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AT BE CH DE DK ES FR GB GR IT LI LU NL SE(88) Date of deferred publication of the search report:
19.08.92 Bulletin 92/34(71) Applicant: **Koninklijke PTT Nederland N.V.**
P.O. Box 95321**NL-2509 CH The Hague(NL)**(72) Inventor: **Beerends, John Gerard****20 Kikkerstraat****NL-2515 NB The Hague(NL)**Inventor: **Muller, Frank****24 Meerkoetlaan****NL-2623 NJ Delft(NL)**Inventor: **van Ravesteijn, Robertus Lambertus**
Adrianus**46 Hoekweg****NL-2275 TB Voorburg(NL)**(54) **Method for coding and decoding a sampled analog signal having a repetitive nature and a device for coding and decoding by said method.**

(57) Frequency components are calculated from the STP-filtered speech signal. The amplitudes of these are combined in a manner such that the resultant values are associated with frequencies which are situated equidistantly on a linear Bark scale. Said components are quantised, possibly after scaling. In the decoder, the components are again distributed over the frequency spectrum.

In the coder, the fundamental regularity D is

determined with an LTP technique, after which it is transmitted. In the decoder the phases of the reconstructed signal at the spacing D in the past are determined. These phases are combined with the amplitudes already present in the frequency spectrum, after which transformation back to the time domain takes place. Inverse STP filtering is then carried out.

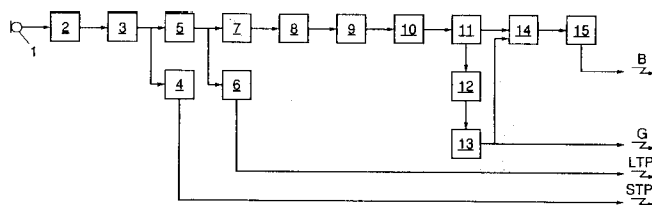


FIG. 1a

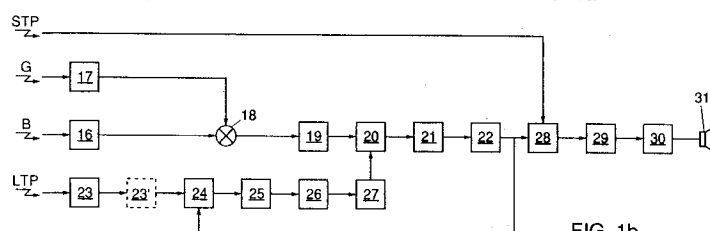


FIG. 1b

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EUROPEAN SEARCH REPORT

Application Number

EP 91 20 2675

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|--|--|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| A | ADVANCED IN SPEECH CODING (IEEE WORKSHOP ON SPEECH CODING FOR TELECOMMUNICATIONS, Vancouver, CA, 5th - 8th September 1989), pages 81-86, Kluwer Academic Publishers, Dordrecht, NL; H. SUDA et al.: "An error protected transform coder for cellular mobile radio" * Figure 1 * | 1 | G 10 L 9/14 |
| A | ICC'87 (IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, SEATTLE, 7th - 10th June 1987), vol. 1, pages 418-424, IEEE, New York, US; Y. YATSUZUKA et al.: "Hardware implementation of 9.6/16 Kbit/s APC-MLQ speech codec and its application for mobile satellite communications" * Figure 1 * | 1 | |
| A | ICASSP'88 (1988 INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, New York, 11th - 14th April 1988), vol. 1, pages 263-266, IEEE, New York, US; B. FETTE et al.: "Experiments with a high quality, low complexity 4800 bps residual excited LPC (RELPC) vocoder" * Figure 2 * --- -/- | 1 | <div>TECHNICAL FIELDS SEARCHED (Int. Cl.5)</div> <div>G 10 L 9/14</div> |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 02-06-1992 | Examiner ARMSPACH J.F.A.M. |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document | | T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | |



| DOCUMENTS CONSIDERED TO BE RELEVANT | | | | |
|--|--|--|---|---------------------------------------|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) | |
| A | ICASSP'85 (IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, Tampa, Florida, 26th - 29th March 1985), vol. 2, pages 509-513, IEEE, New York, US; H. HERMANSKY et al.: "Perceptually based linear predictive analysis of speech" * Figure 1 * | 1 | | |
| A | ICASSP'86 (IEEE-IECEJ-ASJ INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, Tokyo, 7th - 11th April 1986), vol. 4, pages 3075-3078, IEEE, New York, US; B. MAZOR et al.: "Adaptive subbands excited transform (ASET) coding" * Page 3075, right-hand column, lines 26-29; paragraph II: "Description of the algorithm" * | 1 | | |
| A | US-A-4 742 550 (B. FETTE) * Abstract; figure 1 * | 1 | | TECHNICAL FIELDS SEARCHED (Int. Cl.5) |
| A | GB-A-2 060 321 (HITACHI LTD) * Page 3, lines 18-37 * | 7,8 | | |
| The present search report has been drawn up for all claims | | | | |
| Place of search THE HAGUE | | Date of completion of the search 02-06-1992 | Examiner ARMSPACH J.F.A.M. | |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | | | | |