Title: AMPLIFIER CIRCUIT AND METHOD FOR REDUCING VOLTAGE AND CURRENT NOISE

Abstract: An amplifier circuit with current noise reduction employs first and second variable impedance devices between a signal source and an amplifier. A modulation frequency generator establishes a modulation frequency \( f_{mod} \) to alter the first and second impedance values out of phase from one another at the modulation frequency so that the sum of the first and second impedance values at the input of the amplifier is relatively constant. The modulation at frequency \( f_{mod} \) shifts the signal to side bands about the modulation frequency. The output from the amplifier is passed to a bandpass filter centered on the modulation frequency in order to remove all frequencies outside the bandwidth of interest. The signal itself is recovered by demodulating the output of the bandpass filter using a synchronization signal that is derived from the modulation signal.
A. CLASSIFICATION OF SUBJECT MATTER

IPC: **H03P 1/02( 2006.01)**

USPC: 330/9,10,149
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)

U.S. : 330/9, 10, 149

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)

EAST

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>X</td>
<td>US 6,242,974 A (KUNST) 01 June 2001 (01.06.2001), see column 6, lines 38-67.</td>
<td>16</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

**A** document defining the general state of the art which is not considered to be of particular relevance

**E** earlier application or patent published on or after the international filing date

**L** document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

**O** document referring to an oral disclosure, use, exhibition or other means

**P** document published prior to the international filing date but later than the priority date claimed

See patent family annex.

Date of the actual completion of the international search

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