

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

AIRE TECHNOLOGY LIMITED,  
Patent Owner.

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IPR2022-01136  
Patent 8,174,360 B2

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Before JEFFREY S. SMITH, BRIAN J. McNAMARA, and  
MIRIAM L. QUINN, *Administrative Patent Judges*.

McNAMARA, *Administrative Patent Judge*.

DECISION  
Granting Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

Apple, Inc. (“Petitioner”) filed a petition, Paper 2 (“Petition” or “Pet.”), to institute an *inter partes* review (“IPR”) of claims 1–3, 8–11, and 15 (the “challenged claims”) of U.S. Patent No. 8,174,360 B2 (“the ’360 patent”). 35 U.S.C. § 311; *see* Pet. 16. Aire Technology Limited (“Patent Owner”) filed a Preliminary Response, Paper 6 (“Prelim. Resp.”), contending that the Petition should be denied. As we authorized, Petitioner filed a Reply (Paper 9, “Reply”) and Patent Owner filed a Sur-reply (Paper 10, “Sur-reply”). We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

A decision to institute under § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In addition, per Board practice, if the Board institutes trial, it will institute “on all of the challenged claims and on all grounds of unpatentability asserted for each claim.” *See* 37 C.F.R. § 42.108(a).

Having considered the arguments and the associated evidence in the record before us, for the reasons described below, we institute *inter partes* review.

## II. REAL PARTIES-IN-INTEREST

Petitioner identifies itself (Apple, Inc.) as its sole real party-in-interest. Pet. 86. Patent Owner identifies itself (Aire Technology Ltd.) as its sole real party-in-interest. Paper 4, 2.

### III. RELATED MATTERS

The Petition states that the '360 patent is the subject of the following proceedings:

*Aire Technology Ltd. v. Google LLC*, No. 6-21-01104, W.D. Tex., filed Oct. 25, 2021;

*Aire Technology Ltd. v. Apple, Inc.*, No. 6-21-01101, W.D. Tex., filed Oct. 22, 2021 (“the Apple litigation”);

*Aire Technology Ltd. v. Samsung Electronics co, Ltd. et al.*, No. 6-21-00955 W. D. Tex., filed Sep. 15, 2021;

*Samsung Electronics Co., Ltd. v. Aire Technology Ltd.*, IPR2022-00876 (PTAB, May 2, 2022)

*Aire Technology Ltd. v. Garmin International, Inc.*, No. 8-22-cv-01027 C.D. Cal., filed May 20, 2022

Pet. 86. Patent Owner identifies the following additional proceedings as “related current and/or former proceedings involving the patent at issue.” *Id.* at 2–3.

*Samsung Electronics Co., Ltd. v. Aire Technology Ltd.*, IPR2022-00874 (PTAB Apr. 22, 2022)

*Samsung Electronics Co., Ltd. v. Aire Technology Ltd.*, IPR2022-00875 (PTAB Apr. 22, 2022;

*Samsung Electronics Co., Ltd. v. Aire Technology Ltd.*, IPR2022-00877 (PTAB May 2, 2022);

*Apple Inc. v. Aire Technology Ltd.*, IPR2022-01135 (PTAB June 15, 2022);

*Apple Inc. v. Aire Technology Ltd.*, IPR2022-01137 (PTAB June 15, 2022)

#### IV. EXERCISE OF DISCRETION

In the Preliminary Response, Patent Owner contends that we should exercise our discretion to deny the Petition in favor of the parallel Apple litigation identified above taking place in the U.S District Court for the Western District of Texas (“the Texas court”). Prelim. Resp. 1–10. The Board has held that the advanced state of a parallel district court action is a factor that may weigh in favor of denying a petition under § 314(a). *See NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential); Trial Practice Guide, 58 & n.2. We consider the following factors to assess “whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of an earlier trial date in the parallel proceeding”:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

*Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6. We consider each of these factors below.

On June 21, 2022, the Director of the USPTO issued several clarifications concerning the application of the *Fintiv* Factors. *See Interim Procedure For Discretionary Denials In AIA Post-Grant Proceedings With Parallel District Court Litigation*, issued June 21, 2022 (“Guidance Memo”).<sup>1</sup> The Director’s memo states that “the precedential import of *Fintiv* is limited to facts of that case.” Guidance Memo 2. Under the Guidance Memo “the PTAB will not rely on the *Fintiv* factors to discretionarily deny institution in view of parallel district court litigation where a petition presents compelling evidence of unpatentability.” Guidance Memo 2.

Compelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel. Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.

Guidance Memo 4.

The Guidance memo further states,

[c]onsistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.

Guidance Memo, 3. *See Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to § II.A).

The Guidance memo also states,

when considering the proximity of the district court's trial date to the date when the PTAB final written decision will be due, the PTAB will consider the median time from filing to disposition of

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<sup>1</sup> Available at [https://www.uspto.gov/sites/default/files/documents/interim\\_proc\\_discretionary\\_denials\\_aia\\_parallel\\_district\\_court\\_litigation\\_memo\\_20220621\\_.pdf](https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf).

the civil trial for the district in which the parallel litigation resides.

Guidance Memo 3<sup>2</sup>. With these factors and guidance in mind, we consider the parties' contentions.

As to factors 1 and 2, Patent Owner contends that it is unlikely the case will be stayed, that a trial in the Apple litigation is scheduled to occur before a final decision will issue in this proceeding, and that the Texas court does not move a trial date, except in extreme situations. Prelim. Resp. 3–6, Sur-reply 1–2. Petitioner contends that generalized evidence that the Texas court denies stays is a neutral factor as to this particular case, and that, although the scheduled trial date is November 6, 2023, statistics indicate that trial is more likely to occur late in February 2024, i.e., after a final decision in this proceeding. Reply 1–2. Petitioner further notes that, even if a trial occurs on the scheduled date, the due date for a final decision in this proceeding is sufficiently close in time as to disfavor denial of institution. *Id.* at 2. Under these circumstances, we find that factors 1 and 2 do not support exercising discretion to deny institution.

As to factors 3 and 4, Patent Owner argues that there is a significant overlap in the substance of the proceedings and that before a decision on institution, the parties will have invested resources to complete claim construction briefing, exchange infringement and invalidity contentions, and that discovery will be underway. Prelim. Resp. 6–9, Sur-reply 3–5. Noting (i) that the Texas court has already delayed a *Markman* claim construction hearing until May 16, 2023, i.e., more than four months after the due date of a decision on institution in this proceeding, and (ii) that fact discovery and

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<sup>2</sup> See <https://www.uscourts.gov/statistics-reports/analysis-reports/federal-court-management-statistics>.

expert discovery in the Apple litigation continue for two months and seven months, respectively, after the due date an institution decision, Petitioner contends that the lack of substantial investment in the Texas litigation weighs against denial of institution. Reply 2–3. As to overlapping issues, Petitioner stipulates that “it will not pursue in the parallel district court proceeding the prior art obviousness combinations on which trial is instituted for the claims on which trial is instituted. In *Sand*, a nearly identical stipulation was found to effectively address the risk of duplicative efforts.” Reply 3–4 (citing *Sand Revolution II, LLC v. Continental Intermodal Group Trucking LLC*, IPR2019-01393, Paper 24 at 11–12 (June 16, 2020) (informative) (“*Sand*”). Patent Owner asserts that Petitioner’s “limited stipulation is not ‘nearly identical’ to the stipulation in *Sand*,” because it fails to stipulate that Petitioner “would not pursue any ground raised or that could have been reasonably raised in an IPR, i.e., any ground that could be raised under §§ 102 or 103 on the basis of prior art patents or printed publications.” Sur-reply 4 (citing *Sand* at 12 n.5). In *Sand*, however, although the panel’s footnote stated that a broader stipulation would better address concerns, the panel found Petitioner’s stipulation that it would not pursue in district court litigation the same grounds as those asserted in the IPR “mitigates to some degree the concerns of duplicative efforts” and “weighs marginally in favor of not exercising discretion to deny institution.” *Sand* at 12. In these circumstances, we find that the investment in invalidity issues in the Apple litigation and Petitioner’s stipulation do not support exercising discretion to deny institution. See *Sand* at 10–12.

As to factor 5 it is undisputed that Petitioner is a defendant in the Apple litigation. But this factor alone does not outweigh the other factors that thus far do not support exercising discretion to deny institution. Further

as to factor 6, and as discussed in detail below, at this stage of the proceeding, we find that Petitioner has shown that at least some of the '360 patent claims at issue recite well-known and obvious methods for setting up data connections between devices. Patent Owner acknowledges that its Preliminary Response does not address the merits of Petitioner's challenges. Prelim. Resp. 9–10.

Having weighed the factors above, including the relative timing of the proceedings, the amount of effort that has been and is yet to be expended in the Apple litigation and in this proceeding, Petitioner's stipulation, and the relative merits of Petitioner's unrebutted challenges, we find that, taken as a whole, the factors do not favor exercising discretion to deny institution. In consideration of the above, we decline to exercise discretion to deny institution.

## V. THE '360 PATENT

The '360 patent concerns setting up data connections between intelligent devices, using near field communication (“NFC”) protocols when they approach each other. Ex. 1001, 1:7–20. Such intelligent devices may include a portable computer, mobile telephone, a radio frequency identification (“RFID”) transponder in a contactless chip card, a wrist watch, a garment, an electronic ticket, and a reading device. *Id.* at 3:32–43. Figure 1 of the '360 patent, shown below, illustrates the structure of intelligent devices designed for automatic data connection set-up. *Id.* at 3:1–2.

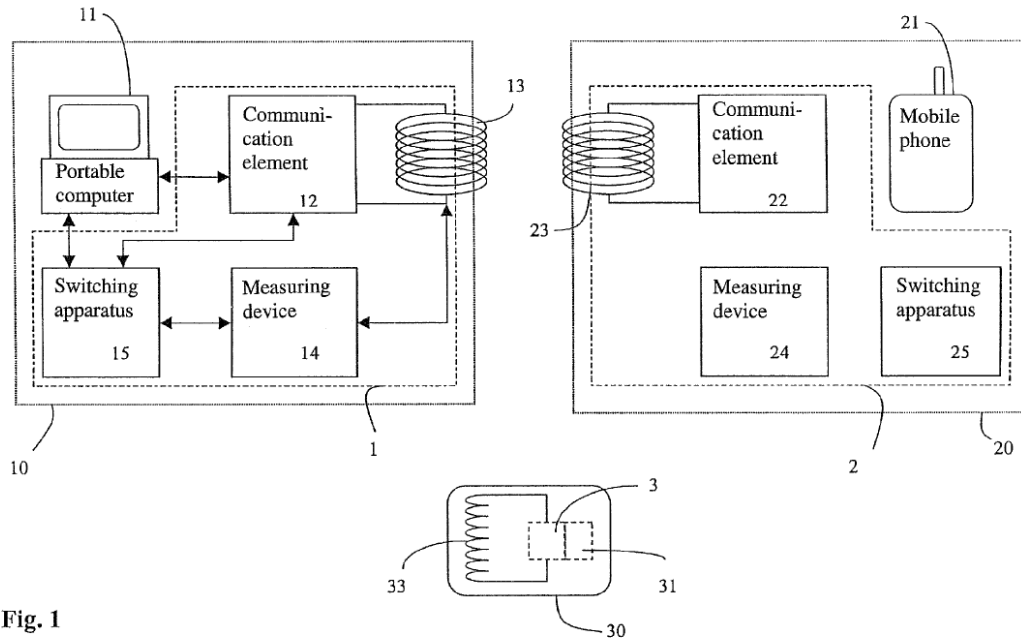


Fig. 1

*Id.* at Fig. 1. In Figure 1, device 10 has communication apparatus 1 that includes portable computer 11; device 20 has communication apparatus 2 that includes mobile phone 21; and contactless card device 30 has communication apparatus 3 that includes chip 31. Devices 10, 20, and 30 include coils 13, 23, 33, respectively. Communication elements 12 and 22 in devices 10 and 20 ascertain the presence of another device within the response range of their respective coils. *Id.* at 3:55–57. Upon detection of a nearby device, communication elements 12, 22 execute software to set up communication, e.g., by executing an NFC protocol. *Id.* at 3:56–4:2. Coils 13, 23, 33 carry out contactless data exchange in a conventional manner as part of a transmission oscillator with a defined resonant frequency. *Id.* at 4:3–13.

The '360 patent describes a conventional approach to detecting the presence of an intelligent device within the response range of the NFC protocol as using a search mode in which an initiator cyclically emits search queries that can be answered by targets. *Id.* at 1:20–30. Relatively high



includes measuring unit 46. Measuring unit 46 can be switched on and off by switch 44, which is activated by optional time controller 45 in switching apparatus 15, 25. *Id.* at 4:46–48, 4:57–59. Actuator 43 controls switch 47 to connect coil 13, 23 of transmission oscillator 50 (formed by coils 13, 23 in parallel with capacitor 48) to either communication element 12, 22 or measuring unit 46. *Id.* at 4:60–64, 5:9–13. When actuator 43 sets switch 47 to connect transmission oscillator 50 to communication element 12, 22, resistor 52 and capacitor 51 are engaged in parallel with transmission oscillator 50—this reduces the resonant frequency of transmission oscillator 50 to a frequency suitable for data transmission and increases the bandwidth available for data transmission, while reducing the quality factor. *Id.* at 5:13–21, 5:44–57.

The '360 patent describes three operational modes: the search mode, the data transmission mode, and the detection mode. *Id.* at 5:31–6:1, Fig. 3. In the first mode, i.e., the search mode, apparatus 10, 20, 30 is switched on using switch 42 to energy supply 41. *Id.* at 5:35–37. Actuator 43 sets switch 47, so that coil 13, 23 is connected to communication element 12, 22, thereby engaging capacitor 51 and resistor 52 to set the transmission oscillator resonant frequency and bandwidth for transmission. *Id.* at 5:35–57. Communications element 12, 22 then cyclically emits a search signal. *See, id.* at 5:58–63. Upon observing the presence of another device within its response range, communication element 12, 22 puts the apparatus in the second mode, i.e., the data transmission mode, by setting up and executing a data exchange according to a known protocol. *Id.* at 5:64–6:18. When the data exchange is finished, the apparatus enters the third mode, i.e., the detection mode. *Id.* at 6:19–20. In the detection mode actuator 43 reduces power consumption by disconnecting communication element 12, 22 from

power supply 41 via switch 42, and sets switch 47 to connect passive transmission oscillator 50 to measuring unit 46. *Id.* at 6:19–25. As a result, resistor 52 and capacitor 51 are switched out of transmission oscillator 50, increasing the resonant frequency, improving the quality factor, and increasing the range for detection of other devices, while preventing interference with communications of other nearby devices already in the data transmission mode. *Id.* at 6:36–49. Actuator 43 also turns on measuring unit 46, which is equipped with software to monitor a property of transmission oscillator 50. *Id.* at 5:1–3, 6:54–55. For example, measuring unit 46 monitors the resonant frequency or the impedance of its apparatus's transmission oscillator 50, because the resonant frequency or impedance will be changed when the coil of another apparatus is brought within the detection range. *Id.* at 6:53–63. Measuring unit 46 reports changes in monitored properties to actuator 43, which responds by initiating a search mode. *Id.* at 6:64–67.

The '360 patent also discloses an embodiment in which the measuring unit stores and averages measurements of the monitored property, identifies the presence of another device by determining whether a measured value exceeds the average value, and a time controller executes a waiting loop during which the measuring unit is switched off for a predetermined time period after no other device is detected. *Id.* at 7:12–8:10, Fig. 4. The predetermined off period may be set to exceed the in time in which the measuring unit performs a measurement. *Id.* at 7:53–55.

## VI. ILLUSTRATIVE CLAIM

Claim 1, reproduced below with paragraph designations used in the Petition is illustrative of the subject matter of the '360 patent.

- [1.0] A communication apparatus for setting up a data connection between intelligent devices, comprising:
- [1.1] a transmission oscillator for carrying out a contactless data exchange, said oscillator including a coil;
  - [1.2a] a communication element which is connected to the coil and to a data processing component of an intelligent device and
  - [1.2b] which emits search signals via the coil to receive a response from another intelligent device,
  - [1.3] a measuring device for monitoring a property of the transmission oscillator which outputs a control signal when ascertaining a change of the monitored property,
  - [1.3b] the monitored property of the transmission oscillator includes the frequency or impedance of the transmission oscillator in resonance,
  - [1.4] and a switching apparatus which is connected to the measuring device and the communication element and which switches on the communication element when it has received the control signal from the measuring device by connecting the communication element to an energy source.

## VII. ASSERTED GROUNDS

Petitioner asserts that claims 1–3, 8–11, and 15 would have been unpatentable on the following grounds:

| Claim(s) Challenged | 35 U.S.C. §      | Reference(s)                              |
|---------------------|------------------|-------------------------------------------|
| 1, 15               | 103 <sup>3</sup> | Tobergte <sup>4</sup> , Cole <sup>5</sup> |
| 2, 3                | 103              | Tobergte, Cole, Schuermann <sup>6</sup>   |
| 8, 9                | 103              | Tobergte, Cole, O'Toole <sup>7</sup>      |
| 10, 11              | 103              | Tobergte, Cole, O'Toole,                  |

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<sup>3</sup> As the application for the '360 patent was filed prior to March 16, 2013, we apply the pre-AIA provisions of the statute.

<sup>4</sup> U.S. Patent No. 5,519,386 (Ex. 1005)

<sup>5</sup> U.S. Patent No. 6,144,299 (Ex. 1006)

<sup>6</sup> U.S. Patent No. 5,287,112 (Ex. 1007)

<sup>7</sup> U.S. Patent No. 6,384,648 (Ex. 1008)

| Claim(s) Challenged | 35 U.S.C. § | Reference(s)         |
|---------------------|-------------|----------------------|
|                     |             | Plonsky <sup>8</sup> |

## VIII. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner identifies a person of ordinary skill as someone knowledgeable and familiar with short-range, wireless communication arts e.g. radio frequency identification (RFID) and near field communications (NFC). Pet. 12–13. Petitioner states that such a person “would have a bachelor’s degree in electrical engineering, computer engineering, computer science, or equivalent training, and approximately two years of experience working in the electrical engineering field. Lack of work experience can be remedied by additional education, and vice versa.” *Id.* at 13. Patent Owner does not address the level of ordinary skill. *See generally*, Prelim. Resp,

The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

As Petitioner’s description of a person of ordinary skill appears commensurate with the subject matter before us, we apply Petitioner’s definition for purposes of this Decision.

## IX. CLAIM CONSTRUCTION

We interpret claim terms using “the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2019). In this context, claim terms “are generally given their ordinary and customary meaning” as understood by a

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<sup>8</sup> U.S. Patent No. 5,049,857 (Ex. 1009)

person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Extrinsic evidence is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Phillips*, 415 F.3d at 1317 (citations omitted).

We construe only those claim terms that require analysis to determine whether to institute inter partes review. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that “only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy”). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

Petitioner acknowledges that in parallel district court litigation, it has proposed the term “measuring device” be construed as a “means plus function” limitation under pre-AIA provisions 35 U.S.C. § 112 ¶ 6. Pet. 14. In the district court proceeding, Petitioner set forth a proposed function and asserted that the corresponding structure is indefinite. *Id.* Noting that in the district court, Patent Owner asserted no construction is necessary, Petitioner adopts Patent Owner’s district court proposed construction for purposes of this proceeding. *Id.*

For purposes of this Decision, we agree that no construction is necessary, as the plain and ordinary meaning of “a measuring device for monitoring a property of the transmission oscillator” is ascertainable in the context of the claims as a device that is capable of monitoring a property to detect changes in that property. *See* Section X *supra*.

## X. ANALYSIS

### A. Introduction

“In an [inter partes review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring inter partes review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)); *see In re Warsaw*

*Orthopedic, Inc.*, 832 F.3d 1327, 1333 (Fed. Cir. 2016) (citing *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006)).

An obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; accord *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Instead, Petitioner must articulate a reason why a person of ordinary skill in the art would have combined the prior art references. *In re NuVasive*, 842 F.3d 1376, 1382 (Fed. Cir. 2016).

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces; design incentives; the ““interrelated teachings of multiple patents””; ““any need or problem known in the field of endeavor at the time of invention and addressed by the patent””; and the background knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–21 (2007)).

In determining whether a claim is obvious in light of the prior art, when in evidence, we consider any relevant objective evidence of non-obviousness. See *Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of non-obviousness, may lead to a conclusion that the challenged claims would not have been obvious to one of ordinary

skill. *In re Piasecki*, 745 F.2d 1468, 1471–72 (Fed. Cir. 1984). At this stage of the proceeding Patent Owner does not present evidence of such objective considerations.

The Patent Owner Preliminary Response argues only that we should deny institution as a matter of discretion and does not respond to Petitioner’s substantive arguments. *See generally*, Prelim. Resp. We analyze the asserted grounds of unpatentability in accordance with the above principles to determine whether Petitioner has met its burden to establish a reasonable likelihood of success at trial.

*B. Claims 1 and 15 As Obvious Over Tobergte and Cole*

*1. Tobergte – Exhibit 1005*

Tobergte discloses a data exchange system having a fixed station and a portable data carrier. Ex. 1001 (code 57). Although both the fixed station and the data carrier operate in an active and passive mode, the data carrier operates in the active mode only when energy transfer is required. *Id.*

A block diagram of Tobergte’s data exchange system is shown in Figure 1, reproduced below. *Id.* at 3:8–10.

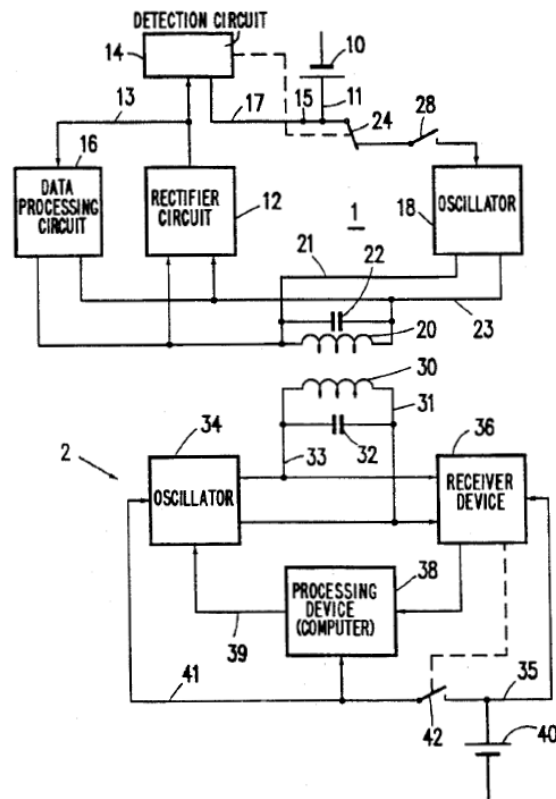


Figure 1 of Toberget

*Id.* Fig. 1. In Figure 1, coil 20 and capacitor 22 of data carrier 1 constitute a resonant circuit that connects via leads 21, 23 to rectifier circuit 12 and data processing circuit 16. *Id.* at 3:16–20. In data carrier 1's passive mode, when coil 20 receives a high frequency magnetic field, e.g., as transmitted from a resonant circuit connected to oscillator 34 in fixed station 2, rectifier circuit 12 in data carrier 1 generates a direct voltage on lead 13, causing data processing circuit 16 to retrieve and transfer binary data stored in a memory for transmission by the data carrier's resonant circuit. *Id.* at 3:21–31, 3:46–52. This data transfer configuration requires that an interrogation device, i.e., fixed station 2, continually operate in an active mode by transmitting an electromagnetic field. *See, id.* 1:15–41.

Figure 1 also shows energy source 10, switch 28, and oscillator 18 in data carrier 1. These components allow Toberget's system to maintain fixed

station 2 in a passive mode that does not continually transmit a high-frequency magnetic field, but instead, transmits the high frequency magnetic field only when the user wants to transfer information from data carrier 1.

*Id.* at 3:52–58. A user wishing to commence data exchange places the data carrier in an active mode by closing switch 28, so that power is delivered to oscillator 18—this triggers the data carrier’s resonant circuit and rectifier to deliver a voltage to circuit 16 that in turn supplies data to be transmitted by the resonant circuit, in the same manner as discussed above. *Id.* at 3:55–4:3. When coil 30 in fixed station 2 detects the transmission from data carrier 1, fixed station 2 is placed in the active mode—the resonant circuit in fixed station 2 (coil 30 and capacitor 32) generates voltage on leads 31, 33, activating switch 42 so that lead 41 is connected to energy source 40 and computer 38 and oscillator 34 are switched on. *Id.* at 4:12–17. When high frequency power from fixed station 2 exceeds that produced by oscillator 18 in data carrier 1, detection circuit 14 in data carrier 1 opens switch 24, disconnecting oscillator 18 from power source 10, causing data carrier 1 to operate in the passive mode and to transmit data to the fixed station as discussed above based on high frequency energy transmitted from fixed station 2. *Id.* at 4:17–26.

## 2. *Cole – Exhibit 1006*

Cole discloses a system for detecting the presence of labels as they create disturbances when passing through an interrogator-generated electromagnetic field and for automatically inputting or extracting data from such labels. *See* Ex. 1006, 1:4–48. Figure 1A of Cole, shown below, illustrates such a system. *Id.* at 3:39–41.

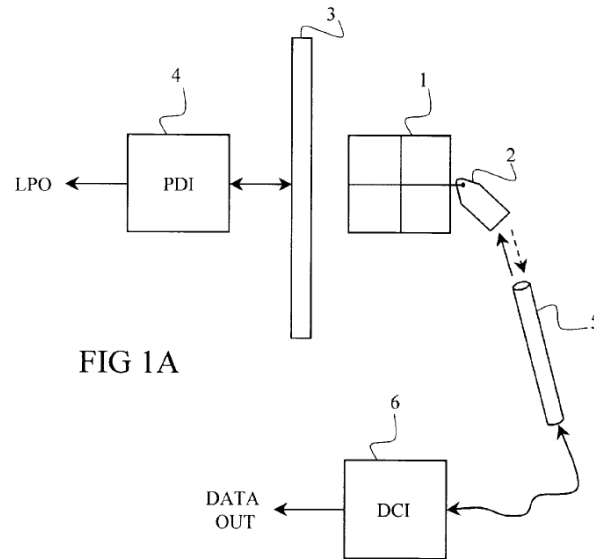


FIG 1A

*Figure 1A of Cole*

In Figure 1A, label 2 is attached to item 1. Label 2 signals its presence by disturbing a field created by presence sensing antenna 3 that receives and transmits signals to presence detector 4. *Id.* at 4:10–11, 4:32–35, *see also* Fig. 2. Label 2 has no energy source—instead, from data interrogator antenna (DIA) 5, label 2 receives energy to transmit and receive data communications between the label and data communication interrogator (DCI) 6. *Id.* at 1:49–56; 4:35–45. The “[p]resence of label 2 is indicated by means of a high quality factor (“Q-factor”) resonant circuit which, when it is exposed to the field of presence sensing antenna 3, produces a frequency sensitive modification of the impedance of antenna 3.” *Id.* at 4:12–16. This change in impedance signals presence detector 4 to explore the impedance of sensing antenna 3 over an expected range of frequencies resonant with label 2. *Id.* at 4:16–19. When the impedance change in sensing antenna 3 exceeds a threshold, presence detector 4 provides a label presence output (LPO) signal. *Id.* at 4:20–22; *see also, id.* at 9:35–10:50, Figs. 11–12.

3. *Reasons to Combine the Teachings of Tobergte and Cole*

Petitioner contends that a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole because both references concern well-known techniques of contactless communication using resonant circuits, and the combination would make Tobergte easier to operate by replacing user initiated detection with fully automatic switching. Pet. 25–26, 30–31 (citing Ex. 1003, Phinney Decl. ¶¶ 46–48, 57–58). According to Petitioner, a person of ordinary skill would have understood that automatic operation of Tobergte’s system would have been particularly advantageous in applications that require monitoring access to a secured area. *Id.* at 29 (citing Ex. 1005, 1:15–33; Ex. 1003, Phinney Decl. ¶ 55). Petitioner further notes that an ordinarily skilled artisan reasonably would have expected the combination to be successful because using Cole to automate detection of electronic devices like Tobergte’s data carrier employs Cole to carry out its established function in Tobergte’s known system. *Id.* at 29–30 (citing Ex. 1003, Phinney Decl. ¶ 56; Ex. 1006, 1:43–48 (stating that Cole can be applied in object identification applications generally)).

For purposes of this Decision, we find Petitioner cites sufficient evidence to support its contention that a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole.

4. *Claim 1*

a) *Claim Limitation 1.0*

Petitioner identifies the preamble of claim 1, which recites “[a] communication apparatus for setting up a data connection between intelligent devices,” as claim limitation 1.0. Pet. 31. Petitioner cites Tobergte as disclosing such a system in the form of a fixed station and

portable data carrier that establish a wireless connection for transmitting high frequency energy and data. *Id.* (citing Ex. 1005, 1:7–10). Noting that in Tobergte the fixed station includes a processing device and the data carrier includes a data processing circuit, Petitioner asserts that Tobergte discloses the claimed communication apparatus setting up a connection between intelligent devices. *Id.* at 31–32 (citing Ex. 1005, 333–37, 3:19–26, fig. 1; Ex. 1003 Phinney Decl. ¶¶ 59–60). Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that Tobergte discloses the features recited in the preamble of claim 1.

*b) Claim Limitation 1.1*

Petitioner identifies as claim limitation 1.1 the recitation “a transmission oscillator for carrying out a contactless data exchange, said oscillator including a coil.” Pet. 33. Petitioner notes Tobergte’s teaching that an oscillator has an active element and one or more frequency determining elements. *Id.* (citing Ex. 1005 2:8–9). Petitioner identifies the frequency determining element in Tobergte as coil 30 and capacitor 32 (connected to oscillator 34), noting that these components form the claimed transmission oscillator shown in the ’360 patent formed by coil 13, 23 in parallel with capacitor 48. *Id.* at 33–34 (citing Ex. 1005, Fig. 1; Ex. 1003, Phinney Decl. ¶¶ 62–63 (comparing cropped and annotated versions of Ex. 1005, Fig. 1 and Ex. 1001, Fig. 2), *see also* Ex. 1003, Phinney Decl. ¶ 61. Petitioner further cites to Tobergte’s resonant circuit with coil 30 as carrying out contactless data communication because coil 30 in fixed station 2 receives the signal transmitted by data carrier 1, generates a voltage on leads 31, 33, and supplies data to be transmitted to the resonant circuit for transmission. *Id.* at 34–35 (citing Ex. 1005, 3:34–41; Ex. 1003, Phinney

Decl. ¶ 63). Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that Tobergte discloses the features recited in claim limitation 1.1.

*c) Claim Limitation 1.2a*

Petitioner identifies as claim limitation 1.2a the recitation “a communication element which is connected to the coil and to a data processing component of an intelligent device.” Pet. 35. Petitioner maps Tobergte’s oscillator 34 to the claimed communication element. *Id.* at 35–36. Petitioner notes that Tobergte’s oscillator 34 is connected to coil 30 and processing device 38, as claimed. *Id.* (citing Ex. 1005, 3:32–41, Fig. 1; Ex. 1003, Phinney Decl. ¶ 65). Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that Tobergte discloses the features recited in claim limitation 1.2a.

*d) Claim Limitation 1.2b*

Petitioner identifies as claim limitation 1.2b the recitation “which emits search signals via the coil to receive a response from another intelligent device.” Pet. 36. Petitioner cites Tobergte as disclosing a system in which fixed station 2 detects a voltage indicative of the presence of data carrier 1 and responds by causing the coil to output a search signal in the form of a high frequency magnetic field that prompts data carrier 1 to respond with its identification. *Id.* at 37–38. Petitioner further notes that Tobergte’s oscillator 34 generates and modulates the search signal. *Id.* (citing Ex. 1005 3:34–41). Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that Tobergte discloses the features recited in claim limitation 1.2b.

*e) Claim Limitations 1.3a and 1.3b*

Petitioner identifies as claim limitation 1.3a the recitation “a measuring device for monitoring a property of the transmission oscillator which outputs a control signal when ascertaining a change of the monitored property.” Pet. 38. Petitioner identifies as claim limitation 1.3b the recitation “the monitored property of the transmission oscillator includes the frequency or impedance of the transmission oscillator in resonance.” *Id.* at 42.

Petitioner notes that Tobergte’s coil 30 of the resonant circuit in fixed station 2 generates on leads 31, 32 a voltage that is evaluated by receiver circuit 36. *Id.* at 38–39 (citing Ex. 1005, 4:4–7). Upon detecting a change in the monitored voltage, receiver circuit 36 activates switch 42 to connect oscillator 34 to energy source 40 and computer 38. *Id.* at 39 (citing Ex. 1005, 4:11–14; Ex. 1003, Phinney Decl. ¶ 72).

Petitioner cites Cole as disclosing automatic merchandise label detection using a high quality factor resonant circuit that produces a frequency sensitive modification of antenna impedance. *Id.* at 40 (citing Ex. 1006, 4:15–16 (disclosing the “change of impedance of antenna 3 is signaled by presence detector 4”). Noting the “the inductor (coil) forms the presence sensing antenna,” Petitioner quotes Cole’s disclosure that “the presence of label 2 provides a disturbance to the impedance of inductor 35 seen by presence detector 4,” resulting in presence detector 4 outputting a signal (LPO). *Id.* at 40–44 (citing Ex. 1006, 9:45–49, 6:12–18, 10:44–50; Figs. 11–12). Further noting that Tobergte’s receiver device monitors a voltage from the resonant circuit and outputs a control signal when ascertaining a change in the voltage, Petitioner relies on the combined teachings of Tobergte and Cole as disclosing the measuring device recited in

claim limitation 1.3a. *Id.* at 41–42. Noting Tobergte’s teaching of monitoring a property of a resonant circuit and Cole’s technique of detecting the presence of a label by monitoring impedance of a resonant circuit in a reader, Petitioner contends that the combination of the disclosures in Tobergte and Cole teach monitored property limitation 1.3b. As discussed above, we agree that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole. *See supra* Section X.B.3. Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that the combined disclosures of Tobergte and Cole teach the features recited in claim limitations 1.3a and 1.3b to an ordinarily skilled artisan.

*f) Claim Limitation 1.4*

Petitioner identifies as claim limitation 1.4 the recitation “a switching apparatus which is connected to the measuring device and the communication element and which switches on the communication element when it has received the control signal from the measuring device by connecting the communication element to an energy source.” Pet. 44. Petitioner cites Tobergte’s disclosure of switch 42, connected to receiver 36 (the claimed measuring device), and oscillator 34 (the claimed communication element), and notes that in the “on” position switch 42 connects energy source 40 to computer 38 and oscillator 34. *Id.* at 44–45 (citing Ex. 1005, 4:11–14, Fig. 1; Ex. 1003, Phinney Decl. ¶ 80). According to Petitioner, as modified by Cole, Tobergte’s receiver device 36 generates a signal to activate switch 42 when the receiver detects a change in impedance of the resonance circuit induced by the presence of a label. *Id.* at 45–46. Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that the combined

disclosures of Tobergte and Cole teach the features recited in claim limitation 1.4 to an ordinarily skilled artisan.

*g) Conclusion as to Claim 1*

Based on the evidence and arguments currently of record, for purposes of institution, we find that Petitioner has demonstrated that a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole and that their combined teachings would have taught or suggested the features recited in claim 1 to an ordinarily skilled artisan.

*5. Claim 15*

The preamble of claim 15 is drawn to a “method for switching on a communication element configured to use a coil, which is part of a transmission oscillator, for automatically setting up a data connection with an intelligent device likewise having a communication element.” Petitioner identified the preamble of claim 15 as claim limitation 15.0. Citing its discussion of claim limitations 1.0, 1.1, 1.2a, and 1.2b, Petitioner cites Tobergte as disclosing a fixed station (an intelligent device) with an oscillator (the claimed communication element) configured to use a coil of resonant circuit (the claimed transmission oscillator) to establish a wireless connection (transmitting high frequency energy and data) with a data carrier (another intelligent device) having a communications element in the form of an oscillator and coil 20. Pet 47–48. Citing its discussion of claim limitation 1.4, Petitioner notes that Tobergte discloses receiver device 36 in the fixed station detects a change in voltage in the resonant circuit due to the presence of data carrier 1 and outputs a signal (the claimed control signal recited in claim limitation 15.3) to activate a switch that connects oscillator 34 (the claimed communication element) to generate the high frequency magnetic field. *Id.* at 48, 50. Petitioner cites its discussion of claim

limitations 1.3a and 1.3b as disclosing claim limitations 15.1 and 15.2 that are drawn to monitoring a change in the frequency or impedance of the transmission oscillator. *Id.* at 49–50.

For the same reasons as those discussed above in the context of claim 1, we find that Petitioner has demonstrated that the combined teachings of Tobergte and Cole would have disclosed or suggested the features recited in claim 15 to an ordinarily skilled artisan.

*C. Claims 2 and 3 As Obvious Over Tobergte in view of Cole and further in view of Schuermann*

*1. Schuermann - Exhibit 1007*

Schuermann concerns fast read/write RFID systems in which a transponder receives powering signals over an antenna tuned with a high Q-factor to the antenna of an interrogator. Ex. 1007, 1:15–19. As taught by Schuermann, in such systems highly tuned, high Q-factor resonant circuits provide optimal power transfer, and 100% amplitude shift keying (ASK) or phase shift keying (PSK) provides communication; but faster frequency shift keying (FSK) is difficult to use because the carrier frequency within FSK modulation tends to deviate from the tuned frequency. *See id.* at 2:4–38, 4:50–55. To take advantage of communicating using FSK modulation, Schuermann discloses a technique in which the resonant circuits of the devices may be switched from high Q-factor/low bandwidth for power transfer to low Q-factor/high bandwidth for data transfer. Ex. 1007, 1:15-25, 2:55-66. According to Schuermann the transponder “adapts itself to receive [a] larger bandwidth FSK signal by damping (i.e., lowering the Q-factor) of its tuned circuit.” Ex. 1007, 1:15-25, 2:62-65. Schuermann dampens the resonant circuit by closing a switch that connects a capacitor and a resistor in

parallel with the resonant circuit for form a new resonant circuit. *Id.* at 5:47–52.

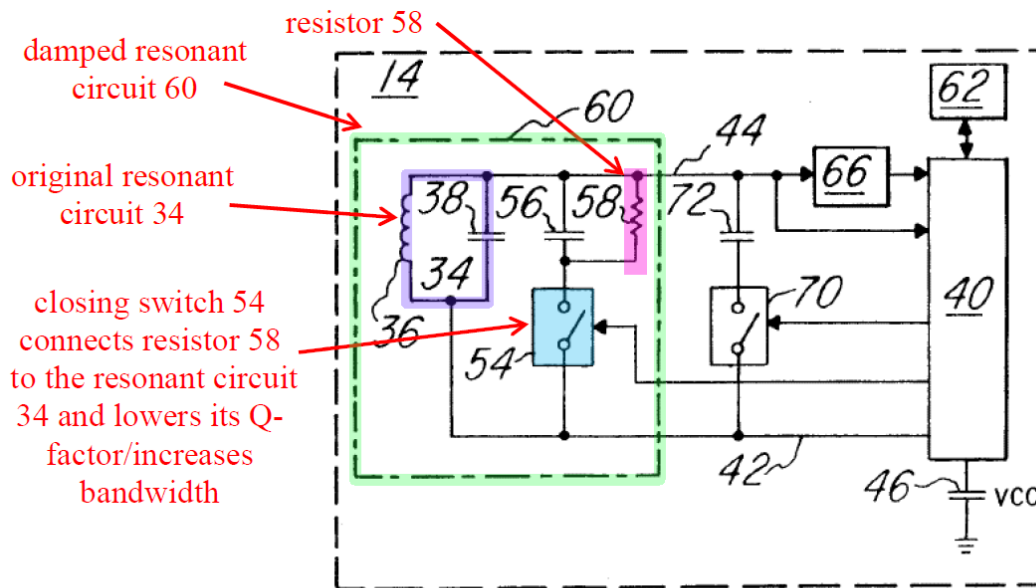
2. *Reasons to Combine Tobergte and Cole with Schuermann*

Petitioner notes that Tobergte and Schuermann are in the same field of endeavor, i.e., contactless communication between devices, and that both use resonant circuits for power and data transfer. Pet 51–52. (citing Ex. 1005, 1:6–14, 2:8–20, 3:16–19; Ex. 1007, (code 57), 1:15–25; Ex. 1003, Phinney Decl. ¶ 94) (citations omitted). Petitioner contends a person of ordinary skill would have had reason to implement Schuermann’s teaching in Tobergte’s fixed station, given Tobergte’s description of using frequency or phase modulation to transmit data. *Id.* at 52. Petitioner argues that a person of ordinary skill would have recognized frequency shift keying discussed by Schuermann as providing advantages over other modulation techniques. *Id.* at 53 (citing Ex. 1003, Phinney Decl. ¶ 95). According to Petitioner, a person of ordinary skill would have recognized from Schuermann that optimizing power transfer and data communications in Tobergte could be achieved using Schuermann’s switching technique and implementing such techniques would have been a straightforward application of known principles and techniques that are within the capability of an ordinarily skilled artisan. *Id.* at 53–55 (citing Ex. 1007, 2:55–65; Ex. 1003, Phinney Decl. ¶¶ 95–97). Petitioner further notes that, although the damping circuitry of Schuermann is implemented in the transponder rather than the interrogator, an ordinarily skilled artisan would have found these teachings equally applicable to Tobergte’s fixed station (interrogator). *Id.* at 55, n. 6 (citing Ex. 1003, Phinney Decl. ¶ 98).

As discussed above, we are persuaded that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole. Based on the current record, we find that, for purposes of institution, Petitioner has demonstrated that a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole with the additional teachings of Schuermann to improve power and data transfer.

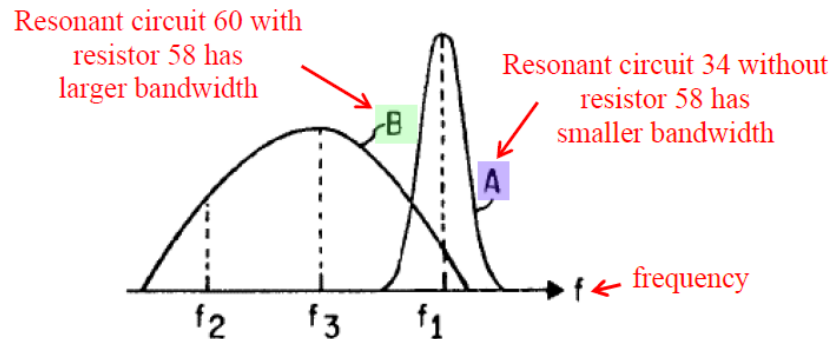
3. *Claim 2*

Claim 2 depends from claim 1. Petitioner designates as claim limitation 2.1 the claim's sole recitation that the communication apparatus "include[es] an assembly that is switchable to the transmission oscillator via a switch, said assembly causing an increase in the bandwidth of the oscillating circuit." Pet. 56. Petitioner cites Tobergte's fixed station as including a resonant circuit, i.e., a transmission oscillator with a coil and capacitor that constitute a frequency detuning part of the oscillator. *Id.* Petitioner provides the following cropped and annotated version of Figure 1 of Schuermann illustrating a transponder that communicates with an interrogator (not shown).



Ex.1007, Fig. 1 (cropped and annotated); Ex.1003, ¶103.

*Id.* at 57; *see* Ex. 1007, 3:23–25, Fig. 1. Figure 1 shows resistor 58 colorized in pink and labeled as such, capacitor 38 and coil 36 in colorized in lilac and labeled “original resonant circuit 34,” switch 54 colorized in light blue and labeled “closing switch 54 connects resistor 58 to the resonant circuit 34 and lowers its Q-factor/increases bandwidth.” *Id.* Petitioner cites Schuermann as disclosing damping original resonant circuit 34 by closing switch 54 thereby connecting capacitor 56 and resistor 58 in parallel to form a new resonant circuit 60 with a lower Q-factor and larger bandwidth. Pet. 57. Petitioner also provides the following annotated version of Figure 3 of Schuermann showing the frequency spectrums of the highly tuned and detuned configurations of the transponder.



Ex.1007, Fig. 3 (annotated); Ex.1003, ¶103.

Pet. 58, *see* Ex. 1007, 3:13–15, Fig. 3. Figure 3 shows frequency response curves A (colorized in light purple and labeled “Resonant circuit 34 without resistor 58 has smaller bandwidth”) and B (colorized in light green and labeled “Resonant circuit 60 with resistor 58 has larger bandwidth”). As Petitioner notes, resonant circuit 60, formed by closing switch 54, results in a wider bandwidth, as claimed. Based on the current record, we find that, for purposes of institution, Petitioner has demonstrated that a person of ordinary skill would have had reason to combine the teachings of Tobergte and Schuermann and that their combined disclosures teach the limitations recited in claim 2 to an ordinarily skilled artisan.

#### 4. *Claim 3*

Claim 3 depends from claim 2. Petitioner designates as claim limitation 3.1 the claim’s sole recitation that “the assembly is a resistive element.” Petitioner cites Schuermann as disclosing that a resistor can be switched into a resonant circuit to lower its Q-factor and thus increase its bandwidth. Pet. 58–59 (citing Ex. 1007, 2:62–65, 5:47–52, cl. 7; Ex. 1003, Phinney Decl. ¶ 106). Based on the current record, we find that, for purposes of institution, Petitioner has demonstrated that a person of ordinary skill would have had reason to combine the teachings of Tobergte and

Schuermann and that their combined disclosures teach the limitations recited in claim 3.

*D. Claims 8–9 as obvious over Tobergte in view of Cole in further view of O’Toole*

1. *O’Toole – Exhibit 1008*

O’Toole concerns an RFID device having a receiver, transmitter and microprocessor on an integrated circuit that finds applications in inventory control, object monitoring, and determining the existence, location and movement of objects. Ex. 1008, 1:37–40, 18:52–54. O’Toole’s device includes an active transponder that does not rely on magnetic coupling, thereby providing improved range. *Id.* at 18:53–59. To save energy and preserve battery life, O’Toole’s device incorporates a low power consumption sleep mode using a timer that wakes up the integrated circuit at predetermined intervals, e.g., every 16 msec. *Id.* at 43:19–30. Although the timer operates continually, most of the circuitry is inactive during sleep mode, reducing battery drain. *Id.* at 43:20–25.

After every sleep interval, the wake-up timer and logic circuit activates the receiver, a clock recovery and data discovery circuit, and all bias currents and voltages associated the receiver, so that the receiver can determine whether a radio frequency signal is present. *Id.* at 31–40. If no radio frequency is present, the wake-up timer and logic circuit return the receiver and its associated clock recovery and data recovery circuits to sleep mode. *Id.* at 43:41–45. If a radio signal is present, the wake-up timer and logic circuit test the validity of the incoming signal—in the case of an invalid incoming signal, the logic circuits returns the receiver to the sleep mode; in the case of a valid received signal, the integrated circuit begins

clock recovery and data recovery and the processor processes the signal as programmed. *See generally, id.* at 43:65–46:57.

2. *Reasons to Combine the Teachings of Tobergte and Cole with O'Toole*

Petitioner states that O'Toole and Tobergte are in the same field of endeavor, i.e., devices used for establishing contactless communication. Pet. 61. According to Petitioner, a person of ordinary skill would have had reason to implement O'Toole's wake up timer and logic circuit in Tobergte's fixed station in order to reduce power consumption. *Id.* at 60–61 (citing Ex. 1003, Phinney Decl. ¶ 111). According to Dr. Phinney, Tobergte explains that its fixed station conserves power by not operating continuously, but instead, only its receiver device “is ‘continually kept in operation’ to monitor for voltage indicative of a nearby data carrier.” *Id.* ¶ 113 (citing Ex. 1005, 4:4–11). Dr. Phinney asserts that, given Tobergte's explicit goal of reducing power consumption, a person of ordinary skill would have had reason to incorporate O'Toole's sleep mode into Tobergte's fixed station. Ex. 1003, Phinney Decl. ¶¶ 112–116.

Tobergte and O'Toole differ in two ways: (1) unlike Tobergte, O'Toole does not rely on magnetic coupling, and (2) unlike Tobergte, O'Toole deactivates its receiver, as well as its associated circuitry. Nevertheless, Tobergte discloses that its continuously operating receiver circuit “requires only a very small amount of electric energy” in much the same way that O'Toole's continuously operating timer uses only a small amount of energy compared to the remainder of the integrated circuit. We further note that in both Tobergte and O'Toole, operation at normal power levels occurs after the receiver detects the presence of a valid data signal. We agree with Petitioner that a person of ordinary skill would have

understood from Tobergte and O'Toole, that non-continuous operation of circuits would reduce power consumption. As discussed below, however, it is not clear why a person of ordinary skill would have reason to include O'Toole's timer, which is active and therefore consumes power in the sleep mode, into Tobergte's receiver, which, because it is passive, consumes very little power when not in the presence of a nearby data carrier.

3. *Claim 8*

Claim 8 depends from claim 1. Petitioner designates as claim limitation 8.1 the claim's sole recitation "wherein the switching apparatus has a time controller for cyclically switching the measuring device on and off." Petitioner maps Tobergte's receiver 36 to the claimed measuring device. Pet. 63 (citing Ex. 1005, 3:42–45, 4:11–14). Petitioner notes that Tobergte's receiver circuit "is 'continually kept in operation' to monitor for voltage indicative of a nearby data carrier and activate the switch if such voltage is detected." *Id.* (citing Ex. 1005, 4:4–11). Petitioner posits that a person of ordinary skill would have had reason to connect O'Toole's wake-up timer between Tobergte's receiver device and Tobergte's switch to its energy source to form a more intelligent switching apparatus that cyclically activates and deactivates Tobergte's receiver at periodic intervals. *Id.* at 65–66. Although we agree with Petitioner that a person of ordinary skill would have understood that cyclically operating circuitry in a wireless data communications device reduces its power consumption and preserves battery life, it is not clear why an ordinarily skilled artisan would have had reason to apply O'Toole's techniques to cycle Tobergte's receiver on and off. Tobergte's continuously operating receiver consumes little power when not in presence of a data carrier. Ex. 1005, 4:4–11. O'Toole's timing circuit remains active and consumes power during the sleep mode. Ex. 1008,

43:23–25. The Board must weigh the benefits and drawbacks of the modification against each other, to determine whether there would be a motivation to combine. *See Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349, n.8 (Fed. Cir. 2000); *see also Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331–32 (Fed. Cir. 2019). Petitioner has not explained why an ordinarily skilled artisan would have had reason to introduce additional complexity and power consumption to Tobergte by adding a power consuming sleep timer to periodically deactivate a receiver (the claimed measuring device) that itself consumes little power when not in the presence of a data carrier

On the current record, we are not persuaded that Petitioner has demonstrated a person of ordinary skill would have combined the teachings of Tobergte and O’Toole to arrive at the limitations recited in claim 8.

4. *Claim 9*

Claim 9 depends from claim 8. Petitioner designates as claim limitation 9.1 the claim’s sole recitation “wherein the time controller keeps the on state of the measuring device shorter than the off state.” Pet. 66. As evidence that O’Toole teach this limitation, Petitioner cites O’Toole’s description of a sleep timer that activates the receiver for 10  $\mu$ sec after each 16 msec sleep interval. *Id.* at 66–67 (citing Ex. 1008, 43:46–60, Fig. 27; Ex. 1003, Phinney Decl. ¶ 123). As we noted in our discussion of claim 8, however, it is not clear why an ordinarily skilled artisan would have had reason to apply the teachings of O’Toole to deactivate the Tobergte’s receiver, as proposed by Petitioner.

On the current record, we are not persuaded that Petitioner has demonstrated a person of ordinary skill would have combined the teachings of Tobergte and O’Toole to arrive at the limitations recited in claim 9.

*E. Claims 10–11 as obvious over Tobergte, Cole, O’Toole and Plonsky*

1. *Plonsky – Exhibit 1009*

Plonsky discloses an article surveillance system in which detecting the presence of articles entails sensing perturbations in a transmitted magnetic field that are induced by tags (magnetic markers) attached to or incorporated into the articles. Ex. 1009, 1:10–18. Plonsky’s system has an initialization phase, during which environmental conditions are used to calibrate the system, and a surveillance phase that evaluates the presence of articles in an interrogation zone. *Id.* at 8:11–18. During the initialization phase, a transmit/receive mode is activated and initial amplitude and phase measurements for the fundamental frequency and second and third harmonics in a received signal are established. *Id.* at 8:55–9:9. In surveillance mode, a controller periodically updates noise levels in the second and third harmonic channels by reading the second and third harmonics of the received signal and averaging them with previously stored values to establish new noise levels that are stored for use in future surveillance operations. *Id.* at 9:34–59.

2. *Reasons to combine the teachings of Plonsky with those of Tobergte, Cole and O’Toole*

Petitioner notes that, like Tobergte, Cole, and O’Toole, Plonsky concerns detecting the presence of an electromagnetic coil-based device. Pet. 69. Petitioner cites (i) Tobergte as disclosing a measuring device that determines a change in a monitored property, (ii) Cole as disclosing that the monitored property can be an impedance, and (iii) Plonsky as describing a technique for determining a proper threshold value for the monitored property. Pet. 69. Noting that Cole discloses using a threshold value

generally, Petitioner states that Cole omits the details of establishing such a threshold and contends that a person of ordinary skill would have looked to Plonsky's averaging of previously measured and stored values to establish and adjust threshold values. *Id.* at 69–70 (citing Ex. 1009, 9:53–55; Ex. 1003, Phinney Decl. ¶131). We agree with Petitioner that a person of ordinary skill would have had reason to apply Plonsky's averaging technique to set the threshold as taught by Cole and, using conventional techniques, would have reasonably have expected the combination to succeed.

3. *Claim 10*

Claim 10 depends from claim 8. Petitioner designates as claim limitation 10.1 the claim's sole recitation "wherein the measuring device stores a measuring value obtained during a cyclical on phase." Pet. 70–71. Petitioner cites Plonsky's description of maintaining a threshold value by averaging and storing the baseline and combines that teaching with Cole to establish an impedance threshold. *Id.* at 71–72. Although we agree with Petitioner that Plonsky's noise thresholding technique discloses this limitation, claim 10 depends from claim 8 and, as discussed above, we are not persuaded that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of O'Toole with those of Tobergte.

4. *Claim 11*

Claim 11 depends from claim 10. Petitioner designates as claim limitation 11.1 the claim's sole recitation "wherein the measuring device emits a control signal to the switching apparatus when a measuring value deviates from the average of the measuring values stored with the previous on phases." Pet. 72. We agree with Petitioner that Tobergte and Cole disclose a measuring device that emits a control signal and that applying

Plonsky's technique constitutes determining a deviation from the averaged threshold as claimed. Claim 11 depends from claim 10, which depends from claim 8. As discussed above, we are not persuaded that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of O'Toole with those of Tobergte.

## XI. CONCLUSION

For the reasons discussed above, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it will succeed on the following challenges to patentability: claims 1 and 15 as obvious over Tobergte and Cole and claims 2 and 3 as obvious over Tobergte, Cole, and Schuermann.

As we are not persuaded that Petitioner has demonstrated a person of ordinary skill would have had reason to combine the teachings of Tobergte and Cole with those of O'Toole, we are not persuaded that Petitioner has demonstrated a reasonable likelihood that it will succeed on its challenges to claims 8 and 9 as obvious over Tobergte, Cole, and O'Toole and its challenges to claims 10 and 11 as obvious over Tobergte, Cole, O'Toole, and Plonsky.

As we have determined that Petitioner has demonstrated a reasonable likelihood it will succeed on at least one challenge ground, we institute *inter partes* review on all grounds in the Petition.

## XII. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a) an *inter partes* review of the '360 patent is hereby instituted, commencing on the entry date

of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

FURTHER ORDERED that the trial is authorized on all grounds set forth in the Petition, in particular:

Claims 1 and 15 as obvious under 35 U.S.C. § 103 over Tobergte and Cole;

Claims 2 and 3 as obvious under 35 U.S.C. § 103 over Tobergte, Cole, and Schuermann;

Claims 8 and 9 as obvious under 35 U.S.C. § 103 over Tobergte, Cole, and O'Toole; and

Claim 10 and 11 as obvious under 35 U.S.C. § 103 over Tobergte, Cole, O'Toole, and Plonsky; and

FURTHER ORDERED that the trial will be conducted in accordance with a corresponding separately issued Scheduling Order.

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Patent No. 8,174,360 B2

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