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INTERNATIONAL STANDARD

IEEE Std 1641™



Standard for Signal and Test Definition



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Contents

1. Overview	1
1.1 Scope	1
1.2 Purpose	1
1.3 Application	1
1.4 Annexes	2
2. Definitions, abbreviations, and acronyms.....	2
2.1 Definitions	2
2.2 Abbreviations and acronyms	4
3. Structure of this standard	5
3.1 Layers	5
3.2 Signal Modeling Language (SML) layer	6
3.3 BSC layer.....	6
3.4 TSF layer	6
3.5 Test requirement layer	6
3.6 Using the layers	7
4. Signals and SignalFunctions.....	7
4.1 Introduction	7
4.2 Physical signal states	8
4.3 Event states	9
4.4 Digital stream states.....	9
5. SML layer	10
6. BSC layer	11
6.1 BSC layer base classes.....	11
6.2 General description of BSCs.....	11
6.3 SignalFunction template	12
7. TSF layer	12
7.1 TSF classes	13
7.2 TSF signals defined by a model.....	13
7.3 TSF signals defined by an external reference	16
8. Test procedure language (TPL)	16
8.1 Goals of the TPL.....	16
8.2 Elements of the TPL	16
8.3 Use of the TPL.....	17
9. Maximizing test platform independence.....	17
Annex A (normative) Signal modeling language (SML)	18
A.1 Use of the SML.....	18
A.2 Introduction.....	18
A.3 Physical types	19
A.4 Signal definitions	22
A.5 Pure signals.....	24
A.6 Pure signal-combining mechanisms.....	26
A.7 Pure function transformations.....	32

A.8 Measuring, limiting, and sampling signals	32
A.9 Digital signals	34
A.10 Basic component SML.....	38
A.11 Fast Fourier analysis support	63
Annex B (normative) Basic signal components (BSC) layer	65
B.1 BSC layer base classes	65
B.2 BSC subclasses	65
B.3 Description of a BSC	69
B.4 Physical class	76
B.5 PulseDefns class.....	87
B.6 SignalFunction class	89
Annex C (normative) Dynamic signal descriptions.....	143
C.1 Introduction.....	143
C.2 Basic classes.....	144
C.3 Dynamic signal goals and use cases.....	152
Annex D (normative) Interface definition language (IDL) basic components	153
D.1 Introduction.....	153
D.2 IDL BSC library	153
Annex E (informative) Test signal framework (TSF) for C/ATLAS	154
E.1 Introduction.....	154
E.2 TSF library definition in extensible markup language (XML).....	154
E.3 Interface definition language (IDL) for the TSF for C/ATLAS	154
E.4 AC_SIGNAL<type: Current Power Voltage>	155
E.5 AM_SIGNAL.....	157
E.6 DC_SIGNAL<type: Voltage Current Power>	159
E.7 DIGITAL_PARALLEL	161
E.8 DIGITAL_SERIAL.....	163
E.9 DIGITAL_TEST	165
E.10 DME_INTERROGATION	168
E.11 DME_RESPONSE.....	171
E.12 FM_SIGNAL<type: Voltage Power Current>.....	174
E.13 ILS_GLIDE_SLOPE<type: Voltage Power>	177
E.14 ILS_LOCALIZER<type: Power Voltage>.....	180
E.15 ILS_MARKER.....	183
E.16 PM_SIGNAL	186
E.17 PULSED_AC_SIGNAL<type: Current Power Voltage>	188
E.18 PULSED_AC_TRAIN<type: Voltage Current Power>.....	190
E.19 PULSED_DC_SIGNAL<type: Voltage Current Power>	192
E.20 PULSED_DC_TRAIN<type: Voltage Current Power>.....	194
E.21 RADAR_RX_SIGNAL.....	196
E.22 RADAR_TX_SIGNAL<type: Current Voltage Power>.....	199
E.23 RAMP_SIGNAL<type: Voltage Current Power>	200
E.24 RANDOM_NOISE	202
E.25 RESOLVER.....	204
E.26 RS_232.....	207
E.27 SQUARE_WAVE<type: Current Voltage Power>	208
E.28 SSR_INTERROGATION<type: Voltage Current Power>.....	210
E.29 SSR_RESPONSE<type: Voltage Current Power>	213
E.30 STEP_SIGNAL.....	217
E.31 SUP_CAR_SIGNAL.....	219
E.32 SYNCHRO.....	221
E.33 TACAN	225

E.34 TRIANGULAR_WAVE_SIGNAL<type: Voltage Current Power>	229
E.35 VOR	231
Annex F (informative) Test signal framework (TSF) library for digital pulse classes	235
F.1 Introduction	235
F.2 TSF library definition in extensible markup language (XML)	235
F.3 Graphical models of TSFs	235
F.4 Pulse class family of TSFs	235
F.5 DTIF	252
Annex G (normative) Carrier language requirements	254
G.1 Carrier language requirements	254
G.2 Interface definition language (IDL)	254
G.3 Datatypes	254
G.4 Data-processing requirements	259
G.5 Control structures	263
Annex H (normative) Test procedure language (TPL)	265
H.1 TPL layer	265
H.2 Elements of the TPL	265
H.3 Structure of test requirements	265
H.4 Carrier language	265
H.5 Signal statements	265
H.6 Mapping of test statements to carrier language	267
H.7 Test statement definitions	267
H.8 Elements used in test statement definitions	285
H.9 Attributes with multiple properties	288
H.10 Transferring data in digital signals	292
H.11 Creating test requirements	296
H.12 Delimiting TPL statements	298
Annex I (normative) Extensible markup language (XML) signal descriptions	300
I.1 Introduction	300
I.2 XSD for BSCs	301
I.3 XSD for TSFs	302
Annex J (informative) Support for ATLAS nouns and modifiers	308
J.1 Signal and test definition (STD) support for ATLAS signals	308
J.2 STD support for ATLAS nouns	308
J.3 STD support for C/ATLAS noun modifiers	311
J.4 Support for C/ATLAS extensions	319
Annex K (informative) Guide for maximizing test platform independence and test application interchangeability	320
K.1 Introduction	320
K.2 Guiding principles	320
K.3 Best practice rules	320
Annex L (informative) Bibliography	323
Annex M (informative) IEEE List of Participants	325

Standard for Signal and Test Definition

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IEEE Standard for Signal and Test Definition

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**IEEE Standards Coordinating Committee 20 on
Test and Diagnosis for Electronic Systems**

Approved 17 June 2010

IEEE-SA Standards Board

Abstract: This standard provides the means to define and describe signals used in testing. It also provides a set of common basic signals, built upon formal mathematical specifications so that signals can be combined to form complex signals usable across all test platforms.

Keywords: ATE, ATLAS, automatic test equipment, IEEE 1641, signal definitions, test definitions, test requirements, test signals, unit under test, UUT

IEEE Introduction

This introduction is not part of IEEE Std 1641-2010, IEEE Standard for Signal and Test Definition.

This signal and test definition (STD) standard provides the ability to unambiguously define test signals. It includes a rigorous mathematical and definitive foundation for all of its signal components. Any signal defined using this standard will be the same regardless of the equipment is used to create it. The standard supports the implementation of new technologies by providing users with the ability to describe their own signals by combining existing signals. Thus, any desired signal may be described, and there is no limit on the extensibility of signals supported by this standard.

Signals defined using this standard can be used in a programming environment of the user's choice provided that that environment fulfills the minimum requirements defined in this standard. This universality enables the user to take full advantage of modern program structures and development environments, including graphical programming environments.

This standard was developed by the Test and ATS Description Subcommittee (of the IEEE Standards Coordinating Committee 20 (SCC20) on Test and Diagnosis for Electronic Systems), which has prepared a companion guide, IEEE Std 1641.1™, to explain how to implement signal definitions and test requirements in conformance with STD.

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1. Overview

1.1 Scope

This standard provides the means to define and describe signals used in testing. It provides a set of common basic signal definitions, built upon formal mathematical specifications, so that signals can be combined to form complex signals usable across all test platforms. The standard provides support for structural textual languages and programming language interfaces for interoperability.

1.2 Purpose

This standard provides a common reference for signal definitions, which may be used throughout the life cycle of a unit under test (UUT) or test system. Such a reference will in turn facilitate information transfer, test reuse, and broader application of test information—accessible through commercially available development tools.

1.3 Application

This signal and test definition (STD) standard provides the capability to describe and control signals, while permitting a choice of operating environment, including the choice of carrier language. STD permits signal operations to be embedded in any object-oriented environment and thus to be used by the architecture