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Datasheet for the decision of 12 October 2017

Case Number: T 1462/12 - 3.4.03

Application Number: 99930723.4

Publication Number: 1112514

IPC: G01V3/20

Language of the proceedings: EN

Title of invention:
APPARATUS FOR IMAGING EARTH FORMATION

Applicant:
Schlumberger Holdings Limited
SCHLUMBERGER TECHNOLOGY B.V.
Services Pétroliers Schlumberger
Schlumberger Holdings Limited

Headword:

Relevant legal provisions:
EPC 1973 Art. 56
EPC 1973 R. 71(2)
RPBA Art. 15(3), 15(5), 15(6)

Keyword:
Oral proceedings - held in absence of appellant
Inventive step - all requests (no)

Decisions cited:

Catchword:

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Case Number: T 1462/12 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 12 October 2017

Appellant: (Applicant 1)	Schlumberger Holdings Limited P.O. Box 71, Craigmuir Chambers Road Town, Tortola (VG)
Appellant: (Applicant 2)	SCHLUMBERGER TECHNOLOGY B.V. Parkstraat 83-89 2514 JG The Hague (NL)
Appellant: (Applicant 3)	Services Pétroliers Schlumberger 42, rue Saint Dominique 75340 Paris Cédex 07 (FR)
Appellant: (Applicant 4)	Schlumberger Holdings Limited P.O. Box 71 Craigmuir Chambers Road Town, Tortola (VG)
Representative:	Schlumberger Cambridge Research Limited High Cross Madingley Road Cambridge CB3 0EL (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 2 March 2012 refusing European patent application No. 99930723.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	G. Eliasson
Members:	M. Papastefanou
	C. Heath

Summary of Facts and Submissions

I. The appeal is against the decision of the Examining Division refusing the European patent application No. 99930723.4 (published as WO 00/04405 A1) on the grounds that Claim 1 of the Main Request before it lacked novelty and Claim 11 of the Auxiliary request did not meet the requirements of Article 123(2) EPC.

II. The Appellant (Applicant) requested that the decision of the Examining Division be set aside and that a patent be granted on the basis the Main request, or, as an auxiliary measure, on the basis of one of the First to Seventh Auxiliary requests; all requests were filed with the grounds of appeal.

III. From the documents cited by the Examining Division, relevant for the present decision is the following:
D5: EP 0 071 540 A2

Reference is also made to US 4468623 (D5a) a US family member of D5 referred to by the Appellant in the grounds of appeal.

IV. In a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), which was annexed to the summons to oral proceedings, the Board communicated its preliminary non-binding opinion. The Board raised doubts about the inventive step involved in the subject matter of claim 1 of all requests with respect to D5. In addition, a series of objections under Articles 84 and 123(2) EPC were raised against claims of all requests.

V. As a reaction to this communication, the Appellant informed the Board that it would not be attending the

oral proceedings, which were, thus, held in the Appellant's absence. At the end of the oral proceedings the chairman announced the decision.

VI. Claim 1 of the Main request is worded as follows:

An apparatus for use in a borehole investigating tool which is movable through the borehole for investigating the wall (42) of the borehole, said apparatus comprising:
a) a non-conductive pad (30,30', 130) adapted to be pressed against the borehole wall (42);
b) a matrix of voltage electrodes (32, 132) carried on said non-conductive pad and adapted to sense a plurality of voltages at the borehole wall (42), wherein the matrix of voltage electrodes (32, 132) extends on the pad (30,130) in rows of electrodes with spacing between the electrodes of each row and spacing between the rows;
c)a first current source electrode (34, 34') adapted to inject a current into the borehole wall (42); and
d) a first current return electrode (36, 36') adapted to drain current from the borehole wall (42) at a location spaced from said first current source electrode (34, 34'), wherein the matrix of voltage electrodes (32, 132) is located between said first current source electrode (34, 34') and said first current return electrode (36, 36') and provides a plurality of pairs of electrodes with the spacing between the electrodes of each pair in the direction between the first current source and the first current return electrodes;
e) a current supply (35) coupled to said first current source electrode (34, 34') and said first current return electrode (36, 36'); and

f) voltage measuring means (37) coupled to pairs of voltage electrodes (32, 132) for measuring voltage differences between electrodes in the pairs of voltage electrodes.

VII. Claim 1 of the First to Sixth Auxiliary requests has the same wording as claim 1 of the Main request.

VIII. Claim 1 of the Seventh Auxiliary request is worded as follows (the additional features compared to claim 1 of the Main request are underlined):

An apparatus for use in a borehole investigating tool which is movable through the borehole for investigating the wall (42) of the borehole, said apparatus comprising:
a) a non-conductive pad (30, 30', 130) adapted to be pressed against the borehole wall (42);
b) a matrix of voltage electrodes (32, 132) carried on said non-conductive pad and adapted to sense a plurality of voltages at the borehole wall (42), wherein the matrix of voltage electrodes (32, 132) extends on the pad (30,130) in rows of electrodes with spacing between the electrodes of each row and spacing between the rows;
c)a first current source electrode (34, 34') adapted to inject a current into the borehole wall (42); and carried on said non-conductive pad
d) a first current return electrode (36, 36') adapted to drain current from the borehole wall (42) at a location spaced from said first current source electrode (34, 34'), and carried on said non-conductive pad (30, 30', 130) wherein the matrix of voltage electrodes (32, 132) is located between said first current source electrode (34, 34') and said first current return electrode (36, 36') and provides a

plurality of pairs of electrodes with the spacing between the electrodes of each pair in the direction between the first current source and the first current return electrodes;
e) a current supply (35) coupled to said first current source electrode (34, 34') and said first current return electrode (36, 36'); and
f) voltage measuring means (37) coupled to pairs of voltage electrodes (32, 132) for measuring voltage differences between electrodes in the pairs of voltage electrodes.

IX. Claim 1 of the Main request (and First to Sixth Auxiliary requests) corresponds to claim 1 of the First Auxiliary request before the Examining Division. During the first instance oral proceedings, the Examining Division concluded that this claim involved an inventive step in view of document D5. Regarding the Seventh Auxiliary request, it corresponds to the Second Auxiliary request, which the Examining Division considered allowable and issued a communication under Rule 71(3) EPC intending to grant a European patent. The Appellant did not approve the text of the Second Auxiliary request and the Examining Division issued the appealed decision instead.

Reasons for the Decision

1. The duly summoned Appellant did not attend the oral proceedings, as it had announced in advance. According to Rule 71(2) EPC 1973, the proceedings could continue without the Appellant. In accordance with Article 15(3) RPBA, the Board relied on its decision only on the Appellant's written submissions. The Board being in a position to decide the case at the conclusion of the oral proceedings (Article 15(5) and (6) RPBA), the

voluntary absence of the Appellant was not a reason for delaying the decision (Article 15(3) RPBA).

2. Main Request

2.1 The Appellant made reference to the minutes of the first instance oral proceedings, and pointed out that the Examining Division had concluded that claim 1 of the First Auxiliary request before it - which corresponds to claim 1 of the current Main request - involved an inventive step.

In the absence of any corresponding reasoning, however, the Board is not in a position to know the reasons that led the Examining Division to this conclusion. The Appellant did not provide any arguments for the presence of inventive step in the claims, either.

As it will be explained in the following paragraphs, the Board did not reach the same conclusion as the Examining Division.

2.2 The selection of D5 as closest prior art remained uncontested by the Appellant and the Board does not see any reason to differ. D5 describes a borehole investigating tool which is movable through a borehole for investigating its wall (see Figure 1). The borehole investigating tool comprises (see page 17, second paragraph - page 18, penultimate paragraph and Figures 2-4; also D5a, column 9, line 44 - column 10, line 25) a non-conductive pad (140 in Figures 3 and 4), which is adapted to be pressed against the wall of the borehole, on which a matrix of measure electrodes can be arranged in rows with spacing between the electrode of each row and between the rows (page 17, second paragraph and Figure 2). The matrix of electrode is located between a

current source electrode (142) and a current return electrode (57) at a location spaced from the current source electrode (page 17, last lines of second paragraph). A current supply (146 in Figure 3) is included in the tool, as well.

As explained in the paragraph bridging pages 17 and 18 of D5, the electric potential difference (i. e. voltage difference) between measure electrodes (i. e. the ones on the pad) and the remotely located return electrode or another reference electrode is measured. This reference electrode can be located on the non-conducting pad (M_1 - page 18, second paragraph and Figure 3).

2.3 Hence, the only difference between the claimed apparatus and the one described in D5 is that in the claimed apparatus the voltage difference between electrodes in a pair of voltage electrodes is measured, while in D5 the voltage difference between the measure electrodes and a reference electrode is measured.

2.4 The Board can see no technical effect obtained by this distinguishing feature on the measured voltage nor on the generated resistivity image of the borehole wall(s) nor on the apparatus itself. It remains, thus, a construction detail of the apparatus which does not solve any particular technical problem. Hence, the skilled person would modify the apparatus of D5 to measure the voltage difference between the measure electrodes instead of using a reference electrode based on his common general knowledge, and according to specific needs and circumstances, in an obvious and straightforward manner.

The Board concludes, therefore, that the subject matter of claim 1 of the Main request does not involve any inventive step within the meaning of Article 56 EPC 1973.

3. Auxiliary requests

3.1 **Claim 1 of the First to Sixth Auxiliary** requests is identical to claim 1 of the Main request. Hence, claim 1 of the First to Sixth Auxiliary requests does not involve an inventive step for the same reasons as claim 1 of the Main request.

3.2 Compared to claim 1 of the Main request, **claim 1 of the Seventh Auxiliary request** comprises the additional feature that both the (first) current source electrode and current return electrode are carried on the non-conductive pad. In D5 the current source electrode (142 in Figure 3) is located on the non-conductive pad but the current return electrode (57 in Figure 3) is located away from it.

3.2.1 The technical effect of this difference is that in the claimed tool all the necessary electrodes are located on the pad, providing, thus, a more compact structure which leads to a more flexible use since there is no need to install/use a remote current return electrode which would limit the field of use of the tool. The skilled person starting from D5 is, thus, faced with the technical problem of how to achieve this technical effect.

3.2.2 It is well known in the field of well logging that it is preferable to have the electrodes close to each other (in the so called lateral devices) rather than remote from each other (so called normal devices). This

arrangement provides for deeper resistivity measurements and better detection of thin beds.

3.2.3 Based on common general knowledge, the skilled person would, thus, find it obvious to add the current return electrode on the non-conductive pad of the apparatus in D5. This would provide compactness and independence to the tool by eliminating the need to use a separate current return electrode and, thus, permit the tool to log deeper boreholes with more reliability.

The Board concludes, hence, that claim 1 of the Seventh Auxiliary request does not involve any inventive step, either.

4. Since none of the Appellant's requests is allowable, the appeal must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Sánchez Chiquero G. Eliasson

Decision electronically authenticated