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# INTERNATIONAL STANDARD



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**Digital video interface – Gigabit video interface for multimedia systems**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ICS 33.160.40, 33.160.60, 35.200

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**DIGITAL VIDEO INTERFACE –  
GIGABIT VIDEO INTERFACE FOR MULTIMEDIA SYSTEMS****FOREWORD**

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IEC 62889 has been prepared by Technical Area 4: Digital system interfaces and protocols, of IEC Technical Committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

JEITA CP-6101B served as a basis for the elaboration of this document.

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Addition of a new technology interface, GVIF2.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/3912/CDV	100/4040/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

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## INTRODUCTION

This International Standard is based on JEITA CP-6101B: *Digital monitor interface GVIF*, which was originally specified by the Japan Electronics and Information Technology Industries Association (JEITA).

The Gigabit Video InterFace (GVIF) is a serial point-to-point interface supporting uncompressed digital video links that was designed to address the needs of automotive navigation and entertainment systems, etc., to transport baseband digital video information. GVIF applies low-voltage differential signalling (LVDS) technology and makes use of a thin cable consisting of a single shielded twisted pair of conductors that exhibits high noise immunity and low EMI, and is optimized for small size and low weight. GVIF supports display resolutions ranging from WQVGA through WUXGA with a maximum of 24 bits per pixel colour video data, and can transmit a baseband video signal over cable lengths over 10 m. Optionally, GVIF supports audio data transmission and user data transmission.

Gigabit Video InterFace 2 (GVIF2) is a baseband transmission method for digital video information that applies serial data transmission technology. In the downstream transmission from GVIF2 TX to GVIF2 RX, the high-bandwidth data for video information (GHDS) and the device control signal (GLDS) are transmitted by using the time-division multiplexing method. In the upstream transmission from GVIF2 RX to GVIF2 TX, the control signal GLUS is transmitted. The upstream transmission and downstream transmission occur in full duplex. Optionally, GVIF2 also supports audio data transmission and user data transmission.

Also optionally, when paired with high-bandwidth-~~data~~ digital content protection (HDCP), the GVIF's standard functions and features address all of the requirements for delivering content-protected video from a source to a video display monitor.

This document describes the GVIF family that consists of GVIF2 in the main body and Annex A, and GVIF in Annex B and Annex C.

GVIF2 has the following features:

- transmission by a differential shielded twisted-pair cable or coaxial cable,
- to enable multiple video and audio content transmission using time-division multiplexing,
- possibility to use audio transmission, bi-direction user communication, and HDCP (high-bandwidth digital content protection) technology (optional),
- availability for daisy chain transmission (optional).

The Association of Radio Industries and Businesses (ARIB) refers to GVIF and GVIF2 in its standard ARIB STD-B21 as being authorized digital video output interfaces.

# DIGITAL VIDEO INTERFACE – GIGABIT VIDEO INTERFACE FOR MULTIMEDIA SYSTEMS

## 1 Scope

This document describes ~~a~~ two serial digital interfaces, Gigabit Video InterFace (GVIF) and Gigabit Video InterFace2 (GVIF2), for the interconnection of digital video equipment. GVIF and GVIF2 are primarily intended to carry high-speed digital video data for general usage and are well suited for multimedia entertainment systems in a vehicle.

This document specifies the physical layer of the interface, including transmission line characteristics and electrical characteristics of transmitters and receivers. Mechanical and physical specifications of connectors are not included.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

~~IEC 62315-1:2003, DTV profiles for uncompressed digital video interfaces – Part 1: General~~

ITU-R BT.601-5, *Studio encoding parameters of digital television for standard 4:3 and wide-screen 16:9 aspect ratios*

ITU-R BT.656-5, *Interface for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601*



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Digital video interface – Gigabit video interface for multimedia systems**

**Interface vidéo numérique – Interface vidéo gigabit pour les systèmes multimédias**

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INTERFACE VIDÉO GIGABIT POUR LES SYSTÈMES MULTIMÉDIAS****AVANT-PROPOS**

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Le présent document a été élaboré à partir de la norme JEITA CP-6101B.

Cette deuxième édition annule et remplace la première édition parue en 2015. La présente édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) Ajout d'une interface de nouvelle technologie, la GVIF2.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
100/3912/CDV	100/4040/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). Les principaux types de documents développés par l'IEC sont décrits plus en détail sous [www.iec.ch/publications](http://www.iec.ch/publications).

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## INTRODUCTION

La présente Norme internationale est fondée sur la norme JEITA CP-6101B: *Digital monitor interface GVIF*, initialement définie par la Japan Electronics and Information Technology Industries Association (JEITA).

L'interface vidéo gigabit (GVIF, *Gigabit Video InterFace*) est une interface point à point série qui prend en charge les liaisons vidéo numériques non compressées et qui a été conçue pour répondre entre autres aux besoins des systèmes de navigation et de divertissement automobiles et transporter des informations vidéo numériques en bande de base. La GVIF applique la technologie de signalisation différentielle à basse tension (LVDS, *Low Voltage Differential Signaling*) et utilise un câble fin constitué d'une paire unique de conducteurs torsadés blindés qui présente une haute immunité au bruit et un faible brouillage électromagnétique (EMI, *Electro-Magnetic Interference*), et qui est optimisé pour une petite taille et un faible poids. La GVIF prend en charge les résolutions d'affichage de WQVGA à WUXGA avec des données vidéo couleur de 24 bits par pixel au maximum et peut transmettre un signal vidéo en bande de base sur des longueurs de câble supérieures à 10 m. En option, la GVIF prend en charge la transmission de données audio et la transmission de données utilisateur.

L'interface vidéo gigabit 2 (GVIF2) est une méthode de transmission en bande de base pour les informations vidéo numériques, qui applique la technologie de transmission de données série. Dans la transmission en aval de TX GVIF2 à RX GVIF2, les données de large bande passante pour informations vidéo (GHDS) et le signal de commande du dispositif (GLDS) sont transmis par la méthode du multiplexage temporel. Dans la transmission en amont de RX GVIF2 à TX GVIF2, le signal de commande GLUS est transmis. La transmission en amont et la transmission en aval s'effectuent en duplex intégral. En option, la GVIF2 prend également en charge la transmission de données audio et la transmission de données utilisateur.

Également en option, lorsqu'elles sont associées à une protection des contenus numériques à large bande passante (HDCP, *High-bandwidth Digital Content Protection*), les fonctions et fonctionnalités standards de la GVIF répondent à toutes les exigences relatives à la transmission de contenus vidéo protégés d'une source à un écran d'affichage vidéo.

Le présent document décrit les interfaces de type GVIF. Il traite de la GVIF2 dans le corps principal et l'Annexe A et de la GVIF dans les Annexes B et C.

La GVIF2 présente les fonctionnalités suivantes:

- transmission par un câble à paire différentielle torsadée blindée ou un câble coaxial,
- interface permettant la transmission de contenus vidéo et audio multiples en utilisant le multiplexage temporel,
- possibilité d'utiliser la transmission audio, la communication utilisateur bidirectionnelle et la technologie HDCP (facultatif),
- interface disponible pour la transmission en guirlande (facultatif).

Dans sa norme ARIB STD-B21, l'Association of Radio Industries and Businesses (ARIB) cite la GVIF et la GVIF2 comme étant des interfaces de sortie vidéo numérique autorisées.

# INTERFACE VIDÉO NUMÉRIQUE – INTERFACE VIDÉO GIGABIT POUR LES SYSTÈMES MULTIMÉDIAS

## 1 Domaine d'application

Le présent document décrit deux interfaces numériques série: l'interface vidéo gigabit (GVIF) et l'interface vidéo gigabit 2 (GVIF2), qui permettent l'interconnexion de matériels vidéo numériques. La GVIF et la GVIF2 sont principalement destinées à transporter des données vidéo numériques à grande vitesse pour un usage général et sont bien adaptées aux systèmes de divertissement multimédia pour véhicule.

Le présent document spécifie la couche physique de l'interface, notamment les caractéristiques de la ligne de transmission et les caractéristiques électriques des émetteurs et des récepteurs. Les spécifications mécaniques et physiques des connecteurs ne sont pas incluses.

## 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

UIT-R BT.601-5, *Paramètres de codage en studio de la télévision numérique pour des formats standards d'image 4:3 (normalisé) et 16:9 (écran panoramique)*

UIT-R BT.656-5, *Interfaces pour les signaux vidéo numériques en composantes dans les systèmes de télévision à 525 lignes et à 625 lignes fonctionnant au niveau 4:2:2 de la Recommandation UIT-R BT.601*