International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
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SERIES F: NON-TELEPHONE TELECOMMUNICATION SERVICES

Multimedia services

Requirements for inspection and examination services using civilian unmanned aerial vehicles

Recommendation ITU-T F.749.15

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Recommendation ITU-T F.749.15

Requirements for inspection and examination services using civilian unmanned aerial vehicles

Summary

Recommendation ITU-T F.749.15 specifies requirements for high-definition (HD) and virtual reality inspection and examination (IaE) services by human beings using civilian unmanned aerial vehicles (CUAVs), including those for fore-end devices capturing HD images and videos of objects and surroundings, network communication, service and application support, as well as service presentation and playback. There are many requirements for careful IaE of specific objects or facilities and surroundings, such as power lines, oil pipelines, bridges and viaducts on water and land, rivers and lakes or inspection of areas subject to emergency or disaster. With the help of HD cameras, panoramic cameras and other sensors (such as infrared sensors), a CUAV can easily accomplish IaE tasks quickly and efficiently with high quality.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T F.749.15	2022-03-16	16	11.1002/1000/14964

Keywords

Civilian unmanned aerial vehicle, inspection and examination, requirements.

* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

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FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents/software copyrights, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the appropriate ITU-T databases available via the ITU-T website at http://www.itu.int/ITU-T/ipr/.

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Recommendation ITU-T F.749.15

Requirements for inspection and examination services using civilian unmanned aerial vehicles

1 Scope

This Recommendation specifies requirements for high-definition (HD) and virtual reality (VR) inspection and examination (IaE) services by human beings using civilian unmanned aerial vehicles (CUAVs), including those for fore-end devices capturing HD images and videos of objects and surroundings, network communication, service and application support, and service presentation requirements. IaE tasks completed by machine vision lie outside the scope of this Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T F.749.12] Recommendation ITU-T F.749.12 (2020), *Framework for communication application of civilian unmanned aerial vehicles*.

[ITU-T H.264] Recommendation ITU-T H.264 (2021), *Advanced video coding for generic audiovisual services*.

[ITU-T H.265] Recommendation ITU-T H.265 (2021), *High efficiency video coding*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 civilian unmanned aerial vehicle [b-ITU-T F.749.10]: An unmanned flying device controlled by a ground control station or telecontroller via various wireless communication means. It usually consists of an aeroplane body, a power device, aviation electrical and electronic equipment and mission payload equipment, etc. and is used in non-military application areas such as industrial and consumer areas to complete the specific operation and transportation of data including audio, video and image.

3.1.2 flight control system [b-ITU-T F.749.10]: This is the sum of all components and driving devices of instruction transferring, rudder motion. It is mainly composed of airborne and ground control terminals. The one that is airborne includes three parts: airborne sensors, steering engine and flight control units.

3.1.3 ground control station [b-ITU-T F.749.10]: A ground control station is a device which is used to realize the functions of mission planning, flight control, payload control, flight path display, parameter display, image and video display and mission information displaying, recording and distributing.

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