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**Datasheet for the decision
of 10 February 2015**

Case Number: T 1491/10 - 3.5.04

Application Number: 04704291.6

Publication Number: 1588555

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H04N5/445, G11B27/031,
G06F17/60

Language of the proceedings: EN

Title of invention:
METHODS AND APPARATUS FOR TRANSMITTING AND RECEIVING
TELEVISION SIGNALS

Applicant:
British Sky Broadcasting Limited

Headword:

Relevant legal provisions:
EPC 1973 Art. 56

Keyword:
Inventive step - (no)

Decisions cited:

Catchword:



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Case Number: T 1491/10 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 10 February 2015

Appellant: British Sky Broadcasting Limited
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Middlesex TW7 5QD (GB)

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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 22 January 2010
refusing European patent application
No. 04704291.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. Edlinger
Members: M. Paci
B. Müller

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division refusing European patent application No. 04704291.6, published as international patent application WO 2004/066623 A2.

II. In the decision under appeal the following prior-art document was cited:

D4: EP 0 103 438 A1.

The decision under appeal was based on the following grounds:

- the subject-matter of the independent claims according to the main request and of independent claims 2 and 9 according to the seventh auxiliary request lacked novelty in view of D4 (Article 54(1) and (2) EPC); and
- the independent claims according to the first to sixth auxiliary requests and independent claims 1 and 8 according to the seventh auxiliary request contained subject-matter extending beyond the content of the application as filed (Article 123(2) EPC).

III. With the statement of grounds of appeal the appellant filed amended claims according to a main request and first to third auxiliary requests, replacing the claims previously on file.

IV. In a communication under Article 15(1) RPBA (Rules of Procedure of the Boards of Appeal, OJ EPO 2007, 536), annexed to the summons to oral proceedings, the board expressed the provisional opinion that the claims did not meet the requirement of clarity of Article 84 EPC 1973 because it was unclear in view of the expressions

"stream of audiovisual data" and "separate stream of interactive data" used in claim 1 whether the term "stream" referred to both digital and analogue data streams or to a digital data stream only. Moreover, the board explained that, depending on the interpretation of that term, the claimed subject-matter of the independent claims either lacked novelty (Article 54(1) and (2) EPC 1973) in view of D4 or inventive step (Article 56 EPC 1973) in view of D4 and the skilled person's common general knowledge about the Digital Video Broadcasting (DVB) standard. As evidence of the content of the relevant part of the DVB standard, the board introduced the following prior-art document (cited on page 9 of the description of the application as filed) into the proceedings:

D9: European Telecommunications Standards Institute (ETSI) standard EN 300 472 V1.2.2 (1997-08):
"Digital Video Broadcasting (DVB); Specification for conveying ITU-R System B Teletext in DVB bitstreams".

V. With a letter of reply dated 12 January 2015, the appellant filed amended claims according to a main request and first to third auxiliary requests. The amendments *inter alia* limited the data streams to being digital. With that letter the appellant also filed the following document as evidence that transmission of data in a Vertical Blanking Interval (VBI) was possible in a digital data stream:

D10: European Telecommunications Standards Institute (ETSI) standard EN 301 775 V1.2.1 (2003-05):
"Digital Video Broadcasting (DVB); Specification for the carriage of Vertical Blanking Information (VBI) data in DVB bitstreams".

- VI. In a letter dated 2 February 2015, the appellant informed the board that it would not be attending the oral proceedings.
- VII. The board held oral proceedings on 10 February 2015. As announced, the appellant was not represented. At the end of the oral proceedings, the chairman announced the board's decision.
- VIII. The appellant's final requests are that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of the main request or the first to third auxiliary requests filed with a letter of 12 January 2015.
- IX. Claim 2 according to the appellant's **main request** reads as follows:
- "A method of receiving a television programme including interactive content, the method comprising, at a receiver: receiving over a digital television network (10) a broadcast stream of audiovisual data for display and receiving over the television network (10) a separate broadcast stream of interactive content data, storing the interactive content data and responding to codes in the stream of audiovisual data to include the stored interactive content data in the display of the audiovisual data."
- X. Claim 1 according to the appellant's **first auxiliary request** reads as follows (additions to claim 2 of the main request are underlined):

"A method of receiving a television programme including interactive content, the method comprising, at a

receiver: receiving over a digital television network (10) a broadcast stream of audiovisual data for display and receiving over the digital television network (10) a separate broadcast stream of interactive content data, storing the interactive content data and responding to codes in the stream of audiovisual data to include the stored interactive content data in the display of the audiovisual data."

- XI. Claim 1 according to the appellant's **second auxiliary request** reads as follows (additions to claim 2 of the main request are underlined):

"A method of receiving a television programme including interactive content, the method comprising, at a receiver: receiving over a digital television network (10) a broadcast stream of audiovisual data for display and receiving over the digital television network (10) a separate broadcast stream of interactive content data, storing the interactive content data and responding to codes in the stream of audiovisual data to include the stored interactive content data in the display of the audiovisual data, wherein the interactive content is included in the display of the audiovisual data by overlaying it on the displayed audiovisual data."

- XII. Claim 1 according to the appellant's **third auxiliary request** reads as follows (additions to claim 2 of the main request are underlined):

"A method of receiving a television programme including interactive content, the method comprising, at a receiver: receiving over a digital television network (10) a broadcast stream of audiovisual data for display and receiving over the digital television

network (10) a separate broadcast stream of interactive content data, storing the interactive content data and subsequently receiving and responding to codes in the stream of audiovisual data to include the stored interactive content data in the display of the audiovisual data."

XIII. The examining division expressed its opinion on inventive step, if the term "stream" were to be construed as meaning a digital stream, in "Additional Comments" not forming part of the decision under appeal (see point vi on page 11). The examining division's opinion can be summarised as follows:

D4 disclosed both interactive content data and codes in the Vertical Blanking Interval (VBI), but relied on analogue transmission of the audiovisual data.

The skilled person would thus have been faced with the objective problem of adapting the analogue transmission system of D4 to digital transmission networks.

An obvious solution would have been to convert the analogue video and audio signal to a known digital television standard, such as the DVB standard (of particular importance in Europe), and to adapt any data already in the digital domain (teletext data, etc.) to the stream structure of the digital television standard.

In this way, the skilled person, starting from D4, would have arrived at the method of claim 1 of the then main request without an inventive step.

XIV. The appellant's arguments regarding inventive step relevant to the present decision can be summarised as follows:

Main request

The appellant concurred with the board's provisional opinion in the communication under Article 15(1) RPBA that the method of claim 2 of the main request differed from that of D4 by the following features:

- (a) the audiovisual data is received in a (digital) stream;
- (b) the interactive content data is received in a separate (digital) stream;
- (c) the codes are included in the (digital) stream of audiovisual data; and
- (d) the stored interactive content data is included in the display of the audiovisual data.

However, contrary to what was stated in the board's communication, the passage on page 9, lines 28 to 33, of D4 did not disclose that a code triggered the display of text relating to interactive learning; it merely enabled reception of text relating to interactive learning in full-field teletext transmission, but said nothing about its display. Hence the following feature of claim 2 was also novel over D4:

- (e) the codes cause the receiver to display the stored interactive content data.

Even if the skilled person had been aiming to adapt the system of D4 to a digital broadcasting standard such as the DVB standard, it would merely have transmitted the VBI data of D4, i.e. the codes and interactive content

data, as VBI data according to the DVB standard as specified in D10. The skilled person would thus neither have chosen to transmit the codes and the interactive content data in separate streams, nor to store the interactive content data prior to reception of the code triggering its display.

Hence the method of claim 1 according to the main request involved an inventive step when starting from D4. The same reasoning also applied to claim 2.

First auxiliary request

The above reasoning also applied to claim 1 according to the first auxiliary request which was identical to claim 2 according to the main request.

Second auxiliary request

The method of claim 1 according to the second auxiliary request included the additional feature that the interactive content data was overlaid on the displayed audiovisual data. In D4, the interactive content transmitted in full-field teletext transmission replaced the audiovisual data. The interactive content could thus not be overlaid on the audiovisual data because there was no audiovisual data. Hence the claimed method involved an inventive step.

Third auxiliary request

The method of claim 1 according to the third auxiliary request included the additional feature that the interactive content data was stored at the receiver before the codes were received. This was the exact opposite of what was taught in D4. Moreover, it would

have made no sense to send the command codes after the display function to which they related. Indeed, in case of the scrambling function, it would have been necessary to have the scrambling code before the field to which it related, to avoid unnecessary buffering. In case of the switch to full-field teletext mode, it would have been pointless to send the necessary code only after the switch was required. Hence the claimed method involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.

Main request - Inventive step (Article 56 EPC 1973)

2. The appellant did not dispute that D4 represents the closest prior art for the subject-matter of claim 2.
3. Disclosure of D4
 - 3.1 D4 discloses a television distribution network (figure 1) in which a transmitter (central store and control unit 1) broadcasts audiovisual data (analogue television signals) to a receiver (4 in figure 1). The transmitter also transmits codes (command signals in teletext format: see page 6, lines 9 to 15) separately from the audiovisual data (via the VBI: see page 1, lines 4 to 9, and page 2, lines 7 to 9). When a code is received at the receiver, it initiates an operation in said receiver, such as to display a signal (see page 3, lines 3 to 7, page 6, lines 32 to 34, and page 9, lines 28 to 33). In one example, the code can trigger the display of text related to interactive learning (see page 9, lines 28 to 33). This text, which can be

regarded as "interactive content data", is received as teletext data in "full field teletext transmission" (see page 9, lines 28 to 33), meaning a transmission on any or all of the lines outside of the VBI. A return channel from the receiver to the transmitter enables user interaction (see page 10, lines 23 to 29).

The board regards as **implicit** in the disclosure of D4 that the receiver must comprise a memory (at least a buffer memory) for storing at least the teletext page to be displayed.

3.2 The appellant argued that the passage on page 9, lines 28 to 33, of D4 did not disclose that a code triggered the display of text relating to interactive learning, but only that it enabled reception of text relating to interactive learning transmitted in full-field teletext transmission.

3.3 The board concurs with the appellant that this passage of D4 does not **explicitly** state that the interactive learning text is displayed. However, the board regards this feature as **implicit** for the following reasons:

In the preceding pages of the description of D4 (see, in particular, page 2, lines 7 to 9, page 3, lines 3 to 7 and 19 to 23, page 6, lines 32 to 34, and page 7, lines 19 to 22), it is made clear that a code ("command signal") is inserted in Teletext format in the Vertical Blanking Interval (VBI) of the analogue television signal, i.e. in the first few scan lines of a field (image or half-image), for instructing the receiver to display the signal transmitted **immediately after** said code. In a normal situation, the signal to be displayed is an image (or half-image) of a television programme.

However, in the particular situation described in said passage on page 9, lines 28 to 33, the signal transmitted **immediately after** the VBI data is interactive learning text data transmitted instead of an image of a television programme ("full field teletext transmission"). Hence, it would have been apparent to the skilled person in that context, even if not explicitly stated, that the code in the VBI instructs the receiver to display the interactive learning text data transmitted immediately after said code.

Moreover, since the interactive learning text data is transmitted **instead of an image of a television programme**, there is no audiovisual image to be displayed. Thus, if the interactive learning text data were not displayed, it would result in a blank screen being displayed, which would be a highly undesirable outcome which the skilled person would immediately rule out when reading said passage on page 9, lines 28 to 33, of D4. Hence the interactive learning text data **must** be displayed.

3.4 Claim 2 of the main request refers to a "digital" television network. Although claim 2 does not specify that the data streams are also digital, the board regards this feature as **implicit** from the fact that they are transmitted over a digital television network.

4. Distinguishing features

In the light of the above, the board considers that the method of claim 2 according to the main request differs from the method of D4 only by the following features:

- (a) the audiovisual data is received in a (digital) stream;
- (b) the interactive content data is received in a separate (digital) stream;
- (c) the codes are included in the (digital) stream of audiovisual data; and
- (d) the stored interactive content data is included in the display of the audiovisual data.

5. Objective technical problem

In view of the above distinguishing features, the objective technical problem can be generally formulated as how to improve the analogue television distribution network of D4.

6. Obviousness

The board concurs with the examining division (see point XIII *supra*) that the skilled person would have wanted to adapt the analogue broadcasting network of D4, published in 1984, to the internationally accepted standards for digital television, such as the European Digital Video Broadcasting (DVB) standard, which was adopted several years later but before the priority date of the present application.

Re distinguishing features (a) and (b)

According to the DVB standard, the audiovisual data (television programmes) and additional data (Teletext data, EPG data, interactive content, etc.) is transmitted as separate digital streams (Packetized Elementary Streams or PES) which are divided in MPEG-2 transport packets and time-multiplexed into a single transport stream (see, for instance, section 4 on

page 6 of D9). Hence, when adapting the system of D4 to the DVB standard, the skilled person would have arrived at **features (a) and (b)** without inventive skill.

Re distinguishing feature (c)

The "codes" ("command signals") of D4 are relatively short (see figure 3 of D4) and could thus be inserted into any digital stream with little overhead.

Feature (c) would thus have been a straightforward choice for the skilled person, for instance for synchronising the code with the audiovisual data.

Re distinguishing feature (d)

It is a well-known feature of television receivers that teletext data can be displayed either on their own (i.e. on a black background) or overlaid on the displayed television programme (i.e. included in the display of the audiovisual data).

The appellant did not dispute this fact, but argued that in the analogue system of D4 the interactive content could neither be overlaid on, nor included in, the audiovisual data because there was no transmitted audiovisual data when the interactive content was transmitted in full-field teletext transmission. Furthermore, there was no reason why the skilled person would seek to depart from this specific teaching of D4.

The board concurs with the appellant that in the analogue system of D4 either the interactive content (transmitted in full-field teletext transmission) or the audiovisual data is received at the receiver, but not both at the same time. Moreover, the analogue audiovisual data transmitted in the previous frame is

not stored. Thus the appellant is correct that the interactive content data cannot be overlaid on, or included in, the audiovisual data. However, in a digital version of the system of D4 according to the DVB standard, this limitation would no longer exist because the interactive content data and audiovisual data could be transmitted at the same time (in time-multiplexed packetised MPEG-2 streams) or the interactive content data could be transmitted in advance of when it is actually needed (such as in the well-known case of EPG data) and, in any case, both types of data would commonly be stored in a (buffer) memory at the receiver. Hence there would be no technical obstacle to the usual overlay of interactive content data on the display of audiovisual data.

Hence **feature (d)** would have been straightforward for the skilled person.

Additional arguments submitted by the appellant

The appellant further argued that even if the skilled person had been seeking to adapt the system of D4 to a digital broadcasting standard such as the DVB standard, it would have transmitted the VBI data of D4, i.e. the codes and interactive content data, together, as VBI data according to the DVB standard as specified in document D10. The skilled person would thus neither have transmitted the codes and the interactive content data in separate streams, nor stored the interactive content data prior to the reception of the code triggering its display.

The board is not convinced by these arguments for the following reasons:

D10 describes a specific extension of the DVB standard for digitally transmitting VBI data in such a way that it can be easily transcoded by the receiver into the VBI data of an analogue television signal for display on legacy analogue television sets (see D10, section 1 on page 5). This extension of the DVB standard is however not necessary in a fully digital television broadcasting system, because digital television sets, unlike analogue ones, can interpret a digital data stream directly, without any intermediate transcoding into the VBI (see D10, point 4.1 on page 6). Hence, the board sees no convincing reason why the skilled person would have wanted to use D10 for transforming the analogue system of D4 into a fully digital system.

7. For the above reasons, the subject-matter of claim 2 of the main request does not involve an inventive step in view of D4 and the skilled person's common general knowledge of the relevant standards, in particular the DVB standard.

As a consequence, the appellant's main request cannot be allowed.

First auxiliary request - Inventive step (Article 56 EPC 1973)

8. Claim 1 of the first auxiliary request is substantially identical to claim 2 of the main request. The additional term "digital" before the second occurrence of "television network" does not change the meaning. Therefore, the same reasoning and conclusion apply.

Second auxiliary request - Inventive step (Article 56 EPC 1973)

9. The method of claim 1 according to the second auxiliary request includes the additional feature that the interactive content data is overlaid on the displayed audiovisual data.

For the reasons given under point 6 *supra* (re distinguishing feature (d)), this additional feature merely constitutes an obvious choice and does not render the claimed subject-matter inventive.

Hence the appellant's second auxiliary request cannot be allowed.

Third auxiliary request - Inventive step (Article 56 EPC 1973)

10. The method of claim 1 according to the third auxiliary request differs from claim 2 of the main request essentially by the additional feature that the interactive content data is stored at the receiver **before** the codes triggering its display are received.

The board concurs with the appellant that in D4 the interactive content data to be displayed arrives at the receiver immediately **after** the code (command signal) that triggers its display (see "subsequent" on page 3, line 5 to 7 and "the next signal which arrives" on page 6, lines 32 to 34). It is thus the opposite of what is stated in claim 1 of the third auxiliary request.

The reason why it is so in the analogue system of D4 must be because it is the easiest way in an analogue television broadcasting system of ensuring that the reception of the code and the display of information

are synchronised. Also, storing large amounts of interactive content data (transmitted over the VBI) was not usual at that time.

At the priority date, transmission and storage of interactive content data were common features of a digital television broadcasting system. For instance, EPG data was conventionally received in advance of when it would be displayed and was stored in a memory so as to be immediately available when a user requested its display. The board thus considers that it would have been straightforward for the skilled person in a digital version of the system of D4 to receive the interactive content data in advance of when it had to be displayed and to store it until the moment when the code triggering its display was received.

The appellant further argued that it would have made no sense to send the command codes after the display function to which they related, because, in case of the scrambling function, it would have been necessary to have the scrambling code before the field to which it related, in order to avoid unnecessary buffering.

The board is not convinced by these arguments because the board's reasoning above as to inventive step is based on the first embodiment of D4 - which corresponds to figures 1 to 3, and pages 6 to 10, of the description - in which the codes have no scrambling function. Only in the second embodiment of D4 - corresponding to figures 4 to 11, and pages 10 to 27, of the description - do the codes have a scrambling function. However, this second embodiment concerns a different television distribution network from the one on which the board's reasoning is based.

For the above reasons, the subject-matter of claim 1 of the third auxiliary request does not involve an inventive step.

Hence the appellant's third auxiliary request is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



K. Boelicke

F. Edlinger

Decision electronically authenticated