

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SMA SOLAR TECHNOLOGY AMERICA LLC,
Petitioner,

v.

TIGO ENERGY, INC.,
Patent Owner

Case IPR2023-01184

Patent No. 8,823,218 B2

PATENT OWNER RESPONSE

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TABLE OF EXHIBITS

Exhibit	Description
2001	Deposition transcript of Mr. Randy R. Dunton

TABLE OF AUTHORITIES

Cases

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I. INTRODUCTION

Patent Owner Tigo Energy, Inc. (“Tigo” or “Patentee”) submits this Patent Owner Response (“POR”) regarding U.S. Patent No. 8,823,218 (the “’218 patent”). Petitioner cannot show any challenged claim is unpatentable. Independent claim 1 requires, *inter alia*, a master management unit (MMU) that “sends a command” to a local management unit (LMU). “[U]pon receiving a command from the MMU, the LMU alters the state of the one or more solar modules in accordance with command.” (Ex-1001 at 19:46-51.) None of the prior art relied on by Petitioner discloses this functionality. Instead, both Adest’s signaling mechanism and Moine’s transmitter (the alleged MMUs) normally transmit a signal but stop sending this signal when abnormal conditions occur. In both instances, a remote unit takes remedial action when it fails to receive the normal signal. This functionality (ceasing signal transmission) is the opposite of what the claim requires (transmitting a command signal). This issue permeates all of the independent claims of the ’218 patent. For this reason and the additional reasons explained below, Petitioner cannot show that any challenged claims is unpatentable.

II. THE ’218 PATENT AND CHALLENGED CLAIMS

A. General Overview

The ’218 patent generally relates to “a system and method for automated shutdown, disconnect, or power reduction of solar panels.” (Ex-1001 at Abstract.)

As described in relation to FIGS. 22-23, a master management unit (MMU; 3102) includes a software instance residing therein. (*Id.* at 18:19-20, 18:56-58.) This allows the MMU to query, inter alia, one or more “controller[s] 3130 for input from sensors 3131a-n.” (*Id.* at 19:1-4.) The sensors may be, for instance, “smoke sensors, fire sensors, flow sensors, or other practical emergency sensors.” (*Id.* at 18:54-54.) Next, the software program checks “based on some pre-existing values and rules, including, for example, location, ZIP code, and other information, whether any of the query results indicate a shut down anywhere in or in all the solar array.” (*Id.* at 19:8-12.) If not, the program ends. However, if the query results do indicate a shutdown exists, then the software “program sends out commands to the indicated units, which commands could shut down or disconnect the inverter” or “instructs the LMUs to shut down,” among other possibilities. This functionality enables the particularized and intelligent shutdown of individual solar panels. For instance, “if a local fire is indicated, some or all the panels in the affected area may be turned off as a safety measure for responding firefighters, but the remainder of the system may be left working.” (*Id.* at 19:21-25.)

B. Overview of the Independent Claims

The '218 patent includes three independent claims (1, 15, 18). Claim 1 requires a system that includes, *inter alia*:

- At least one sensor configured to detect an anomaly;

- A master management unit (MMU) connected to the sensor(s), wherein upon detection of the anomaly by the sensor(s), the MMU sends a command to the local management unit (LMU) to alter the state of an associated solar module; and
- Upon receiving the command from the MMU, the LMU alters the state of the one or more solar modules in accordance with the command.

(Ex-1001 at claim 1.)

Method claim 15 is similar to claim 1. Importantly, claim 15 requires “issuing a control change command to a local management unit if the anomaly requires a control change.” (*Id.* at claim 15.)

Claim 18 is a computer-implemented method that requires, *inter alia*, a computing device that monitors a signal from a central controller, determines if there is a loss of signal, and polls the central controller to determine if the signal loss is transient. Claim 18 further requires disconnecting, via the computing device, solar module(s) from a power bus if the loss of signal is not transient, waiting for a restart signal, and connecting, via the computing device, the solar module(s) when the restart signal is received. (*Id.* at claim 18.)

As shown herein, the prior art fails to disclose multiple limitations of the independent and dependent claims.

C. POSITA

Petitioner argues a POSITA at the relevant time would have had “a bachelor’s or similar degree in electrical engineering and one year of experience designing solar power systems, power control systems, and/or power safety systems. More education can supplement practical experience and vice versa.” (Petition at 8.) Patentee generally agrees with Petitioner’s POSITA definition except that Patentee disagrees that the relevant time is 2011 given the ’218 patent’s priority chain. Nonetheless, the Board need not resolve this issue as a POSITA would have had the same basic level of skill in both 2007 (the earliest possible priority date of the ’218 patent) and 2011.

D. Claim Construction

Petitioner argues that no express constructions are required and the plain and ordinary meanings should apply to all claim terms. (Petition at 16.) In general, Patentee agrees that the plain and ordinary meaning should be applied. However, Petitioner has applied an incorrect understanding of the plain and ordinary meaning of certain claim limitations as shown herein. Nonetheless, the Board need not resolve any potential claim construction disputes as the prior art fails to disclose various limitations of the claims under any reasonable construction. *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci.*, 200 F.3d 795, 803 (Fed. Cir. 2000)) (“the claims

are construed objectively and without reference to the accused device, only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”))

E. Priority Date of the ’218 patent

Petitioner argues the ’218 patent is not entitled to claim priority to any of its priority chain. (Petition at 3-7.) Patent Owner takes no position on Petitioner’s allegation as it is unnecessary to resolve this dispute. Specifically, the prior art fails to disclose multiple limitations of the claims and a POSITA would not have been motivated to combine the prior art, as shown below. Accordingly, the Board need not resolve the priority date of the ’218 patent.

F. Overview of the of the Prior Art

The Petition presents four grounds of invalidity. (Petition at 1-2.) Grounds 1-2 rely on Adest (Ex-1005) as the primary reference while Grounds 3-4 rely on Moine (Ex-1008) as the primary reference. A brief overview of these references is provided below.

1. Adest (US8531055; Ex-1005)

Adest generally relates to:

“a distributed power system including a DC power source and a power module. The power module includes an input coupled respectively to the DC power source and an output. An inverter is coupled to the output. The inverter converts power input from the

output of the power module to output power. A signaling mechanism between the inverter and the power module is adapted for controlling operation of the power module. During operation of the distributed power system, in some embodiments, the signaling mechanism may superimpose a signal on the output of the power module.”¹ (Ex-1005-Adest at 3:27-36.)

Importantly, Adest defines the term “signaling mechanism:”

“The term ‘signaling’ or ‘signaling mechanism’ as used herein refers to either a signal modulated on an electromagnetic carrier signal or a simple unmodulated signal such as an on/off signal ‘keep alive’ signal or ‘dry contact’ signal. For a modulated signal, the modulation method may be by any such method known in the art by way of example, frequency modulation (FM) transmission, amplitude modulation (AM), FSK (frequency shift keying) modulation, PSK (phase shift keying) modulation, various QAM (Quadrature amplitude modulation) constellations, or any other method of modulation.” (*Id.* at 2:65-3:8.)

Petitioner generally relies on the FIG. 4-5 embodiments of Adest in relation to the challenged claims. (Petition at 19-25 (claim 1), 44-45 (claim 15), 45-47 (claim 18).)

In these embodiments, the system begins in “safe mode” where “output current and/or voltage from module 405 is limited.” (Ex-1005-Adest at 9:50-59.) Safe mode is maintained until “a communications signal, e.g. 100 Hz, is received

¹ Emphasis added herein unless otherwise noted.

(decision box 505) by receiver/detector 207 from inverter 204 or signaling block 420,” whereupon [control] module 405 enters a normal operation mode. (*Id.* at 9:60-10:1.) “The normal operation of transferring power is maintained as long as the communications signal, e.g. 100 Hz is received from inverter 204 or signal mechanism 420, and no other warning condition is present. If the communications signal is not detected, or another warning condition is present, the normal mode (step 57) is typically ended and power conversion of modules 405 is typically turned off.” (*Id.* at 10:2-13.) In other words, Adest discloses a system that operates in normal mode so long as a communication signal (e.g., 100 Hz) is received. If the signal is not received, the system enters a safe mode or turns itself off.

Petitioner applies color coding to its Petition to match the alleged claim limitations to the disclosures of Adest. The below chart compiles Petitioner’s proposed mapping of Adest’s features to the claims.

Limitation	Cited Feature of Adest	Petition Citations
Master management unit (MMU)	Signaling Mechanism 420 of FIG. 4	Petition at 19 (“A POSITA would understand the signaling mechanism 420 is a MMU...”)
Local management unit (LMU)	Power module 405 of FIG. 4	Petition at 20 (“A POSITA would have understood that Adest’s power module [405] is an LMU.”)
Sensor(s)	The sensor(s) connected to microcontroller 422 of FIG. 4, such as a “Hall-effect sensor”	Petition at 21-22
Sending of a command	Failing to send Adest’s communication signal (e.g.,	Petition at 25 (“As discussed in Section VIII.A.1.e, as long

	100 Hz) superimposed by the signaling mechanism on the line	as the power module 405 receives 100Hz signals from signaling mechanism 420, normal operation continues.... If power module 405 either fails to receive 100Hz signals or receives a communication to stop normal operation or other warning condition present, the normal mode is typically ended and power modules is then typically turned off.”)
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Adest fails to disclose any embodiment in which a command is sent from a MMU and received by a LMU, whereupon the LMU acts in accordance with that command to take remedial action relative to one or more solar modules. Instead, Adest’s system shuts itself down when a communication signal is not received, which is the opposite of what many of the challenged claims require.

2. Moine (FR2894401; Ex-1008)

Moine generally relates to a system for controlling an electric power generation facility comprising a number of photovoltaic modules (3). The modules are coupled to an electrical circuit (1) for powering a battery or one or more electrical loads. The circuit (1) includes an electric switch (4) capable of neutralizing the electric power provided by the output of the power terminals of the modules (3). The circuit (1) comprises a transmitter (7) designed to periodically send an alternating signal (8) for detection by a receiver (5) controlling the switch (4) on the

circuit, in order to open or close the switch (4). (Ex-1008-Moine at Abstract.)

Like Adest, Moine's system transmits a repeating signal (e.g., every 5 minutes) as long as operations are normal. Otherwise, Moine stops sending the signal, after which its controller takes remedial action:

“Thus, if the transmitter (7) detects a lack of current in the domestic power supply network (9) or a failure thereof, *it **stops the periodic transmission of the coded alternating signal through the circuit (1)***, whose absence, identified by the receivers (5), causes the latter to open the corresponding switches (4) such that the circuit (1) powers down as does each of the branches (10, 11, 12) constituting it.” (*Id.* at 6:1-5.)

The below chart compiles Petitioner's proposed mapping of Moine's features to the claims.

Limitation	Cited Feature of Moine	Petition Citations
Master management unit (MMU)	Transmitter (7)	Petition at 57-58 (“Because transmitter (7) of Moine is configured to transmit a periodic (i.e., repeated) signal, a POSITA would have understood transmitter (7) of Moine to be one of the configurations of the MMU described by the '218 patent.”)
Local management unit (LMU)	Receiver (5) plus switch (4)	Petition at 58 (“A POSITA would have understood that receiver (5) and switch (4) of Moine are together the claimed “LMU (watchdog unit)” of the '218 patent.”)

Sensor(s)	Inherent	Petition at 60 (“A POSITA would have understood that at least one sensor would be connected to the transmitter (7) for detecting the absence of current and/or battery charging.”)
Sending of a command	Failing to send Moine’s periodic transmission of the coded alternating signal	Petition at 60-61 (“Moine, states that if the transmitter (7) detects the absence of current at the level of the domestic electrical network (9) or a fault at this level, <i>it stops</i> the periodic transmission of the alternative coded signal on the circuit (1). Ex-1008, 6:1-5.”)

Moine fails to disclose any embodiment in which a command is sent from an MMU and received by LMU, whereupon the LMU acts in accordance with that command to take remedial action relative to one or more solar modules. Instead, like Adest, Moine’s system shuts itself down when a communication signal is *not* received, which is *the opposite* of what many of the challenged claims require.

III. OVERVIEW OF PETITIONER’S GROUNDS

The headings and general structure of the Petition are misleading and ambiguous. Accordingly, Patent Owner provides the following outline of the arguments raised in the Petition to facilitate review:

- **Ground 1**: “Adest and Kronberg Render Obvious Claims 1-4, 6-16, and 18-19” (Petition at 16-47);
 - Claims 1-4: Adest only (*id.* at 17-27);

- Claims 6-14: Adest and/or Kronberg (*id.* at 27-43);
- Claims 15-16, 18-19: Adest only (*id.* at 44-47);
- **Ground 2**: “Adest, Kronberg, and/or Goldack Render Obvious Claims 1-4, 6-16, and 18-19” (*id.* at 47-55);
 - Claims 1-4: Adest only, coextensive with Ground 1 (*id.* at 47);
 - Claims 6-14: Adest, Kronberg, and/or Goldack (*id.* at 48-55);
 - Claims 15-16, 18-19: Adest only (*id.* at 55);
- **Ground 3**: “Moine and Adest Render Obvious Claims 1-5, 15-17 (*id.* at 56-67);
 - Claims 1-5: Moine and Adest (*id.* at 56-66);
 - Claims 15-17: Moine and Adest (*id.* at 66-67);
- **Ground 4**: “Moine, Adest, and/or Goldack Render Obvious Claims 1-4, 6-14, and 18-19” (*id.* at 68-79);
 - Claims 1-4: Adest only, coextensive with Ground 1 (*id.* at 68);
 - Claims 6-14: Moine, Adest, and/or Goldack (*id.* at 68-77);
 - Claims 18-19: Moine, Adest, and/or Goldack (*id.* at 77-79).

In sum, the headings and grounds in which Petitioner’s arguments are presented do not necessarily reflect the substantive arguments raised in the Petition.

IV. ALL GROUNDS, ALL CLAIMS: ADEST AND MOINE FAIL TO DISCLOSE VARIOUS LIMITATIONS OF THE CLAIMS

Grounds 1-2 offer Adest as a primary reference while Grounds 3-4 offer Moine as a primary reference. All four of Petitioner’s Grounds fail because limitations in independent claims 1, 15, and 18 are not disclosed or rendered obvious by Petitioner’s Grounds, as shown below.

A. All Grounds, Independent Claim 1 and dependents

1. Adest fails to disclose “the MMU sends a command to the LMU” requirement of limitation [1E]

Petitioner and its expert argue Adest’s “signaling mechanism” 420 discloses the claimed MMU. (Petition at 17-20; Ex-1002-Dunton at ¶¶65-71; Ex-2001-Dunton at 115:13-117:9.) They also argue Adest’s power module 405 discloses the claimed LMU. (Petition at 20; Ex-1002 at ¶¶72-76; Ex-2001 at 117:17-25.) They further argue that Adest’s signaling mechanism discloses “wherein upon detection of the anomaly by the sensor, the MMU sends a command to the LMU to alter the state of an associated solar module,” as required by limitation [1E]. (Petition at 22-24; Ex-1002-Dunton at ¶¶82-87). They are mistaken.

As it relates to limitation [1E], and as explained in §II.A, according to the ’218 patent, when a query from the MMU to the LMUs indicates a shutdown exists, the MMU’s software “program sends out commands to the indicated units, which commands could shut down or disconnect the inverter” or “instructs the LMUs to shut down,” among other possibilities. This functionality enables the particularized and intelligent shutdown of individual solar panels. For instance, “if a local fire is indicated, some or all the panels in the affected area may be turned off as a safety measure for responding firefighters, but the remainder of the system may be left working.” (Ex-1001 at 19:14-25.)

As it relates to Grounds 1-2, and as explained in §II.F.1, Adest’s system

begins in safe mode. Safe mode is maintained until “a communications signal, e.g. 100 Hz, is received (decision box 505) by receiver/detector 207 from inverter 204 or signaling [mechanism] 420,” whereupon module 405 enters a normal operation mode. (Ex-1005-Adest at 9:60-10:1.) “The normal operation of transferring power is maintained as long as the communications signal, e.g. 100 Hz is received from inverter 204 or signal mechanism 420, and no other warning condition is present. If the communications signal is not detected, or another warning condition is present, the normal mode (step 57) is typically ended and power conversion of modules 405 is typically turned off.” (*Id.* at 10:2-13.)² That is, instead of sending a command upon the detection of an anomaly as required by the claims, Adest’s system does the opposite—it stops sending a signal. Sending a command signal and stopping a system from sending a signal are opposite functionalities.

Petitioner’s expert does not dispute Patent Owner’s interpretation of Adest. Instead, he believes that the absence of a signal is the same thing as sending a command:

“Q: And so in limitation 1E the requirement is that MMU sends a command to alter this state. I am not following you how turning off a signal, which we just agreed which would have to happen to alter

² Petitioner’s expert confirmed Adest operates in this manner. (Ex-2001 at 132:9-136:8.)

the state, is sending a command. Can you please explain that to me?

A: So the absence of a signal is the equivalent of sending a command.

Q: Okay. That is what I was understanding from your report. So your opinion is the absence of a signal is the same as sending a command?

A: Correct.” (Ex-2001 at 136:9-25.)

Plainly, failing to transmit a signal (or the absence of a signal) is the opposite of “sending a command” as required by limitation [1E].

Petitioner also relies on Adest’s FIG. 5A (and specifically decision block 509) in relation to limitation [1E]. (Petition at 23-24.) Decision block 509 states “*Receive communication to Stop Normal Operations or Other Warning Condition Present.*” The text surrounding decision box 509 confirms the “*Receive communication to Stop Normal Operations*” language simply refers to Adest’s failure to receive the normal 100 Hz signal sent by the signaling mechanism:

“If in decision box 509, the communications signal is not detected, or another warning condition is present, the normal mode (step 57) is typically ended and power conversion of modules 405 is typically turned off.” (Ex-1005-Adest at 10:9-12; *see* Petition at 24.)

“If the communications signal is not detected, or another warning condition is present, the normal mode (step 57) is typically ended and power conversion of modules 405 is typically turned off.” (Ex-1005-Adest at 10:59-62; *see* Petition at 23.)

Accordingly, the “*Receive communications to Stop Normal Operation*” recited in

decision box 509 is specifically tied to a failure to receive the normal 100Hz (or similar) signal sent by Adest's signaling mechanism. As explained previously, this functionality does not read on limitation [1E].

Decision box 509 also states "*OR Other warning condition present.*" Petitioner never explains how this disclosure reads on limitation [1E] and for good reason. This is because Adest's controller 306 "runs the logic code shown in FIG. 5A," *not* Adest's signaling mechanism 420, as confirmed by Petitioner's expert. (Ex-2001-Dunton-Tr. at 146:6-17, 150:12-151:3, 156:1-13.) Of course, controller 306 is not the claimed MMU because it is part of Petitioner's alleged LMU. (Petition at 20; Ex-1002-Dunton at ¶¶74-75 (explaining controller 305 is part of power module 405); Ex-2001 at 117:17-24, 146:6-17 (explaining the same).) Accordingly, even if an "*Other warning condition present*" is used to shut down the system, any such communication is provided by the controller 306 to the power module 405. Such functionality does not read on limitation [1E] because the MMU must "send[] the command." Thus, Adest's FIG. 5A embodiment also does not disclose limitation [1E].

Accordingly, Adest fails to disclose this limitation, which is fatal to Petitioner's arguments that rely on Adest for limitation [1E] (which includes some or all of Grounds 1-4 regarding claims 1-14, see §III).

2. Moine's transmitter functionality mirrors Adest's signaling mechanism, i.e., Moine does not disclose limitation [1E]

For Ground 3, Petitioner argues Moine's transmitter sends a command as required by limitation [1E]. Here, Petitioner argues Moine's transmitter (7) discloses the claimed MMU and the combination of Moine's receiver (5) and switch (4) disclose the claimed LMU. (Petition at 56-60; Ex-1002-Dunton at ¶¶267-286; Ex-2001 at 173:23-175:6.) Moine's transmitter (7) and Adest's signaling mechanism (420) operate in much the same manner. Specifically, during normal operation, Moine's transmitter (7) sends a periodic signal to its receiver (5). (Ex-1008 at 6:23-36.) However, if the domestic current supply is lost or fails:

“the transmitter (7) ... *stops the periodic transmission of the coded alternating signal through the circuit (1)*, whose absence, identified by the receivers (5), causes the latter to open the corresponding switches (4) such that the circuit (1) powers down as does each of the branches (10, 11, 12) constituting it.” (Ex-1008-Moine at 6:1-5.)

Petitioner's Ground 3 arguments fail for the same reasons as Ground 1—failure to send a signal is the opposite of sending a command. Importantly, Petitioner's expert confirmed he was relying on Moine's non-transmission to read on limitation [1E]'s requirement of sending a command. (Ex-2001 at 180:7-181:24.) Accordingly, Moine also fails to disclose “sending a command” as required by limitation [1E].

3. Moine also fails to disclose a “sensor configured to detect an anomaly”

Limitation [1D] requires “wherein the MMU is connected to at least one sensor, the sensor configured to detect an anomaly.” Petitioner rightly recognizes that Moine fails to expressly disclose any sensor:

“If Moine’s transmitter(7) detects the absence of current at the level of the domestic electrical network (9) or a fault at this level, it stops the periodic transmission of the alternating coded signal on the circuit (1). Ex-1008, 6:1-5. It also states that the transmitter (7) ‘receives signals indicating the charge level of said battery and if it detects that the battery is fully charged, it then opens the switches (4) and accordingly stops recharging said battery.’ *Id.*, 7:23-25. A POSITA would have understood that at least one sensor would be connected to the transmitter (7) for detecting the absence of current and/or battery charging.” (Petition at 60.)

Petitioner arguments thus hinge on inherency, and ultimately fail for multiple reasons.

First, Petitioner’s sensing “the charge level of the battery” argument fails because any such sensor would not be detecting an anomaly as required by the claims. A low battery level is not an anomaly. Petitioner’s expert confirmed as much on cross-examination. (Ex-2001 at 77:6-79:4 (explaining sensors that measure things like temperature or irradiance are not “sensors that detect anomalies” because those measurements have nothing to do with detecting a safety situation); 80:6-82:7

(explaining that his definition of anomalies is in ¶80 of his Declaration and includes things like grid absence, fire, and smoke).)³

Second, determining an “absence of current at the level of the domestic electrical network” does not necessarily require a sensor. Here, Petitioner’s expert argues that the transmitter must have a sensor to detect whether the grid is present. (Ex-2001 at 178:18-179:8.) That argument is wrong, for at least the reason that basic circuit design techniques could be used to indicate the presence of the grid (or current, voltage, etc.) without relying on a sensor at all. For instance, in the event of grid failure, Moine’s transmitter may simply lose power and/or power off, which would result, as Moine anticipates, failure to send “the periodic transmission of the coded alternating signal through the circuit (1), whose absence, identified by the receivers (5), causes the latter to open the corresponding switches (4) such that the circuit (1) powers down as does each of the branches (10, 11, 12) constituting it.” (Ex-1008-Moine at 6:1-5.)

³ Given this testimony, Petitioner’s expert’s assertion at ¶312 of his Declaration that Moine disclose “multiple sensors” is plainly false because those sensors detect whether payment has been made or the battery level, not an anomaly. (Ex-2001 at 184:20-185:25.)

B. All Grounds, Independent Claim 15 and dependents: Adest and Moine fail to disclose the “issuing a command” requirement of claim 15

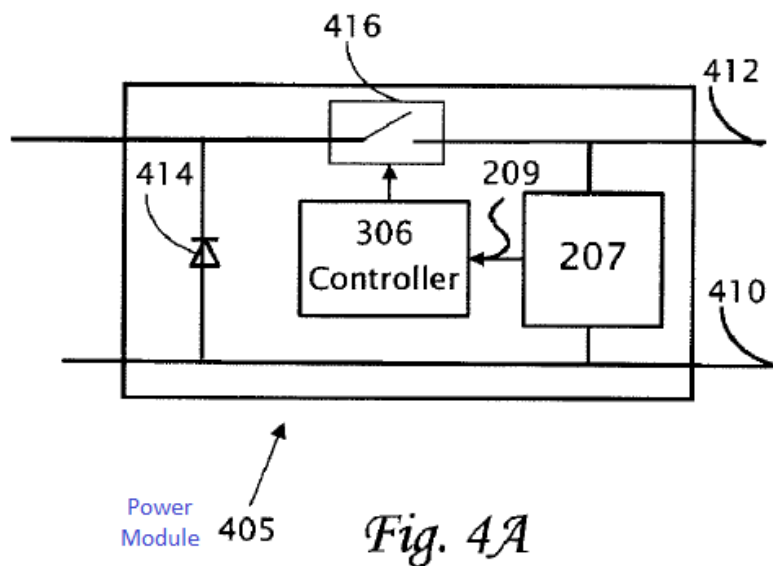
Similar to claim 1, claim 15 of the '218 patent requires “*issuing a control change command*” to a local management unit if the anomaly requires a control change....” Here, for both Adest and Moine, Petitioner simply relies on its previous analysis of claim 1 in arguing claim 15 is unpatentable. (Petition at 45, 67; Ex-1002-Dunton at ¶¶255, 329-330.) As explained previously, neither Moine nor Adest send (issue) any command in response to the detection of an anomaly, so both references fail to disclose the requirements of claim 15. Because this issue permeates all of Petitioner’s grounds, Petitioner has failed to show that claim 15 is unpatentable.

C. All Grounds, Independent Claim 18 and dependent: Adest and Moine fail to disclose the computer-implemented method of claim 18

Claim 18 requires a computer-implemented method. Petitioner provides no particular argument as to how Adest reads on the claims. Instead, Petitioner simply refers the reader back to numerous prior sections of the Petition without argument or specificity. (Petition at 46-47.) Patent Owner has no ability to discern Petitioner’s arguments, which must be made with particularity. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds

for the challenge to each claim,” citing 35 U.S.C. §312(a)(3).) For at least this reason, Petitioner’s challenge fails.

Even assuming *arguendo* that Petitioner is relying on Adest’s power module 405 as the claimed computing device and Adest’s signaling mechanism 420 as the claimed central controller, Petitioner’s arguments are fatally defective. Adest’s signaling mechanism is not a central controller and Adest’s power module has no ability to poll that signaling mechanism to determine if the signal is transient, as required by limitation [18D]. Instead, as Petitioner admits in its arguments for claim 6, Adest’s controller 306 polls the receiver/detector 207, which is part of Adest’s power module, not its central controller, as FIG. 4A plainly shows:



"Controller 306 preferably either polls a signal input 209 from receiver/detector 207 ..."
(Ex-1005 at 6:60-64.)

(See Petition at 30 (citing Ex-1005-Adest at 6:60-64).) For this additional reason, Petitioner has failed to show claim 18 is unpatentable.

Ground 3 based on Moine fails for similar reasons. Again, Petitioner provides

no particular argument as to how Moine reads on the claims and simply refers back to prior sections of the Petition without argument or specificity. (Petition at 77-79.) For instance, Petitioner’s preamble citation refers the reader to §VIII.C.6.a, which relates to Ground 3, claim 15. (Petition at 77, T.O.C., p. iii, and 66.) There is nothing in §VIII.C.6.a that discloses a computer-implemented method. (Petition at 66.) For limitation [18B], the Petition refers the reader to §§VIII.C.1.b-c, which apparently relates to Ground 1, limitations [1B]-[1C]. (Petition at 78, T.O.C. at iii, p. 56). None of the arguments in §§VIII.C.1.b-c. explain how Moine discloses a computer device or a central controller. (Petition at 56-60.) This issue permeates the rest of Petitioner’s arguments on Ground 3, claim 18. It is not the job of the Board or Patent Owner to “sift through” Petitioner’s arguments. *Cisco Sys., Inc. v. C-Cation Techs.*, IPR2014-00454, Paper 12 at 7–10 (Aug. 29, 2014) (informative); *Google Inc. v. EveryMD.com LLC*, IPR2014-00347, Paper 9, at 23–25 (May 22, 2014).

To the extent Petitioner relies on its prior Adest arguments on claim 18, those arguments fail to meet the “with particularity” requirement of 35 U.S.C. 312(a) and those arguments also fail to disclose a computing device that polls a central controller, as explained above.

D. All Grounds, Dependent Claims 2-3 and 16

1. **All Grounds, Claims 2: Petitioner failed to show that Adest or Moine disclose a MMU that “queries the sensor**

for the anomaly” as required by claim 2

Dependent claims 2 requires that “the MMU queries the sensor for the anomaly.” As explained in the ’218 patent, “in operation 3206 [the MMU program] queries controller 3130 for input from sensors 3131a-n. ... In operation 3207 the program checks, based on some pre-existing values and rules, including, for example, location, ZIP code, and other information, whether any of the query results indicate a shut down anywhere in or in all the solar array.” (Ex-1001 at 18:67-19:12.)

Neither Adest nor Moine disclose the ability to query any sensors. Petitioner appears to recognize as much as the Petition includes mere handwaving regarding claim 2. (Petition at 25-26 (Adest), 64 (Moine).) Petitioner also applies an overbroad construction of “query,” arguing monitoring is the same thing as querying. (Ex-2001 at 137:12-139:14 (Mr. Dunton explaining that monitoring a condition is the same thing as sending a query).) Plainly, mere monitoring is not the same thing as querying.

2. All Grounds, Claim 3: Petitioner failed to show that Adest or Moine disclose a sensor that notifies the MMU of the anomaly as required by claim 3

Claim 3 requires that “the sensor notifies the MMU of the anomaly.” Petitioner fails to show any sensors that do so. For Ground 1, Petitioner simply refers the reader back to other sections or argues that a sensor must necessarily notify

to give effect of its uses as a sensor. (Petition at 26.) Petitioner is wrong.

None of the cited sections explain how the recited sensors notify a MMU of an anomaly. Indeed, there are many sensors that do nothing other than provide an output or a visual gauge for a user or device. For instance, a mercury thermometer provides a visual read out to the viewer of an approximate temperature. A notification is not provided. Similarly, a voltage meter simply indicates a measured voltage to a user. Thus, all sensors do not necessarily (inherently) send a notification as Petitioner appears to argue.

For Ground 1, Petitioner cites Adest's Hall-effect sensor as the claimed sensor. (Petition at 21.) This sensor does not "notify" the MMU of anything. Instead, as Adest explains, "an over-voltage condition as measured by microcontroller 422, results in microcontroller 422 stopping the signaling through relay 428 and/or opening one or more protective relays 424, 426 in series with the input DC voltage to inverter 104." (Ex-1005-Adest at 9:23-26.) Measuring an over-voltage condition does not read on a sensor notifying a device because the sensor takes no action—instead, the microcontroller measures voltage by measuring the output of a sensor and then determining whether an over-voltage condition exists.

For Ground 3, as explained previously, Petitioner relies on an inherent sensor in Moine. Even if a sensor that detects anomalies is inherently present in Moine (it is not), subsequent notifications are not inherent. Indeed, as explained above, there

are many sensors that fail to take any action—instead, it is up to the user or a device to monitor a sensor’s output.

Petitioner also cannot have it both ways. Claim 2 requires the MMU query the sensor while claim 3 requires the sensor notify the MMU. Those functionalities are materially different, yet Petitioner uses the equivalent of monitoring a sensor’s output for both items. While monitoring a sensor’s output fails to disclose either the MMU querying the sensor (claim 2) or the sensor notifying the MMU (claim 3), monitoring a sensor’s output certainly fails to disclose both requirements.

3. All Grounds, Claim 16

Claim 16 recites the same limitations of claims 2-3 but in the alternative: “wherein the monitoring comprises one of: the MMU querying the sensor for the anomaly, and the sensor notifying the MMU of an anomaly.” As explained above relative to claims 2-3, both Adest and Moine fail to disclose both “the MMU querying the sensor for the anomaly” and “the sensor notifying the MMU of an anomaly.” Accordingly, Petitioner has also failed to show that claim 16 is unpatentable.

E. All Grounds, Dependent Claims 6-8: Petitioner failed to address polling-related limitation [6B]

Claim 6 and its dependent all require limitation [6B], which recites “wherein if the communication is interrupted between the MMU and the respective LMU, the watchdog unit sends polls to the MMU up to a specified number of times.” This

limitation is essentially ignored in the Petition.

First, with respect to Ground 1, Petitioner argues that Adest's controller 306 has the ability to poll a signal input 209 from receiver/detector 207 to detect a signal. (Petition at 33.) However, as explained above, Adest's controller 306 is part of the alleged LMU/watchdog, as is the receiver/detector 207, whereas the alleged MMU is Adest's signaling mechanism 420. (*E.g.*, Petition at 19.) Adest does not disclose polling the alleged MMU—instead, it discloses the controller 306 within the alleged watchdog polling the signal input 209 from the receiver/detector 207. Petitioner appears to concede this is the case, suggesting it was obvious to extend the sole polling disclosure in Adest to poll the MMU: “It would have been obvious to a POSITA to take the then-existing technology of polling of the receiver/detector for a 100Hz signal in Adest and apply it to polling of the MMU for a 100Hz signal.” (Petition at 33-34.) That argument should be rejected out of hand because Petitioner does not explain it or support it with cites to the art of record.

Next, in Ground 2, Petitioner argues that Goldack could be added to disclose limitation [6B]. (Petition at 48.) Although Petitioner never explains how or why Goldack would be combined with Adest and Kronberg (see §V), the Petition suggests that a POSITA “could combine the polling described in Goldack with the MMU/LMU of Adest and the watchdog unit of Kronberg to sends [sic] polls to the MMU....” (Petition at 48.) No citations to Goldack are provided, nor does Petitioner

explain what “polling described in Goldack” it is relying on or how those disclosures are being combined with Adest, in particular, to modify Adest’s behavior to disclose polling an alleged MMU. At most, Petitioner cites portions of Goldack that allegedly relate to the ability to detect signals and shut a system down—not to polling disclosures that read on limitation [6B]. (*See* Petition at 50.)

Finally, in Ground 4,⁴ Petitioner relies on its earlier analysis in Ground 1, which is flawed for the reasons described above. (*See* Petition at 68.) Petitioner also references Goldack, but does not identify any alleged polling in Goldack or discuss how it would be applied in a proposed combination. (*See* Petition at 69.) Indeed, Petitioner’s argument seems to suggest that both Moine and Goldack would notify an alleged MMU of an anomaly, rather than send polls to an MMU a specified number of times as limitation [6B] requires. (Petition at 70.)

For at least these reasons, Petitioner has failed to articulate how any reference used in Grounds 1, 2, or 4 (whether considered individually or together as a whole) disclose limitation [6B].

F. Grounds 1, 2, and 4, Claims 9-14

1. Petitioner failed to address the means-plus-function limitation in claim 9

Claim 9 requires, *inter alia*, “means to poll the central controller to determine

⁴ Recall that Ground 3 does not address claims 6-14.

if an interruption of the communication is transient,” i.e., claim 9 includes a means-plus-function limitation which must be construed in accordance with 35 U.S.C. §112, ¶6. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (*en banc*) (“the use of the word ‘means’ in a claim element creates a rebuttable presumption that § 112, para. 6 applies”). Petitioner failed to present the requisite means-plus-function analysis under the rules. Specifically, Rule 41.104 states:

“Where the claim to be construed contains a means-plus-function or step-plus-function limitation as permitted under 35 U.S.C. 112(f), the construction of the claim **must** identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.”

Petitioner failed to identify “the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function.” Indeed, Petitioner’s analysis of limitation [9C] is notably barren. For all grounds, the Petition simply refers the user back to prior analysis, fails to specify “the structures, materials, or acts” that correspond to the claimed function, and fails to apply the prior art to any alleged “structures, materials, or acts” of the claim. (Petition 39, 52-53, 72.) Petitioner’s expert’s analysis is likewise lacking. (Ex-1002 at ¶¶169, 233-235, 357-361.) Indeed, Petitioner’s expert does not even know what a means-plus-function term is. (Ex-2001 at 160:2-10; *see also* Ex-1002 at §VI (failing to include any means-plus-function discussion in the “*Relevant Legal Standards*” section of

Mr. Dunton’s report).) Accordingly, the Petition failed to comply with Rule 41.104 and Petitioner’s analysis of claim 9 (as well as claims 10-14 which depend through claim 9) is fatally defective.

2. Petitioner fails to address limitation [9D]

Petitioner argues that claim 9 is rendered obvious in Grounds 1, 2, and 4 (claim 9 and dependent claims 10-14 are not at issue in Ground 3). Claim 9 includes limitation 9D, which requires: “at least one switch to disconnect the solar module from the power bus if the interruption of the communication is not transient.” (Petition at 39 (Ground 1, relying on Adest), 53 (Ground 2, relying on Adest), 72 (Ground 4, relying on Adest or possibly Moine).)

In Ground 1, Petitioner appears to rely on Adest for limitation [9D], stating that “Adest discloses this feature as discussed in Section VIII.A.5.” (Petition at 39.) §VIII.A.5 of the Petition relates to claim 6, which does not include any “power bus” limitations. (*See* Petition at 28-34). This portion of the Petition refers one time to an alleged “power bus” in Adest (see Petition at 29), and never presents an argument relevant to limitation [9D] (“at least one switch to disconnect the solar module from the power bus if the interruption of the communication is not transient”). (*Id.* at 28-34.) Simply put, Petitioner cannot rely on “Section VIII.A.5” for limitation 9D because that section does not address the limitation at all. Thus, Petitioner fails to show in Ground 1 that claim 9 or its dependents are invalid.

Ground 2 fails for the same reason. For Ground 2, Petitioner argues “Adest discloses/suggests this feature as discussed in Section VIII.A.8.d.” (Petition at 53.) The cited section (Petition at 39) merely refers back to an irrelevant discussion of claim 6. Thus, again, Petitioner has not offered any argument regarding limitation [9D], so it cannot show that Ground 2 renders obvious claim 9 or its dependents.

Petitioner’s Ground 4 arguments fare no better. In this Ground, Petitioner states: “Moine in combination with Adest discloses/suggests this limitation described in Sections VIII.C.1, VIII.D.1, VIII.A.8.” (Petition at 72.). §VIII.C.1 refers to Ground 3, claim 1 (Petition at 56-64); §VIII.D.1 refers to Ground 4, claims 1-4 (Petition at 68); and §VIII.A.8 refers to Ground 1, claim 9 (Petition at 36-39). Claims 1-4 do not refer to a power bus or the functionality required by limitation [9D], so Petitioner’s first two citations appear to be irrelevant. Petitioner’s reliance on §VIII.A.8 refers to the same Adest-based argument discussed above, which fails for reasons previously discussed.

Again, as noted previously, it is not the Board’s or Patent Owner’s job to “sift through” Petitioner’s arguments in an attempt to figure out what evidence Petitioner is relying on for limitation [9D]. *Cisco*, IPR2014-00454, Paper 12 at 7–10; *EveryMD.com*, IPR2014-00347, Paper 9, at 23–25.

G. Grounds 2 and 4, All Claims: Petitioner did not remedy its reliance on Adest and Moine with respect to independent claims 1, 15, and 18 or dependent claims 2-3, 9-14, and 16

Grounds 1 and 3 fail to render any claims obvious because Petitioner relied on Adest and/or Moine for limitations in the independent claims that these references fail to disclose, as shown above. Grounds 2 and 4 fail to remedy those deficiencies because Petitioner relies on the same flawed analysis for Grounds 2 and 4. (Petition at 47 (relying on Ground 1 arguments for Ground 2, claims 1-4), 53 (relying on Ground 1 arguments for Ground 2 regarding limitation [9D]), 55 (relying on Ground 1 arguments for Ground 2, claims 14-16 and 18-19), 68 (relying on Adest for Ground 4, claims 1-4),⁵ 72 (relying on Ground 1 arguments and the irrelevant sections discussed above for Ground 4, limitation [9D]), and 77-79 (relying on Grounds 1 or 3 for Ground 4, claim 18)).⁶ Thus, Grounds 2 and 4 are also fatally defective, including with respect to every independent claim. Accordingly, Petitioner has failed to show that any challenged claim is unpatentable.

⁵ Petitioner's expert could not explain whether he was relying on Adest or Moine as disclosing the limitations of claims 1-4 for Ground 4. (Ex-2001 at 186:1-189:12.)

⁶ Ground 4 does not challenge claims 15-16. (Petition at 2, 68.)

V. PETITIONER’S MOTIVATIONS TO COMBINE: A POSITA WOULD NOT HAVE COMBINED THE ART AS SUGGESTED IN THE PETITION

As explained in §III of this POR, Grounds 1-2 purport to address claims 1-4, 6-16, and 18-19 in light of Adest, Kronberg, and/or Goldack. However, in both grounds, claims 1-4, 15-16, and 18-19 rely exclusively on Adest. Thus, Patent Owner addresses Petitioner’s proposed two-reference (Ground 1) and three-reference (Ground 2) combinations relative to claims 6-14 in this section.

A. Grounds 1-2: A POSITA had no reason to combine Adest and Kronberg

Petitioner first suggests relative to claim 6 that a POSITA could combine Adest with Kronberg “[t]o the extent that Patent Owner or the Board disagrees that Adest and knowledge of a POSITA disclose a ‘watchdog unit.’” (Petition at 30; *id.* at 32 (“The watchdog of *Kronberg* could be used [with Adest].”)) This is a hindsight-driven backup argument that does not rationally underpin a reason to combine these references. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention.”) (citing *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014)).

Petitioner further relies on superficial, generic statements to support its proposed combination—in particular, Petitioner suggests:

- “[Kronberg could] monitor communications between the signal mechanism 420 and power modules 405 of Adest.” (Petition at 32);
- “[A POSITA] would have been motivated to look to electronic signal detection devices, such as the watchdog timer of Kronberg, as it would be one of a number of solutions for detecting the absence of a periodic signal.” (Petition at 32); and

In other words, Petitioner appears to believe Kronberg could be used with Adest, but offers no explanation regarding how or why a POSITA would do so. Petitioner failed to engage in any cognizable *Graham/KSR* analysis—the Petition does not describe the differences between Adest and the claimed inventions, for example, or provide any rational underpinnings for its proposed combination. *Front Row Techs., LLC v. MLB Advanced Media, L.P.*, IPR2015-01932, Paper 7 at 17-18 (PTAB Mar. 24, 2016) (“[C]ontentions [that] are directed to what [a prior art reference] purportedly discloses ... do not compensate for [a] lack of meaningful analysis of the differences between the prior art and the claims at issue.”); *SAP Am. Inc. v. Clouding IP, LLC*, IPR2014-00299, Paper 8 at 19 (PTAB July 9, 2014) (“Without having identified specifically the differences between the claimed invention and the prior art, [a] Petitioner [will] fail[] to make a meaningful obviousness analysis under 35 U.S.C. § 103, and thus [will] fail[] to make a threshold showing of a reasonable likelihood that [a claim] is unpatentable over [the prior art].”); *Johns Manville Corp*

v. Knauf Insulation, Inc., IPR2015-01402, Paper 18 at 13 (PTAB Oct. 21, 2015) (“[W]ithout Petitioner having identified specifically the differences, [the Board is] unable to evaluate properly any rationale offered by Petitioner for modifying one reference in view of another reference.”) (internal marks omitted).

Likewise, Petitioner does not suggest that Kronberg would improve, impact, or even change Adest’s operation in any way of interest to a POSITA. *Magnum Oil Tools*, 829 F.3d at 1380; *Metalcraft of Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017) (“In determining whether there would have been a motivation to combine prior art references to arrive at the claimed invention, it is insufficient to simply conclude the combination would have been obvious without identifying any reason why a person of skill in the art would have made the combination.”)

Petitioner’s argument that Kronberg “would merely be one of a number of solutions for detecting the absence of a periodic signal” is also telling. (Petition at 32.) Petitioner’s argument incorrectly implies that a claim is obvious if every claim element exists in the prior art. But *KSR* explains that “a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *see id.* (explaining that obviousness requires more than mere conclusory statements, as “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”) (internal

citations/marks omitted); *Virtek Vision Int’l ULC v. Assembly Guidance Sys., Inc.*, 97 F.4th 882, 2024 U.S. App. LEXIS 7185 at *9 (Fed. Cir. 2024) (“It does not suffice to simply be known. A reason for combining must exist.”) Petitioner has also not identified “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR* at 418. Accordingly, Petitioner’s motivation to combine arguments are defective.

B. Grounds 1-2: Petitioner states without support that a POSITA would have a reasonable expectation of success when combining Adest and Kronberg

Petitioner’s alleged reasonable expectation of success is set forth below:

“As mentioned, the Board previously agreed that it would be obvious to combine the teachings of Adest and Kronberg in a similar context on a related patent[.] Ex-1010 at 35. The same rationale should be applied here, and *a POSITA would have a reasonable expectation of success*. Ex-1002, ¶¶131-137.” (Petition at 33.)

This half-sentence regarding expectation of success cannot be sufficient. At best, Petitioner is improperly incorporating its expectation of success argument by reference to another case and Mr. Dunton, both of which are improper. *3M Co. v. Evergreen Adhesives, Inc.*, 860 Fed. Appx. 724, 725 (Fed. Cir. 2021) (noting that the Board’s rules concerning trial practice set forth in §42.6(a)(3) provide that “[a]rguments must not be incorporated by reference from one document into another

document”); *id.* at 728 (affirming the Board’s decision rejecting the petitioner’s obviousness challenge, which improperly incorporated arguments by reference to other documents).

Petitioner’s failure to provide rational underpinnings for its proposed combination, to explain its combination in any meaningful detail, and to explain why a POSITA would succeed in combining these references is fatal to Petitioner’s arguments involving Adest and Kronberg relative to claims 6-14.

C. Grounds 1-2: A POSITA also had no reason to add Goldack to Adest/Kronberg

Ground 2 attempts to supplement the Adest/Kronberg combination with Goldack for claims 6-14. Petitioner did not offer any legitimate reasons for making this combination.

First, Petitioner’s hindsight-driven approach is evident from three related arguments set forth in the Petition:

- “A POSITA would have looked to Goldack as a solar module safety-related patent that ***added polling*** to the MMU described in Adest.” (*id.* at 49-50);
- “The addition of Goldack would have permitted the system comprising Adest and Kronberg ***to poll*** the MMU in the event of an absence of signal to verify if equipment is still operational.” (*id.* at 50);
- “A POSITA ***could*** combine the polling described in Goldack with the MMU/LMU of Adest and the watchdog unit of Kronberg ***to sends [sic] polls*** to the MMU up to a specified number of times as [sic] the limitation

in this claim. *The polling* of Goldack *could* be used as part of the MMU/LMU and watchdog unit system of Adest alone or in combination with Kronberg to poll the LMU.” (*id.* at 48).

All three statements suggest Goldack should be added in order to enable polling—but polling relates to limitations of the challenged claims, and Petitioner never attempts to show or explain why a POSITA would be motivated—absent hindsight—to add such a feature to Adest and/or Kronberg.

Petitioner also offers Goldack combinations just in case Patent Owner or the Board disagree with their argument: “[t]o the extent that Patent Owner or the Board disagrees that Adest in combination with Kronberg discloses” limitation [6B]. (Petition at 48.) Mr. Dunton confirmed that Goldack was added for watchdog limitations because Petitioner lost certain issues in another matter: “this is an attempt to have suspenders and belts when it comes to the issues that we ran into last time.” (Ex-2001-Dunton-Tr. At 168:8-18-20; *see id.* at 168:8-171:24.) These are not reasons to add Goldack to Adest and/or Kronberg at all, and cannot support Petitioner’s argument.

Next, Petitioner argues that the references all relate to safety issues:

- “A POSITA would be motivated to combine Goldack with Adest and Kronberg as each reference is directed to solar module handling and operational safety.” (*id.* at 49);
- “[E]ach reference is directed to operational safety and shutting down components of solar power systems.” (*id.* at 47).

These are starting points for an obviousness analysis that fall well short of the rational underpinnings required to support obviousness. *Ancestry.com DNA, LLC v. DNA Genotek Inc.*, IPR2016-01152, Paper 11 at 9-10 (Nov. 23, 2016) (“The mere fact that both Birnboim and O’Donovan are in the same field of endeavor falls short of an adequate rationale. The same field of endeavor analysis is merely the jumping-off point in reaching the determination of whether a claimed invention is obvious.”) (citing *K-TEC, Inc. v. Vita-Mix Corp.*, 696 F.3d 1364, 1375 (Fed. Cir. 2012) (to qualify as prior art in an obviousness analysis, references must be analogous art—either from the same field of endeavor, or reasonably pertinent to the problem with which the inventor is involved)). Tellingly, Petitioner never goes beyond this superficial starting point and does not explain how or why Goldack would or could be integrated with a combination that already uses Adest and Kronberg.

D. Grounds 3-4: A POSITA would not have combined Moine, Adest, and/or Goldack

Petitioner’s proposed combinations of Moine and Adest, as well as Moine, Adest, and Goldack, follow the same pattern as Petitioner’s other combinations. In particular, Petitioner first presents this three-reference argument as a backup in case Patent Owner or the Board disagree that Moine and/or Adest disclose one or more limitations. (Petition at 61 (Ground 3, adding Adest); *id.* at 68-69 (Ground 4, adding Goldack).) Next, Petitioner argues that the references disclose safety-related techniques. (Petition at 62 (Ground 3); *id.* at 69 (Ground 4).) Then, Petitioner

suggests that a safety problem was equally present in both Moine and Adest, such that a POSITA:

“would have applied *some safety teachings* of Adest to Moine for improvement, e.g., receiving communication to stop normal operation or other warning condition present, the normal mode is typically ended, and power modules are then typically turned off. ... A POSITA would have had a reasonable expectation of success using the system of Adest to establish that an MMU sends a command to the LMU to alter the state of an associated solar module. As noted above, Moine uses the receiver (5) to control a switch (4) to disconnect the solar panel in the event that communication signal is no longer received from the transmitter (7). Adest utilizes *a similar system* to Moine in that in the interruption of a signal, normal operation ends. A POSITA would have a reasonable expectation of success of utilizing a similar system *with modifications*.” (Petition at 62-63 (internal citations to Ex-1002 omitted); *see also* Petition at 70 (Ground 4).)

The generic argument set forth above fails to even address which Adest teachings would be applied in Moine, which modifications would be needed, or why a POSITA would even consider this combination when the two systems are admittedly similar.

The Petition also refers to another proceeding, where the Board found it obvious to combine teachings of Moine with a different Adest reference. Petitioner argued that “[f]or similar reasons to those adopted by the Board, a POSITA would

have been motivated to combine Adest and Moine.” (Petition at 63.) As above, incorporating arguments by reference is improper, and that is especially so here where Petitioner never even identifies the “reasons” at issue in the other proceeding.

Finally, as noted above regarding Grounds 1-2, Petitioner’s Ground 4 rationale for adding Goldack is to add or include polling functionality in the proposed combination. As above, Petitioner never explains why a POSITA would be motivated to add such functionality to Moine and/or Adest. (*See* §V.C.)

In sum, Petitioner’s proposed combination fails because it is not supported by rational underpinnings.

VI. CONCLUSION

For the above reasons, Petitioner has failed to show any Challenged Claim is unpatentable, and the Board should issue a final written decision holding the same.

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the word count in this Patent Owner Response is 8,869 words, as counted by the word-processing program Microsoft Word for Office 365 used to generate this Petition, where such word count excludes the table of contents, table of authorities, mandatory notices, certificate of service, appendix of exhibits, and this certificate of word count. This Petition is in compliance with the 5,600 word limit set forth in 37 C.F.R. § 42.24(c).

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