

ICS 13.310
CCS A 91



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 46344.4-2025

**Video and image analysis system for public security - Part 4:
Technical requirements for video and image retrieval**

公共安全视频图像分析系统 第4部分：视频图像检索技术要求

Issued on: October 5, 2025

Implemented on: May 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Preface	III
Introduction	IV
1 Scope	1
2 Normative References	1
3 Terms and Definitions	1
4 Functional Components and Search Process	2
4.1 Functional Components	2
4.2 Search Process	3
5 Functions	4
5.1 Basic Requirements	4
5.2 Search Input	4
5.3 Search Output	4
5.4 Retrieving Targets by Attributes	5
5.5 Retrieving Targets by Image	6
5.6 Event Retrieval	6
6 Performance	7
6.1 Performance requirements for attribute-based retrieval targets	7
6.2 Performance Requirements for Image Retrieval Targets	7
6.3 Event Retrieval Performance Requirements	7
7 Function and Interface Correspondence 8.	8
7.1 Retrieving targets by attributes	8
7.2 Retrieving Targets by Image	8
7.3 Event Retrieval	9
Appendix A (Normative) Method for Calculating the Mean Precision Value	10
A.1 Precision rate	10
A.2 Recall rate	10
A.3 Precision-Recall Curve	10
A.4 Average precision	10
A.5 Average Precision Mean	11

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents". Drafting.

This document is Part 4 of GB/T 46344 "Public Security Video Image Analysis System". GB/T 46344 has the following publications. part.

- Part 1: General Technical Requirements;
- Part 2: Technical Requirements for Video Image Content Analysis and Description;
- Part 3: Requirements for Video Image Enhancement Techniques;
- Part 4: Technical Requirements for Video Image Retrieval;
- Part 5: Inspection Specifications.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the Ministry of Public Security of the People's Republic of China.

This document is under the jurisdiction of the National Technical Committee on Standardization of Security and Alarm Systems (SAC/TC100).

This document was drafted by. the First Research Institute of the Ministry of Public Security, the National Engineering Laboratory for Intelligent Analysis and Sharing Application Technology of Video Image Information, and other relevant organizations.

Home Security Alarm System Product Quality Inspection and Testing Center (Beijing), Yisa Technology Co., Ltd., Zhejiang Uniview Technologies Co., Ltd.

Huawei Technologies Co., Ltd., Zhejiang Dahua Technology Co., Ltd., Beijing Megvii Technology Co., Ltd., Hangzhou Hikvision Digital Technology Co., Ltd.

Limited Liability Company, Suzhou Keda Technology Co., Ltd., University of Science and Technology of China, Institute of Computing Technology, Chinese Academy of Sciences, and Oriental Netpower Technology Co., Ltd.

Joint-stock company, Vimicro Technology Co., Ltd.

The main drafters of this document are: Zhao Huifang, Cui Yunhong, Wang Jianyong, Liu Jun, Sun Yani, Wu Canyi, Du Yunpeng, Meng Fanhui, Kong Weisheng, and Li Wei.

Sun Lili, Fang Jiale, Zou Wenyi, Li Hongmei, Yin Ping, Shen Yuchen, Tang Sheng, Deng Xuran, Zhang Yongdong.

Introduction

GB/T 46344 "Public Security Video Image Analysis System" specifies the composition,

external connections, and other aspects of a public security video image analysis system.

The specifications standardize functional requirements, performance requirements, and testing methods, aiming to guide the design, development, testing, and implementation of public security video image analysis systems.

Acceptance testing will promote the efficient networked application of video image analysis technology in the field of public safety video surveillance. GB/T 46344 is proposed to be implemented by five departments. Composition.

- Part 1: General Technical Requirements. The purpose is to establish the overall technical requirements that public safety video image analysis systems must adhere to. Require.

- Part 2: Technical Requirements for Video Image Content Analysis and Description. The purpose is to standardize the technical requirements for video image analysis systems used in public security systems.

The technical components, task flow, functions, performance, and function-interface correspondence of video image content analysis and description. Require.

- Part 3: Video Image Enhancement Technical Requirements. The purpose is to standardize video image enhancement techniques in public security video image analysis systems.

Strong technical requirements for functional components, processing flow, functions, and performance.

- Part 4: Technical Requirements for Video Image Retrieval. The purpose is to standardize video image retrieval technology in public security video image analysis systems.

Technical requirements for the search function, including its components, search process, functions, performance, and the correspondence between functions and interfaces.

- Part 5: Testing Standards. The purpose is to standardize the testing environment, testing procedures, and functions of public security video image analysis systems.

Technical requirements such as inspection and performance testing.

Public Security Video Image Analysis System Part 4: Technical Requirements for Video Image Retrieval

1 Scope

This document specifies the functional components, retrieval process, functions, performance, and capabilities of video image retrieval in the public security video image analysis system.

Technical requirements such as the ability to correspond to interfaces.

This document applies to the planning, design, software development, testing, and

acceptance of public safety video image analysis systems.

2 Normative references

GB/T 28181

GB/T 46344.1-2025

GB/T 46344.2-2025

GB/T 46361-2025

GB/T 46362-2025

GB/T 46363-2025

3 Terms and Definitions

The definitions in GB/T 46361-2025, GB/T 46362-2025, GB/T 46344.1-2025, and GB/T 46344.2-2025 and The following terms and definitions apply to this document.

3.1 Attribute-based retrieval

Search for targets in video images that meet specified attribute conditions.

3.2 Image-based retrieval

It searches for targets in video images whose similarity to a specified image exceeds a set threshold.

3.3 event-based retrieval

Search for target behaviors or states in video images that match specified event rules.

Note. Event rules refer to video and image content descriptions such as tripping over lines, entering an area, going against the flow, loitering, removing a target, and leaving behind items.

3.4 Mean precision

The average area under the precision-recall curve for each sample in the detection sample set.