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Datasheet for the decision of 15 May 2009

Case Number: T 0766/07 - 3.5.03

Application Number: 99103212.9

Publication Number: 0938222

IPC: H04M 1/72

Language of the proceedings: EN

Title of invention:
Mobile radio telephone and method for operating the same

Applicant:
SAMSUNG ELECTRONICS CO., LTD.

Headword:
Mobile radio telephone/SAMSUNG

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (yes - following amendment)"

Decisions cited:
-

Catchword:
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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0766/07 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 15 May 2009

Appellant: SAMSUNG ELECTRONICS CO., LTD.
416, Maetan-dong
Paldal-gu
Suwon-City
Kyungki-do (KR)

Representative: Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Anwaltssozietät
Leopoldstrasse 4
D-80802 München (DE)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 5 December 2006 refusing European application No. 99103212.9 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: A. S. Clelland
Members: T. Snell
R. Moufang

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division refusing European patent application No. 99103212.9, with publication number EP-A-0938222.

The refusal was based on the ground that the subject-matter of independent claims 1 and 8 did not meet the requirement of inventive step pursuant to Article 52(1) in combination with Article 56 EPC having regard to the disclosures of the following documents:

D1: EP-A-0762711

D3: TIA/EIA Interim Standard, "Enhanced Variable Rate Codec, Speech Service Option 3 for Wideband Spread Spectrum Digital Systems", TIA/EIA/IS-127, January 1997, title pages A and B, preface page (i), and pages 2-1, 2-2, 5-1 and 5-2

The appellant filed a notice of appeal against the above decision. The appellant requested that the decision under appeal be set aside and a patent granted on the basis of the claims, description and drawings on file.

Oral proceedings were conditionally requested.

II. In a subsequently filed statement of grounds the appellant argued that documents D1 and D3, even when taken in combination, did not render the subject-matter of the independent claims obvious.

III. In a communication accompanying a summons to oral proceedings the board gave a preliminary opinion in

which, *inter alia,* an objection under Article 52(1) in combination with Article 56 EPC was raised with respect to independent claims 1 and 8.

In its communication, the board introduced the following document into the proceedings (Article 114(1) EPC):

D4: EP-A-0758168

The present decision also makes reference to the following document cited by the examining division in the course of substantive examination:

D2: EP-A-0725499

IV. In response to the board's communication, the appellant filed claims of a new main request and first to third auxiliary requests to replace the request on file.

V. Oral proceedings were held on 15 May 2009. At the oral proceedings the appellant submitted claims of a new main request and withdrew all previous requests. The appellant requested that the decision under appeal be set aside and a patent granted on the basis of the new main request filed at the oral proceedings.

At the end of the oral proceedings the board announced its decision.

VI. Claim 1 of the main request reads as follows:

"A mobile radio telephone for use in a radio communication system for recording and reproducing

voice messages transmitted from a communicating party via a forward traffic channel, said mobile radio telephone comprising:

a flash memory (18) for storing and outputting received voice channel frames, each comprising a data packet and a format byte containing a vocoder rate of the data packet; and

a microprocessor (34) comprising a recording controller, a reproducing controller and an internal memory (36);

wherein the recording controller (34) is for controlling the storage of said voice channel frames into said flash memory responsive to a recording command (COMM-R) when in a communication mode, said controlling comprising:

analyzing (40) vocoder rate information of said format bytes included in said received voice channel frames;

determining (42) the total amount of information stored;

sequentially storing (44) the format bytes and data packets included in said received voice channel frames in said internal memory, wherein said internal memory further stores frame number information (FNO) concerning the number of stored voice channel frames and information concerning the total number of bytes of data packets stored;

checking (46) whether an end command (COMM-E) is inputted;

checking (48) whether the total number of bytes stored exceeds a predetermined number; and

if the end command is inputted or the total amount of information stored exceeds the predetermined capacity, storing (52) in said flash memory all the information stored in the internal memory, starting with said frame number information and data packet size information (DPSIF);

wherein the reproducing controller (34) is for analyzing (62) a format byte stored in said flash memory to determine the vocoder rate among a plurality of vocoder rates, accessing (62) packet data using said frame number information and supplying (62) the accessed data to a decoder responsive to a reproducing command (COMM-P) when in an idle mode; and

wherein the mobile radio telephone further comprises:

the decoder (32) for decoding the data packets according to the vocoder rate and generating a digital voice sample data as output; and

a digital-to-analog converter (20) for converting said digital voice sample data output from said decoder into an analog signal for audible reproduction."

VII. Claim 5 of the main request reads as follows:

A method for recording and reproducing voice signals in a mobile radio telephone,

said method comprising the steps of:

in response to a recording command (COMM-R) in said *[sic]* communication mode:

analyzing (40) vocoder rate information of format bytes included in received voice channel frames;

determining (42) the total amount of information stored;

sequentially storing (44) the format bytes and data packets included in said received voice channel frames in an internal memory (36) of a microprocessor (34) of the telephone, said format byte containing a vocoder rate of the data packets, wherein said internal memory further stores frame number information (FNO) concerning the number of stored voice channel frames and information concerning the total number of bytes of data packets stored;

checking (46) whether an end command (COMM-E) is inputted;

checking (48) whether the total number of bytes stored exceeds a predetermined number; and

if the end command is inputted or the total amount of information stored exceeds the predetermined capacity,

storing (52) in a flash memory (18) of the telephone all the information stored in said internal memory, starting with said frame number information and data packet size information; and

in response to a reproducing command (COMM-P) in said idle mode:

analyzing (62) a stored format byte;

accessing (62) said vocoder rate information;

accessing (62) a data packet using said frame number information;

supplying (62) said data packet to the *[sic]* decoder; and

decoding said data packet in accordance with said vocoder rate and reproducing said decoded data packet as a voice signal."

Reasons for the Decision

1. *Amendments - Article 123(2) EPC*

New claim 1 is based on original claims 1, 2, 5 and 7 together with elements taken from the description in paragraphs 0025 to 0038 in combination with figures 3-6.

In particular, a flash memory is referred to in paragraph 0026 and in claim 7. The counting of the

total number of bytes, ie the total amount of information, is derived from paragraph 0030 ("DPTN"), which having regard to Fig. 3, block 42, can only be interpreted as the accumulated number of bytes. In paragraph 0033, it is disclosed that this information is stored in the flash memory. It is further disclosed in paragraph 0033 that frame number information is stored. The routine for checking for the end command and whether the total amount of information exceeds a predetermined number is also disclosed in paragraph 0033. The features relating to the reproducing controller are derivable from paragraph 0037.

Method claim 5 corresponds to claim 1.

The board is therefore satisfied that the amended claims comply with Article 123(2) EPC.

2. *Clarity - Article 84 EPC*

The board is satisfied that the claims are sufficiently clear within the meaning of Article 84 EPC. The board notes however that in claim 5 there is no antecedent basis for the expression in line 3 "said communication mode" and that the term "said" should therefore properly be deleted. Further, the penultimate feature of claim 5 should read "supplying (62) said data packet to a decoder".

3. *Inventive step - Article 56 EPC*

3.1 The invention lies in the field of voice recording in a mobile environment. It is common ground between the

appellant and the board that D1 represents the closest prior art.

3.2 D1 concerns a cellular telephone device with a speech recording facility. The telephone system may operate according to TDMA or CDMA (cf. col. 3, line 14), although details of a specific TDMA or CDMA system are not referred to. The mobile device comprises a memory (Fig. 1: 76) for storing voice signals received over the radio transmission path (col. 12, lines 21-23). When the received signals have been compressed by the distant digital telephone, they are stored directly in the memory in compressed form (col. 15, lines 27-31). The mobile device further comprises a vocoder (74) for expansion of the voice signals, and a digital-to-analog converter (72) to output the voice signals in analog format. D1 mentions that the TDMA or CDMA received signals may have a maximum rate or an average rate, hence alluding to variable rate transmission (cf. column 11, line 40), although there are no further implementation details.

3.3 The subject-matter of claim 1 differs from the disclosure of D1 essentially in the following aspects:

(i) received voice channel frames include a format byte containing a vocoder rate of the associated data packet;

(ii) a flash memory is provided in addition to an internal memory;

(iii) a recording controller is arranged to store received data packets and format bytes initially in the

internal memory and to transfer them to the flash memory;

(iv) the recording controller is arranged to transfer data to the flash memory when the total number of bytes stored [in the internal memory] exceeds a predetermined number, or an "end" command is inputted;

(v) the recording controller is arranged to store data packets in the flash memory together with frame number information and data packet size information;

(vi) a reproducing controller is arranged for analyzing the format byte stored in the flash memory to determine the vocoder rate, and a decoder is arranged to decode the data packets according to the determined vocoder rate.

3.4 The appellant argued that the problem to be solved starting from D1 is to adapt the system of D1 to be used in the context of a CDMA transmission method which makes use of variable rate vocoding; the board agrees.

3.5 In order to solve the above problem, the skilled person starting out from D1 would be aware from his common general knowledge of the multirate vocoder disclosed in document D3. Since D3 is part of the standard documentation of the IS-95 CDMA system, it can be expected that the skilled person would base any solution as far possible on the wider terms of this standard. However, with regard to the determination of the vocoding rate, the IS-95 standard apparently provides for blind detection of the vocoding rate and the board is not aware of any system operating to the

IS-95 standard which makes use of a format byte in the transmission frames for indicating the vocoding rate. D3/IS-95 therefore apparently teaches an alternative solution to that of distinguishing feature (i).

3.6 A variable rate mobile telephone system is known per se from D4 in which, in certain embodiments, rate information is transmitted in a special field of a downlink frame (eg col. 20, "embodiment 2" and Fig. 7A). However, the board notes that a principal object of D4 is to make it possible to change the transmission rate without providing a receiving side with transmission rate information (cf. col. 3, lines 29-34), ie in the preferred embodiments rate information is not transmitted. In addition, the receiver of D4 makes use of this rate information primarily to aid the operation of the error detecting encoder and makes no mention of any vocoder. Whether this information is used by a putative vocoder in D4 is therefore a matter of conjecture.

3.7 In order to arrive at a system incorporating distinguishing feature (i), the skilled person must therefore make a selection of elements from three documents without any clear and consistent teaching leading to the claimed solution of transmitting a format byte. If however for the sake of argument it were assumed that the skilled person would arrive at such a solution by combining D1, D3 and D4, in the board's view this would still not lead to the remaining features (ii) to (vi) discussed above without the exercise of inventive skill.

3.8 Inter alia, claim 1 requires the use of an internal memory and a flash memory and defines their interaction, whereas document D1 discloses only a single memory. Claim 1 also requires that the total number of bytes be counted, implicitly to determine the maximum length of message that may be recorded. Finally, the decoder makes use of the vocoder rate information stored in the format byte.

3.9 Some of these further distinguishing features could plausibly be carried out in alternative ways. For example, instead of counting the total number of bytes, the number of frames could be counted (see eg D2, col. 11, lines 17-20, which is the only document known to the board dealing with this aspect). The board notes that since the data packets have variable lengths, counting the total number bytes plausibly has the advantage that longer messages can be stored at low vocoding rates. The decoder could also make use of the available packet length information rather than the vocoder rate information of the format byte.

3.10 Since the skilled person is required to perform several additional steps going beyond a combination of features selected from D1, D3 and D4, and considering that alternatives for some of these steps are possible, the board concludes that it would not be obvious to arrive at the combination of features of claim 1. Accordingly the requirement for an inventive step is fulfilled (Articles 52(1) and 56 EPC).

3.11 The above comments apply mutatis mutandis to method claim 5.

4. In view of the above, the board concludes that claims 1-9 provide a satisfactory basis for the grant of a patent. The inconsistencies referred to above in respect of claim 5 however remain to be overcome, and the description, and if necessary the drawings, should be brought into conformity with the new claims. These matters are however best dealt with by the examining division.

Order

For these reasons it is decided that:

I. The decision under appeal is set aside.

II. The case is remitted to the department of first instance with the order to grant a patent on the basis of claims 1 to 9 of the main request filed at the oral proceedings and a description and drawings still to be adapted.

The Registrar: The Chairman:

D. Magliano A. S. Clelland