FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY
COMPUTERIZED COLOR-EDITING SYSTEM: 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: Computerized Color-Editing System   **Claim:** 1

> 1.   A computer-assisted color-editing system, comprising:
>
> a scanner that produces appearance signals representative of a color image;
>
> a display on which modified appearance signals are displayed as the reproduction image; and
>
> a disk memory in which the modified appearance signals are stored, wherein **the appearance signals are modified to produce the modified appearance signals representative of a reproduction image**.

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:

"the appearance signals are modified to produce the modified appearance signals representative of a reproduction image"

Note: This phrase will be the focus of this workshop. However, notice that these claims recite other instances of functional language, such as a display "on which the modified appearance signals are displayed as the reproduction image". 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 display displays the modified appearance signals as the reproduction image and one of ordinary skill in this art would know what structure displays the modified appearance signals as the reproduction image.

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
☐	☒	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 <u>not</u> 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*.

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.e.*, performs) the recited function is: n/a; the claimed function of modifying the signals is not performed by any structure recited in the claim. The BRI of the functional language is: that the system must somehow modify the appearance signals to produce modified appearance signals representative of a reproduction image.

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

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
☒	☐	The reason why the functional language does (or does not) limit the claim scope is: it imposes a requirement for the signals to be modified; thus, anticipatory systems must modify the signals to produce modified appearance signals representative of a reproduction image.

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
COMPUTERIZED COLOR-EDITING SYSTEM: CLAIM 1

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 <u>requires</u> 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, <u>skip to Question 5</u>.**

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

Yes	No	Notes
☐	☐	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
☐	☐	The reason is:

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

Yes	No	Notes
☐	☐	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
☐	☒	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.e., the scanner, display, and disk memory, so it is unclear whether the function requires some other structure or is simply a result of operating the color-editing system 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 <u>and</u> 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
☒	☐	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. The indefinite claim language is "the appearance signals are modified to produce the modified appearance signals representative of a reproduction image". This limitation is unclear because it merely states a function (the appearance signals are modified to produce the modified appearance signals representative of a reproduction image) without providing any indication about how the function is performed. The recited function does not follow from the structure recited in the claim, i.e., the scanner, display, and disk memory, so it is unclear whether the function requires

Yes	No	Notes
		some other structure or is simply a result of operating the color-editing system in a certain manner. A suggestion for how applicant could resolve the unclear boundaries is: amending the claim to specify how the signals are modified, provided such an amendment is supported by the specification. For example, the amendment could specify a particular structure such as aesthetic correction circuitry that produces the modified signals based on user input, or could even just specify circuitry that modifies the signals based on user input introducing aesthetically desired alterations. 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. *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.

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*.

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 scanner that includes a signal modification module instead of a separate circuit) 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. For example, if X teaches a system including a commercial scanner, and the manual for the commercial scanner indicates that it produces appearance signals representative of a color image and also modifies them (*e.g.*, based on a user-selected toner-saving setting) to produce modified appearance signals representative of a reproduction image, then an anticipation rejection would be appropriate based on X's scanner inherently performing the claimed function.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY
COMPUTERIZED COLOR-EDITING SYSTEM: CLAIM 2

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: Computerized Color-Editing System   **Claim:** 2

> 2.   A computer-assisted color-editing system, comprising:
> a scanner that produces appearance signals representative of a color image;
>
> aesthetic correction circuitry wherein ***modified appearance signals representative of a reproduction image are produced***;
>
> a display on which the modified appearance signals are displayed as the reproduction image; and
>
> a disk memory in which the modified appearance signals are stored.

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
COMPUTERIZED COLOR-EDITING SYSTEM: CLAIM 2

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

<u>"modified appearance signals representative of a reproduction image are produced"</u>

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
☐	☒	Prong A is met because: n/a; the language does not recite "means" or a generic placeholder for "means". The term "aesthetic correction circuitry" is not a generic placeholder, because it is limited to a specific structure (*e.g.*, a particular type of circuit). More specifically, the specification defines the aesthetic correction circuitry as an electrical circuit having an input of the appearance signals produced by the scanner, a design that permits interactive introduction of aesthetically desired alterations into the appearance signals, and an output of modified appearance signals. 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 <u>not</u> 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*.

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.e.*, performs) the recited function is: the aesthetic correction circuitry.   The BRI of the functional language is: an intended result of the aesthetic correction circuitry, which is the production of modified appearance signals.

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

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
☐	☒	The reason why the functional language does (or does not) limit the claim scope is: because one of ordinary skill in the art of color-editing systems would understand that the structure already recited in the claim (the aesthetic correction circuitry defined in the specification as an electrical circuit having an input of the appearance signals produced by the scanner, a design that permits interactive introduction of aesthetically desired alterations into the appearance signals, and an output of modified appearance signals) operates to achieve the intended result of modifying the appearance signals.

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 <u>requires</u> 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)*; *<u>Examining Functional Claim Limitations: Focus on Computer/Software-related Claims</u>*; *<u>35 U.S.C. 112(f): Broadest Reasonable Interpretation and Definiteness of § 112(f) Limitations</u>*; and *<u>35 U.S.C. 112(f): Evaluating § 112(f) Limitations in Software-Related Claims for Definiteness under 35 USC 112(b)</u>*.

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, <u>skip to Question 5</u>.**

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

Yes	No	Notes
☐	☐	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
☐	☐	The reason is:

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

Yes	No	Notes
☐	☐	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
☒	☐	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 of color-editing systems would understand that a system having the same structure as that recited in the claim (*e.g.*, the scanner, aesthetic correction circuitry, a display, and a disk memory) will achieve the intended result and fall within the boundaries of the claim.

Following Question 4 or 5, for § 112(f) limitations <u>and</u> 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
☐	☒	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*.

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.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY
COMPUTERIZED COLOR-EDITING SYSTEM: 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: Computerized Color-Editing System   **Claim:** 3

> 3.   A computer-assisted color-editing system **for producing an aesthetically modified reproduction of a color image**, comprising:
>
> a scanner;
>
> aesthetic correction circuitry in communication with the scanner;
>
> a display in communication with the aesthetic correction circuitry; and
>
> a disk memory in communication with the aesthetic correction circuitry.

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:

<u>"for producing an aesthetically modified reproduction of a color image", in the preamble.</u>

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
☐	☒	Prong A is met because: n/a; the language does not recite "means" or a generic placeholder for "means". The term "computer-assisted color-editing system" is not a generic placeholder, because it is limited to the specific structure recited in the body of the claim. 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 <u>not</u> 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*.

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.e.*, performs) the recited function is: the recited elements of the system as a whole (*e.g.*, the scanner, aesthetic correction circuitry, a display, and a disk memory), which work together to perform the function (producing the aesthetically modified reproduction image). The BRI of the functional language is: an intended use of the system.

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

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
☐	☒	The reason why the functional language does (or does not) limit the claim scope is: because one of ordinary skill in the art of color-editing systems would understand that the intended use flows from the structure recited in the body of the claim (*e.g.*, the scanner, aesthetic correction circuitry, a display, and a disk memory will produce an aesthetically modified reproduction image). The intended use does not recite structure, or provide context for claim construction of the system. In other words, it does not provide criteria by which the system can be distinguished from the prior art.

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 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
☐	☐	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
☐	☐	The reason is:

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

Yes	No	Notes
☐	☐	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
☒	☐	The boundaries of the functional language are: clear. Because this functional language merely recites an intended use of the system 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 a color editing system having the same structure as that recited in the claim (*e.g.*, the scanner, aesthetic correction circuitry, a display, and a disk memory) 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 <u>and</u> 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
☐	☒	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
COMPUTERIZED COLOR-EDITING SYSTEM: 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.

> <u>Discussion points</u>: 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
COMPUTERIZED COLOR-EDITING SYSTEM: 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: Computerized Color-Editing System   **Claim:** 4

4. A computer-assisted color-editing system, comprising:

    a scanner that produces appearance signals representative of a color image;

    circuitry that **produces modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals**;

    a display on which the modified appearance signals are displayed as the reproduction image; and

    a disk memory in which the modified appearance signals are stored.

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:

produces modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals"

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
☐	☒	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 term "circuitry" is not a generic placeholder, because it is a specific structure for performing the function. 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*.

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.e.*, performs) the recited function is: the circuitry. The BRI of the functional language is: that the circuitry has a structure that produces modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals.

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

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
☒	☐	The reason why the functional language does (or does not) limit the claim scope is: because the functional language modifies the structure (the circuitry) recited in the claim. The functional language describes what the circuitry does (produce modified appearance signals) and how the signals have been modified (aesthetically desired alterations have been introduced based on user input). It thus imposes limits on the structure of the circuitry.

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 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, <u>skip to Question 5</u>.

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

Yes	No	Notes
☐	☐	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
☐	☐	The reason is:

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

Yes	No	Notes
☐	☐	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
☒	☐	The boundaries of the functional language are: clear. Although the claim has a broad scope (*i.e.*, it encompasses any circuitry that produced modified appearance signals based on user input), the functional language provides certain claim boundaries because it informs the person of ordinary skill in the art as to what part of the system modifies the signal (the circuitry), what the circuitry does (produce modified appearance signals) and how the signals have been modified (aesthetically desired alterations have been introduced based on user input). One of ordinary skill in the art of color-editing systems would understand the boundaries of this claim imposed by the recited structural elements.

Following Question 4 or 5, for § 112(f) limitations <u>and</u> 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
☐	☒	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*.

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 systems with circuitry having a structure that produces modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals. The claim does not specify the type of circuitry (*e.g.*, digital, analog, or mixed-signal). If X uses a different structure (*e.g.*, a mixed-signal circuit instead of a digital circuit) to accomplish the function, it can anticipate claim 4 because claim 4 is not limited to applicant's disclosed circuit type.

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 a system including a commercial circuit, and the manual for the

commercial circuit indicates that it is programmed to perform the claimed function, then an anticipation rejection would be appropriate.

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: Computerized Color-Editing System   **Claim:** 5

> 5.   A computer-assisted color-editing system, comprising:
>
> a scanner that produces appearance signals representative of a color image;
>
> a color translation module **for producing modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals**;
>
> a display on which the modified appearance signals are displayed as the reproduction image; and
>
> a disk memory in which the modified appearance signals are stored.

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:

"for producing modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals".

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
☒	☐	Prong A is met because: the claim element recites a "color translation module", which is a generic placeholder for "means". The specification recites that the module can be hardware (such as a circuit) or software (such as programming instructions) running on a microprocessor. No specific definition for the term "module" is provided or recognized in the art. Prong B is met because: the generic placeholder (the "color translation module") is modified by functional language ("for producing modified appearance signals…"). Prong C is met because: this claim element is not further modified by sufficient structure or material for performing the claimed function.

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.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY
COMPUTERIZED COLOR-EDITING SYSTEM: CLAIM 5

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*.

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.e*., 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 aesthetic correction circuitry, or the software and microprocessor, with the algorithm described in the specification (the algorithm to produce the modified appearance signals as $V_{MA} = V_A + V_{ADA}$) that causes the circuitry or microprocessor to perform the claimed function. The BRI of the § 112(f) limitation is: aesthetic correction circuitry or software and microprocessor (respectively defined as an electrical circuit or programming instructions having an input of the appearance signals produced by the scanner, a design that permits interactive introduction of aesthetically desired alterations into the appearance signals, and an output of modified appearance signals) using the disclosed algorithm that performs the function of producing modified appearance signals representative of a reproduction image based on user input introducing aesthetically desired alterations into the appearance signals, 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
☒	☐	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 <u>requires</u> 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, <u>skip to Question 5</u>.**

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

Yes	No	Notes
☒	☐	The corresponding structure or material is: the aesthetic correction circuitry or the software and microprocessor, each programmed to perform the algorithm.

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

Yes	No	Notes
☒	☐	The reason is: the aesthetic correction circuitry as an electrical circuit and the software and microprocessor are each described as having an input of the appearance signals produced by the scanner, a design that permits interactive introduction of aesthetically desired alterations into the appearance signals, and an output of modified appearance signals. The aesthetic correction circuitry or software and microprocessor is programmed to perform the algorithm described as user input device 4 receiving 8-bit adjustment values (V_{ADA}) for each adjustment component (*e.g.*, hue, saturation, luminance) which are added as vectors to the input appearance signals (V_A) in the aesthetic correction circuitry to produce the modified appearance signals as $V_{MA} = V_A + V_{ADA}$.

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

Yes	No	Notes
☒	☐	The reason is: the specification describes the color translation module 50 as aesthetic correction circuitry or software and microprocessor programmed to perform the algorithm.

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
☐	☐	The boundaries of the functional language are:

Following Question 4 or 5, for § 112(f) limitations <u>and</u> 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
☐	☒	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.

FUNCTIONAL LANGUAGE WORKSHEET ANSWER KEY
COMPUTERIZED COLOR-EDITING SYSTEM: CLAIM 5

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 a system having aesthetic correction circuitry or software and microprocessor that use the disclosed algorithm (the algorithm to produce the modified appearance signals as $V_{MA} = V_A + V_{ADA}$) to perform the claimed function, and equivalents thereof.

If X teaches the corresponding structure (*e.g.*, a circuit that meets the specification's definition of aesthetic correction circuitry and that uses the disclosed algorithm to perform 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 a commercial circuit that meets the specification's definition of aesthetic correction circuitry, and the manual for the commercial circuit indicates that it is programmed with the disclosed algorithm to perform the claimed function, then an anticipation rejection would be appropriate.

If X teaches an equivalent (*e.g.*, aesthetic correction circuitry that uses a different algorithm to perform the claimed function in substantially the same way to produce substantially the same results, or an equivalent circuit that uses the disclosed algorithm to perform the claimed function) 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.