

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 1

This worksheet is used in the **2016 Functional Language Workshop** to facilitate the discussion of the interpretation and definiteness under 35 U.S.C. 112(b) of hypothetical product claims reciting functional language. As every claim must be examined individually based on the particular elements recited therein, a separate worksheet should be used to analyze each claim. The use of this worksheet during examination is optional.

Note: This answer key includes answers to the questions on the worksheet, as well as additional explanations drawn from the MPEP and recent training. Although examiners should be familiar with the recent training prior to participating in this workshop, pertinent resources are referenced herein so that examiners can obtain more information if needed.

Example: Ultrasonic Surgical Shears

Claim: 1

1. An ultrasonic surgical shears comprising:
 - a) an ultrasonic surgical blade;
 - b) a clamping arm coupled to the blade and operable to open and close toward the blade; and
 - c) a tissue pad attached to the clamping arm, the blade and tissue pad defining a clamping surface area,wherein *an applied clamping force is limited to a range of 60 psi to 210 psi at the clamping surface area.*

Part I: Identifying Functional Language

As a first step, functional limitations in the claim should be identified. A claim limitation is functional when it recites a feature by *what it does* rather than by *what it is*. Claims often use functional language to add further description to some structure or action, for example how elements or steps tie together, or to provide context to claim elements. Functional language can appear in limitations that invoke 35 U.S.C. 112(f) (“means-plus-function”), and in limitations that do not invoke § 112(f). Limitations that do not invoke § 112(f) are typically recited with some structure, material or action to define a particular capability or purpose served by the recited structure, material or action. For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); [35 U.S.C. 112\(f\): Identifying Limitations That Invoke 112\(f\)](#); and [35 U.S.C. § 112\(f\): Making the Record Clear](#).

This claim includes at least one instance of functional language, which is:

“an applied clamping force is limited to a range of 60 psi to 210 psi at the clamping surface area”

Note: This phrase will be the focus of this workshop. However, notice that these claims recite other instances of functional language, such as the clamping arm is

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“operable to open and close toward the blade”. The meaning of this phrase and any limits imposed by this language would be clear when the claim is given its broadest reasonable interpretation since the claim states that the clamping arm is coupled to the blade and one of ordinary skill in this art would know what coupling makes the arm operable to open and close toward the blade.

1. Does the claim element including this functional language invoke 35 U.S.C. 112(f)?

Use the three-prong analysis in MPEP 2181 to determine whether the claim limitation invokes § 112(f).

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Prong A is met because: n/a; the language does not recite “means” or a generic placeholder for “means”. Prong B is met because: n/a Prong C is met because: n/a |

Part II: Construing Functional Language

During examination, claims are given their broadest reasonable interpretation (BRI) in light of the specification as it would be interpreted by one of ordinary skill in the art. It is a best practice to make the record clear during prosecution by explaining the BRI of claim terms, as necessary, including explaining the BRI of any functional language. When § 112(f) is invoked, the BRI of the “means-plus-function” limitation is restricted to the corresponding structure in the supporting disclosure, and its equivalents (the corresponding specification that identifies and links the structure, material or act to the function recited in the claim is considered to be part of the claim limitation). When § 112(f) is not invoked and an element is recited along with a function, that element is construed as being capable of performing the function – in other words, the BRI of that element is limited by the function.

It should be kept in mind, however, that there is a distinction between reciting a function compared to reciting an intended use or result. A functional limitation can provide a patentable distinction (limit the claim scope) by imposing limits on the function of a structure, material or action. Typically no patentable distinction (no limit on the claim scope) is made by an intended use or result unless some structural difference is imposed by the use or result on the structure or material recited in the claim, or some manipulative difference is imposed by the use or result on the action recited in the claim.

For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

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2. **What is the broadest reasonable interpretation (BRI) of the functional language? Answer part A if the functional language does not invoke § 112(f), and Part B if the functional language is part of a § 112(f) limitation.**

| A. BRI if § 112(f) is <u>not</u> invoked |
|--|
| <p>The structure, material or act in the claim that is connected to (<i>i.e.</i>, performs) the recited function is: n/a; the claimed function of the applied clamping force is not performed by any structure recited in the claim.</p> <p>The BRI of the functional language is: that the shears must somehow limit the applied clamping force to a range of 60 psi to 210 psi at the clamping surface area.</p> |

| B. BRI if § 112(f) is invoked |
|---|
| <p>The corresponding structure, material or act in the specification that performs the recited function is:</p> <p>The BRI of the § 112(f) limitation is:</p> |

3. **Does the functional language limit the claim scope (*i.e.*, must a prior art reference disclose this functional limitation in order to anticipate the claim)?**

| Yes | No | Notes |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <p>The reason why the functional language does (or does not) limit the claim scope is: it imposes a limited range on the applied clamping force of the shears; thus, anticipatory shears must limit the applied clamping force to the claimed range.</p> |

Part III: Definiteness of Functional Language

While functional limitations may be properly used in claims, the boundaries imposed by a functional limitation must be clearly defined to be definite under 35 U.S.C. 112(b). Claim language that merely states a result to be obtained without providing boundaries on the claim scope (*e.g.*, by not specifying any way to achieve those results) is unclear. Consider the following to determine whether a claim limitation expressed in functional language has clear boundaries: whether one of ordinary skill in the art can determine what structure, material or act in the claim performs this function; whether the limitation has well defined boundaries or only expresses a problem solved or intended result; and what an anticipatory reference would need to disclose in order to satisfy this claim limitation. These considerations are not all-inclusive or limiting.

When § 112(f) is invoked, the specification must adequately disclose a corresponding structure, material or act that performs the function. For “means”-type claims, an adequate disclosure

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requires that the corresponding structure or material is: (a) disclosed in a way that one of ordinary skill in the art will understand what specific structure or material the inventor has identified to perform the recited function; (b) sufficient to perform the entire function recited in the claim limitation; and (c) clearly linked to the function in the written description.

When the examiner determines that the boundaries of a claim are not reasonably clear, a rejection under § 112(b) should be made. Such a rejection puts the applicant on notice that it must fulfill its statutory duty under § 112(b) to ensure that claim language clearly defines the boundaries of the claim scope sought. In making a rejection, the examiner must identify the specific claim language that is indefinite, and explain why that language renders the boundaries of the claim unclear. When possible, the examiner should suggest how the indefiniteness issues may be resolved.

For more information, refer to MPEP 2173.02, 2173.05(g), 2181 and 2182, and the following training modules: *Enhancing Clarity By Ensuring That Claims Are Definite Under 35 U.S.C. 112(b)*; [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims; 35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#); and [35 U.S.C. 112\(f\): Evaluating § 112\(f\) Limitations in Software-Related Claims for Definiteness under 35 USC 112\(b\)](#).

For § 112(f) limitations:

4. If the functional language is part of a “means”-type § 112(f) limitation, answer the following questions about the corresponding structure or material. Otherwise, skip to Question 5.

A) Does the specification disclose or describe a structure or material as performing the claimed function?

| Yes | No | Notes |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | The corresponding structure or material is: |

B) Is the disclosed or described structure or material sufficient to perform the entire claimed function?

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

C) Does the specification clearly link the structure or material to the claimed function?

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

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For functional language that does not invoke § 112(f):

5. Are the boundaries of the functional language clear, *i.e.*, can one of ordinary skill in the art draw the boundary between what is covered by the claim and what is not covered?

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The boundaries of the functional language are: unclear because the claim does not provide a discernable boundary on what performs the function. The recited function does not follow from the structure recited in the claim, <i>i.e.</i> , the blade, clamping arm, or tissue pad, so it is unclear whether the function requires some other structure or is simply a result of operating the shears in a certain manner. Thus, one of ordinary skill in the art would not be able to draw a clear boundary between what is and is not covered by the claim. See MPEP 2173.05(g) for more information. |

Following Question 4 or 5, for § 112(f) limitations and limitations that do not invoke § 112(f):

6. Should the claim be rejected as indefinite under 35 U.S.C. 112(b)?

| Yes | No | Notes |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <p>A sample rejection under 35 U.S.C. 112(b): [FP 7.34.01] Claim 1 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant, regards as the invention.</p> <p>The indefinite claim language is "an applied clamping force is limited to a range of 60 psi to 210 psi at the clamping surface area".</p> <p>This limitation is unclear because this limitation merely states a function (an applied clamping force limited to a range) without providing any indication about how the function is performed. The recited function does not follow from the structure recited in the claim, <i>i.e.</i>, the blade, clamping arm, or tissue pad, so it is unclear whether the function requires some other structure or is simply a result of operating the shears in a certain manner.</p> |

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| Yes | No | Notes |
|-----|----|--|
| | | <p>A suggestion for how applicant could resolve the unclear boundaries is: amending the claim to specify how the applied clamping force is limited to a range of 60 psi to 210 psi, such as by specifying a particular structure that limits the clamping force, provided such an amendment is supported by the specification. For example, the amendment could specify the particular structure that performs this function (a force limiter), or could even just specify that the function is accomplished by an additional structural component of the shears. Each of these amendments when interpreted in view of the specification would inform one of ordinary skill in the art of the metes and bounds of the functional limitation.</p> <p><i>Note: Claims 2-5 in this exercise show variations of this functional phrase used in ways that do not raise any issues of indefiniteness because any limits imposed by the phrase have clearly defined boundaries.</i></p> |

Part IV: Addressing Functional Language

Examiners should keep in mind that, under the principles of compact prosecution, each claim should be examined for compliance with every statutory requirement for patentability in the initial review of the application. Thus, when the examiner determines that a claim term or phrase renders the claim indefinite, the examiner should make a rejection based on indefiniteness under 35 U.S.C. 112(b), as well as any other applicable rejection (*e.g.*, under 35 U.S.C. §§ 101, 102, 103, and/or 112).

When functional claim language is found indefinite, it typically lacks an adequate written description under § 112(a), because an indefinite, unbounded functional limitation would cover all ways of performing a function and indicate that the inventor has not provided sufficient disclosure to show possession of the invention. Thus, in most cases, a § 112(b) rejection that is based on functional language having unclear (or no) claim boundaries should be accompanied by a rejection under § 112(a) based on failure to provide a written description for the claim.

Because functional claim language that is not limited to a specific structure covers all devices that are capable of performing the recited function or all materials that have the functional characteristic, a rejection under §§ 102 or 103 may be appropriate if the prior art discloses a device that can inherently perform the claimed function or a material that inherently has the functional characteristic. When making a rejection, it is important that the examiner state on the record how

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the functional claim term or phrase is being interpreted with respect to the prior art applied in the rejection.

For more information, refer to MPEP 2173.05(g), 2182, and 2183, and the following training modules: [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

Group Discussion:

Assume that prior art reference X was published by another several years prior to applicant's earliest filing date (*i.e.*, X qualifies as prior art under § 102) and teaches elements that meet all the structural elements recited in this claim.

Using the BRI of this claim taking into account any limits imposed by the functional language, what prior art rejections would be appropriate? Consider scenarios where X explicitly discloses the recited function or where the structure in X performs the function with the same means, an equivalent means or a different means. If the claim has been found indefinite, assume that the best possible understanding of the claim is being used in the prior art rejection for purposes of compact prosecution.

Discussion points: In this case, the functional language imposes an additional limit on the claim, but the boundaries are unknown. If X uses a different structure (*e.g.*, a device attached to the hinge instead of the blade handle) to accomplish the function, it can anticipate claim 1 because claim 1 has no limits on how the function is accomplished. If X is silent as to the function, it cannot anticipate claim 1, unless it can be shown that the function is inherent in X's disclosed structure.

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ULTRASONIC SURGICAL SHEARS: CLAIM 2

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Note: This answer key includes answers to the questions on the worksheet, as well as additional explanations drawn from the MPEP and recent training. Although examiners should be familiar with the recent training prior to participating in this workshop, pertinent resources are referenced herein so that examiners can obtain more information if needed.

Example: Ultrasonic Surgical Shears

Claim: 2

2. An ultrasonic surgical shears comprising:
 - a) an ultrasonic surgical blade;
 - b) a clamping arm coupled to the blade and operable to open and close toward the blade; and
 - c) a tissue pad attached to the clamping arm, the blade and tissue pad defining a clamping surface area,
wherein *the shears apply a clamping force to permit cutting and sealing a blood vessel at the clamping surface area.*

Part I: Identifying Functional Language

As a first step, functional limitations in the claim should be identified. A claim limitation is functional when it recites a feature by *what it does* rather than by *what it is*. Claims often use functional language to add further description to some structure or action, for example how elements or steps tie together, or to provide context to claim elements. Functional language can appear in limitations that invoke 35 U.S.C. 112(f) (“means-plus-function”), and in limitations that do not invoke § 112(f). Limitations that do not invoke § 112(f) are typically recited with some structure, material or action to define a particular capability or purpose served by the recited structure, material or action. For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); [35 U.S.C. 112\(f\): Identifying Limitations That Invoke 112\(f\)](#); and [35 U.S.C. § 112\(f\): Making the Record Clear](#).

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ULTRASONIC SURGICAL SHEARS: CLAIM 2

This claim includes at least one instance of functional language, which is:

"the shears apply a clamping force to permit cutting and sealing a blood vessel at the clamping surface area"

1. Does the claim element including this functional language invoke 35 U.S.C. 112(f)?

Use the three-prong analysis in MPEP 2181 to determine whether the claim limitation invokes § 112(f).

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p>Prong A is met because: n/a; the language does not recite "means" or a generic placeholder for "means". The term "shears" is not a generic placeholder, because it is limited to a specific structure (e.g., the blade, clamping arm, etc.).</p> <p>Prong B is met because: n/a</p> <p>Prong C is met because: n/a</p> |

Part II: Construing Functional Language

During examination, claims are given their broadest reasonable interpretation (BRI) in light of the specification as it would be interpreted by one of ordinary skill in the art. It is a best practice to make the record clear during prosecution by explaining the BRI of claim terms, as necessary, including explaining the BRI of any functional language. When § 112(f) is invoked, the BRI of the "means-plus-function" limitation is restricted to the corresponding structure in the supporting disclosure, and its equivalents (the corresponding specification that identifies and links the structure, material or act to the function recited in the claim is considered to be part of the claim limitation). When § 112(f) is not invoked and an element is recited along with a function, that element is construed as being capable of performing the function – in other words, the BRI of that element is limited by the function.

It should be kept in mind, however, that there is a distinction between reciting a function compared to reciting an intended use or result. A functional limitation can provide a patentable distinction (limit the claim scope) by imposing limits on the function of a structure, material or action. Typically no patentable distinction (no limit on the claim scope) is made by an intended use or result unless some structural difference is imposed by the use or result on the structure or material recited in the claim, or some manipulative difference is imposed by the use or result on the action recited in the claim.

For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 2

2. What is the broadest reasonable interpretation (BRI) of the functional language? Answer part A if the functional language does not invoke § 112(f), and Part B if the functional language is part of a § 112(f) limitation.

| A. BRI if § 112(f) is <u>not</u> invoked |
|--|
| <p>The structure, material or act in the claim that is connected to (<i>i.e.</i>, performs) the recited function is: the recited elements of the shears as a whole (<i>e.g.</i>, the blade, the clamping arm, and the clamping surface area), which work together to apply the clamping force and achieve the result (cutting and sealing a blood vessel).</p> <p>The BRI of the functional language is: an intended result of the applied clamping force, which is cutting and sealing of a blood vessel.</p> |

| B. BRI if § 112(f) is invoked |
|---|
| <p>The corresponding structure, material or act in the specification that performs the recited function is:</p> <p>The BRI of the § 112(f) limitation is:</p> |

3. Does the functional language limit the claim scope (*i.e.*, must a prior art reference disclose this functional limitation in order to anticipate the claim)?

| Yes | No | Notes |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p>The reason why the functional language does (or does not) limit the claim scope is: because one of ordinary skill in the art of ultrasonic shears would understand that the structure already recited in the claim (<i>e.g.</i>, the blade, the clamping arm, and the clamping surface area) applies the clamping force that achieves the intended result of cutting and sealing a blood vessel.</p> |

Part III: Definiteness of Functional Language

While functional limitations may be properly used in claims, the boundaries imposed by a functional limitation must be clearly defined to be definite under 35 U.S.C. 112(b). Claim language that merely states a result to be obtained without providing boundaries on the claim scope (*e.g.*, by not specifying any way to achieve those results) is unclear. Consider the following to determine whether a claim limitation expressed in functional language has clear boundaries: whether one of ordinary skill in the art can determine what structure, material or act in the claim performs this function; whether the limitation has well defined boundaries or only expresses a problem solved

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ULTRASONIC SURGICAL SHEARS: CLAIM 2

or intended result; and what an anticipatory reference would need to disclose in order to satisfy this claim limitation. These considerations are not all-inclusive or limiting.

When § 112(f) is invoked, the specification must adequately disclose a corresponding structure, material or act that performs the function. For “means”-type claims, an adequate disclosure requires that the corresponding structure or material is: (a) disclosed in a way that one of ordinary skill in the art will understand what specific structure or material the inventor has identified to perform the recited function; (b) sufficient to perform the entire function recited in the claim limitation; and (c) clearly linked to the function in the written description.

When the examiner determines that the boundaries of a claim are not reasonably clear, a rejection under § 112(b) should be made. Such a rejection puts the applicant on notice that it must fulfill its statutory duty under § 112(b) to ensure that claim language clearly defines the boundaries of the claim scope sought. In making a rejection, the examiner must identify the specific claim language that is indefinite, and explain why that language renders the boundaries of the claim unclear. When possible, the examiner should suggest how the indefiniteness issues may be resolved.

For more information, refer to MPEP 2173.02, 2173.05(g), 2181 and 2182, and the following training modules: *Enhancing Clarity By Ensuring That Claims Are Definite Under 35 U.S.C. 112(b)*; [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims; 35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#); and [35 U.S.C. 112\(f\): Evaluating § 112\(f\) Limitations in Software-Related Claims for Definiteness under 35 USC 112\(b\)](#).

For § 112(f) limitations:

4. **If the functional language is part of a “means”-type § 112(f) limitation, answer the following questions about the corresponding structure or material. Otherwise, skip to Question 5.**

- A) **Does the specification disclose or describe a structure or material as performing the claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | The corresponding structure or material is: |

- B) **Is the disclosed or described structure or material sufficient to perform the entire claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

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ULTRASONIC SURGICAL SHEARS: CLAIM 2

C) Does the specification clearly link the structure or material to the claimed function?

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

For functional language that does not invoke § 112(f):

5. Are the boundaries of the functional language clear, *i.e.*, can one of ordinary skill in the art draw the boundary between what is covered by the claim and what is not covered?

| Yes | No | Notes |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The boundaries of the functional language are: clear. Because this functional language merely recites the intended result of the recited structural limitations, it imposes no patentable distinction on the claim (is not limiting). One of ordinary skill in the art would understand that surgical shears having the same structure as that recited in the claim (<i>e.g.</i> , the blade, the clamping arm, and the clamping surface area) will achieve the intended result and fall within the boundaries of the claim. |

Following Question 4 or 5, for § 112(f) limitations and limitations that do not invoke § 112(f):

6. Should the claim be rejected as indefinite under 35 U.S.C. 112(b)?

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The indefinite claim language is: This limitation is unclear because: A suggestion for how applicant could resolve the unclear boundaries is: |

Part IV: Addressing Functional Language

Examiners should keep in mind that, under the principles of compact prosecution, each claim should be examined for compliance with every statutory requirement for patentability in the initial review of the application. Thus, when the examiner determines that a claim term or phrase renders the claim indefinite, the examiner should make a rejection based on indefiniteness under 35 U.S.C. 112(b), as well as any other applicable rejection (*e.g.*, under 35 U.S.C. §§ 101, 102, 103, and/or 112).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 2

When functional claim language is found indefinite, it typically lacks an adequate written description under § 112(a), because an indefinite, unbounded functional limitation would cover all ways of performing a function and indicate that the inventor has not provided sufficient disclosure to show possession of the invention. Thus, in most cases, a § 112(b) rejection that is based on functional language having unclear (or no) claim boundaries should be accompanied by a rejection under § 112(a) based on failure to provide a written description for the claim.

Because functional claim language that is not limited to a specific structure covers all devices that are capable of performing the recited function or all materials that have the functional characteristic, a rejection under §§ 102 or 103 may be appropriate if the prior art discloses a device that can inherently perform the claimed function or a material that inherently has the functional characteristic. When making a rejection, it is important that the examiner state on the record how the functional claim term or phrase is being interpreted with respect to the prior art applied in the rejection.

For more information, refer to MPEP 2173.05(g), 2182, and 2183, and the following training modules: [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

Group Discussion:

Assume that prior art reference X was published by another several years prior to applicant's earliest filing date (*i.e.*, X qualifies as prior art under § 102) and teaches elements that meet all the structural elements recited in this claim.

Using the BRI of this claim taking into account any limits imposed by the functional language, what prior art rejections would be appropriate? Consider scenarios where X explicitly discloses the recited function or where the structure in X performs the function with the same means, an equivalent means or a different means. If the claim has been found indefinite, assume that the best possible understanding of the claim is being used in the prior art rejection for purposes of compact prosecution.

Discussion points: In this case, the functional language does not further limit the claim because the structure that accomplishes the function is also recited in the claim. So, since X meets all of the structural limitations, it anticipates claim 2 regardless of whether the function is explicitly disclosed by X.

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ULTRASONIC SURGICAL SHEARS: CLAIM 3

This worksheet is used in the **2016 Functional Language Workshop** to facilitate the discussion of the interpretation and definiteness under 35 U.S.C. 112(b) of hypothetical product claims reciting functional language. As every claim must be examined individually based on the particular elements recited therein, a separate worksheet should be used to analyze each claim. The use of this worksheet during examination is optional.

Note: This answer key includes answers to the questions on the worksheet, as well as additional explanations drawn from the MPEP and recent training. Although examiners should be familiar with the recent training prior to participating in this workshop, pertinent resources are referenced herein so that examiners can obtain more information if needed.

Example: Ultrasonic Surgical Shears

Claim: 3

3. An ultrasonic surgical shears *for cutting and sealing a blood vessel during surgery*, comprising:
 - a) an ultrasonic surgical blade;
 - b) a clamping arm coupled to the blade and operable to open and close toward the blade; and
 - c) a tissue pad attached to the clamping arm, the blade and tissue pad defining a clamping surface area.

Part I: Identifying Functional Language

As a first step, functional limitations in the claim should be identified. A claim limitation is functional when it recites a feature by *what it does* rather than by *what it is*. Claims often use functional language to add further description to some structure or action, for example how elements or steps tie together, or to provide context to claim elements. Functional language can appear in limitations that invoke 35 U.S.C. 112(f) (“means-plus-function”), and in limitations that do not invoke § 112(f). Limitations that do not invoke § 112(f) are typically recited with some structure, material or action to define a particular capability or purpose served by the recited structure, material or action. For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); [35 U.S.C. 112\(f\): Identifying Limitations That Invoke 112\(f\)](#); and [35 U.S.C. § 112\(f\): Making the Record Clear](#).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 3

This claim includes at least one instance of functional language, which is:

“for cutting and sealing a blood vessel during surgery”, in the preamble.

1. Does the claim element including this functional language invoke 35 U.S.C. 112(f)?

Use the three-prong analysis in MPEP 2181 to determine whether the claim limitation invokes § 112(f).

| Yes | No | Notes |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Prong A is met because: n/a; the language does not recite “means” or a generic placeholder for “means”. The term “shears” is not a generic placeholder, because it is limited to a specific structure (e.g., the blade, clamping arm, etc.). Prong B is met because: n/a Prong C is met because: n/a |

Part II: Construing Functional Language

During examination, claims are given their broadest reasonable interpretation (BRI) in light of the specification as it would be interpreted by one of ordinary skill in the art. It is a best practice to make the record clear during prosecution by explaining the BRI of claim terms, as necessary, including explaining the BRI of any functional language. When § 112(f) is invoked, the BRI of the “means-plus-function” limitation is restricted to the corresponding structure in the supporting disclosure, and its equivalents (the corresponding specification that identifies and links the structure, material or act to the function recited in the claim is considered to be part of the claim limitation). When § 112(f) is not invoked and an element is recited along with a function, that element is construed as being capable of performing the function – in other words, the BRI of that element is limited by the function.

It should be kept in mind, however, that there is a distinction between reciting a function compared to reciting an intended use or result. A functional limitation can provide a patentable distinction (limit the claim scope) by imposing limits on the function of a structure, material or action. Typically no patentable distinction (no limit on the claim scope) is made by an intended use or result unless some structural difference is imposed by the use or result on the structure or material recited in the claim, or some manipulative difference is imposed by the use or result on the action recited in the claim.

For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 3

2. What is the broadest reasonable interpretation (BRI) of the functional language? Answer part A if the functional language does not invoke § 112(f), and Part B if the functional language is part of a § 112(f) limitation.

| A. BRI if § 112(f) is <u>not</u> invoked |
|--|
| <p>The structure, material or act in the claim that is connected to (<i>i.e.</i>, performs) the recited function is: the recited elements of the shears as a whole (<i>e.g.</i>, the blade, the movable clamping arm, and the clamping surface area), which work together to perform the function (cutting and sealing a blood vessel).</p> <p>The BRI of the functional language is: an intended use of the shears.</p> |

| B. BRI if § 112(f) is invoked |
|---|
| <p>The corresponding structure, material or act in the specification that performs the recited function is:</p> <p>The BRI of the § 112(f) limitation is:</p> |

3. Does the functional language limit the claim scope (*i.e.*, must a prior art reference disclose this functional limitation in order to anticipate the claim)?

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p>The reason why the functional language does (or does not) limit the claim scope is: because one of ordinary skill in the art of ultrasonic shears would understand that the intended use flows from the structure recited in the body of the claim (the blade, clamping arm, and clamping surface area). The intended use does not recite structure, or provide context for claim construction of the shears. In other words, it does not provide criteria by which the shears can be distinguished from the prior art.</p> |

Part III: Definiteness of Functional Language

While functional limitations may be properly used in claims, the boundaries imposed by a functional limitation must be clearly defined to be definite under 35 U.S.C. 112(b). Claim language that merely states a result to be obtained without providing boundaries on the claim scope (*e.g.*, by not specifying any way to achieve those results) is unclear. Consider the following to determine whether a claim limitation expressed in functional language has clear boundaries: whether one of ordinary skill in the art can determine what structure, material or act in the claim performs this function; whether the limitation has well defined boundaries or only expresses a problem solved

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 3

or intended result; and what an anticipatory reference would need to disclose in order to satisfy this claim limitation. These considerations are not all-inclusive or limiting.

When § 112(f) is invoked, the specification must adequately disclose a corresponding structure, material or act that performs the function. For “means”-type claims, an adequate disclosure requires that the corresponding structure or material is: (a) disclosed in a way that one of ordinary skill in the art will understand what specific structure or material the inventor has identified to perform the recited function; (b) sufficient to perform the entire function recited in the claim limitation; and (c) clearly linked to the function in the written description.

When the examiner determines that the boundaries of a claim are not reasonably clear, a rejection under § 112(b) should be made. Such a rejection puts the applicant on notice that it must fulfill its statutory duty under § 112(b) to ensure that claim language clearly defines the boundaries of the claim scope sought. In making a rejection, the examiner must identify the specific claim language that is indefinite, and explain why that language renders the boundaries of the claim unclear. When possible, the examiner should suggest how the indefiniteness issues may be resolved.

For more information, refer to MPEP 2173.02, 2173.05(g), 2181 and 2182, and the following training modules: *Enhancing Clarity By Ensuring That Claims Are Definite Under 35 U.S.C. 112(b)*; [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims; 35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#); and [35 U.S.C. 112\(f\): Evaluating § 112\(f\) Limitations in Software-Related Claims for Definiteness under 35 USC 112\(b\)](#).

For § 112(f) limitations:

4. **If the functional language is part of a “means”-type § 112(f) limitation, answer the following questions about the corresponding structure or material. Otherwise, skip to Question 5.**

- A) **Does the specification disclose or describe a structure or material as performing the claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | The corresponding structure or material is: |

- B) **Is the disclosed or described structure or material sufficient to perform the entire claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 3

- C) Does the specification clearly link the structure or material to the claimed function?

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

For functional language that does not invoke § 112(f):

5. Are the boundaries of the functional language clear, *i.e.*, can one of ordinary skill in the art draw the boundary between what is covered by the claim and what is not covered?

| Yes | No | Notes |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The boundaries of the functional language are: clear. Because this functional language merely recites an intended use of the surgical shears defined by the recited structural limitations, it imposes no patentable distinction on the claim (is not limiting). One of ordinary skill in the art would understand that surgical shears having the same structure as that recited in the claim (<i>e.g.</i> , the blade, the clamping arm, and the clamping surface area) can be used in the intended manner and will fall within the boundaries of the claim. |

Following Question 4 or 5, for § 112(f) limitations and limitations that do not invoke § 112(f):

6. Should the claim be rejected as indefinite under 35 U.S.C. 112(b)?

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The indefinite claim language is: This limitation is unclear because: A suggestion for how applicant could resolve the unclear boundaries is: |

Part IV: Addressing Functional Language

Examiners should keep in mind that, under the principles of compact prosecution, each claim should be examined for compliance with every statutory requirement for patentability in the initial review of the application. Thus, when the examiner determines that a claim term or phrase renders the claim indefinite, the examiner should make a rejection based on indefiniteness under 35 U.S.C. 112(b), as well as any other applicable rejection (*e.g.*, under 35 U.S.C. §§ 101, 102, 103, and/or 112).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 3

When functional claim language is found indefinite, it typically lacks an adequate written description under § 112(a), because an indefinite, unbounded functional limitation would cover all ways of performing a function and indicate that the inventor has not provided sufficient disclosure to show possession of the invention. Thus, in most cases, a § 112(b) rejection that is based on functional language having unclear (or no) claim boundaries should be accompanied by a rejection under § 112(a) based on failure to provide a written description for the claim.

Because functional claim language that is not limited to a specific structure covers all devices that are capable of performing the recited function or all materials that have the functional characteristic, a rejection under §§ 102 or 103 may be appropriate if the prior art discloses a device that can inherently perform the claimed function or a material that inherently has the functional characteristic. When making a rejection, it is important that the examiner state on the record how the functional claim term or phrase is being interpreted with respect to the prior art applied in the rejection.

For more information, refer to MPEP 2173.05(g), 2182, and 2183, and the following training modules: [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

Group Discussion:

Assume that prior art reference X was published by another several years prior to applicant's earliest filing date (*i.e.*, X qualifies as prior art under § 102) and teaches elements that meet all the structural elements recited in this claim.

Using the BRI of this claim taking into account any limits imposed by the functional language, what prior art rejections would be appropriate? Consider scenarios where X explicitly discloses the recited function or where the structure in X performs the function with the same means, an equivalent means or a different means. If the claim has been found indefinite, assume that the best possible understanding of the claim is being used in the prior art rejection for purposes of compact prosecution.

Discussion points: In this case, the functional language does not further limit the claim because the structure that accomplishes the function is also recited in the claim. So, since X meets all of the structural limitations, it anticipates claim 3 regardless of whether the function is explicitly disclosed by X.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 4

This worksheet is used in the **2016 Functional Language Workshop** to facilitate the discussion of the interpretation and definiteness under 35 U.S.C. 112(b) of hypothetical product claims reciting functional language. As every claim must be examined individually based on the particular elements recited therein, a separate worksheet should be used to analyze each claim. The use of this worksheet during examination is optional.

Note: This answer key includes answers to the questions on the worksheet, as well as additional explanations drawn from the MPEP and recent training. Although examiners should be familiar with the recent training prior to participating in this workshop, pertinent resources are referenced herein so that examiners can obtain more information if needed.

Example: Ultrasonic Surgical Shears

Claim: 4

4. An ultrasonic surgical shears comprising:
 - a) an ultrasonic surgical blade;
 - b) a clamping arm coupled to the blade and operable to open and close toward the blade;
 - c) a tissue pad attached to the clamping arm, the blade and tissue pad defining a clamping surface area; and
 - d) a force limiter coupled to the clamping arm, wherein the force limiter engages the blade *to limit an applied clamping force to a range of 60 psi to 210 psi at the clamping surface area.*

Part I: Identifying Functional Language

As a first step, functional limitations in the claim should be identified. A claim limitation is functional when it recites a feature by *what it does* rather than by *what it is*. Claims often use functional language to add further description to some structure or action, for example how elements or steps tie together, or to provide context to claim elements. Functional language can appear in limitations that invoke 35 U.S.C. 112(f) (“means-plus-function”), and in limitations that do not invoke § 112(f). Limitations that do not invoke § 112(f) are typically recited with some structure, material or action to define a particular capability or purpose served by the recited structure, material or action. For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); [35 U.S.C. 112\(f\): Identifying Limitations That Invoke 112\(f\)](#); and [35 U.S.C. § 112\(f\): Making the Record Clear](#).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 4

This claim includes at least one instance of functional language, which is:

"to limit an applied clamping force to a range of 60 psi to 210 psi at the clamping surface area"

1. Does the claim element including this functional language invoke 35 U.S.C. 112(f)?

Use the three-prong analysis in MPEP 2181 to determine whether the claim limitation invokes § 112(f).

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p>Prong A is met because: n/a; the language does not recite "means" or a generic placeholder for "means". One of ordinary skill would understand based on the specification that the "force limiter" is not a generic placeholder, because it is a specific structure for performing the function.</p> <p>Prong B is met because: n/a</p> <p>Prong C is met because: n/a</p> |

Part II: Construing Functional Language

During examination, claims are given their broadest reasonable interpretation (BRI) in light of the specification as it would be interpreted by one of ordinary skill in the art. It is a best practice to make the record clear during prosecution by explaining the BRI of claim terms, as necessary, including explaining the BRI of any functional language. When § 112(f) is invoked, the BRI of the "means-plus-function" limitation is restricted to the corresponding structure in the supporting disclosure, and its equivalents (the corresponding specification that identifies and links the structure, material or act to the function recited in the claim is considered to be part of the claim limitation). When § 112(f) is not invoked and an element is recited along with a function, that element is construed as being capable of performing the function – in other words, the BRI of that element is limited by the function.

It should be kept in mind, however, that there is a distinction between reciting a function compared to reciting an intended use or result. A functional limitation can provide a patentable distinction (limit the claim scope) by imposing limits on the function of a structure, material or action. Typically no patentable distinction (no limit on the claim scope) is made by an intended use or result unless some structural difference is imposed by the use or result on the structure or material recited in the claim, or some manipulative difference is imposed by the use or result on the action recited in the claim.

For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 4

2. **What is the broadest reasonable interpretation (BRI) of the functional language? Answer part A if the functional language does not invoke § 112(f), and Part B if the functional language is part of a § 112(f) limitation.**

| A. BRI if § 112(f) is <u>not</u> invoked |
|---|
| <p>The structure, material or act in the claim that is connected to (<i>i.e.</i>, performs) the recited function is: the force limiter.</p> <p>The BRI of the functional language is: that the force limiter has a structure that engages the blade such that the applied clamping force is limited to a range of 60 psi to 210 psi at the clamping surface area.</p> |

| B. BRI if § 112(f) is invoked |
|---|
| <p>The corresponding structure, material or act in the specification that performs the recited function is:</p> <p>The BRI of the § 112(f) limitation is:</p> |

3. **Does the functional language limit the claim scope (*i.e.*, must a prior art reference disclose this functional limitation in order to anticipate the claim)?**

| Yes | No | Notes |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <p>The reason why the functional language does (or does not) limit the claim scope is: because the functional language modifies the structure (the force limiter) recited in the claim. The function describes the result of the engagement of the recited force limiter and the blade, and thus imposes limits on the structure of the force limiter.</p> |

Part III: Definiteness of Functional Language

While functional limitations may be properly used in claims, the boundaries imposed by a functional limitation must be clearly defined to be definite under 35 U.S.C. 112(b). Claim language that merely states a result to be obtained without providing boundaries on the claim scope (*e.g.*, by not specifying any way to achieve those results) is unclear. Consider the following to determine whether a claim limitation expressed in functional language has clear boundaries: whether one of ordinary skill in the art can determine what structure, material or act in the claim performs this function; whether the limitation has well defined boundaries or only expresses a problem solved or intended result; and what an anticipatory reference would need to disclose in order to satisfy this claim limitation. These considerations are not all-inclusive or limiting.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 4

When § 112(f) is invoked, the specification must adequately disclose a corresponding structure, material or act that performs the function. For “means”-type claims, an adequate disclosure requires that the corresponding structure or material is: (a) disclosed in a way that one of ordinary skill in the art will understand what specific structure or material the inventor has identified to perform the recited function; (b) sufficient to perform the entire function recited in the claim limitation; and (c) clearly linked to the function in the written description.

When the examiner determines that the boundaries of a claim are not reasonably clear, a rejection under § 112(b) should be made. Such a rejection puts the applicant on notice that it must fulfill its statutory duty under § 112(b) to ensure that claim language clearly defines the boundaries of the claim scope sought. In making a rejection, the examiner must identify the specific claim language that is indefinite, and explain why that language renders the boundaries of the claim unclear. When possible, the examiner should suggest how the indefiniteness issues may be resolved.

For more information, refer to MPEP 2173.02, 2173.05(g), 2181 and 2182, and the following training modules: *Enhancing Clarity By Ensuring That Claims Are Definite Under 35 U.S.C. 112(b)*; [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims; 35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#); and [35 U.S.C. 112\(f\): Evaluating § 112\(f\) Limitations in Software-Related Claims for Definiteness under 35 USC 112\(b\)](#).

For § 112(f) limitations:

4. **If the functional language is part of a “means”-type § 112(f) limitation, answer the following questions about the corresponding structure or material. Otherwise, skip to Question 5.**

- A) **Does the specification disclose or describe a structure or material as performing the claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | The corresponding structure or material is: |

- B) **Is the disclosed or described structure or material sufficient to perform the entire claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

- C) **Does the specification clearly link the structure or material to the claimed function?**

| Yes | No | Notes |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | The reason is: |

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 4

For functional language that does not invoke § 112(f):

5. Are the boundaries of the functional language clear, *i.e.*, can one of ordinary skill in the art draw the boundary between what is covered by the claim and what is not covered?

| Yes | No | Notes |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The boundaries of the functional language are: clear. Although the claim has a broad scope (<i>i.e.</i> , it encompasses any force limiter that is coupled to the clamping arm and which engages the blade to perform the claimed function), the functional language provides certain claim boundaries because it informs the person of ordinary skill in the art as to how to achieve the claimed function (<i>i.e.</i> , by coupling a force limiter to the clamping arm so that it engages the blade). One of ordinary skill in the art of ultrasonic surgical shears would understand the boundaries of this claim imposed by the recited structural elements. |

Following Question 4 or 5, for § 112(f) limitations and limitations that do not invoke § 112(f):

6. Should the claim be rejected as indefinite under 35 U.S.C. 112(b)?

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The indefinite claim language is: This limitation is unclear because: A suggestion for how applicant could resolve the unclear boundaries is: |

Part IV: Addressing Functional Language

Examiners should keep in mind that, under the principles of compact prosecution, each claim should be examined for compliance with every statutory requirement for patentability in the initial review of the application. Thus, when the examiner determines that a claim term or phrase renders the claim indefinite, the examiner should make a rejection based on indefiniteness under 35 U.S.C. 112(b), as well as any other applicable rejection (*e.g.*, under 35 U.S.C. §§ 101, 102, 103, and/or 112).

When functional claim language is found indefinite, it typically lacks an adequate written description under § 112(a), because an indefinite, unbounded functional limitation would cover all ways of performing a function and indicate that the inventor has not provided sufficient disclosure to show possession of the invention. Thus, in most cases, a § 112(b) rejection that is based on

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 4

functional language having unclear (or no) claim boundaries should be accompanied by a rejection under § 112(a) based on failure to provide a written description for the claim.

Because functional claim language that is not limited to a specific structure covers all devices that are capable of performing the recited function or all materials that have the functional characteristic, a rejection under §§ 102 or 103 may be appropriate if the prior art discloses a device that can inherently perform the claimed function or a material that inherently has the functional characteristic. When making a rejection, it is important that the examiner state on the record how the functional claim term or phrase is being interpreted with respect to the prior art applied in the rejection.

For more information, refer to MPEP 2173.05(g), 2182, and 2183, and the following training modules: [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

Group Discussion:

Assume that prior art reference X was published by another several years prior to applicant's earliest filing date (*i.e.*, X qualifies as prior art under § 102) and teaches elements that meet all the structural elements recited in this claim.

Using the BRI of this claim taking into account any limits imposed by the functional language, what prior art rejections would be appropriate? Consider scenarios where X explicitly discloses the recited function or where the structure in X performs the function with the same means, an equivalent means or a different means. If the claim has been found indefinite, assume that the best possible understanding of the claim is being used in the prior art rejection for purposes of compact prosecution.

Discussion points: In this case, the functional language limits the claim to shears having a force limiter that is coupled to the clamping arm and engages the blade to accomplish the function. If X uses a different structure (*e.g.*, a device that is coupled to the clamping arm near the hinge instead of the finger loops) to accomplish the function, it can anticipate claim 4 because claim 4 is not limited to applicant's disclosed force limiter.

If X is silent as to the function, it cannot anticipate claim 4, unless it can be shown that the function is inherent in X's disclosed structure. For example, if X teaches shears having a structure that is coupled to the clamping arm and engages the blade, and an instruction manual for X's shears discloses that X's structure performs the claimed function, then an anticipation rejection would be appropriate.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 5

This worksheet is used in the **2016 Functional Language Workshop** to facilitate the discussion of the interpretation and definiteness under 35 U.S.C. 112(b) of hypothetical product claims reciting functional language. As every claim must be examined individually based on the particular elements recited therein, a separate worksheet should be used to analyze each claim. The use of this worksheet during examination is optional.

Note: This answer key includes answers to the questions on the worksheet, as well as additional explanations drawn from the MPEP and recent training. Although examiners should be familiar with the recent training prior to participating in this workshop, pertinent resources are referenced herein so that examiners can obtain more information if needed.

Example: Ultrasonic Surgical Shears

Claim: 5

5. An ultrasonic surgical shears comprising:
- a) an ultrasonic surgical blade;
 - b) a clamping arm coupled to the blade and operable to open and close toward the blade;
 - c) a tissue pad attached to the clamping arm, the blade and tissue pad defining a clamping surface area; and
 - d) a force limiting mechanism for *limiting an applied clamping force to a range of 60 psi to 210 psi at the clamping surface area.*

Part I: Identifying Functional Language

As a first step, functional limitations in the claim should be identified. A claim limitation is functional when it recites a feature by *what it does* rather than by *what it is*. Claims often use functional language to add further description to some structure or action, for example how elements or steps tie together, or to provide context to claim elements. Functional language can appear in limitations that invoke 35 U.S.C. 112(f) (“means-plus-function”), and in limitations that do not invoke § 112(f). Limitations that do not invoke § 112(f) are typically recited with some structure, material or action to define a particular capability or purpose served by the recited structure, material or action. For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); [35 U.S.C. 112\(f\): Identifying Limitations That Invoke 112\(f\)](#); and [35 U.S.C. § 112\(f\): Making the Record Clear](#).

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 5

This claim includes at least one instance of functional language, which is:

"limiting an applied clamping force to a range of 60 psi to 210 psi at the clamping surface area"

1. Does the claim element including this functional language invoke 35 U.S.C. 112(f)?

Use the three-prong analysis in MPEP 2181 to determine whether the claim limitation invokes § 112(f).

| Yes | No | Notes |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <p>Prong A is met because: claim element (d) recites a "force limiting mechanism", which is a generic placeholder for "means".</p> <p>Prong B is met because: the generic placeholder (the "force limiting mechanism") is modified by functional language ("for limiting an applied clamping force...")</p> <p>Prong C is met because: claim element (d) is not further modified by sufficient structure or material for performing the claimed function.</p> |

Part II: Construing Functional Language

During examination, claims are given their broadest reasonable interpretation (BRI) in light of the specification as it would be interpreted by one of ordinary skill in the art. It is a best practice to make the record clear during prosecution by explaining the BRI of claim terms, as necessary, including explaining the BRI of any functional language. When § 112(f) is invoked, the BRI of the "means-plus-function" limitation is restricted to the corresponding structure in the supporting disclosure, and its equivalents (the corresponding specification that identifies and links the structure, material or act to the function recited in the claim is considered to be part of the claim limitation). When § 112(f) is not invoked and an element is recited along with a function, that element is construed as being capable of performing the function – in other words, the BRI of that element is limited by the function.

It should be kept in mind, however, that there is a distinction between reciting a function compared to reciting an intended use or result. A functional limitation can provide a patentable distinction (limit the claim scope) by imposing limits on the function of a structure, material or action. Typically no patentable distinction (no limit on the claim scope) is made by an intended use or result unless some structural difference is imposed by the use or result on the structure or material recited in the claim, or some manipulative difference is imposed by the use or result on the action recited in the claim.

For more information, refer to MPEP 2111 and 2181, and the following training modules: [Broadest Reasonable Interpretation \(BRI\) and the Plain Meaning of Claim Terms](#); [Examining Functional](#)

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY

ULTRASONIC SURGICAL SHEARS: CLAIM 5

[Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

2. **What is the broadest reasonable interpretation (BRI) of the functional language? Answer part A if the functional language does not invoke § 112(f), and Part B if the functional language is part of a § 112(f) limitation.**

| A. BRI if § 112(f) is <u>not</u> invoked |
|---|
| The structure, material or act in the claim that is connected to (<i>i.e.</i> , performs) the recited function is: |
| |
| The BRI of the functional language is: |

| B. BRI if § 112(f) is invoked |
|--|
| The corresponding structure, material or act in the specification that performs the recited function is: the force limiter. |
| |
| The BRI of the § 112(f) limitation is: a force limiter, and equivalents thereof. |

3. **Does the functional language limit the claim scope (*i.e.*, must a prior art reference disclose this functional limitation in order to anticipate the claim)?**

| Yes | No | Notes |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The reason why the functional language does (or does not) limit the claim scope is: the statute requires a 112(f) limitation to be interpreted as being limited to the corresponding structure (or material or acts) described in the specification, and equivalents thereof. A reference must disclose the corresponding structure or its equivalent in order to anticipate the claim. |

Part III: Definiteness of Functional Language

While functional limitations may be properly used in claims, the boundaries imposed by a functional limitation must be clearly defined to be definite under 35 U.S.C. 112(b). Claim language that merely states a result to be obtained without providing boundaries on the claim scope (*e.g.*, by not specifying any way to achieve those results) is unclear. Consider the following to determine whether a claim limitation expressed in functional language has clear boundaries: whether one of ordinary skill in the art can determine what structure, material or act in the claim performs this function; whether the limitation has well defined boundaries or only expresses a problem solved or intended result; and what an anticipatory reference would need to disclose in order to satisfy this claim limitation. These considerations are not all-inclusive or limiting.

When § 112(f) is invoked, the specification must adequately disclose a corresponding structure, material or act that performs the function. For “means”-type claims, an adequate disclosure

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requires that the corresponding structure or material is: (a) disclosed in a way that one of ordinary skill in the art will understand what specific structure or material the inventor has identified to perform the recited function; (b) sufficient to perform the entire function recited in the claim limitation; and (c) clearly linked to the function in the written description.

When the examiner determines that the boundaries of a claim are not reasonably clear, a rejection under § 112(b) should be made. Such a rejection puts the applicant on notice that it must fulfill its statutory duty under § 112(b) to ensure that claim language clearly defines the boundaries of the claim scope sought. In making a rejection, the examiner must identify the specific claim language that is indefinite, and explain why that language renders the boundaries of the claim unclear. When possible, the examiner should suggest how the indefiniteness issues may be resolved.

For more information, refer to MPEP 2173.02, 2173.05(g), 2181 and 2182, and the following training modules: *Enhancing Clarity By Ensuring That Claims Are Definite Under 35 U.S.C. 112(b)*; [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims; 35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#); and [35 U.S.C. 112\(f\): Evaluating § 112\(f\) Limitations in Software-Related Claims for Definiteness under 35 USC 112\(b\)](#).

For § 112(f) limitations:

4. If the functional language is part of a “means”-type § 112(f) limitation, answer the following questions about the corresponding structure or material. Otherwise, skip to Question 5.

A) Does the specification disclose or describe a structure or material as performing the claimed function?

| Yes | No | Notes |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The corresponding structure or material is: <i>the force limiter</i> . |

B) Is the disclosed or described structure or material sufficient to perform the entire claimed function?

| Yes | No | Notes |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The reason is: <i>the force limiter is described as coupled to the clamping arm, and as being designed in the same manner as conventional force limiting mechanisms, with the force limiter abutting a portion of the blade handle to limit the user applied clamping force.</i> |

C) Does the specification clearly link the structure or material to the claimed function?

| Yes | No | Notes |
|-------------------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | The reason is: <i>the specification describes the force limiting mechanism 40 as a force limiter.</i> |

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For functional language that does not invoke § 112(f):

5. Are the boundaries of the functional language clear, *i.e.*, can one of ordinary skill in the art draw the boundary between what is covered by the claim and what is not covered?

| Yes | No | Notes |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | The boundaries of the functional language are: |

Following Question 4 or 5, for § 112(f) limitations and limitations that do not invoke § 112(f):

6. Should the claim be rejected as indefinite under 35 U.S.C. 112(b)?

| Yes | No | Notes |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The indefinite claim language is: This limitation is unclear because: A suggestion for how applicant could resolve the unclear boundaries is: |

Part IV: Addressing Functional Language

Examiners should keep in mind that, under the principles of compact prosecution, each claim should be examined for compliance with every statutory requirement for patentability in the initial review of the application. Thus, when the examiner determines that a claim term or phrase renders the claim indefinite, the examiner should make a rejection based on indefiniteness under 35 U.S.C. 112(b), as well as any other applicable rejection (*e.g.*, under 35 U.S.C. §§ 101, 102, 103, and/or 112).

When functional claim language is found indefinite, it typically lacks an adequate written description under § 112(a), because an indefinite, unbounded functional limitation would cover all ways of performing a function and indicate that the inventor has not provided sufficient disclosure to show possession of the invention. Thus, in most cases, a § 112(b) rejection that is based on functional language having unclear (or no) claim boundaries should be accompanied by a rejection under § 112(a) based on failure to provide a written description for the claim.

Because functional claim language that is not limited to a specific structure covers all devices that are capable of performing the recited function or all materials that have the functional characteristic, a rejection under §§ 102 or 103 may be appropriate if the prior art discloses a device that can inherently perform the claimed function or a material that inherently has the functional characteristic. When making a rejection, it is important that the examiner state on the record how the functional claim term or phrase is being interpreted with respect to the prior art applied in the rejection.

For more information, refer to MPEP 2173.05(g), 2182, and 2183, and the following training modules: [Examining Functional Claim Limitations: Focus on Computer/Software-related Claims](#); and [35 U.S.C. 112\(f\): Broadest Reasonable Interpretation and Definiteness of § 112\(f\) Limitations](#).

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Group Discussion:

Assume that prior art reference X was published by another several years prior to applicant's earliest filing date (*i.e.*, X qualifies as prior art under § 102) and teaches elements that meet all the structural elements recited in this claim.

Using the BRI of this claim taking into account any limits imposed by the functional language, what prior art rejections would be appropriate? Consider scenarios where X explicitly discloses the recited function or where the structure in X performs the function with the same means, an equivalent means or a different means. If the claim has been found indefinite, assume that the best possible understanding of the claim is being used in the prior art rejection for purposes of compact prosecution.

Discussion points: In this case, the functional language limits the claim to shears having a force limiter that is coupled to the clamping arm and engages the blade to accomplish the function, and equivalents thereof.

If X teaches the corresponding structure (*e.g.*, a force limiter that is coupled to the clamping arm and abuts a portion of the blade handle to limit the user applied clamping force) as accomplishing the claimed function, then it anticipates claim 5. If X is silent as to the function, it cannot anticipate claim 5, unless it can be shown that the function is inherent in X's disclosed structure. For example, if X teaches shears having a structure that is coupled to the clamping arm and abuts a portion of the blade handle, and an instruction manual for X's shears discloses that X's structure performs the claimed function, then an anticipation rejection would be appropriate.

If X teaches an equivalent structure (*e.g.*, a device that is coupled to the clamping arm near the hinge instead of the finger loops that produces substantially the same force limiting in substantially the same way) to accomplish the function, it can anticipate claim 5. If X is silent as to the function, it cannot anticipate claim 5, unless it can be shown that the function is inherent in X's disclosed structure.

If X teaches a non-equivalent structure as accomplishing the function, it can render claim 5 obvious.