April 12, 2013

Via Electronic Mail
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Attention: Seema Rao, Director Technology Center 2100;
              Nicole D. Haines, Legal Advisor, Office of Patent Legal
              Administration

IBM Corporation Comments in response to "Request for Comments and Notice
of Roundtable Events for Partnership for Enhancement of Quality of Software-
Related Patents," 78 Fed. Reg. 292 (January 3, 2013) ("Software-Related
Patents RFC") and "Request for Comments on Preparation of Patent
Applications," 78 Fed. Reg. 2960 (January 15, 2013) ("Preparation RFC")

        IBM thanks the United States Patent and Trademark Office (Office) for
creating the software partnership forum and for the opportunity to comment on
enhancing the quality of patents and preparation of patent applications.

        We strongly support the Office's continued efforts to improve patent
prosecution and patent quality. We believe that through the combined efforts of
applicants and the Office, significant improvements can be made to both the
clarity of patent claims and the sufficiency of supporting disclosure. Improved
compliance of issued patent claims with the requirements of 35 U.S.C. § 112 will
benefit the public by ensuring that patents meet the important public notice
function, clearly delineating the scope of claim coverage.

        IBM welcomes the commitment of the Office to work with stakeholders in
the software community. We strongly caution the Office, however, against
creating rules or procedures for examination specific to software or any other
field of invention. The Office is challenged to examine an ever-increasing
number of unique, complex inventions in an ever-growing number of new fields,
reflecting the importance of intellectual property and intellectual property rights to
our innovation economy. The patent system needs to be flexible and adapt to
address these issues. Technology-specific examination rules are likely to be
obsolete as soon as they are established, because technology inexorably
advances. Adoption of special rules for software inventions would promote a
fractured, imbalanced patent system that caters to special interests, stifles
innovation and is difficult for the public to understand and for the Office, courts,
and applicants to implement consistently. While the history of the U.S. patent
system is rife with periods of controversy surrounding the protection of inventions

in emerging technologies (such as telephones/telegraphs, sewing machines, and airplanes) the temptation to establish technology-specific examination rules has been resisted.

A better way to improve patent quality is to improve the system of patent procurement across the board, for all technologies, so better practices will be in place to improve application preparation and examination for any new invention, however unexpected and unforeseen. This is the essence of our world class patent system – that it is designed to encourage and embrace new technologies.

In our comments below, we first generally address issues raised in the Software-Related Patents RFC; then we answer specific questions raised in the Preparation RFC. We generally support the Office's approach as set forth in these notices to the extent it does not discriminate on the basis of technology, since it promotes patent quality by improving prosecution from the point of view of both applicants and examiners. As explained further below, we do have some suggestions to improve and focus the Office's efforts.

I. Software-Related Patents RFC

The questions posed under Topic 1, "Establishing Clear Boundaries for Claims That Use Functional Language," all explore the issue of functional claiming. These questions indicate that the Office is particularly concerned with how to ensure claims or claim elements directed to performing a function have a clear meaning and full support in the specification. We believe a balanced approach that allocates reforms and incentives between the Office and applicants is the best way to achieve this important goal. We suggest the Office encourage examiners to pursue better compliance with patentability requirements, while encouraging best practices from applicants by providing swifter or less costly examination in situations where the applicant's compliance reduces the burden on the examiner.

Functional Language

If, during the course of prosecution, the examiner believes a claim or claim term is unclear or undefined, the examiner should take whatever steps are needed to address the problem, such as use of Rule 105 to obtain information from the applicant or rejection of the claim as indefinite if appropriate. If the applicant has used "means for" or "step for" claim language, the examiner should inform the applicant that the corresponding claim element(s) will be examined under 35 U.S.C. § 112(f), and analyze the sufficiency of structural or other support disclosed in the specification for such claim element(s) according to 35 U.S.C. § 112(f). Even if a claim does not recite the "means for" or "step for" language, if the examiner believes the claim or claim element nevertheless falls under 35 U.S.C. § 112(f), the examiner should either ask the applicant for

clarification under Rule 105, or set forth his/her reasons and notify the applicant that the claim or claim element will be examined under 35 U.S.C. § 112(f) and proceed accordingly.[1] The examiner should be careful to capture identification of claims or claim elements invoking § 112(f) in the prosecution record. Since use of "means for" or "step for" language gives rise to a presumption that § 112(f) applies, and absence of such language gives rise to the contrary presumption, it is especially important for examiners to explicitly indicate when the claim invokes § 112(f) without the use of the "means for" or "step for" language.[2]

Compliance with the full spectrum of requirements in 35 USC §112, including enablement, claim clarity and written description, is critical for promoting patent quality. Moreover, the examiner must make a record to clearly reflect the examiner's position and evaluation of claims, beyond statements that merely repeat language in the claims and state that it is patentable or has overcome the examiner's rejections. For example, the record should reflect the examiner's position on claim scope and meaning and the level of ordinary skill in the art, and explain how analysis under, *e.g.*, 35 U.S.C. §§ 112 and 103 depends on those findings. To fulfill the important notice function of the patent system, the public needs to know what has transpired during the course of prosecution and how the claims were allowed, it is not enough that the examiner knows. Relevant information can be recorded in a number of different ways, including through Office actions, responses, and claim amendments; interview summaries; and reasons for allowance.

Question 2 of the Software-Related Patents RFC asks whether software-related claims that do not invoke 35 U.S.C. § 112(f), but do recite "functional language," should be subject to special requirements for reciting supporting structure in the specification. A technology-specific approach is problematic for the reasons already noted, and is entirely unnecessary and contrary to case law. If the examiner determines that a claim is not subject to § 112(f), then the unique requirements of § 112(f) simply do not apply. The claim of course must meet the enablement and written description requirements, and must be clear, but if the claims are not § 112(f) claims then it is unnecessary (and impermissible) to require something more from the specification than the existing requirements in §§ 112(a) and (b). Problems associated with functional claiming have arisen in other technology areas, and have been addressed by applying the familiar requirements of § 112, without any special technology-specific tests. For example, in *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336 (Fed. Cir. 2010)(*en banc*), the Federal Circuit addressed whether certain claims covering a drug satisfied the written description requirement. The court specifically addressed the issue of specification support for "genus" claims characterized by functional language:

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[1] *See e.g.* Manual of Patent Examining Procedure, ¶ 2181 Identifying a 35 U.S.C. 112, Sixth Paragraph Limitation [R-9], (http://www.uspto.gov/web/offices/pac/mpep/s2181.html) (last visited April 11, 2013).
[2] The examiner should also explicitly indicate if the claim does *not* invoke § 112(f) despite the use of these terms. If a claim recites functional language but does not invoke § 112(f), it must still meet the other requirements of § 112. *See Halliburton Energy Servs. v. M-I LLC*, 514 F.3d 1244 (Fed. Cir. 2008).

We have … held that functional claim language can meet the written description requirement when the art has established a correlation between structure and function. But merely drawing a fence around the outer limits of a purported genus is not an adequate substitute for describing a variety of materials constituting the genus and showing that one has invented a genus and not just a species. … The claims here recite methods encompassing a genus of materials achieving a stated useful result, i.e., reducing NF-[K]B binding to NF-[K]B recognition sites in response to external influences. But the specification does not disclose a variety of species that accomplish the result. See Eli Lilly, 119 F.3d at 1568 ("The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention."). Thus, as indicated infra, that specification fails to meet the written description requirement by describing only a generic invention that it purports to claim.

Ariad Pharms., 598 F.3d at 1350 (some citations omitted). The Federal Circuit has thus made clear that enforcing existing § 112 requirements (such as the written description requirement in § 112(a)) is an effective way to address functional claiming issues.

Finally, Question 3 of the Software-Related Patents RFC asks whether claims that recite a computer for performing certain functions (or configured to perform certain functions) should be treated as invoking § 112(f) even if "means for" or "step for" language is not recited. As explained above, when "means for" or "step for" is not recited, it is possible based on careful analysis by the examiner to overcome the presumption that § 112(f) does not apply. But creation of a rule that § 112(f) applies to any recitation of a computer for performing functions is contrary to the statute and precedent, and would therefore inappropriately (and unnecessarily) divest applicants of important claiming opportunities for capturing inventions. *See Inventio AG v. Thyssenkrupp*, 649 F.3d 1350 (Fed. Cir. 2011) (Reversing the district court's finding that the claim terms "modernizing device" and "computing unit" invoked the requirements of § 112(f) because these terms disclosed sufficient structure to those of ordinary skill in the art).[3]

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[3] *See also,* Manual of Patent Examining Procedure, ¶ 2181, *supra* n. 1, Section IA The Claim Limitation Uses the Phrase "Means For" Or "Step For" Or A Non-Structural Term (A Term That Is Simply A Substitute for the Term "Means For"): "However, 35 U.S.C. 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. The term is not required to denote a specific structure or a precise physical structure to avoid the application of 35 U.S.C. 112, paragraph 6." (citations omitted).

Accurate and Thorough Specification Analysis

We respectfully suggest the Office take steps to ensure examiners are reading the complete application in order to properly address issues under 35 U.S.C. § 112. We do not recommend examination through proxies or shortcuts to determine whether, for example, claims are fully enabled or to identify structural support for "means plus function" claim elements. The specification of each application needs to be examined on its own merits. When properly deployed, analytic tools and checklists may serve a useful function by focusing the examiner's review, but nothing substitutes for a complete reading of the specification. For example, we suggest the Office consider including in the examiner checklist identification of functional claims or claim elements, which would help focus attention to this important aspect of specification analysis and mitigate uncertainty after issuance. In addition, software tools for performing semantic analysis are currently available which could show where in the specification key claim terms are mentioned. Use of such a tool by examiners would help focus attention on important parts of the specification to facilitate examination under §§ 112(a), (b), and (f), *i.e.* to help determine the meaning of a claim term and whether sufficient support is provided. Simple analysis tools could be used to determine if all key claim terms appear in the specification, or if proper antecedent basis is present. More sophisticated tools could correlate or even link identification numbers from drawings and/or related passages from the specification to claim elements.

Use of analytical software tools could be used to create applicant incentives to improve application quality. For example, if a claim fails to meet the requirements for antecedent basis or key claim terms do not appear in the specification, the claim could be automatically rejected. Or alternatively if a claim "passes" and meets these requirements, the examiner may be prevented from issuing a § 112 rejection without first conducting an interview with the applicant. These procedures would encourage applicants to run the analysis tools before filing to avoid bad consequences or enjoy good ones, with the mutually beneficial result of increasing the compliance of applications as filed with § 112 requirements. The use of such tools and incentives, taken together, would streamline examination and afford examiners more time for a thorough substantive review including a complete reading of the specification for those applications that meet this initial quality threshold.

Finally, we emphasize the importance of identifying and consistently applying the phosita (person having ordinary skill in the art) standard during prosecution. We have found that some poor quality patents in the software arts seem to have been examined using a more highly skilled phosita for evaluating §112 compliance than the phosita used to evaluate §103 compliance. Thus, for a given patent, the description may be sparse indicating a highly sophisticated phosita needing little guidance, but the application of prior art indicates a less

sophisticated phosita incapable of combining cited references. Consistent application of the level of skill should improve quality of issued patents.[4]

II. Preparation RFC

In this section we address specific proposals contained in the Preparation RFC. The proposals are not included in their entirety but identified by number and paraphrased.

A. Clarifying the Scope of the Claims
1. *Presenting the claim in multipart format – i.e. preamble; transitional phrase; claim limitations*: We are unsure how this will assist examiners, applicants, or the public. If it is not known whether the preamble is limiting, this proposal seems unhelpful (see also discussion at A(4) below). We respectfully ask the Office to provide its rationale for this proposal – *e.g.* will this facilitate the use of analytics that are not yet feasible? Will this provide context for the proposal at A(4) regarding the effect of the preamble? If so, this proposal could be very helpful to the patent community and we would like the opportunity to consider it more fully.

2. *Identify support for claim limitations in the specification (e.g. using a claim chart), especially if claims are amended or a continuing application is filed.* We support this as a general rule for improving the quality of patents in all technologies. However, it is not clear to us how this would be implemented. For example, how would the Office require or encourage applicants to supply this information? Implementation should not unduly complicate the application process and should not make applicants responsible for aspects of substantive examination.[5]

We note that accelerated examination is currently available to expedite prosecution, but requires an "accelerated examination support document" ("ESD"). Practitioners have recognized the drawbacks of providing the ESD, such as creating prosecution history estoppel.[6] We suggest that incentives for applicants – such

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[4] *See* Marian Underweiser, "Time to reconsider the PHOSITA," ManagingIP, November, 2008, copy submitted herewith.

[5] The unpopular "Applicant Quality Submissions" provision (AQS) proposed by the Office in 2008 to be included in the patent reform bill would have imposed undue burdens on applicants by requiring in all cases a search report and analysis of the claims against the prior art, a responsibility that properly falls on examiners, not applicants. The provision was subject to widespread opposition in the patent community and never seriously considered for inclusion in patent legislation. *See, e.g.,* discussion of Urgent IPO Legislative Alert (March 28, 2008) in PatentDocs blog dated March 30, 2008 at http://www.patentdocs.org/2008/03/ipo-distributes.html (last visited April 11, 2013).

[6] *See, e.g.* "Accelerated Examination v. Prioritized Examination," McDonnell, Boehnen, Hulbert & Berghoff LLP, Snippets, Winter 2012, Vol. 10, Issue 1, at http://www.mbhb.com/files/Publication/4106df9f-bfb7-4033-

as described above in conjunction with claim analysis software – might be an effective way to encourage supporting statements without unduly burdening applicants or examiners. We believe examiners should be encouraged to conduct interviews or use Rule 105 early on if they identify a support problem.

3. *Indicating whether examples in the specification are limiting or illustrative*: See answer to 2 above – it is unclear how this proposal would be implemented. In addition, this proposal does not seem likely to provide useful information because all applicants will state examples are illustrative at least prior to the start of substantive examination. Useful information is much more likely to evolve during examination. An applicant may claim during prosecution that examples in the specification are intended to be limiting (*e.g.* to overcome a § 112 rejection), or in interpreting the claim the examiner may determine that the examples are limiting. In such cases, the applicant's contention or the examiner's determination should be made clear in the resulting public record of the patent. We respectfully ask the Office to clarify why it is suggesting applicants provide this information on filing, since as noted above we don't expect it to yield useful answers.

4. *Identifying whether the claim preamble is intended to be limiting*: As with item 3, we do not believe this question will yield useful information at the time of filing. We therefore respectfully request clarification from the Office. Clarity regarding the effect of the preamble is needed, but as noted above in our response to item 3, lack of clarity should be resolved during the course of prosecution, *e.g.* by rejecting the claim or using Rule 105, when there is ambiguity or a need to narrow claim scope to distinguish over prior art. To overcome a rejection, the applicant may: clarify the meaning of the preamble; indicate its narrowing effect on claim scope to distinguish over prior art; or simply amend the claim to move the limitation from the preamble to the body of the claim. Any meaning or scope clarifications, or determinations made by the examiner during prosecution, should be reflected in the patent file history. If a full record is created through interview summaries, reasons for allowance, and/or claim amendments, the public will be able to determine the meaning and scope of issued claims.

5. *Expressly identifying 112(f) clauses and identifying supporting disclosure of structure in the specification*. The case law in this area provides a clear rule for applicants to follow: use of "means for" creates a presumption for and its absence creates presumption

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against invoking § 112(f). The applicant can thus provide clear direction to the Office by following this rule. If the examiner disagrees and believes § 112(f) applies despite the absence of "means for" or "step for" language, the examiner should state the supporting rationale and evaluate the claim accordingly. If the examiner can not determine whether the claim invokes § 112(f), the examiner should either reject the claim as indefinite or use Rule 105 or other means (such as an interview) to obtain clarification and ensure that any such clarification is captured on the record. Once § 112(f) elements are identified, it is reasonable to ask the applicant to identify supporting structure in the specification if it is not apparent to the examiner. The examiner should ensure the supporting structure is identified in the file history, since what is apparent to the examiner may not be to the public. Examiners should as a general matter ensure § 112 support is provided for all claims, and should provide (or ask applicants to provide) clarification on the record if not already apparent from the specification.

6. *Using known textual and graphical notation systems to disclose algorithms in support of computer-implemented claim limitations (such as pseudo-code, etc.).*

The law of the Federal Circuit requires disclosure of algorithms to provide supporting structure for certain claims (or claim elements) covering computer-implemented inventions that fall under § 112(f).[7] While it is possible the types of embodiments specified in item 6 would provide written description and/or enablement support for certain patent claims, no single rule or type of example will work in all cases. Also, as mentioned above, any rule at this level of specificity is guaranteed to become obsolete. We do not believe any particular graphical or textual notation system should become a favored form for providing support. Patent law has a technology agnostic standard for evaluating whether embodiments provide sufficient support – whether they would be so understood by the phosita. Software inventors, like all inventors, should be strictly held to that standard and not bound to currently popular modalities.

If the claim does not invoke § 112(f), it still must be evaluated for compliance with the enablement, written description, and clarity requirements. The examples in item 6 may or may not be necessary for compliance with those requirements.

An important benefit realized from ensuring compliance with § 112 is that patent records containing fully described and enabled

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[7] *See, e.g., Aristocrat Techs. Austl. PTY Ltd. v. Int'l Game Tech.*, 521 F.3d 1328 (Fed. Cir. 2008).

software invention claims are a good source of prior art, and in fact as more software patents are published, the prior art in this area improves. Although complete invention disclosure is beneficial, applicants should never be forced to use one or another particular form of disclosure to provide structure – the standard for determining whether a disclosure is sufficient in all other areas of technology is the phosita, and it should likewise remain the standard for software inventions.

If the Office finds that certain types of known textual or graphical notation systems often provide sufficient specification support for §112(f) claims, then the Office may wish to expressly identify these systems to provide guidance to examiners and applicants. The Office should not, however, foreclose or disfavor the use of other forms of structural support for § 112(f) claims, whether known or to-be-developed, as long as the supporting structure would be sufficient from the perspective of the phosita.

B. Clarifying the Meaning of Claim Terms in the Specification.
There has been much attention recently to problems raised by ambiguous claim language. It is obviously far better to resolve ambiguities during prosecution, and we support the Office's efforts to do so. Providing definitions is an important way to do this, and one that will be captured on the record. Making a full and precise record of prosecution events such as interviews, and forcing applicants to amend claims where appropriate and justified, instead of, for example, relying on prosecution history to limit claim scope, are important ways the Office can ensure the claims that are ultimately issued are properly limited and clear on the record.[8] Amending claims is the best way to reflect changes in scope during prosecution, rather than relying on the prosecution history, which we know from *Philips* is subservient to the specification as a source for claim meaning.[9]

    1. *Indicating whether terms of degree – such as substantially, approximately, about, essentially – have a lay or technical meaning and explaining the scope of such terms*: The use of such terms is important for claiming inventions where it is neither practical nor necessary for the inventor to perform enough experiments to pin down a precise range. As long as the claimed invention (including the term of degree) satisfies the enablement and written description

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[8] *See Ex Parte Kenichi Miyazaki*, BPAI, 2008 Pat. App. LEXIS 8887, 16 (Pat. App. 2008) ("The Federal Circuit has, however, noted that a different standard for indefiniteness may be appropriate during prosecution of patent claims. See Exxon Research and Engineering Co. v. U.S., 265 F.3d 1371, 1384 (Fed. Cir. 2001) ('If this case were before an examiner, the examiner might well be justified in demanding that the applicant more clearly define U[L], and thereby remove any degree of ambiguity. However, we are faced with an issued patent that enjoys a presumption of validity.')").
[9] *See Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

requirement, *e.g.* does not require undue experimentation to practice the invention, then the range should be acceptable.[10] It would be unfair to require applicants to explain or precisely define the scope of these terms beyond the § 112 requirements, and could needlessly force patentees to prove infringement using the doctrine of equivalents in many cases. If the terms do not satisfy the § 112 requirements, or do not provide enough clarity to determine claim scope for evaluating whether the claim is novel and nonobvious over the prior art, the claims should be rejected.

2. *Glossary in the specification for potentially ambiguous, distinctive and specialized terms, particularly for software claims*: The use of applicant-generated glossaries to define key claim terms is a best practice that should be encouraged by the Office. While we appreciate that the taxonomy in the software field may not be as developed as in some other fields, there are instances in all fields especially in cutting edge applications where terms are "ambiguous, distinctive, and/or specialized." Thus we encourage the use of glossaries in general.

3. *Designating a default dictionary*: IBM also strongly supports the use of designated or preferred dictionaries.[11] We recognize that use of any particular dictionary may be too limiting or too broad. It may be worthwhile therefore for applicants to focus the use of dictionaries on providing designated definitions for certain claim terms that the applicant has reviewed.

Some may object that dictionaries have multiple and possibly contradictory definitions for a given term. While this may be true in some instances, the correct meaning is likely to be apparent from context. An applicant can check key terms in the claims to ensure the dictionary provides appropriate definitions for the most important terms, and in any event use of a single dictionary must logically narrow down the possible meanings. Applicants should also consider using glossaries in conjunction with specific dictionaries. This would be especially helpful when the dictionaries have any of the issues noted above or when an applicant wishes to use a unique definition.

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[10] "That paragraph [35 U.S.C. § 112, first paragraph] requires that the scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art." *In re Fisher*, 57 C.C.P.A. 1099, 1108 (C.C.P.A. 1970).
[11] *See* Diana Roberts, Manny W. Schecter, and Alison Mortinger, "A case for adopting controlling dictionaries in the USPTO," Intellectual Asset Management, January/February 2010, copy submitted herewith.

Conclusion

      In conclusion, IBM supports the Office's efforts to improve claim clarity and precision and to ensure claims are fully supported and enabled. We expect the Office to develop a technology-neutral approach, since it is the only way to flexibly accommodate new innovation in a rapidly evolving environment. The Office must shoulder the burden of examination and ensure compliance with all the provisions of § 112. But there are ways, such as through strategic use of claim analysis tools, to work with applicants to help target problem claims and we encourage the Office to consider such approaches.

Respectfully submitted,

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