

# **2021-S-0013**

# **Standard Guide for Post Mortem Examination Photography**

*Video / Image Technology & Analysis Subcommittee  
Digital / Multimedia Scientific Area Committee  
Organization of Scientific Area Committees (OSAC) for Forensic Science*



## Draft OSAC Proposed Standard

# 2021-S-0013 Standard Guide for Post Mortem Examination Photography

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Video / Image Technology & Analysis  
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### **Disclaimer:**

This OSAC Proposed Standard was written by the Video/Image Technology & Analysis/Digital/Multimedia Scientific Area Committee of the Organization of Scientific Area Committees (OSAC) for Forensic Science following a process that includes an [open comment period](#). This Proposed Standard will be submitted to a standards developing organization and is subject to change.

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The STRP panel will consist of an independent and diverse panel, including subject matter experts, human factors scientists, quality assurance personnel, and legal experts, which will be tasked with evaluating the proposed standard based on a comprehensive list of science-based criteria.

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- 1     1.    Scope
- 2           1.1.   This standard provides procedures describing specific photography and lighting
- 3                    techniques for documenting post mortem examinations. These photographs serve
- 4                    as a permanent record of the examination, related evidence, and findings.
- 5           1.2.   This standard cannot replace knowledge, skills, or abilities acquired through
- 6                    education, training, and experience, and is to be used in conjunction with
- 7                    professional judgment by individuals with such discipline-specific knowledge,
- 8                    skills, and abilities.
- 9           1.3.   This standard does not purport to address all of the safety concerns, if any,
- 10                   associated with its use. It is the responsibility of the user of this standard to
- 11                   establish appropriate safety, health, and environmental practices and determine
- 12                   the applicability of regulatory limitations prior to use.
- 13    2.    Terminology
- 14           2.1.   Definitions—for definitions of terms relating to this *standard*, refer to Terminologies [E2916](#).
- 15           2.2.   Definitions of Terms Specific to This *Standard*:
- 16                   2.2.1.   Anatomical Position - The erect position of the body with the face directed
- 17                            forward, the arms at the side, and the palms of the hands facing forward,
- 18                            used as a reference in describing the relation of body parts to one another
- 19                            (Dictionary.com)
- 20                   2.2.2.   Frankfurt Plane - The anatomical position of the human skull, based on a
- 21                            plane passing through the inferior margin of the left orbit and the upper
- 22                            margin of each ear canal.
- 23                   2.2.3.   Native ISO - The sensitivity (ISO) setting that does not require the camera
- 24                            to increase the voltage to the sensor. It is not always the lowest ISO
- 25                            available on the camera.
- 26                            ([https://www.bhphotovideo.com/explora/photography/tips-and-](https://www.bhphotovideo.com/explora/photography/tips-and-solutions/understanding-exposure-part-4-iso)
- 27                            [solutions/understanding-exposure-part-4-iso](https://www.bhphotovideo.com/explora/photography/tips-and-solutions/understanding-exposure-part-4-iso) accessed 05/11/2021)
- 28                   2.2.4.   Anterior – front of the body
- 29                   2.2.5.   Posterior – rear of the body

- 30                    2.2.6.    Documentation quality images – photographs that will be used to  
31                    demonstrate the appearance of the subject, typically captured using a  
32                    minimally compressed image format.
- 33                    2.2.7.    Examination quality images – photographs that will be used for  
34                    comparison purposes or to calculate precise measurements, typically  
35                    captured using the highest resolution and least compression available on  
36                    the camera.
- 37    3.    Summary of Practice
- 38                    3.1.    Universal precautions for health and safety
- 39                    3.2.    Suggested equipment
- 40                    3.3.    Camera settings
- 41                    3.4.    General considerations
- 42                    3.5.    Photographic documentation of post mortem examinations
- 43                    3.6.    Retention and storage of images
- 44    4.    Significance and Use
- 45                    4.1.    This guide is intended to increase consistency among forensic photography  
46                    providers due to the evidentiary and documentary value provided by photographs  
47                    during forensic autopsies.
- 48                    4.2.    This standard provides photography guidelines to better allow organizations to  
49                    develop training programs and in-practice protocols.
- 50                    4.3.    This guide is not intended to address all potential examination types or conditions,  
51                    nor does it supersede requirements of accrediting or certifying bodies.
- 52    5.    Universal Precautions for Health and Safety
- 53                    5.1.    Universal precautions is an approach to infection control to treat all human blood  
54                    and bodily fluids as if they were known to be infectious for HIV, HBV, and other  
55                    bloodborne pathogens.
- 56                    5.2.    Use appropriate personal protective equipment such as gloves, masks, and gowns  
57                    to prevent coming into contact with blood and other bodily fluids.

- 58 6. Suggested Equipment
- 59 6.1. Single Lens Reflex (SLR) Camera or Mirrorless Interchangeable Lens Camera  
60 (MILC)
- 61 6.2. Lenses covering normal to wide angle field of view and macro capabilities
- 62 6.3. Storage media cards
- 63 6.4. Batteries
- 64 6.5. Lighting
- 65 6.5.1. Off camera Flash Unit
- 66 6.5.2. Flash sync cord or wireless trigger
- 67 6.5.3. Flash diffuser
- 68 6.5.4. Ring flash
- 69 6.5.5. Alternate Light Source (ALS)
- 70 6.5.6. Flashlight
- 71 6.6. Various scales that have been previously checked against a known standard for  
72 accuracy (e.g. L-shaped, straight, ABFO no.2, NNDV no.2); millimeters  
73 recommended.
- 74 6.7. Camera Support
- 75 6.7.1. Tripod
- 76 6.7.2. Articulating support
- 77 6.7.3. Copy stand
- 78 6.8. Step Stool/ Ladder
- 79 6.9. Background material
- 80 6.9.1. Neutral background for gross specimen photography
- 81 6.9.2. Movable neutral background for overall or orientation photographs
- 82 6.9.3. Cloths / towels / drapes

- 83           6.10. Case identifier / labels
- 84           6.11. Color reference target
- 85       7. Camera Settings
- 86           7.1. Set the correct date and time.
- 87           7.2. Format memory card.
- 88           7.3. Use Manual exposure mode.
- 89           7.4. Use an aperture that yields sufficient depth of field.
- 90           7.5. Use the fastest flash sync speed.
- 91           7.6. Set the white balance to “Flash”.
- 92           7.7. Use the camera’s native ISO, to ensure the best color, contrast, saturation, and  
93 minimize artifacts from noise.
- 94           7.8. Choose a focus setting that allows single point focusing.
- 95           7.9. Use the external flash in through-the-lens (TTL) mode.
- 96           7.10. Use the flash off-camera to direct the flash by hand at an angle that reduces glare  
97 or hotspots, controls shadows, and accentuates texture as needed.
- 98           7.11. An ALS may be used to document evidence not typically seen using visible light.
- 99       8. General Considerations
- 100           8.1. Use a ladder or step stool and normal lens when photographing the overalls, head  
101 shots, inside the body cavity, or as needed to avoid distortions.
- 102           8.2. The camera lens should be perpendicular to the subject being photographed. This  
103 is critical when using a scale.
- 104           8.3. The focal point should be a deliberate choice by the photographer. This is  
105 especially important in close-up photography, where the depth of field is  
106 extremely limited.
- 107           8.4. The case number should be clearly visible in every photograph captured.

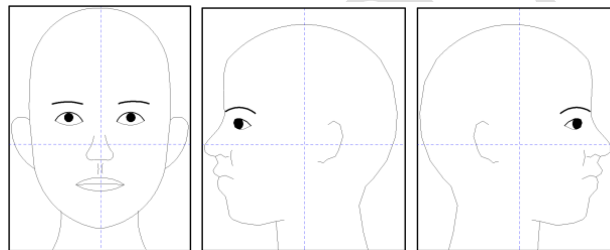
- 108                    8.4.1.    Place the case number unobtrusively and oriented, when possible, in  
109                    anatomical position with the bottom of the number parallel to the bottom  
110                    of the feet of the decedent.
- 111                    8.4.2.    When moving from an orientation photograph to a close-up, do not move  
112                    the case number unless absolutely necessary. This consistency greatly  
113                    helps to orient the viewer and avoid confusion.
- 114                    8.4.3.    Use a case number of an appropriate size, so as not to cover anything  
115                    relevant or be so large as to distract or overwhelm the photograph. Smaller  
116                    case numbers should be used when photographing smaller areas, such as  
117                    bullet holes, eyelids, wounds, etc. Some cases may require three or four  
118                    different size labels while others may require only one or two.
- 119                    8.4.4.    When photographing organs or specimens outside of the body, position  
120                    the case number label anatomically as if the organ were still inside the  
121                    body. This consistent placement is used so that in every photograph  
122                    captured, whether overall, orientation or close-up, the viewer will know  
123                    what direction is up, down, right, or left.
- 124                    8.5.      All backgrounds should be as clean, dry, and free of distraction as possible. Make  
125                    sure that the body and tray it's on are clean and dry when taking the overall  
126                    photographs and the photographs are framed as closely to the edge of the tray as  
127                    possible. If distracting elements are visible in the background, frame the shot  
128                    differently to avoid this or use a neutral colored cloth or board to act as a  
129                    background.
- 130                    8.6.      When photographing features on or inside of the body, an orientation photograph  
131                    should be captured of that feature in reference to a physical structure or  
132                    “landmark” on the body. It should be captured with as wide a view as practical  
133                    without showing any distracting elements in the background. A second, close-up  
134                    photograph should be captured filling the frame with the feature in question. If a  
135                    scale is to be used in relation to the feature, take one orientation photograph, one  
136                    close-up photograph without the scale, and an additional close-up photograph  
137                    with the scale.
- 138                    9.      General Photographic Documentation
- 139                    9.1.      As Is photographs: capture these photographs before moving the decedent,  
140                    cleaning or shaving the body, or removal of any medical intervention or devices.



141 9.1.1. Bag & Seal – A photograph of the body bag that the decedent arrived in  
142 including all labels or tags, and a photograph of any and all seals used to  
143 keep the body bag closed.

144 9.1.2. Anterior Overalls – Three overlapping photographs of the upper, mid, and  
145 lower body with a large scale and large case number clearly visible in each  
146 photograph.

147 9.1.3. Head Shot – A photograph of the head and upper shoulders with a large  
148 case number below the chin in anatomical position. The photograph  
149 should be captured with a focal length of 50mm or longer (preferably  
150 between 85 and 105mm) to avoid distortion, and as centered and  
151 perpendicular as possible, in accordance with the Frankfurt Plane. See  
152 Figure 1:



153

154

Figure 1

155 9.1.4. Posterior overall photographs if necessary.

156 9.1.5. Additional photographs as needed.

157 9.1.6. Personal Effects – Photographs should be captured of all personal effects,  
158 (i.e., jewelry, watches, wallet, etc.) while still on the body. All personal  
159 effects should then be photographed off of the body on a clean  
160 background.

161 9.2. After photographs described within 9.1 are captured and the Forensic Pathologist  
162 is done with documentation, the body may be removed from the bag. Capture  
163 additional photographs as needed to document features not visible before the body  
164 was removed from the bag or are more easily photographed with the body  
165 removed from the bag. The body should be cleaned so that the following  
166 photographs are free of any extraneous blood, fluids, or any other distracting  
167 elements that could obscure the subject.

168 9.3. Overall Photographs:

- 169 9.3.1. Anterior Overalls – Capture three overlapping photographs of the upper,  
170 mid, and lower body with scale and case number clearly visible.
- 171 9.3.2. Posterior Overalls – Capture three overlapping photographs of the upper,  
172 mid, and lower body with scale and case number clearly visible.
- 173 9.3.3. Scars, Marks, Tattoos, and other identifying characteristics – Capture  
174 orientation and close-up photographs with the case number placed  
175 unobtrusively and in anatomical position. Include a scale as needed.
- 176 9.4. Head Shots:
- 177 9.4.1. Photograph the head and upper shoulders with the case number below the  
178 chin in anatomical position. The photograph should be captured with a  
179 focal length of 50mm or longer (preferably between 85 and 105mm) to  
180 avoid distortion and as centered and perpendicular as possible, in  
181 accordance with the Frankfurt Plane. (See Figure 1)
- 182 9.4.2. ID Photographs: Capture an additional Head Shot for the purposes of  
183 identification, respecting the same rules as above. Take the time to make  
184 the decedent presentable (e.g., hair, closed eyes and mouth, clean and dry  
185 face, etc.). This photograph should be captured with a neutral background.  
186 In the case that there are injuries present on the face, these photographs  
187 can be captured of the profile view, with care being taken to photograph  
188 the side of the face with the fewest injuries. Compose this photograph  
189 showing as much of the face as possible while concealing trauma that may  
190 be disturbing.
- 191 9.4.3. For photographs used to facilitate automated facial recognition (FR)  
192 searches or manual facial comparisons that could contribute to forensic  
193 investigations refer to ASTM E3148-18 (Standard Guide for Postmortem  
194 Facial Image Capture)
- 195 9.5. Injury Documentation
- 196 9.5.1. An L-shaped forensic scale is preferred for injury documentation (e.g.  
197 ABFO no.2, NNDV no.2).
- 198 9.5.2. Capture orientation and close-up photographs of each injury with the case  
199 number placed unobtrusively and in anatomical position. Take close-up  
200 photographs without, then with a scale present. Repeat if the area is then  
201 shaved.

- 202 9.5.3. Place the scale on the same plane as the injury in question and photograph  
203 the scale and injury as perpendicularly as possible to obtain the most  
204 accurate measurement.
- 205 9.5.3.1. If the injury is on a contoured surface, reposition the scale and re  
206 photograph as necessary along the contour.
- 207 9.5.4. For close-up photographs, the scale should be placed on the edge of the  
208 photograph and not fill anymore of the frame than is necessary.
- 209 9.5.5. The scale should be oriented along the long edge of the photograph  
210 whenever possible.
- 211 9.5.6. Any pattern injury or possible “tool mark” on the body is to be treated the  
212 same way, giving consideration for examination quality photographs.
- 213 9.6. Internal Photography
- 214 9.6.1. When photographing the inside of the body cavity, the area being  
215 photographed should first be cleaned, patted dry, and excess blood or  
216 bodily fluids removed.
- 217 9.6.2. Consider proper flash placement and angle to achieve even lighting and  
218 avoid unwanted shadows.
- 219 9.7. Gross Specimen Photography
- 220 9.7.1. Organ or gross specimen photographs are often needed to record unique  
221 pathological findings. Photograph the specimen on a neutral colored  
222 background (board). Fill the frame as much as possible with the specimen  
223 and case number. Make sure that the specimen and the background are  
224 clean and dry (i.e. no excess blood or bodily fluids).
- 225 9.7.2. If there is a specific item of interest on the organ or specimen, a  
226 photograph of the entire organ or specimen should be captured, followed  
227 by a close-up photograph of the item of interest.
- 228 9.7.3. Consider proper flash placement to achieve even lighting and avoid  
229 unwanted shadows.
- 230 9.8. Examination Quality Photographs

- 231 9.8.1. Capture using the highest resolution and least compression available on  
232 the camera, Lossless RAW is preferred. For the benefit of a reviewer,  
233 photographs may be captured with a camera setting of RAW+.jpg.
- 234 9.8.2. The camera and lens used should meet minimum resolution requirements  
235 for the reproduction of the subject.
- 236 9.8.3. Photographs in this category include, but are not limited to bullet wounds,  
237 incised wounds, bite marks, ligature marks, tool marks, and pattern  
238 injuries.
- 239 9.8.4. Use a tripod, copy stand, or similar camera stability device.
- 240 9.8.5. Fill the frame with the subject.
- 241 9.8.6. Capture the photographs with the camera lens perpendicular to the subject.
- 242 9.8.7. Place the scale on the same plane as the subject in question and  
243 photograph the scale and subject as perpendicularly as possible to obtain  
244 the most accurate measurement.
- 245 9.8.7.1. If the subject is on a contoured surface, reposition the scale and re  
246 photograph as necessary along the contour.
- 247 9.9. Derived Evidence
- 248 9.9.1. Evidence should be placed on clean paper and photographed with a clean  
249 scale.
- 250 9.9.2. Clothing may need to be photographed when there is damage or physical  
251 evidence present. Care should be taken not to contaminate clothing.
- 252 9.9.2.1. Photograph labels, logos, unique belongings, etc. which may help  
253 identify an unknown decedent.
- 254 9.9.2.2. Defects on clothing can be highlighted with arrows or numbers of  
255 a contrasting color. Holes or tears can be accentuated by placing  
256 contrasting lighter or darker colored paper beneath them.
- 257 9.9.2.3. An overall photograph of both the front and back of the clothing  
258 and close-up photographs of each pertinent defect should be  
259 captured. Use a clean scale for the close-up photographs of the  
260 defects.

- 261 9.9.3. Photograph any prosthetics, medical equipment, pacemakers, etc. showing  
262 any applicable lot or serial numbers.
- 263 9.9.4. Photograph any evidence removed from the body (e.g., ligatures, bindings,  
264 bullets or fragments, etc.) with the case number placed unobtrusively.  
265 Take close-up photographs without, then with a scale present.
- 266 10. Retention and Storage of Photographs
- 267 10.1. All photographs should be retained as part of case documentation, regardless if  
268 they are captured with the photographer's primary camera or any other camera,  
269 such a back-up camera, cell phone camera, or point-and-shoot device.
- 270 10.2. Original photographs should not be deleted. All photographs, including poor  
271 quality images or unintended photographs, should remain as part of case  
272 documentation.
- 273 10.3. It is the responsibility of the organization to maintain all photographs so they are  
274 available for all intended purposes.
- 275 10.4. The organization should be aware of all local, state, and federal laws that regulate  
276 the manner, duration, and maintenance for evidentiary photographs; and should  
277 have policies in place that comply with those measures.
- 278 10.5. Digital photographs should be adequately maintained to prevent loss and  
279 degradation.
- 280 11. Keywords
- 281 11.1. Post Mortem Examination Photography
- 282 11.2. Post Mortem Documentation
- 283 11.3. Autopsy Photography
- 284 11.4. Autopsy Documentation
- 285 11.5. As Is Photographs
- 286 11.6. Head Shots
- 287 11.7. Overalls
- 288 11.8. ID Photographs

289	11.9.	Injury Documentation
290	11.10.	Internal Photography
291	11.11.	Gross Specimen Photography
292	11.12.	Examination Quality Photographs
293	11.13.	Derived Evidence
294	11.14.	Deletion of Photographs
295	11.15.	Storage of Photographs

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