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Telecommunications and information exchange between systems — Unmanned aircraft area network (UAAN) —

Part 1:
Communication model and requirements

Télécommunications et échange d'information entre systèmes — Réseau de zone de drones (Unmanned aircraft area network - UAAN) —

Partie 1: Modèle de communication et exigences

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

A list of all parts in the ISO/IEC 4005 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

Unmanned aircrafts (UAs) operating at low altitudes will provide a variety of commercial services in the near future. UAs that provide these services are distributed in the airspace. In level II, many people operate their own UAs without the assignment of communication channels from a central control centre. In this case, wireless fidelity (Wi-Fi) is mainly used as a control channel and a video channel in the unlicensed band. However, when using Wi-Fi, level II UAs can experience loss of control and video links due to communication resource collision. In addition, UA-related units, such as vertiports and obstacles, need a way to exchange information with UAs. This document introduces a wireless distributed communication model to solve these problems.

The wireless distributed communication described by this document is intended to be used in licensed frequency bands. By using licensed frequency bands, each unit is able to reliably allocate and use radio resources at the desired time, various UA communications can coexist and cooperate, and the probability of radio resource collision is very small.

Many services are required for UA operations. In order to support these services, communication between units related with UAs, UA control communication, and video communication, are generally needed.

The ISO/IEC 4005 series consists of the following four parts:

— ISO/IEC 4005-1 (this document): To support various services for UAs, it describes a wireless distributed communication model and the requirements that this model shall satisfy.

— ISO/IEC 4005-2: It describes communication in which all units that can communicate with UAs can broadcast or exchange information by sharing communication resources with each other.

— ISO/IEC 4005-3: It describes the control communication for the controller to control the UA.

— ISO/IEC 4005-4: It describes video communication for UAs to send video to a controller.

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Telecommunications and information exchange between systems — Unmanned aircraft area network (UAAN) —

Part 1:
Communication model and requirements

1   Scope

This document describes a communication model and requirements for unmanned aircraft area network (UAAN), which is a wireless distributed communication network for units related with UA services in level II.

It describes:

— the communication structure and operation;

— the purpose of the three types of communication and related services;

— the interoperation of the three types of communication;

— the interworking with upper layers.

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.

ISO/IEC 4005-2, *Telecommunications and information exchange between systems — Unmanned aircraft area network (UAAN) — Part 2: Physical and data link protocols for shared communication*

ISO/IEC 4005-3, *Telecommunications and information exchange between systems — Unmanned aircraft area network (UAAN) — Part 3: Physical and data link protocols for control communication*

ISO/IEC 4005-4, *Telecommunications and information exchange between systems — Unmanned aircraft area network (UAAN) — Part 4: Physical and data link protocols for video communication*

ISO 21384-4, *Unmanned aircraft systems — Part 4: Vocabulary*