



ISTITUTO ITALIANO  
DI TECNOLOGIA

## TITLE

Self-calibrating digital high frequency low power pulse generator

## INVENTORS

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## DESCRIPTION

The invention relates to an asynchronous logic high data rate IR-UWB transmitter operating with a single 31.25MHz reference that robustly synthesizes 1 GHz rate pulses. It operates with a master-slave PLL cascade and a simple static CMOS logic, the master PLL consumes a simulated 1mW power, and it is based on three non-overlapping feedback loops whose switching is controlled by a duty cycling window and a shift register. The transmitter core enables OOK data transmission with a  $\sim 3.1$  pJ/pulse energy

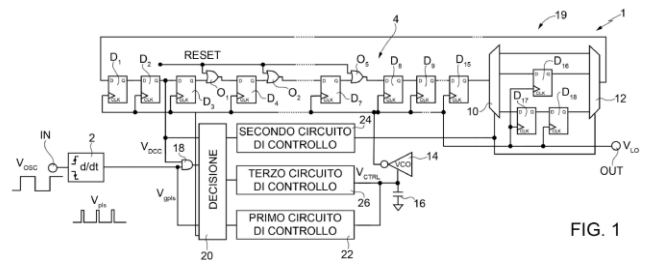


FIG. 1

## APPLICATIONS

wireless transmission of data

## KEYWORDS

IR-UWB transmitter, Master/slave PLL synthesis, non-overlapping feedback controls, self-calibrating architecture

## BIBLIOGRAPHIC DATA

Circuito ad anello ad aggancio di fase per sistemi di trasmissione ad elevato bit rate e consumo ridotto

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