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(54) Title: LOW-NOISE HIGH-STABILITY CRYSTAL OSCILLATOR

(57) Abstract: Apparatus and method for providing high stability crystal oscillator, see figure 2. A crystal oscillator (with resonator 210) is shown having controlled-amplitude differential output signals via amplitude control (250) and DC level control via (240). The DC level feedback loop can set the DC component of the oscillator signals to a voltage midway between the two supply voltages. The amplitude control loop sets the amplitude of the output of the crystal oscillator signal to be within a range. The amplitude can be set to provide a maximum swing without clipping the supply voltages in order to provide high stability and minimal jitter. The time constants of the two loops can be separated such that instabilities are avoided.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/30018

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC: **H03B 5/30( 2006.01),5/32( 2006.01)**  
  
 USPC: 331/116FE,116R,158  
 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. : 331/116FE, 116R, 158

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**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,819,196 A(Lovelace et al) 16 November 2004(16.11.2004), see col 3, lines 2-7	1-5, 15-26, 31-34
Y	US 7,061,338 A(Arigliano) 13 June 2006(13.06.2006), see col. 1, lines 5-35	1-5,15-26, 31-34

Further documents are listed in the continuation of Box C.

See patent family annex.

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