



# HONG KONG POLICE REQUIREMENTS FOR DIGITAL CCTV SYSTEMS



*This document offers guidance to potential users of digital CCTV systems, where the pictures are intended to be used by the police or are likely to be used in an investigation. For CCTV recordings to be effective in detecting and investigating crime they must be fit for purpose and easily accessible by police investigators. For digital CCTV there are four main areas that must be considered:*

## QUALITY

WHAT RESOLUTION? WHAT COMPRESSION? HOW MANY PICTURES PER SECOND?

1. **Specify your requirement – decide what you want to see and where, and select a system that will do it.**
2. **View the recorded pictures or print out, not the live screen, to assess the system performance.**
3. **The system clock should be set correctly and maintained.**
4. **Picture quality should not be reduced to fit the available storage capacity of the system.**
5. **Regular maintenance should be conducted on all aspects of the system.**

## STORAGE

WHAT SHOULD I KEEP?

HOW SHOULD I KEEP IT?

6. The system should be operated and recorded pictures retained in a secure environment.
7. Electronic access controls, such as passwords or encryption, should not prevent authorised access to the system or recordings.
8. The system should have sufficient storage capacity for 31 days good quality pictures.
9. The system should be capable of securing relevant pictures for review or export at a later date.

## EXPORT

HOW MUCH VIDEO SHOULD THE SYSTEM

EXPORT AND IN WHAT FORMAT?

10. A system operator should be available who is able to replay and export recordings.
11. A simple system operator's manual should be available locally to assist with replay and export.
12. The operator should know the retention period of the system and export time for various amounts of data.
13. The system should be able to quickly export video and stills to a removable storage-medium, with time and date integral to the relevant picture.
14. Export should include any software needed to view or replay the pictures.
15. The system should have an export method proportionate to the storage capacity.
16. Pictures should be exported in the native file format at the same quality that they were stored on the system.

## PLAYBACK

CAN THE PICTURES

BE EASILY VIEWED?

17. The playback software should:
  - have variable speed control including frame by frame, forward and reverse viewing;
  - display single and multiple cameras and maintain aspect ratio i.e. the same relative height and width;
  - display a single camera at full resolution;
  - permit the recording from each camera to be searched by time and date;
  - allow printing and/or saving (e.g. bitmap) of pictures with time and date.
18. The time and date associated with each picture should be legible.
19. Once exported to removable media it should be possible to replay the files immediately.

*By ensuring that your digital CCTV system is capable of meeting a few simple requirements, the potential evidential value of the pictures can be greatly increased and the time taken by the police to access and process them greatly reduced. Supporting notes are provided on the reverse of this sheet to clarify the requirements.*

## Supporting Notes:

### QUALITY – are the pictures good enough?

1. Before installing a CCTV system you should have a clear idea of what you want the system to do and how it should perform. This should include exactly what you want to see and where, e.g. recognise the face of someone walking through a doorway, read a vehicle registration number or record a particular type of activity, such as walking across a room, exchange of money or an assault.

There are no definitive performance criteria for video to be legally admissible. It is for the court to decide whether the pictures are accepted, and this is done on the grounds of relevance to the case, reliability of the evidence, etc. The appropriate resolution, level of compression and number of pictures per second will be determined by what you wish to see in the recording. If you can't see it then it's not fit for purpose. It should not be expected that enhancement features, such as zoom controls, will provide extra detail. A good way to ensure that the system is capable of achieving the requirement is to do a subjective test. Set-up a camera and get a volunteer to walk through the door or park a car in the place of interest and record the pictures. This should be done under the conditions that the system is intended to be user – performance of the system may be different when there are a number of cameras being recorded.

2. The quality of the recorded or printed pictures may differ from the live display.
3. Time and date information is often critical to an investigation. If it is incorrect this can drain police time and resources.
4. The quality of the pictures should not be compromised to allow more to be squeezed onto the system. There is some scope however for using a sliding scale of image quality based on time since recording. For example, high quality high frame rate video for the first 24 hours with gradually increasing compression or decreasing frame rate after this, but retaining useful images

up to 31 days. This would be dependent on the nature of the installation and the type of recordings being made.

5. To ensure continued quality of recording it is essential that regular maintenance of all aspects of the system be conducted – especially camera focus, cleaning of lenses, housings, etc.

### STORAGE – are the pictures stored appropriately?

6. Access to the system and recorded images should be controlled to prevent tampering or unauthorised viewing. A record should be kept of who has accessed the system and when.
7. Electronic protection methods that require proprietary software or hardware will hinder an investigation if they prevent the pictures from being provided to the police. Physical methods of access control, e.g. system in a locked room, are just as effective if documented appropriately.
8. It is important that recordings cover a sufficiently long period to assist in investigations. Retention beyond 31 days may be useful in some circumstances, but should not affect the quality of the more recent recordings.
9. It should be possible to protect specific pictures or sequences, identified as relevant to an investigation, to prevent overwriting before an investigator can view or extract them.

### EXPORT – can the pictures be easily exported from the system?

10. and 11. It is unlikely that the investigator will be familiar with the operation of your system. To facilitate replay and export a trained operator and simple user guide should be available locally.
12. and 13. Export of medium and large volumes of data can take a substantial period of time. The operator should know the retention period of the system and approximate times to export

short (e.g. 15 minutes), medium (e.g. 24 hours), and large (up to all of the system) amounts of data.

14. If the software needed to replay the pictures is not included at export, viewing by authorised third-parties can be hindered. Export of a system event log or audit trail, and any system settings with the pictures will assist with establishing the integrity of the pictures and system.
15. The amount of video that an investigator will need to export will be dependent on the nature of the investigation. For example a shop robbery may only require a few stills or a short sequence; however a more serious incident such as a murder or terrorist related enquiry may require anything up to all the video contained on the system to be exported. It is essential that the system is capable of doing this quickly and to an appropriate medium. An ideal solution for medium-to-large downloads, would be for the

system to have the facility to export to a 'plug-andplay' hard drive. Export and recording should be possible at the same time without affecting the performance of the system.

16. The system should not apply any compression to the picture when it is exported from the system as this can reduce the usefulness of the content. Also, the picture should not undergo any format conversion that affects the content or picture quality.

**PLAYBACK** – can the pictures be easily viewed by authorised third parties?

- 17.and 18. The replay software must allow the investigator to search the pictures effectively and see all the information contained in the picture and associated with it.
19. It should be possible to replay exported files immediately e.g. no re-indexing of files or verification checks.