

A New Bright Line Rule for Electronics Patents - A “Circuit” is more than a “Means”

By Steven C. Sereboff and Mitsuyoshi Hiratsuka¹

The electronics industry received a gift from the leading US court on Patent Law. That gift came in the form of a bright line rule on claim interpretation. The rule arose from the case of *Apex v. Raritan Computer*.² In short, the *Apex* rule holds that if a claim element is called a “circuit,” then the element is not in “means plus function format.”

Under the *Apex* rule, when a claim for an apparatus or device in a US patent has an element recited as a type of “circuit” which performs a function, that element is presumed to cover any circuit which performs the recited function, not merely the circuit shown and/or described in the patent. Furthermore, the term “interface circuit” by itself takes the claim beyond the circuit shown and/or described in the patent. Terms such as “programming circuit” and “logic circuit” are presumed to do so also.

As explained below, the *Apex* rule provides significant benefits to the electronics industry. First, for electronics companies that own patents, the *Apex* rule may make their patents broader. As a result, the *Apex* rule makes electronics patents more valuable. Second, for electronics companies staying clear of others’ patents, the *Apex* rule makes claim construction more predictable. As a result, the *Apex* rule can reduce the risk and can cost of patent litigation.

A Primer on Means-Plus-Function

All US patents end with one or more “claims” which are supposed to precisely identify and define the patented invention. A claim is written as a single sentence, generally broken up into a number of parts. The major parts of an apparatus claim are often referred to as “elements.” Each major and minor requirement of a claim is referred to as a “limitation.”

A patent’s claims must either cover an apparatus or describe a method.³ Yet, because real world electronics products have both structure and function, it is virtually impossible to claim electronics without mixing physical structure and functional steps. For example, an electronic circuit can be described by its structure (e.g., a combination of transistors, resistors, capacitors and their interconnections) or by its function (e.g., a circuit which filters an incoming signal to a specific band). A claim which covers a circuit’s function will usually be more valuable than a claim to the circuit’s structure.

To accommodate this situation, the Patent Act provides that:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.⁴

This paragraph expresses a compromise – you can claim your apparatus in functional terms, but your claim will only cover the apparatus (i.e., “the structure”) shown in the patent and structural equivalents. This is known as *means-plus-function* format.

Especially over the last five years, court decisions have repeatedly shown that *means-plus-function* elements are narrower than non-*means* elements. Thus, litigation often focuses on whether an element is in *means-plus-function* format or not. The patent owner usually wants the claim to be broader (i.e., non-*means*), and the accused infringer usually wants the claim to be narrower (i.e., *means-plus-function*).

This interpretation of *means-plus-function* elements is not universal. Indeed, in Japanese patent practice, *means-plus-function* elements get broader scope.

A claim element that actually uses the word “means” invokes a rebuttable presumption that it is in *means-plus-function* format. By contrast, an element that does not use “means” will trigger the rebuttable presumption that it is not in *means-plus-function* format. As can be seen, the word “means” is central to the analysis.

However, even if the word “means” is absent, the element is in *means-plus-function* format if the element only uses functional terms. There is usually a low threshold to show presence of structure in an element, whether or not the word “means” is present.

To help determine whether a term recites structure, a court examines whether the term has an understood meaning in the relevant technical field. As an aid in making this determination, the court will consider whether the term has a reasonably well understood meaning in the relevant technical field. Often, courts consider the testimony of experts, dictionaries and treatises for evidence of a well understood meaning. Even if the patent defines a particular term by its function, the term is not automatically indicative of *means-plus-function* interpretation.

Indeed, a simple change may be all that is necessary to foreclose *means-plus-function* interpretation. A change of word form may do the trick. For example, instead of calling an element a “means for detecting,” it could be called a “detector.”⁵ Patentees have also succeeded by substituting a synonym for the word “means.” For example, instead of calling an element a “detent means,” it could be called a “detent mechanism.”⁶

Case History

Apex and its competitor Raritan Computer sell KVM (keyboard/video/mouse) switches. KVM switches allow multiple servers to be controlled from a single workstation. With a KVM switch, you do not need a separate keyboard, video monitor and mouse for each server. KVM switches also allow for simpler keyboard, video and mouse cabling.

Apex asserted three related patents⁷ against a number of Raritan Computer’s products. The patents each had a number of claims, each of which covered a KVM

switch.⁸ In each of the claims, the KVM switch comprised a number of parts, or “elements.” To infringe one of Apex’s claims, a Raritan Computer KVM switch would have to have all of the elements of the claim.

The case initially went before a lower court judge – the parties chose not to use a jury. Since both Apex and Raritan Computer are relatively small, the cost of the litigation was probably important. In general, the cost of litigation increases with the time the suit remains pending. By forgoing their right to a jury and by expediting the suit, they were able to obtain a final decision from the lower court in nine months.

A central issue was the meaning of several claim elements. The lower court’s resolution of these disputes necessarily impacted his decision on whether the Raritan Computer’s KVM switches infringed any of the Apex patents. These elements will be referred to herein as the CIRCUIT, UNIT and INTERFACE elements.

In the first patent,⁹ the disputed elements included:

a first interface circuit for receiving keyboard and cursor control device signals from the workstation;

an on-screen programming circuit that produces video signals for display on the video monitor;

a second interface circuit disposed between the programmable switch and the selected computer for supplying the keyboard and cursor control device signals routed through the programmable switch to the selected computer; and

a programmed logic circuit coupled to the first interface that transmits the keyboard and cursor control device signals to the programmable switch and controls the on-screen programming circuit to produce the video signals upon the detection of a predefined input from a user of the workstation, the programmed logic circuit further operating to detect keyboard or cursor control device signals received while the on-screen programming circuit is producing video signals on the video monitor and to control the programmable switch in response to the keyboard or cursor control device signals detected.

In the second patent,¹⁰ the disputed elements included “signal conditioning units.”

In the third patent,¹¹ the disputed elements included “computer-side interface,” “user-side interface,” “analog video overlay image generating circuit” and “analog video overlay circuit.”

The lower court narrowly interpreted the CIRCUIT, UNIT and INTERFACE elements. According to the lower court, those elements were in *means-plus-function* format. In the lower court's view, the terms "circuit" and "unit" were so generic as to be devoid of structure. The lower court concluded that "interface" did not connote any structure. Furthermore, in the lower court's view, the elements had no other terms which provided structure to those elements.

Based upon his interpretation of the CIRCUIT, UNIT and INTERFACE elements,¹² the judge held that Raritan Computer's KVM switches did not infringe any of the claims.¹³ Apex appealed the lower court's adverse decision.

The Court of Appeals Decision

The appeals decision was made by Judges Newman, Rader and Gajarsa. Judge Gajarsa wrote the decision. Therefore Judge Gajarsa's views necessarily dominated the decision. Judge Gajarsa has a degree in electrical engineering, is a former patent examiner and spent many years as a practicing patent attorney. Perhaps because of his time as a practicing patent attorney, Judge Gajarsa generally favors predictability over patent scope.

Judge Rader is known for his academic work in patent law. Judge Rader regularly teaches classes at major universities on patent law and co-authored a book for law students on patent law.

Like Judge Gajarsa, Judge Newman spent many years as a practicing patent attorney. She holds a Ph.D. in chemistry. However, unlike Judge Gajarsa, Judge Newman generally favors an expansive view of a patent's scope – often at the cost of seeming arbitrary. Judge Newman rarely favors bright line rules.

As has been seen in cases such as *Festo Corp v. Shoketsu Kinzoku Kogyo KK*, many judges of the US patent appeals court (the Court of Appeals for the Federal Circuit) disagree over whether predictability or claim scope is more important. *Apex* is an unusual case because a bright line rule actually resulted in broader claim scope.

The *Apex* appeal focused on claim interpretation, and particularly whether the CIRCUIT, UNIT and INTERFACE elements were in *means-plus-function* format. The appeals court began with a discussion of the basis for the *means-plus-function* format and its impact on claim interpretation.

As an initial matter, the appeals court recognized that none of the CIRCUIT, UNIT or INTERFACE elements contains the term "means." Thus, the presumption is against these elements being in *means-plus-function* format.

Turning to these terms themselves, the appeals court declined to decide whether the UNIT or INTERFACE elements are in *means-plus-function* format. The court did not feel that it had enough information to make a decision. In contrast, the appeals court felt that it had enough information to consider the CIRCUIT elements more closely.

The threshold issue was whether the term “circuit” itself connotes sufficient structure to perform the functions identified by each CIRCUIT element. As explained above, the lower court determined that the word “circuit” lacked sufficient structure to avoid *means-plus-function* interpretation. The appeals court instead held that the term “circuit” by itself connotes some structure, but by itself does not always connote sufficient structure to avoid *means-plus-function* interpretation. Absent any further evidence, one must conclude that a “circuit” element is not in *means-plus-function* format. Because Raritan Computer argued that Apex’s CIRCUIT elements were in *means-plus-function* format, the appeals court considered the other terms in those elements.

First, the appeals court looked to the direct modifiers of the term “circuit.” The appeals court held that the term “circuit” with an appropriate identifier could avoid *means-plus-function* interpretation.

In the Apex patents, each of the CIRCUIT elements is not just called a “circuit.” The CIRCUIT elements in the Apex patents are recited as “an interface circuit,” “a programming circuit” and “a logic circuit.” The appeals court considered “interface circuit,” but declined to consider “programming circuit” and “logic circuit” because it had insufficient information to make a decision.

As to “interface circuit,” the appeals court looked to dictionary definitions and held that they identified structure, including several examples. The appeals court defined the term as “any circuit that links one type of logic system with another.” Because the ordinary meaning of “interface circuit” in the relevant technical field connoted specific structure, the appeals court held that “interface circuit” was not in *means-plus-function* format.

The appeals court noted, though, that under different circumstances, “interface circuit” might not connote sufficient structure. For example, if the Apex patents had used or defined “interface circuit” in an unusual manner, then the dictionary definitions would not have applied.

It is interesting that the appeals court relied heavily upon dictionaries for guidance. Over the years, the courts have changed their position on the use of dictionaries. At one time, dictionaries were strongly favored. Later, they were disfavored. More recently, they have again fallen into favor.

In the end, the appeals court passed the case back to the lower court. The lower court must decide whether the UNIT, INTERFACE, “programming circuit” and “logic circuit” elements are in *means-plus-function* format.

¹ Copyright 2003. Steven C. Sereboff is a member of SoCal IP Law Group. Mr. Sereboff holds a J.D. from Boston University School of Law, and a B.S. in Electrical Engineering from the University of Maryland at College Park. His practice focuses on strategic intellectual property counseling, and he also handles patent and trademark prosecution, and licenses and contracts relating to intellectual property. Mr. Sereboff regularly supports corporate attorneys on IP aspects of corporate transactions and litigators on intellectual property litigation.

Mitsuyoshi Hiratsuka is a member of Isshiki & Co. Mr. Hiratsuka holds a B.S. and M.S. in Applied Physics from Tokyo University of Science, and a Master of Intellectual Property Law from Franklin Pierce Law Center. His practice patent includes strategic intellectual property counseling and patent prosecution in the field of electronics and physics.

² *Apex, Inc. v. Raritan Computer, Inc.*, case no. 02-1303 (Fed. Cir. April 2, 2003)

³ Claims sometime hybridize between apparatus and methods. For example, an apparatus may be claimed to be the result of a specified process. Likewise, a method may claim use of an apparatus.

⁴ 35 U.S.C. § 112, 6 (2000).

⁵ *Personalized Media Communications v. Int'l Trade Comm'n*, 161 F.3d 696, 705, (Fed. Cir. 1998).

⁶ *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996).

⁷ United States Patent Nos. 5,884,096 (“the '096 patent”), 5,937,176 (“the '176 patent”) and 6,112,264 (“the '264 patent”). The '096, '176, and '264 patents are all continuations of a patent application filed on November 12, 1997 that ultimately issued as United States Patent No. 5,721,842 (“the '842 patent”). Apex’s suit did not include the '842 patent.

⁸ Only claims 6-10 of the '096 patent were for methods of using KVM switches. Apex alleged that Raritan Computer infringed these claims, though they are not relevant to the subject of this article.

⁹ The '096 patent

¹⁰ The '716 patent

¹¹ The '264 patent.

¹² The judge disagreed with Apex on the interpretation of several other terms.

¹³ *Apex, Inc. v. Raritan Computer, Inc.*, 187 F.Supp.2d 141 (SDNY 2002).