

P1241

Submitter Email: eric.zimmerman@maximintegrated.com

Type of Project: Revision to IEEE Standard 1241-2010

PAR Request Date: 13-Apr-2016

PAR Approval Date: 30-Jun-2016

PAR Expiration Date: 31-Dec-2020

Status: PAR for a Revision to an existing IEEE Standard

Project Record: P1241

Root Project: 1241-2010

1.1 Project Number: P1241

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Terminology and Test Methods for Analog-to-Digital Converters

Changes in title: ~~IEEE~~ Standard for Terminology and Test Methods for Analog-to-Digital Converters

3.1 Working Group: Working Group for Analog-to-Digital Converters (IM/WM&A/ADC)

Contact Information for Working Group Chair

Name: Steven Tilden

Email Address: s.j.tilden@ieee.org

Phone: 15202458740

Contact Information for Working Group Vice-Chair

None

3.2 Sponsoring Society and Committee: IEEE Instrumentation and Measurement Society/TC10 - Waveform Generation Measurement and Analysis (IM/WM&A)

Contact Information for Sponsor Chair

Name: N Paulter

Email Address: nicholas.paulter@nist.gov

Phone: 301-975-2405

Contact Information for Standards Representative

None

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 03/2020

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 10/2020

5.1 Approximate number of people expected to be actively involved in the development of this project: 20

5.2 Scope: The material presented in this standard is intended to provide common terminology and test methods for the testing and evaluation of analog-to-digital converters (ADCs). This standard considers only those ADCs whose output values have discrete values at discrete times, i.e., they are quantized and sampled. In general, this quantization is assumed to be nominally uniform (the input-output transfer curve is approximately a straight line) as discussed further in 1.3, and the sampling is assumed to be at a nominally uniform rate. Some but not all of the test methods in this standard can be used for ADCs that are designed for nonuniform quantization.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: This standard identifies ADC error sources and provides test methods with which to perform the required error measurements. The information in this standard is useful both to manufacturers and to users of ADCs in that it provides a basis for evaluating and comparing existing devices, as well as providing a template for writing specifications for the procurement of new ones. In some applications, the information provided by the tests described in this standard can be used to correct ADC errors, e.g., correction for gain and offset errors. The reader should note that this standard has many similarities to IEEE Std 1057. Many of the tests and terms are nearly the same, since ADCs are a necessary part of digitizing waveform recorders.

5.5 Need for the Project: Errors and inconsistencies with other standards have become apparent since IEEE Std 1241-2010 was approved. This project will revise the standard to incorporate corrections and new information, and to be consistent with other standards, particularly IEEE Std 1057. Language will be revised to be consistent with the definitions in related documents and to improve consistency among the

documents. Plans also include adding ADC architectures and their appropriate tests to be performed for proper characterization of performance.

5.6 Stakeholders for the Standard: The stakeholders are: Commercial, Industrial, Military, and Medical, Environmental, Manufacturing, Universities, Laboratories, Telecommunications, Imaging and any other user of Analog-to-Digital Converters.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes: Since the IEEE Std 1241-2010 was approved, inconsistencies have arisen between IEEE Std 1241-2010 (describing ADCs) and the standards produced by other working groups for similar device types (non-ADCs). IEEE Std 1241 should be reviewed and updated to improve (when possible) the inter-standard consistency.

IEEE Std 1241-2010 should be reviewed to add new definitions to the standard, purge or correct erroneous definitions, and update definitions to reflect technical improvements that have arisen since the standard was released.

5.4: The title of IEEE Std 1057 is "Standard for Digitizing Waveform Recorders".