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**Datasheet for the decision
of 1 December 2022**

Case Number: T 2604/18 - 3.2.06

Application Number: 13004859.8

Publication Number: 2719616

IPC: B62M25/08, B62K23/02,
B62M9/122, B62M9/132

Language of the proceedings: EN

Title of invention:

Electromechanical shifting systems and method

Patent Proprietor:

SRAM, LLC.

Opponent:

SHIMANO INC.

Headword:

Relevant legal provisions:

EPC Art. 54, 56

RPBA 2020 Art. 13(2)

RPBA Art. 12(4)

Keyword:

Novelty - (yes)

Inventive step - (yes)

Amendment after summons - taken into account (yes)

Late-filed objection - admitted in first-instance proceedings
(no) - error in use of discretion at first instance (no) -
admitted (no)

Decisions cited:

G 0009/91, T 0494/18, T 1598/18, T 2080/18, T 2295/19,
T 3167/19, T 1533/15

Catchword:



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Case Number: T 2604/18 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 1 December 2022

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
31 August 2018 concerning maintenance of the
European Patent No. 2719616 in amended form.**

Composition of the Board:

Chairman M. Harrison
Members: T. Rosenblatt
 C. Almberg

Summary of Facts and Submissions

I. The appellant (opponent) filed an appeal against the interlocutory decision posted 31 August 2018, in which the opposition division found that European patent No. 2 719 616 in an amended form met the requirements of the EPC.

II. The respondent (proprietor) had also filed an appeal against that decision which was nevertheless withdrawn in the course of the appeal proceedings.

In its reply to the appellant's appeal, submitted on 3 June 2019, the respondent requested that the patent be maintained based on the claims of auxiliary request 1 as found allowable by the opposition division (i.e. that the appellant's appeal be dismissed) or, in the alternative, that the patent be maintained based on the claims of one of auxiliary requests II to V filed with the same reply.

By letter dated 27 August 2019, the appellant replied to the respondent's reply of June 2019.

III. The parties were summoned to oral proceedings before the Board.

IV. In a subsequent communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA 2020), the parties were informed of the Board's preliminary opinion on the case. The Board *inter alia* opined that independent claim 1 of the set of claims which the opposition division considered to comply with the requirements of the EPC appeared to involve an inventive step. In contrast, the second independent

claim 5 of that set of claims seemingly failed to meet the requirements of Article 123(2) EPC. This objection also appeared to prejudice maintenance of the patent according to the then pending auxiliary requests II to V. The Board also stated its intention not to overturn the discretionary decision of the opposition division not to admit a late-filed objection under Article 83 EPC raised against dependent claims 2 and 3.

- V. With its letter dated 11 November 2022, the respondent replied to the Board's preliminary opinion and submitted a further auxiliary request (auxiliary request VI).
- VI. Oral proceedings before the Board were held on 1 December 2022 by videoconference. During the oral proceedings the respondent withdrew its appeal and made auxiliary request VI its new main request, withdrawing all other requests.
- VII. The appellant requested that the decision under appeal be set aside and the patent be revoked.
- VIII. The respondent requested that the patent be maintained based on the claims of the new main request (previously labelled auxiliary request VI) filed with the letter dated 11 November 2022.
- IX. The following evidence was referred to by the appellant:

- E1 : EP2399813 A1
- E2 : US7761212 B2
- E4 : US2011/0045875 A1
- E5 : US2012/0035011 A1
- E6 : US2010/0112950 A1

E7 : EP1759971 A2
E8 : US7274907 B1
E9 : US6000043 A
E11 : WO 2012/017411 A1

X. Independent claim 1 has the following wording (feature numbering in square brackets added by the Board):

[1] A wireless control system (22) for a bicycle (20), comprising:
[2] at least one shift actuator (40, 42, 140, 142) generating an input signal when actuated;
[3] a master control unit (44, 144) transmitting a shift signal responsive to the input signal; and
[4] at least one electromechanical gear changer (28, 30),
characterized in that
[5] the at least one electromechanical gear changer (28, 30) includes a gear changer control unit (66, 86, 102),
[6] the gear changer control unit (66, 86, 102) receiving the shift signal from the master control unit (44, 144) and [7] controlling the at least one electromechanical gear changer (28, 30) corresponding to the received shift signal,
[8] the gear changer control unit (66, 86, 102) listening for the shift signal during a part of an awake mode cycle time (A+B),
[9] the master control unit (44, 144) transmitting the shift signal for a message duration time (F)
[10] which is greater than the awake mode cycle time (A+B),
[11] wherein preferably the message duration (F) time is about twice the awake mode cycle time (A+B).

XI. The arguments of the appellant can be summarised as follows.

(a) Admittance of the new main request

The new main request submitted only shortly before the oral proceedings constituted an amendment to the respondent's appeal case. The respondent's appeal case was determined by *inter alia* the requests submitted in response to the appellant's statement of grounds of appeal. Compared to the requests filed at that time, the submission of a new request at a later stage of the procedure must be considered as an amendment to the party's appeal case, irrespective of the content of that new request. Article 13(2) RPBA 2020 was therefore applicable. The respondent had not submitted any cogent reason justifying exceptional circumstances underlying its submission. The present circumstances corresponded to or were identical with those leading the Boards in decisions T 3167/19 and T 1533/15 not to admit late-filed requests. Considerations of procedural economy or fairness, taken into account by the Boards in T 2080/18 or T 2295/19, could not justify exceptional circumstances, since such principles always applied.

(b) Insufficiency of disclosure in regard to claims 2 and 3

When not admitting the objection against claims 2 and 3 the opposition division exercised its discretion incorrectly. It failed to recognise the immediately apparent substantial lack of clarity in the wording of claim 2 which made it impossible to carry out the features claimed. Moreover, this objection was not a new objection since the same subject-matter was present in granted dependent claims 9 and 10 which had been

attacked already in the notice of opposition under the ground for opposition pursuant to Article 100(b) EPC in extension of the objection raised against the corresponding independent claim 8.

(c) *Novelty*

The subject-matter of claim 1 lacked novelty since, contrary to the finding of the opposition division, E5 also disclosed feature 10. Claim 1 did not define the awake mode cycle time and the message duration time. These expressions could thus be interpreted in the broadest sense. In particular, from claim 2 and Figure 11 of the patent in suit it could be inferred that a shift signal could be composed of multiple signals. E5 disclosed in paragraphs 52 and 56 that the system, i.e. its control and power module (CPM) and the derailleur actuator module (DAM), wakes up upon action of the cyclist and remains then in an active mode where it listens to shift signals transmitted from the cyclist interface module (CIM), which is not disclosed as going into a sleep mode. Finally the system, i.e. CPM and DAM, goes back to a sleep mode. According to a first interpretation of E5, the awake mode cycle time could be interpreted with the ramp-up time needed by the system during its transition from sleep to complete wake-up. This time was clearly shorter than the duration of the shift signals, noting that a shift signal was also composed of a series of signals, like in Figure 11 of the patent, and which were transmitted also throughout the ramped wake-up interval. According to a second interpretation of E5, the awake mode cycle time could be seen to correspond to the duration of the wake-up ramp time, the awake time and the subsequent sleep interval before the next awake time. The message duration time could be seen to correspond to an

interval which started with a first series of first shift signals leading to a first wake-up and, after a subsequent sleep period, to the additional time interval defined by a second series of shift signals resulting from a next shift command triggered by the cyclist.

(d) *Inventive step*

The subject-matter of claim 1 lacked an inventive step, starting from either of E1 or E5 as the closest prior art.

The sole distinguishing feature of claim 1 compared to E5 was feature 10. It provided for a more reliable wireless control system with increased energy savings. The skilled person was a team of people which also had extensive knowledge of remote communication systems. The solution belonged to common general knowledge such as documented by E2, E4, E6 to E9 or E11. For example, Figure 6 of E4 or the second paragraph on page 10 of E11 demonstrated that the claimed solution was well known. In the alternative, the combination of E5 with the teaching of either of E4, E11, E7 or E8 also led the skilled person to the claimed subject-matter in an obvious manner. This obvious modification of the system known from E5, which related essentially to retrofitting a known derailleur with a wireless control system, did not require any change contrary to this teaching, let alone renouncing the specific disclosure in paragraph 56 thereof.

When starting from E1 as the closest prior art, the distinguishing features 8 and 10 caused the technical effect that energy consumption was reduced, while ascertaining that the receiver was reliably woken up.

The infinitely long duration of the repeated update signal disclosed for example in Figure 9 of E1 corresponded to the series of transmitted shift signals according to claim 2 or Figure 11 of the patent in suit. The claimed solution, to set the receiver of the gear changer in sleep mode during periods in which no update signal was to be expected to be received, which as a consequence necessarily led to an awake mode cycle time being shorter than the infinitely long message duration time (feature 10) of the periodically repeated update signal transmitted according to E1, was based on only common general knowledge, as documented by E2, E4, E6 to E9 or E11. In particular, E7 disclosed the distinguishing feature in paragraphs 5 and 6. The skilled person had no difficulties to implement this teaching in the wireless bicycle system of E1.

Also the teaching of E2, in particular Figure 4 together with the passages in column 1, line 25ff, column 5, lines 58 to 63 and in column 6, lines 25ff and some unspecified part of column 7, in combination with the closest prior art according to E1, rendered the subject-matter of claim 1 obvious. This objection had been raised in the opposition proceedings and in the statement of grounds of appeal. The further details added during the oral proceedings before the Board constituted a normal development of the arguments presented in writing and should consequently be admitted into the proceedings.

XII. The arguments of the respondent can be summarised as follows.

(a) *Admittance of the new main request*

The new main request resulted from a deletion of the claims considered non-compliant with the requirements of Article 123(2) EPC. The cancellation of the claims did not change the legal and factual framework of the appeal case, since all objections against the remaining claims were already discussed by the parties. The Board had even given a positive preliminary opinion on inventive step on the subject-matter of the underlying claim 1. It moreover reduced the appeal case to the claims covering a wireless control system and thereby solved the issues regarding the other independent claims of the previous requests.

(b) *Novelty*

Claim 1 was novel over E5 since it did not disclose a wireless control system (feature 1) and no electromechanical gear changer (feature 4), let alone a gear changer control unit and master control unit according to features 8 to 10.

(c) *Inventive step*

The subject-matter of claim 1 also involved an inventive step. If E5 was considered to represent the closest prior art to claim 1, the objective technical problem based on feature 10 could be considered, only if the teaching of E5 were ignored, in particular in paragraph 56 thereof, as being the provision of an alternative control system. The documents cited by the appellant were all patents or patent applications and

as such did not constitute proof of common general knowledge. Most of them anyway came from remote technical fields which the skilled person would not have consulted when searching for a solution of the stated technical problem. The documents coming from the field of bicycle equipment failed to hint at the solution defined in claim 1.

If E1 were taken as the closest prior art, the subject-matter of claim 1 again was not derivable from the documents cited by the appellant for similar reasons as applied in regard to the case where E5 was taken as the closest prior art. In particular, the appellant was wrong in equating the shift signal shown in Figure 11 of the patent in suit to the series of update signals of Figure 6 of E4. A shift signal as defined by the combination of features 2, 3 and 9 would be understood by the skilled person as a signal of limited duration which was only generated when an input signal had been generated. The two options suggested in E7 to put the receiver into a sleeping mode, either stochastically or on a periodic basis, would then still not point to adjusting the message duration time to be longer than an awake mode cycle time.

Reasons for the Decision

Admittance of the new main request

1. The Board decided that the new main request, in as far as it might be considered an amendment to the respondent's appeal case, was to be taken into account in the proceedings for the following reasons.

1.1 The new main request, submitted by the respondent with its letter dated 11 November 2022, i.e. less than one month before the oral proceedings before the Board, comprises only claims 1 to 4 of the set of claims of its former "auxiliary request I" underlying the impugned decision and considered to comply with the requirements of the EPC. The other claims 5 to 7 of that previous request were deleted. Objections raised by the appellant in its statement of grounds of appeal in regard to the remaining claims 1 to 4 pursuant to Articles 83, 54 and 56 have been discussed by the parties in the written part of the appeal procedure. The Board had moreover given a positive preliminary opinion on the outstanding objections. In the absence of any further modifications of the remaining claims 1 to 4, no new facts had to be assessed and no new objections could thus arise.

The submission of the new main request, based on the mere deletion of claims 5 to 7 of former "auxiliary request I", can thus be considered not to change the factual and legal framework of the respondent's appeal case, as also argued by the respondent.

1.2 The question thus arose whether under these circumstances the new main request constituted an amendment to the respondent's appeal case. If so, it is undisputed that due to the time of its submission Article 13(2) RPBA 2020 applies and it would have to be assessed whether exceptional circumstances justified by cogent reasons do exist for the Board to exercise its discretion and to take into account the new main request in the appeal proceedings. If on the other hand the new main request does not constitute an amendment of the respondent's appeal case, the Board has no

discretion not to admit the request into the proceedings (see for example T 494/18, reasons 1.3.3).

- 1.3 In decision T 2080/18 (unpublished, reasons 5.1) the deciding Board was faced under the very similar circumstances (no change of the legal and factual framework) with the same question of admittance of a late filed request, based on the mere deletion of claims from a preceding request and submitted at an even later moment in the appeal proceedings, i.e. during the oral proceedings. The Board there considered that the two principal lines followed in the case law of the Boards of Appeal under these circumstances finally led to the same conclusion, namely that such a late filed request which did not change the legal and factual framework of the party's appeal case or which did not require a re-evaluation ("*Neugewichtung des Verfahrensgegenstands*") should be admitted into the proceedings ("*... dass ein solcher Hilfsantrag zuzulassen ist*"). In reaching its conclusion the Board referred *inter alia* to decision T 2295/19 (unpublished).

In the latter decision, the deciding Board also concluded that a late filed request which was based on the mere deletion of claims constituted an amendment within the meaning of Article 13(2) RPBA 2020 (reasons 3.4.5). With reference to a number of other decisions of the boards of appeal, the Board in T 2295/19 considered that the wording of Article 13(2) RPBA 2020 did not require and was not limited to cases in which a late amendment of a party's appeal case, here the deletion of claims and the submission of a new request composed of only the (unamended) remaining claims of a previous request, was actually caused by some exceptional circumstances (reasons 3.4.12). It was

rather sufficient that exceptional circumstances *existed*. These could also be of legal nature. Exceptional circumstances could be seen, for example, in the specific legal situation prevailing if the amendment was neither detrimental to procedural economy nor adversely affecting other parties (see also T 1598/18, reasons 25.1).

1.4 The procedural and factual situation faced by the Board and the parties in the present case, as summarised above in point 1.1, is very similar to the situation in T 2295/19, except for the fact that in the present case the amendment was submitted at an earlier point of the procedure, i.e. before, rather than during the oral proceedings. This can however clearly not detract from following the line of reasoning in decision T 2295/19. The Board can also not see that the appellant is adversely affected by the amendment. Although the Board had given a negative preliminary opinion on the allowability of claims 5 to 7 of the preceding request, the appellant could not have been sure that this preliminary opinion would necessarily be confirmed during the oral proceedings. The appellant therefore had in any case to prepare for presenting its objections against the other claims 1 to 4 and was thus not faced with some unexpected situation. By deleting claims 5 to 7 and maintaining the patent on the basis of only claims 1 to 4 the scope of protection by such an amended patent was also reduced as were the issues to be decided.

1.5 The case law referred to by the appellant does not provide guidance for the present case.

In T 3167/19 the amendments of the claims of the two late filed requests, which the deciding Board did not

take into account pursuant to Article 13(2) RPBA 2020, were not based on the mere deletion of claims from a preceding request as in the present case (or in T 2295/19 and T 2080/18). They were rather based on the further amendment of the pending claims by addition of further features. The appellant's contention that the actual content of the amendment was not to be considered when exercising the very limited discretion of the Boards to only exceptionally take into account late filed amendments pursuant to Article 13(2) RPBA 2020, is unconvincing. The question of whether a late filed request actually constitutes an amendment of a party's appeal case already requires consideration of the content of the amendment.

The appellant further relied on decision T 1533/15 (unpublished), and referred in particular to reasons 7.7 to 7.9 thereof. It is true that the situation in that case bears some similarity to that of the present case in regard to the circumstances of the submission of some of the (in that case) non-admitted auxiliary requests, although the deciding Board exercised its decision based on Article 13(1) RPBA 2007. Also, it is clear from that case that such a request had not been made before the opposition division in the knowledge of the opposition division's findings on a particular claim as being unallowable. In the present case however, claim 5 had been considered allowable by the opposition division. It must, anyway, also be appreciated that each case turns on its own merits and the exact circumstances. Not least for this reason, the present Board cannot see that the considerations in the cited decision are relevant to the Board's exercise of discretion in the present case. Moreover, and in contrast to the cited decision, in the present case the Board had given a written positive preliminary opinion

based on the parties' written submissions, also in regard to the patentability requirements of Article 54 and 56 EPC of claim 1 of the originally submitted main request which forms the basis of the present new main request. It was therefore neither detrimental to procedural economy nor unfair for the appellant to prosecute the case on the basis of this limited new main request and to consider the issues which had already been discussed extensively in the written procedure.

Admittance of the objection under Article 83 EPC in regard to claims 2 and 3

2. The Board decided not to admit the appellant's objection on alleged insufficiency of disclosure against claims 2 and 3.
- 2.1 In the notice of opposition, the opponent had raised the ground for opposition under Article 100(b) EPC only in regard to claims 8 to 11. It is uncontested that the particular objection of insufficiency of disclosure against claims 2 and 3, which claims are identical with the granted claims, was raised by the opponent only after the opposition period, namely in the oral proceedings before the opposition division. The opposition division did not admit this objection. The reasoning for its decision takes into account the circumstances of its submission as well as its *prima facie* relevance. The minutes of the oral proceedings, pages 8 and 9, report that the parties were heard on these aspects. The Board has no reason to assume that the content of the minutes is incorrect; a request for correction had not been filed.

2.2 A discretionary decision taken by a department of first instance is generally only overturned by the Board of Appeal where the department of first instance incorrectly exercised its discretion, for example by applying inappropriate criteria or making use of its discretion in an arbitrary way.

2.3 The appellant has however not argued that the opposition division had incorrectly exercised its discretion in this sense. Instead, the essence of its criticism of the division's discretionary decision lies in the fact that the appellant does simply not agree with the substance of the division's *prima facie* assessment of the late filed objection. The appellant considers the subject-matter of claim 2 at first sight to be unclear to such an extent that the skilled person would not know how to implement it. The opposition division has nevertheless considered the substance of this objection and given an interpretation of the wording of claim 2, leading it to the conclusion that the objection was not *prima facie* relevant (see e.g. the paragraph before the heading "3.3 AR I - Novelty" on page 12 of the impugned decision). Whether the division's reasoning is entirely correct in substance is not decisive here since it is not apparent that the division made an arbitrary assessment of the appellant's objection.

Therefore the Board considers that the opposition division's discretionary decision not to admit the objection should not be reversed.

2.4 In as far as the appellant considers the objection of insufficiency of disclosure against claims 2 and 3 to have been raised by analogy against granted claims 9 and 10 in the notice of opposition, the Board considers

that the substance of the latter objection was in essence directed against granted method claim 8 and extended only by dependency to claims 9 and 10. That the objection against claim 8 addressed the nature of the shift signal and thereby would have extended to or covered the subject-matter of claims 2 and 3, as argued by the appellant during the oral proceedings before the Board, does not correspond to the facts as arising from the opposition file. According to the notice of opposition, section 5.1 on pages 8 and 9, the original objection against claim 8 related to an alleged lack of disclosure concerning the aspect of how, i.e. by which means, signals were transferred or received by the components of the system, rather than addressing the structure of the shift signal as defined in claims 2 and 3. The objection raised later against claims 2 and 3, directed to different features than those defined in granted claim 8, would thus be tantamount to the introduction of a new ground for opposition against subject-matter which had not been opposed so far for these specific reasons. The Board of its own motion does not have the power to admit such a late filed ground for opposition (G 9/91, OJ 1993, 408).

Novelty

3. Novelty of the subject-matter of claim 1 was contested by the appellant only on the basis of the disclosure of E5. For the reasons set out below, the Board concludes however that the subject-matter of claim 1 is new in view of this document (Article 54(1) and (2) EPC).
- 3.1 E5 discloses a wireless control system comprising features 2 to 9 according to the feature numbering of claim 1 under item X. above. The shift actuator of claim 1 can be identified in E5 with buttons on the

cyclist interface module (CIM), the claimed master control unit with said CIM, the claimed electromechanical gear changer with the derailleur actuator module (DAM) in combination with the control and power module (CPM) of E5, which latter module can be considered to correspond to the gear changer control unit of claim 1. The respondent contested the disclosure of several of these features of claim 1. The Board is however not convinced by the respondent's arguments in this regard. Since the present decision is anyway in favour of the respondent, a full reasoning on these aspects can be dispensed with.

- 3.2 The Board does however agree with the respondent that feature 10 of claim 1, "[the master control unit transmitting the shift signal for a message duration time] which is greater than the awake mode cycle time", is not disclosed in E5.
- 3.2.1 The Board can follow the appellant's argument that claim 1 does not define what should be understood by the expressions "awake mode cycle time" and "message duration time". The Board nevertheless agrees that both expressions should not be given a limited interpretation but that, despite this, they must still have a technically meaningful interpretation.

As far as the first expression is concerned, the skilled person understands from the wording of feature 8 that the gear changer control unit should be in an active or awake mode for an (albeit undefined) period of time, during a part of which it is able to listen to and receive transmitted shift signals. The Board finds that the skilled person would not construe this to cover also almost infinitely long awake periods, for example, corresponding to the total time of operation

during a cycling trip in which the system or the individual components thereof, like the gear changer control unit, may be switched on via a power switch at the beginning and switched off again at the end of the trip. From the comparison of the awake mode cycle time with a message duration time (see also below) according to feature 10 of claim 1, it would be technically meaningless to compare an almost infinitely long awake mode cycle time (e.g. the total duration of operation of the system during a cycling trip) to a (yet undefined) message duration time, since such message duration time could never be longer than an almost infinitely long awake mode cycle time, contrary to feature 10; otherwise, which technical purpose would be served if the gear changer control unit were switched off at the end of a cycling trip and a generated shift signal continued to be transmitted for a longer duration? Also, the terminology "cycle time" in that expression implies that the awake mode is recurrent ("cycle"), even if not necessarily periodically, during the normal use of the wireless control system when riding the bicycle. This implies furthermore that in addition to a time-limited awake mode, the gear changer control unit must also be able to switch to some other, e.g. sleep mode, in order to compose some "cycle", both thus of limited length. Taking all these considerations together, the Board concludes that the awake mode cycle time must be of a rather short duration compared to an almost infinitely long total system operation time during a cycling trip, ascertaining an awake time long enough to receive individual shift signals (see also below), for example, on time scales relevant in view of the frequency of expected shift actions during a cycling trip.

As to the second expression, "message duration time",

the Board considers that despite the absence of a clear definition in claim 1, the skilled person would understand from the combination of features 2, 3, 6 to 9 thereof that the shift signal is linked to the preceding generation of an input signal by an activation of the shift actuator. In other words, the action of transmitting a shift signal requires a preceding actuation of the shift actuator by the cyclist. The shift signal is then transmitted as a "message" from the master control unit to be received by the gear changer control unit. The shift signal may be itself composed of or include a plurality of (duplicated) shift signals as referred to in claim 2 or illustrated in Figure 11 of the patent, though with an undefined number of repetitions. Nevertheless, the term "message duration time" implies within the context of the entire claim wording that the shift signals are transmitted only for a limited time as a result of user actuation of the shift actuator, excluding (as explained in the foregoing) an almost infinitely long duration or repetition. Instead, the duration of the shift signal (message) transmission would also be considered rather limited to time scales, related for example, to the expected frequency and duration of gear shifts during a cycling trip.

3.2.2 From Figure 7 and paragraphs 52 to 56 of E5 it can be derived that the (complete) wireless control system wakes up when a user presses a button of the CIM.

In this regard, the Board does not agree with the appellant's argument that E5 discloses a communication system based on a master/slave approach in which only part of the components (CPM and DAM) would go to a standby/sleep mode, while other components (CIM) remain awake. As acknowledged by the appellant, E5 is

completely silent about the CIM switching to any kind of standby/sleep mode to justify any power save mode for the whole system (see e.g. page 11 of its statement of grounds of appeal); E5 indeed only discloses the system to switch between wake-up and sleep modes, rather than only the CPM and DAM to switch between such modes. Even if the flow chart in Figure 7 and the content of paragraphs 53 and 54 might possibly be construed to work also in a master/slave implementation with independent operable components, there is no direct and unambiguous disclosure of such in E5.

When the system terminates a standby power conserving mode, it begins to operate in normal power mode (see paragraph 53). A shift signal is transmitted from the CIM to the CPM and the corresponding shift command executed by the DAM (see paragraphs 54 to 55 and Figure 7). After all gear shifts are complete, a timer is started and the system including all its components goes to the power conserving or sleep mode, thus terminating its awake mode, after a pre-determined time without subsequent shift commands (see paragraph 56). The skilled person understands that the system remains awake for a predetermined time after the last shift command has been completed, implying that no shift signal is continued to be transmitted when the timer is started. Otherwise the timer would be re-started again. It follows that the message duration time can never be longer than the time in which the system is awake, let alone longer than a cycle time composed of the awake mode and the following sleep mode (of indefinite length). Feature 10 of claim 1 can thus never be fulfilled by the system of E5 and can therefore not be considered as disclosed.

3.2.3 The Board cannot find any disclosure in E5 for the appellant's understanding of how shift signals are allegedly transmitted and received by the respective components. First of all, it is noted that E5 does not disclose any details of the actual transmission of the shift signals.

The first explanation of the time sequence of events during operation of the system of E5, as illustrated and discussed on page 14/27 in the appellant's statement of grounds of appeal, assumes a ramped wake-up period of the system after actuation of a button on the cyclist interface module. The Board, however, cannot find the slightest hint in paragraphs 53 and 56 or in any other passage of E5 for such a ramped power increase, let alone for the allegation that during such ramp period a series of shift signals would be actually already transmitted or that the corresponding receiver component would be able to listen to such shift signals, all the more so in a system which, according to the appellant's own assumption, is not in a fully awake and constant-power mode.

The second interpretation of the operation of the system of E5, presented during the oral proceedings before the Board, is based on the assumption that the message duration time, which would be undefined in claim 1, could be identified in E5 as encompassing the duration of the transmission of two subsequently generated shift signals. The Board finds also this argument unconvincing since the underlying interpretation of the message duration time does not correspond to the understanding of this expression by the skilled person given above in point 3.2.1.

Inventive step - E5 as the closest prior art

4. The single distinguishing feature (feature 10) of claim 1 over the closest prior art system known from E5 would not necessarily make this known system more energy-efficient or more reliable, as argued by the appellant. Simply extending the duration of the transmission of the shift signal in E5 would seemingly just increase power consumption of the system. It would not make it necessarily more reliable since E5 already implements a mechanism to avoid that shift signals are missed by starting a timer when the last shift signal has been executed to assure that there are no further shift signals coming. An objective technical problem could therefore be seen in providing an alternative energy-efficient and reliable wireless control system.

5. Contrary to the appellant's opinion, the Board cannot see that the solution defined by the features of claim 1 would be derived obviously from common general knowledge of the skilled person or from any of the documents referred to by the appellant in the appeal procedure.
 - 5.1 First, the appellant has not provided any proof that the distinguishing feature is actually part of common general knowledge. Documents E2, E4, E6 to E9 and E11, allegedly proving this knowledge are patent documents, moreover from a range of different technical fields. This form of evidence is generally not accepted as a proof of common general knowledge and the Board cannot find any reason to see it differently in the present case. The appellant has also not cited any passages in the respective documents from which it could be inferred that this feature was indeed considered to belong to common general knowledge. The appellant's sparse

references to passages in these documents (e.g. to page 8, lines 12-1 and the second paragraph on page 2 of E11) relate to specific implementation details of the respective systems and as such do not support the appellant's contention. Also, the similarity of certain figures of some of these documents (such as Fig. 6 of E4) with Figure 11 of the patent in suit does not constitute proof of common general knowledge.

5.2 Moreover, assuming for the sake of argument that the distinguishing feature would be part of common general knowledge, its implementation in the closest prior art system would go against the teaching of E5 as argued by the respondent. E5 does not disclose that its components can individually wake up and go into a sleep mode. E5 only discloses that the (whole) system wakes up or goes to sleep (see e.g. paragraphs 53, 56 and Figure 7 as well as point 3.2.2 above). The awake mode cycle time can be seen to correspond in E5 to the time from one wake-up to the next wake-up. Extending the message duration time or making it even comparatively longer than this awake mode cycle time is technically incompatible with the teaching of paragraphs 53 and 56. As has been already highlighted above in point 3.2.2, the system in E5 goes to sleep after some pre-determined time when no further shift signal is received; a continuation of the shift signal transmission thus prevents the system ever going to sleep. If the awake mode cycle time were considered to correspond to only that part in which the system is actually awake, the conclusion could not be different. The Board considers it, in this regard, to be of no relevance that the underlying motivation for the wireless control system of E5 is to provide a retrofit for existing bicycle gear changers or derailleurs. This idea would indeed not have to be abandoned when looking

for a solution of the above problem. Nevertheless, the starting point for the assessment of inventive step is the concrete preferred embodiment of a retrofit system disclosed in paragraphs 52 to 56 with reference to Figure 7, and the skilled person, without hindsight, would not simply have discarded the specific teaching in these passages.

- 5.3 In as far as the specific combinations of E5 with E4, E7, E8 and E11 are concerned, the Board cannot reach a different conclusion.
- 5.3.1 Although the Board can accept that the skilled person needed to have knowledge of wireless communication technology, this does not mean that the skilled person would have sought the solution to the above technical problem in prior art from remote fields, such as those relating to multi-node telecommunication networks (E4) or to a communication system around the launch pad of a space vehicle (E8) or to an automation system coordinating the manoeuvring of e.g. sliding or swing gates, (garage) doors, shutters and blinds (E11). In essence, the appellant has seemingly sought to extract some broader teaching from each of these documents to explain how this might be applied to E5, but these attacks all fail at least since such broader teaching cannot be identified.
- 5.3.2 E7 is, on the other hand, directed to wireless communication of bicycle components, such as a cycling computers with other bicycle components like lamps (column 1, lines 32-37) and addresses notably a reduction in energy consumption (paragraph 3). To achieve this purpose, a receiving component wakes up in periodic or stochastic intervals (see paragraphs 4 and 5) and listens whether transmitted data signals

comprise an identification signal ("*Identitätssignal*") corresponding to that receiving component. If this is the case, the receiving component remains in an active mode (paragraphs 4 and 5) in order to receive also the data intended for it. There is no teaching in paragraphs 2, 4 and 5 of E7 referred to by the appellant, nor in any of the other passages of E7, which concerns the relationship between a message duration time and an awake mode cycle time as defined in feature 10 of claim 1 of the amended patent in suit. Paragraph 6 of E7 discloses moreover that the sleep mode of the receiving component would be inhibited until no further signals with the relevant identification signal are received ("*... daß nach der Detektion des Identitätssignals und dem Übergang in den Aktivmodus die Rückkehr in den Schlafmodus bis zum Ausbleiben von Signalfolgen mit den Identitätssignal unterdrückt wird*", emphasis added by the Board), which excludes the message duration time comprising a message for that specific component from being longer than an awake mode cycle time. Starting from the closest prior art according to E5, the solution proposed in E7 therefore does not lead to the subject-matter of claim 1 unless an inventive step is involved.

Inventive step - E1 as the closest prior art

6. The wireless bicycle control system disclosed in E1 can also be considered as representing a suitable starting point for the assessment of inventive step of the subject-matter of claim 1.

6.1 It was common ground between the parties that features 8 and 10 of claim 1 of the amended patent in suit lack a disclosure in E1. It can only be derived that the receiver of this prior art wireless control system is

always in an awake mode, at least as long as the device is powered, as also acknowledged by the appellant.

6.2 The distinguishing features of claim 1 imply that the receiver of the wireless control system of E1 would have to go intermittently into sleep modus, in order to realise an awake mode cycle time of a limited duration (compared to the continuous fully powered mode assumed according to E1).

6.3 An objective technical problem could then be seen in further reducing the energy consumption of the known wireless control system while ascertaining a reliable reception of shift signals, as also argued by the appellant.

6.4 The Board is not convinced that the solution defined by claim 1 would be derived obviously from common general knowledge, as allegedly demonstrated by one of E2, E4, E6 to E9 and E11, or in combination with either of E2 or E7.

6.4.1 The aspect on which the appellant's objections hinge concerns the identification of the shift signal and the message duration time during which such shift signal is transmitted in E1, as argued in particular during the oral proceedings before the Board.

The appellant's contention that the (essentially) infinite periodically transmitted count or control signal illustrated in Figure 9 of E1 by diagram 108 represented a shift signal falling under the wording of claim 1, in particular if claim 2 and Figure 11 of the patent in suit was taken into account, is unconvincing for the following reason.

- 6.4.2 As already set out in the third paragraph of point 3.2.1 above, the skilled person's understanding of the combination of features 2, 3, 6 to 9 contradicts the appellant's argument. Despite being updated after a shift has been initiated (see for example paragraphs 41 and 51 to 66 of E1), the periodic count or control signal 108 is transmitted continuously, irrespective of a preceding shift action. It can be acknowledged that, according to the patent in suit, a shift signal may also be repeated or duplicated, see claim 2. Nevertheless, the skilled person would have understood, as set out above, that even a shift signal encompassed by claim 2 was not repeated for an (essentially) infinite duration, contrary to what is the case with the count or control signal 108 in E1. Figure 11 of the patent also does not suggest an essentially infinite duration, nor is it stated anywhere in the patent that it should be. The repeated transmission according to claims 1 and 2 would indeed be understood to terminate after some (finite) message duration time and only be re-initiated after a further shift input was generated.
- 6.4.3 Since the assumption of an (almost) infinite message duration time in E1 is not accepted, the further argument that an allegedly obvious implementation of a power-saving sleep-awake cycle for the receiver would necessarily fulfill *inter alia* feature 10, must therefore also fail. If the message duration time in E1 cannot be considered to be (essentially) infinitely long, but rather having some finite length, it cannot be concluded that any awake mode cycle time would be necessarily shorter than such finite message duration time.
- 6.4.4 In as far as the appellant relied in particular on the distinguishing feature 10 as being derived from common

general knowledge (referred to by the appellant as "conventional wisdom"), as allegedly demonstrated by one of E2, E4, E6 to E9 and E11, this argument is unconvincing since the same considerations apply here to those under item 5.1 above.

- 6.4.5 E7 also does not point in an obvious manner to the feature combination defined by claim 1 for the same reasons as those given under item 5.3.2 above.
- 6.4.6 In regard to the allegedly obvious combination of the closest prior art system disclosed in E1 with the teaching of E2, the appellant's written submission in the statement of grounds of appeal consisted essentially of a reference to column 1, line 10 and column 5, lines 10 and 11 (which simply show that the technical field is the same) and a general reference to "E2 and its corresponding principle disclosed in column 6 and Figure 4 for implementing the same into the system of E1", without any further specific explanation of what elements are to be combined and in what way. This entirely general argument in the appellant's statement of grounds of appeal does not allow the Board to understand how the subject-matter of claim 1 could be reached without inventive step from the combination of E1 with E2.
- 6.4.7 During the oral proceedings before the Board, the appellant stated for the first time in detail what was to be understood as the teaching of E2, notably referring to passages in *inter alia* column 5, lines 58 to 64, page 6, line 25 and following on to column 7 (albeit again being unspecific about which passages in column 7 were relevant) and why.

This oral submission went far beyond a mere deepening

or normal development of the argument already submitted in writing. It required the Board and the other party to consider the implementation of the wireless communication system of E2 to a degree of detail which could not be expected from the appellant's foregoing written submissions.

The Board thus considered this oral submission to constitute an amendment of the appellant's appeal case.

The Appellant has not indicated any exceptional circumstances justified by cogent reasons why this detailed submission was only made at a very late stage of the oral proceedings before the Board.

In its reply to the appellant's statement of grounds of appeal, the respondent refuted the attack based on the combination of E1 and E2. In the subsequent rejoinder of the appellant, the objections based on E1 as the closest prior art were however only "maintained", without refuting the respondent's analysis of the documents referred to by the appellant, including E2. The appellant thus clearly had the opportunity to react earlier to the respondent's view and elaborate further on its originally submitted argument.

The Board therefore decided not to take the appellant's oral submissions based on E2 into account in as far as they exceeded the written arguments (Article 13(2) RPBA 2020) which have already been commented on above in 6.4.6.

6.5 The appellant's other general objections of lack of inventive step based on E1 as the closest prior art "in combination with one of E4 as well as E6 to E9 and E11" (see for example the statement of grounds of

appeal, item 3.2.4.3 on page 24), are unsubstantiated. In as far as these objections could be seen to relate in some way to similar objections based on E5 as the closest prior art, the objections would fail for corresponding reasons as set out above in item 5.3.1.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent according to claims 1 to 4 of the new main request filed with the letter dated 11 November 2022 - previously labelled auxiliary request VI -, and a description to be adapted accordingly.

The Registrar:

The Chairman:



D. Grundner

M. Harrison

Decision electronically authenticated