Title: A WIDEBAND TUNING CIRCUIT

Abstract: Some embodiments provide an oscillator that produces a signal at a desired frequency for use in a tuner. The oscillator comprises a filter and a frequency divider circuit comprising one or more frequency dividers in sequence, each frequency divider reducing a received frequency by a predetermined proportion. The frequency of the oscillator is controlled by a tuning code comprising a fine tuning code applied to the filter and a coarse tuning code applied to the frequency divider circuit. The filter is used to produce an initial frequency according to the fine tuning code and the frequency divider circuit divides down the initial frequency according to the coarse tuning code to produce a final frequency of the oscillator. Some embodiments provide an automated method and apparatus for tuning the oscillator to produce a signal at a desired frequency where the coarse tuning code is determined before the fine tuning code.
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
### INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**

- IPC(8) - H04B 1/26 (2007.01)
- USPC - 455/197.3

According to International Patent Classification (IPC) or to both national classification and IPC.

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

- IPC(8) - H04B 1/26, 1/10; H04N 7/173 (2007.01)
- USPC - 455/197.3, 143, 182.3, 180.1, 192.3, 196.1; 348/731, 735, 723; 725/143, 148, 149, 151

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase, MicroPatent

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 4,581,643 A (CARLSON) 08 April 1986 (08.04.1986) entire document</td>
<td>1-20</td>
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</tbody>
</table>

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Further documents are listed in the continuation of Box C.

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**Date of the actual completion of the international search**

03 May 2007

**Date of mailing of the international search report**

04 SEP 2007

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