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**Datasheet for the decision
of 28 June 2022**

Case Number: T 0324/17 - 3.4.01

Application Number: 11714425.3

Publication Number: 2545388

IPC: G01R31/12

Language of the proceedings: EN

Title of invention:

INSTRUMENT AND METHOD FOR DETECTING PARTIAL ELECTRICAL
DISCHARGES

Patent Proprietor:

Techimp HQ S.R.L.

Opponent:

Omicron electronics GmbH

Headword:

Detecting partial electrical discharges / Omicron electronics
GmbH

Relevant legal provisions:

EPC Art. 56, 83
RPBA 2020 Art. 13

Keyword:

Amendment to appeal case

Inventive step - non-obvious modification

Sufficiency of disclosure - (yes)



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Case Number: T 0324/17 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 28 June 2022

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
1 December 2016 concerning maintenance of the
European Patent No. 2545388 in amended form.**

Composition of the Board:

Chairman T. Zinke
Members: P. Fontenay
D. Rogers

Summary of Facts and Submissions

- I. The present decision relates to the appeal which was filed by the opponent (appellant) against the Opposition Division's interlocutory decision to maintain European patent 2 545 388.
- II. The opposition on which the Opposition Division had to adjudicate was based on the grounds of Article 100(a) EPC (lack of novelty and lack of inventive step) and of Article 100(b) EPC (lack of a sufficient disclosure).
- III. The Opposition Division decided that the patent, amended in accordance with auxiliary request 2, and the invention to which it relates, met the requirements of the EPC.
- IV. The patentee's main request for maintenance of the patent as granted was dismissed, because the subject-matter of independent claims 1 and 6 was found to lack an inventive step in the sense of Article 56 EPC. Concretely, the Opposition Division held that the claimed subject-matter was obvious in view of document:

O1: IEC 60270, International Standard, "High-Voltage test techniques - Partial discharge measurements; 3rd. Edition, December 2000, International Electrotechnical Commission, Geneva (CH),

considered as the most relevant item of prior art, in combination with document

O2: WO-A-2007/144789.

- V. The claims of the second auxiliary request were found to be inventive over a combination of O1, O2 and a third document:

O3: US-B-7 285 961.

While it was acknowledged that the skilled person would have considered the teaching of O2 when implementing the circuit of figure 1c in O1 in digital form, the opponent's objection failed because there was no suggestion in O2 as to how to provide a rejection of common mode electrical signals. The embodiment of figure 14 in O3 was concerned with an analogue implementation of common mode rejection. Independently of the fact that a combination of O1, O2 and O3 would have not led to the claimed subject-matter, it was stressed that the skilled person looking for a digital implementation of the circuit of Figure 1c in O1 would not have considered O3, in the first place.

- VI. The appellant requested that the decision of the first instance be set aside, and that the patent be revoked.
- VII. In the statement of grounds of appeal, the appellant reiterated the view that the invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC) and that the subject-matter of the claims was not patentable since it was not new (Article

54 EPC) and also not inventive (Article 56 EPC) with regard to a combination of documents 01, 02 and 03.

Concretely, the patent failed to provide the information required in order to determine the transformation function referred to in the independent claims and described in paragraphs [0203] to [0206] of the patent specification. In particular, the application did not contain any indication as to how the various parameters appearing in equations (1) and (2) referred to in said passages were obtained. Similarly, the patent specification failed to teach how the calibration signal was to be selected (claim 6) or how the value of the parameter relating to the waveform of the pulse (claim 7) was to be determined.

The objection of lack of novelty relied on the preliminary finding that the claimed subject-matter did not enjoy the benefit of the claimed priority of 10 March 2010. It was stressed, in this respect, that the claimed subject-matter differed from the wording of the original application from which a priority right was claimed. While the priority document consistently referred to the electric apparatus being incorporated or connected with the measuring circuit ("in un apparato elettrico (2) inserito in un circuito di misura", claim 6), claim 1 as maintained simply referred to a specific configuration regarding the use of the apparatus 2, namely, "when said apparatus (2) is connected to a measuring circuit". As a consequence, document 010 (WO-A-2011/110984), which claimed a priority of 10 March 2010 (same day as the priority claimed by the present application), formed part of the prior art in the sense of Article 54(3) EPC. It disclosed all the features of the claimed subject-matter.

With regard to inventive step, the appellant confirmed that document O1 was to be considered as closest prior art. It was further acknowledged that O1 did not explicitly disclose separate low frequency ("LF") acquisition circuits controlled by a common trigger. There was also no explicit mention in O1 of a processing block with a memory containing a transformation function elaborated in order for the first and second LF acquisition signals to coincide and thus to optimise rejection of common mode electrical signals. The appellant, however, stressed that O1 explicitly considered a gating system to distinguish between partial discharges and interferences or noise signals (page 79, 2. paragraph). Moreover, O1 contained clear indications for a digital implementation of the method disclosed therein (page 87, section E.1, first paragraph). The objective problem to be solved consisted in providing a full digital implementation of the circuit of O1, that is, providing a measurement device adapted to generate a digital balanced signal. In this respect, the skilled person would have considered O2 whose teaching focuses on digital acquisition and processing of parallel signals. While it was acknowledged that there was no indication in O2 to rely on a transformation function to align acquired signals, the skilled person would have found in O3, and his own common general knowledge, the required teaching in order to arrive at the claimed subject-matter. It was further stressed that the circuit of Figure 14 in O3 corresponded, in essence, to an analogue implementation of the transformation function according to the claimed invention.

VIII. In its reply to the statement of grounds of appeal, the patentee (respondent) requested that the appeal be dismissed and the patent maintained in the version considered allowable by the Opposition Division (main request). Alternatively, the respondent requested that the patent be maintained on the basis of a set of claims according to one of the first to third auxiliary requests filed with the reply to the statement of grounds.

These requests define the patentee's final requests on which the Board had to adjudicate.

IX. In the patentee's view, the application provided sufficient guidance for the skilled person to derive the transformation function. Reference was made in the description (paragraphs [0227] to [0229]) to calibration techniques, which were as such well known to the skilled person.

In the patentee's view, the wording in the claims did not affect the technical teaching of the application which was identical to the teaching conveyed by the earlier application from which a priority right was claimed.

As to the existence of an inventive step, it was stressed that it was not specified in O1 where the rejection of common mode electrical signals was performed. There was thus no mention in O1 that said functionality was carried out digitally, that is, downstream of the A/D conversion stage in the circuit of Figure 1c in O1. In the patentee's view, the opposite was the case. In the circuit of Figure 1c, the rejection of the common mode currents was performed by

analogue circuits with adjustable variable input impedances (section 4.2). As a result, the input signal to the measuring device was a single compensated analogue signal. There was namely no indication in O1 that the measuring instrument in Figure 1c included two distinct acquisition channels.

In the light of figure 1c in O1, the objective technical problem underlying the patent in suit was to provide an instrument for detecting partial electric discharges which was particularly efficient in rejecting common mode noise signals.

It was further stressed that O1 was silent about any practical implementation of the digital instrument. Even more so, O1 failed to disclose a concrete configuration for a digital common mode suppression.

Document O2 did not disclose any balanced circuit. In the context of O2, noise rejection was achieved according to a totally different approach based on the extraction of parameters obtained from the acquired signals. The patentee further endorsed the Opposition Division's reasoning according to which the skilled person seeking a digital implementation of the circuit of O1 would not have considered O3 which relates to the use of analogue circuits for common mode noise rejection.

- X. In a second communication filed in reply to the patentee's arguments, the appellant elaborated on the objections raised in the statement of grounds against the main request and put forward objections against the patentee's auxiliary requests. In this respect, reference was made to new evidence. In the appellant's

view, the filing of the new documents was a reaction to the patentee's arguments and the new auxiliary requests that had been filed. It was thus requested to admit the following documents into the appeal proceedings considering their relevance when deciding on the patentability of the requests on file:

013: I. Shim et al., "Digital signal processing applied to the detection of partial discharge: an overview," in IEEE Electrical Insulation Magazine, vol. 16, no. 3, pages 6-12, May-June 2000;

014: I. Shim et al., "Detection of PD utilizing digital signal processing methods. Part 3: Open-loop noise reduction," in IEEE Electrical Insulation Magazine, vol. 17, no. 1, pages 6-13, Jan.-Feb. 2001;

015: US-A-2010/0010761; and

016: N. Tongchim et al., "Design and construction of a PC-based PD detector and locator for HV cables using FPGA," 1999, Eleventh International Symposium on High Voltage Engineering, London, 1999, pp. 260-263 vol.5.

XI. In a communication under Article 15(1) RPBA, the parties were informed of the Board's preliminary opinion.

In substance, the Board did not identify any real obstacle hindering the skilled person from determining the transformation function required in order for the first and second LF signals to coincide. The claimed

method did not appear to require any knowledge extending beyond what might have been expected from the skilled person with regard to calibration techniques.

In the Board's preliminary view, the claims of the main request appeared to be entitled to the priority right claimed from the priority application filed on 10 March 2010. A further consequence was that document O10 that was published on 15 September 2011 and claimed a priority of 10 March 2010 did not form part of the prior art.

With regard to inventive step, the Board concurred with the parties that document O1 constituted the closest prior art. In the Board's preliminary assessment, the claimed subject-matter differed from the embodiment disclosed in Figure 1c of O1 by more features than assumed by the Opposition Division. Concretely, the Board failed to recognise in the circuit of Figure 1c in O1 that common mode rejection was performed digitally, inside the measuring instrument MI. The Board, however, failed to recognise any clear technical effect associated with the distinguishing features. In the absence of any such effect, the objective problem appeared to consist in the mere provision of a concrete implementation for the processing circuit disclosed in Figure 1c of O1. The effects relied upon by the patentee as to the efficiency of the digital implementation of the circuit were not persuasive, both analogue and digital solutions being considered equivalent, in this respect.

XII. Oral proceedings before the Board were held in presence of the patentee. As had been announced, the appellant was not represented.

XIII. Claim 1 of the patentee's main request reads:

An instrument (1) for detecting partial electric discharges in an electric apparatus (2), when said apparatus (2) is connected to a measuring circuit having a direct-measuring impedance device (7) connected across a low-voltage terminal of the electrical apparatus (2) and an earth node (4), and an indirect-measuring impedance device (8) connected across the earth node (4) and a low voltage terminal of a coupling capacitor (6) connected in parallel to the electrical apparatus (2), the instrument (1) being characterized in that it comprises:

- a first LF input stage (19) designed to receive an analogue signal (10) picked up at the terminals of the direct-measuring impedance device (7) and representative of electrical pulses correlated with the partial discharges, and to output a first LF digital signal (20) forming an uninterrupted sample flow representative of the pulses, the first LF input stage (19) forming a detection bandwidth of less than 2 MHz;*
- a first LF acquisition unit (27) connected to the first LF input stage (19) for receiving the first LF digital signal (20), and to a trigger module (14) for receiving a control signal (15) designed to allow samples of said flow to be selected according to a predetermined criterion, and configured to select from the flow of samples groups of samples forming segments corresponding to individual electrical pulses as a function of the control signal (15), thus generating a first LF digital acquisition signal (34);*

- a second LF input stage (19A) designed to receive an analogue signal (32) picked up at the terminals of the indirect-measuring impedance device (8) and representative of electrical pulses correlated with the partial discharges, and to output a second LF digital signal (20A) forming an uninterrupted sample flow representative of the pulses, the second LF input stage (19A) forming a detection bandwidth of less than 2 MHz;
- a second LF acquisition unit (27A) connected to the second LF input stage (19A) for receiving the second LF digital signal (20A) and designed to receive the control signal (15) which allows samples of said flow to be selected according to a predetermined criterion, and configured to select from the flow of samples groups of samples forming segments corresponding to individual electrical pulses as a function of the control signal (15), thus generating a second LF digital acquisition signal (34A);
- a processing block (35) designed to receive the first and second LF digital acquisition signals (34, 34A) to generate a balanced digital signal (36) without components representative of common mode electrical signals present in the measuring circuit;
- an output stage (17) designed to receive the balanced digital signal (36) and to allow processing thereof, wherein the processing block (35) has access to a memory containing a transformation function such that the first LF digital acquisition signal (34) would coincide, except for the sign, with the second LF digital acquisition signal (34A) transformed by the transformation function, in the absence of the signals produced by components generated by common

mode electric signals present in the measuring circuit, the balanced digital signal (36) being the difference between the first LF digital acquisition signal (34) and the second LF digital acquisition signal (34A) transformed by the transformation function, or vice versa.

Independent claim 5 of the patentee's main request reads:

A method for detecting partial electric discharges in an electric apparatus (2) included in a measuring circuit having a direct-measuring impedance device (7) connected across a low-voltage terminal of the electrical apparatus (2) and an earth node (4), and an indirect-measuring impedance device (8) connected across the earth node (4) and a low voltage terminal of a coupling capacitor (6) connected in parallel to the electrical apparatus (2), characterized in that it comprises the following steps:

- receiving, in a first LF input stage (19), a first analogue signal (10) picked up at the terminals of the direct measuring impedance device (7) and representative of electrical pulses correlated with the partial discharges and outputting a first LF digital signal (20) forming an uninterrupted sample flow representative of the pulses, the first LF input stage (19) forming a bandwidth of less than 2 MHz;*
- selecting, from the first LF digital signal (20), through a first LF acquisition unit (27) that receives the first LF digital signal (20) and a control signal (15) designed to allow selection of samples of said flow according to a predetermined criterion, groups of samples forming segments*

corresponding to individual electrical pulses as a function of the control signal (15), thus generating a first LF digital acquisition signal (34);

- receiving, in a second LF input stage (19A), a second analogue signal (32) picked up at the terminals of the indirect-measuring impedance device (8) and representative of electrical pulses correlated with the partial discharges and outputting a second LF digital signal (20A) forming an uninterrupted sample flow representative of the pulses, the second LF input stage (19A) forming a bandwidth of less than 2 MHz;
- selecting, from the second LF digital signal (20A) through a second LF acquisition unit (27A) that receives the second LF digital signal (20A) and the control signal (15), groups of samples forming segments corresponding to individual electrical pulses as a function of the control signal (15), thus generating a second LF digital acquisition signal (34A);
- processing the first and second LF digital acquisition signals (34, 34A) to generate a balanced digital signal (36) without components representative of common mode electrical signals present in the measuring circuit, so as to allow processing of said LF balanced digital signal (36), comprising a step of providing a transformation function such that the first LF digital acquisition signal (34) would coincide with the second LF digital acquisition signal (34A) transformed by the transformation function, in the absence of the signals produced by components generated by common mode electric signals present in the measuring circuit, the step of processing the first and second LF digital acquisition signals (34, 34A)

involving subtraction of the second LF digital acquisition signal (34A), transformed by the transformation function, from the first LF digital acquisition signal (34), or vice versa, in order to derive the balanced digital signal (36).

Reasons for the Decision

Main request - Sufficiency of disclosure (Article 83 EPC)

1. The appellant reiterated the view put forward before the Opposition Division that the invention as defined in claims 1 and 5-7 was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC). In its view, the patent failed to provide the information required in order to determine the transformation function referred to in independent claims 1 and 5 and described in paragraphs [203] to [206] of the patent specification. In particular, the application did not contain any indication as to how the various parameters appearing in equations (1) and (2) referred to in said passages are obtained.
2. As underlined by the patentee, however, paragraphs [227] to [229] of the patent specification provide additional information in this respect. They refer explicitly to the use of a calibrator.
3. The question to be answered is, thus, whether this indication alone or combined with common general knowledge as for example provided in IEC-60270 (01) outweighs the lack of details in the patent specification.

4. Even though paragraphs [227] to [229] of the patent specification do not contain many details as to the calibration procedure itself, they define its principle in that they teach the skilled person how to provide reference data, corresponding to common mode signals, on the basis of which the parameters defining the transformation will be determined. Although not explicitly acknowledged, this is achieved by requiring that the common mode signals be cancelled out when the first transformed signal is subtracted from the second non-transformed signal.

5. Similarly, the Board fails to identify any real obstacle hindering the skilled person from selecting the calibration current signal required for the determination of the transformation function referred to in dependent claim 6. The claimed method does not appear to require any knowledge extending beyond what may be expected from the skilled person with regard to calibration techniques.

6. The patent specification contains sufficient information to carry out the method steps of claim 7. In particular, the presence of trigger module 14 in the embodiments of Figures 2 and 3 of the patent in suit, which controls both the high frequency ("HF")-acquisition and LF-acquisition units, guarantees that both units process corresponding segments of the discharge signals. As underlined in paragraph [0199] of the patent specification, the absence of the broadband (HF) acquisition channel is no obstacle to the carrying out of the claimed invention. In that case, the trigger module 14 is connected up in one of the two LF-acquisition channels and fulfils its role as foreseen in the embodiments of figures 2 and 3. With regard,

more specifically, to the determination of the parameter itself, it is noted that any parameter that somehow characterises the amplitude of the pulse waveform may be envisaged.

Main request - Novelty

7. The appellant argued that the patent is not entitled to its priority date. As a consequence, document 010 (WO-A-2011/110984) would be prior art in the sense of Article 54(3) EPC.
8. It is, firstly, stressed that claim 1 of the main request is directed to an instrument for detecting partial electric discharges and not to such an instrument in combination with an electric apparatus, whether the latter is considered in isolation or combined with a measuring circuit. In the absence of any additional structural or functional limitation resulting from the wording of claim 1 for the claimed instrument, considered as such, compared to claim 1 of the priority document, the claimed instrument appears to be identical with the instrument disclosed in the priority document.
9. For this very reason, the argument that the condition now recited in claim 1 implies that the electric apparatus is now disclosed isolated from the measuring circuit appears to be without any bearing on the validity of the priority for the claimed instrument. A distinction is to be made between the extent of protection as it may result from the wording of claim 1 in the priority document and the technical teaching of a document. With regard to the latter, the Board notes that the measuring instrument as defined in claim 1 of

the main request corresponds to the measuring instrument disclosed in the priority document.

10. For completeness, it is further noted that no real difference in meaning can be identified between claim 1 of the patent in suit and claim 1 of the priority document. The expression "when said given apparatus (2) is connected to a measuring circuit..." in claim 1 of the main request appears to refer to a configuration defining the specific state in which the electric apparatus and the measuring circuit are connected together. In terms of disclosure, the recited condition does not add anything to the content of claim 1 beyond that which is also disclosed in the priority document, which *de facto* also requires that said condition be met. The amended wording is silent as to the existence of a configuration with the electric apparatus being disconnected, or somehow separated, from the measuring circuit.
11. The appellant's argument that the condition now recited in claim 1 implies that the electric apparatus is now disclosed isolated from the measuring circuit is thus also rejected in its substance.
12. Consequently, the claims of the main request appear to be entitled to the priority right resulting from the priority application filed on 10 March 2010. A further consequence is that document 010 does not form part of the prior art.
13. None of the other prior art documents cited disclose the features of claims 1 or 5 in combination. Their subject-matter is thus new in the sense of Article 54 EPC.

Main request - Inventive step

- 14. Document O1 is considered by both the parties and the Opposition Division to disclose the most promising starting prior art for assessing the inventive merits of the claimed invention. The Board does not identify any reason to question this aspect of the decision. It is, specifically, noted that O1 reproduces the key functionalities of the claimed instrument and further discloses to use it according to the same configuration as the instrument according to the invention when measurements are being carried out.

- 15. Document O1 defines an international standard applicable to the measurement of partial discharges which occur in electrical apparatus, components or systems. In particular, O1 describes test and measuring circuits which may be used for such measurements. In this respect, the embodiment corresponding to Figure 1c in O1 is particularly relevant.

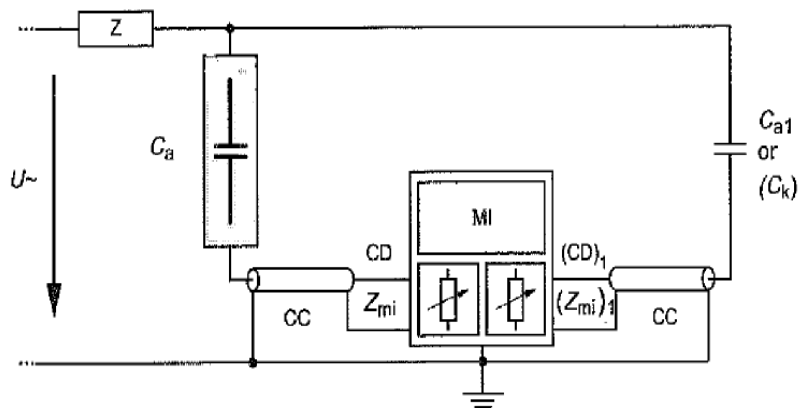


Figure 1c - Balanced circuit arrangement

Figure 1c discloses an instrument (MI) for detecting partial electric discharges in an electric apparatus

(C_a), when said apparatus is connected to a measuring circuit having a direct-measuring impedance device connected across a low-voltage terminal of the electrical apparatus and an earth node, and an indirect-measuring impedance device connected across the earth node and a low voltage terminal of coupling capacitor (C_{a1}) connected in parallel to the electrical apparatus (C_a).

16. The findings relied upon by the Opposition Division with regard to the embodiment of Figure 1c in O1, according to which the "balancing takes place inside the MI by means of some digital processing" (cf. page 14 of the impugned decision, first paragraph), appears questionable. The passages referred to in O1 suggest that the information as to where the rejection of common modes takes place is simply missing in O1 (cf. sections 4.5.3 and 4.5.4 in O1).
17. The view that a digital implementation of these method steps reflects the most plausible interpretation might be relevant when deciding on what the skilled person would have envisaged doing, but does not affect the basic finding that said feature is neither explicitly nor implicitly disclosed in O1. It constitutes thus an additional distinguishing feature between the claimed subject-matter and the disclosure of Figure 1c in O1.
18. Similarly, it seems impossible to conclude with certainty whether the instrument MI in figure 1c includes two distinct acquisition channels, designed to receive the signals originating from, respectively, the direct and indirect impedance measuring branches of the circuit. Here too, the view that a configuration with one single input is "far less plausible" than the configuration with two separate outputs for the two

measuring branches of the measuring circuit, is not sufficient to exclude this possibility in the context of O1. The presence of two parallel acquisition channels defines thus a further distinguishing feature between the claimed subject-matter and the circuit disclosed in Figure 1c in O1.

19. O1 discloses other basic circuits for the detection and measurement of partial discharges. The arrangement shown in figure 1d is relevant insofar as it also includes two capacitances, either or both of which may be test objects. A gating system can be used to discriminate between partial discharge pulses originating in the test object and disturbances from other parts of the test circuit. However, its principle is not based upon a balanced circuit, but makes a comparison of the direction of flow of pulse signals detected in the two coupling devices.

20. In consequence, the subject-matter of claim 1 of the main request distinguishes from the arrangement of Figure 1c in O1, which is considered closest to the claimed subject-matter, essentially in that it does not disclose the concrete digital processing referred to in claim 1 and claim 6. This starts with the absence of parallel first and second LF input stages designed to receive analogue signals picked up, respectively, at the terminals of the direct-measuring and indirect-measuring impedance devices, representative of electrical pulses correlated with the partial discharges, and further designed to output parallel first and second LF digital signals forming an uninterrupted sample flow representative of the pulses. This extends to all the digital data processing steps, including the final treatment in the output stage and the rejection of common mode signals by reference to a

transformation function which makes the first and second signals coincide.

21. While digital processing of LF signals is indeed envisaged in O1, the document does not contain any concrete implementation in this respect.
22. According to the appellant, the objective problem to be solved consists in providing a digital implementation of the measuring instrument of O1 that permits, in particular, the generation of a balanced digital signal.
23. Whether the claimed solution is particularly efficient in rejecting common mode noise signals, as put forward by the patentee, is doubtful. In terms of efficiency and in the absence of concrete details regarding the configuration envisaged, analogue and digital implementations appear to be equivalent.
24. The reference in paragraph [0058] of the patent to enhanced sensitivity and accuracy of measurement is also not convincing. While the enhanced sensitivity results from the presence of an HF channel (cf. paragraph [0055]), that is from a feature not actually present in claim 1, improved accuracy appears to derive from the elimination of the components corresponding to common noise, i.e. from an effect that is already provided by the circuit of Figure 1c in O1.
25. In the course of the oral proceedings before the Board, the patentee was, however, able to persuade the Board that the claimed configuration provides technical effects over the known instrument and that the problem extended beyond the mere provision of a detailed

implementation for the processing circuit disclosed in Figure 1c of O1.

26. It was stressed, in this respect, that the claimed configuration provided a simplified implementation in that it defined once and for all a transformation function on which to rely for common mode rejection. Compared with the need to adapt the variable impedances in Figure 1c of D1 in order to nullify the common mode signals, the claimed subject-matter allowed more flexibility.
27. Document O2, discloses a multi-channel digital instrument that is able to operate in wide band (cf. page 16, lines 14-15). O2 describes in detail the digital data processing that is carried out on two parallel acquisition channels. As stressed by the Opposition Division, the mere fact that the instrument in O2 operates in wide band is no obstacle for its teaching being taken into account when looking for a solution to a problem regarding a narrow band instrument.
28. Similarly, the absence of reference to the problem of common mode suppression in O2 is also no obstacle for its teaching being considered by the skilled person looking for a digital implementation of the circuit of O1. It is stressed, in this respect, that the arrangement according to Figure 1c in document O1 explicitly refers to common mode rejection and that the skilled person would not implement a circuit without this functionality of O1.
29. In the Board's judgment, the skilled person would have found in O2 clear guidance as to a possible digital implementation of the circuit of Figure 1c in O1.

30. However, in the absence in either document O1 or in document O2 of any indication as to how common mode rejection is to be addressed, the skilled person would be at a loss as to how to implement this functionality in a digital environment. This is all the more true considering that Figure 1c of O1 and the corresponding disclosure is unclear as to whether common mode rejection is performed by analogue circuitry upstream of measuring instrument MI or whether said processing takes place within MI on the basis of two parallel acquired signals.
31. Document O3 relates to a fully analogue implementation of noise suppression in a measuring instrument. Its incorporation in a digital implementation of the measuring instrument (as would result from a combination of O1 and O2) is, for this very reason, excluded.
32. An adaptation of the instrument of Figure 1c in O1 in the light of O2 would thus not lead to the claimed subject-matter. This would apply independently of the two conceivable configurations in Figure 1c as to whether common mode rejection is performed within the measuring instrument or upstream.
33. It is further observed that the prior art does not contain any hint to rely on a transformation function in order to make the two acquired signals coincide.

New evidence - Article 13 RPBA 2020

34. Documents O13, O14, O15 and O16 were filed by the opponent-appellant in response to the patentee's reply

to the statement of grounds filed by the appellant. Documents O13, O14, O15 and O16 are used as basis for further objections against the patentee's main request. In the opponent's view their introduction into the appeal proceedings is justified by the new arguments put forward by the patentee in its reply to the statement of grounds and by the filing of new auxiliary requests 1 to 3.

35. These arguments are not sufficient to convince the board on the admissibility of this new evidence.

36. The admission of the new evidence depends on the conditions set out in Article 13(1) RPBA 2020 which applies under the circumstances (cf. Article 25(2) RPBA, *a contrario*). Their admission is at the discretion of the Board.

37. Under the circumstances, the Board notes that the opponent was well aware of the reasoning which eventually led the Opposition Division to maintain the patent on the basis of the current main request (former second auxiliary request). It was then up to the opponent to address in the statement of grounds of appeal the Opposition Division's reasoning. The opponent did this. Further, the opponent could have been expected to consider alternative lines of attack against said version of the patent that had been considered allowable. The opponent did not do this. This is particularly true with regard to the opponent-appellant's new objection raised on the basis of document O2 in combination with document O13 which constitutes a substantially different approach from the one elaborated on the basis of O1.

38. In the Board's judgement, it was to be expected that the patentee would contest the arguments of the opponent and possibly elaborate on the reasons why the maintained patent version is patentable.
39. The Board is also not persuaded that equation 4 of O15 can be equated with the transformation function according to the invention. As to document O16, its teaching does not appear to extend beyond the mere finding that the suppression of interference is done by comparing the phase angle of each pulse between the partial discharge ("PD") detector circuit and antenna circuits and that the pulse is eliminated if there is a match (cf. point 3, page 261).
40. Independently of the fact that the arguments in support of the admissibility of new documents O13, O14, O15 and O16 are not persuasive, their admissibility into the proceedings would be detrimental to the economy of the proceedings. For these reasons the new evidence is not admitted (Article 13(1) RPBA) into the appeal proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



D. Meyfarth

T. Zinke

Decision electronically authenticated