

Recommendation **ITU-T F.743.27 (01/2025)**

SERIES F: Non-telephone telecommunication services

Multimedia services

Requirements and framework of intelligent video surveillance platform for power grid infrastructure

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Recommendation ITU-T F.743.27

Requirements and framework of intelligent video surveillance platform for power grid infrastructure

Summary

Recommendation ITU-T F.743.27 specifies the requirements and reference framework of an intelligent video surveillance platform for power grid infrastructure.

Video surveillance has been widely utilized in various scenarios within the power sector, including transmission, transformation, distribution, equipment inspection, safety supervision, official business, and data centres. However, as the number of surveillance devices and monitoring scenarios increases, it encounters challenges such as limited communication network bandwidth and difficulties in managing the large volume of device connections. The integration of artificial intelligence technologies into the video surveillance platform significantly enhances the efficiency of real-time data analysis. By extending intelligence to the edge of the network through model training and distribution, this intelligent platform enables proactive threat detection and more efficient resource allocation for power grid infrastructure, particularly in remote areas with sparse populations, unattended facilities, and poor wireless signal conditions. This advancement ensures comprehensive oversight and protection of critical assets, thereby enhancing the overall security and reliability of power grid infrastructures.

History *

Edition	Recommendation	Approval	Study Group	Unique ID
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Artificial intelligence, framework, intelligent video surveillance, power grid infrastructure, requirements.

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FOREWORD

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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.

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Recommendation ITU-T F.743.27

Requirements and framework of intelligent video surveillance platform for power grid infrastructure

1 Scope

This Recommendation specifies the requirements and reference framework of intelligent video surveillance platform for power grid infrastructure. The use cases are also presented in the appendix.

The scope of this Recommendation includes:

- Reference framework of intelligent video surveillance platform for power grid infrastructure.
- Functional requirements of intelligent video surveillance platform for power grid infrastructure.
- Use cases of intelligent video surveillance platform for power grid infrastructure.

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.743.22] Recommendation ITU-T F.743.22 (2022), *Requirements and architecture of an algorithm-training system for intelligent video surveillance*.
- [ITU-T F.743.23] Recommendation ITU-T F.743.23 (2023), *Security requirements for video surveillance systems*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 artificial intelligence (AI) [b-ITU-T M.3080]: Computerized system that uses cognition to understand information and solve problems.

NOTE 1 – ISO/IEC 2382-28 defines AI as "an interdisciplinary field, usually regarded as a branch of computer science, dealing with models and systems for the performance of functions generally associated with human intelligence, such as reasoning and learning".

NOTE 2 – In computer science, AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions to achieve its goals.

NOTE 3 – This includes pattern recognition, the application of machine learning and related techniques.

NOTE 4 – Artificial-intelligence is the whole idea and concept of machines being able to carry out tasks in a way that mimics human intelligence and would be considered "smart".

3.1.2 intelligent surveillance camera (ISC) [b-ITU-T F.743.19]: A kind of intelligent premises unit that can not only capture video, audio, and images but also process the captured images or video and execute particular analysis algorithms, recognize required information and output analysis results including alarms, video structure data, and recognition results.