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Sent: Friday, July 07, 2006 3:40 PM

To: AB98 Comments

Cc: Ellis, William T.

Subject: COMMENTS ON INTERIM GUIDELINES FOR EXAMINATION OF PATENT APPLICATIONS
FOR PATENT SUBJECT MATTER ELIGIBILITY

Please see attached.

COMMENTS RESPONDING TO REQUEST FOR COMMENTS ON INTERIM
GUIDELINES FOR EXAMINATION OF PATENT APPLICATIONS FOR PATENT
SUBJECT MATTER ELIGIBILITY December 20, 2005

**I. A “SIGNAL,” PROVIDED THAT IT IS PROPERLY DEFINED AS
GENERATED, REAL-WORLD, PHYSICAL, DETECTIBLE AND
REPEATABLE, IS A MANUFACTURE AND/OR COMPOSITION OF MATTER
THAT IS STATUTORY SUBJECT MATTER, JUST LIKE A COMPUTER-
READABLE DISK.¹**

A “signal,” provided that it is properly defined as generated, real-world, physical, detectible and repeatable, is a manufacture and/or composition of matter and/or within the penumbra of “process” and is statutory subject matter. Whether or not any particular signal is patentable depends on whether it contains functional descriptive material (e.g., not email) that, “if imported to a computer would cause a computer to implement a process or become a specialized machine.”² That is, the proper question for patent eligibility is whether the signal is capable of forming an operable component in a specialized machine to perform a function and is novel and non-obvious.

That a computer-readable disk that is transported through the mail, and whose functional material must be downloaded to the RAM in a computer before it can be an actual functioning component in a machine is patentable, while a physical signal transported on a carrier with the same functional material, that when downloaded into the same RAM to become a functioning component in a machine is NOT, provides a roadmap for copyists. With this restricted interpretation, overseas transmissions of computer programs into this country are not actionable under 35 U.S.C. § 271(a), except via suits against individual human customers. To pursue the unauthorized signal providers that have put an infringement in motion, the patentee is left in the

¹ See *In re Beauregard*, 53 F.3d. 1583, 1584 (Fed. Cir. 1995).

² *In re Alappat*, 33 F. 3d 1526, 1545 (Fed. Cir. 1994); *WMS Gaming Inc., v. International Gaming Technology* 184 F. 3d 1339 (Fed. Cir. 1999).

murky waters of § 271(b), which require the patentee to prove the additional element of the accused indirect infringer’s intent to induce infringement.³

II. The Categories of 35 U.S.C. § 101 are Interpreted Broadly to Encompass Unforeseen Technological Developments.

The Supreme Court has interpreted the four categories of invention listed in 35 U.S.C. § 101 broadly to include “anything under the sun that is made by man.”⁴ Subject matter is only excluded from patentability *per se* under § 101 if it is a law of nature, physical phenomenon or an abstract idea.⁵

In *Diamond v. Chakrabarty*, the Supreme Court construed the terms “manufacture” and “composition of matter,” thereby demonstrating the Court’s expansive interpretation of these terms as applied to Chakrabarty’s claimed subject matter. The Court first interpreted “manufacture” to mean “the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery.”⁶ “Composition of matter” was interpreted as “all compositions of two or more substances and...all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids.”⁷

In finding that Chakrabarty’s claimed micro-organism was patentable, the Court explained that the claims were directed to a “non-naturally occurring manufacture or

³ It is unclear how a court would apply 271(c) if the transmission “signals” are not statutory subject matter, i.e., can signals still be a “component” under 271(c) if they are not statutory subject matter.

⁴ *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980).

⁵ *Id.* at 309 (1980); *Diamond v. Diehr*, 450 U.S. 175, 185 (1981).

⁶ *Diamond v. Chakrabarty*, 447 U.S. at 308 (quoting *American Fruit Growers, Inc. v. Brogdex Co.*, 283 U.S. 1, 11 (1931)).

⁷ *Id.* (quoting *Shell Development Co. v. Watson* 149 F.Supp. 279, 280 (D.C. 1957)).

composition of matter,”⁸ but did not specify which. Further, the Court concluded that the micro-organism was patentable subject matter because the patentee “produced a new bacterium with markedly different characteristics from any found in nature and one having the potential for significant utility.”⁹

Similarly, in *Diamond v. Diehr*, the Court concluded that a process for curing synthetic rubber using a known mathematical formula and a digital computer was statutory subject matter,¹⁰ because the claims at issue did not seek to foreclose others from using the known mathematical equation.¹¹ Instead, the claims were directed to statutory subject matter because the equation was used in conjunction with several other steps in order to cure synthetic rubber.¹²

Chakrabarty and *Diehr* both illustrate how newly created subject matter, argued to be included in one of the narrow judicially-created exceptions to patentability, were found to be patent-eligible subject matter because they were new, had “markedly different characteristics from anything found in nature,” and had utility.

The Federal Circuit Court of Appeals has followed the Supreme Court’s expansive reading of § 101. In *State Street Bank and Trust v. Signature Financial Group, Inc.*¹³ The Federal Circuit stated that in order to determine whether a claim encompassed statutory subject matter, the focus of the inquiry should not be on which of the four categories a claim is directed.¹⁴ This is a recognition of the mutability of the boundaries/definitions of these

⁸ *Id.* at 309. Emphasis added.

⁹ *Id.* at 310. Emphasis added.

¹⁰ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981).

¹¹ *Id.* at 187.

¹² *See id.* at 188.

¹³ 149 F.3d 1368 (Fed. Cir. 1998).

¹⁴ *See id.* at 1375.

categories. Instead, the Federal Circuit explained that the determination should depend on the whether the subject matter produces a “useful, concrete and tangible result”.¹⁵

As noted in *Chakrabarty*,¹⁶

“a statute is not to be confined to the particular application[s] . . . contemplated by the legislators.” Barr v. United States, 324 U.S. 83, 90 (1945); Browder v. United States, 312 U.S. 335, 339 (1941); Puerto Rico v. Shell Co., 302 U.S. 253, 257 (1937). This is especially true in the field of patent law. A rule that unanticipated inventions are without protection would conflict with the core concept of the patent law that anticipation undermines patentability. See Graham v. John Deere Co., 383 U.S., at 12-17 (1966). Mr. Justice Douglas reminded that the inventions most benefiting mankind are those that ‘push back the frontiers of chemistry, physics, and the like.’ Great A. & P. Tea Co. v. Supermarket Corp., 340 U.S. 147, 154 (1950) (concurring opinion). Congress employed broad general language in drafting § 101 precisely because such inventions are often unforeseeable.”

We are therefore of the opinion that the proposal in the PTO Interim Guidelines¹⁷ to consider signal claims ineligible for patent protection because they do not fall “within any of the categories of patentable subject matter set forth in § 101” is flawed.¹⁸ The Supreme Court precedent does not indicate that newly-created subject matter is to be tested against four narrow categories, because it is simply not possible to accurately predict the evolution of technology or to enumerate the penumbra of the categories. Rather, as precedent indicates, Congress intended the categories to have mutable boundaries. To treat them otherwise would violate the

¹⁵ *Id.* at 1373.

¹⁶ 447 U.S. 303, 315-16.

¹⁷ *Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility*, (“PTO Interim Guidelines”), 70 F.R. 75451, Annex, Dec. 20, 2005.

¹⁸ *See id.* at Annex IV, p. 55.

Congressional intent that patent-eligible subject matter encompass “anything under the sun made by man.”¹⁹

III. Properly Defined Signals are Patent-Eligible Subject Matter

Applying the statute expansively under Supreme Court and Federal Circuit case law, properly defined signals are patent-eligible statutory subject matter.

A. A Properly Defined Signal is a “Manufacture” Under 35 U.S.C. § 101

A real-world, physical form (*i.e.* electro-magnetic, optical, sound, etc.), modulated, detectible, repeatable and generated (*i.e.* not naturally occurring in nature) signal containing functional descriptive information is a “manufacture” under 35 U.S.C. § 101. It meets the *Diamond v. Chakrabarty* definition of “the production of articles for use from raw or prepared materials by giving these materials new forms, qualities, properties, and combinations, whether by hand-labor or by machinery.”²⁰

Signals are real-world, physical phenomena. They have particular forms (*i.e.*, electro-magnetic, optical, sound, etc.), are modulated, detectible and repeatable. Signals with functional descriptive information do not occur in nature. Rather they are generated with the conscious intervention of human beings, making use of a form of energy to convey a component of a machine over a medium.

The PTO Interim Guidelines do not provide a coherent reason as to why signals conveying functional descriptive information should not be considered a manufacture. The first argument advocated in the Guidelines is that signals are “natural phenomena.” But this is clearly not the case for any commercially relevant signal with functional descriptive material.

¹⁹ *Chakrabarty*, 447 U.S. at 308 (stating “[t]he Committee Reports accompanying the 1952 Act inform us that Congress intended statutory subject matter to ‘include anything under the sun that is made by man.’”).

²⁰ See Footnote 6.

As a second argument, the PTO Interim Guidelines admit that a signal is “energy,” but then argue that it is not “physical matter.” But this misinterprets both the breadth of the category “manufacture” and the meaning of the term “physical”. All manufactures are a combination of both matter and energy. A signal is a physical phenomenon that can be detected and used. A “signal” in water, or air, or an optical fiber, or a wire is real matter that has been modulated/perturbed using a form of energy. Try putting your Congressman in the direct path of a microwave signal tower and then explaining to him that what he felt was not “physical.” Signals are tangible articles of commerce that have value for the functional descriptive material encoded and transmitted upon them.

B. A Properly Defined Signal is a “Composition Of Matter” Under 35 U.S.C. § 101

A real-world, physical form (*i.e.* electro-magnetic, optical, sound, etc.), modulated, detectible, repeatable and generated (*i.e.* not naturally occurring in nature) signal with functional descriptive information is a “composition of matter” under 35 U.S.C. § 101.

Signals are real-world, physical phenomena. They have particular forms (*i.e.*, electro-magnetic, optical, sound, etc.), are modulated, detectible and repeatable. Signals with functional descriptive material do not occur in nature. Rather, signals are generated with the conscious intervention of human beings, making use of physical matter modulated by a form of energy to convey information.

Thus, signals with functional descriptive information are “compositions of matter” under 35 U.S.C. § 101. A properly defined signal meets the definition set forth in *Diamond v. Chakrabarty* for a “composition of matter” as including “all compositions of two or more substances and...all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gasses, fluids, powders or solids.”²¹

²¹ *Diamond v. Chakrabarty*, 447 U.S. 303 at 308 (1980).

C. A Signal Fits within the Penumbra of “Process”

A “signal” is a derivative of a process. A “signal” includes functional descriptive material that comprises instructions that cause a computer to perform a sequence of steps that is a process. Although a transmitted signal does not perform steps as it propagates, it both defines and causes such steps to be performed when loaded in the RAM of a computer. Thus, a “signal” easily fits within the mutable definition, i.e., the penumbra, of a “process.”

D. A Properly Defined Signal is Not Excluded from Eligibility for Patent Protection under Supreme Court Precedent

Supreme Court precedent interprets patent eligibility under 35 U.S.C. § 101 expansively to include “anything under the sun made by man,”²² precisely because one cannot anticipate the form the inventions will take in the future. “A rule that unanticipated inventions are without protection would conflict with the core concept of the patent law that anticipation undermines patentability.”²³ In *Chakrabarty*, the Court restricted its earlier holdings in *Benson* and *Flook* as excluding from patent eligibility only pure “laws of nature, physical phenomena and abstract ideas.”²⁴

1. Properly defined Signals are Not a Law of Nature

Signals conveying functional descriptive material fit none of these exclusions cited in *Chakrabarty*. First, a signal could not be mistaken for a law of nature.²⁵ Rather, a properly

²² *Id.* at 309 (1980).

²³ *Id.* at 316 (1980).

²⁴ *Id.* at 309 (1980). See also *Diehr*, 450 U.S. at 185.

²⁵ A properly defined “signal” with functional descriptive material is not a law of nature, like the law of gravity referenced in *Chakrabarty*, 447 U.S. at 309, 206 USPQ at 197. It is not like the law of electromagnetism, per *O’Reilly v. Morse*, 56 U.S. 62, 113-114 (1853). It is not a mathematical algorithm, as in *Parker v. Flook*, 437 U.S. 584 at 585.

56 U.S. 62, 114-19 (1853).

defined signal is the application of the laws of nature to provide the generation and transmission of a modulation containing functional descriptive subject matter on physical matter using energy, with the end result being an article of commerce that has value.

2. Properly defined Signals are Not a Natural Phenomenon

Signals could not be mistaken for a natural phenomena. Instead, a signal conveys information intended by human beings to be transmitted and is not a naturally occurring thing in nature. While the physical principles which are applied to generate and transmit signals are based on natural laws, this does not render the signals themselves unpatentable, since all patentable subject matter depends on the application of natural laws.

3. Properly defined Signals are not Abstract Ideas

Signals are also not “abstract ideas.” Rather they are directed to real-world applications and, when loaded into RAM of a computer, operate as a component of that computer to yield a real-world, repeatable, concrete result.²⁶ A properly defined signal is a transmission vehicle containing a modulation that has real-world value in the commercial world. Money changes hands to obtain it.

IV. Signal Claims Have Practical Benefits

Today, an increasing number of business transactions take place via transmission of signals on the Internet.²⁷ The Internet has ushered in an age of direct cross-border interaction between consumers and business providers. As such, an increasing number of so-called “Internet” patents have emerged within the last ten years directed toward innovations developed to support this growing economic platform. The prospects for this explosion in growth had prompted the United States Patent and Trademark Office to release its Examination Guidelines

²⁶ *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998).

²⁷ An estimated \$22.9 Billion in sales was conducted via the Internet the end of 2005. See *Quarterly Retail E-Commerce Sales*, U.S. Census Bureau, <http://www.census.gov> (2006).

for Computer-Related Inventions in 1996 (hereinafter “Guidelines”). The PTO Guidelines are not statutory and do not rise to the level of a Federal Regulation. But, the Guidelines recognized the patent eligibility of signals. The Guidelines recognized that a carrier wave was a computer-readable medium.²⁸ Further, the Guidelines recognized that the data signal was comprised of specific software.²⁹ Accordingly, the Guidelines concluded that the claim was directed to an article of manufacture.³⁰

The unauthorized transmission/transport of new and non-obvious computer programs must be actionable whether transported on a computer-readable disk, or loaded into the memory of a computer, or on a physical carrier wave or baseband. Under § 271(a), “the transportation of a patented ‘carrier wave’ manufacture or composition of matter into the United States from an offshore Web site must constitute an infringing importation.”³¹ Likewise, Web advertisements for the sale of such “signals” must constitute an “offer for sell” under § 271(a).

The recent decision of the Federal Circuit in *NTP, Inc. v. Research in Motion, Ltd.*,³² puts patentees in an awkward position with regard to patented communication methods where at least one step is carried out by non-licensees outside of the United States. After the *NTP* case, a non-licensee using the Internet or other geographically distributed communication system to practice a patented method need only practice one step of the method outside of the United States to avoid direct infringement under 271(a) of the method claims.³³ The patentee cannot find relief under the provisions of § 271(g), since the *NTP* court held that this section does not include

²⁸ See USPTO Examination Guidelines for Computer Related Inventions (1996).

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² 418 F.3d. 1282 (Fed. Cir. 2005).

³³ See *id.* at 1313-22.

“transmissions” of “specially formatted” information, *i.e.* signals.³⁴ Section 271(f) is likewise unavailable without a showing that hardware has been exported.³⁵ Finally, system claims will not reach the entity instigating the infringement unless there are sufficient proofs available to demonstrate that “control of the system is exercised and beneficial use of the system obtained” in the United States, or the facts are such as to allow a count based on inducement under §271(b). The end result is that, except for some limited fact patterns, the overseas entity causing the taking of the invention is free and clear of the patent law, even though it is extracting its profits from commercial sales in the United States.

V. Conclusion

A properly defined signal claim is statutory subject matter. 35 U.S.C. § 101 broadly includes “anything under the sun that was made by man.”³⁶ A properly defined signal is a manufacture and/or a composition of matter and/or within the penumbra of “process,” as defined by case law precedent. Further, a properly defined signal is not excluded from patent eligibility under settled precedent. Moreover, the patentability of signals provides U.S. inventors necessary patent protection in today’s continually expanding cross-border marketplace. Thus, we believe that the USPTO Interim Guidelines must be revised to correctly indicate that signals are patentable subject matter under 35 U.S.C. § 101.

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³⁴ *See id.* at 1322-25.

³⁵ *See id.* at 1321-23.

³⁶ *Diamond v. Chakrabarty*, 447 U.S. 303 at 309 (1980).

³⁷ The opinions presented in this set of Comments do not necessarily represent the views or the position of the firm of Foley & Lardner LLP.