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**Datasheet for the decision
of 26 January 2023**

Case Number:	T 0529/20 - 3.5.04
Application Number:	14710424.4
Publication Number:	2959692
IPC:	H04N21/61, H04N21/63, H04N21/647, H04L12/851, H04W28/02, H04N21/4363
Language of the proceedings:	EN

Title of invention:
SYSTEMS AND METHODS FOR SCHEDULING OF DATA PACKETS BASED ON
APPLICATION DETECTION IN A BASE STATION

Applicant:
Altiostar Networks, Inc.

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (no)

Decisions cited:
J 0007/82, T 0698/10, T 1148/15

Catchword:

Case Number: **T 0529/20 - 3.5.04**

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 26 January 2023

Appellant: Altiostar Networks, Inc.
(Applicant)   100 Ames Pond Drive
                       Tewksbury, MA 01876 (US)

Representative: Gill Jennings & Every LLP
                        The Broadgate Tower
                        20 Primrose Street
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Decision under appeal: **Decision of the Examining Division of the
                            European Patent Office posted on 10 September
                            2019 refusing European patent application
                            No. 14710424.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairwoman   B. Willems
Members: M. Paci
                   T. Karamanli

Summary of Facts and Submissions

I.   The appeal is against the examining division's decision
        refusing European patent application No. 14 710 424.4,
        published as international patent application
        WO 2014/130708 A1.

II.   In the decision under appeal, the examining division
        referred to the following documents, *inter alia*.

        D1:   US 2010/0062781 A1
        D8:   WO 2012/178117 A2
        D9:   US 2008/0031267 A1

III.   The decision under appeal was based on the ground that
        the independent claims of the main request and the
        first and second auxiliary requests then on file did
        not meet the requirements of Article 123(2) EPC.

        In a further section of the decision entitled "*Further
        remarks not forming part of the decision*", the
        examining division raised *obiter* objections of lack of
        inventive step of the subject-matter of claim 1 of the
        main request and the first and second auxiliary
        requests then on file in view of prior-art document D1
        in combination with prior-art document D8 and common
        general knowledge (Article 56 EPC).

IV.   The applicant (appellant) filed notice of appeal. With
        the statement of grounds of appeal, the appellant filed
        sets of amended claims according to a main request and
        first and second auxiliary requests, replacing all the
        requests previously on file. As a precaution, the
        appellant requested oral proceedings.

V.   The board issued summons to oral proceedings and a
          communication under Article 15(1) RPBA 2020.

          In the communication, the board introduced into the
          appeal proceedings the following document

          D10: Wikipedia, "Transmission Control Protocol",
                published at 01:05, on 19 February 2013, https://
                en.wikipedia.org/w/index.php?
                title=Transmission_Control_Protocol&oldid=5389617
                76

          as a prior-art version of a Wikipedia article cited as
          evidence of common general knowledge by the examining
          division under point VII.a.vi of the decision.

          In its communication, the board gave the following
          preliminary opinion.

          -    The amendments made to the independent claims of
               all the requests overcame the objection under
               Article 123(2) EPC raised in section IV.a of the
               reasons for the decision.
          -    Document D8 was the closest prior art for the
               assessment of inventive step of the subject-matter
               of claim 1 of the main request.
          -    The subject-matter of claims 1, 9 and 10 of the
               main request and the first and second auxiliary
               requests lacked inventive step over the disclosure
               of document D8 combined with common general
               knowledge (Article 56 EPC).
          -    The board doubted that the additional features of
               dependent claims 2 to 8 could render the claimed
               subject-matter inventive because these additional
               features appeared to be known or obvious from D8
               and/or common general knowledge.

    -    In the event that the board allowed the appeal
after discussion at the oral proceedings, it could
be discussed at the oral proceedings whether
reimbursement of the appeal fee in full would be
equitable by reason of a substantial procedural
violation under Rule 101(1)(a) EPC.

VI.   By letter dated 19 December 2022, the appellant
submitted arguments to support its opinion that the
subject-matter of claims 1, 9 and 10 of all the
requests involved an inventive step.

VII.   The board held oral proceedings on 26 January 2023.

The appellant's final requests were that the decision
under appeal be set aside and that a European patent be
granted on the basis of the claims of the main request
or, alternatively, on the basis of the claims of either
the first or second auxiliary request, all requests
filed with the statement of grounds of appeal.

At the end of the oral proceedings, the Chair announced
the board's decision.

VIII.   Claim 1 of the appellant's **main request** reads as
follows.

"*An evolved node (eNodeB) base station (406) for
coordinating communication of data packets between a
user device (404) and an application server (408), the
base station (406) comprising:*
    a memory (464); and
    *a computer processor (460, 462) operatively coupled
to the memory (464), to a radio transmitter (302), and
to a radio receiver (302), the computer processor of
the eNodeB base station being configured to:*

inspect the data packet;

determine, based on the inspection, an application type of the data packet, a priority value of the data packet, a delay sensitivity of the data packet, and a sensitivity to the loss of the data packet;

determine, based on the inspection, an application state corresponding to the data packet, wherein the application state comprises one of a TCP data establishment state and a TCP data transfer state;

mark the data packet for a higher priority scheduling and a higher reliability modulation coding scheme (MCS) coding upon determination that the application state is the TCP data establishment state;

mark the data packet for a lower priority scheduling and a lower reliability MCS coding upon determination that the application state is the TCP data transfer state;

assign radio resource blocks for transmitting the data packet based on the inspection of the data packet and the marking; and

transmit the data packet utilizing the assigned radio resource blocks."

IX.   Claim 1 of the appellant's **first auxiliary request** reads as follows (additions to claim 1 of the **main request** are underlined and deletions are ~~struck-through~~).

"*An evolved node (eNodeB) base station (406) for coordinating communication of data packets between a user device (404) and an application server (408), the base station (406) comprising:*
a memory (464); and

a computer processor (460, 462) operatively coupled to the memory (464), to a radio transmitter (302), and to a radio receiver (302), the computer processor of the eNodeB base station being configured to:

inspect the data packet;

determine, based on the inspection, an application type of the data packet, a provider of the data packet, a priority value of the data packet, a delay sensitivity of the data packet, and a sensitivity to the loss of the data packet;

determine, based on the inspection, an application state corresponding to the data packet, wherein the application state comprises one of a TCP data establishment state and a TCP data transfer state;

mark the data packet for a higher priority scheduling and a higher reliability modulation coding scheme (MCS) coding upon determination that the application state is the TCP data establishment state;

mark the data packet for a lower priority scheduling and a lower reliability MCS coding upon determination that the application state is the TCP data transfer state;

assign radio resource blocks for transmitting the data packet based on the inspection of the data packet, the provider of the data packet, and the marking; and

transmit the data packet utilizing the assigned radio resource blocks."

X.   Claim 1 of the appellant's **second auxiliary request** reads as follows (additions to claim 1 of the **first auxiliary request** are underlined and deletions are struck-through).

"*An evolved node (eNodeB) base station (406) for coordinating communication of data packets between a user device (404) and an application server (408), the base station (406) comprising:*

  a memory (464); and

  a computer processor (460, 462) operatively coupled to the memory (464), to a radio transmitter (302), and to a radio receiver (302), the computer processor of the eNodeB base station being configured to:

      inspect the data packet;

      determine, based on the inspection, an application type of the data packet, a provider of the data packet, a priority value of the data packet, a delay sensitivity of the data packet, and a sensitivity to the loss of the data packet;

      determine, based on the inspection, an application state corresponding to the data packet, wherein the application state comprises one of a TCP data establishment state and a TCP data transfer state;

      select a modulation coding scheme (MCS) index based on the inspection;

      mark the data packet for a higher priority scheduling and a higher reliability ~~modulation coding scheme (MCS) coding~~MCS index upon determination that the application state is the TCP data establishment state;

      mark the data packet for a lower priority scheduling and a lower reliability MCS ~~coding~~index upon determination that the application state is the TCP data transfer state;

      assign radio resource blocks for transmitting the data packet based on the inspection of the data

> *packet, the provider of the data packet, <u>the</u>*
> <u>*selected MCS index,*</u> *and the marking; and*
> *transmit the data packet utilizing the assigned*
> radio resource blocks."

Reasons for the Decision

1.   The appeal is admissible.

All requests - added subject-matter (Article 123(2) EPC)

2.   The board concurs with the appellant that the
        amendments made to the independent claims of the main
        request and of the first and second auxiliary requests
        overcome the objection under Article 123(2) EPC raised
        under section IV.a of the reasons for the decision.

Main request - inventive step (Articles 52(1) and 56 EPC)

3.   Closest prior art

3.1   The first step of the problem-and-solution approach is
        to determine the closest prior art, i.e. the item of
        prior art which appears to be the most promising
        starting point for arriving at the claimed subject-
        matter in an obvious manner. The case law of the boards
        of appeal has established criteria for objectively
        identifying the closest prior art. When applied
        properly, these should normally prevent unrealistic
        starting points being used. The case law has emphasised
        the following two main criteria (see Case Law of the
        Boards of Appeal of the European Patent Office ("Case
        Law"), 10th edition 2022, I.D.3, decision T 698/10,
        point 3 of the Reasons and T 1148/15, points 4.1 and
        4.2 of the Reasons):

(a)   As a **first criterion**, the closest prior art should be related to the claimed invention, in the sense that it should disclose subject-matter conceived for the same purpose or aiming at the same objective, corresponding to a similar use, or relating to the same or a similar technical problem or, at least to the same or a closely related technical field.

(b)   As a **second criterion**, the closest prior art should disclose subject-matter having the greatest number of technical features in common with the claimed invention, i.e. requiring the minimum of structural and functional modifications.

3.2   Document D8 relates to detecting, prioritising and scheduling packets in a communication network (see paragraph [001]). It explicitly refers to 4G long-term evolution (LTE) wireless communication systems (see, for instance, paragraph [041]). It deals with the problem that existing scheduling techniques for packets do not take the underlying application under consideration and thus cannot address their unique packet delivery requirements (see paragraphs [047], [087],[088] and [095]), i.e. a problem similar to that addressed by the present invention (see paragraphs [0002] and [0070] of the application as filed).

3.3   Hence, regarding **the above first criterion**, document D1 and D8 both essentially address the same problem as the claimed invention.

3.4   In the board's view, document D8 discloses the following features of claim 1 of the main request:

An evolved node (eNodeB) base station for coordinating communication of data packets between a user device and an application server, **[see figure 3 and paragraphs [049],[097] and [0226]]** the base station comprising:

a memory; **[storage module 283 in figure 3]** and

a computer processor operatively coupled to the memory, to a radio transmitter, and to a radio receiver **[processor module 281 in figure 3, "*one or more antennae for transmission and reception of radio signals*" in paragraph [049]]**, the computer processor of the eNodeB base station being configured to:

inspect the data packet; **[paragraph [004] and packet inspection modules 410' and 1500 in figures 13 and 21]**
determine, based on the inspection, an application type of the data packet **["application class", first sentence of paragraph [0101] and figure 11]**, a priority value of the data packet **["*application factor (AF)*" assigned to each scheduling queue: paragraphs [0131], [0132] and [0135]]**, a delay sensitivity of the data packet **[implicit from the determination of the application class or specific application: see penultimate sentence of paragraph [047], last sentence of paragraph [0144] and paragraph [058]]**, and a sensitivity to the loss of the data packet **[implicit from the determination of the application class or specific application: see penultimate sentence of paragraph [047] and last sentence of paragraph [0144]]**;
determine, based on the inspection, an application state corresponding to the data packet, wherein the application state comprises one of a

TCP data establishment state and a TCP data transfer state; **[see paragraph [0228]: "*Subsequently, the connection detection module 1530 may inspect packets to identify the setup of a TCP connection via detection of the packets used for TCP establishment (e.g., SYN, SYN-ACK, ACK) between a TCP client and a TCP server*", paragraph [0229] and 1615 in figure 22]**

~~mark the data packet for a higher priority scheduling and a higher reliability modulation coding scheme (MCS) coding upon determination that the application state is the TCP data establishment state;~~

~~mark the data packet for a lower priority scheduling and a lower reliability MCS coding upon determination that the application state is the TCP data transfer state;~~

assign radio resource blocks for transmitting the data packet based on the inspection of the data packet ~~and the marking~~; **[see assignment of data packets to different scheduling queues based on application class or specific application in figures 6 and 9]** and

transmit the data packet utilizing the assigned radio resource blocks **[see figures 6 and 9]**.

3.5   Hence, regarding **the above second criterion**, the base station in document D8 has a greater number of technical features in common with the claimed invention than that in document D1, i.e. it requires fewer structural and functional modifications. In addition, importantly, **contrary to document D1**, document D8 discloses **an evolved node (eNodeB)** base station (see, for instance, figure 3 and paragraphs [049], [097] and [0226]).

3.6   For the above reasons, the board considers that, based
        on the above two criteria, the closest prior art to the
        subject-matter of claim 1 is not document D1, but
        document D8.

3.7   The appellant argued that document D8 disclosed fewer
        of the features of claim 1 as alleged by the board, but
        it did not dispute that document D8 could be regarded
        as the closest prior art. The appellant's arguments
        regarding features of claim 1 allegedly not disclosed
        in document D8 are addressed by the board in section 4
        below.

4.   Distinguishing features

4.1   Based on the analysis under point 3.4 above, the board
        considers that the base station in claim 1 differs from
        that in document D8 on account of the following
        distinguishing features:

        (a) marking the data packet for a higher priority
        scheduling and a higher reliability modulation coding
        scheme (MCS) coding upon determination that the
        application state is the TCP data establishment state;

        (b) marking the data packet for a lower priority
        scheduling and a lower reliability MCS coding upon
        determination that the application state is the TCP
        data transfer state; and

        (c) taking into account the above marking for assigning
        radio resource blocks.

4.2   The appellant argued that, in addition to the above
        distinguishing features (a) to (c), the following

features (emphasis in bold added by the board) of
claim 1 were not disclosed in document D8 either:

(d) determining, based on the inspection, **a priority
value** of the data packet, **a delay sensitivity** of the
data packet and **a sensitivity to the loss** of the data
packet, and

(e) determining, based on the inspection, an
application state corresponding to the data packet,
wherein the application state comprises **the TCP data
transfer state.**

With regard to the features under point (d), the
appellant's arguments may be summarised as follows.

In document D8, the data packets are, upon inspection,
assigned an "*application factor (AF)*" and a
corresponding scheduling queue. This is equivalent to,
but not the same as, assigning the data packets a
priority value. Moreover, there is no explicit
disclosure in document D8 that a **delay sensitivity** or a
sensitivity to the loss of data packets are determined,
nor are they implicitly disclosed.

With regard to the features under point (e), the
appellant's arguments may be summarised as follows.

Document D8 discloses determining a TCP data
establishment state (in paragraphs [0228] and [0229])
but not a **TCP data transfer state.**

4.3   The board does not find these arguments persuasive for
the following reasons.

With regard to the features under point (d)

According to paragraph [0135] of D8, "*the enhanced policy information 350 can include the **assignment** of a quantitative level of importance and **relative priority** based upon application class and specific application. This factor is referred to herein as the application factor (AF) and the purpose of the AF is to provide the operator with a means to adjust the relative importance, and ultimately the scheduling parameters, of queues following enhanced classification and enhanced queuing*" (emphasis added by the board).

In the board's view, it is clear from the above quotation that the application factor (AF) assigned to a data packet represents a **priority value** of that data packet.

Moreover, document D8 discloses that the delay sensitivity and the sensitivity to loss of the data packets depend on the application type or specific application; see, in paragraph [0047], "*This first-in-first-out (FIFO) method has the disadvantage of treating all packets with equal fairness, regardless of user, application, or urgency. This is an undesirable response as it ignores that each data stream can have unique packet delivery requirements, based upon the applications generating the traffic (e.g. voice, video, email, internet browsing, etc.). Different applications degrade in different manners and with differing severity due to **packet delay** and/or **discard**.*" (emphasis added by the board) and, in paragraph [0144], "*This is undesirable during times of network congestion, due to the fact that a video chat session is more sensitive, in terms of user QoE, to **packet delay** or **discard** than a Facebook update.*" (emphasis added by the board).

The board thus considers that it is implicit in the disclosure of document D8 that by determining the application type or the specific application of a data packet, the **delay sensitivity** and the **sensitivity to the loss** of that packet is also determined.

With regard to the features under point (e)

The "*Transmission Control Protocol (TCP)*" is one of the core protocols of the Internet protocol suite (see D10, page 1, first sentence). It is used, for instance, by applications for transmitting data packets over the World Wide Web. The protocol operations are divided into three successive phases: connection establishment, data transfer and connection termination (see "*Protocol operation*" section in D10).

Paragraphs [0228] to [0232] of document D8 disclose that it is determined by packet inspection to which of the three TCP phases a data packet belongs.

The determination of the **TCP connection establishment phase** is disclosed, for instance, in paragraph [0228], "*Subsequently, the connection detection module 1530 may inspect packets to identify the setup of a TCP connection via detection of the packets used for TCP establishment (e.g., SYN, SYN-ACK, ACK) between a TCP client and a TCP server*" and in paragraph [0229], "*the connection detection module 1530 retains the state of the connection establishment protocol (e.g., TCP SYN, SYN-ACK, ACK messages) and identifies a new connection based upon a successful result from that protocol*".

The determination of the **TCP data transfer phase** is disclosed, for instance, in paragraph [0229], "*If the*

*connection identification information (e.g., logical
link, IP addresses, UDP socket) matches **an existing,
active connection** in the context stored by the status
module 1550, then the connection information is deemed
to be for an existing connection rather than a new
connection ... The process then continues ...
monitoring ... the connection status and any streams,
sessions, and applications associated with **traffic
transported** on the connection*" (emphasis added by the
board).

The determination of the **TCP connection termination
phase** is disclosed, for instance, in paragraph [0232],
"*In step 1640, the connection detection module 1530
inspects packets to determine if the connection being
monitored has been terminated*".

Hence, it is determined in document D8, by packet
inspection, that an application state corresponding to
a data packet is **the TCP data transfer state**.

5.   Technical effect and objective technical problem

5.1   The board notes that, according to the application as
        filed (see paragraph [0078]), the technical effect of
        the above distinguishing features is that of reducing
        the time required to transition a TCP (Transmission
        Control Protocol) communication session from a
        connection establishment state to a data transfer
        state.

        The board therefore considers that the objective
        technical problem should be formulated, without
        pointers to the solution, as "*how to improve the
        establishment of a communication session*".

5.2   The appellant argued that the objective technical
        problem should be formulated as "*how to provide an
        improved apparatus/method for allocating radio resource
        blocks to a data packet*"; see letter of 19 December
        2022, page 3, second full paragraph.

5.3   For the reasons given under point 5.1 above, the
        technical effect of the distinguishing features relates
        to improving aspects of a communication session rather
        than to allocating radio resource blocks. The board
        thus regards the appellant's formulation as too general
        and too unrelated to the technical effect of the
        distinguishing features.

6.   Obviousness

6.1   As evidence of common general knowledge regarding the
        TCP connection establishment and TCP data transfer
        states, the examining division referred to the
        following web link:

        https://en.wikipedia.org/wiki/
        Transmission_Control_Protocol#Connection_establishment

6.2   The appellant did not dispute that TCP connection
        establishment and TCP data transfer phases were common
        general knowledge (see statement of grounds of appeal,
        page 8, first sentence); however, the appellant
        disputed that it was common general knowledge that the
        TCP connection establishment phase was more delay
        sensitive than the TCP data transfer phase (see
        statement of grounds of appeal, page 8, second
        paragraph) and submitted that evidence of common
        general knowledge should be provided if this allegation
        was maintained (see statement of grounds of appeal,

from page 8, penultimate paragraph, to page 9, first
paragraph).

6.3   The board notes that the link cited in the decision
        under appeal (see point 6.1 above) corresponds to a
        Wikipedia article which is constantly updated, not to a
        prior-art version of this Wikipedia article. Hence, the
        board considered it appropriate to introduce document
        D10, which is a version of this Wikipedia article
        published shortly before the priority date, into the
        appeal proceedings as evidence of common general
        knowledge.

6.4   It is undisputed that the Transmission Control Protocol
        (TCP) belongs to common general knowledge. As already
        mentioned above, it was well known that the TCP
        protocol operations were divided into three successive
        phases: connection establishment, data transfer and
        connection termination (see "*Protocol operation*"
        section in D10). The connection establishment phase
        comprised a three-step handshake between client and
        server using SYN, SYN-ACK and ACK messages (see
        "*Connection establishment*" section in D10) and was
        followed by the data transfer phase.

6.5   In document D8, the packet inspection module 1500
        inspects packets to identify those which belong to a
        TCP connection establishment phase and those which
        belong to the subsequent TCP data transfer phase (see
        paragraph [0228] and the first ten lines of paragraph
        [0229]).

        The board notes that there are usually far fewer
        packets transferred in the TCP connection establishment
        phase than in the TCP data transfer phase. Moreover,
        the TCP data transfer phase can only start when the TCP

connection establishment phase is complete. In the board's view, the skilled person would therefore have been well aware that **fast and reliable delivery** was significantly more important for the TCP connection establishment phase than for the TCP data transfer phase. This awareness would have obviously made it desirable in the system in document D8 to give the packets in the connection establishment phase higher priority than the packets in the data transfer phase in order to achieve faster delivery and a higher reliability modulation coding scheme in order to achieve higher reliability. The implementation of such a change in the system in document D8 would have been straightforward because it would have been easy to assign the packets in the connection establishment phase and the packets in the data transfer phase to two different scheduling queues corresponding to different priorities and modulation coding schemes.

Regarding the expression to "*mark the data packet*" in claim 1, the board regards it as meaning that the processor internally marks it for certain processing, not that the processor adds additional information to the data packet itself. This interpretation is consistent with the use of the terms "*mark*" and "*marking*" in the description of the application as filed (see "*the DPI function will apply a particular process as indicated by the rule set, e.g., mark the packet for priority treatment for scheduling by the base station*" in paragraph [0069]). Such marking must necessarily exist in the processor in document D8 in order to indicate which scheduling queue to select.

6.6   The appellant's arguments in the statement of grounds of appeal focused on the examining division's assertion that the TCP connection establishment packets were more

"*delay sensitive*" than the TCP transfer phase packets, but the appellant does not consider it to be proven that this belongs to common general knowledge.

6.7   In the board's view, when using the term "*delay sensitive*" the examining division actually meant that fast and reliable delivery was more important for the TCP connection establishment packets than for the TCP transfer phase packets, which the board regards as well known, and obvious in any case, for the reasons given under point 6.5 above.

6.8   The appellant also argued that document D8 taught assigning all the data packets of a given application to the same scheduling queue. Hence, the teaching of document D8 led away from assigning data packets of the same application to different scheduling queues in the TCP connection establishment phase and in the data transfer phase.

6.9   The board does not find this argument persuasive for the following reasons.

In the TCP connection establishment phase, the data packets correspond to the SYN, SYN-ACK and ACK messages (see "*Connection establishment*" section in D10). These messages are not yet part of the application to be transmitted in the subsequent data transfer phase and do not contain information allowing the base station to identify the application by packet inspection. The teaching of document D8 therefore does not lead away from assigning these packets to a different scheduling queue.

7.   Conclusion on inventive step for the main request

For the above reasons, the subject-matter of claim 1 does not involve an inventive step in view of document D8 and the common general knowledge of the skilled person.

First auxiliary request – inventive step (Articles 52(1) and 56 EPC)

8.   Claim 1 of the first auxiliary request differs from claim 1 of the main request in that "*a provider of the data packet*" is also determined based on the data packet inspection.

9.   The board notes that this additional feature is known from document D8; see, for instance, the references to the service providers YouTube, Netflix, Skype and iChat in paragraph [0100].

10.   The appellant did not present an argument that was specific to the first auxiliary request. Instead, it referred to its arguments regarding the main request.

11.   For the above reasons, the subject-matter of claim 1 of the first auxiliary request lacks an inventive step, essentially for the same reasons as for the main request.

Second auxiliary request – inventive step (Articles 52(1) and 56 EPC)

12.   Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request on account of the additional step to "*select a modulation coding scheme (MCS) index based on the inspection*".

13.   For the reasons given under point 6.5 above, the board
        regards this feature as obvious.

14.   The appellant argued that document D8 did not suggest
        selecting a modulation coding scheme based on data
        packet inspection.

15.   The board does not find this argument persuasive
        because, as pointed out by the examining division under
        point Vll.c.ii of the decision, paragraph [0200] of
        document D8 discloses changing the modulation coding
        scheme under certain circumstances. Moreover, it is
        common general knowledge in the technical field of data
        transmission to change the modulation coding scheme
        depending on the level of quality of service required.

Conclusion

16.   Since none of the appellant's requests is allowable,
        the appeal must be dismissed.

Reimbursement of the appeal fee under Rule 103(1)(a) EPC

17.   According to Rule 103(1)(a) EPC, which entered into
        force on 1 April 2020 (see OJ EPO 2020, A5), the
        reimbursement of the appeal fee has to be ordered in
        full where the board of appeal deems an appeal
        allowable, if such reimbursement is equitable by reason
        of a substantial procedural violation. The board may,
        even when reimbursement has not been requested (as is
        the case here), examine this issue *ex officio* (see, for
        example, J 7/82, OJ EPO 1982, 391).

        In the case at hand, the precondition for reimbursement
        of the appeal fee in full under Rule 103(1)(a) EPC is
        not met because the appeal is not allowable. Since a

substantial procedural violation was not alleged by the
appellant and a request for reimbursement of the appeal
fee was not submitted, the board sees no need in the
case at hand to examine *ex officio* whether a
substantial procedural violation occurred during the
first-instance proceedings.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairwoman:

K. Boelicke   B. Willems

Decision electronically authenticated