

# Several Issues Relating to Construction of Means-plus-function Limitation in Patent Claims

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The Supreme People's Court's judicial interpretation has set out the basic principle for determination of means-plus-function limitation or element in claims, but to correctly apply it, it is necessary to further look into several issues, including how to harmonise the rules for determining means-plus-function limitation in patent prosecution and infringement finding, what standard to be observed in establishing means-plus-function limitation, and how to resolve infringement disputes in the absence, in the claims, description and appended drawings, of any specific mode for performing

function said in the claims. This article will be probing into those issues in an attempt to make some specific proposals with reference to the US law provisions and practice of patent prosecution and judicial trial in direction to the practical situations in China.

## I. Rules for determining means-plus-function limitation

The rules for determining means-plus-function limitation

have been incorporated in the Supreme People's Court's Judicial Interpretation of Several Issues Concerning Application of Law to Trial of Cases of Dispute Arising from Patent Infringement effective 1 January 2010, in which Article 4 provides: "for a technical feature in terms of function or effect as recited in a claim, the people's court shall determine the contents of such technical feature on the basis of the specific mode of performing said function or achieving said effect and the equivalent thereof as described in the description and the appended drawings". The means-plus-function limitation in the claims is not determined on the basis of the function recited in the claims, but defined on the basis of the specific mode, described in the description and appended drawings, of performing said function and the equivalents thereof. This way of construction is something directly drawn from the 35 U.S.C. 112.6 Specification.

#### 1. Provision of 35 U.S.C. 112 and USPTO's position

35 U.S.C. 112 provides: "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."

This form of technical feature in the claims is generally known as "means-plus-function limitation", as translated by this writer as functional feature in Chinese in this article as it is possible for "means-plus-function limitation" to be literally understood as describing both the structural means (or process step) and the function said means (or step) is intended to perform in the claims. But, by the means-plus-function limitation is, in fact, only meant that in the claims is only described the function said means (or step) is intended to perform, not the means-plus-function limitation of the means structure (or process step) that performs said function.

35 U.S.C. 112 is a provision added to the US Patent Act when the US Congress amended it in 1952. But the USPTO had been reluctantly to implement the law provision in the patent examination and grant. For them, 35 U.S.C. 112 is applicable only to patent infringement finding by the court, not to the patent prosecution at the USPTO. The USPTO has traditionally construed means-plus-function limitation in its broad sense in claims during the patent prosecution, believing that the means-plus-function limitation in a claim covers not only the specific mode in the description, but also all other specific modes of performing said function.

For the USPTO, so long as there exists any prior art that

performs the same function as the means-plus-function limitation in the claims, regardless of how great the difference between the prior art and the specific mode for performing the function disclosed in the specification it is possible to determine that the prior art has disclosed the corresponding means-plus-function limitation, and thus renders the patent application unpatentable. The USPTO treat the matter this way for these reasons. One, during patent prosecution, the applicant is free to revise the claim by amending description of the functions performed or reciting a particular implementation to distinguish the invention over the prior art so as to be granted the patent. Two, it is difficult for the PTO to determine the permissible range of equivalency of various particular implementation in different technical fields.<sup>1</sup>

#### 2. CACF's attitude and changes in USPTO's traditional position

On 14 February 1994, the US CACF made decision *en banc* in *In re Donaldson Co.* clearly denying the USPTO's above position<sup>2</sup>. In response, the USPTO issued the examination guidelines relating to the characteristics of means-plus-function limitation to the examiners for assessing the scope of means-plus-function elements in application claims. These guidelines were published in the Official Gazette on May 17, 1994. The guidelines and changes thereto, effective 1 December 1997, now incorporated in the MPEP beginning at Section 2181, instruct the examiners to change their position on examining functional claim limitations, reversing its traditional practice for many years. On 16 June 2000, the USPTO established a supplemental guideline for examination, intended to establish even greater uniformity and to make the prosecution record more clear as to when a claim element is being interpreted under 35 U.S.C. 112.<sup>3</sup>

#### 3. Current practical situations in China and harmonisation between rules of patent prosecution and patent infringement adjudication

It is provided in the State Intellectual Property Office's (SIPO) Guidelines for Patent Examination that: "functional features in the claims shall be construed as embracing all modes of performing said function"<sup>4</sup>.

Regarding the rules for construction of means-plus-function limitation of the claims, the Supreme People's Court's judicial interpretation set forth provisions similar to 35 U.S.C. 112 while the SIPO's provisions in the Guidelines for Patent Examination were of the same position as the USPTO's traditional position in 1994. It is yet to be made known whether the SIPO also believe that the judicial interpretation is to guide

the court to try patent infringement cases, but not applicable to its own patent prosecution<sup>5</sup>. For this writer, the rules for construction of means-plus-function limitation in the court's infringement determination and the SIPO's patent prosecution should be consistent, and the rules set forth in the judicial interpretation should be followed in both situations. It is hoped that this would not take so long as in the case between the USPTO and the Federal Courts in the U.S..

## II. Standard for construing means-plus-function limitation

### 1. US construction standard

It is provide in the USPTO's MPEP<sup>6</sup> that if an element satisfies three requirements, a claim element will be interpreted by the PTO to invoke §112, paragraph 6 if three conditions are met: 1) the claim element uses the phrase "means for" or "step for"; 2) the phrase "means for" or "step for" is modified by functional language; and 3) the phrase "means for" or "step for" is not modified by structure, material, or acts for achieving the specified function. If the claim limitation does not use the phrase "means for" or "step for," an applicant may still invoke §112, paragraph 6 by showing the claim element is functional and does not include any structures, materials, or acts for achieving the recited function, i.e., that the claim element meets conditions 2) and 3).

On 9 February 2011, the USPTO issued the Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications<sup>7</sup> to have revised the preceding determination steps. Following is the revised provision:

Examiners will apply §112, paragraph 6 to a claim limitation that meets the following conditions: (1) the claim limitation uses the phrase "means for" or "step for" or a non-structural term that does not have a structural modifier; (2) the phrase "means for" or "step for" or the non-structural term recited in the claim is modified by functional language; and (3) the phrase "means for" or "step for" or the non-structural term recited in the claim is not modified by sufficient structure, material, or acts for achieving the specified function.

### 2. US CAFC's construction standard

The US CAFC take the view that if the words "means for" or "step for" performing a function are used in the claim, the corresponding feature is presumably a functional one. But the presumption can be reversed. If the claim also in-

cludes apparatus structure (corresponding to "means for") or production process (corresponding to "step for") for performing the function specified in the claim, then the presumption that the corresponding feature is a functional feature is reversed. Conversely, if the phrase "means for" or "step for" is not used in the claim, it is presumed that there is no means-plus-function limitation in the claim. But the presumption is also reversible. If the claim does not include apparatus structure or production process for performing the function said in the claim, or the description of the apparatus structure or production process for performing the function is not sufficient and precise, then the presumption that corresponding feature is not a functional one is reversed.

In *Aristocrat Technologies Australia Pty Ltd. v. Multimedia Games, Inc.*, 2008 WL 484449 (Fed. Cir. 2008) (non-precedential), the term "control means" in claims is directed to a computerised instant lottery machine and a limitation reciting "control means to control the operation of the display means ... the control means including storage means for storing an ordered set of numbered game results representing a set of pseudo tickets of a lottery game series which is currently in progress, random number selection means for generating game results for said ordered set of game results and means for storing the ordered set in the storage means at the commencement of each said game series, means for sequentially selecting a next game result from the ordered set in the order in which they are stored in response to operation of the initiating means and means for displaying a combination of indicia corresponding to the currently selected game result" The CAFC concluded that said feature was a means-plus-function limitation since ... the means-plus-function limitations subsidiary to the 'control means' do not recite sufficient structure to remove the 'control means' limitation from the ambit of 35 U.S.C.A. § 112.<sup>8</sup>

### 3. Perspective for determining means-plus-function limitation and requirement for non-means-plus-function limitation with respect to apparatus structure (or production process)

Whether a technical feature in a claim is a means-plus-function limitation is determined from the perspective of any person skilled in the art. In determining means-plus-function limitation, it should be determined whether any person skilled in the art believes whether said feature describes the apparatus structure (or production process) for performing the function of the element.

According to the US judicial practice, to prevent application of 35 U.S.C. 112, it is not required in the description of

a technical feature to present every specific structural detail (or specific process detail) performing said function of the technical feature disclosed in the description. Instead, only the means structure (or process steps) is required to be sufficient to perform said function. So long as the means structure (or process steps) is generally mentioned performing the particular function any person skilled in the art knows, even if the claim does not recite the specific structural details (or process details), and the structure (or process) is to cover a wide structural (or process) scope, said feature would not be taken as a means-plus-function limitation.

In *Lighting World, Inc. v. Birchwood Lighting, Inc.*, the CAFC noted that but “in considering whether a claim term recites sufficient structure to avoid application of section 112, paragraph 6, we have not required the claim term to denote a specific structure. Instead, we have held that it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.”<sup>9</sup>

In the Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications, the USPTO also provide that, however, §112, paragraph 6 will not apply if persons of ordinary skill in the art reading the specification understand the term to be the name for the structure that performs the function, even when the term covers a broad class of structures or identifies the structures by their function (e.g., “filters,” “brakes,” “clamp,” “screwdriver,” and “locks”). Sais Supplementary Examination Guidelines further provide that to determine whether a word, term, or phrase coupled with a function denotes structure, examiners should check whether: (1) the specification provides a description sufficient to inform one of ordinary skill in the art that the term denotes structure; (2) general and subject matter specific dictionaries provide evidence that the term has achieved recognition as a noun denoting structure; and (3) the prior art provides evidence that the term has an art-recognised structure to perform the claimed function.<sup>10</sup>

#### 4. Recommendation of standard for determining means-plus-function limitation in China

Neither the Supreme People's Court judicial interpretation nor the SIPO's Guidelines for Patent Examination mention the standard for determining means-plus-function limitation. For this writer, as in the U.S.A., whether a technical feature in a claim is a means-plus-function limitation should be

determined from the perspective of a person skilled in the art, and the determination should be made from this perspective both in the SIPO patent prosecution and the courts' patent infringement lawsuit. It is possible to draw on the US practice for the specific determination standard: if a technical feature said in a claim only mentions the function performed by an apparatus (or referred to as a device machine or instrument) without mentioning the structure of an apparatus (or referred to as a device, machine or instrument) for performing said function, said technical feature is a means-plus-function limitation; likewise, if a technical feature said in a claim only mentions the function performed by a step (or referred to as a process, method, or process steps), without mentioning the process steps of the step (or referred to as a process, method, or process steps) for performing said function, then the technical feature is a means-plus-function limitation.

Of course, it is not the case that the corresponding feature is naturally determined as a means-plus-function limitation so long as the claim mentions the function an apparatus or step performs. So long as a claim mentions the structure of an apparatus for performing the function, besides the function the apparatus performs (while mentioning the function a step performs, also mentions the process steps of the step performing said function), then the corresponding feature is not a means-plus-function limitation.

Besides, this writer takes the view that, to prevent it from being determined as a means-plus-function limitation, it is not required that the claim mentions every specific structure (or process) of a structure (or step). Instead, it only requires that, for a person skilled in the art, said structure (or process steps) be sufficient to perform said function.

In other words, it is not the case that so long as a claim is drafted using the term of generic concept the technical feature that is described with the generic concept in a claim is a means-plus-function limitation. It is common and necessary to use an outlining generic concept to draft a claim. But if a generic concept is so generic that, for a person skilled in the art, said apparatus structure (or process steps) is no longer sufficient to perform said function, then the technical feature described with said generic concept is a means-plus-function limitation.

As for what is meant by “for a person skilled in the art, said apparatus structure (or process steps) is sufficient to perform said function”, the court has explored the issue, in a positive manner, in a case of dispute over infringement of the

patent for the utility model of “bus stop e-signboards showing multiple bus line services”<sup>11</sup>, which this writer reviewed as the chief judge. In the case has been developed a more specific standard: if the apparatus structure (or process steps) for performing the function of a technical feature in a claim exists in the art, the corresponding apparatus structure (or process steps) is relatively well established and known to any person skilled in the art, then said technical feature of the claim is not a means-plus-function limitation, or it is.

### III. Significance of allowing use of means-plus-function limitation in claims

If a technical feature in a claim can be described with a structural or process-step feature, but is described with a means-plus-function limitation in the claim, the scope of protection of the claim, in general, is possibly not broadened, but narrowed down. On the point, the US CAFC noted, in *Marsh-McBirney, Inc. v. Montedoro-Whitney Corp.*, 882 F.2d 498, 11 U.S.P.Q.2d 1794 (Fed. Cir. 1989),<sup>12</sup> that the claim recited use of “a probe” as part of a flow meter for measuring flow in sewers. The specification described use of an electromagnetic probe, whereas the accused device used an acoustic probe for the same purpose. The infringer argued his case of noninfringement on the ground that the acoustic probe worked so differently from the electromagnetic probe that the two were not equivalent. The court disagreed, finding infringement on the ground that the claim recited broadly a “probe,” not an “electro-magnetic probe,” and the acoustic probe literally satisfied the language. The CAFC noted that the result might have been different if the claim had recited “means for probing” rather than “a probe”. An analysis under 35 U.S.C.A. § 112, paragraph 6, would have considered significant the defendant’s arguments that acoustic probes are not equivalent to electromagnetic probes. If the court had found that the two types of probes are not equivalent, literal infringement would not be possible<sup>13</sup>. Since some probes are not equivalent in structure to an electromagnetic probe, the claim in means-plus-function terms is narrower than a claim that recites “a probe”.

Theoretically, the means-plus-function limitation can be construed in two ways: one, in the patent prosecution and patent infringement suit, a technical feature of the type is viewed as embracing all modes of performing the function; two, in the patent prosecution and patent infringement suit, a means-plus-function limitation is construed as merely cover-

ing the specific modes in the description for performing the function and the equivalents thereof. The first way is not conducive for an applicant to be granted patent as, according to it, the claim reciting a means-plus-function limitation is more likely to be determined as not possessing novelty and inventiveness. But once patented, it has a very broad scope of protection; the second way is just the opposite.<sup>14</sup>

This writer is for the position of the US Patent Act and Supreme People’s Court’s judicial interpretation. The direct feature showing an invention is the structure of a product or step of a process. The practice of using means-plus-function limitation to define the scope of a claim should be limited to an extent so that a patent applicant uses means-plus-function limitation in the claim only where it is impossible to use features, such as structural feature or process steps, to describe or it is more clear to use a means-plus-function limitation to describe features.<sup>15</sup>

A means-plus-function limitation in the claims is defined as a specific mode described in the description and appended drawings for performing said function and the equivalents thereof has actually turned the means-plus-function limitation in the claims into a short-hand way of the corresponding specific modes described in the description and appended drawings for performing said function, so as to make it unnecessary to describe the modes in the description and appended drawings, thus making it convenient to draft the claims under some circumstances.

### IV. How to treat cases of infringement disputes when the claims and description and appended drawings do not describe specific modes for performing said function

#### 1. Specific and express provisions on claims in 35 U.S.C. 112, paragraph 2

35 U.S.C. 112, paragraph 2 provides that “the specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention”.

Since the means-plus-function limitation is only a short-hand way of the specific modes of implementation described in the description, if the description does describe any specific mode of performing a corresponding function, the US courts would conclude that the patent application does not meet the requirement of 35 U.S.C. 112, paragraph 2, and

find the patent invalid.

In the *Biomedino, LLC v. Waters Technologies Corp*<sup>16</sup>, the CAFC held that if an inventor recited a means-plus-function limitation in the body of a claim but the specification failed to disclose and link corresponding structure for that means-plus-function limitation, the claim was invalid for being indefinite. The court explained that “in order for a means-plus-function claim to be valid under § 112, the corresponding structure of the limitation” must be disclosed in the written description in such a manner that one skilled in the art would know and understand what structure corresponded to the means limitation. Otherwise, one did not know what the claim meant”.

In the field of computer-implemented system, claims are often drafted in such a way that they recite means plus-function limitation since the main significance of electronic circuitry or computer program steps when carrying out an invention to control a photocopier, facsimile machine or any other piece of apparatus, resides in the function being carried out, not in the specific circuit or program for doing it.<sup>17</sup>

But ever since *WMS Gaming* in 1999, the CAFC has repeatedly held that general statement of a software function performed by a computer or microprocessor does not constitute a sufficient description of the structure of the means-plus-function limitation. It is the algorism performing the function of software that is the corresponding specific structure of the means-plus-function limitation. For the CAFC, in the description, if only the software performing the function of the means-plus-function limitation is briefly mentioned in the claims, without description of how said software performs its function, that is, without disclosing the algorism performing the function of software, the corresponding claims are not clear.

## 2. Relationship between specific, clear provisions on claims of 35 U.S.C. 112, paragraph two, and provision on full disclosure of description of 35 U.S.C. 112, paragraph one

35 U.S.C. 112, paragraph one provides that “the specification shall 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, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention”.

According to the U.S. judicial practice, for a claim reciting a means-plus-function limitation, if the description does

not set forth the specific mode of performing said function and a person skilled in the art can come up with a specific mode of performing said function without an undue amount of experimentation, the description has met the provision of 35 U.S.C. 112, paragraph one. But since the claims are not meeting 35 U.S.C. 112, paragraph two, the court declares the patent invalid. Of course, if the description does not set forth the specific mode of performing said function and a person skilled in the art cannot come up with a specific mode of performing said function (without an undue amount of experimentation), the description does not meet the provision of 35 U.S.C. 112, paragraph one, and the claims do not meet 35 U.S.C. 112, paragraph two, the corresponding patent would be invalidated by the court. Hence, if a patent containing means-plus-function limitation fails to meet the requirement of 35 U.S.C. 112, paragraph two, it naturally does not meet 35 U.S.C. 112 paragraph one; but if it does, it is not natural for it to meet 35 U.S.C. 112 paragraph two.

In *Blackboard, Inc. v. Desire2Learn, Inc.*<sup>18</sup>, the claims at issue in Blackboard were directed to a system for managing on-line education courses. One limitation recited a “means for assigning a level of access to and control of each data file ...” The specification described an “access control manager” as the structure that performed the function of the assigning means. Its limited description of the access control manager provided:

Access control manager 151 creates an access control list (ACL) for one or more subsystems in response to a request from a subsystem to have its resources protected through adherence to an ACL. Education support system 100 provides multiple levels of access restrictions to enable different types of users to effectively interact with the system (e.g. access web pages, upload or download files, view grade information) while preserving confidentiality of information.

The Federal Circuit found that the description of the access control manager was effectively a description of a black box and what the box did, but no description of how the box did what it did.

Trying to avoid the invalidity finding, the patentee argued that one of skill in the art would know how to create software that could implement the assigning function, and therefore a more detailed disclosure was not required. Rejecting this argument, the Federal Circuit explained that the issue was whether the “specification contains a sufficiently precise description of the ‘corresponding structure’ to satisfy section



112, paragraph 6, not whether a person of skill in the art could devise some means to carry out the recited function.” The court further explained that “[a] patentee cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function. To allow that form of claiming under section 112, paragraph 6, would allow the patentee to claim all possible means of achieving a function.”

Summing up the policy behind its jurisprudence in this area of the law, the court explained:

That ordinarily skilled artisans could carry out the recited function in a variety of ways was precisely why claims written in “means-plus-function” form must disclose the particular structure that was used to perform the recited function. By failing to describe the means by which the access control manager would create an access control list, Blackboard had attempted to capture any possible means for achieving that end. Section 112, paragraph 6, was intended to prevent such pure functional claiming.

**3. How should we treat a patent infringement dispute suit when the claims, description and appended drawings do not describe specific mode of performing said function recited in a claim**

Article 26, paragraphs three and four, of the Chinese Patent Law respectively correspond to 35 U.S.C. 112, paragraphs one and two. Article 26, paragraph three, of the Chinese Patent Law provides: “the description shall set forth the invention or utility model in a manner sufficiently clear and complete so as to enable a person skilled in the relevant field of technology to carry it out; where necessary, drawings are required”. Article 26, paragraph four, provides: “the claims shall be supported by the description and shall clearly and briefly define the extent of the patent protection claimed”.

During patent prosecution, as for a claim reciting a means-plus-function limitation, a description having no description of the specific mode of performing said function is treated in the same way as in the U.S.. It is possible to find whether the description and claim are drafted in a way that complies with the two provisions, so as to decide whether to grant the patent or find the patent invalid.

Unlike the U.S.A., in China, the court hearing a patent infringement suit does not review the validity of the patent right in its proceedings. As for a claim reciting a means-plus-function limitation, if the description does not describe the specific mode of performing said function, renders the draft-

ed claim contrary to Article 26, paragraph four (also including the circumstances where the description complies with Article 26, paragraph three, but the claims are contrary to Article 26, paragraph four), the court is not in a position to directly find the patent invalid. In case like this, for this writer, the issue is not only to allow to address the matter through invalidation procedure. To quickly and effectively address the issue, the court hearing a patent infringement case can directly determine that it is impossible to construe the scope of the claim, so directly find non-infringement.

In the case of dispute over infringement of the patent for the utility model of “bus stop e-signboards showing multiple bus line services”, the court first determined that the technical feature of the electronic screen pre-displaying buses arriving in the claims of the patent in suit was a means-plus-function limitation, and further found that since the description in suit did not describe any specific mode of performing the function of pre-displaying buses arriving by the bus stop e-signboards showing multiple bus line services, under the Supreme People’s Court’s judicial interpretation, it was impossible to determine the content of the technical feature of the claim of the patent in suit, so it was impossible to construe the scope of the claim. For this reason, the infringement was not found whatever the accused technical solution was.

The court also pointed out that even if a person skilled in the art, upon reading the claims and description of the patent in suit, could come up with a specific mode of performing the function of the feature of “bus stop e-signboards showing multiple bus line services” in the claim of the patent, the description of the patent should also describe the corresponding specific mode of performing the function. If a person skilled in the art, upon reading the claims and description of the patent in suit, could come up with a specific mode of performing the function of the feature of “bus stop e-signboards showing multiple bus line services” in the claim of the patent, but the description did not describe the corresponding specific mode of performing the function and one directly determined the content of said functional element according to the description of the function feature of “bus stop e-signboards showing multiple bus line services” *per se* in the claim, then the means-plus-function limitation would be construed as covering the specific mode of performing the corresponding function. But this construction was contrary to the Supreme People’s Court judicial interpretation. The reasoning in this part happened to be consistent with the policy consideration of the CAFC in the *Blackboard, Inc. v. Desire2Learn, Inc.* ■

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<sup>1</sup> Stephen A. Becker, Patent Applications Handbook (Database updated May 2009), § 6:60. Responding to rejections over prior art—Interpreting and prosecuting means-plus-function claims. <http://www.westlaw.com>.

<sup>2</sup> *In re Donaldson*. For a detailed review of the case, see Yin Xintian, the Patent Right Protection, the Publishing House of Intellectual Property, 2005, Pp.327-330.

<sup>3</sup> Stephen A. Becker, Patent Applications Handbook (Database updated May 2009), § 6:60. Responding to rejections over prior art—Interpreting and prosecuting means-plus-function claims. <http://www.westlaw.com>.

<sup>4</sup> The SIPO, the Guidelines for Patent Examination as of 2010, the Publishing House of Intellectual Property, 2010, P.145; in the Guidelines for Patent Examination as of 2006 and 2001 were set forth the same provisions.

<sup>5</sup> To be exact, it should cover examination for patent grant, reexamination, examination of patent invalidation, and subsequent judicial review.

<sup>6</sup> [http://www.uspto.gov/web/offices/pac/mpep/documents/2100\\_2181.htm#sect2181](http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2181.htm#sect2181).

<sup>7</sup> The Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications <http://www.uspto.gov/web/offices/com/sol/og/2011/week10/TOC.htm#ref15>.

<sup>8</sup> *Aristocrat Technologies Australia Pty Ltd. v. Multimedia Games, Inc.*, 2008 WL 484449 (Fed. Cir. 2008).

<sup>9</sup> *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1362, 72 U.S.P.Q.2d (Fed. Cir. 2004).

<sup>10</sup> The Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications, <http://www.uspto.gov/web/offices/com/sol/og/2011/week10/TOC.htm#ref15>.

<sup>11</sup> The Shanghai Higher People's Court's Civil Judgment No. Hugaomin-san(zhi)zhongzi 89/2010.

<sup>12</sup> *McBirney, Inc. v. Montedoro-Whitney Corp.*, 882 F.2d 498, 11 U.S.P.Q.2d 1794 (Fed. Cir. 1989).

<sup>13</sup> Infringement found under 35 U.S.C. 112 also means literal infringement.

<sup>14</sup> See *supra* Note 2

<sup>15</sup> The Guidelines for Patent Examination as of 2010 have set forth the similar provision: "usually, for product claims, features of function or effect shall be avoided as far as possible to be used in defining the invention. It is only when a certain technical feature cannot be defined by

a structural feature, or it is more appropriate to be defined by a feature of function or effect than by a structural feature, that definition by features of function or effect in a product claim can be permissible", the Publishing House of Intellectual Property, 2010, P.145. The same provisions were set forth in the Guidelines for Patent Examination as of 2006 and 2001. Besides, the advantage of construing a means-plus-function limitation as covering the specific mode said in the description and the equivalents therein is that, relative to construing a means-plus-function limitation as covering all modes of performing said function, this way of construction is more workable and certain during the patent prosecution and determination of patent infringement. For detail, see Zhang Xiaodu, Construction of Means-plus-function Limitation in Patent Claims, published in his book, Patent Infringement Adjudication, the Publishing House of Law, 2008,

<sup>16</sup> *Biomedino, LLC v. Waters Technologies Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007).

<sup>17</sup> Stephen A. Becker, Patent Applications Handbook (Database updated May 2009), § 6:60. Responding to rejections over prior art—Interpreting and prosecuting means-plus-function claims. <http://www.westlaw.com>.

<sup>18</sup> *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1385, 91 USPQ2d 1481 (Fed. Cir. 2009).