

**Deadline of Submission of Comments: 16-Mar-20**  
**Document Number: ASB BPR 050**  
**Document Title: Best Practice Recommendation for Photographic Documentation of Footwear and Tire Impression Evidence**

#	Section	Type of Comment (E-Editor)	Comments	Proposed Resolution	Final Resolution
1	Table of Contents	E	Annex A should be listed as "Image Resolution Calculations" instead of "Bibliography".	Change name of Annex A on the Table of Contents page.	Accept
2	Table of Contents	E	Annex B should be added as "Bibliography".	Add "Annex B (informative) Bibliographys" to the Table of Contents page.	Accept
87	Scope	E	I assume ASB can reference ASTM Standards. A Standard Guideline on Video Analysis, Image Analysis and Photography is currently in process at ASTM. I don't know how long it will take to move through or long ASB's process is, but if the timing alligns, consider referencing it.	Add footnote and/or add to annex.	Reject: ASB can reference only published materials/publications. The CB will revisit this suggestion prior to this document being submitted for publication.
92	General Note	T	I strongly encourage you to review SWGDE's Guideline for the Digital Imaging of Footwear and Tire Impressions and incorporate the corresponding information as appropriate. The majority of your references are not standards or best practices and are over a decade old. This best practice/guide was updated in 2018.	Add information and reference as appropriate.	Accept with Modification: The WG reviewed the document as suggested and the reference to Section 4.1; B-4 lens distortion in the bibliography of this document.
93	General Note	E	The OSAC VITAL Subcommittee is extremely discouraged and frustrated that this document was not provided to us for review prior to it being submitted to ASB. I believe many of the comments listed above could have been addressed earlier. These frustrations have been shared with the Chair of the OSAC Digital Multimedia SAC and the FSSB. We hope that this subcommittee/task group takes a more proactive approach in the future.		Reject: This comment is not relevant. This is not an ASB process. ASB Secretariat is in touch with The OSAC VITAL Subcommittee and members of this subcommittee were added to our WG.
63	General Note	E	Throughout the document when referencing scales, the phrases "at the same plane" and "on the same plane" are used.	Choose one phrase and be consistent. Personally I prefer "on the same plane"	Accept
42	Relevant sections	E	Illustrations or example photographs of correct and incorrect set-ups will improve reader understanding. For example, a photograph of an impression with the light held too high and at the correct height (the "correct" photograph could be re-used to illustrate the use of the "golf ball marker" by pointing to or circling the marker.) Add appropriate captions. While we understand the proposed standard is not an instruction manual, it will be used to develop instructional material. Adding illustrations will reduce future conflicts and misunderstanding.	Add illustrations or example photographs as needed.	Reject: These are addressed in the content of the references included in the Bibliography.
43	header on pages 1-10	E	Incorrect date in header. Should be 2020 not 2019.	"ANSI/ASB Best Practice Recommendation 050, 1st Ed., <del>2019</del> 2020"	Accept
3	4.1	E	In a) 4. there appears to be an extra space between the 6 and 0 of "60 mm".	Remove extra space between the numbers.	Accept
7	4.1	E	There appears to be an extra space in '60mm'	remove space	Accept
19	4.1	T	Include wireless off-shoe flash control or off-shoe cords, spare batteries for equipment, spare memory cards.	Add additional equipment	Reject: It is already adressed in 4.1 A and 4.1 A 3)
67	4.1		add sections for spare batteries for camera and flash, spare memory cards, pen (can add pen to part (L))		Reject: The need for spare equipment is left to the discretion of the individual practitioner.
88	4.1.a.1	T	This line suggests that a 12 megapixel camera should be used. Regardless if this is a minimum, I find myself asking how this level was determined. Was this refernced in a standard? Was this determined via published research?	Provide a reference that provides greater weight to how 12 megapixels was decided.	Accept with modification: There is no reference for this number. The word "minimum was added to 4.1. A-1 "minimum 12 megapixel".
53	4.1 a 1	T	It is worded as if 12 megapixels is the only recommendation. I believe that should be the minimum	Reword to imply that 12 megapixels is the minimum recommendation	Accept
78	4.1 a )1		Need to compare our recommendation for megapixels and determine why we chose our number and/or inquire as to the minmum PPI why they chose 12MP		The commenter withdrew this comment.

#	Section	Type of Comment (E-Edit)	Comments	Proposed Resolution	Final Resolution
18	4 - 4.1 - a) - 4.	T	<p>"a fixed normal focal length lens (50 mm to 60 mm), or a zoom lens appropriately set to the normal focal length;" <b>The word "normal" means different things to different people</b>, and requires further definition. Annex A correctly refers to a "35 mm equivalent." We suggest this sentence should read as follows: "a lens with a 43 – 60 mm equivalent focal length;"</p> <p>Mathematically, any lens in that range is "normal" for a full frame sensor, many lenses labeled as 50 mm have a different actual focal length, and using the word "equivalent" will include APS-C sensors, micro 4/3rds sensors, etc. We also suggest the terms "normal" and "equivalent" be defined, either in this document, or in the ASB Technical Report 097, Terminology Used for Forensic Footwear and Tire Evidence, First Edition 2019 as referenced in section 3. We encourage definitions be included within this document, as most will not seek out an additional document to look at definitions, especially when they "think" they already know what a word or phrase means.</p>	a lens with a 43 – 60 mm equivalent focal length	Accept with Modification: "(50 mm to 60 mm)" was deleted.
49	4.1 a4	E	a normal lens for the sensor size mentioned would be approx. 30mm	consider removing the term normal and change to 50-60mm lens	Accept with Modification: "(50 mm to 60 mm)" was deleted.
54	4.1 a 4	E	There is an extra space between 6 and 0 in "60mm"	Remove the extra space.	Accept
66	4.1.c		the tripod must be capable of pointing the camera down. Video tripods are insufficient.		Reject: This is covered in the whole context of this document. See other sections e.g. 4.2 G.
23	4.1c	T	Tripod capabilities need additional detail. The tripod must be capable of pointing down: with a 90° adapter, inverting the center column, or built-in 90° functionality. Not all tripods have this capability, especially those intended for video use.	Add required tripod capability	Reject: This is covered in the whole context of this document. See other sections e.g. 4.2 G.
8	4.1.d	T	Suggestion: Add bubble level. I believe it is used more commonly than a angle finder.	Add bubble level	Reject: Angle finder covers level.
20	4.1e	T	Clarify phrase "golf ball marker." Some may take marker to mean a flat object used to indicate where a golf ball was removed from play to allow others to putt without having other players balls interfere. Would a section of a straw suffice?	Use specific terminology	Reject: 4.1.e) explains the golf ball marker is used to indicate direction of light.
21	4.1i	T	L-Shaped scale is insufficient description. The scale should be about the same size as the impression. An ABFO #2 bite mark scale is L-shaped, but inappropriate for most impressions because it is too small. Folding scales can be made to be L-shaped, but are difficult to get to and maintain 90°. It is also difficult to get folding scales sections parallel. Specify the unit of measurement needed (e.g. 1 mm).	Provide specifications	Reject: This is a recommended equipment and it should be known to the practitioner.
79	4.1 m	T	clarify whether video recording equipment IS or IS NOT being recommended. It appears from content it is not recommended despite it being listed at bullet beneath "Recommended Equipment". I don't see how any video recording capability is needed to photograph tire or footwear impressions.	If intended to disuade reader from using a piece of equipment designed to capture video as the equipment used to capture photograph, the statement should be moved to more appropriate section.	Accept: Accept section 4.1 M is not a note.
22	4.2, 4.3, 4.4	T	The importance, use, and placement of the marker need to be explained.	Add new sub-sections for golf ball marker placement. "The marker allows examiners to determine the angle light relative to the impression..."	Reject: This is not a training document. It is intended to provide a set of recommendations for the practitioners.
89	4.2.a, c. etc..	E	Similar to what I wrote in comment 39. VITAL subitted a Standard Guide on Crime Scene Photography to ASTM. Some of what you have in 4.2 is listed in that document. Again, I'm not sure if timing for your document and ASTM's will align, but consider referencing that document somewhere in this section.	Add footnote and/or add to annex.	Reject: ASB can reference only published materials/publications. The CB will revisit this suggestion prior to this document being submitted for publication.
9	4.2.f.2	T	If you are showing spatial distance between two objects these photos should also include a scale. If you are talking about relative spatial distance or approximate location edit to state as such.	Add that these images should include scales or add 'relative' or 'approximate' to the statement	Accept with modification: "Distance" was replaced with "relationship" between two items. See revised second sentence.

#	Section	Type of Comment (E-Editor)	Comments	Proposed Resolution	Final Resolution
55	4.2 g 1	T	Just saying "lossless format" can be confusing, even with examples	Add the term Uncompressed as well	Accept with modification: "...in an uncompressed" was added to section 4.2.g1.
24	4 – 4.2 – g) - 2)	T	"Set the camera to a low ISO (100-400)." A long-standing rule of thumb is that ISO 100 should be used whenever doing comparative analysis. Although the quality of digital photography has improved and noise is less and less noticeable, it is important when shooting daylight footwear impressions that ambient light be controlled, and ISO 100 provides much more control, especially if needing to dial-out bright sun, reflections, etc. At ISO 400, the potential for the shadowed area of an impression to have noise/grain that interferes with grains of sand or dirt is increased. <b>Any ISO higher than 100 should not be encouraged</b> unless absolutely necessary – there is no reason to do so when using a flash as the main light.	Use ISO 100 instead of ISO 400	Reject: Some cameras do not have ISO 100 so this section now reads "2) Set the camera to its lowest native ISO."
80	4.2.g)2	T	The described process allows for capture using ISO up to 400	Should be changed to recommend the "camera's lowest native ISO". If camera stabilizing tools such as tripod and quadrapod are being recommended, there is no reason the camera's lowest native ISO should not be used allowing for the best quality photo.	Accept with Modification: this section now reads "2) Set the camera to lowest native ISO."
25	4.2g3, 4.3f6	T	Explain using angle finder	Use angle finder to determine horizontal and vertical angles of surface. Match angles on camera's back. Provide example,	Reject: This is not a training document. It is intended to provide a set of recommendations for the practitioners.
70	4.2 g3		Add to 4.2 g3, The focal plane needs to be parallel in two dimensions (x/y). Angle measurements need to be taken along the length and width of the impression and translated to the camera.		Reject: "Parallel" is implied in both dimensions.
10	4.2.g.4	T	Possibly add further guidance for those impressions that have multiple depths or significant variations in depth	Add further guidance.	Reject: This is not a training document. It is intended to provide a set of recommendations for the practitioners.
50	4.2 g4	E		suggest adding language about getting the scale on the same level as the impression. The reader may interpret this as putting the scale on the ground which may be above the impression	Reject: This section is appropriate as written.
81	4.2 g) 5	T	The instructions are vague when mentioning the included label instead of what at a minimum is being recommended.	Should indicate what "at a minimum" must be included, such as the impression number, but as space permits, may include case number, date, photographer's ID or an arrow pointing north.	Accept with Modification: "that uniquely identifies the impression" was added as a clarification to this section.
82	4.2 g)5	T	"arrow pointing north"	"...Include an arrow pointing north", I would like to see that phrase changed to, "any orientation indicator". I routinely used arrows other than "North", such as, "to front door" or "to street", etc. which serves the same orientation purposes	Accept
11	4.2.g.6	T	Add an example for clarification	Add: (i.e. a normal 35mm lens typically has a focal length of 50mm)	Reject: This section is appropriate as written.
44	4.2 g) 6)	E	add quadrapod to be consistent with way tripod/quadrapod in use in the rest of document	"If a zoom lens is used, set the focal length as close as possible to a normal lens to prevent barrel distortion and adjust the tripod or quadrapod height until the viewing frame is filled."	Accept

#	Section	Type of Comment (E-Edit)	Comments	Proposed Resolution	Final Resolution
26	4-4.2-g-6)	T	<p>“a fixed normal focal length lens (50 mm to 60 mm), or a zoom lens appropriately set to the normal focal length;” <b>The word “normal” means different things to different people</b>, and requires further definition. Annex A correctly refers to a “35 mm equivalent.” We suggest this sentence should read as follows: “a lens with a 43 – 60 mm equivalent focal length;”</p> <p>Mathematically, any lens in that range is “normal” for a full frame sensor, many lenses labeled as 50 mm have a different actual focal length, and using the word “equivalent” will include APS-C sensors, micro 4/3rds sensors, etc. We also suggest the terms “normal” and “equivalent” be defined, either in this document, or in the ASB Technical Report 097, Terminology Used for Forensic Footwear and Tire Evidence, First Edition 2019 as referenced in section 3. We encourage definitions be included within this document, as most will not seek out an additional document to look at definitions, especially when they “think” they already know what a word or phrase means.</p>	a lens with a 43 – 60 mm equivalent focal length	<p>Accept with Modification: The clarification "(50 mm equivalent on a full frame sensor)" was added after "normal lens".</p> <p>Reject: This section is clear as is and the WG suggests not to include a definition in section #3.</p>
27	4-4.2-g-7)	T	<p>“Fill the camera frame with the impression and scale. Impressions should be captured at a minimum resolution of 300 ppi.” We are not aware of any camera that can be set to capture any specific resolution. While Annex A displays an impressive set of formulas, it is complex and serves no purpose in the real world. The very inclusion of this Annex suggests not all cameras are capable of capturing 300 ppi – and they are – and it adds a layer of accountability to those taking footwear impression photographs. They don’t need to know what is in those formulas. Few taking footwear impressions will perform these calculations, and <b>Annex A opens up the door to defense challenges</b>. This is a processing matter, and should not be listed here.</p>	Fill the frame with the impression and scale	Reject: This is not a training document. It is intended to provide a set of recommendations for the practitioners. This section is appropriate as is.
72	4.2.g7)		Use the calculation described in Figure 1 (or comment 10 below) to ensure the 300 ppl minimum is met		Accept with Modification: Reference to Annex A was added to this section as "(See Annex A.)".
28	4-4.2-g-8)	T	<p>“Set the camera f-stop to an appropriate setting to ensure sufficient depth of field to capture the entire impression in focus.” While there is really nothing wrong with the statement, per say, it implies if the wrong f/stop were used, the entire impression would not be in focus – and that is misleading. Most lenses shot wide open have adequate depth of field to capture the entire depth of a footwear impression; a “kit” lens at 55 mm on an APS-C sensor has more than 2-inches at 3 feet (typical height for footwear) wide open at f/5.6. A full frame camera with a 60 mm lens has nearly 1 inch depth of field at that same distance – shot wide open a f/2.8. Who shoots wide open anyway? A 1-inch depth of field is a worst-case scenario. The aperture controls the exposure, and the flash syncs with the shutter. Writing a best practice can’t be a lesson about photography, but a photographer that knows what they are doing can “dial out” sunlight by using a small aperture and fast shutter speed (if the camera supports high-speed sync – and most do today).</p>	Set exposure to control ambient light and the flash while providing sufficient depth of field and sharpness.	Reject: This section is appropriate as written.
12	4.2.g.8 and 4.3.12	T	Add a recommendation as you did for ISO. Maybe make separate recommendations for 2D and 3D impressions.	Add a recommendation for 2D and 3D impressions for further guidance.	Reject: This section is appropriate as written.
29	4-4.2-g-9)	T	<p>“Manually focus on the mid-plane of the impression (autofocus should not be used).” <b>There is nothing wrong with using autofocus on a footwear impression</b> – autofocus is easily confused on many things forensic photographers do, but footwear is not one of them. An exception might be a faint footwear impression in the snow, but a best practice should not prohibit the use of autofocus if it works.</p>	Focus on the mid-plane of the impression	Accept
83	4.2.g)10	T	Not sure what is trying to be gleaned from this. Is the document instructing for an insitu photo prior to adding oblique lighting? Is the document wanting a photo prior to adding any artificial light?	This can be more clear. Since the next bullet instructs reader to block out sun or ambient light which could also be oblique, maybe it would help clear it up to a reader if 10 and 11 were flipped.	Reject with modification: Section 4.2.-g.10 was edited for clarity.

#	Section	Type of Comment (E-Edit)	Comments	Proposed Resolution	Final Resolution
30	4 – 4.2 – g) - 14)	T	“Capture images with the light source being held at the appropriate angle from at least three different positions around the impression (i.e., toe to heel, side to side, diagonally across the impression).” There are four sides to a footwear impression – <b>there is no reason to not capture all four sides.</b> Proper position of the tripod legs makes this easy to do. A best practice should recommend two heights for the flash: one on each side of the impression at a lower angle, then one on each side at a higher angle, for a total of 8 photographs.	Take photographs with the light source being held at low and high angles . Recommended directions are lighting from the toe, in-step, out-step, and sole. Place tripod and light source to avoid distracting shadows.	Reject: This section is appropriate as written.
16	4.3.f.4	E	Has the word 'footwear' instead of 'tire'	swap tire for footwear	Accept
45	4.3 f) 4)	T	change footwear to tire. All of section 4.3 is documentation and photography of <b>tire impressions</b> at the scene. This section does not cover footwear.	"Capture examination quality images of the <del>footwear</del> <b>tire</b> impressions as follows:"	Accept
46	4.3 f) 17)	E	and is needed between "impression," and "diagonally"	"Capture images with the light source held at the appropriate angle from at least three different positions around the impression (i.e., parallel to the long axis of the impression, perpendicular to the long axis of the impression, <b>and</b> diagonally across the impression)."	Accept
13	4.3.6	T	I am unsure what the last sentence is getting at. Consider editing or clarifying.	I am unsure what the last sentence is getting at. Consider editing or clarifying.	Reject: This section is appropriate as written.
31	4 – 4.3 – f) – 4ii	T	“Set the camera to a low ISO (100-400).” A long-standing rule of thumb is that ISO 100 should be used whenever doing comparative analysis. Although the quality of digital photography has improved and noise is less and less noticeable, it is important when shooting daylight footwear impressions that ambient light be controlled, and ISO 100 provides much more control, especially if needing to dial-out bright sun, reflections, etc. At ISO 400, the potential for the shadowed area of an impression to have noise/grain that interferes with grains of sand or dirt is increased. <b>Any ISO higher than 100 should not be encouraged</b> unless absolutely necessary – there is no reason to do so when using a flash as the main light.	Use ISO 100 instead of ISO 400	Reject: "set the camera to lowest native ISO." replaces "100 -400 ISO".
56	4.3 f 4 i	T	Just saying "lossless format" can be confusing, even with examples	Add the term Uncompressed as well	Accept with modification: "...in an uncompressed" was added to section 4.3.f.4.1.
57	4.3 f 4	E	I think this section should be brought out to 4.3 g, to match the section on footwear impressions	Change 4.3 f 4 to 4.3 g and renumber following points accordingly until 4.4	Accept
71	4.3 f5		same comment about x/y angles		Reject: "Parallel" is implied in both dimensions.
84	4.3 f) 7	T	Same as 4.2 g)5 above		Accept: "an orientation indicator" replaced "arrow pointing north". Also the the first sentence was edited to read: "Include a label that uniquely identifies the impression in each photograph..."
85	4.3 f) 7	T	This bullet should mention that just the impression number may not be enough as, unlike footwear impressions, there may be multiple shots at different measurements of the same impression which can be indistinguishable from others without sub-numbers or a graduated tape measure or scale depicting feet or meters at each inch or cm.		Accept with Modification: "an orientation indicator" replaced "arrow pointing north". Also the the first sentence was edited to read: "Include a label that uniquely identifies the impression in each photograph..."
32	4 – 4.3 – f) – 9)	T	“Fill the camera frame with the impression and scale. Impressions should be captured at a minimum resolution of 300 ppi.” We are not aware of any camera that can be set to capture any specific resolution. While Annex A displays an impressive set of formulas, it is complex and serves no purpose in the real world. The very inclusion of this Annex suggests not all cameras are capable of capturing 300 ppi – and they are – and it adds a layer of accountability to those taking footwear impression photographs. They don't need to know what is in those formulas. Few taking footwear impressions will perform these calculations, and <b>Annex A opens up the door to defense challenges.</b> This is a processing matter, and should not be listed here.	Fill the frame with the impression and scale	Reject: This is not a training document. It is intended to provide a set of recommendations for the practitioners. This section is appropriate as is.
73	4.3 f9		Use the calculation described in Figure 1 (or comment 10 below) to ensure the 300 ppl minimum is met.		Accept with Modification: Reference to Annex A was added to this section as "(See Annex A.)".
90	4.3.f.9 and 4.4.b.7	T	Similar to what I wrote in comment 40, how was 300 ppi determined to be an appropriate level of quality? Is there another standard or published research that you could reference?	Add footnote and/or add to annex for these two different sections.	Accept with Modification: Sections 4.3.f-9 and section 4.4.b.7 were revised to address this comment.

#	Section	Type of Comment (E-Edit)	Comments	Proposed Resolution	Final Resolution
33	4-4.3-f-10	T	<p>"a fixed normal focal length lens (50 mm to 60 mm), or a zoom lens appropriately set to the normal focal length;" <b>The word "normal" means different things to different people</b>, and requires further definition. Annex A correctly refers to a "35 mm equivalent." We suggest this sentence should read as follows: "a lens with a 43 – 60 mm equivalent focal length;"</p> <p>Mathematically, any lens in that range is "normal" for a full frame sensor, many lenses labeled as 50 mm have a different actual focal length, and using the word "equivalent" will include APS-C sensors, micro 4/3rds sensors, etc. We also suggest the terms "normal" and "equivalent" be defined, either in this document, or in the ASB Technical Report 097, Terminology Used for Forensic Footwear and Tire Evidence, First Edition 2019 as referenced in section 3. We encourage definitions be included within this document, as most will not seek out an additional document to look at definitions, especially when they "think" they already know what a word or phrase means.</p>	a lens with a 43 – 60 mm equivalent focal length	<p>Accept with Modification: The clarification "(50 mm equivalent on a full frame sensor)" was added after "normal lens".</p> <p>Reject: This section is clear as is and the WG suggests not to include a definition in section #3.</p>
34	4-4.3-f-11	T	<p>"Set the camera f-stop to an appropriate setting to ensure sufficient depth of field to capture the entire impression in focus." While there is really nothing wrong with the statement, per say, it implies if the wrong f/stop were used, the entire impression would not be in focus – and that is misleading. Most lenses shot wide open have adequate depth of field to capture the entire depth of a footwear impression; a "kit" lens at 55 mm on an APS-C sensor has more than 2-inches at 3 feet (typical height for footwear) wide open at f/5.6. A full frame camera with a 60 mm lens has nearly 1 inch depth of field at that same distance – shot wide open a f/2.8. Who shoots wide open anyway? A 1-inch depth of field is a worst-case scenario. The aperture controls the exposure, and the flash syncs with the shutter. Writing a best practice can't be a lesson about photography, but a photographer that knows what they are doing can "dial out" sunlight by using a small aperture and fast shutter speed (if the camera supports high-speed sync – and most do today).</p>	Set exposure to control ambient light and the flash while providing sufficient depth of field and sharpness.	Reject: This section is appropriate as written.
35	4-4.3-f-12	T	<p>"Manually focus on the mid-plane of the impression (autofocus should not be used)." <b>There is nothing wrong with using autofocus on a footwear impression</b> – autofocus is easily confused on many things forensic photographers do, but footwear is not one of them. An exception might be a faint footwear impression in the snow, but a best practice should not prohibit the use of autofocus if it works.</p>	Focus on the mid-plane of the impression	Accept
36	4-4.3-f-16	T	<p>"Capture images with the light source being held at the appropriate angle from at least three different positions around the impression (i.e., toe to heel, side to side, diagonally across the impression)." There are four sides to a footwear impression – <b>there is no reason to not capture all four sides</b>. Proper position of the tripod legs makes this easy to do. A best practice should recommend two heights for the flash: one on each side of the impression at a lower angle, then one on each side at a higher angle, for a total of 8 photographs.</p>	Take photographs with the light source being held at low and high angles . Recommended directions are lighting from the toe, in-step, out-step, and sole. Place tripod and light source to avoid distracting shadows.	Reject: This section is appropriate as written.
58	4.3. 17	T	14 inches seems a little too specific to me. I don't know if this is critical or specific to Tire impressions, but I wouldn't put a specific number here	I would rephrase to something along the lines of, "Each image should capture the maximum length of the impression possible, while maintaining the minimum resolution of 300 ppi, and overlap by at least 1 in."	Accept: Second sentence was replaced with the recommended sentence.
59	4.4 b 1	T	Just saying "lossless format" can be confusing, even with examples	Add the term Uncompressed as well	Accept with modification: "...in an uncompressed" was added to section 4.4.b.1

#	Section	Type of Comment (E-Edit)	Comments	Proposed Resolution	Final Resolution
37	4 – 4.4 – b) – 2)	T	“Set the camera to a low ISO (100-400).” A long-standing rule of thumb is that ISO 100 should be used whenever doing comparative analysis. Although the quality of digital photography has improved and noise is less and less noticeable, it is important when shooting daylight footwear impressions that ambient light be controlled, and ISO 100 provides much more control, especially if needing to dial-out bright sun, reflections, etc. At ISO 400, the potential for the shadowed area of an impression to have noise/grain that interferes with grains of sand or dirt is increased. <b>Any ISO higher than 100 should not be encouraged</b> unless absolutely necessary – there is no reason to do so when using a flash as the main light.	Use ISO 100 instead of ISO 400	Reject: "set the camera to its lowest native ISO." replaces "100 -400 ISO".
14	4.4.b.2	T	In a controlled laboratory environment shouldn't this recommendation be the lowest ISO setting allowable by the camera? Even out at a scene an ISO recommendation of 400 seems quite high. Shouldn't this suggest the lowest ISO allowed by the camera as well?	Consider modifying.	Accept with modification: "set the camera to its lowest native ISO." replaces "100 -400 ISO".
86	4.4 b) 2	T	The described process allows for capture using ISO up to 400 and uses the term LOW ISO.	Should be changed to recommend the "camera's lowest native ISO". If camera stabilizing tools such as tripod and quadropod are being recommended, there is no reason the camera's lowest native ISO should not be used allowing for the best quality photo.	Accept with modification: "set the camera to its lowest native ISO." replaces "100 -400 ISO".
38	4 – 4.4 – b) – 5)	T	“a fixed normal focal length lens (50 mm to 60 mm), or a zoom lens appropriately set to the normal focal length;” <b>The word “normal” means different things to different people</b> , and requires further definition. Annex A correctly refers to a “35 mm equivalent.” We suggest this sentence should read as follows: “a lens with a 43 – 60 mm equivalent focal length;” Mathematically, any lens in that range is “normal” for a full frame sensor, many lenses labeled as 50 mm have a different actual focal length, and using the word “equivalent” will include APS-C sensors, micro 4/3rds sensors, etc. We also suggest the terms “normal” and “equivalent” be defined, either in this document, or in the ASB Technical Report 097, Terminology Used for Forensic Footwear and Tire Evidence, First Edition 2019 as referenced in section 3. We encourage definitions be included within this document, as most will not seek out an additional document to look at definitions, especially when they “think” they already know what a word or phrase means.	a lens with a 43 – 60 mm equivalent focal length	Accept with Modification: The clarification "(50 mm equivalent on a full frame sensor)" was added after "normal lens".  Reject: This section is clear as is and the WG suggests not to include a definition in section #3.
40	4 – 4.4 – b) – 5)	T	“a fixed normal focal length lens (50 mm to 60 mm), or a zoom lens appropriately set to the normal focal length;” <b>The word “normal” means different things to different people</b> , and requires further definition. Annex A correctly refers to a “35 mm equivalent.” We suggest this sentence should read as follows: “a lens with a 43 – 60 mm equivalent focal length;” Mathematically, any lens in that range is “normal” for a full frame sensor, many lenses labeled as 50 mm have a different actual focal length, and using the word “equivalent” will include APS-C sensors, micro 4/3rds sensors, etc. We also suggest the terms “normal” and “equivalent” be defined, either in this document, or in the ASB Technical Report 097, Terminology Used for Forensic Footwear and Tire Evidence, First Edition 2019 as referenced in section 3. We encourage definitions be included within this document, as most will not seek out an additional document to look at definitions, especially when they “think” they already know what a word or phrase means.	a lens with a 43 – 60 mm equivalent focal length	Accept with Modification: The clarification "(50 mm equivalent on a full frame sensor)" was added after "normal lens".  Reject: This section is clear as is and the WG suggests not to include a definition in section #3.
60	4.4 b 5	E	It reads "adjust the height" when these items feasibly could be photographed from the side instead of from above	Instead of "adjust the height", I would say "adjust the camera to subject distance"	Accept

#	Section	Type of Comment (E-Edit)	Comments	Proposed Resolution	Final Resolution
39	4 – 4.4 – b) – 7)	T	“Fill the camera frame with the impression and scale. Impressions should be captured at a minimum resolution of 300 ppi.” We are not aware of any camera that can be set to capture any specific resolution. While Annex A displays an impressive set of formulas, it is complex and serves no purpose in the real world. The very inclusion of this Annex suggests not all cameras are capable of capturing 300 ppi – and they are – and it adds a layer of accountability to those taking footwear impression photographs. They don’t need to know what is in those formulas. Few taking footwear impressions will perform these calculations, and <b>Annex A opens up the door to defense challenges</b> . This is a processing matter, and should not be listed here.	Fill the frame with the impression and scale	Reject: This is not a training document. It is intended to provide a set of recommendations for the practitioners. This section is appropriate as is.
15	4.4 b) 10)	T	Scanners should not be used as a substitute method for capturing impressions on lifts. The loss of detail/obliteration is too likely. The recommendation is to not place the cover back on due to loss of detail, etc. so I am unsure as to what lifts this would be appropriate for.	Remove. If the writers are referring to adhesive lifts were the cover would be placed back on due to the adhesive nature of the lift, the statement should be more specific to reflect this.	Accept with modification: Equipment requirements as outlined in this comment are usually based on the policy and procedures of the users (e.g., agencies) of this document. "On lifts" was deleted.
51	4.4 b)10	T		electrostatic and gel lifts should not be placed on a scanner, as doing so could compromise the impression	Accept with modification: Equipment requirements as outlined in this comment are usually based on the policy and procedures of the users (e.g., agencies) of this document. "On lifts" was deleted.
61	4.4 b) 10	T	Just saying "lossless format" can be confusing, even with examples	Add the term Uncompressed as well	Accept with modification: "...in an uncompressed" was added to this section 4.4.-b) 10).
62	4.4 b) 10	E	I believe the phrase "impressions on lifts" is incorrect	Change to "impressions or lifts"	Accept with modification: "...on lifts" was removed from this section.
91	4.4.b.10	T	Same issue as above. How was it determined that 600 ppi is an appropriate resolution?	Add footnote and/or add to annex.	Reject: Clarification was added (3rd sentence) and 600 ppi was replaced by 300 ppi. This section is intended to provide a set of recommendations for the practitioners and it is appropriate as is.
41	Annex A	T	Not needed. It introduces a new level of accountability to those photographing footwear and tire impressions. Defense attorneys will have a field day asking the photographer to explain how the camera they used met this best practice recommendation, how the photographer knew if it did or didn't meet that best practice recommendation, and the procedure to the jury. Further, this practice requires measuring the distance to the impression in the field, potentially damaging the impression.	Delete. Alternately, divide the sensor's useable horizontal and pixel dimensions by 300 to obtain the maximum field of view to achieve greater than 300 ppi. For example, if a camera's useable pixel dimensions are 4000 x 3000, dividing by 300 gives 133 x 100. Looking through the viewfinder, or at the camera's screen, the scale should read no more than 133 mm x 100 mm.	Reject: Annex A is for information purposes only, as stated under the header of Annex A. A note was added before Example 1.
52	Annex A	E	this formula is too confusing and must be calculated per subject	an easier method is to take the pixel dimensions of the sensor and divide by 300, the result will be the largest area one could document and still have the recommended resolution.	Accept: A note was added in Annex A, before Example 1.
47	Example 1 Step 2 on page 8	T	The answer in Example 1 Step 2 is incorrect.	change to = 0.08303 mm	Reject: The formula is correct and the result of Step 1 was edited to be exact and not rounded.
48	Example 2 Step 3 on page 9	T	The answer in Example 2 Step 3 is incorrect. 1/0.002309 = 433	change to = 433PPI	Accept: Also the step one and step two numbers were edited so that they are not rounded.
4	Annex B	E	In the 2nd reference, there needs to be a space between the " and 2nd ed.	Add a space after the closing ".	Accept
5	Annex B	E	In the 2nd reference, there is a random "4." at the end of the reference.	Remove the "4." at the end of the reference.	Accept
6	Annex B	E	In the 3rd reference, there needs to be a space between Inc. and 1995.	Add a space after the period of Inc.	Accept
68			Under recommended equipment part (i), the scale should be about the same length as the footwear impression. For example, an ABFO bite mark ruler could be considered L shaped, but it is not what the authors intend. Folding scales are not recommended. It is difficult to get and keep them perpendicular to form the L shape and they are also difficult to make parallel / straight on the long dimension.		Reject: This is a recommended equipment and it should be known to the practitioner.

#	Section	Type of Comment (E-Editor)	Comments	Proposed Resolution	Final Resolution
69			Under recommended equipment, a "golf ball marker or similar object" is mentioned. An illustration in the Figures section showing the use and placement is helpful to the reader. Other useful illustrations include: proper set up, an example of a correctly lit impression with desired documentation on label, an example of a poorly lit impression with explanation (e.g. light held too high, light held too low, failure to control ambient / sunlight, etc.) Although this is not a training document, it does set standards that will be used to create training. These illustrations also help non-examiners understand what examiners need in photographs.		Reject: These are addressed in the content of the references included in the Bibliography.
74			The calculation to provide PPI is a bit cumbersome and requires calculation in the field after setting up the camera. An easier calculation can be done ahead of time. Divide the pixel dimensions of the camera by 300. This provides the maximum length and width of the field of view that meets the recommended minimum capture value of 300 ppi. The photographer would know ahead of time that the camera height needs to be set so the field of view is less than these numbers when using the normal focal length. For the examples given:		Accept with modification: This is not a training document. It is intended to provide a set of recommendations for the practitioners. A simplified formula was added as a note in Annex A, before Example 1.
75			The 12 MP camera (4288 x 2848) the maximum field of view would be 4288/300 x 2848/300 or 14.28 in x 9.49 in		Accept with modification: Simplified formula was added in Annex A before Example 1.
76			The 24.5 MP camera (6048 x 4032) comes out at 20.16 in x 13.44 in		Accept with modification: Simplified formula was added in Annex A before Example 1.
77			This method also allows for easy recalculation if the minimum PPI changes. Just divide by the new minimum.		Accept with modification: Simplified formula was added in Annex A before Example 1.
17	Bibliography	T	Recommend adding Bodziak's Tire book; It has numerous pages with pictures and illustrations dealing with tire track photography	Add Tire Tread and Tire Track Evidence: Recovery and Forensic Examination by William Bodziak onto the Bibliography list	Accept
	Comments from the CB Ballot		We should sort out the comments on the calculations prior to moving forward with the document. As the comments appear to relate to rounding, we should make sure we are in agreement on how the calculations have handled significant digits prior to determining the proper rounding.		Accept