

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COPELAND COMFORT CONTROL LP.

Petitioner,

v.

OLLNOVA TECHNOLOGIES LTD.

Patent Owner.

Case IPR2023-00626

U.S. Patent No. 7,746,887

**DECLARATION OF DEAN P. NEIKIRK
IN SUPPORT OF
PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE**

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I. INTRODUCTION

1. I am the same Dean P. Neikirk who provided a declaration for this matter executed on March 6, 2023 (“Declaration”) (Ex. 1002 (“Neikirk Decl.”)). I understand that, during the course of this matter, the identity of the Petitioner has been updated and that the Petitioner is now Copeland Comfort Control, LP (“Copeland” or “Petitioner”). The identity of the Petitioner has no bearing on the ultimate opinions that I have reached in this and my prior declaration.¹

2. As part of my work in this proceeding, I have been asked by Petitioner to respond to certain assertions offered by Ollnova Technologies Ltd. (“Ollnova” or “Patent Owner”) in IPR2023-00626 regarding U.S. Patent No. 7,746,887 (“the ’887 patent”).

3. My experience, qualifications, and compensation are provided in my March 6, 2023 Declaration and Appendix A thereto. Neikirk Decl., ¶¶ 8-17, Appendix A. In this Reply Declaration, I have been asked to respond to certain assertions raised by Ollnova in its Patent Owner’s Response (“POR”) (Paper 16) and by Mr. de la Iglesia in his supporting declaration (Ex. 2006 (“de la Iglesia Decl.”)).

¹ Throughout this Reply Declaration, all emphasis and annotations are added unless noted.

4. I understand that, in this proceeding, the Board has instituted *Inter Partes* Review proceedings of claims 1, 3-8, 14-15, and 18 of the '887 patent as obvious based on the Grounds set forth in my prior Neikirk Decl., ¶¶ 53-57.

5. In reaching the conclusions described in this Reply Declaration, I have relied on the documents and materials cited herein as well as those cited within and identified in my prior Declaration (see Neikirk Decl., ¶ 7, Appendix B). A complete listing of all materials upon which I have relied upon in formulating my opinion are included in **Appendix A** attached hereto. The materials that I have relied upon in this Reply Declaration and in my prior Declaration are the types of materials upon which experts in the relevant field of art would reasonably rely upon in forming an opinion on the subject.

6. In formulating the opinions set forth in this Reply Declaration, I have also relied upon the legal understandings set forth in my prior Declaration (see Neikirk Decl., ¶¶ 18-31). My opinions are also based upon my education, training, research, knowledge, and personal and professional experience.

II. LEVEL OF ORDINARY SKILL IN THE ART

7. In my March 6, 2023, Declaration, I opined that on or before April 12, 2006, a person of ordinary skill in the art ("POSITA") relating to the technology of the '887 patent "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.” Neikirk Decl., ¶ 45. Mr. de la Iglesia and I agree that this is the appropriate level of skill in the art. de la Iglesia Decl., ¶ 23. Thus, I will continue to apply my definition of a person having ordinary skill in the art.

III. CLAIM CONSTRUCTION

8. In my March 6, 2023, Declaration, I offered certain opinions regarding claim construction. Patent Owner and Mr. de la Iglesia did not address those claim construction issues. But based upon my review of the POR and de la Iglesia Declaration, Patent Owner and Mr. de la Iglesia have proposed other claim constructions, which I address herein. I apply the same standards for claim construction in this Reply Declaration that I relied upon in formulating the opinions set forth in my prior Declaration. See Neikirk Decl., ¶¶ 48-52.

A. “transmission interval” ([1.e])

9. While Ollnova and Mr. de la Iglesia state that “transmission interval” as recited in element [1.e] need not be construed, based upon the POR and Mr. de la Iglesia’s declaration, Ollnova and Mr. de la Iglesia appear to have construed the term “transmission interval” as the “space of time between successive transmission periods,” and as separate from “polling periods.” POR, 1, 15-16; de la Iglesia

Decl., ¶ 46. Moreover, it is unclear whether, in pursuing this construction, Ollnova and Mr. de la Iglesia's position is that the "transmission" and "polling" *intervals* must be separate from one another, or that the *periods* of "transmission" and "polling" must not overlap. However, regardless of which of these possible meanings was intended, in my opinion that this proposed construction narrows the scope of the term by defining a "transmission interval" in a way that is not supported by the '887 patent and that the term "transmission interval" should be understood to have its plain and ordinary meaning.

10. First, Ollnova and Mr. de la Iglesia appear to assert that the term "transmission interval," because of the word "interval," must be a "space of time between successive transmission periods" such that the transmission periods themselves must be excluded from the transmission interval (POR, 15-16; de la Iglesia Decl., ¶ 46); however, the '887 specification specifically discloses that the transmission interval includes the transmission periods. For example, the '887 Patent states that "[t]he [transmission] 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 338." '887 patent, 9:27-30. Figure 4 from the '887 Patent is illustrative of this concept: it shows transmission intervals (labelled as element 338), which include transmission periods (labelled as element 436):

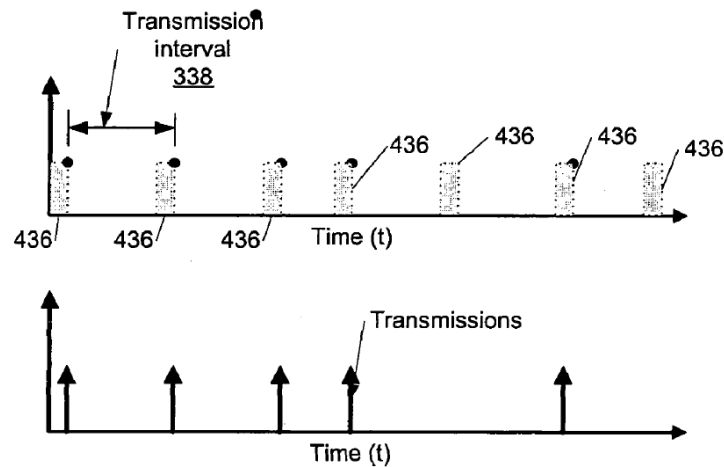


Figure 4

'887 patent, Fig. 4. Indeed, the specification of the '887 Patent states that “[t]he 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 338.” '887 Patent, 9:27-30. The '887 Patent further describes Figure 4 as illustrating an example transmission interval that spans from the end of a first transmission period to the end of a successive transmission period, specifying that “processor 214 may control or trigger the transceiver 214 to communicate information during a transmission period 436,” which, as shown above in Fig. 4, is part of the transmission interval 338. '887 patent, 10:59-11:8. The '887 Patent's use of the terms “period” and “interval” is therefore consistent with the understanding that a given time “period” during which transmission occurs may be a time window that is included in an “interval.” '887 patent, 3:28-40, 9:30-50, 10:57-11:8. I have not identified any

basis for excluding this embodiment disclosed by the '887 patent, and likewise Ollnova nor Mr. de la Iglesia have not provided any basis for doing so.

11. Second, Ollnova and Mr. de la Iglesia's arguments regarding this claim are unclear, but it appears that they may be contending that a "period" as claimed must be a "periodic interval" that repeats regularly. *See, e.g.*, POR, 16-17 ("The "report block 707" only performs the step of transmitting the sensor report. This step is not periodic and is not an interval."); de la Iglesia Decl., ¶ 50 (same). If so, this is also contrary to the plain meaning of the term as used in claim and the specification. Indeed, Ollnova and Mr. de la Iglesia acknowledge twice that the '887 Patent's disclosed and claimed "transmission interval" is variable. POR, 5, 16-17; de la Iglesia Decl., ¶ 33. Moreover, the disclosures from the '887 Patent that Ollnova and Mr. de la Iglesia cite as disclosing a "periodic" transmission interval describe only one embodiment of the '887 Patent's claimed invention, and in this embodiment the disclosed period is **variable**, not regular. Specifically, the '887 Patent states that "[i]n an embodiment, ... [t]he information is transmitted during **a variable periodic interval** for transmitting the information." '887 patent, 2:8-20. The '887 Patent further specifically discloses "variable interval 338" occurs at a "variable frequency," where this frequency can be "extended" or "shortened." '887 patent, 9:24-50, 12:34-48. This is further supported by Fig. 4 which depicts variable frequencies.

12. Third, Ollnova and Mr. de la Iglesia's contentions are again unclear but appear to argue that the claim requires that the "polling" and "transmission" intervals must be separate and, as a result, distinct, from one another and cannot be the same interval. For example, Ollnova argues that the "report block" does not occur within "a periodic interval other than ... the 'polling interval,'" and that there is no disclosure of "a 'transmission interval,' ... separate from the identified 'polling interval.'" POR, 16-17; de la Iglesia Decl., ¶ 50. However, neither Mr. de la Iglesia nor Ollnova identify any support from the '887 Patent or its file history for construing the claim to require distinct and separate "polling" and "transmissions" intervals. To the contrary, the '887 Patent disclosures indicate that these polling periods may be synchronized—confirming that the '887 patent discloses an embodiment in which these two intervals are the same: the '887 Patent discloses that the "controller 508 may also synchronize the timing of the polling periods 336 and/or transmission periods 436" such that the polling and transmission intervals are "synchronized intervals." '887 patent, 14:10-23. Because these intervals are "synchronized," this discloses that the polling and transmission periods can be timed such that they occur at the same time and thus are not separate intervals.

13. Accordingly, it is my opinion that "transmission interval" should be given its plain meaning. However, under both the plain meaning of the term and

Ollnova's and Mr. de la Iglesia's apparent construction, as set forth in my prior report and discussed further below in §**Error! Reference source not found.**, Kates-711 and Kates-505 both disclose the "transmission interval." See Neikirk Decl., ¶¶ 85-89, 160.

B. "wherein transmission ... is suspended in response to detecting a chan[g]le in the sensed condition within the predetermined range" ([1.e])

14. As an initial matter, with respect to this claim element, both under Ollnova's proposed construction and under the plain meaning of this term, the prior art discloses this term for the reasons set forth in my prior declaration and as I discuss further herein. Neikirk Decl., ¶¶ 90, 160; *see also* DI, 15. As a result, the proper construction of this term does not change my opinions. Nonetheless, I was asked to consider the proper construction of this term. It is my opinion that this term should be given its plain meaning. I note that the plain meaning is consistent with the construction adopted by a district court in a separate litigation brought by Ollnova against *ecobee*. And while Ollnova and Mr. de la Iglesia appear to contend that they are adopting that district court construction, the way that they have characterized this construction is inconsistent with the construction and the term's plain meaning.

15. From my review of the *ecobee* district court's claim construction order, I understand that the court's construction was intended to address a dispute

over the term “suspended”; the court proceeded to construe the term “suspended” to require that a transmission “that would otherwise occur is stopped,” consistent with what the court stated was the term’s “well-understood” and “ordinary” meaning of the term. Ex. 2002, 7-8. The *ecobee* district court construed the term identified by Mr. de la Iglesia and Ollnova as: “wherein the transmission of the most recent reading of the indicator that would otherwise occur is stopped for the remainder of the transmission interval in response to detecting a change in the sensed condition within the predetermined range.” Ex. 2002, 8. I note that Ollnova’s and Mr. de la Iglesia’s proposed construction omits the phrase “for the remainder of the transmission interval,” but this difference in the proposed constructions does not appear to be material to the arguments that they have presented. POR, 9; de la Iglesia Decl., ¶ 47. The *ecobee* court explained in its claim construction order that the phrase “for the remainder of the transmission interval” was added specifically to address an argument made by Ollnova that the stopping of transmission could be permanent. Ex. 2002, 8. The *ecobee* court specifically rejected the argument that Ollnova apparently presented in district court that the term “suspend” does not require “information ‘that would otherwise occur’ be ‘stopped’ from transmission,” and also rejected Ollnova’s other arguments that were apparently presented before the district court as either unsupported or contrary to the term’s plain meaning. Ex. 2002, 7-8. I note that the

concern about permanently stopping transmission is immaterial to my opinions because it does not affect the disclosures in the prior art that I relied upon, not at issue here, and Ollnova's omission of this phrase does not affect Ollnova's arguments, and I conclude that the prior art cited in my prior Declaration discloses this element under the *ecobee* construction as well for the same reasons set forth in my prior Declaration and below.

16. Ollnova and Mr. de la Iglesia also appear to further interpret the *ecobee* construction, contending that it is insufficient to meet the claim limitation for there to be "forbearance" of a transmission or for the system to "refrain[]" from transmission" that would otherwise occur. POR, 17-18; de la Iglesia Decl., ¶ 52. Ollnova and Mr. de la Iglesia do not identify any support for this more limiting characterization of the *ecobee* construction. The *ecobee* district court claim construction order clearly states that the specification does not at any point "contradict[]" the plain meaning of "suspend." See Ex. 2002, 7-8. Ollnova's and Mr. de la Iglesia's interpretation is contrary to this plain meaning of the term "suspend." For example, consider a configuration of a system in which transmission occurs unless there is a determination that a sensed condition has not changed in excess of the predetermined range. This configuration is one in which the system is "refraining" or "forbearing" from transmission based on that determination. This "refraining" or "forbearing" is suspending that transmission

under both the claim's plain meaning and the *ecobee* construction. This is the case because if a different determination is made (for example, that the sensed condition *has* changed in excess of the predetermined range), transmission would occur.

17. This understanding is consistent with how the '887 Patent describes suspending a transmission. For example, the specification discloses that a “device may communicate information during a period of a transmission interval” but that this transmission may be suspended “for periods of a transmission interval for which no change in the indicator has been identified.” '887 patent, 3:29-38. This means that transmission occurs when a change in the indicator (for example, an indicator of the sensed condition) is detected and identified, and transmission is otherwise suspended when no such change in the indicator of the sensed condition is identified. This disclosure from the '887 Patent specification mirrors the language of claim 1, which recites that transmission is “...suspended in response to detecting a chan[g]e in the sensed condition within the predetermined range.” Therefore, the claim language can be understood to not require, as Ollnova and Mr. de la Iglesia contend, that a transmission must be “ready to go” and then the device declines to actually send that transmission to meet this claim limitation.

18. Ollnova and Mr. de la Iglesia likewise also characterizes the *ecobee* court's construction of this term to require that the claimed transmission have “otherwise occurred *as a result of ‘the transmission interval.’*” POR, 18; de la

Iglesia Decl., ¶ 52. This, like the additional limitation Ollnova sought to introduce discussed above, also limits the claimed suspension in a manner that is unsupported, this time to require that the suspension have a different, specific cause that is not recited in the claim language: as the “result” of the transmission interval. However, the Challenged Claims do not require that the suspension of transmission be the result of a “transmission interval”; as recited in the Claims, the suspension is specified to occur “in response to detecting a change in the sensed condition within the predetermined range.” Indeed, when Ollnova previously sought to introduce arguments of this nature, the *ecobee* district court rejected Ollnova’s arguments for a different construction because its arguments provided “only reasons *for* transmission,” not the mechanisms by which the suspension occurs. Ex. 2002, 7-8. The argument presented here by Ollnova and Mr. de la Iglesia again attempts to introduce an unsupported requirement to this claim limitation using the same reasoning that was rejected by the *ecobee* district court.

19. Ollnova and Mr. de la Iglesia also appear to contend that suspension must occur notwithstanding that fact that “a flag being set identifying a transmission may be pending.” POR, 5, 8-9 (citing Ex. 2002, 7), 17-18); de la Iglesia Decl., ¶ 32. However, this argument is not supported by the specification of the ’887 patent because it limits the claim to one embodiment disclosed by the ’887 Patent while excluding other disclosed embodiments. Ollnova cites to an

excerpt that states only that a processor “*may* control the transceiver 216 to suspend the transmission of information, notwithstanding a flag being set identifying a transmission may be pending”; given the optional nature of the language in the specification, and the exclusion of this specific provision from the claim language, this embodiment clearly presents an optional feature that is not required to meet the claim language. ’887 patent, 11:10-12. The claim language itself recites exactly what is required to meet the claimed act of suspension: such suspension must occur “in response to detecting a change[] in the sensed condition within the predetermined range.”

20. Therefore, this term should be given its plain meaning. Regardless, as set forth in my prior Declaration and this Reply Declaration, and as discussed below, the prior art discloses this term under its plain meaning, the *ecobee* court’s claim construction, and Ollnova’s and Mr. de la Iglesia’s mischaracterizations of the *ecobee* court’s claim construction discussed above.

IV. OLLNOVA’S ASSERTIONS AND MR. DE LA IGLESIA’S OPINIONS REGARDING “TRANSMISSION INTERVALS”

21. As set forth and explained in my prior Declaration and this Reply Declaration, both Kates-711 and Kates-505 disclose the limitation recited in [1.e] that “the transceiver is configured to transmit a most recent reading of the indicator stored in the memory during a period of a transmission interval....” Neikirk Decl., ¶¶ 85-90, 160. The arguments made by Ollnova and Mr. de la Iglesia to attempt to

distinguish Kates-711 and Kates-505 from the claim language add unsupported limitations to the Claims and therefore should not serve as the basis for concluding that prior art does not disclose this claim limitation. POR, 14-17; de la Iglesia Decl., ¶¶ 46, 48-50. While Ollnova and Mr. de la Iglesia also argue that Mueller does not disclose “transmission intervals” as claimed, my prior Declaration did not cite to Mueller as disclosing this limitation.

22. As explained in my prior Declaration and this Reply Declaration, Kates-711 and Kates-505 each disclose a “periodic monitoring” process; during this process, the system periodically performs a routine in which it “enters a block 706 where the sensor unit 102 takes a sensor reading from the sensor(s) 201. The sensor data is subsequently sent to the monitoring computer 113 in report block 707.” Kates-711, 15:50-16:4; Kates-505, 12:32-54; Neikirk Decl., ¶¶ 70-72, 85-89, 160. Thus, per the ’887 Patent’s disclosures, each of the periodic intervals during which the “periodic monitoring” process occurs is a “transmission interval” as claimed by [1.e], and the “report block” that occurs within this process is a transmission period as claimed by element [1.e]. Insofar as these periods must occur at regular periods, both Kates-711 and Kates-505 explicitly state that “the sensor unit 102 reports [sensor] readings at **regular intervals**.” Kates-711, 18:56-57; Neikirk Decl., ¶¶ 70-72; Kates-505, 15:29-31; Neikirk Decl., ¶ 160. Consequently, Kates-711’s and Kates-505’s teachings discussed above therefore

disclose the claimed “transmission period” within a “transmission interval.” Indeed, the disclosures in Kates-711 and Kates-505 describing a periodic interval that includes within it a block of time in which a transmission is made parallels the ’887 Patent’s disclosure of a “transmission interval 338” that contains within it a block of time for “transmission period” 436 during which transmission occurs (shown below):

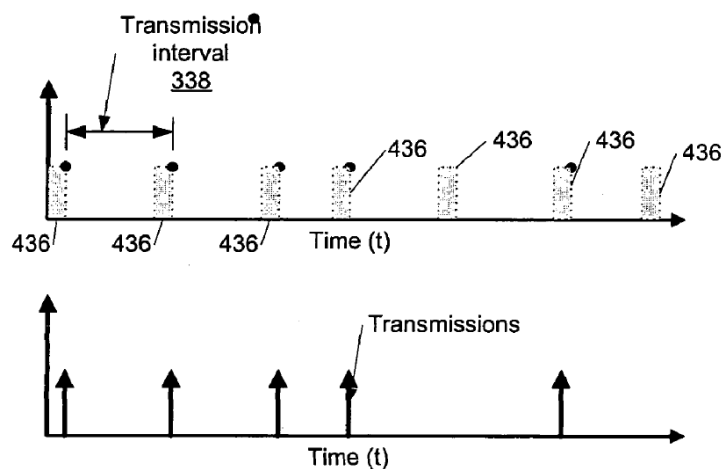


Figure 4

’887 patent, Fig. 4; *see also* ’887 patent, 9:27-30 (“Each period 336 recurs at a variable frequency or interval 338. Indeed, the ’887 Patent specifically contemplates the possibility that the transmission interval 338 is within the transmission period, stating “[t]he 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 338*” which as seen in Fig. 4, includes “transmission period

436” during which “processor 214 may control or trigger the transceiver 214 to communicate information.” ’887, 9:27-30; 10:59-63.

23. As I explained previously in §III.A, Ollnova’s and Mr. de la Iglesia’s arguments that Kates-711 and Kates-505 do not disclose “transmission intervals” depend on an incorrect construction of the claim language and mischaracterization of the Grounds presented in my prior Declaration (and further explained in this Reply Declaration). Ollnova’s and Mr. de la Iglesia’s argument that the “report block 707” disclosed by Kates-711 and Kates-505 “is not periodic and is not an interval” (POR, 16; de la Iglesia Decl., ¶ 50) fails to address the explanation provided in my prior Declaration that the “report block 707” occurs during a “period” or “interval” of “periodic reporting,” consistent with claim element [1.e]’s recited “interval.” Neikirk Decl., ¶¶ 85-87; *see also* Kates-711, 15:50-64, 18:56-57; Neikirk Decl., ¶¶ 66-68, 74-76; Kates-505, 15:29-31; Neikirk Decl., ¶ 160. Indeed, a person having ordinary skill in the art would have understood that, given the disclosures of recurring report block 707, the time period between two such consecutive report blocks 707 is a transmission interval as claimed; Ollnova and Mr. de la Iglesia make no argument to the contrary. Thus, both Kates-711 and Kates-505 each disclose that the “report block 707” is a period of time that meets the requirement of a transmission period in claim element [1.e], and that “report

block 707” repeats in each interval such that it meets the requirement of a transmission interval of periodic reporting in claim element [1.e].

24. Ollnova’s and Mr. de la Iglesia make the additional argument that the “report block 707” does not meet the claim limitation because it takes place within the “polling interval” and not the “transmission interval” (POR, 16; de la Iglesia Decl., ¶ 50). As I explained above, it is not clear what they contend is required of an “interval” under their interpretation, but regardless of what was meant, Ollnova’s and Mr. de la Iglesia’s interpretation purports to impose a negative limitation on the claim, without support for that interpretation.

25. Nonetheless, it is my opinion that both Kates-711 and Kates-505 disclose a “transmission interval” regardless of how Ollnova and Mr. de la Iglesia intended for their construction of the term to be understood. As I explained in my prior Declaration, the “report block 707” occurs periodically and separately from the preceding “block 706,” which is the interval of time during which sensor readings are polled that occurs immediately before report block 707. *See* Neikirk Decl., ¶¶ 85-87; *see also id.* Neikirk Decl., ¶¶ 66-68 (citing Kates-711, 18:56-57), 74-79 (citing Kates-711, 15:50-16:7, Fig. 7), Neikirk Decl., ¶ 160 (citing Kates-505, 12:32-59, 15:29-31, Fig. 7). If Ollnova’s and Mr. de la Iglesia’s position is that the **periods** of polling and transmission must not overlap, this is met by Kates-711 and Kates-505’s disclosures of “block 706” during which sensor readings are

taken, and their disclosure report block 707. These blocks each occur periodically and do not overlap with one another, and are therefore separate, non-overlapping polling and transmission periods.

26. If Ollnova's and Mr. de la Iglesia's position is instead that the periodic polling and transmission *intervals* must differ from one another, this is also met by Kates-711 and Kates-505's disclosures. Both Kates-711 and Kates-505 disclose a polling interval that spans the period of time of from the start of the sensor reading during one occurrence of "block 706" until the start of the subsequent sensor reading during the next occurrence of "block 706." See Kates-711, 15:50-16:7, 18:56-57, Fig. 7; Kates-505, 12:32-59, 15:29-31, Fig. 7; Neikirk Decl., ¶¶ 66-68, 85-87, 160. Similarly, both Kates-711 and Kates-505 disclose a transmission interval that spans the period of time of from the start of one occurrence of "report block 707" until the start of the next occurrence of "report block 707." See Kates-711, 15:50-16:7, 18:56-57, Fig. 7; Kates-505, 12:32-59, 15:29-31, Fig. 7; Neikirk Decl., ¶¶ 66-68, 85-87, 160. These intervals start and end at different times, and are therefore different intervals from one another.

27. However, as I explained in §III.A, the claims include neither requirement, and these requirements are in fact both inconsistent with the '887 Patent's disclosures to the contrary that the polling and transmission intervals may coincide. Indeed, the '887 Patent itself describes an embodiment of its invention

that closely resembles “block 706” and “report block 707” as disclosed by Kates-711 and Kates-505. Specifically, the ’887 Patent discloses an embodiment in which the “timing of the polling periods 336 and/or transmission period 436” is designed to provide for “synchronized intervals for report and receiving information.” ’887, 14:10-23. This disclosure of “synchronized” polling and transmission periods is similar to the disclosures in Kates-711 and Kates-505 of blocks 706 and 707, which are “synchronized” to occur one after the other on a periodic basis.

28. Thus, Kates-711 and Kates-505 each disclose this element under both its plain meaning and even under Ollnova’s and Mr. de la Iglesia’s unsupported construction.

V. OLLNOVA’S ASSERTIONS AND MR. DE LA IGLESIA’S OPINIONS REGARDING “WHEREIN TRANSMISSION ... IS SUSPENDED”

29. As shown in my prior Declaration and below, each of Kates-711, Kates-505, and Mueller discloses “wherein transmission ... is suspended.” Neikirk Decl., ¶¶85-89, 160, 168-172. Ollnova’s and Mr. de la Iglesia’s arguments addressing the teachings of Kates-711, Kates-505, and Mueller rely on mischaracterization of the *ecobee* district court construction of this claim element; as I describe above in §III.B, Ollnova’s and Mr. de la Iglesia’s construction imposes limitations on this claim element that are inconsistent with the plain meaning of the Challenged Claims, and the term should be given its plain meaning.

A. Disclosures from Kates-711 and Kates-505 that transmission is “suspended in response to detecting a chan[g]e in the sensed condition within the predetermined range”

30. Grounds 1-4 of my prior Declaration rely on Kates-711 to disclose this element, and Grounds 5-12 rely at least in part on Kates-505 to disclose this element. Neikirk Decl., ¶¶ 53-56. Fig. 7, which is the same in both Kates-711 and Kates-505 and shown below, discloses the process that occurs during each reporting period or interval of “periodic monitoring;” specifically, the sensor unit takes a sensor reading at block 706 and subsequently proceeds to enter “report block 707,” where the sensor reading may be reported to a monitoring computer:

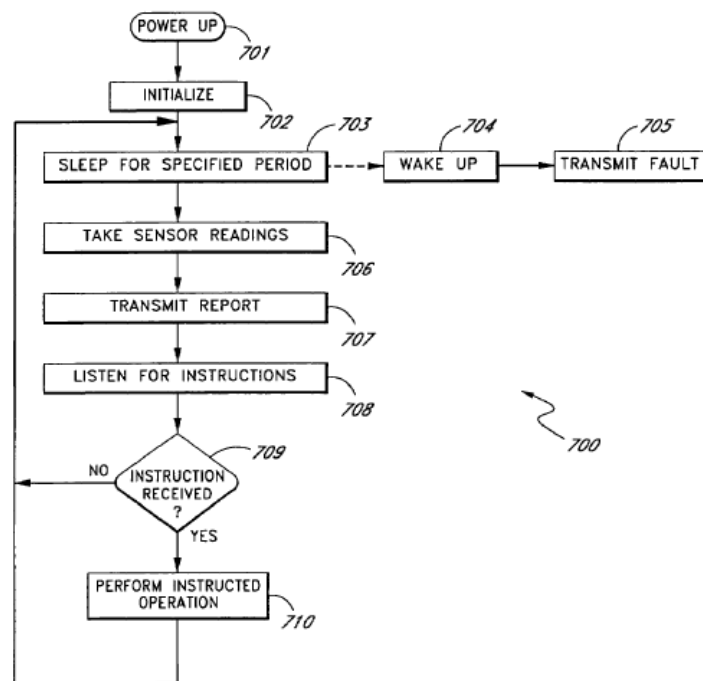


FIG. 7

Kates-711, Fig. 7, 15:50-16:4; Kates-505, Fig. 7, 12:32-54; Neikirk Decl., ¶¶ 85-87, 160. During each of these periodic report blocks 707 that occurs during an interval of periodic reporting, the sensor reading is transmitted to a monitoring computer if the sensed data is determined to be “sufficiently anomalous.” Kates-711, 4:39-42, 5:12-16, 13:8-23; Kates-505, 1:61-64, 2:34-38, 9:55-10:3; Neikirk Decl., ¶¶ 88-89, 160. Because Fig. 7 depicts the process that occurs during every “periodic monitoring” interval, and report block 707 occurs within this “periodical monitoring” interval process, “report block 707” also occurs periodically. Kates-711, 15:50-16:4; Kates-505, 12:32-54; Neikirk Decl., ¶¶ 74-76, 160. When the sensor data “falls within a normal range,” this periodic transmission that would otherwise occur as part of report block 707 is suspended or stopped, as Ollnova and Mr. de la Iglesia contend the term requires (POR, 8-9; de la Iglesia Decl., ¶ 47); this suspension lasts at least until the next transmission cycle. Kates-711, 13:8-23; Kates-505, 9:55-10:3; Neikirk Decl., ¶¶ 88-89, 160. Indeed, from the disclosures of Kates-711 and Kates-505, it is clear the suspension of transmission is in effect for the “periodical monitoring” interval within which it occurs, since report block 707 recurs in every subsequent “periodical monitoring” interval and would be superfluous if transmission were permanently suspended.

31. Specifically, Kates-711 and Kates-505 both individually teach that upon receiving data from the sensor for transmission, the processor “evaluates the

data received from the sensor(s) 201.” Kates-711, 13:8-16; Kates-505, 9:55-63; Neikirk Decl., ¶¶ 85-87, 160. The processor then, based on the results of this evaluation, suspends certain transmissions to the monitoring computer of the sensed condition that would otherwise occur in order to “conserve[] power by not transmitting data that falls within a normal range.” Kates-711, 13:14-19; Kates-505, 9:61-66; *see* Neikirk Decl., ¶¶ 85-87, 160. These disclosures in Kates-711 and Kates-505 of transmitting data that is “sufficiently anomalous” and not transmitting data that “falls within a normal range” closely parallel the ’887 Patent’s disclosures providing that “information may be ***communicated in response to a comparison that identifies a change in the sensed condition,***” and “transmission ... may be suspended” if “no change in the indicator has been identified.” ’887 patent, 3:32-37. *See* Neikirk Decl., ¶¶ 88-89, 160. A person having ordinary skill in the art would have found irrelevant the fact that Kates-711 and Kates-505 do not use the word “suspend” to describe this same functionality. The disclosures of the ’887 Patent, Kates-711, and Kates-505 all disclose identical functionality: transmitting sensor information when it reflects a meaningful change in the sensed condition compared to previous sensor measurements, and suspending this transmission of sensor information when it reflects an insignificant change in the sensed condition.

32. Additionally, insofar as Ollnova and Mr. de la Iglesia argue that suspension as claimed requires that there be a transmission actually “pending” and ready to go prior to suspension or that the suspension must take place “during the period of the transmission interval” (*see* POR 2-3, 9; de la Iglesia Decl., ¶ 47), this argument is not supported by the claim language itself, and instead relies on importing a requirement into the claim language that does not exist and, instead, is disclosed solely in a single embodiment of the specification—*see* §III.B. Regardless, both Kates-711 and Kates-505 meet this more stringent requirement under Ollnova’s and Mr. de la Iglesia’s unsupported interpretation: Both disclose that the processor receives data that is ready for transmission to the monitoring computer, and when the processor transmits the data, it first proceeds to determine whether the data is “anomalous” and suspends transmission in the case that it determines the data is not anomalous. Kates-711, 13:8-23; Kates-505, 9:55-6:3; Neikirk Decl., ¶¶ 85-89, 160. The Kates references each disclose that the process of determining whether data is anomalous and suspending transmissions of data that are not anomalous occurs during the “report block” 707. *See* Kates-711, 13:14-19, 15:57-62; Kates-505, 9:61-66, 12:39-44. As described in the Kates references, block 706 describes the process of receiving the sensor data signal from sensor 201. *Id.* The Kates references’ further disclosures of the determination of whether the data is “anomalous” are described in the context of the processor

evaluating that data in order to limit transmissions—and thus disclose that this process occurs as part of the “report block” 707 that occurs after the data is initially received at 706. *Id.* Therefore, even if the Board were to apply Ollnova’s and Mr. de la Iglesia’s proposed construction of this term, the suspension of transmission occurs after the processor “takes a sensor reading” at block 706 and during the “report block” 707, which is a transmission interval.

33. As I previously explained in §IV, both Kates-711 and Kates-505 disclose a transmission interval even when applying the construction of this term proposed by Ollnova and Mr. de la Iglesia (which in my opinion as noted above, is not supported). During each “transmission interval” in the Kates-711 and Kates-505 disclosures (i.e., the time between one instance of report block 707 and the next), the processor receives data about a sensed condition that is ready to be transmitted; the receipt of this data is followed by a step in which it is decided, while preparing to transmit this data, whether the data is “sufficiently anomalous” to transmit. If the data is not “sufficiently anomalous,” transmission is suspended. Kates-711, 13:8-23, 9:55-63; Kates-505, 9:55-10:3, 7:30-39; Neikirk Decl., ¶¶ 85-89, 160.

34. However, even to the extent that Ollnova and Mr. de la Iglesia were to dispute whether this suspension occurs during “report block” 707 or before that block, this would not change my opinion. Nothing in Kates-711 or Kates-505

confines what meets the “transmission interval” to only “report block” 707. Defining the transmission interval to begin with the determination of “anomalous” sensor data, which occurs after the data is received by the processor, and to end with the completion of “report block” 707, still meets the requirements of element [1.e] under Ollnova’s and Mr. de la Iglesia’s interpretation. Indeed, even considering Mr. de la Iglesia’s and Ollnova’s interpretation of the term “transmission period,” Kates-711 and Kates-505 disclose this claim element because they disclose and render obvious that the determination of whether to suspend occurs during the “report block” 707. This is because the “report” block takes place after block 706, during which the device “takes a sensor reading.” The process of determining whether to send the sensor data is a separate, and subsequent step that would therefore occur at block 707. *See* Kates-711, 13:14-19, 15:57-62; Kates-505, 9:61-66, 12:39-44.

35. Insofar as Ollnova and Mr. de la Iglesia argues that this “forbearing” of transmissions when no change is sensed is insufficient to meet the claimed requirement that transmission is “suspended,” then Ollnova’s and Mr. de la Iglesia’s argument would be importing unsupported additional limitations into the claim language, as discussed above in §III.B. The claim limitation requires only that transmission be “suspended in response to detecting a chan[g]e in the sensed condition within the predetermined range.” Both Kates-711 and Kates-505 disclose

this in portions cited by Ollnova and Mr. de la Iglesia: their “sensor unit 102 generally conserves power *by not transmitting data that falls within a normal range.*” POR, 17-18 (quoting Ex. 1004 (Kates-711), 14:4-16 and citing Ex. 1022 (Kates-505), 9:61-63); de la Iglesia Decl., ¶ 52. In both Kates-711 and Kates-505, measured sensor data that is determined to be “sufficiently anomalous to be reported” is transmitted to the monitoring computer, while similar transmissions that vary only in that the measured sensor data is within the normal range and that would have occurred and wasted power are instead suspended. Kates-711, 4:39-42, 13:8-23; Kates-505, 1:61-64, 9:55-10:3; see Neikirk Decl., ¶¶ 66-68, 160. Again, these disclosures from Kates-711 and Kates-505 closely parallel the ’887 Patent’s disclosure that “transmission of information may be suspended for periods of a transmission interval for which no change in the indicator has been identified,” and so both Kates-711 and Kates-505 disclose suspension as claimed by the ’887 Patent. ’887 patent, 3:32-37.

B. Disclosures from Mueller that transmission is “suspended in response to detecting a chan[g]e in the sensed condition within the predetermined range”

36. Mueller, like both Kates-711 and Kates-505, also discloses “wherein transmission ... is suspended” as claimed by the ’887 Patent. For instance, Mueller discloses a system in which sensor readings are taken periodically “at variable time intervals (e.g., a time offset provided based on a previous sensed

temperature).” Mueller, 2:37-49; Neikirk Decl., ¶¶ 168-170. Mueller further teaches that during subsequent intervals of time in which sensor readings are taken, the sensor “only transmits temperature information on a sensed change in temperature,” and specifically that “transmission shall only occur if the new sensed temperature is different by a pre-defined amount from a previous transmitted temperature.” Mueller, Abstract, 1:8-11, 2:16-21, 2:37-49, 4:26-27, 8:66-9:6, 11:60-12:9; see Neikirk Decl., ¶¶ 168-170. Thus, just like in the ’887 Patent, Kates-711, and Kates-505, transmission of the sensed temperature is suspended in the case that the new sensed temperature is not sufficiently “different” from the previously sensed temperature, such that there has not been a meaningful change in temperature that warrants transmission. Mueller further teaches that such suspension of transmission in cases where the sensed temperature value does not vary significantly from the previous temperature measurement—that is, a sensed temperature value that differs from the previous sensed temperature by less than a pre-determined threshold amount—reduces the total number of transmissions that occur, thus advantageously reducing the “possibility of transmission collisions” by different transmissions within the system. Mueller, 2:37-49.

37. These disclosures from Mueller are not directly addressed by Ollnova and Mr. de la Iglesia. Ollnova and Mr. de la Iglesia do lump Mueller together with Kates-711 and Kates-505, arguing that Mueller “is substantially similar to Kates-

711 and Kates-505” and therefore does not disclose “wherein transmission ... is suspended” for the same reasons provided for Kates-711 and Kates-505. POR, 17; de la Iglesia Decl., ¶ 51. This does not address Mueller’s specific teachings of this element. Regardless, as I explained above in §V.A for Kates-711 and Kates-505, Ollnova’s and Mr. de la Iglesia’s arguments rely on construing the claims in a manner that is not supported by the ’887 patent. Indeed, Mueller’s teaching of transmitting sensed temperature data when the sensed temperature data reflects a change from a previously sensed temperature that exceeds a specified range, and not transmitting sensed temperature data when it does not differ in excess of a specified range, mirrors the ’887 Patent’s own disclosures relating to this element. Mueller thus discloses suspending transmission “in response to detecting a chan[g]e in the sensed condition within the predetermined range” as claimed in the ’887 Patent.

VI. CONCLUSION

38. In summary, and as outlined in my Neikirk Declaration and set forth above, I have concluded that claims 1, 3-8, 14-15, and 18 of U.S. Patent No. 7,746,887 are rendered obvious under each of the Grounds set forth in my prior Declaration. As discussed above, I disagree with Mr. de la Iglesia’s and Ollnova’s arguments, and none of their arguments alters my opinions expressed in my previous Declaration.

39. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001. If called to testify as to the truth of the matters stated herein, I could and would testify competently.

Executed this March 22, 2024 in Drippings Springs, TX.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dean Neikirk", written over a horizontal line.

Dr. Dean P. Neikirk, Ph.D.

Appendix A

LIST OF MATERIALS CONSIDERED

1001	U.S. Patent No. 7,746,887
1002	Declaration of Dr. Dean P. Neikirk
1003	File History of U.S. Patent No. 7,746,887
1003	File History of U.S. Patent No. 7,746,887
1004	U.S. Patent No. 7,528,711 to Kates
1005	U.S. Patent Application Publication No. 2004/0100394 to Hitt
1006	U.S. Patent Application Publication No. 2005/0246593 to Littrell
1007	U.S. Patent No. 5,696,695 to Ehlers
1008	U.S. Patent Application Publication No. 2005/0270173 to Boaz
1009	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Defendants' Opening Claim Construction Brief (October 27, 2022)
1010	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Plaintiff Ollnova Technologies Ltd.'s Responsive Claim Construction Brief (November 17, 2022)
1011	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Defendants' Reply Claim Construction Brief (December 1, 2022)
1012	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Plaintiff Ollnova Technologies Ltd.'s Sur-Reply Claim Construction Brief (December 15, 2022)
1013	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Joint Claim Construction Statement (December 20, 2022)
1014	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Plaintiff Ollnova Technologies Ltd.'s Opening Claim

	Construction Brief (November 4, 2022)
1015	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Carrier Global Corp.’s Responsive Claim Construction and Indefiniteness Brief (November 18, 2022)
1016	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Plaintiff Ollnova Technologies Ltd.’s Reply Claim Construction Brief (November 30, 2022)
1017	<i>Ollnova Technologies Ltd. v. Carrier Global Corp.</i> , 9:22-cv-80388 (S.D. Fla.) Joint Claim Construction Chart (December 5, 2022)
1018	U.S. Patent No. 6,124,806 to Cunningham
1019	U.S. Patent Application Publication No. 2003/0174070 to Garrod
1020	U.S. Patent Application Publication No. 2003/0137968 to Lareau
1021	U.S. Patent No. 7,230,528 to Kates
1022	U.S. Patent No. 7,102,505 to Kates
1023	<i>Ollnova Technologies Ltd. v. ecobee Technologies, ULC</i> , 2:22-cv-00072 (E.D. Tex.) P.R. 4-3 Joint Claim Construction and Prehearing Statement (January 10, 2023)
1024	Standing Order Governing Proceedings (OGP) 4.1—Patent Cases (W.D. Tex.) (April 14, 2022)
1025	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 4:22-cv-01387 (E.D. Mo.) Plaintiff’s Preliminary Disclosure of Asserted Claims and Infringement Contentions (July 7, 2022)
1026	Redline comparison between the specifications of U.S. Patent No. 7,746,887 and U.S. Patent No. 7,102,505
1031	U.S. Patent No. 6,513,723 to Mueller
1041	U.S. Patent No. 7,268,581 to Trimberger
1042	U.S. Patent No. 7,254,691 to Ebeling

1043	<i>Ollnova Technologies Ltd. v. Emerson Electric Co.</i> , 6:22-cv-00358-ADA (W.D. Tex.) Declaration of Erik De La Iglesia in Support of Plaintiff Ollnova Technologies Ltd.’s Responsive Claim Construction Brief
1044	<i>Ollnova Technologies Ltd. v. ecobee Technologies, ULC</i> , 2:22-cv-00072 (E.D. Tex.) Ollnova Technologies Ltd.’s Opening Claim Construction Brief (January 31, 2023)
1046	M.R. Barbacci, C.B. Weinstock and J.M. Wing, “Programming at the processor-memory-switch level,” Proc. [1989] 11th Int. Conf. on Software Eng’g, Singapore, 1988, pp. 19-28
2002	<i>Ollnova Technologies Ltd. v. ecobee Technologies, ULC</i> , 2:22-cv-00072 (E.D. Tex.) Claim Construction Memorandum Opinion and Order, Dkt. No. 105 (Apr. 10, 2023)
2005	Expert Report of Dr. John Martens Regarding Invalidity of US Patents 8,224,282, 7,746,887, 7,860,495, and 8,264,371
2006	Declaration of Erik de la Iglesia in Support of Patent Owner’s Response
2008	Excerpt from The Merriam-Webster Dictionary (2004)