# CAFC Decisions Regarding Means-Plus-Function and Function Recitations

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- **Overview of 35 U.S.C. § 112(f) or Pre-AIA 35 U.S.C. § 112, sixth paragraph (hereinafter "§ 112, ¶ 6" for simplicity)**

- **How CAFC determined whether § 112, ¶ 6 is invoked or not**

- **When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification**

- **Use of function recitation without invoking § 112, ¶ 6**

# Overview of § 112, ¶ 6

- An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

# Overview of §112, ¶6 – Two Presumptions

- **Use of the term "means" triggers a rebuttable presumption that §112, ¶6 is to be applied.**

- This presumption is overcome if the limitation further includes the structure necessary to perform the recited function.

- **<span style="color:red">Not</span> use of the term "means" raises a rebuttable presumption that §112, ¶6 is <span style="color:red">not</span> to be applied.**

- This presumption is overcome if the claim term fails to recite "sufficiently definite structure" or else recites "function without reciting sufficient structure for performing that function."

# Overview of §112, ¶ 6 – 3-Prong Analysis

- (A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

- (B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

- (C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

# How CAFC determined whether §112, ¶ 6 is invoked or not

## -- *Enocean GMBH v. Face Int'l Corp.*

- Appeal from the Board of Patent Appeals and Interference

- Decided: January 31, 2014

- Before Rader, Lourie and Prost

- Claim in issue (application No. 10/304,121)
  - Claim 37: "a signal receiver for receiving a first electromagnetic signal transmitted by said first signal transmitter;"
  - Claim 43: "a receiver adapted to receiving a first electromagnetic signal transmitted by said first signal transmitter;"

- Issue: whether "a receiver" invokes §112, ¶ 6

- Holding: NO

# How CAFC determined whether §112, ¶ 6 is invoked or not
## -- *Enocean GMBH v. Face Int'l Corp.*

- At the Board
  - there is no distinction between "receiver" and "signal receiving means"
  - the receiver of the EnOcean claims is defined in the claims solely in terms of functional language
  - a receiver is "essentially a black box that performs a recited function"
  - the term "receiver" is too broad to recite sufficiently definite structure

- CAFC
  - EnOcean provided extensive evidence demonstrating that the term "receiver" conveys known structure to the skilled person
  - the term "receiver" connotes sufficiently definite structure to those of skill in the art, not the "black box that performs a recited function"
  - just because "the disputed term is not limited to a single structure does not disqualify it as a corresponding structure, as long as the class of structures is identifiable by a person of ordinary skill in the art"
  - **It is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure**, even if the term covers a broad class of structures and even if the term identifies the structure by their function

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# How CAFC determined whether §112, ¶ 6 is invoked or not

## -- *Enocean GMBH v. Face Int'l Corp.*

- The Court also listed several precedent to support the conclusion.
  - "**height adjustment mechanism**"--*Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1374-75 (Fed. Cir. 2012)
  - "**modernizing device**" and "**computing unit**…for..evaluating"--*Inventio Ag v. Thyssenkrupp Elevator Americas*, 649 F.3d at 1353, 1359-60 (Fed. Cir. 2011)
  - "**circuit for monitoring** a signal from the output terminal to generate a first feedback signal" -- *Linear Tech.*, 379 F.3d at 1320-21
  - "**digital detector**" -- *Personalized Media Commc'ns*, 161 F.3d at 704
  - "**detent mechanism**" -- *I. Melbourne Greenberg, M.D. v. Ethicon Endo-Surgery, Inc.*, 91 F.3d at 1583-84(Fed. Cir. 1996)

# How CAFC determined whether § 112, ¶ 6 is invoked or not

- "**modernizing device**" and "**computing unit**…for..evaluating"-- *Inventio Ag v. Thyssenkrupp Elevator Americas*, 649 F.3d at 1353, 1359-60 (Fed. Cir. 2011)

- claim in issue

  – "installing at least one computing unit and connecting the at least one computing unit to said floor terminals for at least one of evaluating the destination call reports and association of destination floors with recognized ones of the identification codes and for the output of a least one destination signal"

  – "installing at least one modernizing device and connecting the at least one modernizing device to said floor terminals and said at least one computing unit for reading the destination signal, for converting the destination signal into at least one call report and for controlling the elevator control by way of the call report."

# How CAFC determined whether §112, ¶ 6 is invoked or not

- "**modernizing device**" and "**computing unit**…for..evaluating"-- *Inventio Ag v. Thyssenkrupp Elevator Americas*, 649 F.3d at 1353, 1359-60 (Fed. Cir. 2011)

- "we have held that a claimed 'control unit' that comprised a 'CPU' and a 'portioned memory system' recited sufficiently definite structure to perform the recited 'controlling the communication unit' function. *LG Electronics, Inc. v. Bizcom Electronics, Inc.*, Nos. 05-1261, -1262, -1263, -1264, -1302, -1303, -1304 (Fed. Cir. July 7, 2006)"

- Ultimately, whether claim language invokes § 112, ¶ 6 depends on how those skilled in the art would understand the structural significance of that claim language, assessed against the presumptions that flow from a drafter's choice to employ or not the term "means."

# How CAFC determined whether § 112, ¶ 6 is invoked or not

### -- *another example*

- "**system memory means**" and "**digital logic means**" do NOT invoke § 112, ¶ 6 -- *TecSec, Inc. v. International Business Machines Corp*., No. 12-1415 (Fed. Cir. Oct. 2, 2013)

  - It is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structure by their function

  - The sufficient structure inquiry focuses on whether the claim recites sufficient structure to perform "**the functions in question**." Here, it is beyond question that those of skill in the art would understand that a system memory is sufficient structure to perform the general function of "storing data."

  - The term "digital logic" designates structure to skilled artisans-namely digital circuits that perform Boolean algebra

# Prosecution Takeaways

- Not to use "means" to raise a strong presumption of not invoking § 112, ¶ 6

- Argue that the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure

- Besides the claim itself, resort to the written description, prosecution history and any relevant extrinsic evidence, e., technical dictionaries for proper claim construction

- For highly sensitive terms, "unit," "device," "module," if it is difficult to work on the "structural modifier," then try to add, under the permission of disclosure, structural element contained therein (e.g., CPU, memory, circuit), or add structural relation to other structural elements (as *Inventio Ag*)

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

- "If one employs means plus function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the **35 U.S.C. 112(b)**[or the second paragraph of **pre-AIA section 112**]." *In re Donaldson Co.*, 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994) *(en banc)*.

# When §112, ¶6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

- The proper test for meeting the definiteness requirement is that the corresponding structure (or material or acts) of a means- (or step-) plus-function limitation must be disclosed in the specification itself in a way that one skilled in the art will understand what structure (or material or acts) will perform the recited function. See *Atmel Corp. v. Information Storage Devices, Inc.,* 198 F.3d 1374, 1381, 53 USPQ2d 1225, 1230 (Fed. Cir. 1999).

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

### *--Enocean GMBH v. Face Int'l Corp.*

- Claim in issue
  - Claim 29: "…*signal reception means for receiving* a first electromagnetic signal transmitted by said first signal transmission means;"

- Issue: whether the means-plus-function claims are entitled to claim the benefit of the earlier PCT and German applications' priority date. (whether the PCT and German applications, mentioning "a receiver," describe the structure, materials, acts or the equivalents corresponding to the claimed signal reception means)

- Holding: Yes

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

## *--Enocean GMBH v. Face Int'l Corp.*

- Board
  - The priority documents have to "expressly describe the structure of the receiver."

- CAFC
  - EnOcean has demonstrated that a person of ordinary skill in the art could understand the bounds of the invention merely by reading the term "receiver" which is present in EnOcean's priority documents
  - The Board applied an incorrect standard
  - Since the inventor did not invent the receiver and the structure was well known, the inventors were "not obliged…to describe…the particular appendage to which the improvement refers, nor its mode of connection with the principal machine."

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

## ‒‒computer implemented MPF recitation

- In cases involving a special purpose computer-implemented means-plus-function limitation, the Federal Circuit has consistently required that the structure be more than simply a general purpose computer or microprocessor and that the specification must disclose an algorithm for performing the claimed function. See, e.g., *Noah Systems Inc. v. Intuit Inc.,* 675 F.3d 1302, 1312, 102 USPQ2d 1410, 1417 (Fed. Cir. 2012); *Aristocrat,* 521 F.3d at 1333, 86 USPQ2d at 1239.

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

## ▬▬computer implemented MPF recitation

- When the MPF recitation recites a general computing function
  - In re Katz, the Federal Circuit found that functions typically performed by a general-purpose computer without special programming need not be supported in the specification by a specific algorithm. In *In re Katz Interactive Call Processing Patent Litigation,* 639 F.3d 1303, 1316, 97 USPQ2d 1737, 1747 (Fed. Cir. 2011)
  - *Katz* has not claimed a specific function performed by a special purpose computer, but has simply recited the claimed functions of 'processing,' 'receiving,' and 'storing.' Absent a possible narrower construction of the terms 'processing,' 'receiving,' and 'storing,' discussed below, those functions can be achieved by any general purpose computer without special programming.

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

**▬▬computer implemented MPF recitation**

- When the MPF recitation recites a special computing function
  - An algorithm is defined, for example, as "a finite sequence of steps for solving a logical or mathematical problem or performing a task."
  - Applicant may express the algorithm in any understandable terms including as a mathematical formula, in prose, in a flow chart, or "in any other manner that provides sufficient structure." *Finisar,* 523 F.3d at 1340, 86 USPQ2d at 1623; see also *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366, 65 USPQ2d 1934, 1941 (Fed. Cir. 2003)

# When §112, ¶6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

**-- "an algorithm" cannot be merely a "template"**

- *Ibormeith IP, LLC v. Mercedes-Benz USA, LLC*, No. 13-1007 (Fed. Cir. Oct. 22, 2013)

  - Claim in issue: claim 1: "…computational means for weighting the operational model according to time of day in relation to the driver or operator circadian rhythm pattern(s) and for deriving, from the weighted model, driver or operator sleepiness condition and producing an output determined thereby; and a warning indicator triggered by the computational means output, to provide a warning indicator of driver or operator sleepiness."

# When § 112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

## -- "an algorithm" cannot be merely a "template"

- Issue:
  - whether "an algorithm" was adequately disclosed in Table 10 of the specification, along with two figures and any other specification material that would clarify the meaning of Table 10.

- Holding: NO
  - providing a "template" for a person of ordinary skill in the art to construct an algorithm may be insufficient to define a structure under § 112, ¶ 6 .

### TABLE 10

Sleep Propensity Algorithm - Definition

$$S\ mod = S\ circ + S\ zerox + S\ rms + S\ light + S\ temp + S\ sleep + S\ road + S\ trip$$

| Elemental | Bound Limit |
| --- | --- |
| S mod | $0 < S\ mod < 1$ |
| S circ | $0 < S\ circ < 1$ |
| S zerox = (F zerox/100) (Z ref-Z) | $0 < S\ zerox$ |
| S rms = (F rms/100) (R-R ref) | $0 < S\ rms$ |
| S light = (F light/100) (I ref -I) | $0 < S\ light$ |
| S temp = (F temp/100) (T -T ref) | $0 < S\ temp$ |
| S sleep = (F sleep/100) (H ref - (HXQ)) | $0 < S\ sleep$ |
| S road = (F road/100) (G ref -G) | $0 < S\ road$ |
| S trip = (F trip/100) × D | $0 < S\ trip$ |

### TABLE 11

Algorithm Elementals - S

| | |
| --- | --- |
| S mod (S) | Modified Sleep Propensity Factor-Range 0 . . . 1 |
| S circ (S) | Current Circadian Sleep Propensity Value |
| S zerox (S) | Current Corrective Steering Reversal Rate Deficit |
| S rms (S) | Current RMS Corrective Steering Amplitude Surfit |
| S light (S) | Current Ambient Lighting Intensity Deficit |
| S temp (S) | Current Ambient Temperature Surfit |
| S sleep (S) | Prior Sleep Good Hours Deficit |
| S road (S) | Current Road Activity Deficit |
| S trip (S) | Accumulated Trip Duration |

# When §112, ¶ 6 is invoked, how CAFC determined whether there is sufficient corresponding structure in the specification

**-- "an algorithm" cannot be merely a "template"**

- there is no disclosure of even a single concrete relationship between the various factors that are used to compute an outcome to warn of driver drowsiness

- Table 10 was not meant to be an algorithm that simply added inputs, but rather an algorithm "template."

- Table 10 does not disclose how to weight the factors; it merely lists those factors without explaining how to arrive at a computed warning indicator.

- Nor could Ibormeith rely on Figures 3 and 17 to provide the requisite structure to support Table 10. The figures merely provided information that one skilled in the art *could* use to design his or her own method of weighting.

# Prosecution Takeaways

- For overcoming indefiniteness caused by being applied with § 112, ¶ 6, it might be helpful to argue that the corresponding structure in the specification for MPF element should be interpreted in light of the knowledge of persons of skill in the art, i.e., the structure or acts perform the recited function would be well within the skill of persons of ordinary skill in the art, or even submit evidence, such as expert opinion, demonstrating how persons of skill in the art would understand the structure underlying the disclosed text, flow-charts, block diagrams, figures, etc. for performing the recited function.

- When drafting, the specification also should describe with sufficient particularity of any weighing procedure required for practicing the invention.

# Some thoughts about Function Recitation

- Be careful of not invoking § 112, ¶ 6, considering that the 3-Prong Analysis identifies "configured to" as being one of linking words.

- PTO might start to apply a higher standard when rejecting claims employing "adapted to" or "configured to" perform a function language.

  – *In re Giannelli* (decided January 13, 2014): apparatus can be broadly protected by describing the apparatus being "adapted to" or "configured to" perform the function if the specification describes at least one specific structure that appears to be designed to perform the function.

  – "physical capability alone does not render obvious"

# Some thoughts about Function Recitation

- Wouldn't be the best case scenario-reciting the claim based on its function as noted above while without invoking means-plus-function treatment?
  - Eliminate prior art
  - Not being limited only to the specific structure in the specification compared to MPF claim
  - Include competitive devices in the class of direct infringers, not easy to design around due to no specific structural feature, compared to pure structural claim

# Some thoughts about Function Recitation

- Seems not all judges in CAFC take the same positions
  - Chief Judge Rader argued a concurring opinion in Superior Industries vs. Masaba (Fed. Cir. 2014) instructed the District Court to note that "[a] system claim generally covers what the system is, not what the system does. Hewlett–Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464 (Fed.Cir.1990). Thus, it is usually improper to construe non-functional claim terms in system claims in a way that makes infringement or validity turn on their function. Paragon Solutions, LLC v. Timex Corp., 566 F.3d 1075 (Fed. Cir. 2009)."

- We will see…

- Always have a specific structural claim as a fallback option

# Any Question?

(please please don't scare me with extremely tough question…)

# THANK YOU!