

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KAPSCH TRAFFICOM IVHS INC., and
KAPSCH TRAFFICOM HOLDING CORP.,
Petitioner,

v.

NEOLOGY, INC.,
Patent Owner.

Case IPR2015-00814
Patent 6,690,264 B2

Before JUSTIN T. ARBES, GLENN J. PERRY, and
TREVOR M. JEFFERSON, *Administrative Patent Judges*.

PERRY, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

This is a Final Written Decision entered in an *inter partes* review instituted pursuant to 35 U.S.C. § 314. For reasons discussed below, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–24 of U.S. Patent No. 6,690,264 B2 (Ex. 1001, “the ’264 patent”) are unpatentable.

A. Procedural History

Kapsch TrafficCom IVHS Inc. and Kapsch TrafficCom Holding Corp. (collectively, “Petitioner”)¹ filed a Petition (Paper 1, “Pet.”) seeking *inter partes* review of claims 1–24 of the ’264 patent pursuant to 35 U.S.C.

§§ 311–319. On September 14, 2015, we instituted an *inter partes* review of claims 1–24 (Paper 11, “Dec. on Inst.”). Patent Owner Neology, Inc. filed a Patent Owner Response (Paper 20, “Resp.”), and Petitioner filed a Reply (Paper 30, “Reply”).² We heard oral argument on May 10, 2016, and a transcript of that argument is included in the record (Paper 38, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This final written decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

¹ The original Petitioners were Kapsch TrafficCom IVHS Inc., Kapsch TrafficCom IVHS Holding Corp., Kapsch TrafficCom IVHS Technologies Holding Corp., Kapsch TrafficCom U.S. Corp., and Kapsch TrafficCom Holding Corp. During trial, Kapsch TrafficCom IVHS Holding Corp., Kapsch TrafficCom IVHS Technologies Holding Corp., and Kapsch TrafficCom U.S. Corp. merged with Kapsch TrafficCom Holding Corp. See Papers 31, 32.

² Petitioner filed redacted (Paper 30) and unredacted (Paper 28) versions of its Reply and other materials, along with two motions to seal, which were conditionally granted. See Papers 26, 31. We do not rely on any sealed material in this Decision.

B. Related Proceedings

According to Petitioner, Patent Owner asserted the '264 patent in *Neology, Inc. v. Kapsch TrafficCom IVHS Inc., et al.*, D. Del. Case No. 1:13-cv-02052-LPS. Further, according to Petitioner, Patent Owner originally filed this action against Confidex, Inc. on December 19, 2013; and filed an amended complaint against various Kapsch entities on February 27, 2014, first serving them with the complaint on February 28, 2014. Pet. 1.

Patent Owner previously asserted the '264 patent in *Neology, Inc. v. Federal Signal Corp., et al.*, Case No. 11-CV-00672-LPS-MPT (D. Del. 2011). In that case, all pending claims were dismissed with prejudice on June 25, 2013. Pet. 1–2.

C. The '264 Patent (Ex. 1004)

1. Background of the '264 Patent

Radio-frequency identification (RFID) technology provides remote identification of objects by using an RFID tag (“tag”) associated with those objects. The tag wirelessly responds to an RFID reader’s interrogating signal, thereby identifying items associated with the tag. Ex. 1001 ¶¶ 23–24. According to Patent Owner, the '264 patent describes improvements over a prior art RFID tag disclosed by Kruest (Ex. 1009), incorporated by reference into the '264 patent Specification. Resp. 2–3; see Ex. 1004, 1:13–14.

2. The '264 Patent Improvement

The '264 patent criticizes Kruest because in Kruest’s disclosed system, “while the chip is in the C[LOAK] state, it is impossible for the reader to communicate with the tag.” Ex. 1004, 1:41–42. Kruest places an RFID tag in a cloaked state by disconnecting the tag’s antenna from the

chip's circuitry in response to a command to initiate cloaking. Resp. 3 (citing Ex. 1004, 1:12–26). The antenna remains disconnected for a predetermined, finite period of time (a “cloaking period”), controlled by an RC circuit. *Id.* During this cloaking period, the tag is unable to communicate with a reader, and is thus unable to respond to any commands, until the cloaking period expires. *Id.* (citing Ex. 1004, 1:20–26). The '264 patent describes its improvement as providing a receiving connection so that command signals are continuously receivable notwithstanding cloaking of the RFID tag. Ex. 1004, 1:59–62.

Figure 1 of the '264 patent is reproduced below.

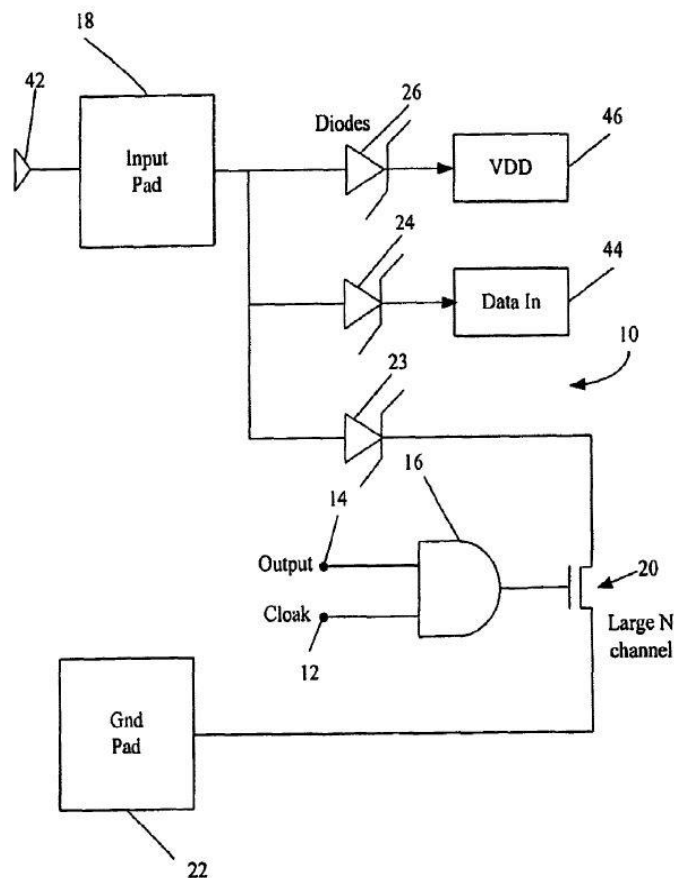


Figure 1 is a circuit diagram of the illustrated embodiment in which the RFID tag remains in a condition in which command signals can be received during the cloaking period and in response to which the tag may be awakened on command. Ex. 1004, 2:18–22.

Cloaking circuit 10 for an RFID tag allows it to receive command signals via diode 24 while cloaked, even though the tag is prevented from responding (typically by backscattering from its antenna) to an interrogating signal while cloaked.

During normal operation (not cloaked), “cloak” node 12, coupled to the input of AND gate 16, is high. Whenever “Output” node 14 also goes high (typically for 1 to 2 μ sec), transistor 20, acting as a switch, connects antenna 42 to ground pad 22 (via input pad 18 and diode 23). When antenna 42 is grounded, its impedance is such that it backscatters an interrogating signal from the reader, thereby responding to it. With both output node 14 and cloak node 12 high (not cloaked), the output of AND gate 16 is high, the antenna is grounded, and the RFID tag backscatters an interrogating signal. Ex. 1004, 3:21–34.

Otherwise (when cloaked), antenna 42 does not backscatter an interrogating signal and therefore is not “seen” by an interrogator. *Id.* Figure 2 of the ’264 patent is reproduced below.

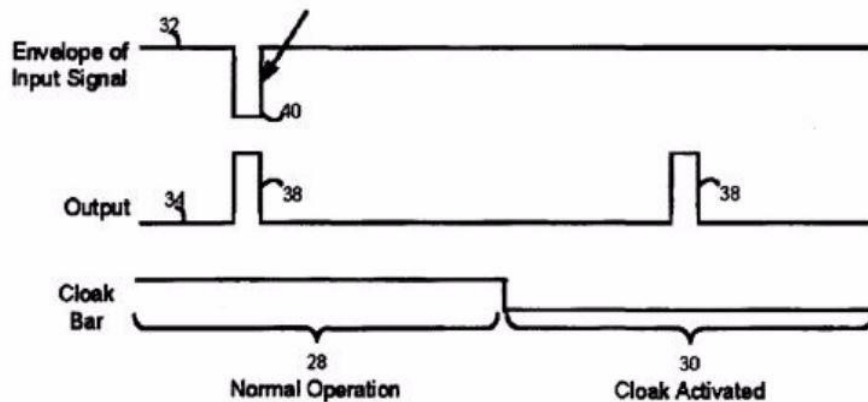


FIG. 2

Figure 2 is a timing diagram explaining operation of the circuit shown in Figure 1. Ex. 1004, 2:18–24.

The envelope of the input signal is shown on line 32, the output (input to AND gate 16) at node 14 on line 34, and Cloak bar on line 36. During normal operation 28 (not cloaked), when Output goes high at node 14 as shown by pulse 38, backscattered pulse 40 will be presented on pad 18, i.e., a momentary grounding of antenna 42. However, during cloaked period 30, Output pulse 38 is cut off from antenna 42. During cloaked operation, cloak node 12 is low. Therefore, the output of AND gate 16 remains low at all times, the antenna is not grounded, and no interrogating signal is backscattered from RFID tag 10. *Id.* at 3:34–45.

3. Illustrative Claim

Claim 1 of the '264 patent is exemplary of the claims at issue:

1. An improvement in a cloaked RFID tag having an antenna comprising:
 - a switch;
 - a logic circuit coupled to said switch to selectively allow communication of signals through said antenna during normal operation to allow output of a signal from said RFID tag

through said antenna and to disable the output from said RFID tag during a cloaking period; and

a receiving connection to said RFID tag so that command signals are continuously receivable notwithstanding cloaking of said RFID tag.

D. Pending Grounds of Unpatentability

We instituted trial regarding the patentability of claims 1–24 of the '264 patent on the following grounds. Dec. on Inst. 20.

Reference(s)	Basis	Claims challenged
Atkins ³	35 U.S.C. § 102(b)	1–24
Marsh ⁴	35 U.S.C. § 102(b)	1–3, 8, 19–21, and 24
Turner ⁵	35 U.S.C. § 102(b)	1–3, 8, 19–21, and 24
Kruest ⁶ and Turner	35 U.S.C. § 103	1–24

II. DISCUSSION

A. Claim Interpretation

The Board interprets unexpired claims using the “broadest reasonable construction in light of the specification of the patent in which [they]

³ PCT International Application Publication No. WO 98/52142, published November 19, 1998 (“Atkins,” Exhibit 1006).

⁴ U.S. Patent No. 5,966,083–Marsh et al., issued October 12, 1999 (“Marsh,” Exhibit 1007).

⁵ European Patent Application Publication No. EP 0 924 635 A2, published June 23, 1999 (“Turner,” Exhibit 1008).

⁶ U.S. Patent No. 5,963,144–Kruest, issued October 5, 1999 (“Kruest,” Exhibit 1009).

appear[.]” 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard as the claim interpretation standard to be applied in *inter partes* reviews). Under this standard, we interpret claim terms using “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification.” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). We presume that claim terms have their ordinary and customary meaning. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062 (Fed. Cir. 2016) (“Under a broadest reasonable interpretation, words of the claim must be given their plain meaning, unless such meaning is inconsistent with the specification and prosecution history.”); *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art in question.” (internal quotation marks omitted)). A patentee, however, may rebut this presumption by acting as his or her own lexicographer, providing a definition of the term in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. Previously Construed Terms

a. “cloak/ed/ing”

In our Decision on Institution, we preliminarily construed “cloak/ed/ing” as “the RFID tag’s output is disabled for a period of time during which it cannot respond to commands from a reader even though

command signals are continuously receivable.” Dec. on Inst. 7–8.

Petitioner agrees with this construction. Tr. 8.

Patent Owner indicates that it “adopts the Board’s construction of this term.” Resp. 8–9. However, Patent Owner comments on our construction as follows:

In acknowledging this language from the SUMMARY, the PTAB confirmed three things in relation to the claim terms: 1) the term “respond” as used in the PTAB’s adopted construction of “cloak/ed/ing” means to “backscatter from antenna;” 2) a “cloaking period” is a period of time during which a tag does not backscatter from its antenna and; 3) a cloaked tag can receive a command that “lifts the tag out of its cloaked state.” Ex. 2030, ¶ 90. This acknowledgement is important to understanding other terms used in the ‘264 patent.

Id. at 9.

We disagree with Patent Owner’s comments. It was not and is not our intention to construe “respond” to require “backscatter from antenna,”⁷ although backscatter from antenna is one possible, and often-used, manner of responding. Nor does our construction require that a command lift the tag out of its cloaked state, although that is certainly one command that can be received while the tag is cloaked. Based on Patent Owner’s comments and the fully developed record, we now clarify our construction of “cloak/ed/ing.” *Id.*

Arguments of the parties on both sides demonstrate that construction of “cloak/ed/ing” was at issue during trial and could be outcome–determinative as to the asserted grounds. Patent Owner confirmed during

⁷ Our original interpretation of “cloaking period” as “a period of time during which a tag does not respond (backscatter from antenna) to an interrogation” did require backscatter. As explained below, however, we do not now interpret the term in that manner. *See infra* Section II.A.1.b.

oral argument that the term “cloaked” was first introduced in the Kruest reference (incorporated by reference into the challenged patent). Ex. 1004, 1:13–14; Tr. 33. Nothing in the record contradicts this assertion. Kruest used the term “cloaked” to describe a state in which an RFID tag was rendered incapable of responding to an interrogator (reader) by disconnecting its antenna. Ex. 1009, 2:60–3:13, 3:65–4:4, 4:51–63.

We take strong guidance in construing this term from Kruest, which appears to be the first time the term “cloak” was used in the context of an RFID tag. We are not persuaded that the term “cloak” itself evolved to embrace a requirement of being able to receive commands while in a cloaked state, even though that is the improvement described by the ’264 patent.

There is no description in the ’264 patent Specification that rises to the level of a definition of the term “cloak/ed/ing.” Patent Owner argues that we should appreciate that a cloaked tag can receive a command that lifts the tag out of its cloaked state. Resp. 9.

We appreciate that the ’264 patent describes a circuit arrangement that permits commands to be received even when backscatter is prohibited by the tag being cloaked. Commands can be received that lift the tag out of its cloaked state and allow it to operate in another state, e.g., a normal state in which it is able to backscatter and thus be interrogated by a reader. Clearly that is the improvement offered by the ’264 patent. However, these capabilities are not required by the term “cloak/ed/ing” itself. “Cloaked” merely describes a condition in which the tag is incapable of responding (backscattering in an embodiment) to an interrogator signal and therefore is not “seen” by the interrogator. Other words of the claims describe the

'264 patent improvement.

The SUMMARY portion of the '264 patent Specification describes the improvement provided by the '264 patent as follows:

The invention is defined as an improvement in a cloaked RFID tag having an antenna comprising a switch and a logic circuit coupled to the switch. The logic circuit or gate selectively allows communication of signals through the antenna during normal operation to thereby allow output of a signal from the RFID tag through the antenna and to disable the RFID output during a cloaking period. A receiving connection is provided to the RFID tag so that command signals are continuously receivable notwithstanding cloaking of the RFID tag.

Ex. 1004, 1:53–62. We glean from this description that a cloaking period is a period of time during which a tag does not respond (e.g., backscatter from antenna) to an interrogation. We further glean that this invention distinguishes itself from other tags in that during cloaked operation, signals can be received even though the tag does not respond to an interrogation by a reader.

Patent Owner contends that the cloaking concept evolved from what was understood at the time of Kruest to what was understood at the time of the challenged patent. Tr. 38. Nevertheless, Patent Owner acknowledges that there is no clear definition of “cloaked” in the Specification of the challenged patent. *Id.* at 37.

Petitioner argues that the term “cloaking” was known in the prior art before the '264 patent. *Id.* at 4. The record evidence suggests that the term was known at least from Kruest, which was incorporated by reference into the challenged patent.

In light of the now fully developed record, we construe “cloak/ed/ing”

as “the RFID tag does not respond to an interrogating signal.” We find that this is the understanding that one of ordinary skill would have had at the time of the ’264 patent invention.

b. “cloaking period”

Our preliminary construction of “cloaking period” was “a period of time during which a tag does not respond (backscatter from antenna) to an interrogation.” Dec. on Inst. 8.

Patent Owner argues that our preliminary construction is unreasonably broad in that it does not take into account the fundamental novel aspect of the ’264 patent. Resp. 9. According to Patent Owner and its declarant, Jack Goldberg, that fundamental aspect is that the tag is able to be lifted out of its cloaked state upon receipt of a command from the reader. *Id.* (citing Ex. 2030 ¶ 94). Patent Owner proposes the following construction: “the predetermined and finite period of time, which may be shortened by receipt of a command, during which a tag is cloaked and does not backscatter from its antenna.” *Id.* at 9–10 (citing Ex. 2030 ¶ 96).

Patent Owner has identified the improvement provided by the ’264 patent. However, we are not persuaded that the term “cloaking period,” as used in the claims, is so limited. The term “cloaking period” is not defined in the ’264 patent Specification and had meaning in the art (see the prior art patents cited above) before the ’264 patent. The claims say nothing about shortening the cloaking period by receipt of a particular command. See Reply 6–7. Certainly a cloaked tag *could* receive a command to lift it out of its cloaked state, but we see nothing in the claim language or otherwise that requires that functionality. Indeed, Patent Owner could have easily added this feature to the claims. For example, claim 1 could have been drafted to

require that during a cloaking period, the tag can be lifted out of its cloaked state upon receipt of a command from the reader. But Patent Owner did not do so.⁸

Consistent with our construction of “cloak/ed/ing,” we construe “cloaking period” as a “period of time during which the tag does not provide a response to an interrogating signal.”

2. Terms Not Preliminarily Construed in Decision on Institution

a. “cloaked/cloakable RFID tag”

The term “cloaked/cloakable RFID tag” was not preliminarily construed by the Board in the Decision on Institution. Patent Owner asks that we construe this term to avoid conflict or confusion with the construed term “cloak/ed/ing.” Resp. 11.

According to Patent Owner, the term “cloaked/cloakable RFID tag” as used in the context of the challenged claims should be construed to mean “an RFID tag whose output is disabled for a period of time during which it cannot respond to commands from a reader even though command signals are continuously receivable.” *Id.*; Ex. 2030 ¶ 97.

Consistent with our construction of “cloak/ed/ing,” we construe “cloaked/cloakable RFID tag” as “an RFID tag that does not provide a response to an interrogating signal.” Claim 1, for example, states specifically that “command signals are continuously receivable notwithstanding cloaking of said RFID tag.” It would be superfluous to

⁸ Indeed, claim 1 of U.S. Patent No. 7,064,653 B2 (Ex. 1038), which is a continuation of the '264 patent, recites “disabling an output of an RFID tag during a cloaking operation,” “receiving input transmissions regardless of the cloaking operation,” and “enabling the output of the RFID tag responsive to an input transmission received during the cloaking operation.” See Tr. 59:9–18.

include a similar limitation in the construction of “cloaked RFID tag” in the preamble of claim 1.

b. “cloaking operation”

We did not preliminarily construe “cloaking operation” in our Decision on Institution. This term appears in independent claim 19 as well as dependent claims 20, 23, and 24.

Patent Owner asks that we construe this term “to avoid conflict or confusion with the construed term “cloak/ed/ing.” Resp. 11. In particular, Patent Owner asks that we construe this term to mean “cloaking period.” *Id.* We agree with Patent Owner that in all instances in the ‘264 patent, this term is expressed as a period of time. In claim 19, for example, it appears in the limitation “receiving command signals by said RFID tag through said antenna during said cloaking operation.” In claim 23, the term appears in the limitation “by selectively isolating said data signals from said switch coupled between said antenna and ground during cloaking operation.” In the written description of the ‘264 patent, the phrase “during the cloaking operation” also appears. Ex. 1004, 2:5–9. In fact, nowhere in the ‘264 patent does the term “cloaking operation” appear without being preceded by “during” or “during the/said.” Accordingly, construing “cloaking operation” to mean “cloaking period” is supported by the Specification and reflects the broadest reasonable construction of that term.

c. “switch”

We did not preliminarily construe “switch” in our Decision on Institution.

Patent Owner proposes that we construe “switch” to be “an electrical or mechanical device used for opening, closing, or changing a connection of

an antenna circuit.” Resp. 12 (citing Ex. 2030 ¶¶ 100, 108, 114–15, 99–115). According to Patent Owner, its proposed construction would be “consistent with the ‘264 Patent being involved with the backscattering of data from the tag.” *Id.* At oral argument, Patent Owner stressed that “switch” should be construed as requiring more than a flip-flop or flag in memory. Tr. 46.

Petitioner argues that Patent Owner’s proposed construction of “switch” is too narrow in that it attempts to limit “switch” to item 20 of Figure 1 of the ’264 patent. Reply 15–17.

We find Patent Owner’s construction to be unreasonably narrow. The context in which the word “switch” is used conveys the configuration of the switch and its function. We adopt a more reasonable construction of “switch” as “an electrical or mechanical device used for opening, closing, or changing a circuit connection.”

We find no reason to limit the term “switch” itself to an antenna circuit. For example, claim 22 uses additional words to describe how the claimed switch functions in circuit. It states “selectively grounding said antenna through a switch coupled between said antenna and ground during normal operation.” Claim 1 requires the switch to be coupled to a logic circuit. It further specifies the function of the switch in that it requires “selectively allow[ing] communication of signals through [an] antenna” based on whether or not cloaking is in effect. Claim 9 specifies that the switch is a “switching transistor.” As another example, claim 4 requires a specific placement of the switch in circuit between an antenna and ground.

Clearly, the claim drafter had no difficulty describing various circuit configurations setting forth how a switch is configured in a circuit and how

it functions in that circuit. It would be unreasonable to include in the construction of the word “switch” itself any particular circuit configuration or utilization easily provided by other words of a claim.

d. “disabling communication of data signals . . . during cloaking”

The claim term “disabling communication of data signals . . . during cloaking” appears in independent method claim 19.

Patent Owner argues that this claim term should be construed to mean that “data signals which are present during cloaking are not communicated in that communication of those data signals is disabled.” Resp. 12 (citing Ex. 2030 ¶¶ 116–17). Thus, according to Patent Owner, an RFID tag that does not generate data during cloaking could not practice a claimed step of “disabling communication of data signals . . . during cloaking” because there would be no data of which to disable the communication. *Id.* at 12–13.

For clarity, we construe the phrase “disabling communication of data signals . . . during cloaking” to require that it is not possible to communicate data signals during cloaked operation. According to our construction, an RFID tag that does not generate data during cloaking would satisfy the claim limitation of “disabling communication of data signals . . . during cloaking.” Patent Owner has provided no persuasive reason to construe this claim term as requiring that an RFID tag actually generate data that is then blocked from being communicated. We agree with Petitioner that Patent Owner’s proposed interpretation adds to the claim an explicit step of generating data signals that is not present. Reply 12–13.

e. “logic circuit . . . isolates signals from said switch during said cloaking operation” and “isolating data signals from said switch . . . during cloaking operation”

Patent Owner asks that we construe “logic circuit . . . isolates signals

from said switch during said cloaking operation” and “isolating data signals from said switch . . . during cloaking operation.” Resp. 13. The claim term “logic circuit . . . isolates signals from said switch during said cloaking operation” appears in claims 6 and 7, which depend on claim 1, and also appears in claims 15 and 16, which depend on claim 10. The claim term “isolating said data signals from said switch . . . during cloaking operation” appears in claim 23, which depends on claim 22 which in turn depends on independent method claim 19.

According to Patent Owner, these terms should be given their plain and ordinary meaning. *Id.* Patent Owner points to The American Heritage Dictionary of The English Language, Third Edition, 1992, which defines “isolate” as “to set apart or cut off from others.” Ex. 2030 ¶ 118 (citing Ex. 2045, 956). Patent Owner argues that in the context of the ’264 patent, one of ordinary skill would have understood that a logic circuit that isolates signals from a switch sets apart or cuts off the signals from the switch. Resp. 13 (citing Ex. 2030 ¶ 118). Likewise, a person of ordinary skill would have understood that “isolating data signals” from a switch means to set apart or cut off those data signals from the switch. *Id.* (citing Ex. 2030 ¶ 120). According to Patent Owner, one of ordinary skill would have understood that in order to isolate signals, those signals “must be present.” *Id.*

Thus, according to Patent Owner, a tag in which there are no signals to be isolated present at the logic circuit during cloaking does not meet the “isolate” limitation in claims 6, 7, 15 or 16; and such a tag also does not practice the “isolating” step of claim 23. *Id.*

Petitioner argues that, similar to the “disabling” limitations, Patent

Owner's proposed interpretation is illogical because there is no point in generating data if the tag is not going to communicate it. Reply 19–20.

We regard Patent Owner's proposed construction as being too narrow. We construe the claim terms requiring "disabling" or isolating data only to the extent that we hold these terms do not require that signals actually be generated in order to be disabled or isolated from being transmitted.

B. Challenge Based on Atkins (Ex. 1006)

1. Overview of Atkins

Figure 2 of Atkins is reproduced below.

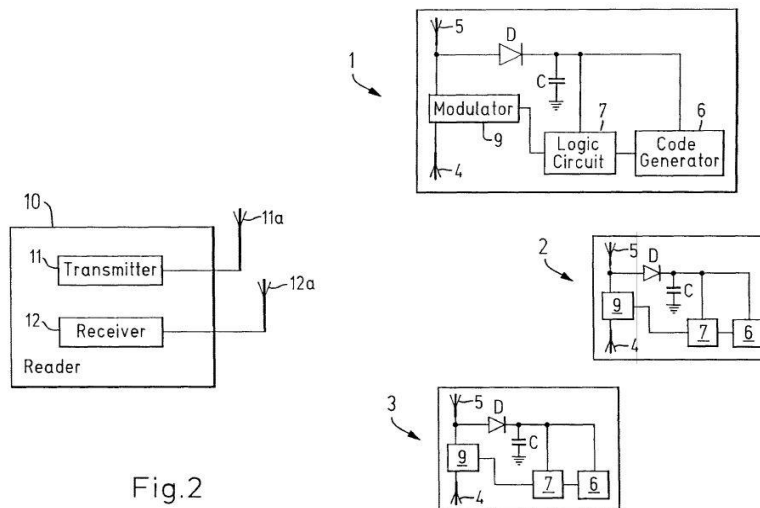


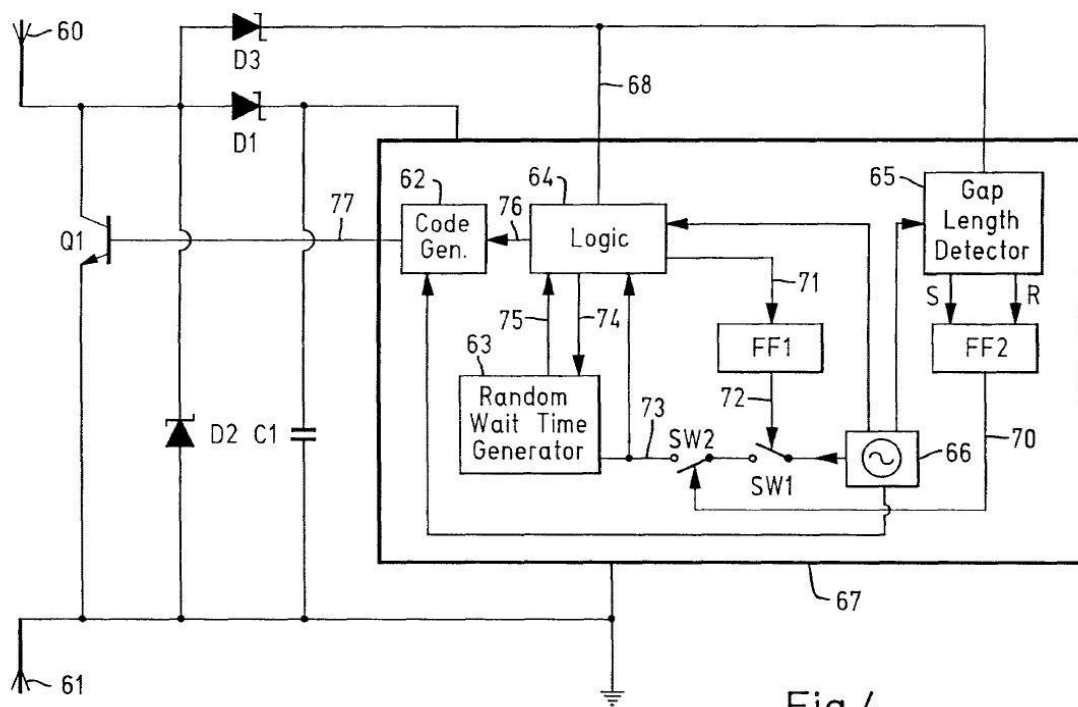
Fig.2

Atkins Figure 2 is a block diagram showing an interrogator and three transponders (RFID tags) according to an embodiment.

Atkins describes a method and an identification system for communicating between reader (interrogator) 10 and transponders 1, 2, 3. Reader 10 has transmitter 11 for transmitting a signal. Each transponder 1, 2, 3 includes a receiver for receiving the reader signal and a transmitter for generating a transponder signal. When reader 10 recognizes a transponder signal from

one of the transponders 1, it issues a mute instruction, muting all other active transponders 2, 3 and passing control to transponder 1, without the need for a specifically timed acknowledgement to transponder 1. Reader 10 may issue a single disable/wakeup instruction which disables the controlling transponder 1, returning control to the reader 10 and reactivating all muted (but not disabled) transponders 2, 3. Ex. 1006, 1.⁹ The “mute” instruction is communicated in the form of a “gap,” the length of which is ascertained by a gap length detector in the tag. When a tag’s normal (random) wait to respond period ends, it checks to see if the “mute” flag is still set to prohibit transmission. *Id.* at 10.

Figure 4 of Atkins is reproduced below.



Atkins Figure 4 is a block diagram of a transponder

⁹ Exhibit page numbers reflect the actual page of the exhibit and not the printed page number of the document internal to the exhibit.

according to an embodiment.

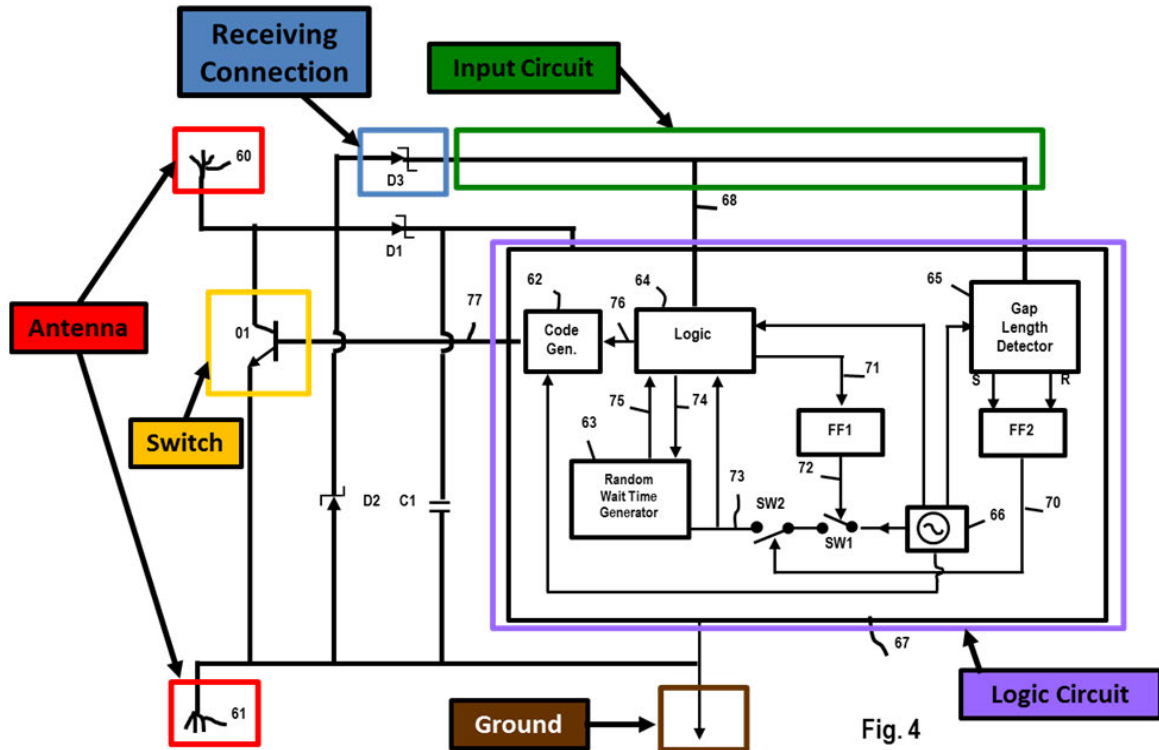
Figure 4 is a block and schematic diagram of a tag which may be used with the reader of Atkins Figure 2. The tag includes a dipole antenna having poles 60 and 61. Atkins discloses:

A code generator 62, when enabled by a logic circuit 64, modulates transistor Q1 with a code, using Manchester coding (signal 77). The timing for the code generator is derived from a local oscillator 66. Diodes D1 and D2 in combination with a capacitor C1 supply the power for [the] tag. The oscillator is disconnected from the random wait time generator when either FF1 or FF2 is in the reset state (signals 70 and 72). FF1 is set only when the tag is powered up and resets when the tag is switched off after being read successfully. FF2 is in the reset state when the tag is muted and in the set state on power up and when the tag is in its normal operating mode. When the tag initially receives the reader signal FF1 will be in the set state. On power up the logic circuit 64 triggers the random wait timer 63 to select a random value and begin a countdown.

Id. at 10–11.

2. Petitioner Contentions

Petitioner provides a detailed explanation of how Atkins discloses all of the limitations of claims 1–24 at pages 10–23 of the Petition. The Petition makes frequent reference to the declaration testimony of Roger Stewart (Ex. 1001), which we find generally supports the arguments set forth in the Petition. Petitioner provides on page 11 of the Petition an annotated version of Atkins Figure 4, reproduced below, which summarizes Petitioner’s argued correspondence between Atkins and the main elements of the challenged claims.



Petitioner reads the claimed antenna on Atkins antenna elements 60 and 61; the claimed receiving connection on Atkins diode D3; the claimed switch on Atkins transistor Q1; the claimed input circuit on Atkins bus 68; the claimed logic circuit on Atkins circuit 67; and the claimed ground on Atkins ground path (no reference numeral) at center bottom of Figure 11. Pet. 10–23.

Petitioner argues that RFID tag output is disabled during a cloaking period by the operation of logic circuit 19 disabling generation of the output signal. Pet. 12–13; *see* Tr. 21. Petitioner’s analysis of claims 1–24, supported by the testimony of Mr. Stewart, is persuasive. *See* Pet. 10–23; Ex. 1001 ¶¶ 80–135.

3. Patent Owner Contentions

Patent Owner characterizes Atkins as a “tag-talks-first” system. Resp.

16. An interrogator (reader) “‘broadcasts an interrogation signal’ ‘to a

number of passive transponders’ which derive power from the interrogation signal ‘to generate a response signal, which is transmitted back to the interrogator.’” *Id.* at 18 (citing Ex. 1006 ¶ 2; Ex. 2030 ¶ 128). Each tag, upon receiving power, transmits information, “but only after waiting for ‘a random or pseudo-random period after receiving an interrogation signal from the interrogator.’” *Id.* (citing Ex. 1006 ¶¶ 1, 3, 5; Ex. 2030 ¶ 116).

According to Patent Owner, the interrogator issues a “mute” instruction immediately upon recognizing a signal from one of the tags. *Id.* at 19. “This ‘mute’ instruction quiets all tags other than the tag which transmitted the signal recognized by the reader, and this ‘mute’ instruction may be in the form of a ‘short gap’ in the interrogator signal.” *Id.* (citing Ex. 1006 ¶ 2; Ex. 2030 ¶ 131). The reader then communicates with the first tag to respond without interference from others responding (because they are muted). *Id.*

Petitioner further argues that the interrogator transmits an “acceptance” instruction to tags (also referred to as a “disable/wakeup” instruction), “after the transponder signal has been successfully received by the reader.” *Id.* (citing Ex. 1006 ¶¶ 2– 6, Fig. 6; Ex. 2030 ¶ 134). This “acceptance” instruction, which disables the tag which “just transmitted its information successfully to the reader and may also wake up the tags that had been muted previously may be in the form of a ‘long gap’ in the interrogator signal: ‘A long gap (a disable/wakeup instruction) will set FF2 and a short gap (mute instruction) will reset FF2.’” *Id.* (citing Ex. 1006 ¶¶ 3, 4). According to Patent Owner, neither Atkins’ mute state nor Atkins’ disabled state is the same as the cloak state described in the ’264 patent. *Id.* at 16–17.

For similar reasons, Patent Owner argues that Atkins does not disclose either a “cloaked RFID tag” or a “cloakable RFID tag” because neither Atkins’ mute state nor Atkins’ disable state is the same as the cloaked state described in the challenged patent. *Id.* at 20 (citing Ex. 2030 ¶¶ 137–138).

Patent Owner argues that neither Atkins’ mute state nor Atkins’ disable state discloses the “cloaking period” recited in the claims. *Id.* at 21–24.

Patent Owner argues that “[t]he receipt of a command signal to reactivate the tag while it is cloaked [as in the ’264 patent] takes precedence over the timer disclosed in the ’264 patent, thereby bringing the tag out of its cloaked state regardless of whether the timer has expired or not.” *Id.* at 21.

Patent Owner’s arguments are directed solely to limitations in independent claims 1, 10, and 19. Patent Owner does not argue separately the limitations of the dependent claims. *Id.* at 29–31.

4. Analysis

Although Patent Owner’s description of the manner in which the embodiment of Atkins relied upon by Petitioner operates is accurate, it does not account for the actual limitations of independent claims 1, 10, and 19, as interpreted above. For example, as explained above, claim 1 says nothing about the tag coming out of a cloaking period. It says only that output is disabled during a cloaking period and that command signals are continuously receivable notwithstanding cloaking. Atkins meets this limitation. Thus, Patent Owner’s arguments attempting to distinguish Atkins’ “mute” and “disable” states from the claimed cloaking period is not persuasive, in view of our constructions of “cloak/ed/ing,” “cloaking

period,” and the “disabling” and “isolating” limitations. *See supra* Section II.A.1.

Independent claims 1, 10, and 19 require only that a tag be capable of receiving a command while cloaked. The Atkins tag receives input via diode D3 while muted. *See* Pet. 14; Reply 7–9.

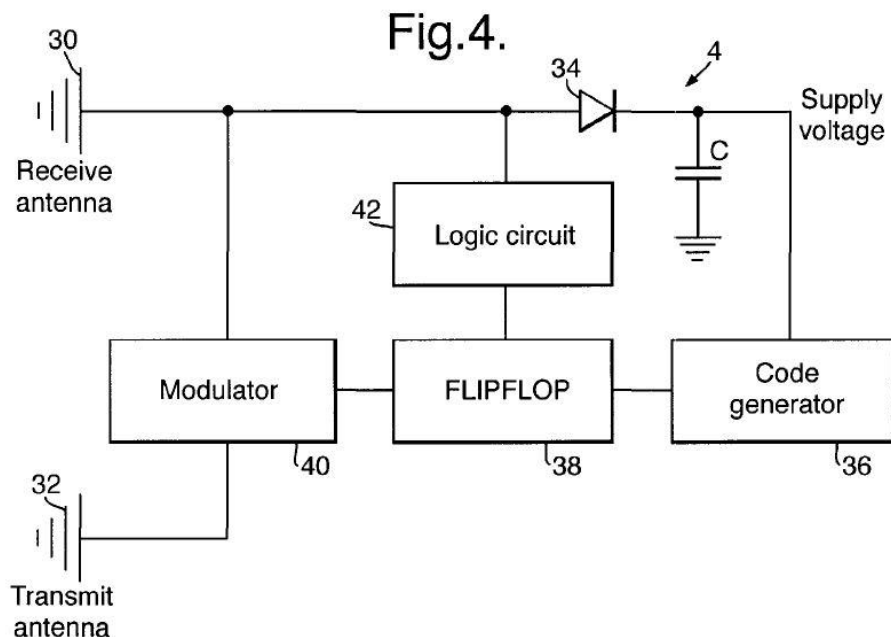
We agree with Petitioner that Patent Owner’s arguments distinguishing Atkins’ “mute” and “disable” states are not on point, given the language of the claims. *See* Reply 7–9, 13–14.

Based on a preponderance of the evidence, primarily relying on Petitioner’s correspondence of elements in the Petition, we conclude that Atkins anticipates claims 1–24.

C. Challenge Based on Marsh (Ex. 1007)

1. Overview of Marsh

Figure 4 of Marsh is reproduced below.



Marsh Figure 4 is a block diagram of a transponder.

Transponder 4 includes receiving antenna 30 and transmitting antenna 32 defined by a printed circuit. Marsh discloses:

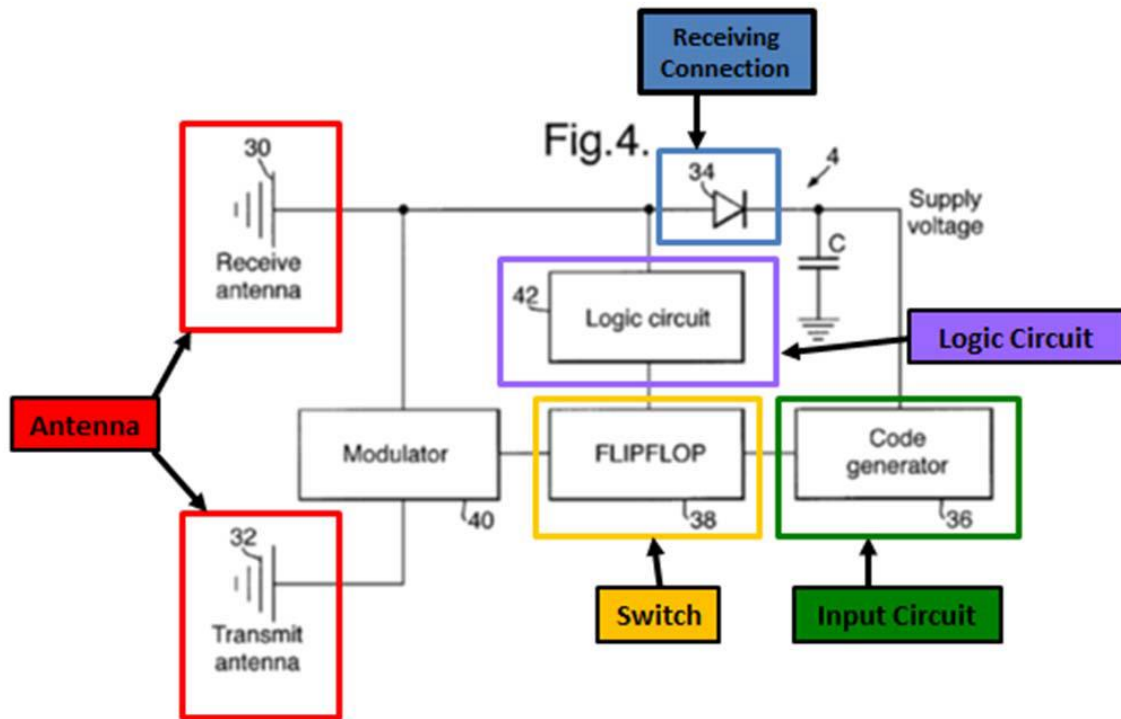
The receiving antenna is connected via a diode 34 to a charge storage device in the form of a capacitor C, which stores a portion of the energy of the interrogation signal received by the receiving antenna. When the capacitor C has charged sufficiently, it enables an integrated circuit code generator 36, which is pre-programmed with a unique code which is transmitted three times at approximately 1200 baud. The output signal from the code generator is fed via a flip-flop 38 to a modulator 40 which re-directs a portion of the energy received via the receiving antenna 30 to the transmitting antenna 32. The flip-flop 38 is controlled by a logic circuit 42.

Ex. 1007, 3:31–60.

Modulator 40 is a diode that is reverse biased and biased into a conducting mode by pulses from the code generator to allow energy transfer from receiving antenna 30 to transmitting antenna 32. *Id.*

2. Petitioner Contentions

Petitioner provides a detailed explanation of how Marsh allegedly discloses all of the limitations of claims 1–3, 8, 19–21, and 24 at pages 23–34 of the Petition, with supporting testimony from Mr. Stewart (Ex. 1001). Petitioner provides on page 25 of the Petition an annotated version of Marsh Figure 4, reproduced below, summarizing Petitioner’s argued correspondence of elements of Marsh with the main elements of the challenged claims.



Petitioner relies upon flip-flop 38 as the claimed “switch.” Pet. 25. Claim 1 requires the “switch” to be coupled to the “logic circuit” to selectively allow communication of signals through the antenna. Independent claim 19 does not recite any “switch.”

Petitioner argues that flip-flop 38 constitutes a “switch” as recited in claim 1 because flip-flops inherently contain switches, and flip-flop 38 operates to disable modulator 40, thereby stopping transmission. *Id.* at 25–26 (citing Ex. 1001 ¶ 150; Ex. 1007, 4:35–39).

As explained further below, Petitioner’s analysis of claims 1–3 and 8 is not persuasive. Petitioner’s analysis of claims 19–21 and 24, which do not require a “switch,” however, is supported by the testimony of Mr. Stewart and is persuasive. See Pet. 30–34; Ex. 1001 ¶¶ 176–92.

3. *Patent Owner Contentions*

Patent Owner's contentions are set forth in its Response at pages 31–42. Patent Owner characterizes Marsh as a “tag-talks-first” system in which each of the tags, upon receiving power, continually transmits information. *Id.* at 34–35 (citing Ex. 2030 ¶ 163). Patent Owner characterizes Marsh's “disabled” state as disabling transmissions from a tag wherein the tags may exist in either a “normal” state during which it continually and repeatedly broadcasts information, or in a “disabled” state during which such broadcasts are inhibited. *Id.* at 35 (citing Ex. 2030 ¶ 166). “Marsh's disabled state begins upon the tag's detection of an interruption in the interrogation signal after completing a transmission and Marsh's disabled state ends only by removing the tag from the RF field.” *Id.*

According to Patent Owner, Marsh does not disclose either a “cloaked RFID tag” or a “cloakable RFID tag,” because Marsh's disabled state is not the same as the cloaked state described in the '264 patent. *Id.* at 35–36 (citing Ex. 2030 ¶¶ 167–71).

Further, according to Patent Owner, Marsh does not disclose the claimed “cloaking period.” *Id.* at 36–37. Further, Patent Owner contends that because Marsh does not disclose the claimed “switch,” Marsh also does not disclose “a logic circuit coupled to said switch to selectively allow communication of signals through said antenna during normal operation to allow output of a signal from said RFID tag through said antenna,” as recited in claim 1. *Id.* at 37–39.

Patent Owner's arguments are directed solely to limitations in independent claims 1 and 19. Patent Owner does not argue separately the limitations of the dependent claims. *Id.* at 39–42.

4. Analysis

We are not persuaded by Petitioner’s argument that the Marsh flip-flop is a “switch” as recited in claim 1 or dependent claim 20. See Pet. 26, 31–32. Although a flip-flop has a logical switching function, it is a logic device (e.g., its state represents a flag) and not a replacement for a mechanical switch. There is no persuasive evidence presented that one of ordinary skill would, in the context of the ’246 patent, consider the flip-flop of Marsh to be “an electrical or mechanical device used for opening, closing, or changing a circuit connection,” as we have interpreted “switch.” See *supra* Section II.A.2.c.

Claim 1, read as a whole, requires a circuit switching a communication path through the antenna. We regard the context of the “switch” in claim 1 as requiring that the switch selectively connect the antenna in circuit. Marsh’s flip-flop 38 controlling an input of modulator 40 does not meet this requirement. Thus, we find that Marsh does not anticipate claim 1 and dependent claims 2, 3, 8, and 20.

We conclude that Petitioner has not demonstrated by a preponderance of the evidence that claims 1–3, 8, and 20 are anticipated by Marsh.

Independent claim 19 requires disabling communication of data through the tag’s antenna during cloaking operation. It also requires receiving commands through the antenna during cloaking operation. However, claim 19 says nothing about the tag being lifted out of a cloaked condition. Therefore, we are not persuaded by Patent Owner’s arguments that Marsh does not describe a cloaked tag or a cloaking period. We find that Petitioner has demonstrated by a preponderance of the evidence that claims 19, 21, and 24 are anticipated by Marsh. See Pet. 23–25, 30–34;

Reply 9–10.

D. Challenge Based on Turner (Ex. 1008)

1. Overview of Turner (Ex. 1008)

Figure 1 of Turner is reproduced below.

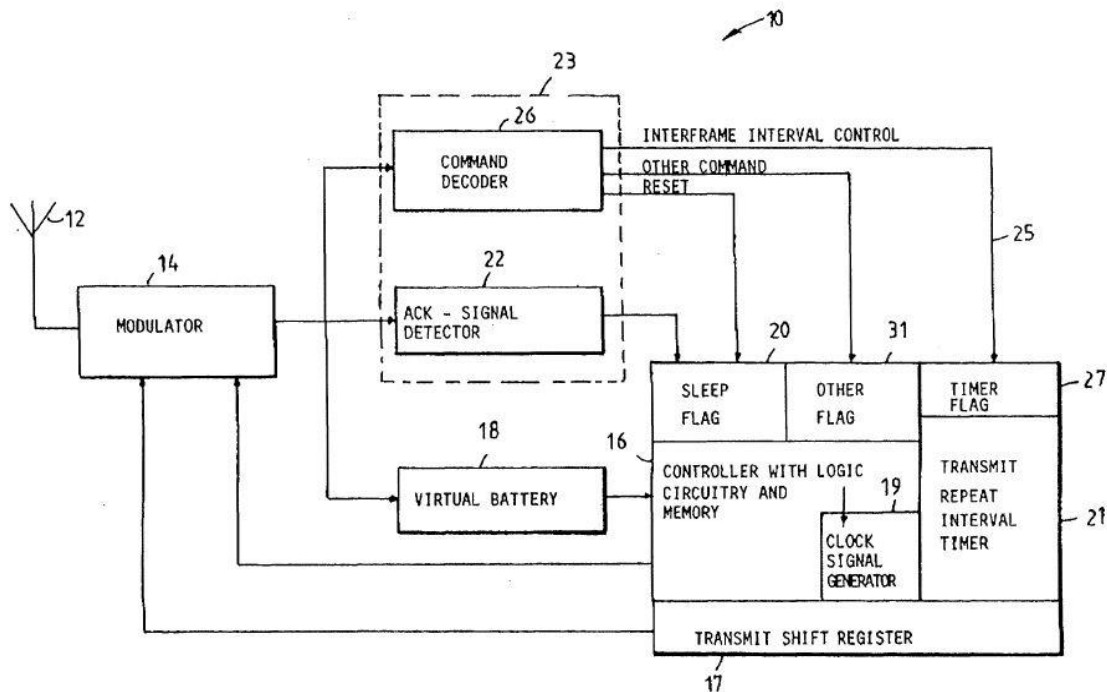


FIGURE 1

Turner Figure 1 is a block diagram of a transponder.

Transponder 10 includes antenna 12 and modulator 14 controlled by logic circuitry 16 to backscatter modulate an energizing signal 80 received from reader 100, to transmit response data stored in transmit shift register 17 back to the reader. Logic circuitry 16 includes clock signal generator 19 and means 21 for arranging the response data in frames 90 to 94 (shown in Figure 9, not reproduced here). Clock frequency determines data rate in a response. Virtual battery 18, including a capacitor, harvests power from energizing signal 80 to power transponder 10. Non-volatile resettable sleep flag 20, when set, causes transponder 10 not to respond to the energizing

signal. Ex. 1008, 6:17–35.

Flag 20 is set by acknowledgement signal 82 in the form of a precisely timed pulse, amplitude modulated by reader 100 on carrier 80 and which signal is received via antenna 12 of the transponder and detected by detector circuit 22 forming part of mode selection signal detection circuitry 23 of the transponder. Acknowledgement signal 82 is transmitted by reader 100 immediately after a transponder of the population has been read, indicating to the transponder just read that the responding signal has been received by the reader and the data (including identity data) stored in the transponder has been read. The acknowledgement signal is timed such that transponder is able to determine that it has been addressed by the reader. If the acknowledgement signal is intended for transponder 10 and received thereby, flag 20 of that transponder is set, to cause that transponder to enter a sleep mode wherein it is inhibited in that the signal of the clock signal generator 19 is inhibited. The transponder remains in the sleep mode for as long as flag 20 is set, whether the transponder is energized or not. Reader 100 then locks onto the clock frequency of a next transponder in the population in the energizing signal radiation pattern, reads the data of that transponder, and causes it to enter the sleep mode. This procedure repeats for the balance of the transponders in a population until all are read. *Id.* at 6:35–7:9.

The flag is normally set indefinitely and can only be reset by a reset signal as hereinafter described. Transponder 10 may include a reset timer which is connected to reset flag 20 a predetermined time after it has been set. The predetermined time may be programmable to be relatively long such as 10 to 300 minutes, or relatively short, such as 3 to 5 seconds. *Id.* at 7:10–18.

The mode selection signal detection circuitry 23 further includes command decoder circuitry 26 for detecting and identifying, *inter alia*, reset signal 37 transmitted by reader 100. Reset signal 37 also is amplitude modulated on carrier 80. Circuitry 26 enables a user to reset flag 20 of the transponder at any time while it is set, by transmitting reset signal 37 utilizing the reader. Thus, at the start or commencement of a reading procedure of a transponder population (some transponders of which may be set and others reset), the reset signal is transmitted to reset all the transponders, thereby to enable the reader to read all of them. *Id.* at 7:19–31.

2. Petitioner Contentions

Petitioner provides a detailed explanation of how Turner allegedly discloses all of the limitations of claims 1–3, 8, 19–21, and 24 at pages 22–44 of the Petition. The Petition makes frequent reference to the declaration testimony of Roger Stewart (Ex. 1001). Petitioner provides on page 35 of the Petition an annotated version of Turner Figure 1, reproduced below, summarizing Petitioner’s argued correspondence of Turner to the main elements of the challenged claims.

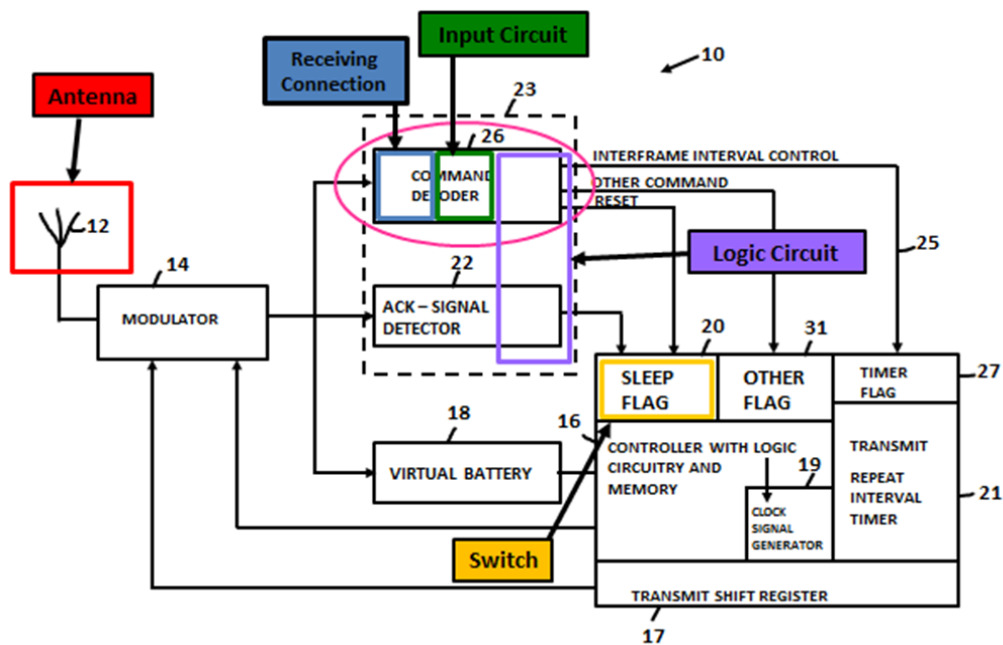


FIGURE 1

Petitioner’s “read” of claim 1 on Turner is shown by the annotations set forth in Petitioner’s annotated version of Turner Figure 1. Petitioner relies upon “sleep flag” 20 as meeting the claimed “switch” limitations of claim 1. Pet. 35.

As explained further below, Petitioner’s analysis of claims 1–3 and 8 is not persuasive. Petitioner’s analysis of claims 19–21 and 24, which do not require a “switch,” however, is supported by the testimony of Mr. Stewart and is persuasive. *See id.* at 40–43; Ex. 1001 ¶¶ 231–47.

3. Patent Owner Contentions

Patent Owner argues that Turner’s “flip-flop and memory cell” do not constitute a “switch” as recited in claim 1. Resp. 43.

Patent Owner characterizes Turner’s communication protocol as a “tag-talks-first” type system, characterized by an indefinite sleep mode. *Id.* at 44. According to Patent Owner, Turner’s interrogator locks onto a frequency for the tags, so that it is getting one. The interrogator

communicates with that tag and then disables it. When disabled, it is not generating a signal. Thus, Patent Owner concludes that Turner does not disable communication of data signals. Resp. 44–47; Tr. 46.

Patent Owner’s arguments are directed solely to limitations in independent claims 1 and 19. Patent Owner does not argue separately the limitations of the dependent claims. Resp. 47.

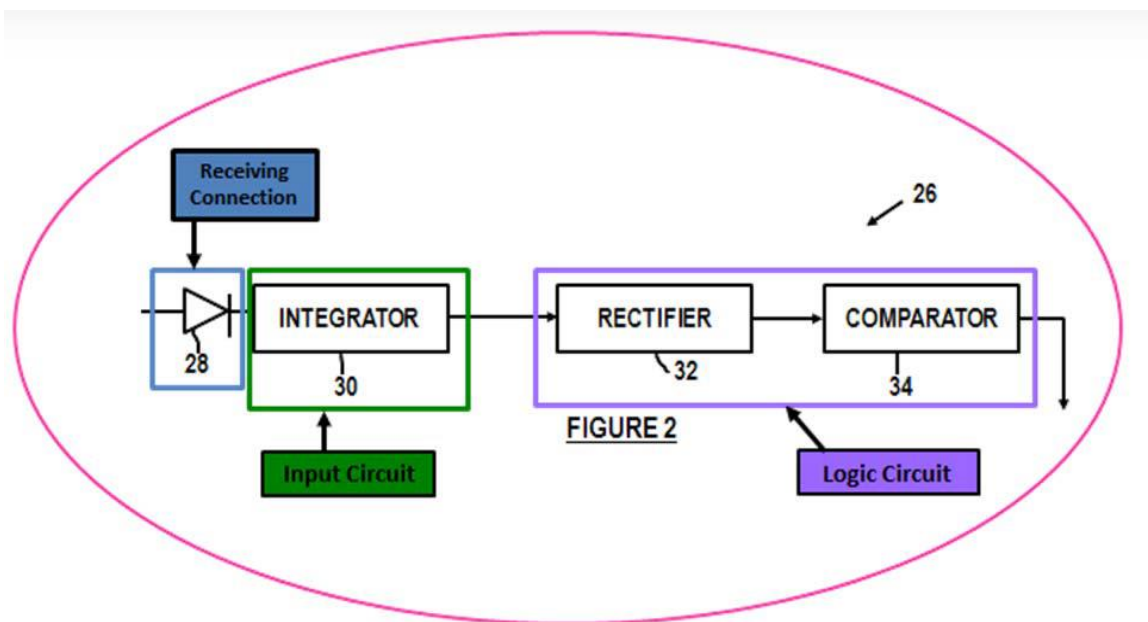
4. Analysis

We do not agree with Patent Owner’s argument that Turner does not disable communication of data signals, as recited in claim 19. A modulator controlled so as to not produce data is embraced by the claim requirement of disabling. *See supra* Section II.A.2.d.

However, Turner’s “sleep flag” 20 is not embraced by our construction of “switch.” *See* Pet. 36. Turner’s “sleep flag” is set by a logic circuit. The status of sleep flag 20 is used to control modulator 14, which modulates a signal being transmitted by antenna 12. Thus, sleep flag 20 does not open, close, or change a circuit connection. Claim 1 requires a “logic circuit” coupled to a “switch” that selectively allows communication of signals through an antenna. Turner’s sleep flag 20 is not opening, closing, or changing a circuit connection that selectively allows communication through an antenna. Dependent claim 20 also recites that “receiving command signals by said RFID tag through said antenna during said cloaking operation couples said command signals through an electrical connection between said antenna and an input circuit which is not interrupted by operation of said switch” (emphasis added). *See* Pet. 41–42. Thus, we conclude that claim 1, as well as dependent claims 2, 3, 8, and 20, are not anticipated by Turner.

Claim 19, however, does not require a switch. It merely requires disabling communication of data signals from the tag through the antenna during cloaking and receiving command signals through the antenna during the cloaking operation. Thus, for claim 19, it is of no consequence that Turner's sleep flag is not considered to be a switch. Turner's sleep flag controls modulator 14 and causes it to not generate data for transmission via antenna 12. Based on our construction of the "disabling" limitation, we find that Turner meets the limitation of claim 19 requiring disabling of communication during cloaking. *See supra* Section II.A.2.d.

We also find that Turner meets the limitation of claim 19 requiring receiving command signals by the RFID tag through the antenna during the cloaking operation. Petitioner provides on page 35 of the Petition an annotated version of Turner Figure 2, reproduced below.



Petitioner identifies Turner's diode 28 and integrator 30 as

constituting an input circuit that receives command signals during cloaking operation. Pet. 35. We conclude that Turner meets the limitations of independent claim 19.

Turner also satisfies the limitations of claim 21 in that received commands are coupled from the antenna through diode 28 to integrator 30. We further find that Turner satisfies the limitations of claim 24 in that diode 28 remains connected to the antenna to receive RF energy that is integrated by integrator 30 and then rectified by rectifier 32.

Thus, Petitioner has demonstrated by a preponderance of the evidence that claims 19, 21, and 24 are anticipated by Turner. *See* Pet. 34–35, 40–41, 43; Reply 13–14. However, Petitioner has not demonstrated by a preponderance of the evidence that claims 1–3, 8, and 20 are anticipated by Turner.

E. Challenges Based on Kruest (Ex. 1009) and Turner (Ex. 1008)

1. Level of Ordinary Skill in the Art

“Section 103(a) forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 405 (2007). Mr. Stewart testifies that he believes a person of ordinary skill in the art would have had “a graduate degree in electrical engineering or solid state physics or the equivalent” and “at least 4 years of relevant experience, including understanding RFID systems and communication protocols, and designing circuits to implement the same.” Ex. 1001 ¶¶ 59–62. Patent

Owner argues that a person of ordinary skill in the art would have had “a university degree in electrical engineering or a related field and at least two years of industrial or academic experience in radio frequency data communication and/or RFID systems,” with “experience in RFID communication systems and protocols,” but need not have “actually developed or designed components for such a system.” Resp. 5–6. Based on the current record, including our review of the ’264 patent and the types of problems and solutions described in the ’264 patent and cited prior art, we determine that a person of ordinary skill in the art would have had at least a graduate degree in electrical engineering or solid state physics or the equivalent, and at least four years of relevant experience with RFID systems, including an understanding of RFID systems and communication protocols. We apply this level of ordinary skill in the art for purposes of this Decision.

2. Overview of Kruest

Kruest silences a tag for a period of time until an internal timer would run out. Then, the tag would come back alive and be able to be communicated with. Thus, Kruest cloaks for a predetermined period of time so that the tag does not interfere with a reader communicating with other tags. The ’264 patent recognizes a problem with the Kruest approach in that if the system needs to interrogate the tag before the timer runs out, it cannot.

There appears to be no dispute between the parties that Kruest discloses a “cloaking period,” with the exception of the command to bring a tag out of its cloaking state. See Pet. 46–52; Resp. 51, 55.

3. Petitioner Contentions

Petitioner contends that one of ordinary skill would have combined the teachings of Turner and Kruest to meet the limitations of claims 1–24.

Pet. 44–46.

Petitioner argues that Turner explains that the problem with Kruest is that once the transponder is switched to the sleep or cloaked mode, it cannot be woken up again until the term of the sleep mode has expired. *Id.* at 45–46. Turner provides an improved tag that switches between an “active” mode and a mode in which the transponder is inhibited from responding to the reader. *Id.* at 46 (citing Ex. 1008 ¶ 7). Therefore, Petitioner concludes that one of ordinary skill would have had reason to modify (and thereby improve) Kruest’s circuit based on the Turner invention. *Id.* Turner provides the tag with a receiving connection that continuously receives command signals during cloaking. *Id.* at 48 (citing Ex. 1001 ¶ 273).

Petitioner provides a detailed explanation of how Kruest and Turner teach all of the limitations of claims 1–24, and why a person of ordinary skill in the art would have had reason to combine their teachings, on pages 48–59 of the Petition, with supporting testimony from Mr. Stewart (Ex. 1001).

Petitioner summarizes its reliance on Kruest by providing annotated versions of Kruest Figures 1 and 2, reproduced below, at page 45 of the Petition.



Figure 1 is a block diagram showing an illustrative RFID in which a cloaking circuit is used.

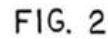


Figure 2 is a schematic diagram of the cloaking circuit. Ex. 1009, 4:10–14.

Antenna 16 of the Kruest RFID tag is disconnected from the balance

of the RFID chip by a series switch 20 in response to a CLOAK command. Ex. 1009, Abstract, 5:47–49. Transistor switch 24 connects/disconnects antenna 16 (via diode D5 and resistor R200) to V_{SS} , identified as ground. When antenna 16 is connected to ground, it backscatters an interrogating signal. An RC circuit including resistor 36 and capacitor 38 assures that a CLOAK state will be active for an adequate time to turn on transistor 34. *Id.* at 6:1–3. During the CLOAK state, DATA IN node 28 and V_{DDC} are disconnected from line 22. Antenna 16 is disconnected from the rest of RFID circuit 100. *Id.* at 6:13–17.

According to Petitioner and Mr. Stewart, Turner discusses the Kruest approach and explains that once a transponder is cloaked, “it cannot be woken up again, until the term of the sleep mode has expired.” Pet. 45–46; Ex. 1008 ¶ 3; Ex. 1001 ¶ 258. Turner switches a transponder between an active mode and a mode in which the transponder is inhibited from responding to the reader. Ex. 1008 ¶ 7. While inhibited, the transponder remains responsive to signals from the reader to switch the transponder back to an active mode. *Id.*; Ex. 1001 ¶ 258.

Petitioner provides a rationale for why one of ordinary skill would have combined the teachings of Turner and Kruest. Petitioner notes that both Turner and Kruest disclose a cloaking circuit to address the same problem: disabling a tag to reduce collision. Pet. 46 (citing Ex. 1001 ¶¶ 258–60). Petitioner argues that because “Turner then identifies a problem with Kruest’s circuit—that the tag cannot be awoken from its cloaked state until the mode expires—it would have been obvious to one of ordinary skill in the art to take Kruest’s circuit and improve it with the invention disclosed in Turner.” Ex. 1001 ¶ 260.

Petitioner's analysis of claims 1–24, supported by the testimony of Mr. Stewart, is persuasive. *See* Pet. 44–59; Ex. 1001 ¶¶ 261–331.

4. Patent Owner Contentions

Patent Owner characterizes Kruest as disclosing an RFID tag placed in a cloaked state by disconnecting its antenna from the tag's chip circuitry in response to a command. Resp. 3 (citing Ex. 1004, 1:12–26). According to Patent Owner, the Kruest antenna remains disconnected for a “cloaking period,” which is a period of time controlled by an RC circuit. *Id.* During this “cloaking period,” the tag is unable to communicate with a reader, and thus unable to respond to any commands, until the cloaking period expires. *Id.* (citing Ex. 1004, 1:20–26). Kruest teaches that the “[disconnection of] the front end of the RFID chip [occurs] even during times when the power to the tag has been removed.” *Id.* (citing Ex. 1004, 1:37–39). “Thus, the non-responsive ‘cloak’ state of the tag can persist for some time even after the tag is removed (de-energized), and brought back (energized), from the RF field of a reader.” *Id.* (emphasis omitted).

Patent Owner argues that in Kruest, “disconnecting the antenna from the RFID chip means that ‘while the chip is in the cloak state, it is impossible for the reader to communicate with the tag.’” *Id.* (citing Ex. 1004, 1:40–42). According to Patent Owner, “[t]his presents a problem when trying to inventory, track, or identify tags, such as in a warehouse or stockroom. For example, a tag with a cloak period of 20 seconds might be interrogated and then cloaked while on a conveyor belt. But it might be necessary to read the tag again when the tag has traveled further down the conveyor belt but within the 20 second time period.” *Id.* (citing Ex. 1004, 1:43–47). According to Patent Owner, the ‘264 patent explains that “what is

needed is a circuit and method that allows a tag to be cloaked, but still to be interrogated when it is cloaked.” *Id.* at 3–4 (citing Ex. 1004, 1:48–50). The ‘264 patent thus “discloses the need for a tag that is able to be interrogated multiple times, even when the tag is placed in the non-responsive cloak state” in Patent Owner’s view. *Id.* at 4.

According to Patent Owner, this need is fulfilled in the ‘264 patent by “disconnecting the output of the RFID chip to the tag’s antenna without disconnecting the chip’s input, rather than disconnecting the antenna itself from the chip.” *Id.* (citing Ex. 1004, Abstract (“The output to the antenna is thus disconnected for a time sufficient to allow the remaining RFID tags in an RF interrogation field to be identified. However, the input of the antenna remains connected and is capable of receiving at any time, including during the cloaking period commands that can lift the tag out of cloaking and allow it to then electively output its signal.”), 1:59–62 (“[a] receiving connection is provided to the RIFD tag so that command signals are continuously receivable notwithstanding cloaking of the RFID tag”)) (emphasis omitted).

Patent Owner contends that the function of the claimed “switch” is to disconnect the antenna, and connect and disconnect the antenna from ground so the system can modulate signals. Resp. 51–54. Thus, according to Patent Owner, neither Turner nor Kruest have a “switch” as recited in claims; the switch that is in Kruest is one that disconnects it from the antenna. *Id.*; Tr. 46.

Patent Owner argues that Kruest disconnects the antenna entirely, and Turner is a different kind of circuit that is “brought back in or out at some point.” Resp. 51–54; Tr. 47. Thus, according to Patent Owner, there would have been no motivation to combine Turner and Kruest, and even if

combined, neither one disables output communication of data signals. Resp. 51–55; Tr. 47.

Patent Owner contends that secondary considerations support its contention that the challenged claims are not obvious based on Turner and Kruest. Resp. 58–59.

Patent Owner argues that it “has recently entered into agreements related to its patents, including the ’264 patent, under which it is to be paid – and has been paid – substantial fees.” *Id.* at 58. Patent Owner provides a “3M Agreement” (Ex. 2044). Further, according to Patent Owner, the inventions of the ’264 patent have “achieved commercial success.” *Id.*

Patent Owner’s arguments are directed solely to limitations in independent claims 1, 10, and 19. Patent Owner does not argue separately the limitations of the dependent claims. *Id.* at 55–58.

6. Petitioner’s Argument Regarding Secondary Considerations

Petitioner argues that Patent Owner’s secondary consideration argument fails to rebut Petitioner’s evidence of obviousness. Reply 22.

Petitioner argues that Patent Owner has not established a nexus between the challenged claims and the licensing arrangements proffered by Patent Owner as evidence of non-obviousness.

7. Analysis

We are not persuaded by Patent Owner’s argument that Kruest does not disclose the claimed “switch.” Patent Owner relies on a construction (not adopted) that “switch” requires the switch to ground the antenna or communicate signals through the antenna by selectively grounding the antenna. Resp. 51–54 (citing Ex. 2030 ¶¶ 221–222). Our construction of “switch” does not include such limitations. We note, for example, that claim

1 requires a “switch” and “a logic circuit coupled to said switch to selectively allow communication of signals through said antenna.” It does not require grounding the antenna. We note the Kruest switch shown in Kruest Figure 2, and agree with Petitioner’s analysis. *See* Pet. 44–47; Reply 17–19.

We also are not persuaded by Patent Owner’s argument that Kruest does not disclose disabling communication of data signals during cloaking because Kruest is not powered and therefore does not generate data during cloaking. Resp. 54–55; *see* Reply 14. We do not construe the “disabling communication” limitations as requiring generating data and then blocking the communication of that data.

We also do not construe “switch” so as to require disconnecting the tag’s antenna to modulate its backscatter. Nor do we construe “cloak” so as to require the tag to backscatter or not to backscatter. Therefore, we are not persuaded by Patent’s Owner argument that Kruest does not explicitly disclose backscatter. Resp. 50–51, 54; Reply 18–19.

We have reviewed Kruest and Turner and are persuaded, given the discussion in those references, that one of ordinary skill would have been motivated to combine Kruest and Turner in the manner suggested by Petitioner. We adopt Petitioner’s reasoning stated in the Petition at pages 46–59 and find that Kruest and Turner teach the limitations of claims 1–24 and that a person of ordinary skill in the art would have had reason to combine their teachings to achieve the devices and methods recited in the claims.

As part of our obviousness analysis, we consider the evidence and arguments submitted by Patent Owner regarding secondary considerations of

nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Patent Owner argues that commercial success, through licensing of the '264 patent to others, demonstrates that the challenged claims would not have been obvious to a person of ordinary skill in the art.¹⁰ Resp. 58–59. Patent Owner contends that it “recently entered into agreements related to its patents, including the '264 Patent, under which it is to be paid—and has been paid—substantial fees.” *Id.* at 58. Patent Owner cites two agreements where it granted a non-exclusive license to “the patents, including the '264 Patent,” in exchange for fees from the licensees. *Id.* (citing Ex. 2042, Ex. 2044,¹¹ Ex. 2030 ¶¶ 60–68).

Evidence of commercial success “is only significant if there is a nexus between the claimed invention and the commercial success.” *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006). In the case of licensing activity, “the relevant inquiry is whether there is a nexus between the patent and the licensing activity itself, such that the factfinder can infer that the licensing ‘arose out of recognition and acceptance of the subject matter claimed’ in the patent.” *South Alabama Med. Sci. Found. v. Gnosis S.P.A.*, 808 F.3d 823, 827 (Fed. Cir. 2015) (citation omitted); *see also In re Antor Media Corp.*, 689 F.3d 1282, 1293–94 (Fed. Cir. 2012) (finding license evidence deficient where there was “no evidence showing that the licensing program was successful either because of the merits of the claimed invention or because they were entered into as business decisions to avoid

¹⁰ The parties refer to the challenged claims collectively in their arguments regarding secondary considerations, and we do the same. *See* Resp. 58–59; Reply 22–24.

¹¹ The agreement filed as Exhibit 2044 has been filed under seal. *See* Paper 26. We need not refer to any specific provisions of the agreement, however, to assess Patent Owner’s secondary considerations arguments.

litigation, because of prior business relationships, or for other economic reasons”).

Importantly, Patent Owner acknowledges that the license agreements pertained to multiple patents—not just the ’264 patent—but does not explain why the agreements arose out of recognition and acceptance of the merits of the ’264 patent claims in particular. *See* Resp. 58–59; Ex. 2042 § 1.7 (defining “Neology Patent Rights” as “all inventions disclosed in patents and patent applications . . . or improvements thereto, owned in whole or in part by, controlled by, or solely or exclusively licensed to [Patent Owner]”); Ex. 2030 ¶¶ 60–68 (describing the agreements). In a case involving similar circumstances, the Federal Circuit gave evidence of licensing little weight because it was “difficult to determine the extent to which the licensing agreement was a result of the novel features in the [patent at issue], as opposed to the other patents involved.” *Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 838 (Fed. Cir. 2015). That is the case here as well. We also note that although Patent Owner asserts that the license fees paid in accordance with the agreements were “substantial,” Patent Owner does not state what the fees were or provide any context to assess the magnitude of those fees in the relevant industry. *See* Resp. 58. Patent Owner does not rely on any evidence of alleged commercial success other than the license agreements.

Patent Owner has not established a sufficient nexus between the claimed devices of the ’264 patent and its licensing activity. We accord Patent Owner’s evidence of licensing the ’264 patent little weight and, given the strong evidence of obviousness explained above, determine that Patent Owner’s evidence does not support a conclusion of nonobviousness of the claims.

Based on all of the evidence of record, including evidence of secondary considerations of nonobviousness submitted by Patent Owner, we determine, by a preponderance of the evidence, that claims 1–24 would have been obvious based on Kruest and Turner under 35 U.S.C. § 103(a).

III. CONCLUSIONS

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–24 of the '264 patent are unpatentable as follows:

- A. claims 1–24 anticipated by Atkins;
- B. claims 19, 21, and 24 anticipated by Marsh;
- C. claims 19, 21, and 24 anticipated by Turner; and
- D. claims 1–24 obvious in view of Kruest and Turner.

IV. ORDER

For the reasons given, it is

ORDERED that claims 1–24 are unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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PETITIONER:

Gregg F. LoCascio, Gregg.locasio@kirkland.com
Nathan Mammen, Nathan.mammen@kirkland.com
KIRKLAND & ELLIS LLP

PATENT OWNER:

Noel C. Gillespie, gail.poulos@procopio.com
PROCOPIO, CORY, HARGREAVES & SAVITCH LLP