajima* may be distinguished from the instant case. In *Okajima*, the court reviewed a decision of the Board of Patent Appeals and Interferences (“Board”) of the U.S. Patent and Trademark Office which held certain claims to be unpatentable for obviousness. The Federal Circuit held that “the absence of specific findings on the level of skill in the art was not *reversible error* ‘where the prior art itself reflects an appropriate level and a need for testimony is not shown.’” (citation omitted) (emphasis added). *Id.* at 1355. The question of whether an absence of evidence as to the level of skill in the art rises to reversible error upon appellate review of the Board’s finding of obviousness is different than whether, as here, a court may deny summary judgment in the absence of such evidence. A need for testimony has been shown in the instant case. This is particularly true given the very technical nature of the art at issue. Furthermore, a court must make findings regarding not only the level of ordinary skill in the art, but also as to the scope and content of the prior art, the differences between the prior art and the claimed invention, and certain secondary considerations including commercial success, long-felt but unresolved need, failure of others, copying, and unexpected results, before invalidating a patent for obviousness. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 663 (citing cases). Because there is no evidence, or conflicting evidence, as to certain of these issues, summary judgment as to obviousness is inappropriate.

patent statute requires that patent claims “particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112, paragraph 2. In determining whether a claim is sufficiently definite, courts analyze whether ‘one skilled in the art would understand the bounds of the claim when read in light of the specification.’ *Allen Eng’g Corp. v. Bartell Indus.*, 299 F.3d 1336, 1348 (Fed. Cir. 2002) (quoting *Personalized Media Communs., L.L.C. v. ITC*, 161 F.3d 696, 705 (Fed. Cir. 1998)).

Claim 10 of the ‘215 patent encompasses “a receiver front end . . . comprising . . . a switched bypass circuit.” The same claim also requires “a switched bypass circuit around the receiver front end.” STI asserts that the claim is indefinite because these passages require a bypass circuit that is simultaneously inside and outside the receiver front end. ISCO, however, argues that the term “around” connotes the function, and not the location, of the bypass circuit. As one section of the patent specification explains, “[s]witching means can be used to bypass the RF signal around the receiver front end in the event of malfunction of receiver front end.” ‘215 col. 5, lns. 65-67.

STI presents no evidence as to how one skilled in the art would understand claim 10 in light of the specification. Absent such evidence, and viewing all inferences in the light most favorable to the non-movant, the court can not conclude that there is no genuine issue of material fact as to the indefiniteness of the claim. It is plausible, based on other passages from claim 10, that the claim could be understood to refer to the function of the bypass circuit and not the literal location of it. Indeed, the patent specification includes a diagram “of a cryoelectronic receiver front end with a bypass circuit.” In light of such language, it is reasonable that one skilled in the art might understand the bounds of the claim. However, absent any evidence as to what someone

skilled in the art would understand the claim, the court makes no finding as to the definiteness of the claim, other than to deny STI's motion for summary judgment on this ground.

V. CONCLUSION

Based on the evidence before it, the court concludes that there remain genuine issues of material fact with regard to each of the issues presented.

For the foregoing reasons, IT IS HEREBY ORDERED that:

1. STI's motion for summary judgment of invalidity of U.S. Patent No. 6,263,215 (D.I. 212) is DENIED.

Date: February 10, 2002

Gregory M. Sleet
UNITED STATES DISTRICT JUDGE