

# IEEE Standard for Second-Generation IEEE 1857 Video Coding

IEEE Computer Society

Developed by the  
Standards Activities Board

# IEEE Standard for Second-Generation IEEE 1857 Video Coding

Developed by the

**Standards Activities Board**  
of the  
**IEEE Computer Society**

Approved 23 October 2018

**IEEE-SA Standards Board**

**Abstract:** A set of tools for efficient video coding, including directional intra prediction, variable block size inter prediction, context adaptive binary arithmetic coding, and the two corresponding decoding procedures, is defined in this standard. The target applications and services include, but are not limited to, UHDTV (ultra high definition TV), IP-based video surveillance, Internet video, IP-based video conference, IPTV, user-generated multimedia content, and other video/audio-enabled services and applications such as digital television broadcasting, digital storage media, and communication.

**Keywords:** coding unit, decoding, encoding, entropy coding, field, frame, IEEE 1857.4™, image, inter prediction, Internet video, intra prediction, IPTV, picture, prediction block, prediction unit, quantization, slice, transform, transform block, UHDTV, ultra high definition, video surveillance

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## Introduction

This introduction is not part of IEEE Std 1857.4-2018, IEEE Standard for Second-Generation IEEE 1857 Video Coding.

This standard provides regular high-quality and efficient coding tool sets for compression, decompression, and packaging of the video data to save the storage space or bandwidth for transmission over the Internet.



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# IEEE Standard for Second-Generation IEEE 1857 Video Coding

## 1. Overview

### 1.1 Scope

This standard defines a set of tools for efficient video coding and the corresponding decoding procedure, including intra prediction, inter prediction, transform, quantization, and entropy coding.

### 1.2 Purpose

This standard is the new generation of IEEE Std 1857™-2013 (IEEE Standard for Advanced Audio and Video Coding), which provides efficient coding tool sets for compression, decompression, and packaging of the video data that should double the coding efficiency of IEEE Std 1857-2013. The target applications and services include, but are not limited to, Internet video, video surveillance, video conference, digital television broadcasting, user-generated video content, and other video/audio-enabled services and applications such as digital video storage and communication.

### 1.3 Applications

This standard is designed to cover a broad range of applications including, but not limited to, the following:

CATV	cable TV on optical networks, copper, etc.
DBS	direct broadcast satellite video services
DSL	digital subscriber line video services
DTTB	digital terrestrial television broadcasting
IPTV	Internet protocol television
ISM	interactive storage media (optical disks, etc.)
MMM	multimedia mailing
MSPN	multimedia services on packet networks
RTC	real-time conversational services (videoconferencing, videophone, etc.)
RVS	remote video surveillance