TOPICS: F00 Novelty
                O00 Obviousness

SUJETS: F00 Nouveauté
              O00 Évidence

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2 763 756, having been rejected under subsection 30(3) of the *Patent Rules*, has subsequently been reviewed in accordance with paragraph 30(6)(*c*) of the *Patent Rules*. The recommendation of the Patent Appeal Board and the decision of the Commissioner are to allow the application.

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INTRODUCTION

[1]   This recommendation concerns the review of rejected patent application number 2 763 756, which is entitled "Cell Router Failure Detection in a Mesh Network" and is owned by Itron Global Sarl. The issues to be addressed are whether the claimed subject matter would have lacked novelty and whether the claimed subject matter would have been obvious.

[2]   A review of the rejected application has been conducted by the Patent Appeal Board (the Board) pursuant to paragraph 30(6)(*c*) of the *Patent Rules*. As explained in more detail below, our recommendation is that the application be allowed.

BACKGROUND

The Application

[3]   Patent application 2 763 756 (the instant application) was filed in Canada on January 16, 2012 and laid open to the public on March 19, 2012.

[4]   The instant application relates to improvements to quickly identify failure of critical components, such as a cell relay device, in an automated meter reading system.

Prosecution History

[5]   On October 2, 2015, a Final Action (FA) was written pursuant to subsection 30(4) of the *Patent Rules*. The FA stated that the application was defective on the grounds that:
   1. claims 1-20 on file at the time of the FA (claims on file) lack novelty in view of a prior disclosure by the Applicant and do not comply with paragraph 28.2(1)(*a*) of the *Patent Act*; and
   2. claims 1-20 on file would have been obvious to the person skilled in the art and do not comply with section 28.3 of the *Patent Act*.

[6]   In a December 17, 2015 response to the FA (R-FA), the Applicant proposed
        amended claims and submitted that the proposed claims were novel and inventive
        with respect to the cited prior art. The Applicant also proposed amended description
        and drawing pages.

[7]   As the Examiner considered the application not to comply with the *Patent Act* and
        Patent Rules, the application was forwarded to the Board for review on September
        27, 2016, pursuant to subsection 30(6) of the *Patent Rules*, along with an explanation
        outlined in a Summary of Reasons (SOR) that maintained the defects as identified in
        the FA.

[8]   With a letter dated October 11, 2016, the Board sent the Applicant a copy of the SOR
        and offered the Applicant the opportunities to attend an oral hearing and to make
        further written submissions.

[9]   In a response dated January 10, 2017, the Applicant accepted the offer of an oral
        hearing and in a letter dated May 23, 2017, the Applicant provided written
        submissions in response to the SOR (R-SOR). The Applicant also proposed further
        amendments to the claims and description pages.

[10]   A Panel was formed to review the application under paragraph 30(6)(*c*) of the *Patent
        Rules* and to make a recommendation to the Commissioner as to its disposition.

[11]   Based on our review of the instant application and the record as it presently stands,
        our recommendation is to allow the instant application as it stood at the time of the
        FA. Therefore, an oral hearing is not required and the Panel need not make any
        recommendation on the acceptability of the proposed amendments.

ISSUES

[12]   The issues to be addressed by this review are:

        1. Whether the subject matter defined by claims 1-20 on file lacked novelty in
           view of the prior disclosure by the Applicant and thus is non-compliant with
           paragraph 28.2(1)(*a*) of the *Patent Act*; and

2. Whether the subject matter defined by claims 1-20 on file would have been obvious to a person skilled in the art and thus is non-compliant with section 28.3 of the *Patent Act*.

LEGAL PRINCIPLES AND PATENT OFFICE PRACTICE

Purposive Construction

[13] In accordance with *Free World Trust v Électro Santé*, 2000 SCC 66, essential elements are identified through a purposive construction of the claims done by considering the whole of the disclosure, including the specification and drawings (see also *Whirlpool v Camco*, 2000 SCC 67 at paras 49(f) and (g) and 52). In accordance with the *Manual of Patent Office Practice*, revised June 2015 (CIPO) at §13.05, the first step of purposive claim construction is to identify the person skilled in the art and his or her relevant common general knowledge (CGK). The next step is to identify the problem addressed by the inventor and the solution put forth in the application. Essential elements can then be identified as those required to achieve the disclosed solution as claimed.

Lack of Novelty

[14] Paragraph 28.2(1)(*a*) of the *Patent Act* sets out the requirement that the subject matter of a claim must be novel in view of a disclosure by the applicant itself:

> The subject-matter defined by a claim in an application for a patent in Canada (the "pending application") must not have been disclosed
>
> (*a*) more than one year before the filing date by the applicant, or by a person who obtained knowledge, directly or indirectly, from the applicant, in such a manner that the subject-matter became available to the public in Canada or elsewhere;

[15] There are two separate requirements in order to show that a claimed invention lacks novelty: a prior disclosure of the claimed subject matter; and the prior disclosure must enable the claimed subject matter to be practised by a person skilled in the art (*Apotex Inc v Sanofi-Synthelabo Canada Inc*, 2008 SCC 61 at para 67 [*Sanofi*] at paras 24-29).

[16] "Prior disclosure" means that the prior art must disclose subject matter which, if performed, would necessarily result in infringement of the patent. The person skilled in the art looking at the disclosure is "taken to be trying to understand what the author of the description [in the prior patent] meant" (*Sanofi*, para 32). At this stage, there is no room for trial and error or experimentation by the person skilled in the art. The prior art is simply read "for the purposes of understanding it": see *Sanofi* at para 25, citing *Synthon B.V. v SmithKline Beecham plc*, [2006] 1 All ER 685, [2005] UKHL 59.

[17] "Enablement" means that the person skilled in the art would have been able to perform the invention without undue burden. The person skilled in the art is assumed to be willing to make routine trial and error experiments to get it to work: see *Sanofi*, at paras 26-27.

Obviousness

[18] The *Patent Act* requires that the subject matter of a claim not be obvious. Section 28.3 of the Act provides as follows:

> The subject-matter defined by a claim in an application for a patent in Canada must be subject-matter that would not have been obvious on the claim date to a person skilled in the art or science to which it pertains, having regard to
>
> (*a*) information disclosed more than one year before the filing date by the applicant, or by a person who obtained knowledge, directly or indirectly, from the applicant in such a manner that the information became available to the public in Canada or elsewhere; and
>
> (*b*) information disclosed before the claim date by a person not mentioned in paragraph (*a*) in such a manner that the information became available to the public in Canada or elsewhere.

[19] In *Sanofi* at para 67, the Supreme Court of Canada stated that it is useful in an obviousness inquiry to follow the following four-step approach:

> (1)(a)   Identify the notional "person skilled in the art";
>   (b)   Identify the relevant common general knowledge of that person;
> (2)   Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3)   Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4)   Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

ANALYSIS

Overview of the instant application

[20]   According to the instant application, utility companies use automatic meter reading systems to read and monitor customer meters, such as residential gas, electric or water meters. These systems are generally known in the art and are favored by utility companies as they increase the efficiency and accuracy of collecting meter readings and managing customer billing (instant application, para [0002]).

[21]   Automatic meter reading systems typically use radio frequency communication and may be configured in different ways. For example, in a fixed network configuration, endpoint devices at meter locations communicate with readers that collect meter readings and data. Each endpoint device is associated with intermediate readers located throughout a larger geographic area that, in turn, communicate with a central system. Other fixed network configurations use repeaters or relay devices that expand the coverage area for each reader (instant application, para [0003]).

[22]   The instant application reviews various design criteria for meter reading systems as well as various issues arising from the use of such systems (instant application, paras [0004]-[0005]). The instant application highlights that it would be advantageous to quickly identify failure of critical components (instant application, para [0006]) and proposes methodologies, apparatuses and devices for detecting cell relay failure in a mesh network (instant application, para [0007]).

[23]   There are 20 claims on file: claims 1-8 are directed to methods for providing cell relay failure detection at a node device; claims 9-15 are directed to network enabled

node devices; and claims 16-20 are directed to mesh networks. Independent claims 1, 9 and 16 are reproduced here:

> 1. In a network including a collection engine, a plurality of node devices, and at least one cell relay configured to provide communications between said collection engine and said plurality of node devices, a method for providing cell relay failure detection at a node device, comprising:
>
>> periodically updating at a node device a value based on a value received by such node device from a cell relay;
>> comparing the updated value with a previously received value; and determining at such node device whether communications between such node device and the cell relay have failed based on the results of the comparison.
>
> 9. A network enabled node device configured for communications with other network communications devices, comprising:
>
>> a counter configured to have an updated counter value based on a received network signal;
>> a comparator configured to compare said updated counter value with a previous counter value received from a cell relay; and
>> a processor configured to search for network access based on results of a comparison of said updated counter value and said previous counter value.
>
> 16. A mesh network, comprising:
>
>> a collection engine;
>> at least two cell relays; and
>> at least one node respectively associated with each of said at least two cell relays, the at least one node associated with each of said at least two cell relays forming with its associated cell relay a cell within the network;
>> wherein said cell relays transmit synchronization signals including at least a counter value to nodes within their own cell;
>> said at least one node monitors said counter value transmitted from its associated cell relay; and
>> said at least one node searches for network access to said collection engine upon failure to receive updated counter values from its associated cell relay within a predetermined time period.

[24] Each independent claim includes functionality for cell relay failure detection: values are received by a node device from a cell relay device and compared to previously received values. In independent claim 1, the results of the comparison are used to determine that the cell relay device has failed; in independent claims 9 and 16, the results of the comparison are used to move on to the next step of searching for network access. As the analysis below shows, this common comparison functionality

(and the application of its results) is not disclosed by the prior art and is determinative of the issues under consideration in this review.

Purposive Construction

[25] A purposive construction of the claims is not set out explicitly, as there was no dispute regarding the essentiality of the claim elements or the meaning of any terms recited in the claims. The FA considered that all claim elements to be essential. We agree.

Lack of Novelty

[26] The FA rejected claims 1-20 on file since the claims would have lacked novelty in view of the prior art document D3 and thus claims 1-20 do not comply with paragraph 28.2(1)(*a*) of the *Patent Act*.

[27] Document D3 (US Patent Application 2008/0068989 A1 to Wyk et al., published March 20, 2008) is directed to communication protocols for advanced metering infrastructure supporting a two-way mesh network solution in a wireless environment, such as for use in a residential electricity meter field (D3, abstract, paras [0020]-[0028]).

Independent claim 1

[28] According to the FA at page 4, the following independent claim 1 elements are disclosed by D3:

> Regarding claim 1, D3 discloses a network including a collection engine (see D3 Figure 3A[190]), a plurality of node devices (see D3 Figure 3A[142, 144, 146]), and at least one cell relay (see D3 Figure 2A[Cell Relay 1, Cell Relay 2]) configured to provide communications between said collection engine and said plurality of node devices, a method for providing cell relay failure detection at a node device (see D3 paragraphs [0876] and [0877]), comprising:
> - periodically updating at a node device a value (see D3 paragraph [0876] or [0877], timeout counter) based on a value (see D3 paragraph [0876] or [0877], incremented/decrement by one) received by such node device from a cell relay (see D1 [*sic*] Figures 3A, 3C, 4[LLC] and 49[LLC Parameter]);
> - comparing the updated value with a previously received value (see D3 paragraph [0876] or [0877], comparing if the counter reaches timeout value); and

- determining at such node device whether communications between such node device and the cell relay have failed based on the results of the comparison (see D3 paragraph [0876] or [0877]: "... if the counter reaches timeout value ... the transmission has failed". It is noted that if timeout value is reached, which means of course that at least one packet is still missing, the transmission has failed) (emphasis added).

[29] This analysis in the FA relies primarily on D3 paras [0876] and [0877], which are reproduced here:

> [0876] From a transmitter side perspective, the LLC layer splits the message into packets. A MAC request is associated with each packet. When the first packet is sent, a timeout counter of LLC_Message_Timeout length is started. Each packet can be sent several times, with the same repetition limitation as for a standard packet, until the packet is acknowledged by the MAC layer. When all the packets have been acknowledged, the LLC layer confirms to the NET layer that the message has been sent with success. If one packet has not been sent correctly or if the counter reaches LLC_Message_Timeout, the LLC layer informs the NET layer that the transmission has failed.

> [0877] From the receiver side perspective, the receiver LLC layer when it receives the first packet of a fragmented message, starts the same counter of LLC_Message_Timeout length as that of the transmitter side. When all the packets have been received, the LLC layer regenerates the entire message and gives it to the NET layer. If the counter reaches LLC_Message_Timeout value and at least one packet is still missing, all the other packets are deleted.

[30] To provide some context for these paragraphs, D3 discloses the well-known data communications reference model for Open Systems Interconnection that define layers performing different functions (D3, Figure 1 and para [0126]) and the application of this model to a cell relay module. The Logical Link Control (LLC) layer (D3, Figure 2B and para [0133]) is responsible for the fragmentation of long messages (D3, para [0138]) and handles messages between the network (NET) layer and the Medium Access Control (MAC) layer (D3, paras [0133], [0136]-[0137] and [0139]-[0143]).

[31] Given this context, in the Panel's view, the person skilled in the art would understand D3 as disclosing a transmitter side LLC layer that splits a message received from the NET layer into packets and delivers the packets to the MAC layer for transmission. A timeout counter is set when the first packet is sent. The LLC layer repeats a transmission request for a packet until the packet is acknowledged by

the MAC layer. If the timeout counter reaches a timeout value before all packets have been sent, the LLC layer informs the NET layer that the message transmission has failed. On the receiver side, the LLC layer starts the same timeout counter as the transmitter side LLC layer when the first packet is received. If the timeout counter on the receiver side reaches a timeout value and at least one packet is missing from the fragmented message, then the packets are deleted.

[32] Although the Applicant's submissions in the R-FA and R-SOR were made with respect to proposed claims, we consider that they are also relevant to the subject matter of the claims on file. To summarize, the Applicant submitted that D3 does not disclose every element as claimed with respect to independent claim 1:

- The claimed method is performed at a node device and "periodically updating a value based on a value received … from a cell relay" (emphasis added). Thus, the claimed method is performed at the receiving side of a communication. In contrast, D3 discloses that the transmitter LLC layer informs the NET layer that the transmission has failed if the timeout counter reaches the timeout value;

- D3 does not disclose the claim 1 method step of "periodically updating a value based on a value received … from a cell relay" (emphasis added). While D3 discloses the use of a timeout counter, which may be equated to the claimed "value" element of independent claim 1, D3 does not disclose that the timeout counter value at the receiver node is received from the transmitter node and does not disclose that the timeout counter value is updated periodically based on received values. In contrast, D3 discloses separate timeout counters at the transmitter and receiver sides that update their values based on the continuous passage of time;

- The person skilled in the art would understand that the D3 disclosure of detecting message transmission failures does not necessarily indicate a general failure of communications at a node as addressed by the claimed invention; and

- Using a D3 timeout counter as disclosed to detect message transmission failures would produce a different result for determining communication failures of nodes as compared to the claimed method.

[33] In the Panel's view, the person skilled in the art would not view D3 as disclosing the claimed subject matter:

- the timeout counter of D3 does not disclose receiving values from a cell relay;
- D3 does not disclose updating the timeout counter with the received values;
- D3 does not disclose comparing the updated value with a previously received value; and
- D3 does not disclose determining a node's communication failure based on the comparison.

[34] Rather, the person skilled in the art would view the recited paragraphs of D3 as directed to the detection of packet/message failures using a timer and not directed to the detection of general communication failure of a cell relay by comparing received values. Accordingly, D3 does not render the claimed invention non-novel since it does not provide prior disclosure of the claimed subject matter.

Dependent claims 2-8

[35] As claims 2-8 depend on independent claim 1, it follows that these claims are also novel with respect to D3.

Independent claims 9 and 16

[36] Similarly, the FA relied on the D3 paras [0876] and [0877] as disclosing, at least in part, the cell relay failure detection functionality at a node device as claimed in independent claims 9 and 16.

[37] Regarding independent claim 9, the claim recites an updated counter value based on a received network signal, comparing the updated counter value with a previous counter value received from a cell relay, and searching for network access based on

the results of the comparison. Using the same analysis as presented above with respect to independent claim 1, in our view:

- the timeout counter of D3 does not disclose receiving values from a cell relay;
- D3 does not disclose updating the timeout counter with the received values;
- D3 does not disclose comparing the updated value with a previously received value; and
- D3 does not disclose searching for network access based on the comparison.

[38] Regarding independent claim 16, the claim recites a cell relay that transmits a counter value to nodes within their cell, wherein the node searches for network access upon failure to receive updated counter values from its cell relay within a predetermined time period. Using the same analysis as presented above with respect to independent claim 1, in our view:

- the timeout counter of D3 does not disclose receiving values from a cell relay;
- D3 does not disclose updating the timeout counter with the received values within a predetermined time period; and
- D3 does not disclose searching for network access based on the received updated counter values.

[39] As D3 does not disclose every element of independent claims 9 and 16, it follows that claims 9 and 16 are novel with respect to D3.

Dependent claims 10-15 and 17-20

[40] As claims 10-15 and 17-20 depend on independent claims 9 and 16, respectively, it follows that these claims are also novel with respect to D3.

[41] In summary, we view that claims 1-20 on file do not lack novelty with respect to the prior art document D3 and thus claims 1-20 comply with paragraph 28.2(1)(*a*) of the *Patent Act*.

Obviousness

[42] The FA rejected claims 1-20 on file since these claims would have been obvious to the person skilled in the art given that the claims are anticipated (according to the FA) by the prior art document D3. The FA also rejected claims 9-15 on file since these claims would have been obvious to the person skilled in the art having regard to document D2 in view of the CGK.

Sanofi step (1)(a) – Identify the notional person skilled in the art

[43] The FA at page 7 identified the person skilled in the art as "an engineer or technologist who has relevant education and experience in designing and implementation related to data and network communications."

[44] The Panel notes that the Applicant did not dispute this characterization.

[45] However, having reviewed the instant application as a whole, the Panel views that the person skilled in the art is a team. While we agree that the person skilled in the art includes a team member as characterized in the FA, we view that the team also includes a team member with relevant education and experience in automatic meter reading systems and meter data management systems (instant application, paras [0002]-[0005]).

Sanofi step (1)(b) – Identify the relevant common general knowledge of that person

[46] The FA at page 7 identified the CGK as "the skills and knowledge in the field of networking communication protocol, data packet, network security and management, data error checking, and data encryption and decryption."

[47] The Panel notes that the Applicant did not dispute this characterization.

[48] Again, while we agree that the CGK includes aspects as characterized in the FA, having reviewed the instant application as a whole, and consistent with our identification of the person skilled in the art, the Panel views that the CGK also includes aspects identified in the background of the instant application. In particular, the CGK includes knowledge of automatic meter reading systems and meter data

management systems and their associated applications, technologies, configurations and design criteria (instant application, paras [0002]-[0005]).

Sanofi step (2) – Identify the inventive concept of the claim in question or if that cannot readily be done, construe it

[49] The FA on page 4 identified all claimed elements in claims 1-20 as essential to the invention. Consistent with this finding, the FA at page 7 identified the inventive concept of claims 9-15 as the combination of all the recited elements of each of these claims.

[50] We therefore adopt all the claimed elements of each claim as the inventive concept of that claim for the purpose of this review.

Sanofi step (3) – Identify what if any differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed

[51] Although the FA rejected claims 1-20 on file as obvious having regard to D3 and rejected claims 9-15 on file as obvious having regard to D2 in view of the CGK, for completeness, we will analyze *Sanofi* steps (3) and (4) with respect to each prior art document in view of the CGK in the following paragraphs.

Differences between D3 and the inventive concept of claims 1-20

[52] As indicated above at paragraphs [33] and [36], with respect to independent claims 1, 9 and 16, the Panel views that D3 does not disclose, at least, the cell relay failure detection functionality at a node device as claimed.

[53] As discussed below in the *Sanofi* step (4), the inventiveness of this claimed functionality is determinative of the non-obviousness of claims 1-20.

Differences between D2 and the inventive concept of claims 9-15

[54] Document D2 (U.S. Patent Application 2010/0238855 A1 to Yoshida et al., published September 23, 2010) is directed to a relay device performing high quality communications in a wireless mesh network, wherein the relay devices are densely

arranged and interference of wireless packets is present (D2, abstract and para [0012]).

[55]   According to the FA at page 8, the following independent claim 9 elements are disclosed by D2:

> Regarding claim 9, D2 discloses a network enabled node device configured for communications with other network communications devices (see D2 Abstract and Figure 1), comprising:
> - a counter configured to have an updated counter value based on a received network signal (see D2 paragraph [0165] and Figure 20[S1702]);
> - a comparator (see D2 Figure 20[S1703]) configured to compare said updated counter value with a previous counter value (see D2 paragraph [0166], and Figure 20[S1703] shows a predetermined number which is considered a previous counter value) received from a cell relay (see D2 Figure 5A[401] and paragraph [0069], and Figure 16 shows bi-directional communication for controlling cluster size); and
> - a processor (see D2 paragraph [0015]) configured to search for network access based on results of a comparison of said counter value and said previous counter value (see D2 paragraph [0060] shows selecting an optimal route, paragraph [0169] shows adjusting the size of cluster, and Figures 4 and 32B).

[56]   As indicated earlier, although the Applicant's submissions in the R-FA and R-SOR were made with respect to proposed claims, we consider that they are also relevant to the subject matter of the claims on file. The Applicant submitted in the R-SOR at pages 7-8 that D2 Figure 20 and the paragraphs describing Figure 20 disclose neither a "counter value" nor detection of a communication failure as claimed.

[57]   D2, Figure 20 and the paragraphs describing the figure relate to the operation of a relay device in an embodiment wherein interference of wireless packets caused between cluster members is suppressed. The relay device counts the number of member nodes in a cluster and compares the number with a predetermined threshold. If the counted number of member nodes is greater than the predetermined threshold, the wireless output of the communications interface is adjusted lower. In this manner, the size of the cluster is adjusted such that the number of member nodes associated with the cluster is lower than the predetermined threshold (D2, Figure 20 and paras [0158]-[0169]).

[58] Although D2 discloses a counter, in our view, the person skilled in the art would view D2 as disclosing the following: the value of the counter in D2 is not updated with a received value; the comparison function does not compare an updated counter value with a previous counter value; and the result of the comparison function described in D2 is not directed to searching for network access as claimed in independent claim 9, but rather is directed to limiting the number of member nodes associated within the cluster.

[59] In light of this analysis, in our view, the person skilled in the art would view D2 as not disclosing, at least, the cell relay failure detection functionality at a node device, as recited in claim 9.

[60] As discussed below in the *Sanofi* step (4), the inventiveness of this claimed functionality is determinative of the non-obviousness of claims 9-15.

Sanofi step (4) – Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Do the differences between D3 and the inventive concept of claims 1-20 constitute steps which would have been obvious to the person skilled in the art?

[61] The FA at page 3 stated:

> Furthermore, document D3 discloses or teaches the concepts of detecting cell relay failure and searching for optimal or best network access at multiple paragraphs, and sometimes even solutions, reasons and/or causes related to such issues. Examples of such disclosure can be seen in paragraphs [0117], [0392], [0394], [0498], [0506], [0715], [0734], [0857], [0876], [0900], [0999], [1042], [1047], [1051], [1057], [1058], [1104], [1148]-[1154], [1169]-[1177], [1195] and Figure 7 4 of document D3.

[62] The Panel has reviewed the D3 disclosure, including the highlighted paragraphs, and can find no disclosure of functionality to detect cell relay failure at a node device as claimed, wherein values are received by a node device from a cell relay device and compared to previously received values. For example, D3, Figure 74 provides a table outlining transmission failure causes and solutions and the paragraphs describing the table (D3, paras [1177]-[1181]) disclose that the transmission failures relate to interference of packets exchanged between nodes.

[63] Furthermore, while the person skilled in art includes a team member skilled in data and network communications and the CGK includes fields of networking communication protocol, data packet, network security and management, data error checking, and data encryption and decryption, there is no evidence that the CGK includes the specific functionality to detect cell relay failure at a node device as claimed.

[64] The Panel's view is that neither the prior art document D3 nor the CGK, alone or in combination, teaches, suggests or motivates the person skilled in the art to arrive at the steps as claimed in independent claims 1, 9 and 16 to detect cell relay failure and thus this functionality constitutes steps which would have required a degree of invention.

[65] As our view is that independent claims 1, 9 and 16 would not have been obvious, it follows that dependent claims 2-8, 10-15 and 17-20 also would not have been obvious.

[66] We therefore view that claims 1-20 on file would have been non-obvious to a person skilled in the art having regard to D3 in view of the CGK and thus comply with section 28.3 of the *Patent Act*.

Do the differences between D2 and the inventive concept of claims 9-15 constitute steps which would have been obvious to the person skilled in the art?

[67] The FA at pages 8 and 9 stated:

> As mentioned above in Step (3), document D2 does not literally disclose the feature of searching for network access based on results of a comparison of said counter value and said previous counter value as recited in claim 9, however document D2 does disclose the means of selecting an optimal route for data from a transmission terminal to a receiving terminal via relay devices and for transmitting the data through the route (see D2 paragraph [0060]). Document D2 also discloses that the counting of the number of the member nodes is related to detecting quality of transmission path, and means for adding or removing members for adjusting the size of the cluster (see D2 Figure 7 and paragraphs [0165]-[0169]).
>
> In light of the teaching disclosed in document D2, it is the Examiner's view that document D2 is also trying to accomplish the same inventive concept as recited in claim 9, and a person skilled in the art would have no difficulty to understand that the underlying technical functions between claim 9 and document D2 are directed to the same objectives or inventive concept in this field of technology.

[68] We agree with the FA that the difference between independent claim 9 and the prior art document D2 is the cell relay failure detection functionality at a node device as claimed.

[69] However, we view that D2 addresses different problems than the one addressed in the claimed invention. As stated earlier, D2 is directed to relay device communications in a wireless mesh network in which interference is present: there is no disclosure in D2 of detecting cell relay device failure by any means, either generally or in the specific manner claimed. And there is no evidence that the CGK includes functionality to detect cell relay failure at a node device as claimed.

[70] The Panel's view is that neither the prior art document D2 nor the CGK, alone or in combination, teaches, suggests or motivates the person skilled in the art to arrive at the steps as claimed in independent claim 9 to detect cell relay failure, and thus this functionality constitutes steps which would have required a degree of invention.

[71] As our view is that independent claim 9 would not have been obvious, it follows that dependent claims 10-15 also would not have been obvious.

Do the differences between D2 and the inventive concept of claims 1-8 and 16-20 constitute steps which would have been obvious to the person skilled in the art?

[72] Although claims 1-8 and 16-20 were not rejected as having been obvious in view of D2, for completeness, we assess the patentability of these claims in view of D2 below.

[73] As independent claims 1 and 16 recite a comparison functionality to detect cell relay failure similar to that recited in independent claim 9, we view that these claims also would not have been obvious, in light of the analysis above. Given that independent claims 1 and 16 would not have been obvious, it follows that dependent claims 2-8 and 17-20 also would not have been obvious.

[74] We therefore consider that claims 1-20 on file would not have been obvious to a person skilled in the art having regard to D2 in view of the CGK and thus the claims comply with section 28.3 of the *Patent Act*.

Summary on obviousness

[75] In summary, we are of the view that claims 1-20 on file would not have been obvious to a person skilled in the art having regard to D3 in view of the CGK, or having regard to D2 in view of the CGK, and thus the claims comply with section 28.3 of the *Patent Act*.

CONCLUSIONS

[76] This review has determined that:

1. the subject matter defined by claims 1-20 on file is novel and thus complies with paragraph 28.2(1)(*a*) of the *Patent Act*; and
2. the subject matter defined by claims 1-20 on file would not have been obvious to a person skilled in the art and thus complies with section 28.3 of the *Patent Act*.

RECOMMENDATION OF THE BOARD

[77] For the reasons set out above, we are of the view that the rejection is not justified on the basis of the defects indicated in the Final Action notice and we have reasonable grounds to believe that the instant application complies with the *Patent Act* and the *Patent Rules*. We recommend that the Applicant be notified in accordance with subsection 30(6.2) of the *Patent Rules* that the rejection of the instant application is withdrawn and that the instant application has been found allowable.

Lewis Robart   Paul Fitzner   Stephen MacNeil
Member   Member   Member

DECISION OF THE COMMISSIONER

[78] I concur with the findings and the recommendation of the Board. In accordance with subsection 30(6.2) of the *Patent Rules*, I hereby notify the Applicant that the rejection of the instant application is withdrawn, the instant application has been found allowable and I will direct my officials to issue a Notice of Allowance in due course.

Johanne Bélisle

Commissioner of Patents

Dated at Gatineau, Quebec,

this 11th day of September, 2018