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Safeguarding Body Worn Video Data

Published October 2016

Publication No. 076/16



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Publication No 076/16

ISBN 978-1-78655-141-2

FIRST PUBLISHED 2016

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Foreword

“Police forces across England and Wales have seen a dramatic increase in the use of Body Worn Video (BWV) cameras over recent years. Estimates for the end of 2016 suggest that there will be over 55,000 BWV cameras in operational use. However, with the increased use of BWV comes a greater risk of loss of personal or sensitive data.

Front-line policing is inherently confrontational and frequently highly unpredictable, therefore it is an unavoidable fact that there will be losses of cameras, resulting in the potential loss of personal and sensitive data. Fines imposed by the Information Commissioner’s Office (ICO) can be significant if data controllers have failed to mitigate against these risks. It is therefore imperative that police forces understand the risks of not providing adequate measures to mitigate against these potential risks.

As the national lead for body worn video I have been working with the Centre for Applied Science and Technology (CAST), the Information Commissioner and the Surveillance Camera Commissioner to produce this document on safeguarding data from BWV cameras. The purpose of this document is to prevent data loss in order to protect the public whilst ensuring operational effectiveness of this relatively new technology. Accompanying this document will also be a revision of the [Technical Guidance for Body Worn Video Devices](#). This revision will help ensure that the BWV devices currently being purchased and deployed meet an appropriate minimum technical specification in order to achieve the best evidence possible.”

A handwritten signature in blue ink, appearing to read 'Andy Marsh', is written over a light blue horizontal line.

Chief Constable Andy Marsh, NPCC Lead for Body Worn Video

Introduction

The aim of this document is to provide a practical understanding on the wide range of information that Body Worn Video (BWV) devices are able to capture and what safeguards can be implemented to avoid losing this data.

Safeguarding BWV data requires far broader consideration than just encryption and thought should be given as to where the weakest security points are within the whole process. This starts with the BWV device itself and continues with the transfer of data and its storage as well as sharing with the Criminal Justice System (CJS) and in some cases the public. However it is crucial to consider the human element within this process especially with regard to training not only for users of these devices, but also for anyone involved with the handling or management of BWV data.

Overall a balance is required between implementing measures to safeguard BWV data and ensuring that the operational effectiveness of BWV is not compromised.

Other publications that complement this guidance are:







[Technical Guidance for Body Worn Video Devices](#) - CAST, October 2016

[Encryption guidance](#) - Information Commissioner's Office, March 2016

[CCTV Code of Practice](#) - Information Commissioner's Office, May 2015

The document contains the following sections:

1. Data recorded by BWV devices
2. Consequences of losing BWV data
3. Measures to safeguard BWV data
 - 3.1 Physical security of BWV devices
 - 3.2 Protecting data on BWV devices
 - 3.3 Transferring data to back office system
 - 3.4 Tagging and organising data
 - 3.5 Sharing and redacting data
 - 3.6 Asset management of BWV devices

KEY			
	Audio		Good practice
	Visual		Advice
	Metadata		Training points

Colour has been used in this publication to convey information; should it be printed in black and white some of this will be lost.

1. Data recorded by BWV devices

BWV devices are primarily designed to record encounters between police officers and members of the public. Not only do they record both video and audio, but they employ wide angle lenses that capture events across a broad field of view. This can result in the capture of much larger amounts of information than the User intended and this is especially true of devices with High Definition (HD) cameras that record information in greater detail than those using Standard Definition (SD).











A short recording from a BWV device can provide compelling evidence for a criminal investigation. However, that recording is likely to also contain information that while not crucial to an investigation could still be considered sensitive in nature. If any of the recorded information is accessed by an unauthorised third party then this could not only compromise a police investigation, but also cause considerable intrusion into a person's privacy at a time of vulnerability. An obvious form of intrusion that could cause considerable harm is the unintentional identification of a person.

Small traces of sensitive information may have little significance when considered independently. However, when linked over an entire recording timeline the significance can be considerable. Furthermore when traces are linked across several recordings especially from a number of devices with different view points, and with other non-BWV data, then this significance could escalate.

The following tables and images demonstrate the wide range of information that can be captured by BWV devices. This can be classed as primary information that is intentionally recorded to benefit a police investigation and secondary that is unintentionally recorded and while not relevant to a police investigation, could be considered sensitive. Furthermore there are certain special locations such a hospital or private home where the potential for recording sensitive information is much greater.























Primary Information

Examples of data the User **intends** to capture that can benefit a police investigation and act as evidence.

	First accounts from victims, suspects or witnesses
	Identification of a person
	Direct conversations with members of the public
	Decisions and actions of the BWV User
	Physical and mental state of people
	Demeanour of people
	Actions of people
	Prevailing atmosphere over an incident
	Location of evidence
	Record of criminal activity

Secondary Information


















Examples of data the User could **unintentionally** capture that may not be relevant to a police investigation, but is potentially sensitive in nature.

Operational Policing		Police and Emergency Personnel		Members of the Public	
Police tactics, in-house acronyms and information relating to other incidents		Personal information on police staff and other emergency personnel on scene		Personal and sensitive information on members of the public	
	Radio communications		Visual identification*		Visual identification*
	Intelligence sources		Verbal identification*		Verbal identification*
	Access codes to buildings and electronic devices		Private conversations and comments		Private conversations and comments
	Internal layouts of police buildings		Personnel in a distressed state		People in a distressed state
	Policing acronyms and codes		Information displayed on personal mobile devices		Features of a person's vehicle
	Information displayed on police notebooks as well as on in-car and mobile devices		Shoulder or other identification number		Features within a person's home
	Location information such as a Sat Nav screen		Name badge or ID pass		Features of a person's work place
					People in a state of undress

*See following table on Visual and Verbal Identification





















*Visual and Verbal Identification













Examples of sensitive information that could in part or whole lead to the identification of a person.

Direct		Indirect	
Unique attribute that could directly identify a person		Strong attribute that could indirectly identify a person	
 Face		 Part of a person's name or a nickname	
 Voice		 General clothing and baggage	
 A person's name		 Uniform and branded clothing	
 Name badge or ID pass		 Hairstyle and beards	
 Email address		 Jewellery	
 Telephone number		 Personalised mobile phone	
 Vehicle number plate		 Tattoos, marks and scars	
		 Pet	
		 Injury	
		 Vehicle or bicycle	














Special Locations




Examples of locations that carry a greater risk of unintentionally recording sensitive information.

Private Home		Hospital		Residential Care		Police Station	
	Details of children whether present or not		Patients in physical distress		Building access codes		Building access codes
	Domestic disorder of property		Personal medical confidentiality		Occupants in a state of undress		Details of police investigations
	Occupants in a state of undress		Patients in a state of undress		Details of vulnerable people whether present or not		Identification of personnel
	Emotionally distressed occupants		Emotionally distressed patients or visitors		Personal medical products		Identification of visitors
	Identification of occupants		Identification of patients, staff or visitors				
	Personal medical products		Location of pharmaceutical products				

Prison		Bank		Place of Worship	
	Building access codes		Building access codes		Intrusion of private contemplation
	Building layouts		Building layouts		Intrusion of private ceremonies
	Identification of personnel		Identification of personnel		Identification of people attending group sessions
	Identification of inmates		Security protocols		
	Security protocols				

Recommendations



 	<p>BWV users should be proactive in informing people when they are being video recorded and that this includes audio</p>
	<p>Ensure that any deployment of BWV is compliant with advice provided by both the Information Commissioner’s Office and the Surveillance Camera Commissioner</p>
 	<p>Standard Operating Procedures should be in place to guide BWV users on when to activate and deactivate a recording</p>
 	<p>BWV users should be aware of their device’s potential to capture large amounts of unintended sensitive information</p>
 	<p>BWV users may need to consider ending a recording or temporarily covering the camera or microphone or both in order to minimize the capture of sensitive information</p>
 	<p>Greater discretion may be required when recording in special locations</p>
 	<p>Ensure processes are in place to manage Subject Access Requests from individuals who are recorded by BWV devices</p>

KEY	
	<p>Training points</p>
	<p>Good practice</p>
	<p>Advice</p>



Scenario

An officer with BWV attends a domestic violence incident and records the following information.


Officer driving to incident

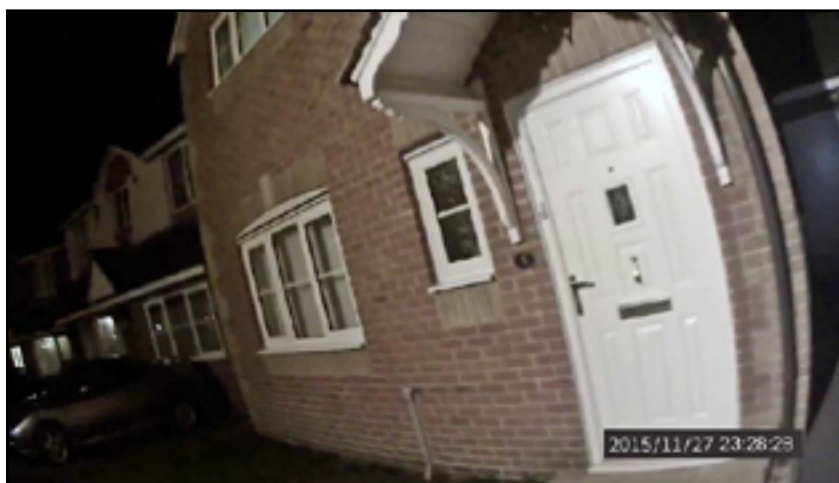
Primary Information	
	Radio communications relating to the incident
	Decisions and actions of the BWV User





Secondary Information	
	Radio communications relating to intelligence sources
	Private conversations between officers




Arrives at scene

Primary Information	
	Decisions and actions of the BWV User




Secondary Information	
	Location of private premises
	Private conversations between officers




Enters premises

Primary Information	
	Location of evidence
	Record of criminal activity
	Decisions and actions of the BWV User






Secondary Information	
	Features within a person's home









Attends to victim

Primary Information	
	First account from the victim
	Physical and mental state of the victim
	Decisions and actions of the BWV User





Secondary Information	
	Family picture
	Direct facial identification
	Indirect identification - jewellery



Questions suspect

Primary Information	
 	First account from the suspect
 	Demeanour of the suspect
 	Action of the suspect
 	Decisions and actions of the BWV User






Secondary Information	
	Direct facial identification
	Indirect identification - clothing logo

Leaves premises

Primary Information	
 	Decisions and actions of the BWV User



Secondary Information	
	Radio communications identifying officers
	Indirect identification - parked vehicle
	Officers discussing suspect

2. Consequences of losing BWV data

As covered in Section 1, a BWV device can capture a large amount of sensitive information that may have no evidential value but if mislaid could have a negative impact on members of the public as well as local community relations.

Beyond the obvious loss of potential evidence, mislaid BWV data can have a much wider impact with serious negative consequences for individual police forces, the wider police service or the Criminal Justice System (CJS) as a whole. Significantly the loss of BWV data could not only result in a substantial financial penalty, but also cause an erosion of public trust.








In the age of social media, any unauthorised third party obtaining a BWV recording has the mechanism to instantly share data with a global audience. While any consequences will be largely unpredictable they are unlikely to be positive. Furthermore once a BWV recording has hit the social networks removing it is close to impossible.




Negative impacts of losing BWV data

Examples of how the loss of BWV data could impact on a number of levels.

Members of the Public	Police Personnel	Local Policing	National Policing
Invasion of a person's privacy	Compromise the duty of care to personnel	Compromise police investigations	Loss of trust in the CJS
Compromise the safety of witnesses or victims	Loss of confidence in BWV technology	Expose police tactics and compromise the integrity of policing	Reputational damage to the national deployment of BWV
Cause personal distress	Compromise undercover officers	Loss of the community's trust	Reputational damage to data security
Reluctance to assist police		Imposing of substantial financial penalties	Negative media coverage on policing
		Corporate reputational damage to force	Erosion of public trust
		Compromise professional partnerships	
		Risk breaching the Data Protection Act	

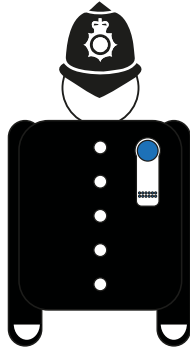
Recommendations

	Complete a Privacy Impact Assessment (PIA) to identify the most effective ways to comply with data protection obligations
	Consider the wide range of consequences that could result from the loss of BWV data
	Establish processes to ensure that any data losses are swiftly reported and that potentially negative consequences are minimised
 	BWV users should be aware of the negative consequences of losing their data
 	BWV users should report the loss of their device at the earliest opportunity

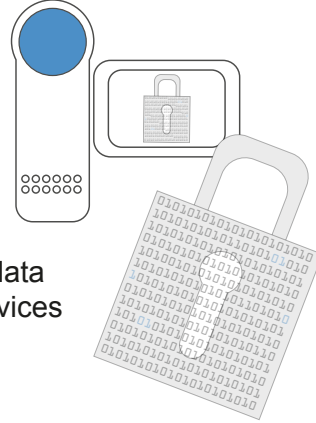
KEY	
	Training points
	Good practice
	Advice

3. Measures to safeguard BWV data

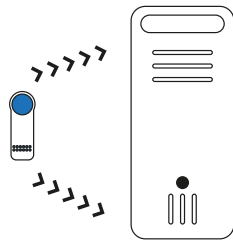
3.1
Physical security of
BWV devices



3.2
Protecting data
on BWV devices



3.3
Transferring data to
back office system



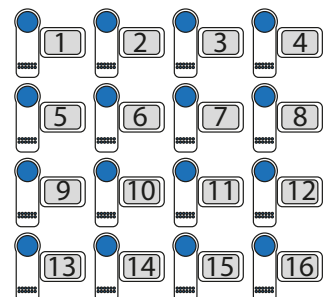
3.4
Tagging and
organising data



3.5
Sharing and
redacting data



3.6
Asset management
of BWV devices




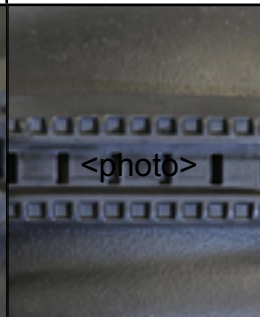


3.1 Physical security of BWV devices



Correctly attaching a BWV device is essential for ensuring that the camera is pointing forward and that the mount is secure. A significant risk to the loss of BWV data is associated with the physical loss of the device itself. Even though a device may be securely attached to an officer’s clothing, it is still possible that a device may be accidentally detached, misplaced, left behind or maliciously removed.








As the examples below show, there are several recommended mounting options for a range of policing roles. See ‘[Technical Guidance for Body Worn Video Devices](#)’ for additional information on mounting.




General Uniformed Policing	Plain Clothed Policing	Armed Policing	
Klick Fast on tactical clothing	Klick Fast on harness	Picatinny rail on helmet or cap	ARC rail on helmet or cap
			

Some policing roles carry a greater risk of losing a BWV device and should be subject to additional safeguards. The table below shows the relative RAG status of risks associated with some common policing roles.

	Property Search	Patrol	Public Order
RISK FACTORS			
Control of the working environment			
Level of hostility			
Physical altercation			
Foot pursuit			
Accessing and exiting vehicle			
Theft of device			

Recommendations

	Whenever possible use recommended mounting options
	BWV users should check that their device is still attached after a physical altercation or a foot pursuit
	Notify a colleague if their device has become detached from the mount or is missing
	If possible, a search should be carried out to locate a lost device
	Lost devices should be reported as soon as practical
	Instructions should be displayed on the devices so that if found, they can be returned
	BWV recordings should be regularly reviewed to ensure that the device is pointing in the correct direction

KEY	
	Training points
	Good practice
	Advice

3.2 Protecting data on BWV devices



In the event that a device, or removable storage media, is either misplaced or stolen a third party may attempt to access the recorded data. All devices should therefore incorporate mechanisms whether physical or electronic to prevent this from happening. However, a balance needs to be struck that ensures sufficient safeguards exist to secure the data while not hampering the effective operational deployment of BWV.

Both the Information Commissioner’s Office (ICO) and the Surveillance Camera Commissioner (SCC) recommend encryption as a primary mechanism for keeping data secure on BWV devices. Additional [encryption guidance](#) is published on the ICO’s website.

The following tables show the relative RAG status of risk factors associated with common storage media and encryption options.

Storage media options

	Removable Media		Non-removable Media	
	SD or microSD card in open slot	SD or microSD card behind user accessible cover	SD or microSD card sealed in device	Solid state media embedded within device
RISK FACTORS				
Accidental loss of media	●	●	●	●
Interference with data on media	●	●	●	●
Physical damage to media	●	●	●	●
Compromise to continuity	●	●	●	●
OPERATIONAL IMPACTS				
Flexibility of data transfer options ¹	●	●	●	●

¹ This could benefit the provision of mutual aid services

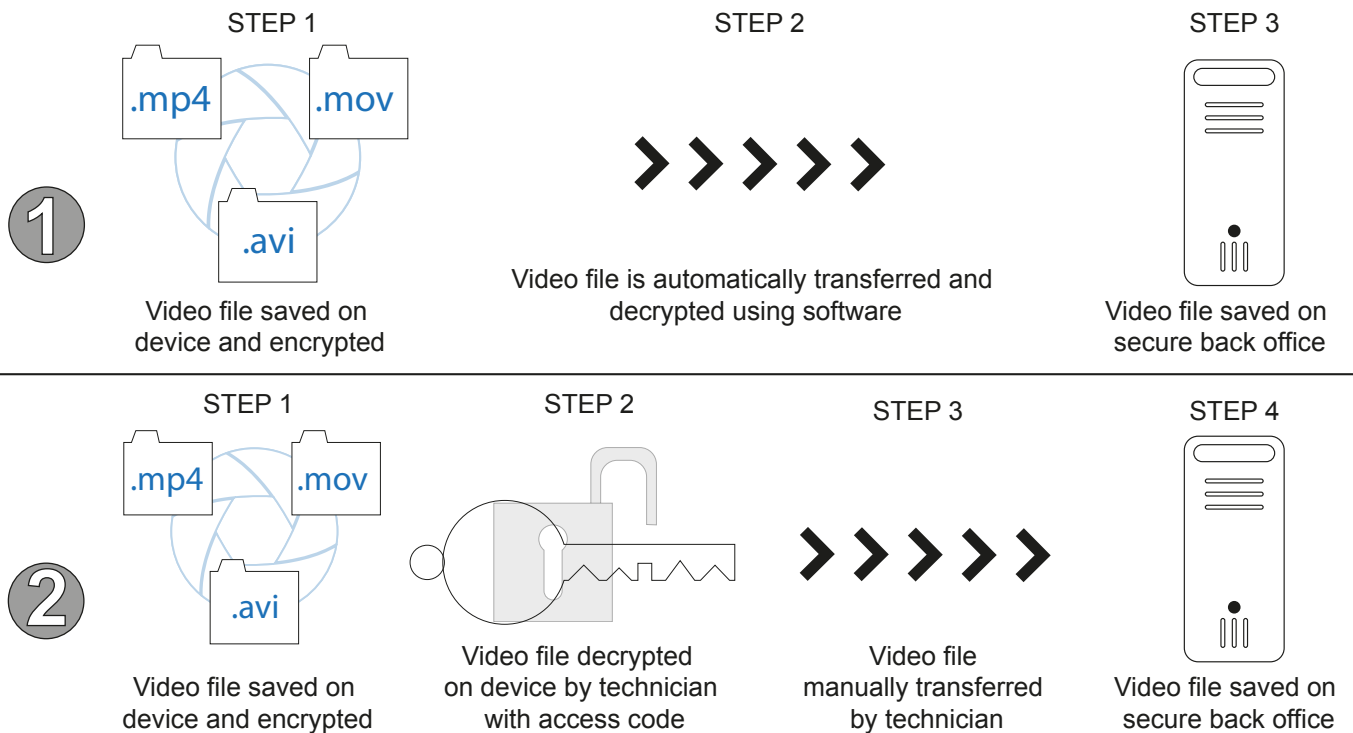
Encryption options

	No Protection	Proprietary Format	Symmetric Encryption	Asymmetric Encryption
	Direct access to data	Data or metadata is scrambled exclusive to a manufacturer	Same access code or key to encrypt and decrypt data	Different access codes to encrypt and decrypt data (public and private keys)
RISK FACTOR				
Data accessible by unauthorised party	●	●	●	●
OPERATIONAL IMPACTS				
Access code management required ¹	●	●	●	●
Sharing data with CJS partners	●	●	●	●
Replay recording on BWV or other mobile device ²	●	●	●	●













¹ Could be a manual or an automated process




² Could involve the use of an app

Two common processes for the encryption and decryption of BWV data are shown below.

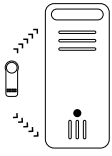


Recommendations

	Non-removable solid state media is preferred
	Encryption is recommended by both the ICO and SCC
	Symmetric encryption should be an AES system
	Asymmetric encryption should be an RSA system
	Decryption of data is best managed automatically by the back office system
	Do not use proprietary formats as this compromises the ability to process and share the data
	Devices with screens should require an access code to replay recorded video
	BWV users should be allocated individual access codes
	Access codes must not be obvious, nor the factory default, nor officer shoulder number
	Access codes should be regularly changed
	Inform the ICO if any personal data is lost
	BWV users should have an appropriate knowledge on how data is securely managed

KEY	
	Training points
	Good practice
	Advice

3.3 Transferring data to back office system



Proper and timely data management should ensure data is transferred off the device to a secure back office system as soon as practical. Normally this will mean by the end of the BWV user's shift. Another benefit of timely data management is the ability for the User to recall any events or information that need to be associated with the recording through tagging (See Section 3.4).






All recordings should be erased from the device once the data has been transferred to the force's back office system.




As well as transferring data, connecting to a secure back office system provides the opportunity for devices to have their clocks recalibrated, firmware updated, encryption systems managed or functions reconfigured.

The relative RAG status of risk factors and operational impacts for alternative data transfer methods are shown below.

	Removable Storage Media	Cable	Cable and Software	Docking Station and Software
	Data is transferred by physically removing the storage media	Data is transferred via a USB cable only	Data is transferred via a USB cable and dedicated software	Data is transferred via a docking station and dedicated software
RISK FACTORS				
Loss of data				
Compromise to continuity				
Management of data tagging				
Virus infection				
Implementation of encryption				
OPERATIONAL IMPACTS				
Installation and set up				
User input required				
Interoperability				
Update device firmware				

Recommendations

	Any data transfer process should be automated to minimise user input
	Docking stations should act as the primary method to transfer data as well as recharge and store devices
	Location of docking stations should be secure and accessible
	Devices should allow for data transfer via USB cable as back up
	BWV users should be aware of how to transfer data using both a docking station and a USB cable

KEY	
	Training points
	Good practice
	Advice

3.4 Tagging and organising data



All video files from BWV devices should have a unique reference. Additionally, the User should be required to manually label or tag each video file with information that relates to its retention period, content and when possible a crime reference. This information is often called business metadata as opposed to technical metadata that the device automatically applies to the video file to ensure playback.

This tagging of data mostly takes place once the video files have been transferred to the back office, but may be done in the field using an app on another mobile device. Regardless of the method employed, files should be tagged as soon as practical while details of the recording are fresh in the User's mind.

Not only does this tagging of data support continuity of evidence, but it helps to ensure its provenance. Furthermore, correctly tagged BWV data can be stored within a structured filing system enabling future search and retrieval.











BWV technical metadata is likely to be consistent for all devices, though the full extent of business metadata required will likely reflect similar processes already in use by individual forces.




Metadata

Common metadata fields are shown in the table below.

Business Metadata		Technical Metadata
Continuity Information	Incident Information	Video Information
Automatically applied by the BWV device or back office system	Manually applied by the BWV User	Automatically applied by the BWV device
Device reference	Crime reference	Start time and date
Unique file reference	Description of content	Length of recording
BWV user's name or identification	Type of offence	Image resolution
PNC Force identification	Data retention parameters	Frame rate
Associated video files	Operation name	File size
	Free text user comments	Location information such as GPS data

Recommendations

	BWV data should be tagged so it can be organised, searched and retrieved
	Metadata fields and entry options should be standardised wherever possible
	Back office software interface should assist the BWV User with the tagging process
 	Video files should be tagged by the BWV User as soon as practical
 	Data retention parameters should be set as soon as possible
 	A crime reference should be linked to the video file whenever possible
	BWV users should be aware that long recordings may be split into more than one file to improve replay

KEY	
	Training points
	Good practice
	Advice

3.5 Sharing and redacting data



At times, it will be necessary to provide copies of BWV recordings to third parties. This includes partner agencies within law enforcement or those within the criminal justice system as a whole such as the Crown Prosecution Service (CPS). Responsibility for safeguarding this data resides with the police until it has been passed to the agency.

The relative RAG status of risk factors and operational impacts for alternative data sharing methods are shown below.

	CD/DVD (sent by post or courier)	CD/DVD (delivered by staff member)	Electronic data transfer or access
RISK FACTORS			
Loss of data in transit	●	●	●
Compromise to continuity	●	●	●
Control over distribution	●	●	●
Apply technical security measures such as encryption	●	●	●
OPERATIONAL IMPACTS			
Delivery cost	●	●	●
Time taken	●	●	●























A third party could also be in the public domain, such as a person requesting data held on them through a Subject Access Request as permitted under the Data Protection Act 1998, or to the Media as part of a public appeal, or as evidence for a civil prosecution. In these and some other circumstances it is likely that the recording will need to be redacted.




Redaction covers the editing, censoring or obscuring of those parts of a recording that could unwittingly reveal sensitive information, expose police tactics or compromise operational strategies (see Section 1). On a practical level this could mean trimming the length of the original recording, concealing specific visible objects and actions as well as removing metadata and muting parts of the audio track. Although pixelation or blurring may be the obvious method for concealing information, solid masking tends to be more robust. If more than one recording covers an incident then it is important to ensure that redaction is applied consistently.

While the redaction of a document and a photograph is straightforward, this is not the case with a video (audio visual) recording. Any redaction of BWV recordings requires specialist software and appropriately trained personnel.

Redaction considerations

Examples of what should be considered for redaction when releasing BWV data in some typical circumstances.

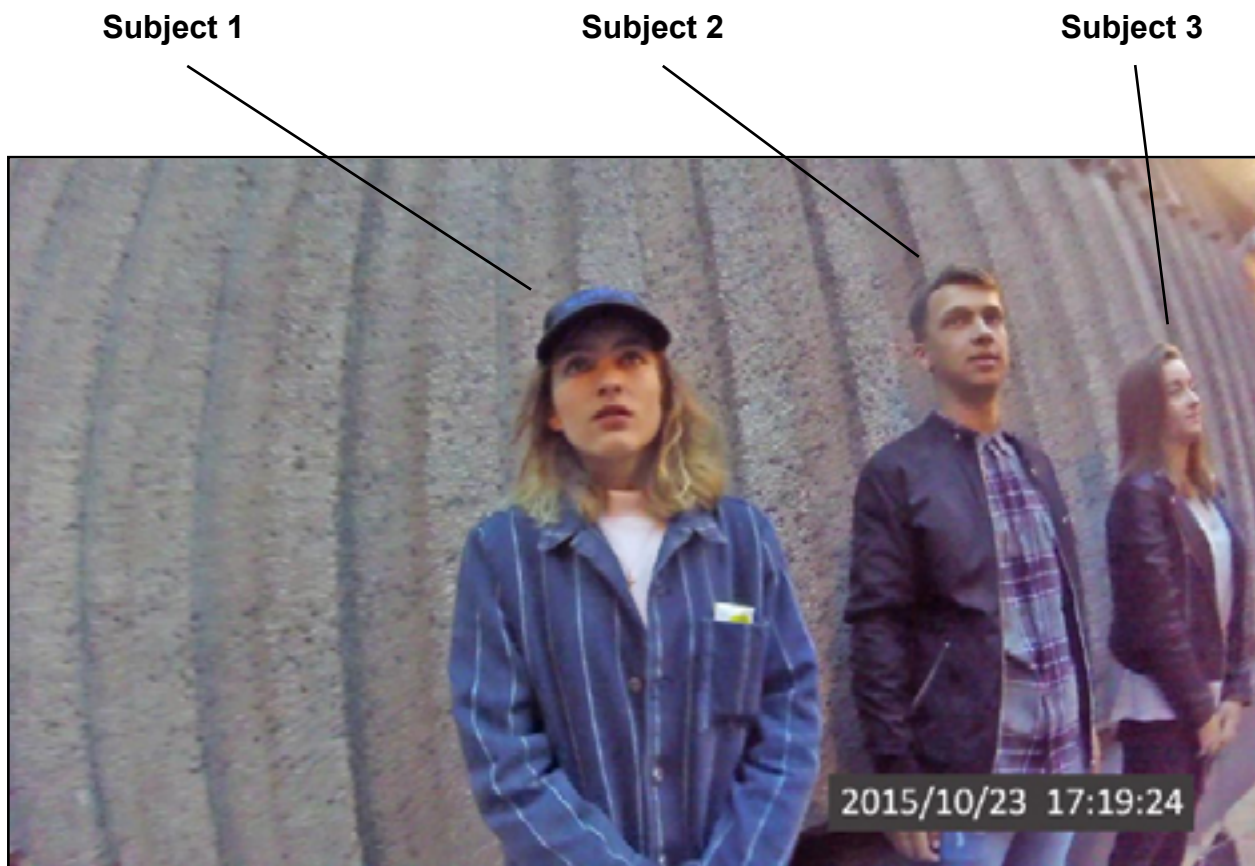
Subject Access Request (SAR)		Court Compilation		Training		Public Domain	
Under section 7 of the DPA, people have the right to request personal data an organisation holds about them.		BWV recording that is to be shown in court		BWV recording that is replayed during police training sessions to aid realism		BWV recording that is released into the public domain to progress an investigation	
 Identification of people other than the requester	 Identification of people not connected with the incident	 Identification of victim or witnesses	 Identification of a person other than the primary subjects	 Identification of emergency personnel	 Information that may compromise the safety of a person	 Information that may affect a police investigation	 Identification of any emergency personnel without their consent
 Exposure of police tactics or operational knowledge	 Any part of the recording not agreed with the prosecution	 Any part of the timeline not required	 Any part of the timeline not required	 Any piece of recording the requester does not appear in	 Any part of the timeline not required	 Exposure of police tactics or operational knowledge	 Any part of the timeline not required
 Original file name				 Original file name		 Business metadata	 Business metadata
 Business metadata						 Business metadata	







KEY	
	Audio
	Visual
	Metadata



The following examples show images and tables listing video and audio information that could lead to the identification of a person.

Example A:

Subject 2 is recorded during a Stop and Search and requests a copy of the recording.



Subject 1	
	Facial identification
	Clothing - baseball cap
	Clothing - jacket
	Jewellery - necklace
	Voice identification of subject
	Subject's email address and telephone number







Subject 3	
	Facial identification
	Clothing - jacket




Subject 1



Subject 2

Subject 3



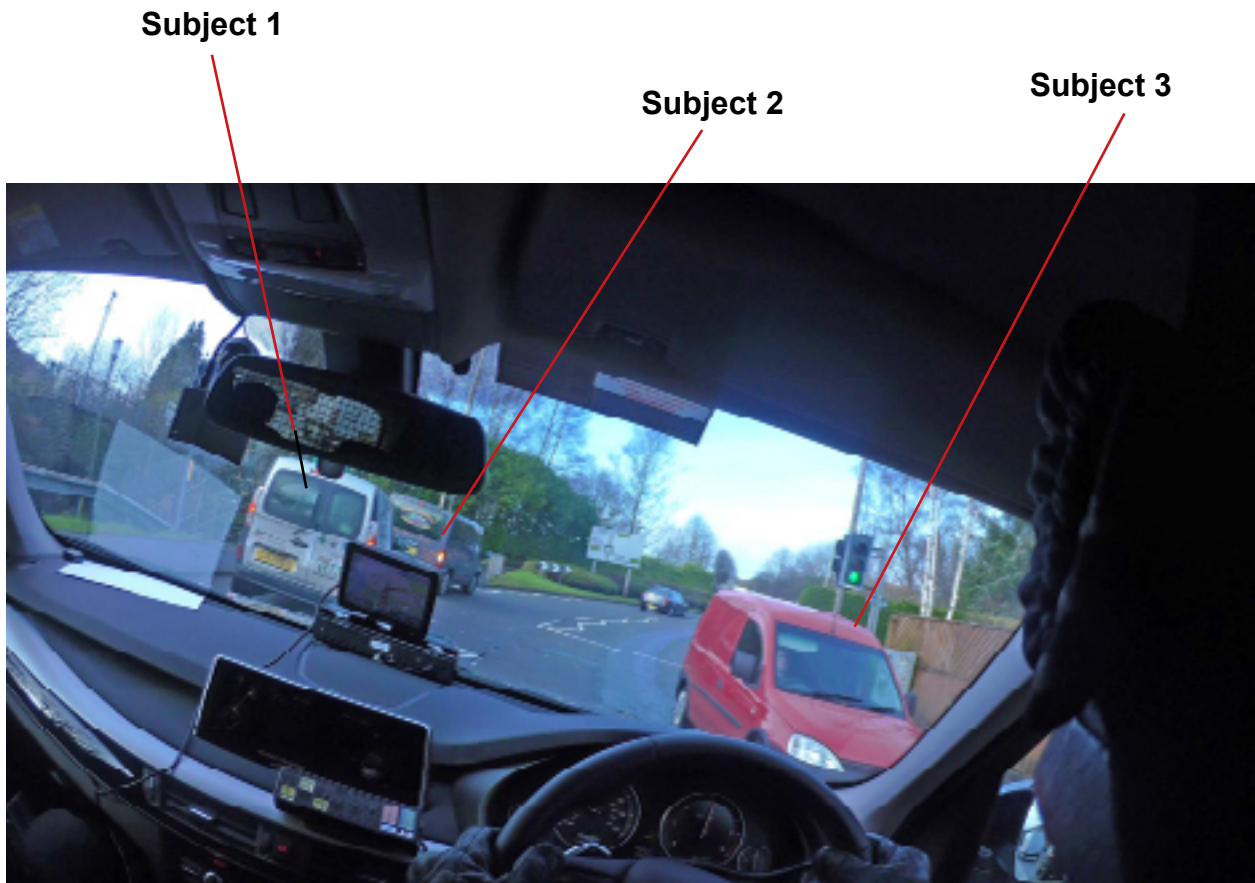
Subject 1	
	Facial identification
	Clothing - trousers
	Jewellery - ring
	Distinct mobile phone ring tone
	Voice identification of subject
	Subject's email address and telephone number



Subject 3	
	Facial identification
	Clothing - handbag
	Clothing - footwear


BWV User	
	Radio communications identifying witness
	Private conversation between officers



Example B:




Subject 3 is recorded by an officer in a passing police car and requests a copy of the recording.










Subject 1	
	Company logo
	Number plate




Subject 2	
	Company logo

BWV User	
	Private conversations between officers
	Identification of officers



In Car	
	Identification of intelligence sources
	Location of destination on Sat Nav
	Details of victim on PNC display

Recommendations



	Subject Access Requests should be dealt with through an established process
	Ensure compliance with the Data Protection Act
	Redaction of BWV recordings requires specialist software and appropriately trained personnel
	Detailed edit lists should be provided to personnel performing the redaction
	Apply a consistent approach to redaction, though each case may require individual consideration
	A frame-by-frame review of the redacted recording should be performed to ensure compliance with requirements
	BWV users should be aware that people appearing in their recording can request a copy

KEY	
	Training points
	Good practice
	Advice

3.6 Asset Management of BWV devices

  Asset management generally refers to a systematic process of deploying, operating, maintaining, upgrading and storing devices.







 




  As with other mobile electronic police equipment, effective procedures should be in place to manage BWV assets. These procedures should factor in the BWV User minimising any impact on their operational roles.

Importantly any asset management process should accurately record who a device is assigned to, the location of the device and its operational status.

Recommendations

	Personal issue of BWV devices has proven to be beneficial for many police forces
	Unique asset reference should be visible on all devices
	Status records should be maintained for all devices such as; in use, charging, faulty or under repair
	Devices should be stored securely when not in use
	Near Field Communication (NFC) and Radio Frequency Identification (RFID) technologies can benefit asset management
	BWV users should be aware of their role and responsibility for managing BWV assets

KEY	
	Training points
	Good practice
	Advice

ISBN 978-1-78655-141-2