

NO. COA02-659

NORTH CAROLINA COURT OF APPEALS

Filed: 6 May 2003

ANALOG DEVICES, INC.,
Plaintiff
v.

CHRISTOPHER MICHALSKI, KIRAN KARNIK, and MAXIM INTEGRATED
PRODUCTS, INC.,
Defendants

Appeal by plaintiff from order entered 12 February 2002 by
Judge Peter M. McHugh in Guilford County Superior Court. Heard in
the Court of Appeals 30 January 2003.

*Womble Carlyle Sandridge & Rice, P.L.L.C., by Burley B.
Mitchell, Jr., and Michael E. Ray, and Hale and Dorr L.L.P.,
by James C. Burling and John T. Gutkoski, for plaintiff-
appellant.*

*Smith Helms Mulliss & Moore, L.L.P., by James G. Exum, Jr.,
and Jonathan A. Berkelhammer, and Brown & Bain, P.A., by Alan
H. Blankenheimer and Laura E. Underwood, for defendants-
appellees.*

CALABRIA, Judge.

This matter is before the Court on the plaintiff's appeal of
the trial court's order denying the issuance of a preliminary
injunction. Analog Devices, Inc. ("Analog") and Maxim Integrated
Products, Inc. ("Maxim") are corporations that compete to produce
various types of integrated circuits including analog-to-digital
converters ("ADCs"). ADCs are used to convert real world signals
such as voice, sound, or light signals into digital representations
that can be used by computers, cell phone systems, and other
electronic equipment for processing or storage. The primary
characteristics of an ADC can be broken down into two performance

specifications: sample rate or speed (measured in megasamples per second or MSPS) and resolution or accuracy of conversion (measured in bits). Analog is currently the market leader in the field of high speed (sample rates of 65 MSPS or higher), high resolution (resolution of 12 bits or higher) ADCs.

Christopher Michalski ("Michalski") is a design engineer with a master's degree in electrical engineering. Michalski worked at Westinghouse Defense and Electronic Center for over eight years on ADCs. After leaving Westinghouse, Michalski worked for Analog for over five years as a lead design engineer on different ADC models designed and produced by Analog. Kiran Karnik ("Karnik"), also a former engineer at Analog with a master's degree in electrical engineering, worked for over a year in Analog's design center in the production of ADCs. In September of 2001, both Michalski and Karnik left Analog for positions at Maxim.

On the night before departing Analog, Michalski printed approximately 77 pages of confidential schematics and documents concerning Analog's ADC products and components. Analog contended Michalski took those documents with him when he left. Michalski denied taking the documents. He explained the reason he needed hard copies was to compare the schematics with technical journals to distinguish between techniques and devices known generally in the industry versus those which were proprietary to Analog.

During Michalski and Karnik's exit interviews, Analog provided proprietary rights agreements. Both signed the agreements not to disclose confidential information belonging to Analog. Neither

Michalski nor Karnik signed a covenant not to compete when they commenced employment with Analog, and both refused to sign a covenant not to compete at their exit interviews.

On 21 September 2001 in Guilford County Superior Court, Analog moved for a temporary restraining order to prevent the disclosure of confidential information and trade secrets to Maxim. The Honorable Lindsay R. Davis granted Analog's motion for a temporary restraining order. On 15 October 2001, Analog moved for a preliminary injunction to enjoin Maxim from seeking to hire any engineer at Analog working in the high speed, high resolution ("HSHR") ADC divisions and to enjoin Michalski and Karnik from "working in the development, design, implementation and marketing of high-speed analog to digital converters" with specification of 12 bits or higher and sample rates of 65 MSPS or higher. On 12 February 2002, after conducting a four-day hearing, the Honorable Peter M. McHugh entered an order dissolving the temporary restraining order and denying Analog's motion for a preliminary injunction. In so doing, the trial court found: (1) the process technology differences between Analog and Maxim rendered the trade secrets "mostly irrelevant . . . [and] of no use[;]" (2) Analog had failed to specifically identify any trade secrets or show either actual or threatened misappropriation as required by North Carolina law; and (3) Analog had failed to show irreparable harm should Michalski and Karnik work for Maxim. Analog appeals.

"The denial of a preliminary injunction is interlocutory and as such an appeal to this Court is not usually allowed prior to a

final determination on the merits." *N.C. Electric Membership Corp. v. N.C. Dept. of Econ. & Comm. Dev.*, 108 N.C. App. 711, 716, 425 S.E.2d 440, 443 (1993). However, review is proper if "such order or ruling deprives the appellant of a substantial right which he would lose absent a review prior to final determination." *A.E.P. Industries v. McClure*, 308 N.C. 393, 400, 302 S.E.2d 754, 759 (1983). "[T]his Court [has] recognized that disclosure of trade secrets could affect a substantial right." *Cox v. Dine-A-Mate, Inc.*, 129 N.C. App. 773, 777, 501 S.E.2d 353, 355 (1998) (citation omitted). A substantial right is presented here since, absent a preliminary injunction, Maxim would be free to employ Michalski and Karnik in the design of HSHR ADC products and any disclosure or misappropriation of Analog's trade secrets would be irreparable.

"The scope of appellate review in the granting or denying of a preliminary injunction is essentially *de novo*." *Robins & Weill v. Mason*, 70 N.C. App. 537, 540, 320 S.E.2d 693, 696 (1984). "[A]n appellate court is not bound by the findings, but may review and weigh the evidence and find facts for itself." *McClure*, 308 N.C. at 402, 302 S.E.2d at 760. However, a trial court's ruling on a motion for a preliminary injunction is presumed to be correct, and the party challenging the ruling bears the burden of showing it was erroneous. *Conference v. Creech*, 256 N.C. 128, 140, 123 S.E.2d 619, 627 (1962) (citation omitted).

A preliminary injunction is an extraordinary measure, and will be issued only if (1) [a] plaintiff is able to show a likelihood of success on the merits of his case and (2) [a] plaintiff is likely to sustain irreparable loss unless the injunction

is issued, or if, in the opinion of the Court, issuance is necessary for the protection of his rights during the course of litigation.

Wade S. Dunbar Ins. Agency, Inc. v. Barber, 147 N.C. App. 463, 467, 556 S.E.2d 331, 334 (2001).

I. Likelihood of success on the merits

A. Actual or Threatened Misappropriation

North Carolina's Trade Secrets Protection Act provides "[e]xcept as provided herein, actual or threatened misappropriation of a trade secret may be preliminarily enjoined during the pendency of the action and shall be permanently enjoined upon judgment finding misappropriation" N.C. Gen. Stat. § 66-154 (2001). Misappropriation is defined as the "acquisition, disclosure, or use of a trade secret of another without express or implied authority or consent, unless such trade secret was arrived at by independent development, reverse engineering, or was obtained from another person with a right to disclose the trade secret." N.C. Gen. Stat. § 66-152(1) (2001). A trade secret is defined in N.C. Gen. Stat. § 66-152(3) (2001) as follows:

[B]usiness or technical information, including but not limited to a formula, pattern, program, device, compilation of information, method, technique, or process that:

- a. Derives independent actual or potential commercial value from not being generally known or readily ascertainable through independent development or reverse engineering by 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.

At this stage of the proceedings, Analog has failed to show a likelihood of success on the merits because Analog has not produced sufficient evidence establishing actual or threatened misappropriation of their trade secrets that would entitle them to injunctive relief. In fact, the evidence at trial indicates the integrated circuits produced by Maxim and Analog are too divergent to allow interchangeable use of Analog's trade secrets.

The production of integrated circuits can be categorized, among other ways, by process technology, by device size or geometry, and by device composition. Both Maxim and Analog fabricate integrated circuits using BiCMOS process technology. However, the device geometry and device composition used by the two companies differ. Analog utilizes larger geometries (.6 and .35 micron) in fabricating the integrated circuits they produce. By contrast, the geometry of the integrated circuits produced by Maxim is .18 and .5 microns. The reduction in the device size and the resulting decrease in the supply voltage preclude the use of many circuit designs that may otherwise be viable at a larger geometry. While Analog used a .18 micron TSMC process that shares some specifications with Maxim's .18 micron process, neither Michalski nor Karnik has designed using the .18 micron TSMC process while employed at Analog.

Moreover, Analog and Maxim use different device compositions. Analog uses a bulk silicon process in the manufacture of its ADCs while Maxim uses and has been using a silicon germanium process. Neither Michalski nor Karnik designed integrated circuits at Analog

using a silicon germanium process. In fact, the record discloses no evidence that Analog is engaged in designing integrated circuits composed of silicon germanium. Maxim intends for both Michalski and Karnik to work on future ADC designs fabricated using a .18 micron silicon germanium BiCMOS process. Thus, both will be employed in the production of integrated circuits using a different device size and device composition.

These differences in sizes and compositions and the resulting design changes render the alleged trade secrets largely non-transferable. As the trial court held in contemplating the testimony of Analog's witnesses concerning the impact of these differences:

The evidence is undisputed that the process technology impacts the design of ADCs. Analog's director of high-speed ADCs testified that all circuits are heavily process dependent. Mr. Michalski's supervisor, [engineer Tom] Tice, testified that a substantial difference in process technologies renders the trade secrets "mostly irrelevant" and further explained that if the device sizes for the processes are different, the trade secrets "would be of no use." Maxim uses a different process technology, having a different device size and a different composition (silicon germanium).

These conclusions are supported by the expert testimony of Dr. William T. Holman for defendants. Based on the differences between the geometry and the composition, Holman testified the design differences would be "significant." Such differences would require scaling down the circuit designs, lowering operating voltage, and creating new circuit topologies. When asked if the circuits involved in the case *sub judice* would have to be redesigned, Holman

answered, "[m]any circuits . . . would have to be redesigned and [would] be completely nonfunctional at 1.8 volts [the corresponding voltage for a .18 micron design.]" Moreover, Maxim has expressly required and both individual defendants have expressly agreed not to use or disclose Analog's trade secrets. Based on the foregoing evidence, misappropriation of Analog's trade secrets by Maxim is unlikely, and a claim of misappropriation on the evidence currently before this Court must fail.

B. Specific Trade Secrets for Analog's Components or Combinations

Analog contends trade secret protection is warranted in three areas: (1) the ADC chips as a whole and the processes and techniques used to produce it, (2) specific components and implementations used by Analog, and (3) process of determining those efforts that will lead to successful developments and those efforts that will only be a waste of time and resources.

It is generally accepted that a plaintiff must identify a trade secret with sufficient particularity so as to enable a defendant to delineate that which he is accused of misappropriating and a court to determine whether misappropriation has or is threatened to occur. *See, e.g., FMC Corp. v. Cyprus Foote Mineral Co.*, 899 F. Supp. 1477, 1484 (W.D.N.C. 1995); *IDX Systems Corp. v. Epic Systems Corp.*, 285 F.3d 581, 584 (7th Cir. 2002); *Del Monte Fresh Produce Co. v. Dole Food Co. Inc.*, 148 F. Supp. 2d 1322, 1325 (S.D. Fla. 2001); *Xerox Corp. v. IBM Corp.*, 64 F.R.D. 367, 371-72 (S.D.N.Y. 1974). We find persuasive the analysis set forth by *FMC*, 899 F. Supp. at 1484, where a preliminary injunction was denied

because the plaintiff failed to "present[] evidence of specific trade secrets and processes."

Just as the plaintiff in *FMC* asserted trade secrets at almost every stage in the production of their products but offered only general evidence in support of those assertions, Analog has asserted there are trade secrets at risk and has submitted schematics and documents in support of their claim. Analog has failed to show what, if anything, in those schematics is specifically deserving of protection. Instead, Analog has made general claims concerning areas of ADC production and design and requested a preliminary injunction that acts as an absolute bar to Maxim's future efforts in ADC research through its employees, Michalski and Karnik. For example, in their proposed findings of fact to the trial court, Analog stated the following in defining their trade secrets:

47. The circuit designs and solutions developed by Analog Devices

48. While each of Analog's designs and solutions, along with their specific implementations . . . may contain individual trade secrets, "it's a combination of all of the aspects which constitute trade secrets that make the device itself a trade secret."

. . .
50. "The techniques and the variations and the adjustments that are required to make . . . successful components"

. . .
52. Trade secrets can be found in the overall design and implementation of Analog's 94xx products, even if all the constituent parts of that design were publicly known.

Analog invites this Court to acknowledge the existence of trade secrets in the submitted information without bearing the burden of

identifying those trade secrets. We will not read into Analog's claims specific identification of devices worthy of trade secret protection when it is Analog's burden to come forward with evidence of such devices.

To the extent Analog has claimed the chips or their production processes and techniques are trade secrets, the evidence presented as of yet in the record discloses ADCs are easily and readily reverse engineered.¹ To the extent Analog has attempted to specifically state components deserving of trade secret protection,² the record presently before this Court shows those examples do not merit trade secret protection because they are either generally known in the industry, are process dependent so as to preclude misappropriation, or are readily ascertainable by reverse engineering. To the extent Analog has claimed it possesses a trade secret as to the process of determining those efforts that will lead to successful developments and those efforts that will

¹As the trial court found, development of an ADC takes millions of dollars and anywhere between one and one-half to three years. However, an ADC with 12-bit resolution and a sampling rate of 65 MSPS can be reverse engineered in twelve weeks at a cost of \$26,000 to \$35,000, depending on the type of information to be extracted.

²Specific examples of trade secrets given by Analog include, among others, a technique for adjusting the duty cycle of the clock using fusible links, the implementation of the duty cycle adjustment clock, the absence of MOS switches at the inputs and the use of metal resistors, track-and-hold circuits, the slew rate enhancement circuits and the switch for gain reduction mode achieved using a MOS switch, the use of MOS switches and resistors for gain reduction in the MDAC amplifier, the BiCMOS comparator cell using bipolar devices in the latch cell, how Analog models the parasitic and how the BiCMOS comparator works with the ADC as a whole, electrostatic discharge protection circuitry, and the specific implementation of a reference generator block.

only be a waste of time and resources, the evidence presently indicates the substantial differences in the integrated circuits to be produced by Maxim will require new experimentation and development of new ways to effectively identify efforts that will lead to successful development. Otherwise, any process by any former Analog employee to develop new, different, or superior technologies, in the field of ADC design, would be precluded as a trade secret belonging solely to Analog.

C. Inevitable Disclosure

Analog urges this Court to adopt the doctrine of "inevitable disclosure"³ and find it is inevitable that Michalski and Karnik will disclose trade secrets of Analog during the course of their employment if they are allowed to work for Maxim. We need not reach the consideration of whether to adopt the doctrine of inevitable disclosure since it would not be applied in the fashion promoted by Analog.

Analog's interpretation of the doctrine of inevitable disclosure would permit the injunction sought to act as an absolute barrier to working in the field of ADC design without reference to the composition, geometry, or process used to produce the ADC, all of which impact the relevance of the trade secrets for which

³In simplest terms, the doctrine applies when an employee who knows trade secrets of his employer leaves that employer for a competitor and, because of the similarity of the employee's work for the two companies, it is "inevitable" that he will use or disclose trade secrets of the first employer. See K. Roberson, *South Carolina's Inevitable Adoption of the Inevitable Disclosure Doctrine: Balancing Protection of Trade Secrets with Freedom of Employment*, 52 S.C.L. Rev. 895 (2001).

protection is sought. Maxim has already produced ADCs with the resolution and speed denoted in the injunction. Again we find the analysis of *FMC* to be instructive: "if the doctrine is applied as urged by [Analog], then no employee could ever work for its former employer's competitor on the theory that disclosure of confidential information is 'inevitable.' In fact, if [Analog] succeeded in this case, then [Michalski and Karnik] would not be able to market [their] expertise." *FMC*, 899 F. Supp. at 1482-83.

Analog ignores the important countervailing considerations at issue: both Michalski and Karnik have a great deal of general skill and knowledge as engineers who have studied for and worked in this area for years. These skills are not specific to the techniques and processes used by Analog, and both engineers are free to market those skills to competitors. "The mere fact that [they] acquired some of these skills while working for [Analog] does not mean that [they] must work for [Analog] or not work at all." *Id.*, 899 F. Supp. at 1483. Michalski and Karnik have merely "exercised the privilege every citizen has of accepting employment in the field for which he is trained." *Engineering Associates v. Pankow*, 268 N.C. 137, 140, 150 S.E.2d 56, 59 (1966).

Michalski and Karnik have signed agreements not to divulge confidential information belonging to Analog, Maxim has instructed them not to do so, and there is no evidence that any party to this litigation intends to induce them to break their agreement.⁴ "[A]n

⁴While North Carolina case law does allow for an injunction preventing an employee from working for a former employer's competitor where there is a showing of bad faith, underhanded

injunction [will not] be issued to restrain one from doing that which he is not attempting to do." *Laboratories, Inc. v. Turner*, 30 N.C. App. 686, 696, 228 S.E.2d 478, 486 (1976). While Analog might have prevented Michalski and Karnik from working in the field of HSHR ADC design and development in the event they ceased working for Analog by making a non-compete clause part of their employment contract, no such clause has been presented.

II. Irreparable Harm

In light of our holding concerning likelihood of success on the merits, Analog cannot show the denial of a preliminary injunction will work an irreparable injury.

In sum, Analog has failed to present sufficient evidence tending to show misappropriation is threatened or actually going to occur. Analog has yet to come forward with evidence of or sought protection for particular and specific devices, combinations, or processes that would merit trade secret protection. "[A]n injunction [should not issue] merely to allay the fears and apprehensions or to soothe the anxieties of a party." *Turner*, 30 N.C. App. at 696, 228 S.E.2d at 486. Accordingly, we hold the

dealing, or inferred misappropriation (justified by circumstances tending to show the new employer plainly lacks comparable technology), no showing has been made that misappropriation is imminent or occurring. See *Barr-Mullin, Inc. v. Browning*, 108 N.C. App. 590, 424 S.E.2d 226 (1993). Moreover, while there are facts indicating Michalski's conduct was questioned by the trial court, the trial court rejected Analog's proposed finding of fact that Michalski's actions were in bad faith. The trial court specifically found that Karnik acted in good faith at all times relevant to this litigation and that there was no evidence Michalski used any of Analog's confidential information.

trial court did not err in refusing to issue the preliminary injunction.

Affirmed.

Judges McGEE and HUNTER concur.