

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COPELAND COMFORT CONTROL LP.,
Petitioner,

v.

OLLNOVA TECHNOLOGIES LTD.,
Patent Owner

IPR2023-00626
Patent No. 7,746,887

**DECLARATION OF ERIK DE LA IGLESIA IN SUPPORT OF PATENT
OWNER'S RESPONSE**

I declare under penalty of perjury under the laws of the United States that the following
declaration is true and correct.

Executed this 29th day of December, 2023, in Mountain View, California.



ERIK DE LA IGLESIA

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I, Erik de la Iglesia, hereby declare as follows:

I. Introduction

1. I am over the age of eighteen (18) years and otherwise competent to make this declaration.

2. I have been retained as an expert witness on behalf of Ollnova Technologies Ltd. (“Ollnova”) for the above-captioned *inter partes* review (“IPR”). I understand that the petition for *inter partes* review involves U.S. Patent No. 7,746,887 (“the ’887 Patent”). I have previously offered a declaration regarding claim construction of the ’887 Patent in the related district court case, *see* Ex. 1043, and provided an expert report and testimony in *Ollnova Technologies Ltd. v. ecobee Technologies ULC d/b/a ecobee*, Case No. 2:22-cv-00072-JRG in the Eastern District of Texas, regarding the operation, including source code operation, of ecobee devices accused of infringing the ’887 Patent.

3. I make this declaration based on my personal knowledge, educational background and training, consideration of the materials I discuss herein, and my expert opinions.

4. I am being compensated at a rate of \$650 per hour for my time in this matter. My compensation does not depend on the outcome of this proceeding, and I have no financial interest in its outcome.

5. I have been asked to consider whether the claims of the '887 Patent would have been obvious based on certain prior art references. I have also been asked to consider the state of the art and prior art available as of April 12, 2006, the priority date of the '887 Patent. Based on the combination of prior art references discussed in the Petition and supporting declaration of Dr. Dean P. Neikirk (Ex. 1002), it is my opinion that one of ordinary skill in the art would not have found claims 1, 3-8, 14-15, and 18 of the '887 Patent to have been obvious. My opinions are provided below.

6. In preparing this Declaration, I have reviewed and considered the '887 Patent (Ex. 1001), the '887 Patent's prosecution history (Ex. 1003), the Petition, the declaration and cited material of Dean P. Neikirk (Ex. 1002) submitted in this proceeding in support of the Petition, and each document cited in my declaration.

II. BACKGROUND AND QUALIFICATIONS

7. My qualifications for forming the opinions given in this declaration are summarized here and are addressed more fully in my curriculum vitae, which is submitted as Exhibit 2007. That exhibit also includes a list of my publications.

8. I hold a Master of Science degree in Electrical Engineering from Stanford University and a Bachelor of Science degree in Electrical Engineering from the University of Florida. I have been associated with computer architecture, computer memory, computer storage mediums including flash and the electronics

industry in general as a designer, architect and consultant for approximately twenty-five (25) years.

9. My skills and experience are in the fields of Computer Architecture, Networks, Memory and IO Systems, Security and Content Management, Storage Protocols and Appliances, Storage Systems, Flash Devices and related areas. Beginning in 1997, I worked as a design engineer within the Mobile and Handheld Products Group at Intel. Since 2003, I have held director, chief architect and founder roles at private and public companies in fields such as computer networking, security and storage. I have also served as a technical advisor to startups in certain fields of cloud technology.

10. My industry work in these fields has resulted in 68 issued US patents that have been cited over 2,850 times in USPTO-issued patents and as prior art in PTAB proceedings and I have both design and management experience relevant to the fields of integrated hardware and software design for networked system components relevant to this matter.

11. Since 2014 I have served as a legal consultant / expert witness on over 50 legal matters related to infringement, validity, trade secrets and other aspects and have testified in District Court and before the International Trade Commission. Because of my background, training, and experience, I am qualified as an expert to opine on the subject matter of this declaration. A more detailed account of my

work experience and other qualifications is listed in my Curriculum Vitae (Ex. 2007).

III. LEGAL PRINCIPLES

A. Claim construction

12. I understand that the first step in performing a validity analysis of the patent claims is to interpret the meaning and scope of the claims by construing the terms and phrases found in those claims. I understand that the appropriate construction of a claim term is its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent.

13. I understand that standard for claim construction in an *inter partes* review is the same standard as is applied in district court proceedings.

14. I understand that a determination of the meaning and scope of the claims is a matter of law. I have been informed that to determine the meaning of the claims, one should consider the intrinsic evidence, which includes the patent's claims, written description, and prosecution history.

B. Burden of Proof

15. I understand that in an *inter partes* review, the petitioner has the burden of proving unpatentability by a preponderance of the evidence.

C. Anticipation

16. I have been instructed by counsel and understand that a reference is anticipated if a single prior art reference discloses each and every claim element, either explicitly or inherently, as arranged in the same way as in the claim. I understand that where even one claim element is not disclosed in a reference, a contention of anticipation fails.

17. I further understand that when a reference fails to explicitly disclose a claim element, that reference inherently discloses that element only if the reference must *necessarily* include the undisclosed claim element.

D. Obviousness

18. I have been instructed by counsel and understand that a combination of prior art references may render a claim obvious if, at the time of the invention, a person of ordinary skill in the art would have selected and combined those prior-art elements in the normal course of research and development to yield the claimed invention.

19. I understand that in an obviousness analysis, one should consider the *Graham* factors: the scope and content of the prior art; the differences between the claimed inventions and the prior art; the level of ordinary skill in the art; and certain secondary considerations, identified below. I further understand the obviousness analysis is to be performed on a claim-by-claim basis. I understand

that a person of ordinary skill in the art is a person of ordinary creativity, not an automaton.

20. I have been instructed by counsel and understand that obviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. I understand obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have been *motivated* to combine those references in a manner that would include all limitations of the challenged claim, and, in making that combination, a person of ordinary skill in the art would have had a *reasonable expectation of success*.

21. I also understand that an obviousness analysis must be conducted with awareness of the distortion caused by hindsight bias and with caution of arguments reliant upon *ex post* reasoning. For instance, I understand that when considering obviousness, I should put myself in the position of a person of ordinary skill in the field at the time of the invention, rather than considering new information that is known today but was not known before the priority date of the challenged patent.

22. In particular, I understand that it is improper to use the challenged patent's disclosure or invention as a roadmap to find its prior-art components, because such an approach discounts the value of combining various existing features or principles in a new way to achieve a new result.

IV. Person of ordinary skill in the art

23. In his declaration, Dr. Neikirk states that a person of ordinary skill in the art “would have had a minimum of a bachelor’s degree in electrical engineering, or a related field, along with at least two years of professional experience in sensors, controls, and/or wireless communications. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.” Ex. 1002 at ¶ 45. For purposes of this declaration, I apply this level of skill in the art as I did in the declaration I submitted with respect to claim construction in the related district court case (Ex. 1043). I further note that, as of the priority date of the ’887 Patent, April 12, 2006, I was at least at this level of skill.

V. Asserted References

24. The Petition and Dr. Neikirk’s declaration rely on the following references: (1) U.S. Patent No. 7,528,711 to Kates (“Kates-711,” Ex. 1004); (2) U.S. Patent No. 7,102,505 to Kates (“Kates-505,” Ex. 1022); (3) U.S. Patent Application Publication No. 2004/0100394 to Hitt (“Hitt,” Ex. 1005); (4) U.S. Patent Application Publication No. 2005/0246593 to Littrell (“Littrell,” Ex. 1006); and (5) U.S. Patent No. 6,513,723 to Mueller et al. (“Mueller,” Ex. 1031).

25. The Petition and Dr. Neikirk’s declaration assert the following grounds for invalidity:

Ground	Basis for Invalidity Assertion
1	Claims 1, 3-8, and 18 obvious over Kates-711
2	Claims 1, 3-8, and 18 obvious over Kates-711 in view of Hitt
3	Claims 1, 3-8, 14-15, and 18 obvious over Kates-711 in view of Littrell
4	Claims 1, 3-8, 14-15, and 18 obvious over Kates-711 in view of Hitt and Littrell
5	Claims 1, 3-8, and 18 obvious over Kates-505
6	Claims 1, 3-8, and 18 obvious over Kates-505 in view of Hitt
7	Claims 1, 3-8, 14-15, and 18 obvious over Kates-505 in view of Littrell
8	Claims 1, 3-8, 14-15, and 18 obvious over Kates-505 in view of Hitt and Littrell
9	Claims 1, 3-8, and 18 obvious over Kates-505 in view of Mueller
10	Claims 1, 3-8, and 18 obvious over Kates-505 in view of Mueller and Hitt
11	Claims 1, 3-8, 14-15, and 18 obvious over Kates-505 in view of Mueller and Littrell
12	Claims 1, 3-8, 14-15, and 18 obvious over Kates-505 in view of Mueller, Hitt and Littrell

26. For the claim limitations of the '887 Patent that I address in this declaration, the Petition and Dr. Neikirk's declaration only rely on Kates-711, Kates-505 and Mueller as references that teach the addressed limitations. Consequently, I restrict my analysis in this declaration to these three references.

VI. '887 Patent

27. The '887 Patent describes and claims an improved wireless automation device comprising a controller configured to poll a sensor and selectively operate a transceiver to communicate information. The wireless automation device is configured to transmit an indicator for a sensed condition in response to detecting a change in the condition outside a predetermined range, and to suspend transmission in response to detecting a change within the predetermined range. More specifically, it describes a sensor process that consists of both an independent polling interval and transmission interval. As I describe herein, the independent polling interval and transmission interval allow significant system flexibility and control.

A. Polling Interval

28. The '887 patent describes a polling interval and a polling period within the polling interval during which the processor polls the sensor to generate a discrete value for the sensed condition:

In an embodiment, the processor 214 polls the sensor 209 during a recurring polling period 336. *During a polling period 336, any one or each of the processor 214, the sensor 209 and/or the transceiver 216 may be operable. Each period 336 recurs at a variable frequency or interval 338.* The interval 338 may be considered a time beginning at the start of a period 336 and ending at the start of the next consecutive interval 336. A polling period 336 may be a short amount of time relative to the interval 338 or frequency of occurrence of the polling period.

Ex. 1001, 9:24-33 (emphasis added).

A signal $V(t)$ representing the sensed condition may be generated. The signal $V(t)$ may be a continuous or discrete signal representing a current value for the sensed condition, or the status of the condition, during the current interval 336. During a polling period 336, the processor 214 reads the signal $V(t)$ from the sensor 209, and determines value, or most-current indicator V_i , for the current sensed condition.

Ex. 1001, 9:51-57 (emphasis added).

29. The '887 patent describes that the polling interval is variable:

Each period 336 recurs at a variable frequency or interval 338.

Ex. 1001, 9:27-28.

In the device, a controller polls the sensor at a variable periodic interval to read the signal from the sensor.

Ex. 1001, 2:13-15.

The transmission and polling intervals, the limits and ranges may be changed, varied, regulated, adjusted, extended and/or compressed according to the measured values and/or comparison to the limits.

Ex. 1001, 3:40-44.

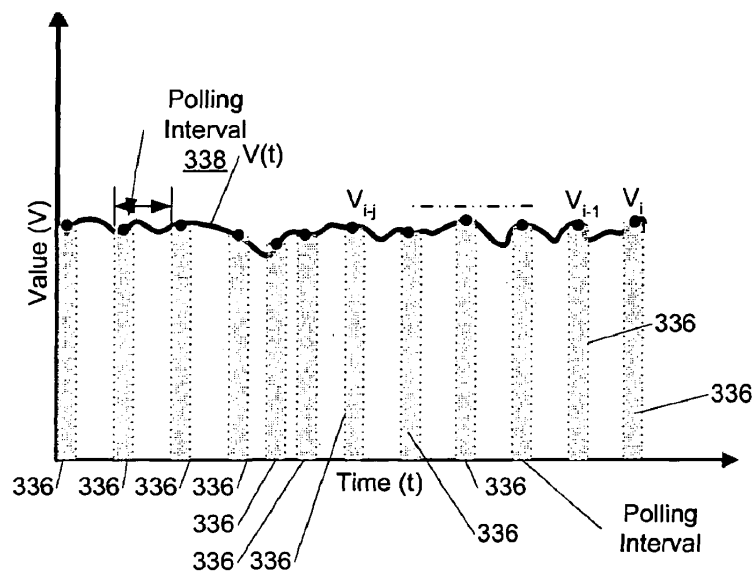


Figure 3

Ex. 1001, Fig. 3 (showing varying polling interval over time (t)).

30. The '887 Patent describes that the discrete value for the sensed condition for one or more polling intervals may be retained in memory:

The current reading of the indicator may be stored with prior readings of the indicator in a memory. The current readings and prior readings may be stored in memory in order in which the readings were read, such as in a stack manner.

Ex. 1001, 3:7-10; *see also id.*, 9:66-10:3.

31. The '887 Patent further teaches that the discrete value for the sensed condition may be compared to values from prior polling intervals to identify the amount of change in the sensed condition, or may be compared to maximum/minimum allowable values, etc. If the absolute value of the change

from the value of a prior polling intervals exceeds a predetermined amount, the processor will set a flag so indicating:

The value V_i is processed by the processor 214 according to a control algorithm to identify whether the sensed condition has changed. For example, the most current indicator V_i may be compared to one or more indicators read during a prior periods V_{i-j} . Thus, a change in the sensed condition may be identified by comparing indicators V_i and V_{i-j} read during different periods 336. The change or difference may be compared to a limit. For example, an absolute difference D_i between the indicator V_i for the most current period to the indicator V_{i-j} read during a prior period is determined (e.g. $|V_i - V_{i-j}|$). The current difference D_i is compared to a difference limit D_l . The current difference may also be compared to a multiple of the difference limit D_l (e.g., $3 \times D_l$) to identify whether an extreme condition may be present, such as a large temperature increase do to a fire. Where the current difference D_i greater than the difference limit D_l (i.e., $D_i > D_l$) the difference between the current value V_i and the value V_{i-j} in the prior interval may be considered outside a control range or band limit.

Similarly, a negative difference between a most current indicator V_i and a prior indicator period V_{i-j} (i.e., $V_i < V_{i-j}$) may be compared to a lower limit LL, and a positive difference between a most current indicator V_i and a prior indicator V_{i-j} (i.e., $V_i > V_{i-j}$) may be compared to an upper limit UL. An absolute value for the lower limit LL may be the same or different than the absolute value for the upper limit UL. The difference may be compared to the LL and UL, and the absolute difference compared to an absolute difference limit D_l to identify changes in the sensed condition. ***Where a change has been determined, a flag may be set, and/or stored in memory, identifying a change in the sensed condition has been detected.*** The most current indicator V_i also or alternatively may be compared to a limit $V_{\max}$ and/or $V_{\min}$. The flag may be set if the most current indicator is determined to be greater than $V_{\max}$ or less than $V_{\min}$. A time or interval identifier associated with when the flag was set may also be identified and stored in memory.

In an embodiment, the prior interval is a most previous interval where the current indicator V_i is compared to an indicator V_{i-1} read in the most previous period to determine an absolute difference $|V_i - V_{i-1}|$, and/or a difference $V_i - V_{i-1}$. In another embodiment, the current value V_i is compared

to a running average or mean V_{avg} of previous values to determine an absolute difference between the current value and the running average.

Ex. 1001, 10:12-56 (emphasis added).

B. Transmission Interval

32. As to the transmission process, the '887 Patent describes a transmission interval and a transmission period within the transmission interval. The processor selectively communicates information during a transmission period of a transmission interval based on the flag being set from the comparison of the value V_i as compared to a prior value, etc., or the flag being set in response to an external control signal:

The processor 214 controls the transceiver 216 to selectively communicate information during a period of a transmission interval. FIG. 4 illustrates a transmission interval for a device configured for dynamic value reporting. For example, a processor 214 may control or trigger the transceiver 214 to communicate information during a transmission period 436. The transceiver may communicate the information during the transmission period in response to a triggering event such a detecting whether a flag. The flag may be set in response to detecting or identifying a change in the sensed condition beyond a limit, outside a range, or a reading of an indicator above an upper limit or below a lower limit, or in response to an external stimulus, such as a control signal received by the sensor.

Ex. 1001, 10:57-11:3 (emphasis added).

33. As with the polling interval, the '887 Patent describes that the transmission interval is variable. A single transmission interval may cover multiple polling intervals.

The information is transmitted during a variable periodic interval for transmitting the information.

Ex. 1001, 2:19-20.

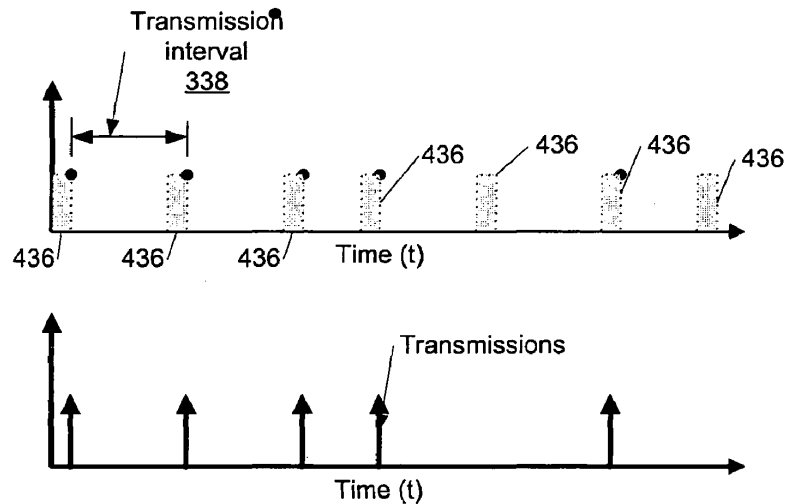


Figure 4

Ex. 1001, Fig. 4 (showing varying transmission intervals over time (t), and transmission intervals where there is no transmission made); *see also id.*, 3:36-38 (“[A] transmission of information may be suspended for periods of a transmission interval for which no change in the indicator has been identified.”).

[T]he information may be transmitted only after a predetermined number of indicators V_i have been read, or after a predetermined number of indicators associated with a change over a prior indicator V_i have been read.

Ex. 1001, 11:33-37.

C. Dynamic Control of the Sensor Device

34. The '887 Patent describes how multiple devices can be used in a building automation system:

A wireless automation system configured for or using dynamic value reporting communicates data among and between devices related to changes in a value of a monitored condition and/or measured parameter (e.g., a wireless sensor for monitoring environmental temperature). A wireless automation device using dynamic value reporting monitors and wirelessly reports building automation information over a building automation network formed by multiple distributed devices.

Ex. 1001, 2:57-65.

FIG. 5 illustrates an exemplary controller 508 of a building automation system in communication with a device 507. The device 507 is configured for dynamic value reporting as described above with respect to FIGS. 1-4.

Ex. 1001, 13:36-39.

The controller 508 may also communicate a report instruction to the device 507. In response to a report instruction, the device 507 may wake up from a sleep mode, and sense and report a current indicator V_i or other requested information. The controller 508 may also synchronize the timing of the polling periods 336 and/or transmission periods 436. For example, the controller may communicate synchronization or timing information to the device 507. By communicating the synchronization or timing information, the device 507 and the controller will have synchronized intervals for report and receiving information.

Ex. 1001, 14:10-20.

35. A POSITA reading the disclosure of the '887 Patent would understand that the numerous precise individual controls, accounting for many different factors, for sensor devices described in the '887 Patent, would allow for significant flexibility in the design of a building automation system. As a first example, the building automation system controller may separately vary the polling interval and transmission interval. *See* Ex. 1001, 14:5-9 (“[t]he controller 508 may instruct the

device ... to *increase and/or decrease the polling interval 338 and/or the transmission interval 336.*”)(emphasis added).

36. One particular reason to vary the polling interval and the transmission interval is for power consumption purposes, i.e., to reduce power consumption. *See* Ex. 1001, 3:40-44 (“The device may enter a sleep mode, or go into a standby mode, between periods of the transmission and/or polling interval.”). Another reason to vary the transmission interval separately from the polling interval is to allow the controller to synchronized communications with multiple devices to avoid wireless channel access problems, as well as reduce unnecessary use of potentially busy wireless channel.

37. The ’887 Patent further allows for control of numerous other factors, including the variability in sensor limits, *see* Ex. 1001, 14:2-7, and modify the algorithms through which the sensed condition is compared, *see id.*, 7:62-64, 10:12-56.

VII. Kates-711, Kates-505, and Mueller

38. Kates-711 and Kates-505 share overlapping disclosures. *See* Ex. 1026 (comparing specifications of Kates-711 and Kates-505, mislabeled as comparing ’887 Patent and Kates-505). Both disclosures describe two main sensor monitoring embodiments: (1) a continuous monitoring embodiment shown in Fig. 6; and (2) a periodic monitoring embodiment shown in Fig.7. For purposes of the

claim limitations of the '887 Patent addressed in this declaration, I limit my discussion to the periodic monitoring embodiment.

39. Fig. 7 of Kates-711 and Kates-505 are identical. The figures are the flowchart for the Kates periodic monitoring embodiment and are reproduced below.

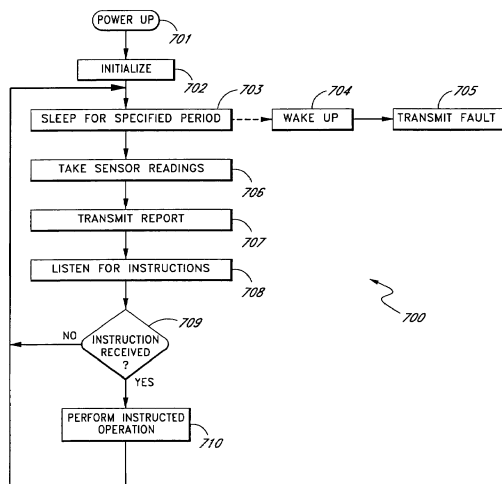


FIG. 7

Ex. 1004, Fig. 7.

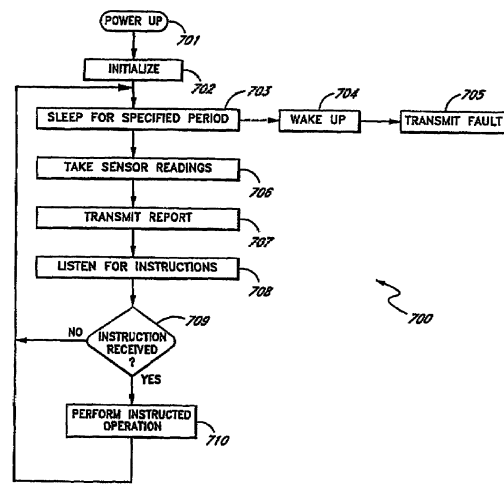


FIG. 7

Ex. 1022, Fig. 7.

40. The description in the specification of Kates-711 and Kates-505 as to the periodic monitoring embodiment are also identical. They describe the periodic monitoring process (Ex. 1004, 15:48-16:8; Ex. 1022, 12:30-57) as follows with respect to Fig. 7:

- “[P]eriodic monitoring can be used for sensors that sense relatively lower priority data (e.g., humidity, moisture, water usage, etc.).” Ex. 1004, 15:48-50; Ex. 1022, 12:30-32.

- “FIG. 7 is a flowchart showing one embodiment of operation of the sensor unit 102 wherein periodic monitoring is provided.” Ex. 1004, 15:50-52; Ex. 1022, 12:32-34.
- “In FIG. 7, a power up block 701 is followed by an initialization block 702.” Ex. 1004, 15:52-53; Ex. 1022, 12:34-35.
- “After initialization, the sensor unit 102 enters a low-power sleep mode. If a fault occurs during the sleep mode (e.g., the tamper sensor is activated), then the process enters a wake-up block 704 followed by a transmit fault block 705.” Ex. 1004, 15:53-57; Ex. 1022, 12:35-39.
- “If no fault occurs during the sleep period, then when the specified sleep period has expired, the process enters a block 706 where the sensor unit 102 takes a sensor reading from the sensor(s) 201.” Ex. 1004, 15:57-60; Ex. 1022, 12:39-43.
- “The sensor data is subsequently sent to the monitoring computer 113 in a report block 707.” Ex. 1004, 15:60-62; Ex. 1022, 12:43-44.
- “After reporting, the sensor unit 102 enters a listen block 708 where the sensor unit 102 listens for a relatively short period of time for instructions from monitoring computer 708.” Ex. 1004, 15:62-65; Ex. 1022, 12:44-47.
- “If an instruction is received, then the sensor unit 102 performs the instructions, otherwise, the process returns to the sleep block 703.” Ex. 1004, 15:65-67; Ex. 1022, 12:47-50.
- “In one embodiment, the sensor 201 and transceiver 203 are normally powered down. The controller 202 powers up the sensor 201 during execution of the block 706. The controller 202 powers up the transceiver during execution of the blocks 705, 707, and 708.” Ex. 1004, 15:67-16:4; Ex. 1022, 12:50-54.
- “The monitoring computer 113 can send instructions to the sensor unit 102 to change the sleep period used in block 703, the listen period used in block 708, etc.” Ex. 1004, 16:4-8; Ex. 1022, 12:54-57.

41. Kates-711 and Kates-505 further teach that “[t]he sensor unit 102 generally conserves power *by not transmitting data that falls within a normal range.*” Ex. 1004, 14:4-16; Ex. 1022, 9:61-63 (emphasis added).

42. Similar to Kates, Mueller teaches periodic sensing such that “[t]he sensor preferably uses a transmitter (e.g., radio frequency transmitter) to transmit temperature and associated information to a host-controlling thermostat only on a sensed change of temperature.” Ex. 1031, 2:16-21; *see also id.* 2:44-48 (“transmission of the sensed temperature transmitted only on a predetermined temperature change (i.e., comparing the current sensed temperature with a previously transmitted temperature and transmitting only upon a predetermined change), 8:66-9:6 (“The temperature is preferably sensed or measured at a variable time intervals ... transmission shall only occur if the new sensed temperature is different by pre-defined amount from a previous transmitted temperature (e.g., 2/16° F”).

VIII. Claim 1 of the '887 Patent

43. Claim 1 is the only independent claim of the '887 Patent. It recites as follows:

[1.pre] A wireless automation device, comprising:

[1.a] a transceiver operable to wirelessly communicate packets of information over a wireless network;

[1.b] a sensor operable to generate an indicator for a sensed condition;

[1.c] *a controller configured to poll the sensor at a polling interval to read the indicator during a current period of the polling interval and to selectively operate the transceiver to communicate information associated reading of the indicator; and*

[1.d] *a memory, the controller storing a reading of the indicator during the current period in the memory, where the memory stores at least one prior reading of the indicator, the prior reading of the indicator made during a prior period of the polling interval,*

[1.e] **wherein the transceiver is configured to transmit a most recent reading of the indicator stored in the memory during a period of a transmission interval in response to detecting a change in the sensed condition outside a predetermined range** and *wherein transmission of the most recent reading of the indicator stored in the memory during the period of the transmission interval is suspended in response to detecting a chance in the sensed condition within the predetermined range.*

Ex. 1001, 14:48-15:4 (emphasis added).

44. As emphasized above, the claims of the '887 Patent require (1) “a controller ... to poll the sensor at a polling interval to read the indicator,” Ex. 1001, 14:53-55; and (2) “[a] transceiver to ... transmit a most recent reading of the indicator stored in ... memory during a period of the transmission interval,” *id.*, 14:63-65. From the plain and ordinary meaning of these claim terms, a POSITA would understand the claims to require both a “polling interval” and a “transmission interval.”

45. In the claims, the “transmission” is further required to be “in response to detecting a change in the sensed condition outside a predetermined range,” *id.*, 14:65-67, and the claim also requires that “the transmission of the most recent reading of the indicator stored in the memory during the period of the transmission

interval is suspended in response to detecting a change in the sensed condition within the predetermined range,” *id.*, 14:67-15:4.

46. In evaluating the claims, I have applied the plain and ordinary meaning of the claim terms. For “polling interval” and “transmission interval,” I have applied the ordinary meaning of “interval” as “a space of time between events or states.” *See* Ex. 2008, *Merriam-Webster Dictionary*. This is consistent with the specification of the ’887 Patent which describes both the polling interval and transmission interval as “periodic.” Ex. 1001, 2:13-15, 2:19-20. The “polling interval” is therefore the space of time between successive polling periods, and the “transmission interval” is the space of time between successive transmission periods. I apply this understanding to limitations [1.c] and [1.e] of the ’887 Patent claims.

47. In a related district court case between Ollnova and ecobee Technologies involving the ’887 Patent, the clause “wherein the transmission of the most recent reading of the indicator stored in the memory during the period of the transmission interval is suspended in response to detecting a change in the sensed condition within the predetermined range” of limitation [1.e] was construed as “wherein the transmission of the most recent reading of the indicator that would otherwise occur is stopped in response to detecting a change in the sensed condition within the predetermined range.” Ex. 1023, January 10, 2023 *P.R.* 4-3

Joint Claim Construction and Prehearing Statement, at [00017]; Ex. 2002, April 10, 2023 *Claim Construction Memorandum Opinion and Order*, at 7-8. In arriving at this construction, the Court relied on the ordinary meaning of “suspend” as “[t]o cause to stop for a period; interrupt” and “[t]o halt a process temporarily.” See Ex. 1023 at [00017]; Ex. 2002 at 7. The Court noted that this ordinary meaning was consistent with the specification of the ’887 Patent which describes that “the processor 216 may control the transceiver 216 to suspend the transmission of information, notwithstanding a flag being set identifying a transmission may be pending.” See Ex. 2002 at 7 (citing Ex. 1001, 11:8-11). In evaluating the clause further, the Court also determined that, “[b]ased on the ordinary meaning of the term and the intrinsic record, ‘suspended’ is clearly something more than ‘not transmitted.’” Ex. 2002 at 8. I apply this understanding to limitation [1.e] of the ’887 Patent claims.

IX. Kates-711, Kates-505, and Mueller Do Not Describe a “Transmission Interval”

48. The Petition and Dr. Neikirk identify the periodic monitoring embodiment of Kates-711 and Kates-505 as satisfying the “polling interval” requirement of claim limitation [1.c] of the ’887 Patent. See Petition at 27, Ex. 1002 at ¶ 78. (“**Kates-711 discloses a controller (e.g., “controller”) configured to poll the sensor at a polling interval to read the indicator during a current**

period of the polling interval (e.g., “powers up the sensor” during “periodic monitoring” and “takes a sensor reading from the sensor(s)” ...) (emphasis in original); *see also* Petition at 61-68, Ex. 1002 at ¶ 160 (comparing substantially similar disclosures of Kates-711 and Kates-505). Similarly, the Petition and Dr. Neikirk identify Mueller’s “sensing ... at variable intervals” as satisfying the “polling interval” requirement. *See* Petition at 69, Ex. 1002 at ¶ 162.

49. For the “transmission interval” requirement of claim limitation [1.e] of the ’887 Patent, the Petition and Dr. Neikirk also point to the periodic monitoring embodiment, and more specifically the “report block 707” step in the periodic monitoring embodiment, of Kates-711 and Kates-505. *See* Petition at 31, Ex. 1002 at ¶ 86. (“**Kates-711 discloses wherein the transceiver (see [1.a]) is configured to transmit a most recent reading of the indicator stored in the memory** (e.g., “sensor data” is stored in memory (see [1.d]) and “sent to the monitoring computer”) **during a period of a transmission interval** (e.g., during a “report block 707” of the “periodic monitoring”) ...) (emphasis in original); *see also* Petition at 61-68, Ex. 1002 at ¶ 160 (comparing substantially similar disclosures of Kates-711 and Kates-505). Similarly, the Petition identifies Mueller’s “transmitting ... at variable intervals” as satisfying the “transmitting interval” requirement. *See* Petition at 69. Dr. Neikirk does not assert that Mueller

discloses a “transmission interval.” *See, e.g.,* Ex. 1002 at ¶ 162 (only describing that Mueller “take[s] temperature measurements at variable time intervals”).

50. The disclosure of the “report block 707” in Kates-711 and Kates-505, *see* ¶¶ 39-40, is only performing the step of transmitting the sensor report. This step is not a periodic interval nor does it occur within a periodic interval other than the period in which the sensor measurement is taken. Because Kate’s “report block 707” is not “a space of time between events or states,” it is therefore not a “transmission interval” as required by the claims of the ’887 Patent. Further, neither the Petition nor Dr. Neikirk explain how the “report block 707” could be a “transmission interval,” let alone an interval that is separate from the identified “polling interval.” Because Kates-711 and Kates-505 do not disclose a “transmission interval,” it is my opinion that they fail to satisfy the claims of the ’887 Patent as the Petition and Dr. Neikirk have asserted.

51. I have reached the same conclusion with respect to Mueller. First, while the Petition asserts that Mueller discloses “transmitting ... at a variable interval,” Dr. Neikirk does not make the same assertion. *See* ¶ 49. Second, as discussed earlier, *see* ¶¶ 42, Mueller is similar to Kates-711 and Kates-505 in that it only discusses periodic sensing. Because Mueller does not disclose a “transmission interval,” it is my opinion that they fail to satisfy the claims of the ’887 Patent as the Petition has asserted.

X. Kates-711, Kates-505, and Mueller Do Not Describe That “Transmission ... is Suspended”

52. Because neither Kates-711, Kates-505 nor Mueller describe a “transmission interval,” they also do not describe that “transmission ... during the period of the transmission interval is suspended,” as required by claim limitation [1.e] of the ’887 Patent. The disclosures of Kates-711, Kates-505 and Mueller only describe refraining from transmission. *See* Ex. 1004, 14:4-16; Ex. 1022, 9:61-63 (“The sensor unit 102 generally conserves power ***by not transmitting data that falls within a normal range.***”) (emphasis added); *see also* Ex. 1031, 8:66-9:6 (“The temperature is preferably sensed or measured at a variable time intervals ... ***transmission shall only occur if the new sensed temperature is different by pre-defined amount from a previous transmitted temperature*** (e.g., 2/16° F”) (emphasis added). In other words, Kates-711, Kates-505 and Mueller do not transmit when the sensed data is not out of a pre-determined range. This step of “not transmitting” is not a “suspension” of “transmission ... during the period of a transmission interval” as required by the claims of the ’887 Patent. *See, e.g.,* Ex. 2002 at 8 (“‘suspended’ is clearly something more than ‘not transmitted.’”). For this reason, it is my opinion that Kates-711, Kates-505 and Mueller fail to describe the “wherein transmission ... during the period of the transmission interval is

suspended” clause of limitation [1.e] of the ’887 Patent as the Petition and Dr. Neikirk have asserted.