

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC.,
Petitioner

v.

KONINKLIJKE KPN N.V.,
Patent Owner

Case No. IPR2023-00583
Patent No. 7,092,705

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 7,092,705**

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LIST OF EXHIBITS

Ex. 1001	U.S. Patent No. 7,092,705
Ex. 1002	Declaration of Dr. Zygmunt Haas, Ph.D.
Ex. 1003	Curriculum Vitae of Dr. Zygmunt Haas, Ph.D.
Ex. 1004	Prosecution History of U.S. Patent No. 7,092,705
Ex. 1005	<i>Madebrink</i> (U.S. Patent No. 5,434,798)
Ex. 1006	<i>Feuerstein</i> (U.S. Patent No. 6,141,565)
Ex. 1007	<i>Djoko</i> (U.S. Patent No. 6,085,335)
Ex. 1008	<i>Sheridan</i> (U.S. Patent No. 6,725,032)
Ex. 1009	<i>Clarkson</i> (U.S. Patent No. 6,611,500)
Ex. 1010	<i>Shipman</i> (GB Application No. 0022743.9)
Ex. 1011	<i>Shipman</i> (WO 02/23806)
Ex. 1012	<i>Shipman</i> (EP1221786)
Ex. 1013	<i>Rappaport</i> (U.S. Patent No. 7,096,173)

Ericsson Inc. (“Ericsson” or “Petitioner”) requests *inter partes* review (“IPR”) of claims 1-7, 22-26, 28, 31, and 32 (the “Challenged Claims”) of U.S. Patent No. 7,092,705 (“the ’705 patent”) (Ex. 1001), which, according to PTO records, is assigned to Koninklijke KPN N.V. (“KPN” or “Patent Owner”). For the reasons below, the Challenged Claims should be found unpatentable and canceled.

I. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

Real Parties-in-Interest: Petitioner identifies the following as the real parties-in-interest: Telefonaktiebolaget LM Ericsson and Ericsson Inc.

Related Matters: The ’705 Patent is asserted against Ericsson in *Koninklijke KPN N.V. v. Telefonaktiebolaget LM Ericsson, et al.*, No. 2:22-cv-00282-JRG. The ’705 Patent has not been previously asserted in district court or challenged at the PTAB.

Counsel and Service Information:

Petitioners identify lead and backup counsel below. A Power of Attorney is filed concurrently herewith under 37 C.F.R. § 42.10(b).

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II. GROUNDS FOR STANDING

Petitioner certifies that the '705 Patent is available for IPR, and Petitioner is not barred or estopped from requesting IPR on the grounds identified herein.

III. INTRODUCTION

The '705 Patent is directed to nothing more than a known system and technique for modifying a radio network's parameter settings. The purportedly novel feature is checking whether the modified parameter satisfies a rule “comprising both *a technically sufficient parameter setting requirement and a deviation from the setting requirement* based on an operational requirement deduced from use of the radio network” before storing the modified parameter for future use.

As explained in detail in this Petition, checking whether a modified parameter satisfies a rule before storing it for future use was not innovative at the time of the alleged invention. The '705 Patent even concedes that “check[ing] the consistency of proposed parameter changes” was known. (Ex. 1001, 2:25-29.) As was “check[ing] the consistency of the proposed parameter changes before the changes are implemented in the cellular network.” (*Id.*, 2:23-25.)

According to the '705 Patent, the alleged problem with the prior art is that the “rules used in performing this check originate solely from technical requirements derived from cellular network technology.” (*Id.*, 2:38-40.) But, the prior art teaches using “rules of parameter optimization from human experts” and “automatically chang[ing] the relevant parameter values based on the *field data*, and iteratively *evaluat[ing] their merits using [a] simulator.*”¹ (Ex. 1007, 13:26-32.) The prior art also teaches to optimize parameters using a “goal,” e.g., a rule, “can be obtained by optimizing for one of the two objective functions, e.g., coverage, and keeping the other one, e.g., capacity, as a constraint. By repeating this procedure for various values of the constraint, the optimization will lead to the desired tradeoff curve.” (Ex. 1009, 10:17-28.) Petitioner requests that the Board institute *inter partes* review of the Challenged Claims and cancel these claims as unpatentable. The remainder of this Petition describes the '705 Patent and its claims, the prior art cited in the Petition, and why the Challenged Claims are unpatentable in view of the prior art.

IV. OVERVIEW OF THE '705 PATENT

The '705 Patent purports to solve a problem with the innovation described in U.S. 5,434,798 (“*Madebrink*”). (Ex. 1001, 1:52-60.) The patent explains that “mobile cellular networks have many parameters and many requirements,” and

¹ Hereinafter emphasis has been added by Petitioner unless otherwise noted.

“each cell has certain associated parameters or characteristics which must be properly maintained to ensure proper operation of the cellular network.” (Ex. 1005, 1:47-56.)

Before *Madebrink*, “manual or semi-manual ad hoc methods have been used to introduce parameter changes in the cellular networks for reconfiguration purposes and to check the accuracy of the proposed parameter changes.” (*Id.*, 1:57-61.) *Madebrink*, however, permitted preparing a set of proposed changes to parameters and verifying, via a computer program, the consistency of the prepared set of proposed changes and making any necessary alterations to the set of proposed changes responsive to the verification. (*Id.*, cl. 1.) Once the proposed changes are verified, they are introduced into the system for future use. (*Id.*).

The changes were verified using a “consistency check,” where the modified parameters were tested against some known rules. (*Id.*, 13:26-45.) Of course, the “operator can specify limit values for the checked parameters” and “thresholds can be set for each check rule....” (*Id.*, 14:13-16.)

The '705 Patent contends that the *Madebrink* has a “problem” due to “the type of rules used in performing the consistency check.” (Ex. 1001, 2:36-38.) The purported problem is that the “rules used in performing this check originate solely from technical requirements derived from cellular network technology,” so it was allegedly “not possible to deviate from the technically sufficient parameter setting

requirements if operational practice experience reveals a different, more preferable technical parameter setting.” (*Id.*, 2:38-41.)

The ’705 Patent effectively asserts that it was impossible to check optimized parameters before deploying them into the network. According to the ’705 Patent, this purported “limitation decreases the flexibility of the system for the operator that exploits a cellular radio network” because “the requirements for the various parameters defined by the supplier of the network” may not be satisfactory to the operator. (Ex. 1001, 2:48-54.)

The ’705 Patent’s characterization of *Madebrink* is inaccurate. *Madebrink* does not teach that the consistency check rules “originate ***solely*** from technical requirements derived from cellular network technology” or that there is “no possibility to apply rules derived from operation practice....” (*Id.*; *see generally* Ex. 1005.) *Madebrink* explains that “[a]dditional checks are possible...” (Ex. 1005, 13:27-29.)

The ’705 Patent’s mischaracterization sets up the strawman argument that *Madebrink*’s “consistency check” is performed using “only pre-programmed” rules. (*Id.*, 2:46-48.) To solve this manufactured problem of using “only” pre-programmed rules, the ’705 Patent discloses using “technically preferable requirements” and optimization of the technical requirement based on real-world use of the network, i.e., a deviation from the technically sufficient setting. (*Id.*, 3:5-13; *see also id.*, cl .1

(“checking the modified parameter on the basis of a rule ... comprising both a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network”); cl. 22 (same).)

The '705 Patent provides an example of the parameter optimization technique described above where the technically sufficient requirement (20Hz channel distance) is optimized (to 50Hz) based on the real-world usage of the parameter.

Moreover, it is preferable that the bare technically sufficient requirements can be altered according to rules obtained from daily operational use of the radio network. It can, e.g., be ***technically sufficient to have a channel distance of 20 Hz between different cells***. All channel distances above this value then will pass the bcc/bcch consistency check. However, in practice it may be that ***a channel difference of 50 Hz between the cells guarantees a more reliable operation***. In that case, according to the invention, it is possible to use *the preferred channel distance of 50 Hz*, as obtained from the operational practice as a business rule instead of the technically sufficient channel distance.

(Ex. 1001, 6:4-15 (emphasis added).) As detailed herein, however, checking an adjusted parameter based on a technically sufficient rule and a deviation from that rule is not innovative and was well known in the art when the application that issued as the '705 Patent was filed.

A. Exemplary Claim

The '705 Patent includes five independent claims (Claims 1, 22, 26, 28, and 31). Claim 1 is representative and recites:

1. A method for verifying a modified parameter obtained from changing an operational parameter of a component of a radio network, the method comprising the steps of:

before the modified parameter is implemented in the network, checking the modified parameter on the basis of a rule so as to yield a result, said rule comprising both a technically sufficient parameter setting requirement and *a deviation from the setting requirement based on an operational requirement deduced from use of the radio network*; and

if the result indicates that the rule has been obeyed, storing the modified parameter in the network such that subsequent network operation will respond to the modified parameter.

(Ex. 1001, cl. 1).

B. Prosecution History

The Examiner first rejected the pending claims based on the above-described *Madebrink* reference. (Ex. 1004, 149.) In response, Applicant amended the claims to clarify that the claimed business rule deviates “from at least one technically sufficient parameter setting requirement.”

Claim 1 (currently amended): Method for checking at least one modified parameter ~~and/or value~~ obtained from changing at least one operational parameter ~~and/or value~~ of an at least one component of a radio network wherein said checking is performed on the basis of at least one business rule comprising at least one operational requirement deduced from operational use of the radio network and deviating from at least one technically sufficient parameter setting requirement.

(*Id.*, 123.) Applicant argued that *Madebrink* fails to disclose “deviating from at least one technically sufficient parameter setting.” Applicant argued that the technical requirements, e.g., 20Hz, are less strict than operational requirements, e.g., 50Hz. (*Id.*, 137.) In other words, operational requirements are an optimization over a baseline technical setting.

In response, the Examiner rejected the amended claims based on a combination of the *Madebrink* and *Djoko* (U.S. Patent No. 6,085,335) (Ex. 1007). (Ex. 1001, 88.) Applicant then canceled each pending claim and filed new claims that issued as the Challenged Claims. (*Id.*, 40.)

Applicant argued that *Madebrink*’s changes are “solely technical in nature” and do not “result[] from actual operational practice, i.e., where actual daily network operation “in the field dictates a change in a network parameter.” (*Id.*, 56.) For example the “actual conditions in the field ... may dictate that enhanced reliability

arises from using 50 Hz spacing instead” of 20 Hz spacing. (*Id.*, 56-57.) Again, Applicant is claiming optimization. For instance, Applicant argued that *Madebrink* “has no ability to alter any of the proposed changes, i.e., cause a deviation in any such change, based on actual field conditions” because there is no ability to “accommodate[] any deviation to the parameter setting associated with [a] rule based on actual network operation.” (*Id.*, 57-58 (underlining original).)

Applicant then argued that its “*rules involve[] two distinct components: a technically sufficient parameter setting which effectively provides a baseline parameter value, and a deviation from that value where the extent of the deviation is deduced from actual network operation.*” (*Id.*, 58-59.)

Djoko’s disclosures, according to Applicant, “are not directed to verifying network parameters — as the Applicants’ invention is — but rather to *producing new modified parameter settings* themselves.” (Ex. 1004, 59 (underlining in original; bold/italicize added).) Applicant repeatedly emphasized that the parameters in *Djoko* are “new.” (See, e.g., *id.*, 60-65.) Applicants asserted that the claimed invention differs from *Djoko* because it provides “a rule-based approach for verifying proposed values for network parameters that are already in use in a communication system.” (*Id.*, 64.)

According to Patent Owner, the ’705 Patent’s “inventive approach” is to verify “modified parameter settings, particularly for *existing* parameters....” (*Id.*, 64

(emphasis added).) Applicant argued that *Djoko* “contains no teachings as to how **existing** parameters should be verified”; instead, it takes account of operational changes “only when new parameters are proposed and only for those new parameters.” (*Id.*, 65 (underlining in original).)

Applicant’s arguments concerning *Djoko* are facially inaccurate. *Djoko*’s expert system 402 optimizes the system using “many rules” by “initially obtain[ing] the knowledge or rules of parameter optimization from human experts,” just like the ’705 Patent, and then “as the conditions in the field change, the system will automatically **change the relevant parameter values** based on the field data, and **iteratively evaluate their merits using the simulator.**” (Ex. 1007, 13:18-33; Ex. 1002, ¶¶52-58, 133-151.) Thus, *Djoko*’s disclosures are directed to verifying optimizations to existing network parameters — in the same manner as the ’705 Patent.

As Dr. Haas confirms, *Djoko* not only accounts for “new” parameters, but it also plainly teaches “to **alter operating parameters** of the communication system [] so as to improve and enhance performance of the communication system [].” (Ex. 1002, ¶¶56, 134 (citing Ex. 1007, 5:50-54 (emphasis added)).)

Like the ’705 Patent, *Djoko* teaches “**adjusting** operating parameters” such that “the self-engineering system” functionally “**adjusts** operating parameters to achieve optimal network performance.” (Ex. 1007, 6:30-34; *see also id.*, 7:38-46

(discussing ***adjusting*** operating parameters); 8:51-57 (explaining that the system “operates upon system parameters to ***adjust*** such parameters”); 9:51-54 (discussing ***adjusting*** operating parameters); Ex. 1002, ¶¶52-58, 133-151.)

“Once a stable assignment has been achieved, the results are implemented in the wireless communication system and set in place for reevaluations by the self-engineering system.” (Ex. 1007, 13:18-35.) Specifically, “once the simulator has run, the expert system 402 may evaluate the results [] and determine whether to implement the respective proposed operating parameters.” (*Id.*, 14:67-15:3; *see also id.*, 15:4-6 (explaining that the proposed operating parameters are optimized).)

The ’705 Patent claims would not have been allowed had the Patent Office considered the evidence presented in this Petition. The Office did not consider the every disclosure of the *Madebrink* and *Djoko* references or any of the combinations that form the basis of Grounds 1-4. *Infra*, §VIII. To the extent the Examiner considered *Djoko*, he overlooked its invalidating disclosure, which is a facial error. *See Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469-6, 10 (2020) (precedential) (listing silence as evidence of error). Accordingly, the same or substantially similar arguments were not previously presented to the Office. *See* 35 U.S.C. §325(d). The Office also lacked additional evidence Ericsson now presents, including Dr. Haas’s declaration (Ex. 1002),

demonstrating the claims recite no more than what was already disclosed in the prior art.

V. CLAIM CONSTRUCTION

For IPR proceedings, the Board applies the claim construction standard outlined in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). Under *Phillips*, claim terms are typically given their ordinary and customary meanings, as would have been understood by a POSITA at the time of the invention, having taken into consideration the language of the claims, the specification, and the prosecution history of record. *Phillips*, 415 F.3d at 1313; *see also Id.* at 1312-16. The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015- 00633, Paper 11 at 16 (Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Here, given the close correlation and substantial identity between the references and the '705 Patent the Board need not construe any of the terms to resolve the underlying controversy, as any reasonable construction reads on the prior art.

VI. LEVEL OF ORDINARY SKILL

A person of ordinary skill in the art at the time of the alleged invention of the '705 Patent ("POSITA"), which for purposes of this proceeding is the early 2000s (including July 9, 2001), would have had a least a bachelor's degree in electrical

engineering or a related field, and two years of experience working with wireless networks, and related technologies. (Ex. 1002, ¶¶59-61.)² More education can supplement practical experience and *vice versa*. (*Id.*)

VII. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

Claims 1-7, 22-26, 28, 29, 31, and 32 should be canceled based on the following grounds:

Ground 1: Claims 1-7, 22-26, 28, 29, 31, and 32 are unpatentable under pre-AIA 35 U.S.C § 103 as being obvious in view of *Madebrink* (Ex. 1005) and *Feuerstein* (U.S. Patent No. 6,141,565) (Ex. 1006).

Ground 2: Claims 1-7, 22-26, 28, 29, 31, and 32 are unpatentable under pre-AIA 35 U.S.C § 103 as being obvious in view of *Madebrink* (Ex. 1005), *Feuerstein* (Ex. 1006), and *Shipman* (GB Application No. 0022743.9) (Ex. 1010).

Ground 3: Claims 1, 22, 26, 28 and 31 are unpatentable under pre-AIA 35 U.S.C § 103 as being obvious in view of *Djoko* (U.S. Patent No. 6,085,335) (Ex. 1007).

² Petitioner submits the declaration of Dr. Haas (Ex. 1002), an expert in the field of the '705 patent. (Ex. 1002, ¶¶3-15; Ex. 1003.)

Ground 4: Claims 2-6, 23-25, 29 and 32 are unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious in view of *Djoko* and *Sheridan* (U.S. Patent No. 6,725,032) (Ex. 1008).

The '705 Patent issued from U.S. Application No. 10/188,538 (“the '538 application”) filed on July 3, 2002, and claims the benefit of European Patent Application EP 01203820, filed in the European Patent Office on October 9, 2001, and priority to U.S. Provisional Application 60/303,933, filed on July 9, 2001. (Ex. 1001, Cover) For purposes of this proceeding, Petitioner assumes the earliest effective filing date of the '705 Patent is July 9, 2001.³

Feuerstein published on October 31, 2000, and issued from an application filed on November 13, 1997. Thus, *Feuerstein* is prior art under pre-AIA § 35 U.S.C. § 102(a).

Madebrink published on July 18, 1995, and is, therefore, prior art under pre-AIA § 35 U.S.C. § 102(b).

³ Petitioner does not concede that any challenged claim is, in fact, entitled to an effective filing date of July 9, 2001, and reserves the right to challenge any claim of priority in this or any other proceeding involving the '705 Patent.

Djoko published on July 4, 2000, and is, therefore, prior art pre-AIA § 35 U.S.C. § 102(b).

Sheridan published on April 20, 2004, and issued from an application filed on October 8, 1999, and qualifies as prior art under 35 U.S.C. § 102(a).

Shipman was filed on September 15, 2000, and published on June 13, 2002 (as WO/0223806 (Ex. 1011)) and on July 10, 2002 (as EP 1221786 (Ex. 1012)), and qualifies as prior art under 35 U.S.C. §102(e).⁴

VIII. DETAILED EXPLANATION OF GROUNDS

A. Ground 1: *Madebrink* in view of *Feuerstein* renders obvious Claims 1-7, 22-26, 28, 29 31, and 32.

1. Claim 1

- a) [1pre]. A method for verifying a modified parameter obtained from changing an operational parameter of a component of a radio network, the method comprising the steps of:

To the extent the preamble is limiting, *Madebrink* discloses this feature. (Ex. 1002, ¶¶64-68, 81-84.) *Madebrink* discloses a technique for performing cellular network reconfiguration. (Ex. 1005, Abstract.) This technique includes copying cell parameters from an operational network and storing them in a database. (*Id.*) Next, a set of proposed changes to the stored parameters are prepared, and the consistency

⁴ *Shipman*'s international application also claims priority to EP01300152, which was filed on January 9, 2001, and published as EP1221786 on July 10, 2002 with nearly identical disclosures (Ex. 1012).

of the prepared set of proposed changes is verified. (*Id.*) Any necessary alterations to the set of proposed changes responsive to the verification are made and the verified set of proposed changes is deployed to the network. (*Id.*)

As the '705 Patent explains, *Madebrink* discloses “a reconfiguration method and apparatus in which the cell parameters of particular mobile switching centres in a network are copied to a database” where a “set of proposed changes to the stored parameters is prepared, and the consistency of the prepared set of proposed changes is verified.” (Ex. 1001, 1:56-63.)

Madebrink verifies the modified parameters using a “Consistency Check” in a computer program that “performs the *verification tests* on the entered suggested changes.” *See, e.g.*, Ex. 1005, 10:35-37; 3:39-41. After verifying the proposed changes to the parameters using the Consistency Check program, *Madebrink* teaches to introduce the verified parameters into the network. *See, e.g.*, Ex. 1005, 7:55-57.

As Dr. Haas explains, the above-described concepts are an example of verifying a modified parameter (proposed changes) obtained from changing an operational parameter (stored cell parameters copied from the network). (Ex. 1002, ¶¶81-84.) Thus, the features of claim element 1.pre are disclosed by *Madebrink*.

- b) [1a] before the modified parameter is implemented in the network, checking the modified parameter on the basis of a rule so as to yield a result, said rule comprising both a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network; and

Madebrink in view of *Feuerstein* and the knowledge of a POSITA renders this feature obvious. (Ex. 1002, ¶¶64-80, 85-98.) The '705 Patent admits that *Madebrink*'s rule corresponds to "a technically sufficient parameter setting requirement." (Ex. 1001, 2:36-40 (In *Madebrink*, "[t]he rules used in performing this check originate solely from technical requirements derived from cellular network technology.").)

Madebrink also discloses checking the modified parameter against a technically sufficient rule *before* implementing the modified parameter into the network. (Ex. 1005, 9:49-60 ("The temporary database TEDB is a copy of the system parameter database SPDB in which ***changes to the cellular network may be ... checked before they are implemented in the real cellular network. After the procedures for verifying*** ... the proposed changes ... stored in TEDB are completed, the network has been updated from TEDB") (emphasis added).)

After the modified parameter is implemented, then *Madebrink* optimizes the parameter (i.e., a deviation from the setting requirement based on an operational requirement deduced from the use of the radio network.) (Ex. 1005, 11:64-68 ("*the*

operator may then choose to optimize the newly changed parameters”).) Specifically, *Madebrink* explains that “live traffic measurements may be taken which may be used to optimize the cell parameters and if necessary, further changes may be implemented responsive to the optimization.” (*Id.*, 12:1-4.) “Once the consistency of the proposed changes has been verified, the changes are introduced into the network from the TEDB....” (*Id.*, 7:55-57.)

To verify the modified parameters, *Madebrink* discloses using a computer program described as a “CONSISTENCY CHECK” that “is a program which performs the verification tests on the entered suggested changes.” (*Id.*, 10:35-37; *see also id.*, 3:39-41.) “The CONSISTENCY CHECK routine performs” numerous checks, including checking “frequency allocations for the control and voice channels,” “the cells’ power level parameters,” “hand-off and locating thresholds,” etc. (*Id.*, 13:16-59.) The checks are against “known rules.” (*Id.*) Therefore, *Madebrink* discloses, “before the modified parameter is implemented in the network, checking the modified parameter on the basis of a rule so as to yield a result,” and that rule includes “a technically sufficient parameter setting requirement.” (Ex. 1002, ¶¶37-40.)

While *Madebrink* teaches that “[a]dditional checks are possible” within its CONSISTENCY CHECK program, *Madebrink* does not explicitly disclose deviating from the technically sufficient parameter setting requirements *before* the

parameter is deployed when operational practice experience reveals a different, more preferable technical parameter setting. (Ex. 1005, 13:27-28) Nevertheless, *Madebrink* is clear that parameter optimization does occur just after the parameter is deployed. (Ex. 1005, 11:64-12:4.) And it would have been obvious to a POSITA to implement a modified parameter checking (before the modified parameter is deployed) that verifies that the modified rule not only satisfies a baseline parameter setting (“a technically sufficient parameter setting requirement”) but that it will also be an optimization over the baseline setting for the given network conditions (“a deviation from the setting requirement based on an operational requirement deduced from use of the radio network.”) (Ex. 1002, ¶¶87-98.) See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-21 (2007).

Feuerstein teaches optimizing the parameter *before* deploying it into the network by simulating the modified parameter against real-time traffic information. (Ex. 1006, 12:29-39.) It would have been obvious for a POSTIA to modify *Madebrink*, such that *Madebrink*’s technically sufficient parameter setting is deviated from using a pre-deployment optimization, like the one disclosed in *Feuerstein*. (Ex. 1002, ¶¶65-99.) For instance, *Feuerstein* discloses techniques for optimizing network operation by adjusting “network parameters” based “on monitored network conditions.” (Ex. 1006, Abstract.) *Feuerstein* calculates “optimum network parameters” by simulating an “*adjustment* of various network

parameters ... based on real-time optimization paradigms which take into consideration not only conditions throughout the network, but also cascading effects caused by adjusting network parameters at particular network elements.” (*Id.*, 12:28-36.)

Much like the purported problem disclosed in the ’705 Patent and *Madebrink*’s pre-optimization parameter settings, *Feuerstein* discloses that it was a common practice “to fix network parameters at the time the network is deployed,” so the parameters were selected “to achieve an acceptable compromise between conditions from all the varying traffic conditions that may be experienced in the network.” (*Id.*, 1:53-58.) “As such, the selection of parameters involve[d] tradeoffs in performance and are not optimized for each geographic area or every given time of day or traffic loading condition that may exist.” (*Id.*, 1:58-61.)

This non-optimization/performance tradeoff is a similar problem described by the ’705 Patent, where technically sufficient requirements (with baseline parameter values) are used, e.g., using a channel distance of 20Hz instead of an optimized channel distance of 50Hz. (Ex. 1001, 2:40-45; 6:4-17; Ex. 1002, ¶¶69-75.) As *Feuerstein* explains, this approach “yields a static type network plan” and “does not take into account varying traffic conditions and varying interference conditions that the network will be subject to on a daily or hourly basis.” (Ex. 1006, 1:61-65; *see also id.*, 6:9-50.)

Given the problem identified by *Feuerstein*, a POSITA would have understood that a need existed for “dynamically *adjusting* network parameters” for “a particular portion of the network *based on localized conditions*” before deploying the modified parameters into the actual network. (*Id.*, 2:15-24 (emphasis added); Ex. 1002, ¶90.) As Dr. Haas explains, “*Feuerstein* solved that need by using a simulator with ‘optimized network parameters’ for ‘network elements’ so that ‘the network elements are *dynamically adjusted* to provide operation as desired.’” (Ex. 1002, ¶90 (citing Ex. 1006, 11:11-25 (emphasis added)); *see also id.*, 6:64-66, 8:11-26 (The adjustable radio network parameters are numerous).) *Feuerstein*’s parameter optimization by dynamic adjustment involves modifying a baseline parameter value by an amount deduced from the radio network’s use before that parameter is deployed. (Ex. 1002, ¶¶90-98.)

The parameter adjustments are based on the *actual use* of the radio network. Referring to *Feuerstein*’s Figure 2, the “network control system 201 determines network conditions” through “monitoring selected network attributes, such as signal levels, bit error rates, frame error rates, voice quality measurements, data throughput, packet success probabilities, dropped call rates, call origination and/or termination success rates, or the like.” (Ex. 1006, 8:61-67; *see also id.*, 9:12-23.)

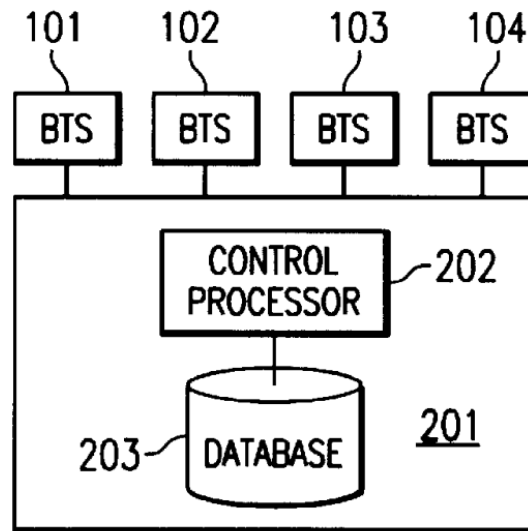


FIG. 2

(*Id.*, Fig. 2.)

The network control system 201 is provided with mobile condition information to “have a more robust picture of the conditions within the network when providing network parameters.” (*Id.*, 9:24-28.) “For example, by analyzing conditions experienced within the network, network control system 201 may provide network parameters selected to optimize the network based on such information....” (*Id.*, 10:9-13; *see also id.*, 10:14-42.) Database 203 includes “various permutations corresponding to events experienced in the network,” so it “provides a knowledge base which is constantly updated to meet the conditions actually experienced in operation.” (*Id.*, 12:1-5.)

The network parameters may be optimized/adjusted (“modified”) using a “control processor 202” that determines “optimum network parameters for particular

network elements for then existing monitored conditions.” (*Id.*, 12:17-19.) The modified parameter is verified using the control processor. (Ex. 1002, ¶¶92-94.) Specifically, the “control processor 202 includes network simulation software” that provides a “simulation of network conditions upon ***adjustment of various network parameters, optimization of network parameters....***” (Ex. 1006, 12:26-32.) “Accordingly, network operation simulation is desirable for use in calculating [e.g., verifying] the optimum network parameters....” (*Id.*, 12:37-38; Ex. 1002, ¶94.) The “optimized parameters may then be communicated to the proper network elements as well as stored in database 203 for later retrieval when similar conditions are again monitored.” (Ex. 1006, 12:20-23.)

It would have been obvious to modify *Madebrink* in view of *Feuerstein* to include (1) technically sufficient rule checking and (2) rule checking from operational practice. (Ex. 1002, ¶¶64-80, 85-98.) As discussed above, *Feuerstein* simulates network conditions in response to adjusting various network parameters based on actual network conditions. (Ex. 1006, 12:29-31.) This simulation takes into account “conditions throughout the network” to adjust the parameters in an optimum manner. (*Id.*, 12:31-39.) This is similar to *Madebrink*’s after-the-fact optimization based on “live traffic measurements” to “optimizes the cell parameters” and make “further changes,” if necessary. (Ex. 1005, 12:1-4; Ex. 1002, ¶¶64-80, 85-98.)

Given that the parameters in *Madebrink* and *Feuerstein* are adjustable and that both references expressly discuss optimizing the parameters based on real-world traffic information, a POSITA would have been motivated to look to *Feuerstein* to complement *Madebrink*'s network parameter optimization and verification techniques. (Ex. 1002, ¶¶95-98.) Upon reading *Feuerstein*, a POSITA would have instantly recognized that parameter optimization can be achieved in a simulator that considers static rules, like those discussed in *Madebrink*, and deviations from those rules that provide optimizations for certain real-world network conditions, as *Feuerstein* discloses. (*Id.*) It would have been obvious to a POSITA to utilize *Feuerstein*'s disclosure of simulating deviations from baseline parameter setting requirements to optimize parameters for a given set of network conditions. (*Id.*)

As *Feuerstein* explains, the network parameters are “initially provided” for “expected conditions, such as times of day, interference levels,” etc.; after that, “these network parameters may be updated as the network is modified....” (Ex. 1006, 11:50-58.) In other words, the parameters are initially provided to meet at least a technically sufficient parameter setting requirement, and after that, the parameters are adjusted/modified as the network conditions change. (Ex. 1002, ¶¶64-80, 85-98.) As explained above, *Feuerstein* discloses that the adjusted/modified network parameters are simulated using real-world network conditions. Therefore, the adjusted/modified parameters, which are optimized from their original settings, are

a “deviation from the setting requirement based on an operational requirement deduced from use of the radio network.” (Ex. 1002, ¶¶85-98.)

In *Feuerstein*, much like *Madebrink*, the adjusted/modified parameter is checked using the simulation software on the control processor. (Ex. 1006, 12:26-38; Ex. 1002, ¶¶75, 97.) This verification ensures that the parameter is adjusted optimally, i.e., that it meets not only a technically sufficient parameter setting rule but also deviates from that technically sufficient rule based on the actual use of the radio network to optimize the network. (Ex. 1002, ¶¶64-80, 85-98; Ex. 1006, 13:1-34.)

As *Madebrink* explains, programming the “CONSISTENCY CHECK,” which may have additional checks, like *Feuerstein*’s optimization simulation, “is a mere mechanical step for a routineer skilled in the art.” (Ex. 1005, 13:16-20.) Thus, a POSITA would have found it obvious to modify *Madebrink* in view of *Feuerstein*’s disclosure of using a simulator to check the modified parameter based on a rule with a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network and that this checking is performed before implementing the modified parameter into the system. (Ex. 1002, ¶¶64-80, 85-98; Ex. 1006, 12:1-39.) As explained above, such a modification permits optimizations using real traffic data *before* the modified parameter is deployed to the network. This standard

optimization procedure is detailed extensively above and in *Feuerstein* and would have been straightforward and obvious for a POSITA to implement in *Madebrink*'s system. (Ex. 1002, ¶¶64-80, 85-98.)

Given the efficiency of optimizing a parameter based on real-world conditions *before* deploying it to the network, as *Feuerstein* discloses, it would have been obvious to utilize *Feuerstein*'s optimization and simulation techniques in a system like *Madebrink*'s to ensure optimized parameters will operate as expected before deploying them to the network. (Ex. 1002, ¶¶64-80, 85-98.) Therefore, the *Madebrink-Feuerstein* combination discloses the features of claim element 1a. (*Id.*)

- c) [1b] if the result indicates that the rule has been obeyed, storing the modified parameter in the network such that subsequent network operation will respond to the modified parameter.

The *Madebrink-Feuerstein* combination discloses this feature. (Ex. 1002, ¶¶64-80, 99.) For instance, as discussed above, the *Madebrink-Feuerstein* combination simulates and verifies the consistency of the proposed parameter changes against rules that account for technical sufficiency and deviations given the real-world conditions experienced by the network before storing the modified parameters for introduction into the network. (Ex. 1005, 7:55-58; Ex. 1006, 9:35-59, 11:50-12:39.) When the CONSISTENCY CHECK/simulation is completed, "the operator will be informed about the status, that is Execution Completed or Failed." (Ex. 1005, 14:10-12.) After the CONSISTENCY CHECK/simulation, the

updated/optimized “parameters are activated within the network (step 24).” (*Id.*, at 11:64-65; *see also id.*, 7:55-57 (“Once the consistency of the proposed changes has been verified, the changes are introduced into the network from the TEDB....”).) Thus, the *Madebrink-Feuerstein* combinations renders obvious the features of claim element 1b.

2. Claim 2

- a) The method recited in claim 1 wherein the checking step comprises the steps of: copying the operational parameter from the radio network to a database; and changing the operational parameter to the modified parameter.

The *Madebrink-Feuerstein* combination expressly discloses such a feature. (Ex. 1002, ¶¶64-80, 100-01.) During prosecution, Applicant admitted that *Madebrink* “involves copying of network parameters to a database, changing the copied parameters and verifying the consistency of the proposed changes in a consistency check.” (Ex. 1004, 135.)

Specifically, *Madebrink* discloses “performing reconfiguration of a cellular network including *copying cell parameters of affected mobile switching centers in the network to a database*, storing the copied parameters, *preparing a set of proposed changes to the stored parameters*, verifying the consistency of the prepared set of proposed changes and making any necessary alterations of the set of proposed changes responsive to the verification, copying the verified set of proposed changes to the affected mobile switching centers, and introducing the verified set of

proposed changes into the network.” (Ex. 1005, 3:66-4:11 (emphasis added).) Thus the *Madebrink-Feuerstein* combination renders claim 2 obvious.

3. Claim 3

- a) The method recited in claim 2 further comprising the step of generating a non-compliance signal if the modified parameter does not obey the operational requirement.

The *Madebrink-Feuerstein* combination renders this feature obvious. (Ex. 1002, ¶¶64-80, 102-104.) As discussed above, the combination simulates proposed parameter optimizations. (Ex. 1002, ¶¶64-80, 85-98.) *Madebrink* further discloses checking whether the modified parameters follow the rules before implementing approved changes to the network. (Ex. 1005, 11:15-27.) If the parameter modifications generate inconsistencies with rules, then the operator must decide whether to approve the changes or specify additional changes to the proposed parameter modifications. (*Id.*; *see also id.*, 14:8-16 (when the consistency check is completed, “the operator will be informed about the status, that is ***Execution Completed or Failed.***”).)

For example, informing the operator of a failed check involves generating a signal, i.e., the “non-compliance signal.” (1002, ¶¶64-80, 102-104.) A POSITA would have found it obvious to inform the operator of the failed check by using an audible warning, a visual warning, or both. (*Id.*, ¶103 (citing Ex. 1013 at 22:62-65 (“If the communications network will not perform properly, the designer will be

notified of the fault(s) in the design by ***a display on the screen, audible warning, or other effective means*** ... This will allow the designer to go back and select more Suitable components”).) Informing a POSITA that the execution failed in the *Madebrink-Feuerstein* combination using a message displayed on a screen or an audible warning, for example, would have allowed the user to re-evaluate the design so that the design would no longer fail. A POSITA Thus, *Madebrink-Feuerstein* renders claim 3 obvious.

To the extent the Board determines that informing the user of a failed consistency check is not a disclosure of generating a non-compliance signal if the modified parameter does not obey the operational requirement, it would have been obvious to further modify the *Madebrink-Feuerstein* combination to generate a warning signal, e.g., a warning message on the user’s computer screen, that the user must review if the modified parameter fails the consistency check, e.g., does not obey an operational requirement such as an acceptable threshold range for the modified parameter. (Ex. 1005, 14:8-16; Ex. 1002, ¶104.) At the time of the alleged invention, it was obvious to issue a visual warning in response to a failure, such as a consistency check failure. (*Id.*) As explained in Dr. Haas’s declaration, a POSITA would have found it routine and conventional, and therefore obvious, to add a visual warning whose purpose is to inform the user of a consistency check failure (*Id.*) In

his opinion, making such a visual warning would have required nothing more than routine skill in the art. (*Id.*)

4. Claim 4

- a) The method recited in claim 3 wherein the non-compliance signal is a file or message displayed to an operator.

The *Madebrink-Feuerstein* combination renders this feature obvious. *See* citations and analysis for claim 3. (Ex. 1002, ¶¶64-80, 102-105.)

5. Claim 5

- a) The method recited in claim 3 wherein the non-compliance signal is programmable.

The *Madebrink-Feuerstein* combination renders this feature obvious. (Ex. 1002, ¶¶64-80, 102-107.) As discussed above for claim 3, the “non-compliance signal” is an alarm/warning signal that can come in various forms, such as a warning message on the user’s computer screen, a visual warning, or an audible warning. It would have been straightforward and obvious for a POSITA to program the non-compliance signal to provide one or more of the above-described audio/visual warnings in response to different types of consistency check failure. (Ex. 1002, ¶¶102-107.) Adding such a visual warning to inform the user of the failure would have required nothing more than routine skill in the art and would have been straightforward, routine and conventional to a POSITA. (*Id.*)

For instance, *Madebrink* teaches that the alarm thresholds are specified by the operator, i.e., programmed, and a POSITA would have found it obvious to associate different alarms with different thresholds, e.g., a flashing light, a siren, a computer message, etc. (See, e.g., Ex. 1005, 14:13-16 (“*The operator can specify limit values for the checked parameters. Additionally, thresholds can be set for each check rule which must be surpassed before an inconsistency will be found for that rule.*”); See also citations and analysis for claim 3; Ex. 1002, ¶¶102-107.) An operator settable limit/threshold for whether to generate a warning message is another example of a programmable non-compliance signal.

6. Claim 6

- a) The method recited in claim 2 further comprising the steps of: storing the operational parameter in a first part of the database; and storing the modified parameter in a second part of the database.

The *Madebrink-Feuerstein* combination renders this feature obvious. (Ex. 1002, ¶¶64-80, 100-01, 108-113.) As discussed above for claim 2, the *Madebrink-Feuerstein* combination copies cell parameters, stores the copied parameters, and makes changes to those copied parameters for verification purposes. (Ex. 1005, 3:66-4:11.) Once the parameter changes are verified, they are copied and introduced into the network. (*Id.*).

In more detail, the *Madebrink-Feuerstein* combination includes a system 200 having an up-to-date image of the cellular network stored in a system parameter

database SPDB (“first part of the database”) and a proposed image of the cellular network with modified parameters stored in a temporary database TEDB (“a second part of the database”). (*Id.*, 7:25-29; Ex. 1002, ¶109.)

The SPDB stores the current operational parameters of the network. (Ex. 1005, 7:30-50.) The TEDB is a working area in the database in which suggested parameter changes can be introduced while leaving the up-to-date image of the network parameters undisturbed in the SPDB since it may be necessary to refer back to the unchanged parameters. (*Id.*, 7:51-55; *see also id.*, 9:50-60.) “Once the consistency of the proposed changes has been verified, the changes are introduced into the network from the TEDB...” (*Id.*, 7:55-57.)

To the extent that Patent Owner contends that the above-mentioned database with two parts (SPDB and TEDB) is really two separate databases and therefore not “a database” as claimed, Petitioner directs the Board’s attention to claim 7, which depends from claim 6 and requires that “the first and second parts of the database are separate databases.” (Ex. 1001, cl. 7).

By definition, claim 6 is broader than claim 7, from which claim 7 depends, so claim 6 must include separate databases within its scope. *See Baxalta Inc. v. Genentech, Inc.*, 972 F.3d 1341, 1346 (Fed. Cir. 2020) (“The district court’s construction [of the independent claim] which excludes these explicitly claimed embodiments [in the dependent claims] is inconsistent with the plain language of the

claims.”); *see also Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th 1376, 1380 (Fed. Cir. 2022) (same).

7. Claim 7

- a) The method recited in claim 6 wherein the first and second parts of the database are separate databases.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claim 6. *Supra* VIII.A.6. (Ex. 1002, ¶¶64-80, 100-01, 108-113.)

8. Claim 22

- a) [22pre] A system for verifying a modified parameter obtained from changing an operational parameter of a component of a radio network, wherein the system comprises:

[22a] a rule checker which, before the modified parameter is implemented in the network, checks the modified parameter on the basis of a rule so as to yield a result, said rule comprising both a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network; and

[22b] a data transferrer which, if the result indicates that the rule has been obeyed, stores the modified parameter in the network such that subsequent network operation will respond to the modified parameter.

The *Madebrink-Feuerstein* combination renders this claim obvious for the same reasons as those discussed above for claim 1. *Supra* VIII.A.1. (Ex. 1002, ¶114.)

9. Claim 23

- a) The system recited in claim 22 further comprising: a first part of a database for storing the operational parameter from the radio network; and a second part of the database for storing the modified parameter.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons discussed above for claim 6. *Supra* VIII.A.6. (Ex. 1002, ¶115.)

10. Claim 24

- a) The system recited in claim 23 further comprising a signal generator which generates a non-compliance signal if the modified parameter does not obey the operational requirement.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claim 3. *Supra* VIII.A.3. (Ex. 1002, ¶116.)

11. Claim 25

- a) The system recited in claim 23 further comprising scripting means which define rules and/or error messages that are to be used by the rule checker.

The *Madebrink-Feuerstein* combination renders this feature obvious. (Ex. 1002, ¶¶64-80, 117-18.) The '705 Patent does not disclose a “scripting means” anywhere in the specification other than claim 25. It does disclose, however, that a business rule is a “script” and that it can be called by running a main script. (Ex. 1001, 4:57-58; 6:19-21; 7:18-20; 7:50-8:11.)

Nevertheless, the “scripting means” is simply a computer program that defines the rules and error messages used by the verification program. (Ex. 1002, ¶¶117-18.)

The *Madebrink-Feuerstein* combination discloses a simulator and consistency check program (*supra* VIII.A.1) that defines the rules used by the simulator/consistency checker and provides an indication to the user when there has been a failure (*supra* VIII.A.3). Programming these rules and messages is a mere “mechanical step for a routineer skilled in the art.” (Ex. 1005, 12:17-20; 13:16-25; 14:5-16.) The *Madebrink-Feuerstein* combination renders obvious claim 25.

12. Claim 26

- a) 26. A radio network comprising a component having an operational parameter that can be changed to a modified parameter, the network comprising:
- a rule checker which, before the modified parameter is implemented in the network, checks the modified parameter on the basis of a rule so as to yield a result, said rule comprising both a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network; and
- a data transferrer which, if the result indicates that the rule has been obeyed, stores the modified parameter in the network such that subsequent network operation will respond to the modified parameter.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claim 1. *Supra* VIII.A.1. (Ex. 1002, ¶119.)

13. Claim 28

- a) 28. A computer program recorded on a computer readable media and containing computer executable instructions for execution on a computer system, the program comprising software code portions for verifying a modified parameter obtained from changing an operational parameter of a component of a radio network, wherein the instructions when executed cause the computer to:

check, before the modified parameter is implemented in the network, the modified parameter on the basis of a rule so as to yield a result, said rule comprising both a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network; and

if the result indicates that the rule has been obeyed, store the modified parameter in the network such that subsequent network operation will respond to the modified parameter.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claim 1. *Supra* VIII.A.1. (Ex. 1002, ¶120.) Moreover, the *Madebrink-Feuerstein* combination includes a computer program product. (Ex. 1005, 6:24-43.)

14. Claim 29

- a) 29. The computer program recited in claim 28 wherein the instructions, when executed, further cause the computer to:

copy the operational parameter from the radio network to a database; and

change the operational parameter to the modified parameter.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claim 3. *Supra* VIII.A.6. (Ex. 1002, ¶121.)

15. Claim 31

- a) A data carrier having a computer program recorded thereon, the program containing computer executable instructions for execution on a computer system, the program comprising software code portions for verifying a modified parameter obtained from changing an operational parameter of a component of a radio network, wherein the instructions when executed cause the computer to:

check, before the modified parameter is implemented in the network, the modified parameter on the basis of a rule so as to yield a result, said rule comprising both a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network; and

if the result indicates that the rule has been obeyed, store the modified parameter in the network such that subsequent network operation will respond to the modified parameter.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claims 1 and 28. *Supra* VIII.A.1, 13. (Ex. 1002, ¶131.)

16. Claim 32

- a) The data carrier recited in claim 31 wherein the instructions, when executed, further cause the computer system to:
 - copy the operational parameter from the radio network to a database; and
 - change the operational parameter to the modified parameter.

The *Madebrink-Feuerstein* combination renders this feature obvious for the same reasons as those discussed above for claim 6. *Supra* VIII.A.6. (Ex. 1002, ¶123.)

B. Ground 2: *Madebrink* in view of *Feuerstein* and *Shipman* Renders Obvious Claims 1-7, 22-26, 28, 29, 31, and 32.

To the extent it is found that *Madebrink* in view of *Feuerstein* does not render obvious a rule that includes “a deviation from the setting requirement based on an operational requirement deduced from use of the radio network” as recited by independent claim 1 (and somewhat similarly recited by independent claims 22, 26, 28 and 31), it would have been obvious to modify the *Madebrink-Feuerstein* combination in view of *Shipman*. (Ex. 1002, ¶¶64-80, 124-32.)

Shipman teaches that “rather than evolving a network design solely on the basis of a fixed rule set,” it is desirable to be “able to evolve a set of network design

rules found to be most effective in generating network designs that optimise the performance measures....” (Ex. 1010, 3:1-4; Ex. 1012, ¶8.) “By varying the network design rules, certain types of network modification that may not have been possible with a fixed rule set may be considered, potentially leading to a particularly successful network design.” (Ex. 1010, 3:5-7; Ex. 1012, ¶8.) *Shipman* teaches a POSITA to use “a population of rules sets generated by the rule generator includes rules characterized in having different values assigned to said at least one variable parameter.” (Ex. 1010, 3:13-15; Ex. 1012, ¶10.) This way, when the variable parameters are tested in a simulator using real traffic data, “[c]ertain parameter values may be found to be particularly effective in generating a network design of low cost or of higher reliability than other values. *The network designer tool of the present invention enables such parameter values to be found.*” (Ex. 1010, 3:18-21; Ex. 1012, ¶11.)

Shipman also explains that it was well-known in the art to optimize a network using an expert system that uses technically sufficient rules and variations of those rules, i.e., deviations of the rules, where those deviations are deduced based on operational requirements, e.g., improved connectivity, from data obtained by using the network itself. Specifically, *Shipman* describes an earlier network optimization system that includes the ability to modify a network “in accordance with user preferences and *predetermined* traffic requirements, using a knowledge base of

rules.” (Ex. 1010, 1:15-18; Ex. 1012, ¶4.) As Dr. Haas explains, this is similar to the baseline rules and initial settings used in *Madebrink*. (Ex. 1002, ¶126.)

Those earlier systems had “rules from the knowledge base [that were] used to select different categories of modification that may be made to the baseline architecture, at the same time satisfying the user preferences, and a network simulator simulate[d] operation and performance of modified networks in each category according to the predetermined traffic requirements.” (Ex. 1010, 1:18-22; Ex. 1012, ¶4.) “Particular modification options in one or more categories [were] then selected using rules from the knowledge base, taking account of *performance* results from the network simulations and the user preferences.” (Ex. 1010, 1:22-25; Ex. 1012, ¶4.) “Further simulation of each of the selected modification options is then used to assess their performance and cost relative to the performance and cost of the baseline architecture and so produce a ranked list of options for a modified network architecture.” (Ex. 1010, 1:15-28; Ex. 1012, ¶4.)

Shipman explains that “while a great deal of experience may be embodied a knowledge base of rules for use in such systems, the resultant options for modification of a network are nevertheless limited by the rule set used to devise them.” (Ex. 1010, 1:29-31; Ex. 1012, ¶5.) *Shipman* overcame this problem by utilizing a simulator that includes a rule store, a rule generator, and a simulator. The “rule store” is a database of technically sufficient rules, and the “rule generator” is

software that receives rules from the rule store and generates variations of those rules. (Ex. 1010, 7:5-8; 8:5-14; Ex. 1012, ¶¶23, 25.) The simulator simulates modified parameter settings, which satisfy the variable rules, against real network data. (Ex. 1010, 7:5-8; 8:5-14; Ex. 1012, ¶¶23, 25.)

Shipman's Abstract explains that taking a "set of traffic handling requirements" where each "rule includes a condition portion and and action portion and at least one such rule includes a portion expressed in terms of at least one variable parameter" was known. (Ex. 1010, 21:5-9; Ex. 1012, Abstract.) As Dr. Haas explains, a POSITA would have understood that *Shipman* is teaching a rule including a baseline technical setting (if x, then y; i.e., the condition action) and a deviation from that setting (a variable parameter). (Ex. 1002, ¶129.)

The variable parameter in *Shipman*'s rules is weighted to generate "subtle variations," i.e., deviations, to a rule. (Ex. 1010, 3:29-33; Ex. 1012, ¶13.) By varying the network design rules in this manner, certain types of network modification that may not have been possible with a fixed rule set may be considered using the simulator having real-world rules, potentially leading to a particularly successful network design. (Ex. 1010, 3:5-7; Ex. 1012, ¶8.)

Madebrink, again, teaches using additional checks within the CONSISTENCY CHECK program. (Ex. 1005, 13:27-28.) *Feuerstein* also teaches optimizing the parameter *before* deploying the parameter into the network by

simulating the modified parameter against real-time traffic information. (Ex. 1006, 12:29-39.) Given the disclosures of *Shipman* and the knowledge of a POSITA, it would have been obvious to further to modify *Madebrink* in view of *Shipman* such that the consistency check is *performed* not only on baseline technically sufficient rules, but also on deviations of those rules that revealed a particularly successful design during simulations using real traffic data. (Ex. 1002, ¶130.)

In *Madebrink* the “CONSISTENCY CHECK” is programmed and has additional checks like *Feuerstein*’s optimization simulation. And, as *Madebrink* explains, this programming “is a mere mechanical step for a routineer skilled in the art.” (Ex. 1005, 13:16-20.) Modifying *Madebrink* further to include *Shipman*’s varied rules, which were known to be particularly successful during simulations, would have been obvious to a POSITA. (Ex. 1010, 3:5-7; Ex. 1012, ¶8; Ex. 1002, ¶131.) In the modified system, the simulator would check the modified parameter based on a rule with a technically sufficient parameter setting requirement and a deviation from the setting requirement based on an operational requirement deduced from use of the radio network and that this checking is performed before *implementing* the modified parameter into the system. (Ex. 1002, ¶131.)

The additional challenged claims in Ground 1 (claims 2-7, 23-25, 29, and 32) are obvious for substantially similar reasons as those discussed above for Ground 1. By further modifying *Madebrink* to include *Shipman*’s explicit disclosure of using a

rule deviation in the simulator prior to its deployment, there is no meaningful effect on the for these *additional* claims. Therefore, for substantially similar reasons to those discussed above in Ground 1, claims 2-7, 23-25, 29, and 32 are obvious in view of *Madebrink* as modified in view of *Feuerstein*, *Shipman*, and the knowledge of a POSITA.

C. Ground 3: *Djoko* Anticipates Claims 1, 22, 26, 28 and 31.

1. Claim 1

a) [1pre].⁵

To the extent the preamble is limiting, *Djoko* discloses this feature and is not limited to producing “new” parameters as Applicant argued during prosecution. (Ex. 1004, 59-64; Ex. 1002, ¶¶52-58, 133-140.) *Djoko* also discloses “adjusting” and “altering” *existing* parameters.

For instance, *Djoko* discloses a “self-engineering system 100” that “interacts with [a] communication system 102 to *alter operating parameters* of the communication system 102 so as to improve and enhance performance of the communication system 102.” (Ex. 1007, 5:50-54 (emphasis added).) The communication system 102 is shown in Fig. 2, and includes radio network infrastructure. (*Id.*, 7:10-25; Fig. 2.)

⁵ The claim language may be found in § VIII.A.

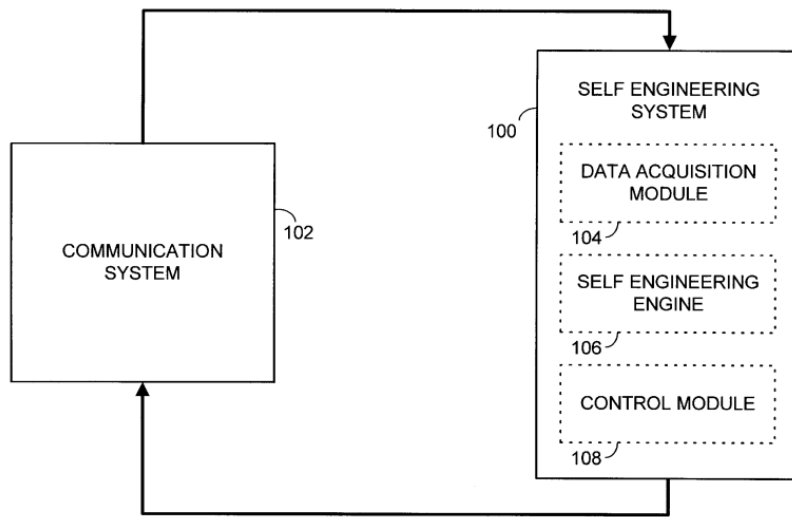
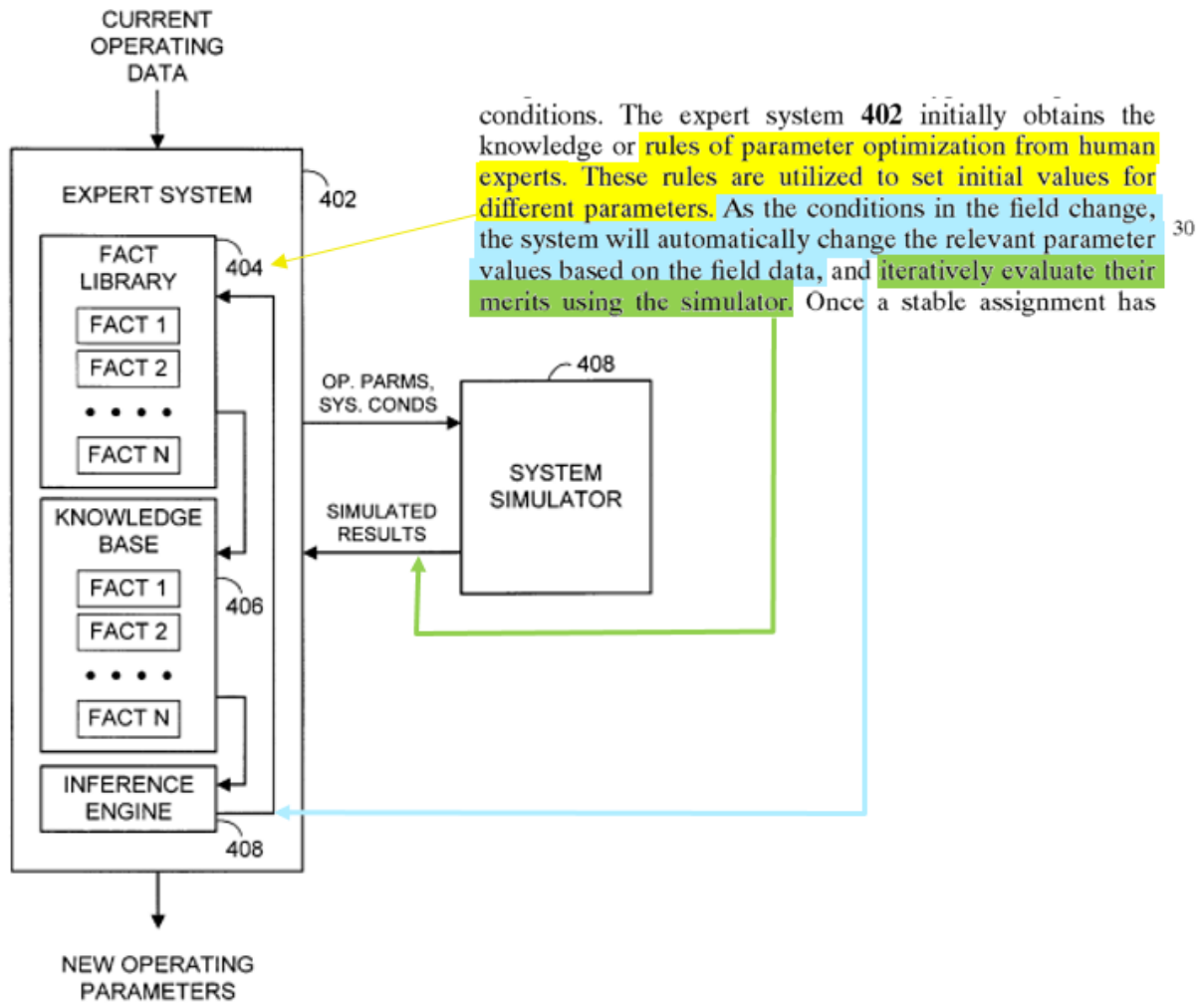


FIG. 1

(*Id.*, Fig. 1.)

“Functions of the self-engineering system 100 include... *parameter adjustment*...” (*Id.*, 6:21-23 (emphasis added).) “In adjusting operating parameters, the self-engineering system 100 analyzes operational measurements against pre-defined system performance metrics and *adjusts operating parameters* to achieve optimal network performance.” (*Id.*, 6:30-34 (emphasis added).)

Djoko’s self-engineering engine 106 includes a “simulator,” which aids in a “fast system parameter *adjustment* process.” (*Id.*, 6:41-47.) “FIG. 4 illustrates a particular construction of the self-engineering engine previously described as reference numeral 106 in FIG. 1,” and includes “an expert system 402” and a “system simulator 408.” (*Id.*, 10:9-13.)



(*Id.*, Fig. 4 (annotated); 13:26-32.) The expert system is a programmed computer that uses rules to set technically sufficient values for different parameters. (*Id.*, 13:26-29.) As the conditions in the field change, the system proposes changes the the *existing* parameters values based on the field data from the actual usage of the network. (*Id.*, 13:29-31.) The proposed changes to the *existing* parameter values are iteratively evaluated using the simulator. (*Id.*, 13:31-32.)

Djoko describes an example where “after the wireless communication system has been installed for some time, the geographic area served changes as does the load served by the system.” (*Id.*, 12:9-12.) In this example, “both the mobility and number of units being served has changed as has the RF propagation within the area served by the wireless communication system,” so “operating parameters that previously provided satisfactory performance no longer do so.” (*Id.*, 12:12-21.) Thus, “[o]ne particular set of parameters that needs to be **altered** as the wireless communication system changes relate to handoff.” (*Id.*, 12:21-23 (emphasis added).)

Prior to *Djoko*’s system, “[h]andoff parameter optimization [was] performed by experienced engineers and [did] not lend itself to easy automation.” (*Id.*, 13:19-20.) But, with *Djoko*’s system, automation became possible. Specifically, “the expert system 402, simulator 408 and interface to the wireless operational measurements and logs from the wireless communication system allow handoff to be optimized and simulated by the self-engineering system.” (*Id.*, 13:20-23.)

While the parameters are initially optimized using rules from human experts, i.e., technically sufficient rules, as “the conditions in the field change, the system will automatically change the relevant parameter values based on the field data, and iteratively evaluate their merits using the simulator.” (*Id.*, 13:23-32.) As Dr. Haas explains, “[t]his is a ‘deviation’ from the technically sufficient rule.” (Ex. 1002, ¶139.)

“Once a stable assignment has been achieved the results are implemented in the wireless communication system and set in place for reevaluations by the self-engineering system.” (Ex. 1007, 13:32-35.) Achieving a stable result in the simulator is an example of “verifying a modified parameter obtained from changing an operational parameter of a component of a radio network.” (Ex. 1002, ¶140.) Thus, *Djoko* discloses verifying an adjusted parameter (“modified parameter”) using a simulator where that modified parameter is obtained from changing an operating parameters (“operational parameter”) of a component of a radio network, such as the component that performs handoff in the network, (“a component of a radio network”). (*Id.*)

b) [1a]

Djoko discloses this feature. (Ex. 1002, ¶¶52-58, 141-46.) For instance, as detailed above for claim element 1pre, *Djoko* discloses that before the adjusted parameter (“modified parameter”) is implemented in the communication system (“network”), the system simulator verifies (“checks”) the adjusted parameter before it is implemented into the system. (*Id.*, 13:18-37.)

The verification by the simulator utilizing current operating data of the communication network is a verification that the altered parameters “will improve operation of the communication system.” (*Id.*, 3:40-46.) This verification is performed by considering a multipronged rule, such as the one claimed by the ’705

Patent. (Ex. 1002, ¶142.) Specifically, the verification of the rule includes both a check of whether the adjusted parameter satisfies a baseline rule and a deviation from that baseline rule, which is based on actual use of the radio network. (*Id.*) Referring to Fig. 4, the expert system 402 includes a fact library 404. (Ex. 1007, 10:31-32.) “The fact library 404” includes “historical operating data” and “current operating parameters.” (*Id.*, 10:36-40.) “The expert system 402 initially obtains the ***knowledge or rules of parameter optimization from human experts***. These rules are utilized to set initial values for different parameters.” (*Id.*, 13:26-29.) As Dr. Haas explained, this is an example of the claimed “rule” including “a technically sufficient parameter setting requirement.” (Ex. 1002, ¶142.) This type of rule can be found in documents although it “is often not found in documents but comes from the experience, rules of thumb and judgement of humans working in the domain.” (*Id.*, 10:19-23.) For example, the threshold setting requirement rule/setting can be “acquired from engineers.” (Ex. 1007, 13:45-46; *see also id.*, 14:42-43.) Thus, the knowledge from human experts/documents can also correspond to the claimed rule that includes “a technically sufficient parameter setting requirement.” (Ex. 1002, ¶142.)

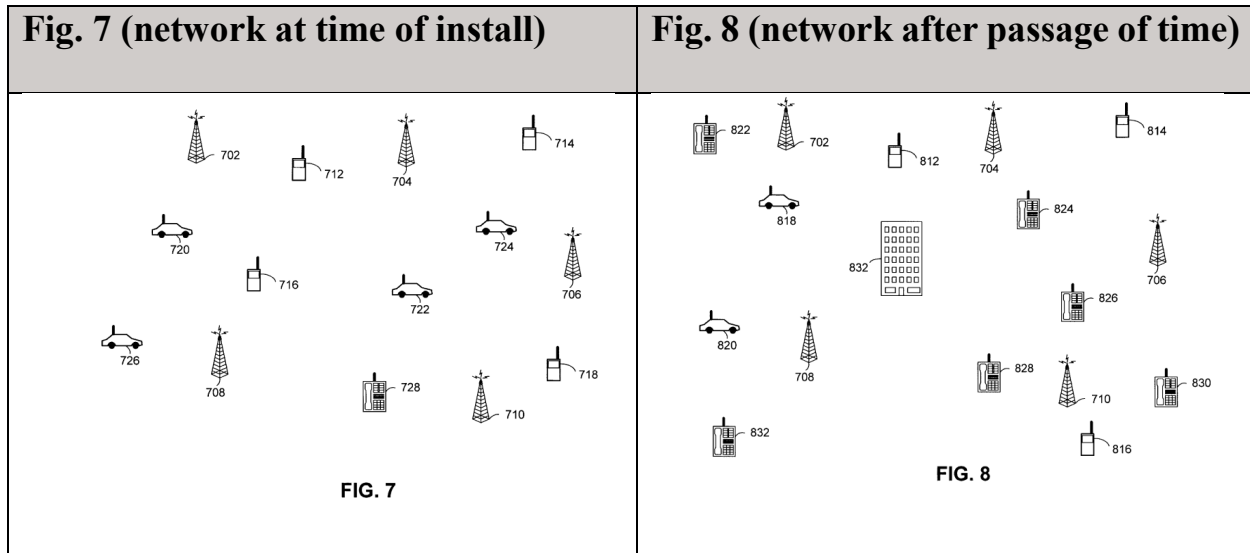
The ’705 Patent contends that “it is not possible to deviate from the technically sufficient parameter setting requirements if operational practice experience reveals a different more preferable technical parameter setting.” (Ex. 1001, 2:41-45.) The

'705 Patent is incorrect. (*See generally* Ex. 1006, 12:1-39, Ex. 1002, ¶40 (Dr. Haas disagree's with the '705 Patent because "*Madebrink* teaches to optimize the network parameters, which is an example of deviating from the technically sufficient parameter setting." (citing Ex. 1005, 11:64-68).)

Experience from daily operational use of the communication system can reveal a different optimized parameter setting. *Djoko* teaches that the rules can be altered according to knowledge obtained from daily operational use of the communication system. (Ex. 1007, 3:59-62 ("In operating on a portion of the communication system, each self-engineering module operates on a subset of *all system parameters that may be altered* by the self-engineering system."); 5:50-54 (discussing altering "operating parameters of the communication system 102 so as to improve and enhance performance of the communication system 102").

In *Djoko* parameters are adjusted/modified in response to triggering events. For instance, referring to Fig. 6 "the self-engineering system monitors operation of the communication awaiting a triggering event." (*Id.*, 11:32-34.) A triggering event occurs by operator intervention or "when the system fails to reach a predetermined level of operation." (*Id.*, 11:14-20.) "When the triggering event is met" (604) "the inference engine 408 executes rules in the knowledge base 406" (606) and "modifies the fact library 404" (608). (*Id.*, 11:38-40.) This process continues until all rules are executed (610) and then parameters values are set (612). (*Id.*, 11:42-53.)

By way of example, Figures 7 to 9 illustrate using the “self-engineering system” for “*altering operating parameters* relating to hand-off in a portion of a wireless communication system.” (*Id.*, 11:65-12:1 (emphasis added.)



(*Id.*, Figs. 7, 8.)

“FIG. 7 illustrates construction of a wireless communication system soon after installation” where “hand held mobile units 712, 714, 716 and 718 as well as auto mobile installed mobile units 720, 722, 724 and 726 are served by the wireless communication system satisfactorily after installation.” (*Id.*, 12:1-8.) And, Figure 8 shows “after the wireless communication system has been installed for some time, the geographic area served changes as does the load served by the system.” (*Id.*, 12:9-12.) “Because both the mobility and number of units being served has changed as has the RF propagation within the area served by the wireless communication system, *operating parameters that previously provided satisfactory performance*

no longer do so.” (*Id.*, 12:17-21.) For example, the handoff parameters needs to be “altered.” (*Id.*, 12:21-23.) By altering the previous setting requirement rule that provided satisfactory performance *Djoko* is deviating from that rule based on the network’s usage, e.g., based on an operational requirement deduced from the use of the radio network. (Ex. 1002, ¶146; *see also id.*, ¶¶52-58.) Thus, *Djoko* discloses the features of claim element 1a.

c) [1b]

Djoko discloses this feature. (Ex. 1002, ¶¶52-58, 147.) As discussed above for claim element 1pre, the merits of the altered parameters are evaluated using the simulator. “*Once a stable assignment has been achieved the results are implemented in the wireless communication system...*” (Ex. 1007, 13:32-35.) As Dr. Haas explains, a POSITA would have understood this disclosure to be “an example of storing the modified parameter in the network, if the result indicates that the rule has been obeyed, i.e., a ‘stable assignment has been achieved,’ such that subsequent network operation will respond to the modified parameter, i.e., such that the stable results ‘are implemented in the wireless communication system.’” (Ex. 1002, ¶147.) Thus, *Djoko* anticipates claim 1.

2. Claims 22, 26, 28 and 31

Djoko anticipates these claims for the reason discussed above for claim 1. *Supra* IX.C.1a to IX.A.1.c. (Ex. 1002, ¶¶52-58, 148-151.)

D. Ground 4: *Djoko* in view of *Sheridan* renders obvious claims 2-6, 23-25, 29, and 32

1. Claims 2, 29 and 32

Djoko in view of *Sheridan* renders obvious the features of these claims. (Ex. 1002, ¶¶52-58, 152-55.) *Djoko* discloses a “fact library” that “includes the current operating parameters and proposed operating parameters.” (Ex. 1007, 10:30-40.) *Djoko* teaches relying upon “available mechanisms to collect current operating data.” (*Id.*, 10:1-3.) And, while *Djoko* does not teach “copying” the operational parameters from the network to its “fact library” (database), Dr. Haas explains that a POSITA would have found copying an obvious implementation of the available mechanisms for collecting the operating parameters. (Ex. 1002, ¶¶152-55.)

A POSITA would have had the knowledge and skillset to copying parameters from a network. (*Id.*, ¶153.) Indeed, the ’705 Patent admits that copying was well-known when discussing *Madebrink*⁶ and stating that it was known to copy cell parameters to a database and store them along so that proposed changes can be

⁶ As explained previously, *Madebrink* teaches “performing reconfiguration of a cellular network including **copying cell parameters of affected mobile switching centers in the network to a database**, and storing the copied parameters, **preparing a set of proposed changes to the stored parameters**, verifying the consistency of the prepared set of proposed changes and making any necessary alterations of the set of proposed changes responsive to the verification, copying the verified set of proposed changes to the affected mobile switching centers, and introducing the verified set of proposed changes into the network.” (*See, e.g.*, Ex. 1005, 3:66-4:11 (emphasis added).)

prepared and verified before implementing the altered parameters into the network. (Ex. 1001, 1:56-67.) Thus, a POSITA would have had the knowledge and skillset to copying parameters from a network. (*Id.*, ¶153.)

Sheridan discloses a system for cellular network configuration and management. (Ex. 1008, 1:5-6.) Thus a POSITA would have been encouraged to look to *Sheridan* when looking at the “available mechanisms” for collecting the current operating parameters in *Djoko*’s system. (Ex. 1002, ¶154.) After reading *Sheridan*, Dr. Haas explains that a POSITA would have recognized that it teaches a cell configuration system having “a data reception and storage system 602.” (*Id.* (citing Ex. 1008: 7:8-12).) *Sheridan*’s cell configuration system receives a copy of “configuration data” from the cell site complex 108, which includes the network 206. (*Id.*, 5:35-38; 3:40-41.) Thus, as Dr. Haas explains, a POSITA relying on their knowledge and skill and having read *Sheridan* would have found it obvious to use the available mechanism of copying parameters from the network to a database as the technique for collecting the current operating parameters in *Djoko*’s system. (Ex. 1002, ¶154.)

Taking these disclosures together with *Djoko*’s disclosure of *altering* (changing) the current operational parameter to the modified parameter before deploying the modified parameter into the network renders obvious claims 2, 29, 32.

Supra VIII.C.1. Thus, *Djoko* in view of *Sheridan* renders obvious claims 2, 29 and 32.

2. Claims 3, 24, 25

The *Djoko-Sheridan* combination discloses this feature. (Ex. 1002, ¶¶52-58, 152-57.) *Djoko*'s self-engineering system 100 includes *audit* and parameter adjustment functions. (Ex. 1007, 6:20-23.) The audit function "reports configuration errors to a system operator." (*Id.*, 6:23-29.) Dr. Haas explains that a POSITA would have understood that reporting configuration errors is an example of generating a non-compliance signal if the modified parameter does not obey the operational requirement. (Ex. 1002, ¶157.) He similarly explains that reporting configuration errors is also an example of the computer program described by claim 25 that defines the rules and error messages used by the simulator in the combined system. (Ex. 1002, ¶157.)

3. Claim 4

The *Djoko-Sheridan* combination discloses this feature. (Ex. 1002, ¶¶52-58, 152-58.) Although the format of the "report" is not disclosed in *Djoko* a POSITA would have found it obvious to display a message to a system operator. Indeed, *Sheridan* discloses doing just that for configuration errors. (Ex. 1008, 8:34-42.) And a POSITA would have found it obvious to "report" a configuration error by displaying a message to an operator. (Ex. 1002, ¶¶157-58.)

4. Claim 5

The *Djoko-Sheridan* combination discloses this feature. (Ex. 1002, ¶¶52-58, 152-59.) *See, e.g.*, Ex. 1008, 3:9-10 (“Alarms are reported when parameters are outside of an *allowable* range.”). The combined system checks whether parameters are “outside of an allowable range or specification *that is set* for that parameter or component.” (Ex. 1008, 6:60-63.) Setting a range for an alarm signal is an example of a programmable non-compliance signal. (Ex. 1002, ¶¶157-159.) As Dr. Haas explains, although the format of the “report” is not disclosed in *Djoko*, a POSITA would have found it straightforward and obvious to program the “report” (non-compliance signal) to display a message to a system operator or to provide a visual warning. And *Sheridan* discloses doing just that for configuration errors. (*See, e.g.*, Ex. 1008, 8:34-42; *see also* known art such as Ex. 1013 at 22:62-65 (describing the well-known concept of displaying error messages or providing audible warnings).) Thus, programming the report to be displayed “visually” would have been obvious to a POSITA. (Ex. 1002, ¶159.)

5. Claims 6, 23

The *Djoko-Sheridan* combination renders this feature obvious. The *Djoko-Sheridan* combination discloses this feature. (Ex. 1002, ¶¶52-58, 152-56.) Specifically, the fact library 404 (“database”) “includes the current operating parameters and proposed operating parameters” that are stored in separate parts of the database, i.e., “Fact 1 through Fact N”. (Ex. 1007, 10:38-42.)

IX. THE CIRCUMSTANCES WEIGH AGAINST DISCRETIONARY DENIAL

A. The *Fintiv* factors favor institution

An evaluation of the six factors under *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (Mar. 20, 2020) (precedential), weigh against the Board exercising its discretion to deny institution. Rather, the strong invalidity showing on the merits favors institution, notwithstanding the Texas litigation. (*See* §II).

First factor. Petitioner intends to seek a stay in the Texas litigation upon institution of this Petition. The Board has explained that it will not speculate as to the outcome of such unresolved issues before a district court, *Google LLC et al. v. Parus Holdings, Inc.*, IPR2020-00847, Paper 9 at 12, and that this factor is neutral where no such stay motion has yet been filed, *Unified Patents LLC v. Monarch Networking Sol'n's LLC*, IPR2020-01708, Paper 26. Accordingly, this factor does not weigh in favor of discretionary denial.

Second factor. Regarding the Texas litigation, the court just recently held a scheduling conference on January 19, 2023. Trial is tentatively scheduled for April 1, 2024. Thus, this factor weighs against discretionary denial.

Third factor. The minimal investment by the court and the parties in the Texas litigation weighs against discretionary denial. Fact discovery only recently opened, no depositions have occurred, and no efforts toward claim construction have begun. Patent owner has only recently served infringement contentions. Petitioner

has not served invalidity contentions. In short, virtually nothing substantive has happened and the most resource intensive period in the district court case will occur after the institution decision in this proceeding. This alone strongly weighs against denial of institution. *See, e.g., Hulu LLC v. SITO Mobile R&D IP, LLC*, IPR2021-00298, Paper 11 at 13 (May 19, 2021).

Fourth factor. Petitioner has not yet served invalidity contentions and thus ascertaining overlap of issues at this stage is purely speculative. Nonetheless, to mitigate any potential concerns, Petitioner stipulates that it will not pursue invalidity of the '705 Patent in district court based on any instituted IPR grounds in this proceeding.

Fifth factor. Although Petitioner is a party to the Texas litigation, this factor does not outweigh the other factors that strongly weigh against discretionary denial.

Sixth factor. Petitioner diligently filed this Petition with strong grounds (*supra* §VIII) well before the statutory deadline for filing an IPR. Such diligence weighs against exercising discretion. *See, e.g., Hulu*, IPR2021-00298, Paper 11 at 13; *Facebook, Inc. v. USC IP P'ship, L.P.*, IPR2021-00033 Paper 13 at 13. Further, institution is thus consistent with the significant public interest against “leaving bad patents enforceable.” *Thryv, Inc. v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1374 (2020). This Petition is the sole challenge to the '705 Patent before the Board, which also favors institution. *Google LLC v. Uniloc 2017 LLC*, IPR2020-00115, Paper 10

at 6 (May 12, 2020). Accordingly, based on a “holistic view of whether efficiency and integrity of the system are best served,” the facts here weigh against exercising discretion denial. *Samsung Elecs. Co. Ltd. v. Dynamics Inc.*, IPR2020-00505, Paper 11 at 15 (Aug. 12, 2020). At a minimum, factors 2, 3, 4, and 6 (or combinations thereof) outweigh factors 1 (which is neutral) and 5, and thus favor institution.

B. The Board Should Not Exercise Discretion Under § 325(d) To Deny the Petition

In considering its discretion under § 325(d), “the Board uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented the Office; and (2) if the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims.” *Advanced Bionics*, Paper 6 at 8.

The Board has found that the *Becton, Dickinson & Co. v. B. Braun Melsungen AG* factors favor institution in situations where even a single non-cumulative secondary reference distinguished the prior-art ground regardless of other overlapping references. *Oticon Medical AB et al. v. Cochlear Limited*, IPR2019-00975, Paper 15, 9-20 (PTAB Oct. 16, 2019) (precedential). In its Institution Decision in IPR2021-01032 on US Patent No. 9,410,410 (“the ’410 Patent”), the Board found that, even though *Coli* was cited on the face of the ’410 Patent, the first

part of the *Advanced Bionics* framework was not satisfied “because the particular combinations set forth in the petition were not considered by the examiner.” (IPR2021-01032, Paper 12, 17.) Specifically, the petition in that case did not assert *Coli* alone but asserted *Coli* in combination with *Horikoshi*, which was not presented to the Office during prosecution. (*Id.*, 18.) Thus, the Board concluded that the combination of references asserted in the petition was not presented previously to the Office and that, based on this fact alone, denial of the petition under § 325(d) was not warranted.

This same analysis applies to this case. *Madebrink* and *Djoko* are listed on the face of the ’705 Patent, and *Madebrink* alone and in combination with *Djoko* was substantively considered by the Examiner during prosecution. *See* §IV.B. However, the Petition sets forth combinations of prior art that were not considered by the Examiner, namely combinations including *Madebrink* in view of *Feuerstein* and *Shipman* (§§VIII.A, VIII.B) and *Djoko* alone or together with *Sheridan* (§§VIII.C, VIII.D). Thus, the first part of the *Advanced Bionics* framework is not satisfied because the Petition includes grounds based on individual prior art and combinations of prior art not previously presented to the Office. Accordingly, neither condition of the first prong of the *Advanced Bionics* framework is met, and there is no need to reach the second prong to resolve against discretionary denial under Section 325(d). *See, e.g., Oticon*, Paper 15 at 20 (“There is new, non-cumulative prior art asserted in

the Petition...[f]or at least this reason, we determine not to exercise our discretion under § 325(d)").

To the extent the Board disagrees and considers the second prong of the *Advanced Bionics* framework, the Examiner overlooked important teachings from *Djoko* and *Madebrink*. *Advanced Bionics*, Paper 6, 8 n.9 ("An example of a material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact the patentability of the challenged claims.") Here, the Challenged Claims were allowed based on the Examiner's mistaken acceptance of Applicant's argument that the prior art merely considers "technical" rules and makes changes without considering the "actual operational practice, i.e., where actual daily network operation 'in the field' dictates a change in a network parameter." (Ex. 1004, 56, *see also id.*, 57 (the prior art is "completely oblivious to any operationally-induced change"); §IV.B.) The Examiner also accepted Applicant's inaccurate argument that *Djoko* is "not directed to verifying network parameters" but "rather to producing *new* modified parameter settings themselves." (Ex. 1004, 59 (emphasis added); *see also id.* (It is "the verification of existing parameter settings (i.e., those already in existence and operational use) to which the present invention, as claimed, is directed, not their initial production.").)

The Examiner erred by not considering *Djoko*'s plain teachings of *altering* existing parameters based on network conditions. *Advanced Bionics*, Paper 6, 10

(listing silence as evidence of error), *see also id.*, 8 (the Board will not exercise discretionary denial under § 325(d) where the “petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims”). Specifically, as discussed in more detail in §§VI.B and VIII.C, *Djoko*’s expert system 402 optimizes the system using “many rules” by “initially obtain[ing] the knowledge or rules of parameter optimization from human experts,” just like the ’705 Patent, and then “as the conditions in the field change, the system will automatically ***change the relevant parameter values*** based on the field data, and ***iteratively evaluate their merits using the simulator.***” (Ex. 1007, 13:18-33.)

Djoko’s disclosures are directed to verifying optimizations to existing network parameters—in the same manner as the ’705 Patent. (*Id.*, 5:50-54 (*Djoko* plainly teaches “to ***alter operating parameters*** of the communication system [] so as to improve and enhance performance of the communication system” (emphasis added); 6:30-34 (*Djoko* teaches “***adjusting*** operating parameters” such that “the self-engineering system” functionally “***adjusts*** operating parameters to achieve optimal network performance.”; *see also id.*, 7:38-46 (discussing ***adjusting*** operating parameters); 8:51-57 (explaining that the system “operates upon system parameters to ***adjust*** such parameters”); 9:51-54 (discussing ***adjusting*** operating parameters).) Similarly, the Examiner erred by overlooking *Madebrink*’s disclosure of optimizing parameters and adjustable thresholds for the rules. (*Supra* §VIII.A). The Board

should thus not deny trial under § 325(d). *Agrofresh Solutions, Inc. v. Lytone Enterprise, Inc.*, IPR2021-00451, Paper 11, 13-14 (PTAB July 27, 2021) (declining to exercise discretion to deny institution under § 325(d) where petitioner provided additional evidence and information showing Examiner's conclusions were incorrect, and thus the Examiner materially erred in allowing the claims); *Vudu, Inc. v. Ideahub, Inc.*, IPR2020-01689, Paper 16, at 18-20 (PTAB Apr. 19, 2021) ("Petitioner sufficiently demonstrate[d] that the Office erred in a manner material to the patentability of the challenged claims by overlooking [the teachings of references] and not applying [those teachings from those references] in a rejection").

Lastly, the Examiner did not have the benefit of expert testimony explaining the significance of *Madebrink* in combination with *Feuerstein* and *Shipman*, or *Djoko* alone or in combination with *Sheridan*, as explained above. (§§VIII.A-D.) As demonstrated in the instant Petition with reference to Dr. Haas's testimony, the Examiner's failure to consider the obviousness of the Challenged Claims over the uncited *Feuerstein*, *Shipman*, and *Sheridan* references constitutes material error. For at least this additional reason, Ericsson respectfully submits that discretionary denial is unwarranted and that the Board should instead institute IPR based on the instant Petition's grounds.

X. CONCLUSION

For the reasons given above, Petitioner requests institution of *inter partes* review and cancellation claims of the Challenged Claims of the '705 Patent based on each of the grounds specified in this Petition.

Respectfully submitted,

Dated: February 14, 2023

By: /Scott Hejny/
Scott W. Hejny (Reg. No. 45,882)
Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 7,092,705 contains, as measured by the word processing system used to prepare this paper, 12,789 words. This word count does not include the items excluded by 37 C.F.R. § 42.24 as not counting towards the word limit.

Respectfully submitted,

Dated: February 14, 2023

By: /Scott Hejny/
Scott W. Hejny (Reg. No. 45,882)
Counsel for Petitioner

CERTIFICATE OF SERVICE

I hereby certify that on February 14, 2023, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 7,095,705 and supporting exhibits were served von the following parties via FedEx Express or Express Mail:

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