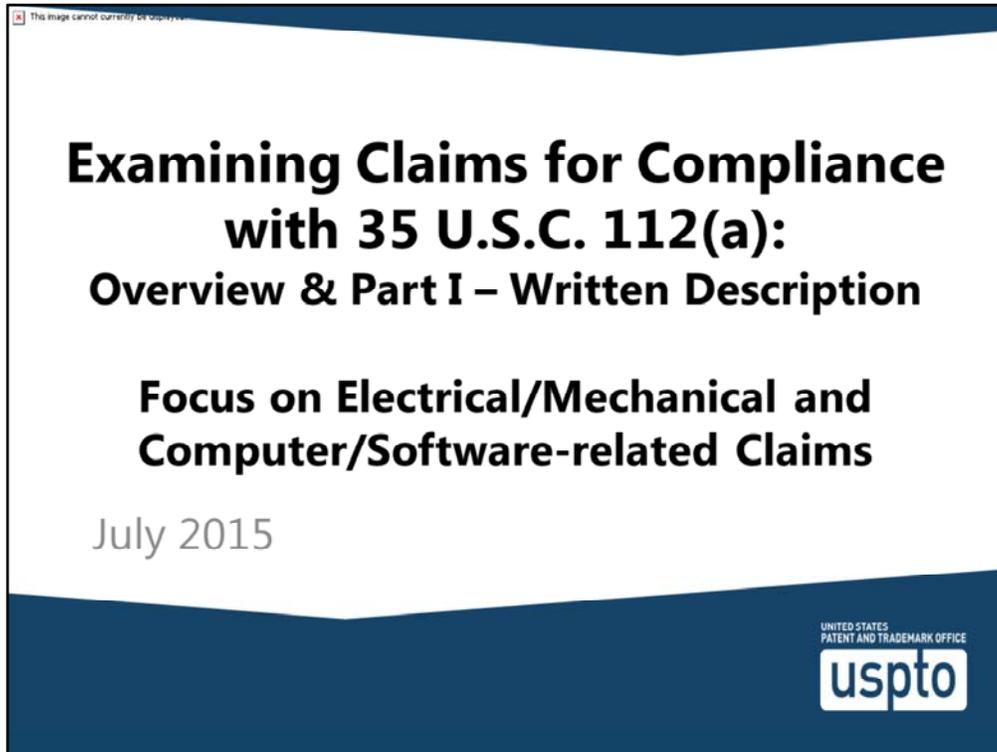


UNITED STATES
PATENT AND TRADEMARK OFFICE





This USPTO Legal Training Module will provide an overview of the written description and enablement requirements of 35 U.S.C. 112(a) and, in Part I, cover the topic of examining claims with functional language for compliance with the written description requirement. Part II of this module will cover the enablement requirement. The focus of this module is on computer and software-related claims and making the prosecution record clear regarding the adequacy of the application disclosure. This seventh installment of training on claim interpretation and claim clarity will focus on ensuring that claims with functional language are fully supported and enabled by the application disclosure.

§ 112(a): Focus on Electrical/Mechanical and Computer/Software-related Claims

OVERVIEW

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3

The overview portion of this module will provide a high-level review of the requirements of 35 U.S.C. 112(a), particularly the written description and enablement requirements.

Goals

- Ensure that claims, especially those with functional language, are fully supported and enabled by the application disclosure by enforcing § 112(a) requirements
 - Review the requirements of § 112(a)
 - Refresh the principles set forth in the *2011 Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and Treatment of Related Issues in Patent Applications (2011 § 112 Guidelines)*
- Emphasize the importance of making a *prima facie* case when the disclosure is lacking and providing a clear prosecution record
 - Provide examination tips for making a *prima facie* case and providing a clear record

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4

One goal of this module is to ensure that claims, especially those with functional language, are fully supported and enabled by the application disclosure by enforcing the requirements of § 112(a). To address this goal, this module will review the requirements of § 112(a) and refresh the principles set forth in the *2011 Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and Treatment of Related Issues in Patent Applications*. It is noted that all of the principles of the Supplementary Examination Guidelines have been incorporated into the MPEP.

Another goal of this module is to emphasize the importance of making a *prima facie* case when the disclosure is lacking and providing a clear prosecution record. To address this goal, this module will provide examination tips for making a *prima facie* case and providing a clear record.

Focus

- Examining original claims, particularly in electrical/mechanical and computer/software-related inventions
 - This training addresses functional language both when § 112(f) is invoked and when § 112(f) is not invoked
 - Draws from the following existing training materials:
 - MPEP 2161.01, 2162, 2163, 2164, 2181, and 2185
 - *2011 §112 Guidelines*, training slides and training examples
 - *35 U.S.C. 112(f): Broadest Reasonable Interpretation and Definiteness of § 112(f) Limitations* training
- For information on the application of § 112(a) in general, particularly for new or amended claims and priority benefits, see MPEP 2163 *et. seq.*

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5

This module will focus on examining original claims, particularly in electrical/mechanical and computer/software-related inventions. This training addresses functional language both when § 112(f) is invoked and when § 112(f) is not invoked.

The topics covered are drawn from the following existing training materials:

- MPEP 2161.01, 2162, 2163, 2164, 2181, and 2185
- The *2011 § 112 Guidelines*, training slides and training examples, and
- *The 35 U.S.C. 112(f): Broadest Reasonable Interpretation and Definiteness of § 112(f) Limitations* training.

For information on the application of § 112(a) in general, particularly for new or amended claims and priority benefits, see MPEP 2163 *et. seq.* Another available resource is the September 2008 “*Rejections under 35 USC 112, second paragraph, when examining means (or step) plus function limitations under 35 USC 112, sixth paragraph*” memorandum to the corps.

All of these materials are available on the USPTO website and the current version of the MPEP incorporates all of the principles set forth in these materials.

Compliance with § 112(a)

- Section 112(a) sets forth the minimum requirements for the **quality** and **quantity** of information that must be contained in a patent specification to justify the grant of exclusive rights
 - *Quid pro quo* = exchange of patent rights for disclosure of information
 - Public policy: providing the public with information that can serve as the basis for research and development of new ideas and advancement of scientific knowledge
- All applications in every technology must comply with the requirements of § 112(a)
- As always, during examination every claim must be analyzed based on its own facts (*i.e.*, there are no bright line rules)

MPEP 2162

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6

Section 112(a) sets forth the minimum requirements for the quality and quantity of information that must be contained in a patent specification to justify the grant of exclusive rights. These disclosure requirements are the *quid pro quo* for obtaining patent protection. That is, the applicant is required to disclose the invention in accordance with the requirements of § 112(a) in exchange for obtaining exclusive patent rights. Section 112(a) serves the public in providing the public with information that can serve as the basis for research and development of new ideas and advancement of scientific knowledge.

Note that all applications in every technology must comply with the requirements of § 112(a) and, as always, during examination every claim must be analyzed based on its own facts (*i.e.*, there are no bright line rules).

Three Distinct Requirements of § 112(a)

- Written description: The specification as filed must describe the claimed invention in sufficient detail so that one of ordinary skill in the art can reasonably conclude that the **inventor had possession** of the claimed invention
- Enablement: The specification must teach those of ordinary skill in the art how to **make and use the full scope** of the claimed invention without undue experimentation
- Best mode: The specification must disclose **what the inventor considers to be the best mode** of carrying out the invention

MPEP 2161

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7

Section 112(a) sets forth three distinct requirements:

- First, under the written description requirement, the specification as filed must describe the claimed invention in sufficient detail so that one of ordinary skill in the art can reasonably conclude that the inventor had possession of the claimed invention.
- Second, under the enablement requirement, the specification must teach those of ordinary skill in the art how to make and use the full scope of the claimed invention without undue experimentation.
- Third, under the best mode requirement, the specification must disclose what the inventor considers to be the best mode of carrying out the invention.

This module will focus on written description and enablement, rather than best mode. The best mode requirement is a safeguard against the desire on the part of some people to obtain patent protection without making a full disclosure as required by the statute. The requirement does not permit inventors to disclose only what they know to be their second-best embodiment, while retaining the best for themselves. The examiner should assume that the best mode is disclosed in the application, unless evidence is presented that is inconsistent with that assumption. It is extremely rare that a best mode rejection properly would be made in *ex parte* prosecution. See MPEP 2165 for more information on best mode.

Written Description vs. Enablement

- Written description and enablement do not stand or fall together
- *Similarities*
 - Evaluated from the perspective of a person of ordinary skill in the art
 - Do not require the disclosure of information which is conventional or well known in the art
- *Differences*
 - Written description requires the inventor to describe the claimed invention in sufficient detail so that one of ordinary skill in the art can reasonably conclude that the inventor had possession of the claimed invention
 - Enablement only requires the inventor to convey enough information for a person of ordinary skill in the art to make and/or use the claimed invention without undue experimentation

MPEP 2161, 2163(II)(A)(3)(a), 2163.02, 2164.01



8

The written description requirement is separate and distinct from the enablement requirement. Written description and enablement do not stand or fall together. For example, a finding of lack of written description does not necessarily mean there will also be a lack of enablement.

Written description and enablement are similar in that both requirements are evaluated from the perspective of a person of ordinary skill in the art, and neither requires the disclosure of information which is conventional or well known in the art.

On the other hand, written description and enablement are different in that written description requires the inventor to describe the claimed invention in sufficient detail so that one of ordinary skill in the art can reasonably conclude that the inventor had possession of the claimed invention, while enablement only requires the inventor to convey enough information for a person of ordinary skill in the art to make and/or use the claimed invention without undue experimentation. Thus, showing that a claimed invention is fully enabled by the disclosure does not necessarily satisfy the written description requirement of showing that the inventor had possession of the claimed invention.

Computer-Implemented Inventions

- Claims to computer-implemented inventions frequently use functional language, which can risk imposing no limits on how the function is performed in terms of structure, material or actions
 - Claims may lack written description when the specification fails to sufficiently identify how the invention achieves the claimed function
 - Claims that cover all ways of performing a function may not be commensurate in scope with the enabling disclosure
- Software claim limitations often recite a function accomplished by programming, rather than the specific procedure or steps taken to perform the claimed function
 - *E.g.*, the claim limitation “a microprocessor programmed to sort search results” recites a function (sort search results) but not the programming steps taken to perform the function, which might include, for example, obtaining search data, manipulating the data using ranking algorithms, and making decisions regarding the output result data
 - For software inventions, the level of detail required to satisfy written description is usually higher than that for enablement since the level of skill and predictability in the art is high
- Compliance with § 112(a) for these types of claims is critical to ensure that inventors do not “attempt to preempt the future before it has arrived” by claiming pure functions without limit as to how they are accomplished

MPEP 2161.01



9

Claims to computer-implemented inventions frequently use functional language. While use of functional language is permissible, it can run the risk that the scope of the claim will have no limits on how the function is performed in terms of structure, material or actions. Such claims may lack written description when the specification fails to sufficiently identify how the invention achieves the claimed function. Further, claims that cover all ways of performing a function may not be commensurate in scope with the enabling disclosure.

Software claim limitations, in particular, often recite a function accomplished by programming, rather than the specific procedure or steps taken to perform the claimed function. For example, the claim limitation “a microprocessor programmed to sort search results” recites a function of sorting search results but not the programming steps taken to perform the function, which might include, among other steps, obtaining search data, manipulating the data using ranking algorithms, and making decisions regarding the output result data. For software inventions, the level of detail required to satisfy written description is usually higher than that for enablement since the level of skill and predictability in the art is high.

Compliance with § 112(a) for these types of claims is critical to ensure that inventors do not “attempt to preempt the future before it has arrived” by claiming pure functions without limit as to how they are accomplished.

Example: Written Description and Enablement for Computer-Implemented Invention

Claim 2. A data storage medium containing instructions programmed to perform a method, the method comprising:

a. receiving with a computer a data retrieval request from a graphical user interface (GUI) on a programmable user display device,

*b. in response to the retrieval request, **accessing with a computer a plurality of disparate digital databases** and retrieving with a computer requested data from such databases,*

c. assembling with a computer an OLAP cube of the retrieved data, ...

➤ *The patent is “directed to different features of an online analytical processing (‘OLAP’) cube capable of collecting and processing ‘live’ data from multiple incompatible databases. [P]rior to the invention, data from different databases had to be converted into a compatible format and stored in a data warehouse before the data could be analyzed.”*

- For the limitation bolded above, does the specification:
 - Show *how* to achieve the functionality of accessing disparate databases (written description), and
 - Provide a reasonable amount of guidance to a person of ordinary skill in the art such that it enables the *full scope* of the claim (enablement)?

10

The following example is based on facts set forth in the 2015 Federal Circuit decision, *Vasudevan Software v. Microstrategy, Inc.* Claim 2 recites a data storage medium containing instructions programmed to perform a method, the method comprising a series of steps, including the step of “b. in response to the retrieval request, accessing with a computer a plurality of disparate digital databases and retrieving with a computer requested data from such databases.”

The patent is “directed to different features of an online analytical processing (or ‘OLAP’) cube capable of collecting and processing ‘live’ data from multiple incompatible databases. [P]rior to the invention, data from different databases had to be converted into a compatible format and stored in a data warehouse before the data could be analyzed.”

This example **highlights** that the requirements of 112(a) are pertinent to functional claim limitations, especially software limitations. In this case, the key issue was whether the specification supports the bolded limitation of “accessing with a computer a plurality of disparate digital databases”:

- By showing how to achieve the functionality of accessing disparate databases to satisfy the written description requirement, and
- By providing a reasonable amount of guidance to a person of ordinary skill in the art such that it enables the full scope of the claim to satisfy the enablement requirement.

Example: (Continued)

- The court found that more investigation was needed under § 112(a)
 - Written Description
 - The court focused on “whether the specification shows possession by the inventor of how accessing disparate databases is achieved”
 - The court, relying on expert testimony, found that there is a genuine issue of material fact as to whether specific portions of the specification show how to access disparate databases (*e.g.*, the specification explains that serialized files can be used to correlate parameters from two databases)
 - Enablement
 - The court focused on the *Wands* factors, acknowledging that the relative skill in the art and the predictability of the art were high
 - The court, again relying on expert testimony, found that the amount of experimentation necessary to develop a functional prototype was not undue and that there is a genuine issue of material fact as to whether the specification provides a reasonable amount of guidance (*e.g.*, the specification shows how to access disparate databases using correlation parameters)
- **Examination Takeaway:** During prosecution, when the specification does not provide a sufficient explanation of how a claimed function is achieved or enable the full scope of a claim that covers all possible ways of performing the function, the examiner must resolve the issue by applying § 112(a)

11

In this case, the court found that more investigation was needed under § 112(a).

With respect to written description, the court focused on “whether the specification shows possession by the inventor of how accessing disparate databases is achieved.” The court, relying on expert testimony, found that there is a genuine issue of material fact as to whether specific portions of the specification show how to access disparate databases. For example, the court looked a specific portion of the specification which explains that serialized files can be used to correlate parameters from two databases.

With respect to enablement, the court focused on the *Wands* factors, acknowledging that the relative skill in the art and the predictability of the art were high. The court, again relying on expert testimony, found that the amount of experimentation necessary to develop a functional prototype was not undue and that there is a genuine issue of material fact as to whether the specification provides a reasonable amount of guidance. For example, the court pointed to a specific portion of the specification that shows how to access disparate databases using correlation parameters.

The takeaway from this case for examination, is that, during prosecution, when the specification does not provide a sufficient explanation of how a claimed function is achieved or enable the full scope of a claim that covers all possible ways of performing the function, the examiner must resolve the issue by applying § 112(a).

Making a *Prima Facie* Case

- There is a presumption that a specification as filed provides an adequate disclosure under § 112(a)
- The examiner has the burden of setting forth a *prima facie* case providing reasons why the specification is deficient and thus the claims that rely thereon are rejected
 - Weigh all of the evidence of record and determine whether the claims as a whole are supported by a specification that provides an adequate written description and an enabling disclosure
 - Identify the claim limitation(s) lacking written description and/or enablement
 - Provide reasons why a person of ordinary skill in the art at the time the application was filed would not have: (a) recognized that the inventor was in possession of the claimed invention in view of the disclosure (written description), and/or (b) been able to make and/or use the full scope of the claimed invention without undue experimentation (enablement)
- When appropriate, suggest amendments to the claims to resolve the deficiencies, provided the amendments would be supported by the application as filed

MPEP 2163.04, 2164.04

12

There is a presumption that a specification as filed provides an adequate disclosure under § 112(a). Thus, the examiner has the burden of setting forth a *prima facie* case providing reasons why the specification is deficient and thus the claims that rely thereon are rejected.

To make a prima case for a rejection under § 112(a), examiners should:

- Weigh all of the evidence of record and determine whether the claims as a whole are supported by a specification that provides an adequate written description and an enabling disclosure,
- Identify the claim limitation(s) lacking written description and/or enablement, and
- Provide reasons why a person of ordinary skill in the art at the time the application was filed would not have: (a) recognized that the inventor was in possession of the claimed invention in view of the disclosure (written description), and/or (b) been able to make and/or use the full scope of the claimed invention without undue experimentation (enablement).

When appropriate, examiners may suggest amendments to the claims to resolve the deficiencies, provided the amendments would be supported by the application as filed.

Applicant Response to a §112(a) Rejection

- Once a *prima facie* case has been made by the examiner after considering all the evidence of record, the burden shifts to the applicant
- A response to a rejection under §112(a) can include:
 - Amendment to the claims to remove/amend limitations lacking support
 - A showing that the specification provides adequate support by pointing out where in the written disclosure or drawings the support exists
 - An affidavit presenting factual evidence that the disclosure is adequate to support the full scope of the claims. Factual evidence can include:
 - The level of skill in the art
 - Facts directed to the amount of time and effort and level of knowledge required for the practice of the invention (enablement)
 - Commercial availability of components that show that a person of ordinary skill in the art would know which or what parts of components could be used to make and/or use the invention (written description and enablement)

MPEP 2163.04(II), 2164.05, 2164.06(c)(III) and 716



13

Once a *prima facie* case has been made by the examiner after considering all the evidence of record, the burden shifts to the applicant. Applicant's response to a rejection under §112(a) can include the following.

- An amendment to the claims to remove/amend limitations lacking support.
- A showing that the specification provides adequate support by pointing out where in the written disclosure or drawings the support exists.
- An affidavit presenting factual evidence that the disclosure is adequate to support the full scope of the claims. Factual evidence presented in the affidavit can include the level of skill in the art, facts directed to the amount of time and effort and level of knowledge required for the practice of the invention and facts directed to commercial availability of components that show that a person of ordinary skill in the art would know which or what parts of components could be used to make and/or use the invention.
- It is not sufficient to respond a rejection based on lack of written description with an argument that one of ordinary skill in the art *could* devise a way to perform a function because the written description requirement requires the **inventor** to disclose the details of how the invention operates or the function is performed.
- It is also not permissible to add new matter to the specification after filing to resolve lack of disclosure.

Clarity of the Prosecution Record

- Clarity of claim limitations in granted patents is improved when the specification provides a complete description of the invention
- Any deficiencies in the disclosure should be addressed during prosecution and clearly explained in an Office action
 - Early clarification by the examiner of inadequacies with the disclosure will help applicant resolve the issue, *e.g.*, by clarifying the meaning of claim limitations, amending the claim(s) to ensure the scope is fully supported, and/or providing a more effective response, leading to more efficient prosecution
 - The prosecution record will provide a map for the public to understand the boundaries of the patent protection and provide clear notice of patent rights
 - The PTAB and courts will be informed as to what the examiner and the applicant understood the claims to mean

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14

Clarity of the prosecution record is of utmost importance.

- By explicitly identifying the meaning of a claim term during prosecution, the meaning of such a term is clarified in the granted patent because the record will reflect the mutual understanding of the scope and content of the claim reached by the examiner and the applicant.
- By explaining on the record the meaning of a claim term, the examiner can focus prosecution so that applicant can provide a clear response to any prior art rejections as well as any rejections based on issues arising under 35 USC 112.
- By clarifying claim scope on the record during patent prosecution, the public, including competitors, will have a better understanding of the patent protection granted, which can spur innovation in areas beyond the scope of protection.
- Additionally, discussions of claim construction in the prosecution record will inform the PTAB and the courts as to how the examiner and the applicant, in procuring the patent, viewed the claim terms at the time of grant. Providing claim interpretations on the record during prosecution can also assist the courts in their claim construction tasks during litigation.

Overview Summary

- Ensure that claims, especially those with functional language, are fully supported and enabled by the application disclosure by enforcing § 112(a) requirements
- Because there is a presumption that a specification as filed provides an adequate disclosure under § 112(a), the examiner has the burden of setting forth a *prima facie* case of lack of written description and/or enablement
- Establish a clear prosecution record by setting forth reasons why the application disclosure is deficient under § 112(a) and thus the claims that rely thereon are rejected

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15

As a summary for the overview portion of this module, examiners should ensure that claims, especially those with functional language, are fully supported and enabled by the application disclosure by enforcing § 112(a) requirements. Because there is a presumption that a specification as filed provides an adequate disclosure under § 112(a), the examiner has the burden of setting forth a *prima facie* case of lack of written description and/or enablement. The examiner must establish a clear prosecution record by setting forth reasons why the application disclosure is deficient under § 112(a) and thus the claims that rely thereon are rejected. As always, it is important to remember that every case turns on its own set of particular facts. There are no “magic” words and every claim must be analyzed in light of its supporting disclosure and the state of the relevant art.

§ 112(a): Focus on Electrical/Mechanical and Computer/Software-related Claims

PART I – WRITTEN DESCRIPTION



16

Part I of this module will cover the topic of examining claims with functional language for compliance with the written description requirement of 35 U.S.C. 112(a), again focusing on computer and software-related claims and making the prosecution record clear regarding the adequacy of the application disclosure.

Written Description – Original Claims

- Written description applies to all claims, including original claims
- An original claim may lack written description when the claim defines the invention in functional language specifying a desired result but the specification does not sufficiently identify **how** the function is performed or result is achieved
 - For software, this can occur when the algorithm or steps/procedure for performing the computer function are not explained at all or are not explained in sufficient detail (simply restating the function recited in the claim is not necessarily sufficient)

MPEP 2163(A)



17

The written description requirement of § 112(a) applies to all claims, including original claims. MPEP 2163(II) provides a methodology for determining adequacy of written description: 1. determine what claim as a whole covers, 2. review the entire application to understand how the inventor provides support for the claimed invention, including each element and/or step, and 3. determine whether there is sufficient written description to inform one of ordinary skill in the art that the inventor was in possession of the claimed invention as a whole at the time the application was filed.

An original claim may lack written description when the claim defines the invention in functional language specifying a desired result but the specification does not sufficiently identify how the function is performed or result is achieved. For software, this can occur when the algorithm or steps/procedure for performing the computer function are not explained at all or are not explained in sufficient detail. Simply restating the function recited in the claim is not necessarily sufficient to satisfy written description.

For example, in the 2011 Federal Circuit decision *In re Katz*, a claim directed to a method for use with a telephone facility was found invalid under § 112(a) for failure to provide an adequate written description of the claimed function “visually displaying the customer number data at the operator terminal.” The claim limitation was construed to require the visual display of *caller-entered* customer number data but the specification only describes the visual display of *operator-entered* data. Thus, the steps/procedure for performing the claimed function were not explained at all in the specification and failed to satisfy section 112(a).

Written Description – Original Claims (Continued)

- An original claim may **also** lack written description when a broad genus claim is presented but the specification only describes a narrow species with no evidence that the genus is contemplated
 - For processes, this can occur when the claim covers all ways of performing a process but the specification discloses only one method

MPEP 2163(A)

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18

An original claim may also lack written description when a broad genus claim is presented but the specification only describes a narrow species with no evidence that the genus is contemplated. For processes, this can occur when the claim covers all ways of performing a process but the specification discloses only one method.

For example, in the 2005 Federal Circuit decision *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, the claim was directed to a method of compressing digital images using seamless discrete wave transformation (“DWT”). The court found that the claim covered all ways of performing DWT-based compression processes that lead to seamless DWT because there were no limitations as to how the seamless DWT was accomplished. However, the specification provided only one method for creating a seamless DWT without contemplating a more generic way of creating a seamless way of DWT coefficients. Thus, the written description requirement was not satisfied since the specification did not provide sufficient evidence that the inventor invented the generic claim.

“Discussion of happening less in electrical as opposed to chemical arts.”

Written Description – Computer-Implemented Functional Limitations

- For written description, the critical inquiry is:
*Does the specification explain what hardware and/or software (specifically the steps or procedures) **the inventor uses** to accomplish the claimed function?*

MPEP 2161.01(I)

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19

Now we will focus on special considerations regarding written description support for computer-implemented functional limitations. To evaluate written description support for computer-implemented functional limitations, the critical inquiry is: does the specification explain what hardware and/or software (specifically the steps or procedures) the inventor uses to accomplish the claimed function? The steps or procedures are sometimes called the ‘algorithm’ for performing the function.

Written Description – Computer-Implemented Functional Limitations

- Evaluate whether the inventor provided sufficient detail in the specification as filed (as it would be understood by one of ordinary skill in the art) to show that he/she had possession of the full scope of the claimed invention
 - An absence of details in the disclosure regarding how the inventor accomplishes a claimed function would give rise to a rejection for lack of written description
- Whether one of ordinary skill in the art *could* devise a way to accomplish the function is not relevant to the issue of whether the inventor has shown possession of the claimed invention
 - The ability of one skilled in the art to make and use the claimed invention does not satisfy the written description requirement if details of how the function is to be performed are not disclosed

MPEP 2161.01(f)

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20

For computer-implemented functional limitations, evaluate whether the inventor provided sufficient detail in the specification as filed (as it would be understood by one of ordinary skill in the art) to show that he/she had possession of the full scope of the claimed invention. An absence of details in the disclosure regarding how the inventor accomplishes a claimed function would give rise to a rejection for lack of written description.

Whether one of ordinary skill in the art could devise a way to accomplish the function is not relevant to the issue of whether the inventor has shown possession of the claimed invention. That is, the ability of one skilled in the art to make and use the claimed invention does not satisfy the written description requirement if details of how the inventor performs the function are not disclosed.

Written Description – Programmed Computer Functions

- The focus for written description of programmed computer functions is on whether there is sufficient disclosure of hardware, as well as software
 - It is not enough that one skilled in the art could write a program to achieve the claimed function as § 112(a) requires that the *specification* must explain how the inventor intends to achieve the claimed function
 - The specification must disclose the computer and the algorithm (*e.g.*, the necessary steps and/or flowcharts) that perform the claimed function in sufficient detail such that one of ordinary skill can reasonably conclude that the inventor invented the claimed subject matter

MPEP 2181(II)A

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21

The focus for written description of programmed computer functions is on whether there is sufficient disclosure of hardware, as well as software. It is not enough that one skilled in the art could write a program to achieve the claimed function as § 112(a) requires that the specification must explain how the inventor intends to achieve the claimed function. Thus, the specification must disclose the computer and the algorithm (*e.g.*, the necessary steps and/or flowcharts) that perform the claimed function in sufficient detail such that one of ordinary skill can reasonably conclude that the inventor invented the claimed subject matter.

- The level of detail required to satisfy the written description requirement varies depending on the nature and scope of the claims and on the complexity and predictability of the relevant technology.
- Computer-implemented inventions are often disclosed and claimed in terms of their functionality because writing computer programming code to perform specific functions is normally within the skill of the art once those functions have been adequately disclosed.
- The determination requires an inquiry into both the sufficiency of the disclosed hardware as well as the disclosed software due to the interrelationship and interdependence of computer hardware and software.
- While disclosure of the program code is not required, the detailed steps or instructions that the program follows should be described.

Written Description – Programmed Computer Functions under § 112(f)

- The analysis for written description of programmed computer functions is the same whether or not § 112(f) is invoked
 - A limitation interpreted under § 112(f) (a so-called “means-plus-function” limitation) is not absolved of compliance with § 112(a)
- The analysis for whether a computer-implemented § 112(f) limitation satisfies the definiteness requirement of § 112(b) is similar to the analysis for whether there is adequate written description under § 112(a)
 - When a § 112(f) limitation is found to be indefinite under § 112(b) for failure to disclose corresponding structure (computer + algorithm) in the specification to perform the entire claimed function, it will also fail to have an adequate written description under § 112(a)

MPEP 2181(IV) and 2185



22

The analysis for evaluating written description support for programmed computer functions is the same whether or not § 112(f) is invoked.

A limitation interpreted under § 112(f) (a so-called “means-plus-function” limitation) is not absolved of compliance with § 112(a). The analysis for whether a computer-implemented § 112(f) limitation satisfies the definiteness requirement of § 112(b) is similar to the analysis for whether there is adequate written description under § 112(a). When a § 112(f) limitation is found to be indefinite under § 112(b) for failure to disclose corresponding structure (computer + algorithm) in the specification to perform the entire claimed function, it will also fail to have an adequate written description under § 112(a).

Satisfying the Written Description Requirement

- “Written description” is not limited to words in the specification
 - Can be provided in the body of the specification along with the figures (*e.g.*, in words, structures, figures, diagrams, and formulas)
 - Verbatim support for the claim language is not required
 - The level of detail necessary varies depending on the nature and scope of the claims and complexity and predictability of the relevant technology
- Merely reproducing a claim limitation in the specification or pointing to an original claim does not satisfy the written description requirement, unless the claim itself conveys enough information to show that the inventor had possession of the claimed invention at the time of filing
- For functional limitations, it is not necessarily sufficient to merely repeat the claimed function in the written description or in a flowchart
 - The steps/procedure taken to perform the function must be described with sufficient detail so that one of ordinary skill in the art would understand how the inventor intended the function to be performed

MPEP 2163.02 and 2181(IV)

23

It is important to note that “written description” is not limited to words in the specification. For example, written description support for a claim limitation can be provided in the body of the specification along with the figures (*e.g.*, in words, structures, figures, diagrams, and formulas). Verbatim support for the claim language is not required, and the level of detail necessary varies depending on the nature and scope of the claims and complexity and predictability of the relevant technology.

Merely reproducing a claim limitation in the specification or pointing to an original claim does not satisfy the written description requirement, unless the claim itself conveys enough information to show that the inventor had possession of the claimed invention at the time of filing.

Also, for functional limitations, it is not necessarily sufficient to merely repeat the claimed function in the written description or in a flowchart. The steps/procedure taken to perform the function must be described with sufficient detail so that one of ordinary skill in the art would understand how the inventor intended the function to be performed.

MPEP 2163(I) describes additional ways to show possession, for instance, by an actual reduction to practice, by a showing that the invention was ready for patenting such as by the disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics (*e.g.*, of a compound) sufficient to show that the applicant was in possession of the claimed invention.

Establishing a *Prima Facie* Case to Make a § 112(a) Rejection

- There is a presumption that a specification as filed provides an adequate written description under § 112(a)
- When the specification (including all of the written description and drawings) fails to support a claim as a whole, a rejection of the claim under § 112(a) is appropriate
- Burden is on the examiner to set forth a *prima facie* case providing reasons why the specification is deficient and thus the claim that relies thereon is rejected
 - Identify the claim and limitation at issue
 - Provide reasons why a person of ordinary skill in the art would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed
 - A mere statement that the application disclosure does not support the claim is insufficient

MPEP 2163.04

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24

Because there is a presumption that a specification as filed provides an adequate written description under § 112(a), the Office has the initial burden of presenting evidence or reasons why persons of ordinary skill in the art would not recognize a description of the invention defined in the claims.

When the specification (including all of the written description and drawings) fails to support a claim as a whole, a rejection of the claim under § 112(a) is appropriate. The burden is then on the examiner to set forth a *prima facie* case providing reasons why the specification is deficient and thus the claim that relies thereon is rejected. In doing so, the examiner should:

- Identify the claim and limitation at issue, and
- Provide reasons why a person of ordinary skill in the art would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed.

Note that a mere statement that the application disclosure does not support the claim is insufficient. See, for example the 2007 Federal Circuit decision *Hyatt v. Dudas*, where the court deemed a written description rejection sufficient when based on a detailed explanation by the examiner regarding which claim elements were not adequately supported.

Establishing a *Prima Facie* Case to Make a § 112(a) Rejection (Continued)

- Identify the claim limitation that lacks written description support and explain what is lacking in the specification
 - Sample Explanation: *Claim 1 recites using three separate codes in the method of authorizing debit purchase transactions. The specification does not disclose the use of three separate codes. The specification fails to provide a written description that shows the inventor possessed the invention as recited in claim 1. (e.g. no description)*
- Form paragraphs:
 - 7.30.01 – Statement of Statutory Basis
 - 7.31.01 – Rejection, Written Description Requirement
- When appropriate, suggest amendments to the claims to resolve the deficiency, provided the amendments would be supported by the application as filed

MPEP 2163.04



25

In drafting the rejection, the examiner should identify the claim limitation that lacks written description support and explain what is lacking in the specification. The following is a sample explanation: “Claim 1 recites using three separate codes in the method of authorizing debit purchase transactions. The specification does not disclose the use of three separate codes. The specification fails to provide a written description that shows the inventor possessed the invention as recited in claim 1.”

Form paragraphs 7.30.01 – Statement of Statutory Basis and 7.31.01 – Rejection, Written Description Requirement are available for the examiner's use in making a rejection for lack of written description under § 112(a).

As a reminder, when appropriate, the examiner may suggest amendments to the claims to resolve the deficiency, provided the amendments would be supported by the application as filed.

Example 1: Written Description

*Claim 19. A hearing aid comprising at least one input microphone, an output receiver, a signal transmission channel interposed between said microphone and said receiver, and **a programmable delay line filter** interposed in a feedback path between the input and output of said transmission channel, said programmable filter **being programmed to effect substantial reduction** of acoustic feedback from the receiver to the microphone.*

- *The “programmable delay line filter” limitation of claim 19 has been construed to cover both fixed filters (whose parameters are externally calculated) and adaptive filters.*
- Does the specification support the full scope of the bolded claim limitations above (i.e., both fixed and adaptive filters)?
 - The abstract states that the hearing aid “adjust[s] automatically to the optimum set of parameter values.” According to the specification, a patient is fitted with a hearing aid, which is connected to an external host controller at the audiologist’s office. The host controller calculates optimum coefficients for cancellation of acoustic feedback, and those coefficients are programmed into the filter. Using “adaptive strategies,” the filter can be reprogrammed with different sets of coefficients. In the example in the specification, the coefficients cannot be recalculated once the hearing aid is disconnected from the host controller.

26

This first example is based on the 2012 Federal Circuit decision *Energy Transportation Group Inc. v. William Demant Holding*. The “programmable delay line filter” limitation of claim 19 was at issue in the case and construed to cover both fixed filters (whose parameters are externally calculated) and adaptive filters. The court evaluated whether the specification supported the full scope of the bolded claim limitations to cover both fixed and adaptive filters.

In this case, the abstract states that the hearing aid “adjust[s] automatically to the optimum set of parameter values.” Also, according to the specification, a patient is fitted with a hearing aid, which is connected to an external host controller at the audiologist’s office. The host controller calculates optimum coefficients for cancellation of acoustic feedback, and those coefficients are programmed into the filter. Using “adaptive strategies,” the filter can be reprogrammed with different sets of coefficients. In the example in the specification, the coefficients cannot be recalculated once the hearing aid is disconnected from the host controller.

Example 1: Written Description - Satisfied

- Yes, one of ordinary skill in the art would understand from the application disclosure that the programmable delay line filter is not limited to a fixed filter and could also be “adaptive”
 - For example, the description that the hearing aid “adjusts automatically to the optimum set of parameter values” shows that the inventors were in possession of a programmable hearing aid that can use fixed or adaptive filtering for feedback cancellation.

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27

In this case, one of ordinary skill in the art would understand from the application disclosure that the programmable delay line filter is not limited to a fixed filter and could also be “adaptive.” For example, the description that the hearing aid “adjusts automatically to the optimum set of parameter values” shows that the inventors were in possession of a programmable hearing aid that can use fixed or adaptive filtering for feedback cancellation.

Example 2: Written Description

20. A method for processing debit purchase transactions, the method comprising the steps of:

providing a counter-top terminal ...;

entering sales transaction data...;

entering an authorization code through the keypad for having the computer initiate communication with a host data processor;

entering a customer authorization code for authorizing access to a customer data base of a host processor;

entering a clerk authorization code for initiating a debit purchase transaction;

electronically transmitting a transaction request ...

- Does the specification support the bolded claim limitations above?
 - The specification does not contain any disclosure of a method for processing debit purchase transactions which includes the steps of entering a general authorization code, entering a customer authorization code and entering a clerk authorization code.

28

This second example is based on the 2012 Federal Circuit decision *Stored Value v. Card Activation*. At issue is whether the specification supports the bolded claim limitations of “entering an authorization code”, “entering a customer authorization code”, and “entering a clerk authorization code”.

The specification does not contain any disclosure of a method for processing debit purchase transactions which includes the steps of entering a general authorization code, entering a customer authorization code and entering a clerk authorization code.

Example 2: Written Description – Not Satisfied

- No, the written description in this patent does not describe a method that includes the steps of entering all three codes
 - The court noted that the question is not the scope of the claims but whether the specification showed that the inventors were in possession of the invention claimed
 - The specification does not need to spell out every detail of the invention, but the possession requirement demands that the written description show that the inventor actually invented what is claimed

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29

The written description requirement is not satisfied because the specification does not describe a method that includes the steps of entering all three codes.

The court noted that the question is not the scope of the claims but whether the specification showed that the inventors were in possession of the invention claimed. The court further stated that the specification does not need to spell out every detail of the invention, but the possession requirement demands that the written description show that the inventor actually invented what is claimed.

Written Description Summary

- An original claim may lack written description when the claim defines the invention in functional language specifying a desired result but the specification does not sufficiently identify *how* the function is performed or result is achieved
 - For programmed computer functions, determine whether the specification discloses in adequate detail the computer and the algorithm (*e.g.*, the necessary steps and/or flowcharts) that perform the claimed function
 - It is not enough that one skilled in the art could write a program to achieve the claimed function
- Establish a clear prosecution record by setting forth reasons why the application disclosure fails to provide written description support under § 112(a) and thus the claims that rely thereon are rejected

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30

As a summary for Part I of this module covering written description, remember that an original claim may lack written description when the claim defines the invention in functional language specifying a desired result but the specification does not sufficiently identify how the function is performed or result is achieved. For programmed computer functions, it is important to determine whether the specification discloses in adequate detail the computer and the algorithm (*e.g.*, the necessary steps and/or flowcharts) that perform the claimed function as it is not enough that one skilled in the art could write a program to achieve the claimed function.

Additionally, it is important to establish a clear prosecution record by setting forth reasons why the application disclosure fails to provide written description support under § 112(a) and thus the claims that rely thereon are rejected.

