(54) Title: A FREQUENCY CONVERSION CIRCUIT

(57) Abstract

In a frequency-conversion circuit having a multistage frequency-converting means, at least two stages are coupled through divider means to one and the same voltage-controlled oscillator. Inputs of the multistage frequency-converting means are coupled to one another in a phase error-free manner by frequency divider means embodied as easy-to-implement counters. By virtue thereof, one phase locked loop including such a voltage-controlled oscillator can be dispensed with, thus saving surface area, components on a chip and reducing costs and weight, which is particularly important in connection with the application of the frequency-conversion circuit in mobile communication equipment.
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**INTERNATIONAL SEARCH REPORT**

**A. CLASSIFICATION OF SUBJECT MATTER**

**IPC6:** H03L 7/08, H04B 1/18, H04B 1/40, H03D 7/16

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**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

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**SE, DK, FI, NO classes as above**

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**EDOC, WPIL, JAPIO**

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<th>Relevant to claim No.</th>
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<tbody>
<tr>
<td>Y</td>
<td>DE 372681 A1 (AUTOPHON AG), 10 March 1988 (10.03.88), figure 1, abstract</td>
<td>3,4,15-19</td>
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<td>A</td>
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☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

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Date of the actual completion of the international search: 10 December 1998

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