DESIGN OF TIME BASED ANALOG TO DIGITAL CONVERTER (TB-ADC): NEW DESIGN METHODOLOGY FOR VOLTAGE-TO-TIME-CONVERTER (VTC) CIRCUITS

By

Mohammed Wagih Emam Ismail

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfilment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Electronics and Communications Engineering

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

Design of Time Based Analog to Digital Converter (TB-ADC): New Design Methodology for Voltage-to-Time-Converter (VTC) Circuits

Key Words:
Voltage to Time Converter (VTC); Analog to Digital Converter (ADC); Software Defined Radio (SDR);Time to Digital Converter (TDC)

Summary:
In this thesis, we introduce a new design methodology for Voltage-to-Time Converters (VTCs) Circuits suitable for Time-Based Analog-to-Digital Converters (TB-ADC). This new methodology has been tested by designing an 8-bit low power TB-ADC as one of the alternatives to the traditional ADCs. The proposed ADC consists of two stages. The first stage is the VTC and the second stage is the Time to Digital Converter (TDC). The percentage of digital to analog part is greater than the traditional ADC and it is an Op-Amp-less design.

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Dedication

I dedicate this dissertation to my family for the unceasing encouragement, support and attention. I want to thank them for the continuous supply of love and care. I own them every single achievement in my life.

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