Collaborative Testing Services, Inc
FORENSIC TESTING PROGRAM

P.O. Box 650820
Sterling, VA 20165-0820
e-mail: forensics@cts-interlab.com
Telephone: +1-571-434-1925
Web site: www.cts-forensics.com

Questioned Documents Examination
Test No. 24-5211 Summary Report

Each sample set contained one questioned medical record (Item Q1). Participants were asked to review the pages of the medical record to determine to what degree can it be confirmed or refuted that the questioned document has been altered. Data were returned from 183 participants and are compiled into the following tables:

This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample set contained one questioned medical record, consisting of three pages (Item Q1). Participants were asked to review the medical record to determine if there were any signs of alteration that would support the patient's claim.

SAMPLE PREPARATION: A 3-page medical record was printed on 20 lb. paper with a brightness level of 96 using an HP LaserJet printer set to landscape orientation. While together, the top of all three pages were manually punched using a 3-hole puncher. For each stack of 3 original pages, the first page was set to the side. The remaining two pages were stacked on top of each other and the following note was written on page 2 of 3. "11/7/23 F/U – PT. reports abdominal pain." This original page 2 of 3 was removed and discarded. A replacement page was added and the original page 1 was returned to the top of the stack prior to packaging. The paper used for the replacement page 2 of 3 was from a different brand of 20 lb. paper with a brightness level of 92 that had the 3-holes pre-punched from the manufacturer. It was printed using an HP LaserJet printer with a new toner cartridge.

SAMPLE SET ASSEMBLY: After visual quality reviews of the questioned items were complete, each item was packed into a pre-labeled envelope with protective chipboard and sealed.

VERIFICATION: Predistribution results were consistent with each other and the manufacturer's preparation information that the medical record was altered. The participants supported their conclusions with the following observations: the paper for page 2/3 presented different optical properties and differences in size or location of hole punches, and the lack of handwritten text on pages 1/3 and 2/3 corresponding to indented writing on page 3/3.

Summary Comments

This test was designed to allow participants to assess their proficiency in determining whether a document was altered. Participants were supplied with one questioned document, a 3-page medical record (Item Q1), and asked to review the pages of the medical record to determine to what degree can it be confirmed or refuted that the questioned document has been altered. The Q1 medical record was altered by substituting the original page 2 with another page 2. Refer to the Manufacturer's Information for preparation details.

Of the 183 responding participants, 181 (98.9%) reported that the medical record has been altered ("A", 170 participants) or probably has been altered ("B", 11 participants).

Across the 183 responding participants, the most common method reported was Video Spectral Comparator (VSC), 133 times. Other commonly used methods include ESDA, Visual Exam and UV Light.

To support their conclusions, a majority of participants noted a difference in the paper color/fluorescence and 3-hole punch appearance and alignment of page 2 in comparison to pages 1 and 3. Additionally, participants reported the presence of indented writing on page 3 although handwriting was not present on pages 1 or 2.

Examination Results

Based on the findings of your examination, to what degree can it be confirmed or refuted that the questioned document has been altered?

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
2A8E3P	A	7VNKAL	B	C3TC6C	A
2LHXBK	A	82W3AZ	A	C4UTAQ	A
33GKYN	A	842V2D	A	C7TFYK	A
38XTMN	A	8CT7ET	A	CBLFFZ	A
3BBTJF	A	8KKNQG	E	CJGHGC	A
3FGYR3	A	8NNHQ8	A	CQCKJN	A
3JR62M	A	8THGYB	A	CT4G8G	A
3LEN3K	A	8XWU7P	A	CV9AZV	A
3MQFXM	A	99RK2G	A	CYT2AC	A
3PV9PZ	A	9RHQJF	A	D3P6FP	A
3RZW7B	A	9URLEK	A	D9BXUA	A
43XKTK	A	9V3NZJ	A	DFWVFC	A
4CGK4F	A	9VX9MH	A	DHJRN3	A
4CNHMR	A	9WJ6DJ	A	DMPCL8	B
4FNTJR	A	ARHZYH	A	DQVQHD	A
62LKEH	A	AWCXNA	A	DXC4GC	A
6H86TG	A	AZRPDG	A	E8E48P	A
6KUMB3	A	B7DZ7C	A	E99UD4	A
6L99MP	B	BMXQ6B	A	EPDKRA	A
6NVRNM	B	BNFGEV	A	EXNH4C	A
6VTKWG	A	BPA8KB	A	EZB36A	A
7KACPE	A	BVDAMP	A	FBR2EC	A
7NUA6H	A	BX67CJ	A	FX8LCD	A

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
FXFDUP	A	KTXYK4	A	QD3Q7C	A
GAC6MD	A	KU78R4	A	QMA6BY	A
GEALY8	A	KX4AAL	A	QMJJAT	A
GF2GNZ	A	L7CVVX	A	QRHNCD	B
GGW6Z6	A	LB9BQZ	A	QRKY3X	A
GRTGP4	A	LDEVFK	A	QTCEHR	A
GTRDND	A	LH9QF8	A	QTVDEQ	A
GXZY84	A	LHGGXJ	A	QX9XLC	A
GZMFPP	A	LM4KD9	A	QXR6K2	A
H2XN63	A	LP964U	A	QZENLY	A
HCX767	A	LQLJQ4	A	R262TN	B
HD8BJU	A	LYEU4J	A	R4RNKC	A
HP2Q7A	A	MGGUQD	A	R9LHHD	A
HTKQJ6	A	MHMCPA	A	RUDEME	A
HW792P	A	MW2UAW	A	RYD74U	A
HXDQZL	A	N2WVWW	A	T9TYKD	A
HZ6LPF	A	NAQJP2	A	TB8Q4X	A
J8XGYH	A	NH73A2	A	TCFY9C	A
JJANX4	A	P3P7AB	A	TMWRBR	A
K4VXEV	A	PDQUL2	A	TPPEG3	A
KA2HC2	B	PFWWAX	A	TQ4N3V	A
KBNPDK	A	PHHTHN	A	TRVWFX	A
KEN29K	A	PTXNV3		U3QP2U	A
KPBFJ7	A	PWGM9X	A	U47PKJ	A
KQ8Z87	A	PZED7W	A	U6D93R	A

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
UGB8VJ	A	XVXN97	A		
UKQFJH	A	XWREEK	A		
UXGAR7	A	XZEWW7	A		
UYA6GZ	A	Y3DMGQ	A		
UYQGWJ	B	Y7DXCQ	A		
UZ8DPJ	A	YEN69T	A		
V3LANU	A	YGNGLK	A		
V6B2D6	A	YGU67T	A		
VFTH7C	A	YNT8DQ	A		
VKLMWU	B	YXF74W	A		
VKP3AV	A	Z8HYMM	A		
VN7AXV	A	Z8M3PE	A		
VZJUUW	A	ZCXDFN	A		
W3NEKH	A	ZUZXFW	A		
W9N2AW	A				
WBEZNU	A				
WCBKBU	B				
WYYDD9	A				
X4AJTE	B				
X9J4C7	A				
XACUHK	A				
XDL38R	A				
XEW6TQ	A				
XGXMW6	A				
XHCCXW	A				

Response Summary - Q1

Total Participants: **183**

Based on the findings of your examination, to what degree can it be confirmed or refuted that the questioned document has been altered?

Response	Q1
A	170
B	11
C	0
D	0
E	1

Response Key:

A. The questioned document HAS BEEN ALTERED.
B. The questioned document HAS PROBABLY BEEN ALTERED.
C. CANNOT DETERMINE whether or not the questioned document has been altered.
D. The questioned document HAS PROBABLY NOT BEEN ALTERED.
E. The questioned document HAS NOT BEEN ALTERED.

**The sum of responses here may be less than the total number of participants responding due to omitted responses.*

Methods and Observations

What methods/techniques did you utilize? What observations were made from each method/technique?

TABLE 2

WebCode	Methods/Techniques	Observations
2A8E3P	Macroscopic/ Microscopic Examination	Using the unaided eye, oblique light and magnification with the stereo microscope, I examined Ex. 1-1 through 1-3: All are printed using black toner and in landscape mode. They are all three-hole punched along the top edge. The holes in Ex. 1-2 do not line up to the others which line up with each other. There are trash marks on Ex. 1-2 in the date box and directly above the name "Jeff Suite" that do not appear on the other exhibits.This contradicts the statement that it was printed simultaneously on a desktop printer.
	Ultraviolet Light	Using long and short-wave UV light, I examined Ex. 1-1 through 1-3. Ex.1-2 had a different optical reaction under UV than that of the other exhibits.
	Ruler	All are approx. 8 ½ by 11" paper stock.
	Transmitted Light	No watermarks observed on any of the paper but the physical appearance and color of 1-2 differs from 1-1 and 1-3.
	Oblique Light	Indented writing observed on the front surface of Ex. 1-3.
	ESDA	The exhibits were processed using the ESDA 2 instrument for the presence of indented writing. The functionality of the ESDA was verified using a verification test strip each time an item of evidence was processed. Indented writing developed on the front side of Ex. 1-3 that most closely resembles "11/7/23 F/U-PT reports abdominal pain". This contradicts the printed information appearing on Ex.1-2.
2LHXBK	ESDA	Indented impressions of the entry "11/7/23 F/U - PT reports abdominal pain." were found on page 3. These details are not found written on pages 1 or 2 of the documents. The layout of the impressions is in keeping with an entry being written in the second printed row on a version of page 2. The entries support the scenario alleged by the patient. No impressions were found on pages 1 or 2.
	Video Spectral Comparator (VSC)	The paper of page 2 appears different when viewed in ultraviolet light compared to pages 1 and 3, which appear similar to each other.
	Visual Examination	The position of the two punched holes corresponds between pages 1 and 3, but is slightly different for page 2. The printed text on the document has been produced using black toner; there are no obvious differences between the three pages.
33GKYN	ESDA	ESDA - impression of page 3 discovered. it was (11/7/23 F/U : PT reports abdominal pain)
	Magnification	by using magnification and side light of VSC 8000 there are some impressions in page 3.
	Oblique Light	
38XTMN	without instruments	At first glance, it can be seen that the holes corresponding to the perforation, located in the upper part of the sheets, do not coincide between the three, since the sheets marked as 1 and 3 do coincide with each other, but the sheet marked as number 2 is lag between them.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	The document is introduced into the Projectina Nirvis Pia7000 video comparator, with the grazing light filter, in which you can see on the sheet marked with the number 3, in the middle part, grooves derived from the writing contained on the sheet that preceded it, which does not contain the sheet marked with the number 2.
	ESDA	The document is introduced into the ESDA2 groove developer, in which indented grooves can only be seen on the sheet marked with the number 3, where you can read "11/7/23 f/u pt reports abdominal pain".
3BBTJF	-Paper examination -Visual examination -Macroscopic /microscopic examination -Magnification	-The color of the second page of the questioned document (Q1) is different from the color of the first and the third page. -The size (diameter) of the punch-holes on the second page of the questioned document (Q1) is different from the size of the punch-holes on the first and the third page. -The text printed on the three pages of the questioned document (Q1) was produced by the same printing process (laser printing).
	Ultraviolet Light	-Under UV light, a difference was noted in the reaction of the paper of the second page of the questioned document (Q1) in comparison with the paper of the first and the third page.
	Indented writing (ESDA2 and Oblique Light)	-An indented writing of the expression «11/7/23 F/U – PT. reports abdominal pain» was revealed on the third page of the questioned document (Q1) which corresponds to the statements made by the patient «Kendra Smith».
	Side by side comparison/overlaying comparison	-The overlay of the third page which contains the indented writing of the expression «11/7/23 F/U – PT. reports abdominal pain» with the second page of the questioned document (Q1) shows that this indented writing is located on the first empty line of the table in the second page.
3FGYR3	Ultraviolet Light	Under UV light: The paper of medical records of page 1/3 and 3/3 react differently from paper of medical record of page 2/3.
	Ruler	The size of punch holes of medical record of page 2/3 are bigger than the punch holes of medical records of page 1/3 and 3/3.
	Visual Examination	The shaded (black) part of medical record of page 2/3 does not align with the rest of the table below.
3JR62M	Visual Examination	3 puncher holes on each page. Holes are aligned and the same size on p.1 and p.3. Holes on p.2 are not aligned, bigger and have serrated edges. No differences in police used, left and right margins smaller on page 3, title at a different height on each page.
	Microscopic Examination	Printing process identification : monochrome toner black on p.1, p.2 and p.3. Paper: p.1 and p.3 whiter than p.2
	Video Spectral Comparator (VSC)	Printing process : no difference between p1, p2 and p.3. Paper: p1 and p3 react more on UV and p2 has luminescent reactive fibers.
	ESDA	No indented writing on p1 and p2. Indented writing on page 3: "11/7/23 Flu -PT-reports abdominal pain".

TABLE 2

WebCode	Methods/Techniques	Observations
3LEN3K	Video Spectral Comparator (VSC)	In order to respond to the request, initially, the preliminary inspection of the EMP and EF subject to inspection was carried out, in order to verify compliance with the suitability requirement established in the protocol "INSPECTION OF ALTERATIONS IN PRINTED DOCUMENTS AND MANUSCRIPTS" of the [Laboratory] for this type of studies, finding in this way that the elements three (03) pages (medical record of the patient Kendra Smith) in Original so the Inspection of Alterations in Printed Documents is carried out. Subsequently, through the use of the video spectral comparator, which allowed the exposure of the substrate of the doubtful elements to visible light at an incident angle, as well as different wavelengths, specifically the infrared and ultraviolet spectrum, for the purposes , to identify through physical phenomena of absorption and luminescence, characteristics or elements that evidence the alteration, where it is possible to see that the document (three (03) pages medical record of the patient Kendra Smith) being subjected to ultraviolet light at 365 nm , show different characteristics in that the second folio presents more opacity compared to folios one and three. Likewise, it can be observed that the holes (perforations) located at the top of the documents on folio 02 are larger in diameter than the perforations on the other folios.
3MQFXM	ESDA	On page 3 of Kendra Smith's medical chart (Item Q1) there are indentations of a notation as follows "11/7/23 F/U - P.T reports abdominal pain." While, there are no handwritten text of this type (or any other) on page 2 and page 1. The contents of the indentations confirm Kendre Smith's version of events.
	Video Spectral Comparator (VSC)	Examination of the optical (luminescence) properties of the paper of three pages of Item Q1 conducted under UV / VIS / IR light, indicate that the paper of page 2 is different from that of pages 1 and 3.
	Visual Examination	All three pages of the medical record (Item Q1) have been punched at the left margins, but the holes on page 2 are larger (8 mm) and located in a slightly different position than the holes on pages 1 and 3, which diameters are 7 mm.
3PV9PZ	Visual Examination	Visual examination of pages 1-3. Noticed that the hole punches on page 2 do not line up with hole punches on pages 1 and 3. No watermark present on any page.
	Microscopic Examination	Microscopic examination of pages 1 - 3 revealed printing process is toner technology and consistent on all 3 pages.
	Ultraviolet Light	Pages 1 - 3 were examined under UV lighting and revealed optical brighteners were consistent on pages 1 and 3 however page 2 turned darker. Images captured of UV examination.
	Video Spectral Comparator (VSC)	Items 1 - 3 were examined with the VSC 8000H/S infrared lighting. No differences were observed.
	Indented Writing	Items 1 - 3 were examined for indented writing impressions. Test strip was positive. Indentations were observed on page 3 and appear to be "11/7
3RZW7B	Video Spectral Comparator (VSC)	Blue Light comparison
	Ultraviolet Light	Different elimination
	Magnification	Different paper perforation

TABLE 2

WebCode	Methods/Techniques	Observations
43XKTK	Ultraviolet Light	1. Some of the text on Page 1/3 and Page 3/3 of the questioned document is less intense (low-intensity) or looks like is fading while on Page 2/3 of the questioned document, the text is more intense (high-intensity). 2. Some of the text on Page 1/3 and Page 3/3 of the questioned document fluoresces different from that on Page 2/3.
	Ruler	The holes of the puncher on Page 2/3 of the questioned document are bigger (8mm) than those on Page 1/3 and Page 3/3 (7mm).
	Magnification	The area shaded in black on Page 2/3 of the questioned document do not align with the rest of the table below which may indicate the area shaded in black was not part of the table below.
4CGK4F	Oblique Light	On Page 3, noted indentations that appear to read: "11/7/23 F/U PT. reports abdominal pain." The indentations are located in a spot consistent with the first blank row of Page 2's table. No other indentations were noted on Pages 1, 2, or 3
	ESDA	Confirmed that on Page 3, the previously noted indentations that read: "11/7/23 F/U PT. reports abdominal pain." No other indentations were noted on Pages 1, 2, or 3
	Ultraviolet Light	Determined that Page 2 has a different reaction to UV light than Pages 1 and 3, both of which are consistent with one another.
	Video Spectral Comparator (VSC)	Determined that the paper utilized for Page 2 contains far more fibers that are UV dull and fluoresce under the spot light (green) than Pages 1 and 3, both of which are consistent with one another.
	Microscopic Examination	Determined that pages 1, 2, and 3 are all black toner printing.
4CNHMR	Ultraviolet Light	Pages one and three responded similarly to the UV wavelengths used for the examination. Page two clearly had a different (darker) response than pages one and three.
	Visual Examination	An examination of the paper punch holes differed between pages one and three compared to page two. First, the post hole diameter for pages one and three were smaller than page two. Second, the holes punched on pages one and three were essentially clean cut. The posts used for the holes on page two caused slight serrations around the holes. Third, the holes punched on pages one and three were made further from the edge of the paper than the holes on page two.
	Indented Writing	No indentations of value were noted on pages one and two. Page three had indented handwriting that read, "11-7-73 ..?.. PT Reported abdominal pain." Logically, the indentations found on page three would have resulted from writing on the page preceding, meaning page two. However, there were no handwritten entries on page two.
4FNTJR	Indented Writing	Indented writing revealed: 11/7/23 F/U reports abdominal pain
	Video Spectral Comparator (VSC)	Page 2/3 presents a different optical behavior from pages 1/3 and 3/3 in the face of ultraviolet light and fluorescence effect.
	Visual Examination	The alignment of the printouts on page 2/3 are different compared to pages 1/3 and 3/3. The perforations on the left margin of page 2/3 have a different size and position than those observed on pages 1/3 and 3/3.
62LKEH	ESDA	Latend indeted impressions “11/7/23 F/U - PT. reports abdominal pain” become visible on page 3. The position of these latent impressions is in a corresponding position of line 2, below the printed entry "11/6/2023 F/U – PT. reports ...", of page 2.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	The punch holes on page 2 differ in position and size from the punch holes on pages 1 and 3.
	Video Spectral Comparator (VSC)	The paper of page 2 differs in its fluorescence and UV behaviour from the papers of pages 1 and 3.
	Ruler	The paper of page 2 is slightly smaller than the papers of pages 1 and 3.
6H86TG	Visual Examination	Larger perforations on page 2
	Transmitted Light	Misalignment of page 2 pagination
	Video Spectral Comparator (VSC)	Different reaction to UV on page 2
6KUMB3	ESDA	ESDA of third page of packet (Q-1 3) shows impressions that read "11/7/23 F/U - PT. reports abdominal pain". The impressions (likely handwritten) are located in a position that corresponds with the second "PROGRESS NOTES" entry box on the Q-1 2 document, if the Q-1 2 document is overlayed onto the Q-1 3 document. ESDA examination of the first and second pages of the packet (Q-1 1 and Q-1 2, respectively), did not reveal any impressions.
	Video Spectral Comparator (VSC)	Each of the questioned documents was examined under UV light at 254 and 365 nm wavelengths. Each of the documents reflected a blue hue appearance at these settings, there were no detected visual differences in this examination.
	Macroscopic Examination	Each of the questioned documents was placed onto a lightbox for visual examination of the paper. No visual differences in the paper were observed among the documents. No watermarks were found on any of the documents.
	Micrometer	Each of the questioned documents was measured for paper thickness using the General MG paper micrometer. Four measurements were taken per page. Each of the documents showed an approximate 0.004 in. paper thickness.
	Macroscopic/ Microscopic Examination	When aligning all three of the questioned documents on top of each other, it was noted that the punch holes on Q-1 1 and Q-1 3 are aligned, but the holes on Q-2 1 are misaligned when compared to the other documents. Also, the punch holes on Q-1 1 and Q-1 3 measure approximately 0.7 cm diameter. The holes on Q-1 2 measure approximately 0.8 cm diameter.
	Microscopic Examination	The fonts of the three questioned documents were examined for similarities and/or differences. All three documents were found to have the same font, no differences were observed.
6L99MP	Transmitted Light	The material of the pages 1 and 3 of the document is the same, while page 2 is different.
	Ultraviolet Light	The material of the pages 1 and 3 of the document is the same, while page 2 is different.
	Visual Examination	The material of the pages 1 and 3 of the document is the same, while page 2 is different: the color of page 2 is more yellowish.
6NVRNM	Macroscopic/ Microscopic Examination	Differences in the paper fibres between page 2 and pages 1 and 3 (presence of yellow fibres in page 2). Differences in the holes made by the hole puncher between page 2 and pages 1 and 3. The holes in page 2 are bigger and do not overlap with the ones in pages 1 and 3. No differences were found regarding the printing system or font

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Differences in the paper between page 2 and pages 1 and 3. The paper in page 2 had more fluorescent fibres (Spot light, 645nm, 400-480nm). Differences in the holes made by the hole puncher between page 2 and pages 1 and 3. The holes in page 2 are bigger and do not overlap with the ones in pages 1 and 3. No differences were found regarding the printing system or font.
	Ruler	No differences were found regarding font. Differences in margins that were not considered significant.
	Oblique Light	No indentations were found
6VTKWG	ESDA	Indented writing on page 3 of Item 1 (Item Q1): The indented writing fit into the data cells on page 2 when overlayed
	Magnification	Item 1 (Item Q1) was prepared using a toner printing process (melted, mounded beds on surface of paper)
	Video Spectral Comparator (VSC)	UV light source: Page 2 of Item 1 (Item Q1) reflects differently than pages 1 and 3
	Visual Examination	Hole punches on page 2 are larger than hole punches on pages 1 and 3 and do not align
7KACPE	ESDA	Al aplicar el método de revelado de surcos, se puede observar que el "page 3/3", muestra las leyendas "11/7/23 F/M-PT.report`s abdominal pain." When applying the groove development method, it can be seen that "page 3/3" shows the legends "11/7/23 F/M-PT.report`s abdominal pain."
	METODO PARA ANALISIS DE ALERACIONES	1. Analisis de documentos sin dispositivos opticos - El expediente medico presenta impresiones en tono negro y gris, tipografia de distinto tamaño y la totalidad de los documentos presentan impresion laser. - Las paginas presentan perforaciones en la parte superior, desfase en la pagina 2/3 con respecto a las dos restantes. - La tonalidad del sustrato 2/3 es diferente respecto a las paginas 1/3 y 3/3. 2. Analisis con instrumentos opticos. - En la pagina 3/3 se observa escritura indentada, la cual no puede ser identificada a ojo desnudo. 3. Analisis con equipo especializado. - Analisis con diferentes fuentes de luz, el llenado impreso del item Q1; pagina 3/3 " Expediente medico de la paciente Kendra Smith, con fecha 02 de noviembre de 2023", al ser sometido a los infrarrojos con 725 nm, muestra absorcion total en los recuadros marcados en lineas y luminiscencia parcial en los recuadros marcados en puntos, mostrando dos reacciones espectrales diferentes sin establecer tiempos ni fechas. 1. Document analysis without optical devices - The medical record presents prints in black and gray, typography of different sizes and all documents have laser printing. - The pages have perforations at the top, an offset on page 2/3 with respect to the remaining two. - The tone of substrate 2/3 is different from pages 1/3 and 3/3. 2. Analysis with optical instruments. - On page 3/3 you can see indented writing, which cannot be identified with the naked eye. 3. Analysis with specialized equipment. - Analysis with different light sources, the printed filling of item Q1; page 3/3 "Medical record of patient Kendra Smith, dated November 2, 2023", when subjected to infrared with 725 nm, shows total absorption in the boxes marked in lines and partial luminescence in the boxes marked in points , showing two different spectral reactions without establishing times or dates.
7NUA6H	ESDA	- traces on page 3. - missing equivalents on page 1 and 2
	Transmitted Light	- no visible differences between papers

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	- page 2 has less luminescence as page 1 and 3
	Micrometer	- no differences in thickness. - different hole diameters of page 2
	Microscopic Examination	- different amount of scattered toner on page 2. - missing toner in the area of the handwritten traces on page 3. - position of perforation of page 2 does not match with pages 1 and 3
	Magnification	-no differences in magnification
	Scales	-no significant weight deviations
7VNKAL	Visual Examination	The questioned document (Q1) is a medical report consisting of three numbered pages. Page 1 is a medical chart with the patient's personal information, and information concerning the patient's general health. Page 2 is a medical progress chart where it is possible to write several progress notes. There is one single entry on November 6th applied by print. Page 3 is a patient visit summery. The information on all three papers is printed vertically, on one side (not both sides). Each paper has three holes on the topside for placement in a folder. No handwriting with a pen, pencil, etc. is directly visible. Page 2 appears different in color, placement of holes, and sizing of holes. The holes in page 2 are placed a little different, the diameter is bigger, and the cutting is different. Furthermore, page 2 is slightly more yellow than page 1 and 3. This indicates that the three pages are not printed on the same type of paper – which is odd (not impossible) considering that the doctor's office states that all tree pages are printed together at the same time.
	ESDA	Page 1 and 2 show no significant indentations, whereas page 3 shows indentations revealing the following text: "11/7/23 F/U – PT. reports abdominal pain". This is a strong indication the patient did call the doctor on November 7th to report abdominal pain, as she explained to the investigators. Furthermore, the information/progress note was presumably handwritten on the original page 2 which was located on top of page 3 at the time of the data entry. Page 2 included in Q1 shows no handwriting.
	Magnification	All three pages are printed on a toner printer (electrostatic digital printing process / xerography) with black color only. Therefore, no yellow dots are present to analyze. All three pages show the same patterns (Raster Image Process – RIP) and there is no indication that different printers have been used. The density of the print on page 2 is slightly different from page 1 and 3. The areas of the print where the black dots are clearly visible (headlines etc.) show a higher density of toner powder on page 2 than on page 1 and 3. Page 1 and 3 have a similar density of toner powder. This indicates that the setting of the printer was not the same setting when all three pages were printed. Indicating that page 2 is not printed at the same time (print run) as page 1 and 3.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Examining the three pages in a Video Spectral Comparator different light sources and different magnifications were used. Some findings are: • Under ultraviolet light page 2 shows a slightly different fluorescence than page 1 and 3, indicating that page 2 is printed on a different type of paper than page 1 and 3. • In transmitted light, when page 2 on placed on top of the ESDA film of page 3, it is clear that the indentations of the handwritten text are located where the next progress note should be written. Furthermore, the wording of the text is very similar to the wording of the text that is already included in the medical record. Again, this indicates that the patient actually called the doctor, and that the doctor did make a progress note in the medical report, where it should be noted. • In sidelight the indentations on page 3 is slightly visible. • When measuring the size of the three holes with the tools available in the VSC it is clear that the holes in page 1 and 3 are smaller than the holes in page 2.
82W3AZ	Visual Examination	The three punch holes from page 2 do not align with the punch holes from pages 1 and 3. The punch holes on pages 1 and 3 align.
	Ultraviolet Light	Pages 1 and 3 are optically brighter than page 2. Pages 1 and 3 are approximately the same brightness.
	ESDA	Page 3 has an indentation that appears to read "11/7/23 F/U - PT. reports abdominal pain."
	Video Spectral Comparator (VSC)	Page 2 has luminescent fibers, page 1 and 3 do not.
842V2D	Microscopic Examination	• The text on the three pages of the questioned document is from a xerographic printing (laser). • The diameter of the perforations at the top of the second page is larger than that of the perforations on the other two pages.
	Ultraviolet Light	• Examination of the questioned document paper under ultraviolet light (365 nm) showed that the first and third pages have a different fluorescence than that of the second page; which confirms a different origin of the paper support.
	Spot Light (725 nm)	• Examination of the questioned document paper under Spot Light (725 nm) showed that the first and third pages have different fluorescence compared to the second page; which confirms a different origin of the paper support.
8CT7ET	Visual Examination	The hole punches on page 2 do not align with the hole punches on pages 1 and 3. The hole punches on page 2 are larger and closer to the edge of the paper. Page 2 has a slightly better/darker print quality than pages 1 and 3 but all three pages are black laser toner. The paper of page 2 is not as white as pages 1 and 3. The left margin of page 2 is slightly wider than that of pages 1 and 3.
	Oblique Light	Indentations were observed on page 3.
	ESDA	Latent writing impressions deciphered as "11/7/23 F/U - PT. reports abdominal pain." were observed on the ESDA lift of page 3. A transparency of the ESDA lift was superimposed on page 2 and the latent impressions align with the second row of the progress notes chart.
	Ultraviolet Light	Page 2 exhibits a different response to UV light than pages 1 and 3.
8KKNQG	Visual Examination	table with light, magnifying glass, UV hand light, white light

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	different filters that the equipment has: UV, IR, white and transmitted
8NNHQ8	USING NAKED EYE AND MAGNIFYING LENSES	TO FIND THE DIFFERENCE IN THE SIZE OF THE PERFORATION , AND THE QUALITY AND SIZE OF THE TYPOGRAPHIC FONT OF WORDS AND NUMBERS.
	Macroscopic/ Microscopic Examination	TO FIND THE SHAPE OF THE PAPER FIBERS.
	Ultraviolet Light	TO VERITY THE QUALITY OF THE PAPER
8THGYB	Macroscopic/ Microscopic Examination	The document was forged by replacing the second page, a different raster appearing in the fonts printed, different structure of the print, lack of fit /alignement/of the cards visible in the area of holes resulting from the punch and the shape of the holes, the pages do not constitute a uniform print made during one printing act, differences in the color of the print,
	Ultraviolet Light	different UV luminescence,
	Video Spectral Comparator (VSC)	the presence of fibers, which are absent on the other pages, in the structure of the paper, differences in the color of the print.
8XWU7P	Visual Examination	1. No handwritten entries observed on all three pages of the questioned document (Item Q1 – Medical record). 2. The color of all 3 pages of the questioned document (Item 1 – Employee Contract) are white in color, but Page 2 I 3 a bit yellowish color. 3. Holes punched on Page 2 I 3 of the questioned document (Item 1 – Employee Contract) showed different diameter and location compared to Page 1 I 3 and Page 3 I 3.
	Indented Writing	1. Indented handwriting was deciphered on Page 3 I 3 of the questioned document (Item Q1 – Medical record) to read as follows: 11/7/23 F/u PT. reports abdominal pain. 2. Indented handwriting as above also deciphered on the reverse side of each Page 3 I 3 of the questioned document (Item Q1 – Medical record) 3. Indented handwriting on Page 3 I 3 indicated that the present of handwritten entries on the pages before. 4. No indentation of handwriting was deciphered on Page 1 I 3 and Page 2 I 3.
	Video Spectral Comparator (VSC)	1. Page 2 I 3 of the questioned document (Item Q1 – Medical record) showed different appearances from Page 1 I 3 and Page 3 I 3 when exposed to different types of light (fluorescence, 365mm Ultraviolet, 312mm Ultraviolet and 254mm Ultraviolet). 2. Indentation of handwriting were observed on Page 3 I 3 of the questioned document (Item Q1 – Medical record) but cannot be read clearly. 3. When overlapping the indented handwriting on Page 3 I 3 (produced by ESDA) with Page 2 I 3 of the questioned document (Item Q1 – Medical record), the indented handwriting position located on the second row of 'Patient Progress' table. 4. No handwritten entries observed on Page 2 I 3 indicated the second page of the questioned document (Item Q1 – Medical record) had been replaced. 5. Holes punctured on Page 2 I 3 of the questioned document (Item Q1 – Medical record) were bigger in size compared to holes punctured on Page 1 I 3 and Page 3 I 3 when overlapping it.
	Examination of Printing Process	1. The printing process of all three pages questioned document (Item Q1 – Medical record) are similar to those printed by electro-photographic printing process.
99RK2G	Macroscopic Examination	the pg. 2 hole punches are slightly off-set from the hole punches of pgs. 1 and 3

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	the printing processes used on all 3 pages of Item #1 are consistent with each other; the paper of pg. 2 could be differentiated from the paper of pgs. 1 and 3; the paper of pg. 1 could not be differentiated from the paper of pg. 3; some visible indented writing on pg. 3
	ESDA	pgs. 1 and 2 of Item #1 had no visible indented writing present; pg. 3 had "11/7/23 F/U - PT. reports abdominal pain."
9RHQJF	Visual Examination	Page 3/3 is abnormally numbered considering the date on which it was written i.e November 2, 2023; while, page 2/3 was written on November 6, 2023, the date which comes after the date on which the third page (Page 3/3) was written. Further, it was observed that there is no phone call record made on November 7, 2023 on three pages medical record. Furthermore, paper perforator used when perforating page 2/3 is different from the paper perforator used on pages 1/3 and 3/3. To mean that perforations (holes) on page 2/3 are bigger than perforations on the rest of pages.
	Microscopic Examination	Physical examination with a stereo-microscope using direct transmitted light revealed different appearance of papers; whereby, page 1/3 and 3/3 are similar and different from page 2/3.
	Video Spectral Comparator (VSC)	Page 1/3 and 3/3 reflected similar fluorescence on UV but page 2/3 reflected differently on UV. Moreover, it was the same as on IR.
9URLEK	Visual Examination	The shade of printing on Page 2/3 appears darker compared to Page 1/3 and Page 3/3. The paper of Page 2/3 appears a darker shade of white compared to Page 1/3 and Page 3/3.
	Ruler	The punch-hole size for Page 2/3 is larger than for Page 1/3 and Page 3/3.
	Oblique Light	Indented impressions from an unknown source were noted on Page 3/3.
	ESDA	Indented impressions from an unknown source were noted on Page 3/3. The impressions related to a patient update on 11/7/23.
	Video Spectral Comparator (VSC)	The paper of Page 2/3 exhibited different UV properties compared to that for Page 1/3 and Page 3/3.
9V3NZJ	ESDA	examination of indented writing
	Indented Writing	In the sections of the page 3/3, traces of handwritten filling can be seen in the oblique light (unpainted writing troughs), however, there are no handwritten fillings in the sections of pages 1/3 and 2/3.
	Infrared Light	Non-destructive examinations of papers and printed parts of the questioned documents.
	Macroscopic/ Microscopic Examination	examination of printing techniques. examination of the micromorphological properties of printed elements
	Magnification	examination of printing techniques. examination of the variety of hole patterns
	Oblique Light	non-destructive examinations of papers. examination of indented writing
	Overlays	non-destructive examinations of papers. examinations of the punching locations

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	examination of the document unit of each page - appearance of printed parts, examination of the placement of prints on the paper and the position of the printed parts in relation to each other, examination of the variety of hole patterns (size, shape, placement in relation to page edges and to each other)
	Thickness	non-destructive examinations of papers
	Transmitted Light	non-destructive examinations of papers
	Ultraviolet Light	non-destructive examinations of papers
	Video Spectral Comparator (VSC)	non-destructive examinations of papers. examination of printing techniques. examination of the dye(s) used for printing. deletion, check of content changes.
	Visual Examination	visual examinations of test materials, sensory tests
	FTIR, Raman	Based on IR and Raman examinations papers and inks of questioned documents are indistinguishable.
9VX9MH	Visual Examination	The three pages that make up the medical record were examined with the senses to identify their components and characteristics. RESULTS: No significant differences were found in terms of the type of impression, only the perforation on page 2 was observed to be misaligned to pages 1 and 3.
	Microscopic Examination	The three pages that make up the medical record were examined under a stereomicroscope to identify their components and characteristics. RESULTS: No significant difference was found in terms of impression type.
	Video Spectral Comparator (VSC)	The three pages that make up the medical records were observed with a video spectral comparator (VSC) to identify their components and characteristics. FINDINGS: When irradiated with UV light, significant differences were observed on the support (brighter paper on pages 1 and 3), and when irradiated with oblique white light, indented marks were observed on page 3.
	ESDA	Page 3, comprising the medical record, was analyzed with ESDA to reveal indented marks. RESULTS: indented marks were observed on page 3 (which reads partially 11/7/23 pt reports abdominal pain).
9WJ6DJ	Oblique Light	The punched holes on Page 2 are not aligned with the punched holes on both 'Page 1 & 3' of the medical report.
	Oblique Light	The font size and colour intensity of the words on 'Page 2' is big and darker.
	Ultraviolet Light	The paper fibres on 'Page 2' under ultraviolet light are visible.
ARHZYH	ESDA	Indentations found on Q1C.
	Macroscopic/ Microscopic Examination	Determine printing processes - electrophotographic.
	Magnification	Determine printing processes, point sizes for fonts.
	Micrometer	Measured weight of paper.
	Oblique Light	Side light - observed indentations on Q1C.
	Overlays	Three hole punch, Q1A and Q1C holes overlay, Q1B holes are larger and do not overlay entirely.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	E-ruler for fonts and regular ruler for size of paper.
	Video Spectral Comparator (VSC)	VSC - Q1B reacted differently than Q1A and Q1C, demonstrating that the document had been inserted as the paper was inconsistent with Q1A and Q1C. Examined toner, toner was consistent between all 3 documents. Observed w/side light that Q1A-Q1C all contained gripper or feeder marks demonstrating the documents went through a copier or printer.
	Arnold Magnetic Viewer	Examined the toner to determine if it was magnetic, none of the documents contained magnetic toner.
	[No Methods Reported.]	Font Examinations: FF Kievit and Twentieth Century. See corresponding charts [Table 3: Conclusions] for point sizes.
AWCXNA	Video Spectral Comparator (VSC)	Equipment that allows, through the different illuminations and wavelengths, to observe alterations, chromatic tones of the substrate and differential physical behaviors of the inks used in the filling out of the document in question: it also allows images of what was observed to be obtained
	Microscopic Examination	It allows the detailed observation of the physical characteristics of the document, for the present case the identifying aspects that indicate whether or not an alteration was presented
	Magnification	Allows to evidence details of the documents
AZRPDG	Visual Examination	-The paper color of page 2/3 is darker than page 1/3 and page 3/3. -Page 1/3 to page 3/3 have the same hole punched position but the hole punched size of page 2/3 is bigger than page 1/3 and page 3/3. -The printed text “Page 1|3” and “Page 3|3” have the same vertical alignment while the printed text “Page 2|3” has a slightly right shift in vertical alignment.
	Video Spectral Comparator (VSC)	Page 1/3 and page 3/3 show the same UV fluorescence while page 2/3 shows different UV fluorescence from page 1/3 and page 3/3.
	Microscopic Examination	Page 1/3 to page 3/3 were printed by toner printing.
	ESDA	The indented writing “11/7/23 F/U - PT reports abdominal pain” was found on page 3/3
B7DZ7C	Macroscopic/ Microscopic Examination	toner
	Video Spectral Comparator (VSC)	UV differences in paper properties between Q1(2) with Q1(1) and Q1(3); no differences in toner, no watermark observed
	MagMouse (MOV)	toner has magnetic properties
	ESDA	Machine-created indented impressions observed on Exhibits Q1(1)(a and b) through Q1(3)(a and b); unknown marks were observed on Exhibit Q1(2)b; Handwritten indented impressions were observed on Exhibits Q1(3)(a and b)
BMXQ6B	ESDA	Indentations of handwriting reading "11/7/23 F/U - PT reports abdominal pain" located on page 3. The handwriting that caused these indentations is not present on any of the pages of the document.
	Macroscopic/ Microscopic Examination	The binder hole punches on page 2 are larger, and in a different position relative to the page edges, than those on pages 1 and 3 which are aligned with each other.
	Video Spectral Comparator (VSC)	The paper of page 2 has a different ultraviolet and infrared luminescence response than pages 1 & 3.

TABLE 2

WebCode	Methods/Techniques	Observations
BNFGEV	ESDA	Indented writing was recovered on the Q-1 document.
BPA8KB	Video Spectral Comparator (VSC)	USE OF THE DOCUMENT BUYER, THE THREE SHEETS WERE SUBJECTED TO DIFFERENT WAVELENGTHS AND FILTERS IN DIFFERENT POSITIONS WHICH ALLOWED DIFFERENCES TO BE ESTABLISHED ON PAGE 2 REGARDING PAGES (1 AND 3). SHOWING PAGE TWO A DARKER SUBSTRATE, AS WELL AS THE BACKGROUND PATTERNS OF THE BOXES AND ITS PRINTING IN GENERAL
BVDAMP	ESDA	1 No significant indentations were detected on pages 2 and 3 of the document, item 1. 2 Indentations were detected on page 3 of the document, item 1, which were caused by handwritten entries from an unknown source and interpreted as follows: "11/7/23 {F/U}- PT. reports abdominal pain." NOTE: In the interpretation of indentations, the underscore "_" represents indentations that could not be deciphered, and characters enclosed in brackets "{}" are a possible interpretation of unclear indentations.
	Video Spectral Comparator (VSC)	Paper Examination: Pages 1 and 3 of the document, item 1, behaved in a similar way when observed under UV light and IRL, oblique light, and transmitted light. Page 2 behaved in a dissimilar way to pages 1 and 3, under UV light and IRL. Infra-Red luminescence: More paper fibres luminesced on the paper used to create page 2 of the document, item 1, than pages 1 and 3, under IRL @ 665nm. UV: Page 2 appears to be darker than pages 1 and 3 of the document, item 1, under UV @ 365nm.
	Overlays	Hole punch Examination: The three (3) hole punches appearing on page 2 of the document, item 1, are bigger than the hole punches appearing on pages 1 and 3 of the document, item 1. The distance of the hole punches appearing on page 2 to the top edge of the page is less than the hole punches on pages 1 and 3 to the top of these pages.
	Microscopic Examination	The printed entries appearing on all 3 pages of the document, item 1, were created using a mono chrome electrophotographic-EPG (laser) printing process. The EPG spray pattern appears similar on all 3 pages of the document.
	Overlays	The entries "11/6/2023 F/U-PT. reports no change in symptoms. Recommend continuation of medication." appear to be in Century Gothic font, bold 10pt or a similar font and size. The font used to create the remainder of the entries under "NOTES", "REASON FOR VISIT"," DIAGNOSIS", "TREAMENT SUMMARY", "MEDICATION", "DOSAGE", "AMOUNT", "FREQUENCY" and "END DATE" sections of the document, item 1, also appear to be Century Gothic font, 10pt or a similar font and size, but are not bold.
BX67CJ	Visual Examination	The black toner machine printing is consistent within the pages and in between; toner characteristics. The placement and size of the 3- binder holes on Page 2 is inconsistent with Page 1 and 3.
	Microscopic Examination	The black toner machine printing is consistent within the pages and in between; toner characteristics. The placement and size of the 3- binder holes on Page 2 is inconsistent with Page 1 and 3.
	Oblique Light	Initial examination with an intense LED source indicates indentations on Page 3 of the document. No decipherable indentations found on Page 1 and 2.
	Magneto-optical visualizer	Magnetic toner detected on all three pages.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Page 2 responded differently to IR and UV light than Pages 1 and 3. Approximate measurements of 3- binder holes and their position towards the border of the sheet on Page 2 was inconsistent the ones on Pages 1 and 3.
	ESDA	The indented handwritten entries on Page 3 from unknown source state: "11/7/23 F/U- PT reports abdominal pain".
C3TC6C	Analysis method for documentary alterations	Simple, instrumented observation. Observation through a kit of forensic magnifiers of various magnifications. Digital Microscope. Spectral video comparator, using various light sources, such as direct, oblique, transmitted, transmitted spot, IR, UV, multi-nanometer filters, as well as optical and digital magnification.
	Analysis method for printing systems	Simple, instrumented observation. Observation through a kit of forensic magnifiers of various magnifications. Digital Microscope. Spectral video comparator, using various light sources, such as direct, oblique, transmitted, transmitted spot, optical and digital magnification.
	Paper non-destructive analysis method	Simple, instrumented observation. Observation through a kit of forensic magnifiers of various magnifications. Digital Microscope. Spectral video comparator, using various light sources, such as direct, oblique, transmitted, transmitted spot, IR, UV, multi-nanometer filters, as well as optical and digital magnification.
	Analysis method for paper cuts, holes and tears.	Simple, instrumented observation. Observation through a kit of forensic magnifiers of various magnifications. Digital Microscope. Spectral video comparator, using various light sources, such as direct, oblique, transmitted, transmitted spot, optical and digital magnification.
C4UTAQ	Handwriting Examination	Alignment of multiple punch holes: Punch holes on page 1 and page 3 align perfectly when one page is place on top of the other. Whereas a misalignment was identified when page 2 is added onto the paper stack. The punch holes of page 2 are misaligned with the punch holes of page 1 and page 3.
	Ultraviolet Light	Paper characteristics (UV light): When page 1 and page 3 were placed side by side under UV lighting, both pages fluoresce brightly with the same intensity. Whereas the intensity at which page 2 fluoresces is dull when compared to that of page 1 and page 3.
	Visual Examination	Font Style: The font style used to type the notes on page 1 and page 3 is the same. Whereas the font style used to type the notes on page 2 differs to that used on page 1 and page 3. In addition the font style on page 2 is typed in bold.
C7TFYK	ESDA	Indented impressions on page 3 with the date "11/7/23" and text.
	Ultraviolet Light	Different UV-reaction in paper sheets on page 2 compared to page 1 and 3.
	Magnification	Different size of the punching holes in paper on page 2 compared to page 1 and 3
	Video Spectral Comparator (VSC)	Different reaction in papersheets on page 2 compared to page 1 and 3, when using NIR and spotlight
CBLFFZ	ESDA	ESDA examination on the front of page 3 revealed Latent handwriting impressions.Indented writing were developed on page 3,which appear to read “11/7/23 F/u-PT. reports abdominal pain.”.
	Video Spectral Comparator (VSC)	UV examination of the paper showed page 2 is different in fluorescence from page 1 and page 3.

TABLE 2

WebCode	Methods/Techniques	Observations
	Visual Examination	There are three punch holes on each page.The punching position on page 2 is different from page 1 and page 3.
CJGHGC	Visual Examination	Visible indentations marks on page 3. 3-fold perforation in page 2 not congruent (size and placement) with 3-fold perforation in pages 1 and 3.
	Macroscopic/ Microscopic Examination	Toner print in the title area (e.g. text "MEDICAL") is slightly darker on page 2 than on pages 1 and 3. All three pages were produced using a dry black toner process (magnetic toner).
	ESDA	Indented writing ("11/7/23 F/U PT reports abdominal pain") found on page 3. No such entry found on either page 1 or page 2.
	Ultraviolet Light	Different reaction under UV ligth between page 2 and pages 1 and 3.
	FTIR	No discernible differences in toner material on pages 1, 2 and 3.
CQCKJN	Overlays	Pages 1-3 paper similar size. Pages 1 and 3 punched holes similar size and location, page 2 punched holes different size and location to pages 1 and 3. Printing of page numbers in bottom right corner in approx. same locations on all 3 pages.
	Microscopic Examination	Pages 1-3: each page printed using black laser print process: observed toner particles, shiny appearance, adhering onto top of paper, and toner speckle in non-image area
	Video Spectral Comparator (VSC)	Pages 1 and 3 display similar spectral reactions to UV lighting, page 2 displays dissimilarities in spectral reactions to UV lighting than pages 1 and 3. Pages 1 and 3 display similar IR spectral reactions. Dissimilarities observed in paper fibre reactions to IR luminescence between page 2 and pages 1 and 3. Page 2 displaying more luminescent fibres than pages 1 and 3.
	ESDA	No indentations of handwriting recovered on p1 and 2. Unsourced indentations of handwriting recovered on p3. Indentations observed on p3 interpreted as "11/7/23 F/U - PT. reports abdominal pain."
CT4G8G	Ultraviolet Light	Fluorescent of the page 2 is darker than fluorescent of the other pages.
	Visual Examination	The color of the page 2 is somewhat different from the color of the other pages.
CV9AZV	Transmitted Light	The punch holes from page 2 do not align with the punch holes from pages 1 and 3. The punch holes from page 2 are a different size to the punch holes from pages 1 and 3.
	Ultraviolet Light	The UV (365 nm) reaction of page 2 is different from the UV (365 nm) reaction of pages 1 and 3.
	ESDA	Indentations were developed from page 3 of a handwritten entry dated 11/7/23. No handwritten entries are visible anywhere on the questioned document.
CYT2AC	Oblique Light	Oblique light examinations revealed indented writing impressions on Page 3 |3. Oblique light examinations failed to reveal any indented writing impressions on Page 1|3 or Page 2|3.
	ESDA	ESDA examinations revealed indented writing impressions on Page 3 |3 that were interpreted as: 11/7/23 F/U PT reports abdominal pain, ESDA examinations failed to reveal any indented writing impressions on Page 1|3 or Page 2|3.

TABLE 2

WebCode	Methods/Techniques	Observations
	Magnification	Toner appears similar on all three pages. Dark black toner melted on top of the page with very small circular reflective flecks, in circular patterns, amongst the black toner?. Microscopic examinations of all three pages of paper revealed: Page 1|3 and Page 3|3 have some yellow fibers but there are very few. Page 2|3 has a large multitude of yellow fibers through out the piece of paper.
	Visual Examination	Only Page 2|3 has "Notes" which have been filled in using BOLD text. The paper used to produce Page 2|3 appears to be more "yellowed" in coloring that Page 1|3 and Page 3|3.
	Overlays	Alignment of page numbering in the lower right corner: Page 1|3 and Page 3|3 are aligned when the pages are layed over each other. Page 2|3 does not align with the other two pages when sandwiched between each other. Alignment of three hole punches at the top of all three pages: Page 1|3 and Page 3|3 are aligned when the pages are layed over each other. Page 2|3 does not align with the other two pages when sandwiched between each other.
	Video Spectral Comparator (VSC)	Examinations using the Video Spectral Comparator (VSC) using the UV light source revealed the following: Page 1|3 and Page 3|3 appeared brighter than the Page 2|3 document which was darker. In addition, the few microscopic yellow fibers visualized within Page 1|3 and Page 3|3 absorbed light, and appear as dark fibers within the paper during the UV examination. In the same way, the multiple microscopic yellow fibers visualized within the paper numbered Page 2|3 also absorbed light, and appear as dark fibers within the paper during the UV examination.
D3P6FP	Macroscopic/ Microscopic Examination	The medical record was a three page set. Each page was machine printed with black toner on white paper. Each sheet was three-hole punched. The sizes of the holes in pages 1 and 3 are 7mm in diameter, 8.6 mm from the edge, with slight flare out the back of the sheet. Page 2 holes are 8 mm in diameter and 5.5 mm from the edge. The overall spacing between the holes in page 2 is very slightly less than that found on pages 1 and 3.
	Oblique Light	Pages 1 and 2 do not show any indentations. Page 3 shows indentations of handwriting reading, "11/7/23 F/U PT. reports abdominal pain."
	ESDA	Pages 1 and 2 do not show any indentations. Page 3 show indentations of handwriting reading, "11/7/23 F/U PT. reports abdominal pain."
	Overlays	The ESDA lift from page 3 was overlayed on page 2. The handwriting aligns with the second box for comments under Progress Notes.
	Video Spectral Comparator (VSC)	UV 365nm and 254 nm reveals that pages 1 and 3 are brighter in the blue spectrum than page 2. With VIS to IR viewing for IR fluorescence page 2 is markedly brighter than pages 2 and 3. There is a very noticeably larger amount of fluorescent fibers than is typically found in office copy paper.
D9BXUA	ESDA	The same physical mark on the paper caused by rollers and the pick-up mechanism of the printer is revealed on the 3 pages of the document. On the page 3, the indented impressions of handwritting "11/7/23 F/U-P.T reports abdominal pain" is revealed. If pages 2 and 3 are overlayed, the location of the indented impressions revealed on page 3 corresponds to the second line of the table on page 2.
	Macroscopic Examination	Overlaying the 3 pages shows that the perforations on page 2 are of different sizes and positions than those on pages 1 and 3.
	Microscopic Examination	The 3 pages of the document are printed in electrophotography. No defect is observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Chemical analyses (Raman, FTIR, microanalysis-X)	The back toner used on the 3 pages are not differentiated.
	Ultraviolet Light	The fluorescence of the paper is stronger on pages 1 and 3 than on page 2.
	Transmitted Light	The look through appearance of the paper on page 2 is less flaky than on pages 1 and 3.
	ruler, thickness, grammage	Dimensions, thickness and grammage of the 3 pages are not significantly different.
	FFT2D	The wire marks are different on the 3 pages.
DFWVFC	ESDA	Indented writing regarding the patient reporting abdominal pain was observed.
	Video Spectral Comparator (VSC)	Differences in the optical brighteners was observed between the pages under UV light. Also used magnetic toner attachment to check for inconsistencies in the toner- none found.
	Visual Examination	Differences in location and size of the paper hole punches observed.
	Microscopic Examination	Confirmed consistency in the printing process used.
	Micrometer	Confirmed consistency in the thickness of the paper.
DHJRN3	Visual Examination	1). Pages 1, 2 and 3 have a similar paper size and colour. 2). Pages 1 and 3 have aligned left margin but it is not aligned with that of page 2. 3). Pages 1, 2 and 3 have unaligned right, top and bottom margins. 4). There are three punch holes on the left side of pages 1, 2 and 3.
	Microscopic Examination	1). Tiny black dots were observed in all the printed texts in pages 1, 2 and 3. The printed texts were produced using a similar printing process (electrophotographic). 2). Light brown (faint) fibers were observed on page 3 whereas brown fibers were observed on page 2. Could not find the brown fibers on page 1 using the stereomicroscope (due to the faint/light brown colour) and was only able to detect them when viewed under UV light (appeared as dark fibers).

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	1). Under ultraviolet light, pages 1 and 3 showed that they both have a similar reaction but different to that of page 2. 2). Using flood light under high magnification, light brown (faint) fibers were observed on both sides of the pages 1 and 3 whereas brown fibers observed on both sides of the page 2. Those fibers appeared black under the UV light. More fibers were present on page 2 than those on pages 1 and 3, which were distributed throughout the paper and they also appeared darker. 3). Using flood light under high magnification, the black ink of the title MEDICAL PROGRESS on page 2 is darker than those of the titles MEDICAL CHART and PATIENT VISIT SUMMARY on pages 1 and 3, respectively. The texts printed on pages 1, 2 and 3 were produced using a similar printing process (electrophotographic) and font style. There were variations in the font sizes used on pages 1, 2 and 3. Only entries on page 2 under the DATE and PROGRESS NOTES columns were printed in bold. The entries on the left on pages 1 and 2 have similar font style and size. Overlaying similar words showed that they have similar letter and word spacings. 4). Overlaying the three punch holes amongst pages 1, 2 and 3 showed that those of pages 1 and 3 were aligned but they were not aligned with those of page 2. 5). Pages 1 and 3 have similar hole size and design but they were different to those of page 2. 6). Using oblique lighting, undecipherable indentations were observed on both sides of page 3 whereas no indentations were observed on both pages of pages 1 and 2.
	ESDA	1). No indentations were detected on both sides of pages 1 and 2. 2). Indentations were detected on both sides of page 3 and they were deciphered as: 11/7/23 F/U PT reports abdominal pain. (Note: ESDA-2 was used for the indentation examinations).
	Overlays	An overlay of the indentations developed on the ESDA lift of the front side of page 3 on the entry column on page 2, showed that it was within the entry columns under the DATE and PROGRESS NOTES, respectively. Therefore, the indentations observed on page 3 originated from a document which may have the same format as page 2.
DMPCL8	Transmitted Light	Show that the binding holes of page 2 were out of alignment with the binding holes of pages 1 and 3.
	Visual Examination	Page 2 is a different paper to pages 1 and 3. If printer ran out of paper, would expect either page 1 or 3 to be different and the remaining adjacent pages the same. This is not the case - the middle page is different.
	Indented Writing	None of evidential value found
	miScope	Differences between the papers were reveals using miScope, IR range These differences include a number of fibres which could be identified which were randomly present throughout the page.
DQVQHD	Visual Examination	Visual examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted.
	Microscopic Examination	Microscopic examination of Exhibits Q1(1)a, Q1(2)a and Q1(3)a was conducted. The questioned machine-generated entries on Exhibits Q1(1)a, Q1(2)a and Q1(3)a were prepared using toner printing technology. No font differences were observed within the questioned machine-generated entries on Exhibits Q1(1)a, Q1(2)a and Q1(3)a.

TABLE 2

WebCode	Methods/Techniques	Observations
	Indented Writing	Electrostatic Detection Apparatus (ESDA) examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted. The results are as follows: -Indented machine-created (vertical) impressions were observed on Exhibits Q1(1)(a and b). - Indented machine-created (vertical and diagonal) impressions, and paper hole impressions were observed on Exhibit Q1(2)(a). - Indented machine-created (vertical) impressions, and paper hole impressions were observed on Exhibit Q1(2)(b). - Indented machine-created (vertical) impressions, and handwriting impressions were observed on Exhibit Q1(3)(a). The handwriting impressions appear to read: "11/7/23 F/U- PT. reports abdominal pain." - Indented machine-created (vertical and diagonal) and handwriting impressions were observed on Exhibit Q1(3)(b); however, the handwriting impressions are not of evidentiary value.
	Video Spectral Comparator (VSC)	Alternate light source examinations of Exhibits Q1(1)(a and b) through Q1(3)(a and b) were conducted. The questioned paper in Exhibit Q1(1) was compared with the questioned paper within Exhibits Q1(2) and Q1(3). Differences in the properties (i.e., optical or spectral characteristics, paper hole sizes) of the paper within Exhibits Q1(1), Q1(2) and Q1(3) were observed. The questioned paper in Exhibit Q1(1) does not originate from or share a common source with the questioned paper within Exhibits Q1(2) and Q1(3).
	Digital preservation/processing	Exhibits Q1 and ESDA indentation lifts were digitally preserved. Exhibit Q1(3)a and the ESDA indentation lifts were digitally processed.
DXC4GC	Macroscopic/ Microscopic Examination	The paper of 2nd page slightly more yellow in color than 1st and 3rd page; 3-hole punch on 2nd page slightly out of alignment with and slightly larger than the holes on the 1st and 3rd page; All 3 pages prepared using black toner (particles sitting on top of paper fibers, extraneous toner particles in non-print areas)
	Oblique Light	Page 3 positive for indented writing using side lighting, remaining pages negative
	ESDA	ESDA of Item 1 page 3 positive for indented writing. However no original handwriting was observed on Item 1 pages 1 or 2.
	Ultraviolet Light	Item 1 page 2 paper responds differently under UV light than pages 1 and 3.
E8E48P	ESDA	incriminating indentations found
	Ultraviolet Light	difference in page 2
	Infrared Light	difference in page 2
E99UD4	Overlays	It was determined that the punch hole diameter and placement on the second page different from those on the first and third pages.
	Macroscopic/ Microscopic Examination	The paper quality of the second page and the ink used on the second page were different from those on the first and third pages.
	Ruler	
EPDKRA	Ultraviolet Light	When exposed to UV-illumination page 2 of the document reacts differently to pages 1 and 3, an indication that page 2 is not the same kind of paper as pages 1 and 3.
	Oblique Light	When illuminated with oblique lighting indentations become visible on page 3.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Using the Electrostatic Detection Apparatus the indentations on page 3 were made legible. Entry read "11/7/2023 F/U - PT. reports abdominal pain"
	Visual Examination	The handwriting that is the source of the indentations on page three is not present on pages one or two.
	Overlays	The holes punched in page 2 do not line up with the holes punched in pages 1 and 3, a possible indication that the holes in page 2 were not punched at the same time as the holes in pages 1 and 3 .
EXNH4C	Microscopic Examination	1.- Wild Heerbrugg M3Z binocular stereoscope. With the microscopic examination, it was verified that the writings printed in document Q1 are in the original, that is, placed directly on the paper, in addition to establishing the characteristics in the printed signs, regarding size, style, body and morphology and printing system used in completing the document.
	Video Spectral Comparator (VSC)	2.- VSC 6000/HS Spectral Comparator Video. Photospectrometric analysis of inks was carried out on the printed writings of the document, but it did not show any difference. With Ultraviolet Light 254nm – 365nm. The reaction of each of the leaves was verified, finding that “Page 2 / 3” denotes greater blue intensity compared to “Page 1 / 3” and “Page 3 / 3”. With Transmitted Light. In general, it was verified whether there are perfect cases between the printed texts of homologous signs, but specifically in the position of the holes caused with a hole punch, which denotes mismatches of the “Page 2 / 3” sheet, compared to the “Page 1” sheets. / 3” and “Page 3 / 3”. With high magnifications to appreciate the sizing or sizing of the paper, in which colored fibrils are detected on the “Page 2 / 3” sheet, while the “Page 1 / 3” and “Page 3 / 3” sheets lack they.
	Visual Examination	3.- Visual examination or observation with the naked eye. In general, each of the sheets of the document were observed to verify similarities in texture, color, size and shape characteristics in papers, texts and ink intensities.
EZB36A	Indented Writing	IW observed on page 3 of the Q1 document
	ESDA	IW observed on page 3 of the Q1 document
	Macroscopic/ Microscopic Examination	Hole punches were in different alignment and size on page 2 of the Q1 document
	Video Spectral Comparator (VSC)	Optical characteristics of page 2 were inconsistent with the remaining pages of the Q1 document
FBR2EC	Overlays	the punch position on the second page of the medical record is not in accordance with the first and third page of the medical record.
	Video Spectral Comparator (VSC)	the fluorescence of the second page of the medical record is different from the first and third page of the medical record.
FX8LCD	Visual Examination	Visual examination of the document was done. All three pages were observed to be printed with black ink on white paper with 3-holed punch at top of page. Page 2 hole punch did not align with pages 1 and 3. No other abnormalities were observed.
	Macroscopic/ Microscopic Examination	A stereomicroscope was used to conduct a visual examination of the machine generated text and hole punch. All text appears to be printed with black toner. No CPS codes observed. Digital microscopy was used to observed toner morphology. No appreciable differences were observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Indentation analysis was conducted. Four large circular marks in line with hole punch from unknown source observed on page 2. Indented writing with text "11/7/23 F/U - PT. reports abdominal pain" from unknown source observed on page 3.
	Indented Writing	Indented writing of "11/7/23 F/U - PT. reports abdominal pain" observed on page 3 from unaccounted source.
	Magnification and overlay of hole punch	Detailed examination of the hole punches was conducted. Magnification of the hole punch revealed a more jagged and less uniform cut on the punch marks found on page 2 in comparison to page 1 and 3. The diameter of the hole punch on page 2 is also bigger (~8mm) in comparison to ~7mm hole punch on pages 1 and 3. When overlaid, there is good alignment between the punch marks found on pages 1 and 3 but a poor alignment between page 2 and the rest of the document.
	Video Spectral Comparator (VSC)	Printed text and page was examined using various wavelength of incident light and various camera filters. No difference in spectral responses by ink were observed.
	MagMouse	Magnetic (monocomponent) toner was observed throughout all three pages with no non-magnetic toner present.
FXFDUP	Visual Examination	misalignment of pages.
	Video Spectral Comparator (VSC)	Inconsistent puncher holes
	ESDA	Indentations on the document marked "Q3" were deciphered. "11/07/23", "reports" and "abdominal".
GAC6MD	Video Spectral Comparator (VSC)	Under the UV-A ray, it is shown that the fluorescent is not identical. Suspected paper is different from the other paper under the UV-A lamp.
	Ruler	When overlayed the paper, the holes of the suspected paper are apparently in the different position from those of other papers.
GEALY8	Macroscopic/ Microscopic Examination	Visual exam: under natural light second page is not as white (duller) as pages 1 & 3. Also the grey shading on page 2 is darker than that on pages 1 & 3. The 3 punch holes on page 2 are offset from the punch holes on pages 1 & 3 being closer to the top of the page. The size of the punch holes on page 2 is also larger in circumference than the punch holes on pages 1 & 3. Microscopic exam: The punch holes on page 2 have a serrated edge than the cleaner cut punch holes on pages 1 & 3. The grey shading on page 2 is slightly darker than that on pages 1 & 3. Whilst all pages have been printed by a toner process, the image of the printing on page 2 is darker.
	Video Spectral Comparator (VSC)	VSC exam: UV - difference in fluorescence between pages 1 & 3 to that from page 2. Spot/IR filter - numerous fluorescent fibres on page 2 compared to pages 1 & 3.
	ESDA	ESDA exam: On front of page 3 indentations - 11/7/23 F/U PT. REPORTS ABDOMINAL PAIN. This was not written on the front of page 2 of the record.
GF2GNZ	Macroscopic/ Microscopic Examination	"Leica M 205 C"
	Video Spectral Comparator (VSC)	VSC 6000/HS. Obloquie, IK Reflect and IK Fluorescence

TABLE 2

WebCode	Methods/Techniques	Observations
GGW6Z6	Visual Examination	A validation of the three pages that make up the questioned document was carried out, observing a difference in the whitening of page 2 of 3 with respect to pages 1 and 3. In addition, it was identified that the three upper perforations on page 2 with respect to the 1 and 3, exhibit a larger diameter and a distinctive feature located in the upper right area of each perforation.
	Video Spectral Comparator (VSC)	Observing the three pages under the incidence of transmitted light, it was identified that folio 2 in the left margin shows a greater enlargement of the text of the heading: "MEDICAL PROGRESS" and of the five boxes with reference to the homologues of folios 1 and 3. Similarly, the first row of folio 2, highlighted in black, shows a new numbering in relation to the other rows that make up the table. Through the use of different filters and light sources, traces of original texts made with some type of writing element were visualized, located in the first row of the graph of folio 2 and in the first row of the table above folio 3, which, were masked with the addition of texts and shading of such rows.
	Macroscopic/ Microscopic Examination	Magnification was made of the areas where the deletion and addition of texts mentioned in the previous point was identified, in order to establish the original writings, evidencing in folio 3 -next to the printed text "REASON FOR VISIT"- the writings (11/ 7/23).
GRTGP4	Macroscopic/ Microscopic Examination	The holes in page 2 are bigger and placed higher up than those on the other two pages. Page 2 have yellow and blue fibers visible in normal light, that the other pages lack. All three pages are printed in black, magnetic toner. They are rasterized in the same way and have the same appearance. The text "MEDICAL PROGRESS" and the grey fields are slightly darker on page 2, comparing to the other two pages.
	Ultraviolet Light	Page 2 has a different reaction under UV-light. The other two pages have a higher fluorescence, more similar to each other.
	Infrared Light	Page 2 has a different IR-luminescence comparing to the other two pages. The fibers in page 2 are more visible under IR-light.
	ESDA	With the use of electrostatic detection a handwritten note on page 3 has been detected in relief. The note states: "11/7/23 F/U – PT. reports abdominal pain". The position corresponds to the row on page 2 where next progress note should have been entered.
GTRDND	Visual Examination	Visual - differences in paper color (hue) noted - differences in hole punches (size and placement noted)
	ESDA	ESDA - indentations discovered on Page 3 demonstrating that handwritten entries were made on a preceding page that is missing from the provided document.
	Video Spectral Comparator (VSC)	VSC - Ultraviolet light examinations for optical brighteners, transmitted light for punched hole size and placement, and measuring tool for punched hole size measurement.
GXZY84	ESDA	Indented writing observed on Item 1 (Q1) page 3 but no writing on page 1 or 2.
	Video Spectral Comparator (VSC)	optical differences observed on Item 1 (Q1) page 2 when compared to pages 1 and 3
	Macroscopic/ Microscopic Examination	Hole punch size and misalignment on Item 1 (Q1) page 2 when compared to pages 1 and 3
	Transmitted Light	observed misalignment of the page number section on Item 1 (Q1) page 2 when compared to pages 1 and 3

TABLE 2

WebCode	Methods/Techniques	Observations
GZMFPP	ESDA	Items Q1, Q2, and Q3 were examined with oblique light (side lighting) and the use of the ESDA (Electrostatic Detection Apparatus) for the possible presence of indented impressions with the following results: 2) Items Q1 and Q2 were examined; no impressions of investigative value were found. 3) An indented impression was located on item Q3, the visible source or corresponding indented impression of which, was not found on items Q1 or Q2. 3.1) The indented impression is deciphered as follows: "11/7/23 F/u – Pt. reports abdominal pain". 3.2) The indented impression is located on the next available horizontal line space as would be found on item Q2. Thus, item Q2 has a font entry of "11/6/2023…" and the indented impression found on item Q3 ("11/7/23…") would be located under the "11/6/2023…" entry if it was written in sequence after the "11/6/2023…" entry.
	Ultraviolet Light	The Q2 paper is dissimilar in physical characteristics (UV response at 365nm) as compared to items Q1 and Q3 (which are similar amongst themselves).
	Visual Examination	The Q2 - "3 ring punch-out" holes are dissimilar (larger) than those found on items Q1 and Q3 (which are similar amongst themselves). 1.3) The Q2 - "3 ring punch-out" holes are located in a dissimilar location (closer to the top paper edge) than those found on items Q1 and Q3 (which are in a similar amongst themselves).
	Visual Examination	Margin differences noted between specific locations of Q3 and Q2. Font similar style and size between specific locations ("Kendra Smith") on Q1 and Q2. Font similar style and dissimilar size between specific locations ("Kendra Smith") on Q3 as compared to Q1 and Q2. All of unknown value as Known examplars of course of business records are needed for comparison
H2XN63	Visual Examination	A medical record is observed made up of three letter-size sheets, digitally printed, with pagination 1/3, 2/3 and 3/3, in which they present tables with differences between them, in terms of indications and distribution.
	Macroscopic/ Microscopic Examination	A medical record is observed made up of three letter-size sheets, digitally printed, with pagination 1/3, 2/3 and 3/3, in which they present tables with differences between them, in terms of indications and distribution.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	1.When applying grazing light from the L and R side, letent writing can be observed on the 3/3 paginated sheet, this located along the three boxes, which contain the words “REASON FOR VISIT”, “DIAGNOSIS” and “TREATMENT SUMARY”. 2.When appraching the latent writing, it can be seen that it presents a legible handwritten date of “11/7/23”, followed by handwritten writing, without being able to specify or read it. 3.When superimposing the second sheet 2/3 and the third sheet 3/3, it is observed that the boxes on the second sheet 2/3 where the date “DATE” and “PROGRESS NOTE” are placed, they match perfectly with the latent writing that appears on the third sheet 3/3. 4.When applying the L and R grazing lights combined with different wavelengths, the latent writing is observed a Little clearer and cleaner, this located on the third page paginated as 3/3, this located along the three boxes, that contain the words “REASON FOR VISIT”, “DIAGNOSIS” and “TREATMENT SUMARY”. 5.When approaching the latent writing, it can be seen that it presents a legible handwritten date of “11/7/23”, this followed by handwritten writing, without being able to specify or read it, at the end of the Word “TREATMENT SUMARY”, the literal “m” can be identified. 6.When applying fluorescence at 485-610 nanometers, the first sheet (1/3) and third sheet (3/3) are observed to be opaque to the fluorescence and the second sheet (2/3) reacts to the fluorescence, observing small spaces in the substrate mostly illuminated.
	Method for examination of alteration	1.Preliminary analysis. 2.Analysis with all the senses. 3.Analysis with optical instruments. 4.Analysis with spectral video comparator equipment.
HCX767	Video Spectral Comparator (VSC)	the paper of page 1 and 3 is the same (e.g. colour, optical properties, fibers); the paper of page 2 is different than the paper of page 1 and 3 (e.g. colour, optical properties, fibers);
	Magnification	the punch holes of page 1 and 3 are located the same, and the punch holes of page 2 are located in different places than the holes of page 1 and 3; the punch holes on page 2 are larger than the punch holes on page 1 and 3 - plus the punch holes on page 2 have jagged cut edges, while the holes on pages 1 and 3 have smooth edges;
	ESDA	on page 3, traces of indented writing were discovered with the text "11/7/23 F/U - PT. reports abdominal pain” – while there are no handwritten entries on page 2; the same small paper indented marks were revealed on sheets 1 and 3 - there are no such marks on sheet 2;
	Microscopic Examination	laserjet print toner on all cards have the same morphological features;
	magnetic properties	the magnetic properties of the toner on each sheet of paper were revealed;
HD8BJU	Visual Examination	
	Magnification	
	Ultraviolet Light	
	Infrared Light	
	Indented Writing	
	Video Spectral Comparator (VSC)	
HP2Q7A	ESDA	Indentations on page 3 - "11/7/23 F/U - PT reports abdominal pain."

TABLE 2

WebCode	Methods/Techniques	Observations
	Transmitted Light	Transmitted light with VSC - used to examine alignment of hole punches. Holes on page 2 do not align with holes on page 1 and page 3.
	Macroscopic/ Microscopic Examination	Black toner printed document.
	Magmouse	Magnetic toner consistent across all three pages.
	Visual Examination	Page 2 is a different shade of white compared to pages 1 and 3.
HTKQJ6	Visual Examination	It is also found that there are differences in the location and shape of the three perforations for filing located at the top of the pages, being diferent that pages 1 and 3 correspond and these two are different from page 2.
	Microscopic Examination	The physical characteristics of the substrate and the completion of the patient's medical record on three pages were analyzed, identified as item Q1, a document that, when observed directly and through optical instruments such as magnifying glasses, no sign of change on the surface was observed with the naked eye. of the document in its three pages.
	Ultraviolet Light	Subsequently, page 2 of the notes in the medical record is observed where the areas of the procedure were analyzed in detail through the use of video comparator and exposure under different wavelengths such as UV, IR in absorption and fluorescence, as well as different directions. of white light as diagonal, incident and transmitted, an exercise in which it was found that under ultraviolet and infrared wavelengths no changes are observed in the content or in the substrate. When then comparing sheet 2 of the document with sheets 1 and 3, it is found that they have different tonality to the naked eye and that after exposing them at the same time under ultraviolet light, sheet 2 has a different behavior in tonality under that same wavelength, differences are also observed in the fibers contained in the paper mass.
HW792P	ESDA	Page 1: No indented impressions were observed. Page 2: No indented impressions were observed. Page 3: Indented impressions of markings made with pen observed on page 3. The corresponding writing is missing from pages 1 and/or 2. Impressions observed on page 3 corresponds with the patient's description of past events. Interpretation of the indented impressions on page 3: "11/7/23 F/U* – PT. reports abdominal pain" *uncertain interpretation "F/U"
	Macroscopic/ Microscopic Examination	The paper sheet on page 2 of the medical record has different composition and texture compared to pages 1 and 3. All pages made with monochrome toner. No significant differences in the appearance or details of the printing were observed. No markings made with pen were observed.
	Ultraviolet Light	Under UV light the page 2 was observed to be less fluorescent than the pages 1 and 3.
	Grammage measurement	No significant differences in weight/grammage between the three papers of medical records
	Visual Examination	Location and the size of the holes on page 2 differ in comparison with pages 1 and 3. In general appearance, the paper sheet on page 2 has a little different color in comparison with pages 1 and 3.
HXDQZL	ESDA	Developed handwritten impression on page 3.
	Indented Writing	Observed indented handwriting impression on page 3 using oblique lighting. Developed the entry with an ESDA.
	Infrared Light	Observed differences in paper based on fibers displaying infrared luminescence.

TABLE 2

WebCode	Methods/Techniques	Observations
	Macroscopic/ Microscopic Examination	Conducted macroscopic/microscopic examination of the documents. Observed no differences in photocopier toner. Observed differences on page 2 when compared to pages 1 and 3.
	Micrometer	Measured caliper of paper. No differences found between the pages.
	Oblique Light	Used oblique light and observed handwriting impression on page 3.
	Overlays	Overlaid page 2 with ESDA lift on handwriting on page 3. The page 3 impression fits into empty boxes on page 2.
	Ruler	Measured width of punched holes and the distance of the holes to the edge of the paper. Found that the page 2 holes differed from pages 1 and 3.
	Thickness	Measured thickness with micrometer. No differences found between the pages.
	Transmitted Light	Examined the pages with transmitted light. Page 2 differed from pages 1 and 3.
	Ultraviolet Light	Used a UV wand and the UV function of the VSC. Page 2 differed from pages 1 and 3.
	Video Spectral Comparator (VSC)	Conducted infrared, UV, transmitted light, and visible light comparisons with a VSC. Page 2 differed from pages 1 and 3.
	Visual Examination	Conducted visual examinations. Observed difference in the color of the paper on page 2 when compared to pages 1 and 3. Observed differences in punch hole sizes and distance from edge of paper. Studied the font and text boxes.
HZ6LPF	Video Spectral Comparator (VSC)	1. Punch hole: The punch hole on the Page 1 is similar in size with the punch hole in Page 3. The punch hole on the Page 1 is different in size from the punch hole in Page 2. 2. Paper's color: The paper's color on page 1 is similar with the paper's color in Page 3. The paper's color on the Page 1 is different from the paper's color in Page 2.
	ESDA	1. No indented impressions was found on the page 1 and 2. 2. Indented impressions were found on the page 3. The indented writing deciphered on page 3 to read as "11/7/23" and "F/D – PT. reports abdominal pain".
J8XGYH	Video Spectral Comparator (VSC)	The microscopic examination on page three shows marks, without being able to appreciate what they say.
	Video Spectral Comparator (VSC)	When examining page three with left and right oblique light on the front and back, latent writing is observed in the middle part of the page, which reads "11/7/23" and other strokes that cannot be seen in full.
	ESDA	When analyzing the front of page three, the latent writing that say "11/7/23 F/M/PT. reports abdominal pain" is revealed in the middle part of the document, on the back the same latent writing is observed but inverted.
JJANX4	Visual Examination	In compliance with the protocol for inspection of alterations in printed and handwritten documents established in the [Laboratory], a visual inspection was carried out on the three pages of the medical record, where it was observed that the perforation holes on page 2 do not correspond to those holes on pages 1 and 3, in terms of the topographical location of the sheet and the shape of the contour of the cut.
	Magnification	With the help of the optical instrument, it was possible to verify the difference in the holes left in the contour of the cut in the perforation of page 2 compared to pages 1 and 3.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	With the help of the document comparator, it was established that the medical record, on page 2, when exposed to ultraviolet light, presents a discrepant reaction of the page with the other pages of said document.
K4VXEV	Video Spectral Comparator (VSC)	Expertise of security documents, application of luminescence to the examination of documents, NIR absorption and Reflection Examination of documents. VSC 6000, Microscope Mz16 VS 8000 HS
	Macroscopic/ Microscopic Examination	
	Visual Examination	
KA2HC2	ESDA	ESDA examination of page 3 shows indentations from the handwritten text: "11/3/23 F/U - PT. reports abdominal pain." The indentations are not visible on page 1 and 2. This indicates that the text has been written somewhere above page 3, but not page 1 and 2.
	Macroscopic/ Microscopic Examination	There are visible yellow fibres in the paper substrate on page 2 that do not appear on page 1 and 3. Hence, the paper composition of page 2 differs from page 1 and 3, indicating that another paper type has been used. All three documents are printed in black toner. The text font and patterns in the printing are found to be similar to one another.
	Transmitted Light	The size, shape and location of the holes on page 2 differs from page 1 and 3. This is clearly visible in transmitted light. The holes on page 1 and 3 match. This suggests that a different paper punch was used for page number 2.
	Ultraviolet Light	The optical properties of page 2 differs from page 1 and 3 under UV light (appears darker). This indicates that another paper type was used for page 2.
	Video Spectral Comparator (VSC)	A VSC was used for some of the examinations described above.
KBNPDK	Video Spectral Comparator (VSC)	Examination of paper. The color of page 1/3 paper and page 3/3 paper is the same. They differ from the color of page 2/3 paper.
	Video Spectral Comparator (VSC)	Examination of punch holes. The size of punch holes on page 1/3 paper and page 3/3 paper are same in size. They differ from the size of punch holes on page 2/3, which are bigger in size.
	Video Spectral Comparator (VSC)	
KEN29K	Ultraviolet Light	Page 2 is UV dull compared to page 1 and page 3 which are both UV bright.
	Visual Examination	The texture of page 2 differs from that of page 1 and page 3.
	Overlays	The puch holes do not align, page 2 punch holes do not align with that of page 1 and page 3, which do align when stacked together.
KPBFJ7	Macroscopic Examination	The tone of the white of the paper on page 2/3 is different from the tone offered on pages 1/3 and 3/3. The size and position of the three holes drilled on page 2/3 are different from those on pages 1/3 and 3/3. The printing technology used to make the three pages of the document was identical, a monochrome electrostatic printer. There are no macroscopic differences that allow us to affirm the use of different printers.
	Magnetism detector	The result of the magnetic scanning of the electrostatic prints does not reveal the use of a toner of a different composition on page 2/3 compared to pages 1/3 and 3/3.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	The left margin of the texts and tables on page 2/3 is different from that shown on pages 1/3 and 3/3.
	Ultraviolet Light	The luminescent reaction of the paper on page 2/3 is different from that offered on pages 1/3 and 3/3.
	Oblique Light	There is indented text on the surface of page 3/3 that does not appear handwritten on pages 1/3 and 2/3.
	Indented Writing	Indentations are revealed on folio 3/3 that read: 7/11/23 F/V-PT reports abdominal pain. This inscription corresponds to the location of the notes record on page 2/3, specifically under the annotation of 6/11/2023, but in this case there is no text.
KQ8Z87	ESDA	INTENT MARKS WERE LOCATED ON SHEET NUMBER 3/3, WHICH CAN BE READ AS: "11/7/23 P.T. REPORTS ABDOMINAL PAIN."
	Macroscopic/ Microscopic Examination	A DIFFERENT PERFORATION WAS LOCATED ON SHEET NUMBER 2/3 WITH RESPECT TO SHEETS NUMBERS: 1/3 AND 3/3.
	Video Spectral Comparator (VSC)	
	DOCUMENT ALTERATION ANALYSIS METHOD	THE STUDY WAS CARRIED OUT USING THE DOCUMENT ALTERATION ANALYSIS METHOD
KTXYK4	Macroscopic/ Microscopic Examination	Inconsistencies in physical characteristics were observed between page 2 of Item 1 (Item Q1) and the remaining pages (such as the alignment and size of hole punches on page 2 compared to the other pages). All of the pages of Item 1 (Item Q1) were prepared with a toner printing process (magnetic toner).
	Indented Writing	Indented writing was observed on page 3 of Item 1 (Item Q1) using oblique lighting and electrostatic processing and is best read as “11/7/23 F/U – PT. reports abdominal pain”. This indented writing was not attributed to any visible writing on Item 1 (Item Q1).
	Video Spectral Comparator (VSC)	Page 2 of Item 1 (Item Q1) displayed different optical responses when tested with ultraviolet (UV) and infrared luminescence (IRL) compared to pages 1 and 3.
	Transmitted Light	No watermarks were observed on any of the pages of Item 1 (Item Q1).
KU78R4	Visual Examination	Noticed that holes on page 2 do not align with holes on pages 1 and 3. Page 2 is a slightly different color than pages 1 and 3.
	Oblique Light	No impressions noted on any page.
	Video Spectral Comparator (VSC)	Transmitted Light - Confirmed that holes align on pages 1 and 3, but do not align with page 2. Spot Lighting - Bright threads are noticeable only on page 2, but not on pages 1 and 3 under similar lighting conditions. UV Light - When directly compared, page 2 appears darker than pages 1 and 3.
KX4AAL	Video Spectral Comparator (VSC)	Magnification and flood light, paper punch holes of "page 2/3" is not in line with the puncher holes of "page 1/3" and "page 3/3".The component of paper in terms of colour and paper fibres on "page 2/3" differs with that of "page 1/3" and "page 3/3".Magnification and Ultra violet light(UV) "page 2/3" has UV fibres and the paper is UV dull, whereas "page 1/3" and " page 3/3, " there are no UV fibres and the paper is UV bright.

TABLE 2

WebCode	Methods/Techniques	Observations
L7CVVX	Visual Examination	The 3 holes or perforations in the support do not coincide in location with those of sheet 2 with sheets 1 and 3. Sheet 2 has a yellow tone compared to sheets 1 and 3
	Microscopic Examination	Printing the title of sheet 1, smaller and more separated granules are observed compared to sheet 2 where the printing dots have a higher concentration of toner
	Video Spectral Comparator (VSC)	Left lateral white light, on leaf 3 middle area, traces of handwritten writing grooves.
LB9BQZ	Visual Examination	When carrying out the study, it is observed that the questioned document is made up of three sheets of paper, letter size, bond type and each of these sheets has 3 circular holes (perforations) in a linear manner throughout its upper third.
	Macroscopic/ Microscopic Examination	When carrying out the analysis, it is observed that the three pages of the document are printed using a laser printer with black toner ink, however, it is identified that the printing of the text on sheet Q1B (sheet 2/3) presents a greater amount of toner particles, so it does not have the same characteristics with respect to the Q1A (sheet 1/3) and Q1C (sheet 3/3) sheets, presenting a smaller amount of toner particles.
	Transmitted Light	When carrying out the analysis, it is observed that when superimposing the three sheets that constitute the questioned document and applying transmitted light, they have different alignment of the holes (perforations), so the holes of Q1B (sheet 2/3) do not coincide with those that present Q1A and Q1C (sheets 1/3 and 3/3).
	Ultraviolet Light	When performing the analysis with ultraviolet light, it was observed that the three sheets present a fluorescence, this is because it is a commercial paper; Likewise, leaf Q1B (leaf 2/3) presents a lower intensity fluorescence than leaves Q1A (leaf 1/3) and Q1C (leaf 3/3), which present a higher intensity fluorescence; Therefore, it is noted that sheet Q1B (sheet 2/3) is different from sheets Q1A (sheet 1/3) and Q1C (sheet 3/3), being an alteration by interfoliate addition where said sheet identified as Q1B (sheet 2/3).
	ESDA	WRITING GROOVES ON SHEET 3/3 WHICH WHEN REVEALED WITHIN EQUIPMENT WITH ELECTROSTATIC WRITING DETECTION SYSTEM (ESDA 2/B), THE LEGEND IS IDENTIFYED: "11/7/23 F/U - PT reports abdominal pain"
LDEVFK	Video Spectral Comparator (VSC)	The questioned documents, Page 1— Page 3, were viewed macroscopically and microscopically and with the aid of various light sources and filters using the Video Spectral Comparator (VSC). The documents appeared to be printed using the same print process. No alterations were observed under UV or IR lighting. Possible latent writing impressions were observed on Page 3 when oblique lighting was used.
	ESDA	The questioned documents were processed for latent writing impressions using the Electrostatic Detection Apparatus (ESDA). Latent writing impressions were developed on the front and back of Page 3.

TABLE 2

WebCode	Methods/Techniques	Observations
LH9QF8	Video Spectral Comparator (VSC)	Flood: all pages - black toner printing on white bond paper / no ink pen entries / no authenticating features like an ink seal or a signature / horizontal banding (lighter and darker areas of printed toner) visible on page 2, but not pages 1 and 3. Side light: all pages - fibrous paper, not highly calendared / indentations of handwritten text are visible on page 3, none are present on pages 1 and 2. Transmitted light: no watermark, page 2 contains many visible light brown fibers / pages 1 and 3 do not. Ultraviolet 365: page 2 is fairly UV dull / pages 1 and 3 are optically brighter. Spot fluorescence: page 2 has numerous reactive fibers / none were apparent on page 1 / page 3 has very few. Spectrometer: reflectance graph for page 2 is different than for pages 1 and 3 / absorption results were similar for all three pages. Measurements of three-hole punched holes: documented different location and size of the holes on page 2 when compared to pages 1 and 3
	ESDA	Conditions: temperature was 66 at start – 77 at the end / 24% humidity / verification test revealed the writing on a sample page / page 3 contains a single line of indented handwritten text "11/7/23 F/-- PT. reports abdominal pain" (the letter(s) after the F/ resemble a "u" but may be something else). No indented content was revealed on pages 1 and 2
	Microscopic Examination	Stereo microscope: printed material is black toner of similar quality between the three pages / the paper for all three pages has fairly long fibers, page 2 has many visible light brown fibers and pages 1 and 3 do not
	Micrometer	Digital micrometer: measurements of the three pages vary based on handling/conditions. When recently removed from the envelope/protective cardstock, page 2 is thinner than pages 1 and 3, the average thicknesses are: page 1 - .105mm / page 2 - .103mm / page 3 - .106mm, but after remaining separated on a countertop, in ambient conditions, the average measurements are different: page 1 - .1mm / page 2 - .99mm / page 3 - .103mm. Due to the variability and relatively small differences in thickness, the forensic significance could not be determined.
	Ruler	Galaxy Guage: each page is approximately 8.5 x 11 inches
	Scale	Gram scale: weights for each page were averaged, and the values used to calculate the base weight of the pages. The weights are as follows: page 1 (4.66g/4.63g), page 2 (4.66g/4.69g), page 3 (4.6g/4.59g). The base weight for each page is 20lb. Since the variation between pages is relatively small, the forensic significance could not be determined.
LHGGXJ	Video Spectral Comparator (VSC)	- VSC 6000 Magnification and flood light for physical match of the documents. - A perfect physical match was observed on punch holes between page 1 and 3. - No perfect physical match was observed on punch holes between pages 1,2 and 3.
	Ultraviolet Light	-Paper fibers were observed on page 2 under UV light. - No paper fibers were observed on pages 1 and 3 under UV light.
	Visual Examination	-Misaligned table row was observed on page 2.

TABLE 2

WebCode	Methods/Techniques	Observations
LM4KD9	[No Methods Reported.]	- ocument with three pages, of which page 2 differs visually from page 1 and page 3 in daylight and under UV light. Page 2 has a darker fluorescence than pages 1 and 3. - The perforations on side 2 are larger than the perforations on sides 1 and 3. - The page numbers at the bottom right of each page are only congruent on pages 1 and 3. On page 2, the page number is shifted sideways. - Analytical toner measurements were carried out using FTIR. The toner of the individual pages cannot be differentiated. - All sides were weighed using scales. No differences were found. - There are no handwritten entries on any of the pages. - ll pages were printed using a toner-processing printing system. No bitmaps are available.
LP964U	ESDA	Evidence of writing on page 3. Specifically there is evidence retreived of writing that took place on an unknown document whilst over page 3. The content of the writing is clearly readable and confirms the scenario of the patient, detailing a phonceall regarding abdominal pain on November 7.
	Oblique Light	Indentations of writing are visible.
	Paper examination	The paper substrate of page 2 appears different from pages 1 and 3.
LQLJQ4	ESDA	Item 1 (Item Q1) page 3 contains indented writing that is not observed on pages 1 or 2
	Video Spectral Comparator (VSC)	Item 1 (Item Q1) page 2 reacts optically different under ultraviolet light than pages 1 and 3
	Ruler	Item 1 (Item Q1) page 2 holes on left side of page are approximately .8cm in diameter and do not align with holes on pages 1 and 3 which are approximately .7cm in diameter
LYEU4J	Video Spectral Comparator (VSC)	Using IR and UV indicated that that hue and luminescence of pages 1 and 3 was similar while the hue and luminescence of page 2 differed. Transmitted light showed that the texture of page 2 differed from that of pages 1 and 3. indented writing was found on page 3 using oblique light. All 3 pages were printed in black toner.
	ESDA	Indented writing on page 3 read:" 11/7/23-F/U PT reports abdominal pain".the location of the indented writing on page 3 corrosponds with the location of the second empty line in the tanle on page 2.
	Macroscopic/ Microscopic Examination	Under a microscopic examination brown fillaments were seen on page 2. These were abscent from pages 1 and 3. In addition, the punch holes in pages 1 and 3 aligned and were similar in shape and size. The punch holes in page 2 differed from those in page 1 and 3.
	magnetic ink detector	All pages were printed in magnetic ink.
	Micrometer	All pages were of the same thickness
MGGUQD	Macroscopic/ Microscopic Examination	Pages are US Letter size. All printed entries produced using black toner. Each page contains 3 x hole punches. The hole punches on Pg1 and Pg3 are in alignment and the same size. The hole punches on Pg2 are not in alignment with those on Pg1 and Pg3 (in comparison to the edge of the page). Additionally, the size of the hole punches on Pg2 are larger than on Pg1 and Pg3.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	No indentations detected on Pg1 and Pg2. The following is my interpretation of the indentations detected on Pg3 that have originated from an unknown source: "11/7/23 F/U - PT. reports abdominal pain". These indentations are consistent with the information received from the patient, SMITH. If the pages were in alignment, the positioning and the content of these indentations are consistent with row 2 of the dates/progress notes table on Pg2.
	Video Spectral Comparator (VSC)	Pg1 and Pg3 displayed similarities under a variety of lighting conditions, including white light, transmitted light, UV, and IRL. P2 displays some differences to Pg1 and Pg3 under UV, some IRL conditions and a small colour difference observed under white light.
MHMCPA	Macroscopic/ Microscopic Examination	Printing – Black only toner on Pages 1-3. Paper type – Page 2 has visible brown paper fibres as if more 'recycled' than Pages 1 & 3. Punched holes - The holes on Page 2 show more jagged edges to those on Pages 1 & 3
	Ruler	Paper Size - All pages are US 'letter' size. Punched holes - Page 2 holes are 8mm diameter, Pages 1 & 3 holes are 7mm diameter
	Overlays	Punched holes - Holes on Page 2 do not align with holes on Pages 1 & 3 as different sizes. Printed text misalignment - For example, printing of page numbering on Page 2 misaligned with printing of page numbering on Pages 1 & 3
	Video Spectral Comparator (VSC)	Paper type - Page 2 is UV dark and shows many IR luminescing paper fibres compared to Pages 1 & 3. Printing - Indistinguishable between Pages 1-3 using IR absorption and IR luminescence
	Magnetic Viewer	Printing - None of the pages showed magnetic printing toner
	ESDA	Indented impressions visualised on front of page 3 (firstly using oblique light and then ESDA) and interpreted as follows: 11/7/23 F/U - PT. reports abdominal pain. These impressions align with the second row of the Progress Notes on Page 2
MW2UAW	Microscopic Examination	The three-page questioned document is printed with toner technology and each page contains a three-hole punch. The three-hole punch on page two is different from the three-hole punch on pages one and three with respect to hole punch size and perforation alignment.
	Video Spectral Comparator (VSC)	The three-page questioned document was examined and images captured with the VSC. The three-hole punch and UV characteristics of page two are different from the three-hole punch and UV characteristics of pages one and three. Indented writing visualized on page three. There is no handwriting on preceding pages one or two.
	ESDA	ESDA examination of the three-page questioned document resulted in indented writing on page three. Indented writing deciphered as, "11/7/23 F/U - PT. reports abdominal pain." Paper transport mechanism impressions observed on page two were not observed on pages one and three.
N2WVWW	Microscopic Examination	The three-page medical record (pages 1/3, 2/3 and 3/3), due to its characteristics, is printed by a laser computer terminal (printer) on letter-size sheets. The content of the three pages is legible, there is uniformity in the tonality of the texts, there is no release of ink, wear of the paper mass, traces of erasure, scraping or addition of strokes, thus ruling out that there is alteration in the texts.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Pages 1/3 and 3/3 differ in the substrate or paper; Pages 1/3 and 3/3 under the effects of ultraviolet light reflect greater luminosity (optical brighteners) than page 2/3, this is opaque in relation to the previous two, however the thickness of the paper of the three sheets It's similar. Analyzing the documents through the "VSC 4 Plus" at different frequencies or light ranges, it was possible to establish that page 2/3 contains fibers in the paper mass throughout the pulp, which pages 1/3 and 3/3.
	Micrometer	The pages of the medical chart are perforated (with three holes) at the top; The holes on pages 1/3 and 3/3 when superimposed coincide in size, the edges are irregular, compared to the holes on the document on page 2/3 they do not correspond, these are larger, through the microscope and magnifying glasses you can see some jagged edges. The dimensions of the holes obtained with the digital caliper (vernier caliper) on "page 2/3" are approximately 8.85mm. Those on pages 1/3 and 3/3 are approximately 7.06mm.
NAQJP2	Ultraviolet Light	The writing on the second page of the medical record "B" is relatively darker in comparison to the writing of the first "A" and the third page "C" which are lighter.
	Video Spectral Comparator (VSC)	The upper-darker row of the table on the second page of the medical record "B" is not even in size compared to the rest of the table which indicates that it was not part of the table initially (insertion).
	Video Spectral Comparator (VSC)	The first page "A" and the third page "C" of the medical record consist of aligned puncture-holes when they are superimposed whilst both (A & C) do not align with the second page "B" when they are superimposed.
NH73A2	Visual Examination	The physical appearance of the pages is different. Page 2 is slightly cream in color while Page 1 and Page 3 are pure white in color.
	Transmitted Light	When viewed under transmitted light of the VSC the punched holes on page 1 and page 3 are in perfect alignment , however page 2 is not in alignment with both page 1 and page 3.
	Ultraviolet Light	1. When viewed under the UV light of the VSC there are visible fibres on page 2, however no fibres are visible on page 1 and page 2. 2. The ink on the page numbers is darker on page 2 than it is on page 1 and page 3. 3. The holes inside in the ink deposits are smaller on page 2 than on page 1 and page 3.
P3P7AB	Visual Examination	Naked eye: The paper color of page 2 is different from the paper color of page 1 and 3. The three punch holes of page 2 are bigger than the punch holes of pages 1 and 3.
	ESDA	Pages 1 and 2 do not show any handwritten entries. The latent image of the handwritten entries "11/7/23 F/IL – PT. reports abdominal pain." were found on pages 3.
	Macroscopic/ Microscopic Examination	Keyence Microscope: The morphology and the diameter of the three punch holes of page 2 are different than the punch holes of pages 1 and 3.
	Magnetic examination: Regula Model 4197	All the three pages of the Q1 agreement use a dry black magnetic toner.
	Video Spectral Comparator (VSC)	Optical Examinations with VSC-8000: The paper of page 2 shows a different behavior using Infrared Reflection (IRR), Infrared Luminescence (IRL) and UV light illumination.
	Metrical Examinations	The paper surface morphology as well as the metrical and physical properties such length, width, thickness and grammage of page 2 is different from pages 1 and 3.

TABLE 2

WebCode	Methods/Techniques	Observations
PDQUL2	Video Spectral Comparator (VSC)	1.Video Spectral Comparator (VSC) Magnification and Flood light for examination. 2.Video Spectral Comparator (VSC) Magnification and Ultraviolet (UV) light for examination.
PFWWAX	Video Spectral Comparator (VSC)	Likewise, with the use of wide field of vision equipment such as the document comparator, exposure to different magnifications and the incidence of different lighting sources, all the pages of the clinical history are inspected to observe if under the ultraviolet light of 365nm, present changes in the substrate or some type of alteration, evidencing that folio 2-3 presents changes in chromatic tone throughout the substrate, as well as in the text MEDICAL PROGRESS, different from what is evident in folios 1/3 and 3 /3 have the same behavior on the substrate as in the texts.
	Visual Examination	Subsequently, through direct observation (visual examination), a macroscopic and microscopic analysis is carried out on the pages of the medical history, which have three perforations in the upper part, and when the page identified as 2-3 is placed on top, the perforations present a different diameter than sheets 1-3 and 3-3, in addition the location of the perforations of sheet 2-3 with respect to the edge of the sheet is shorter, contrary to the distance between the edge of the sheets and the perforations of folios 1-3 and 3-3 is broader. It was also observed that the substrate of sheets 2-3 has a different chromatic tone than sheets 1/3 and 3/3.
PHHTHN	Transmitted Light	An examination of all three pages showed consistency with the placement and alignment of the hole punches located on pages 1 and 3. These same elements on page 2 were not consistent with pages 1 and 3.
	Visual Examination	The paper for pages 1 and 3 may contain more optical brighteners than the paper for page 2. Thus the paper on pages 1 and 3 appeared whiter and brighter when compared to page 2.
	Visual Examination	The hole punches on pages 1 and 3 contained similar irregularities cause by the hole punch device. These "irregularities" in the hole punches on page 2, were not visible.
PTXNV3	Macroscopic/ Microscopic Examination	Using a stereomicroscope, it was determined all 3 pages were produced with toner using an office machine system.
	Visual Examination	Differences were noted between the hole punches in size and shape. The hole punches on pages, 1,3 compared to page 2 were different. Side lighting detected impressions on page 3
	Video Spectral Comparator (VSC)	Using the VSC, Differences were noted between pages 1 and 3 compared to page 2 under UV 365m, and IRL illumination.
	ESDA	Indented writing impressons were developed on page 3, appeared to read "11/7/23 F/M - PT reports abdominal pain." No impressions were developed on page 1 and 2.
PWGM9X	Overlays	Once the corresponding inspection has been carried out on each of the pages of the medical record, it is seen that page No. 2 presents inconsistencies in relation to pages 1 and 3. These differences correspond to: 1. Different type of paper, which is evident in opacity, whiteness and different reaction to UV radiation. 2. Offset in the drilling of the binder holes. 3. Another aspect that is not very decisive but is evident is the report shown on page 2, which is in bold.
	Visual Examination	
	Video Spectral Comparator (VSC)	

TABLE 2

WebCode	Methods/Techniques	Observations
PZED7W	ESDA	Impressions found on page 3 reading "11/7/23 F/U PT Reports abdominal pain"
	Video Spectral Comparator (VSC)	UV illuminations shows page 2 reacts differently to pages 1 and 3
	Microscopic Examination	Toner and font appear similar throughout on all three pages but cannot say whether same printer used.
QD3Q7C	Macroscopic/ Microscopic Examination	Holes from hole puncher did not align in all 3 pages
	Video Spectral Comparator (VSC)	There was fluorescence in page 2 but not in pages 1 and 3
QMA6BY	ESDA	Indented writing found on page 3 with text corresponding to allegations
	Visual Examination	Hole punch discrepancies
	Ultraviolet Light	Discrepancies in page luminescence
QMJJAT	Vacuum box	Searching for traces of crushing : - Page 1 : Recto/Verso: Tool marks. - Page 2: Recto: Negative, Verso: Tool marks. - Page 3: Recto: Tool marks + handwritten notes "11/7/23 F/U - PT. Reports abdominal pain". Verso: Handwritten notes "11/7/23 F/U - PT. Reports abdominal pain" legible in reverse. - The tool marks on the fronts of pages 1 and 3 are identical. - The tool marks on the reverse of pages 1 and 2 are identical. - The position of the handwriting revealed on page 3 corresponds to the position of line 2 on page 2.
	Video Spectral Comparator (VSC)	- The 3 pages are printed in magnetic toner, in monochrome mode. - The paper on page 2 is different from that on pages 1 and 3. - The appearance of the paper on page 2 is more "yellow". - The epair of the paper on page 2 is different. - It reacts differently to UV and spot fluorescent lighting. - Under high magnification, the contours (edges and perforations) are less sharp than on pages 2 and 3. - The perforations are different: - Pages 1 and 3: They are located ~ 0.9 cm from the edge of the sheet and have a diameter of ~ 0.6 cm. - Page 2: They are located ~ 0.6 cm from the edge of the sheet and have a diameter of ~ 0.8 cm.
QRHNCD	Video Spectral Comparator (VSC)	The UV properties of page 2 of Q1 are different than the UV properties of pages 1 and 3. Using the spot (IR) settings page 2 of Q1 contains a higher number of luminescent fibers than pages 1 and 3.
	ESDA	Indented writing in the form of "11/7/23 Flu PT. reports abdominal pain" was developed on page 3 of Q1. No indented writing was developed on pages of 1 and 2 of Q1.
	Macroscopic/ Microscopic Examination	The hole punches on page 2 of Q1 are not in alignment with the holes on pages 1 and 3. The hole punches on pages 1 and 3 are in alignment. No differences were noted between the printing process or font on pages 1, 2 and 3 of Q1.
QRKY3X	Ultraviolet Light	The printing on page 1/3 and page 3/3 of the medical record is fading away while the printing on page 2/3 remain intact under UV light.
	Ruler	The punched hole sizes of page 2/3 are bigger than punched hole sizes of page 1/3 and page 3/3.
	Visual Examination	The black column written “DATE/ PROGRESS NOTE” on page 2/3 is misaligned from the rest of the table.

TABLE 2

WebCode	Methods/Techniques	Observations
QTCEHR	Visual Examination	The second page of the medical record presents a different tonality. The three circular holes on page 2 do not match with the holes on pages 1 and 3. They are bigger. They have not been done simultaneously.
	Microscopic Examination	Characteristics of printed texts. Differences have been detected on sheet 2, with a higher black toner load than on sheets 1 and 3. Differences in the paper fibers on page 2.
	Indented Writing	On sheet 3, PATIENT VISIT SUMMARY, there is writing indented with the text "11/7/23 F/U PT reports abdominal pain". Its position on this sheet 3 corresponds to the second line on sheet 2, "MEDICAL PROGRESS", below the annotation of the phone call of 11/6/23. Specifically, the date text (11/7/23) fits in the "DATE" box and the rest of the text fits in the elongated "PROGRESS NOTES" box.
QTVDEQ	Visual Examination and Low Power Microscopy	All three pages of Q1 have been produced with dry toner. The printing on page 2 in the header appears slightly darker than on pages 1 and 3, but without further examples of this type of document no inference can be drawn. The punch holes on pages 1 and 3 are similar in size and align with each other. The punch holes on page 2 do not align with those on pages 1 and 3, and these holes are larger in size and have a serrated edge which is not seen in the holes on pages 1 and 3. This shows they were punched using a different machine. The information provided states that the three page document would be printed on the first in-house visit which appears to be 2/11/23 and yet page 2 has a printed entry dated 6/11/23.
	Video Spectral Comparator (VSC)	The paper of page 2 differs from pages 1 and 3 under UV fluorescence.
	ESDA	Impressions of writing were found in page 3 and were interpreted as: "11/7/23 F/U - PT. reports abdominal pain." The position of these impressions corresponds with the next available row of notes on page 2.
QX9XLC	Macroscopic/ Microscopic Examination	Visible differences noted between pages 1/3 and page 2, e.g., paper color, 3-hole alignment & size.
	Video Spectral Comparator (VSC)	UV differences between pages 1/3 and 2.
	Indented Writing	Oblique lighting shows indented writing on page 3, ESDA shows latent text as the note made on the medical record after the patient's call (according to the case scenario). Further, this handwritten note aligns with the data field for medical information.
QXR6K2	Macroscopic Examination	Visually page 2 appears more yellowish than pages 1 and 3. The position and shape of the holes on page 2 appears to be different than those on pages 1 and 3. Moreover, the doctor's office has informed the investigator that all three pages of the record are printed together at the same time for every in office visit. Given that the patient's in-office visit was on November 2nd, 2023, the printed entries from November 6th (i.e. 11/6/2023 F/U - PT reports no change in symptoms. Recommend continuation of medication) on page 2 are anachronistic.
	Microscopic Examination	All three pages have been printed with an electrophotographic printing process with black toner. There is no inconsistency within the three pages regarding the font, spacing, and printing process used. No CPS code was observed on any of the pages. Visual disturbance of fibers on page 3 was also observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Digital Microscopy	Punch holes on page 2 have jagged edges compared to those on pages 1 and 3. Furthermore, the diameter of the holes was measured and was larger for the holes on page 2 compared to those on pages 1 and 3. The position of the holes is also different for the holes on page 2 compared to the holes on pages 1 and 3. The spacing between the three holes is similar for every page.
	ESDA	No indented writings were revealed on page 1 and 2. There is an unsourced indented entry that was revealed on page 3, that reads: 11/7/23 F/U - PT reports abdominal pain. The ESDA lift of page 3 was overlaid on page 2. The indented entry on page 3 aligns with the second row of the table on page 2.
	Digital Imaging	Digital images of the pages were overlaid. The holes on pages 1 and 3 overlaid perfectly, while the holes on page 2 were offset. No CPS code was observed using the yellow channel on all pages.
	Magneto spectral comparator (MagMouse)	The black toner on all pages exhibited magnetic properties.
	Video Spectral Comparator (VSC)	Comparison of the response of all three pages under various lighting conditions was conducted. Page 2 showed different optical properties than pages 1 and 3.
QZENLY	Docucenter Nirvis	When submitting the document to the Docucenter Nirvis equipment, we found and confirmed the characteristics of the type of printing; as well as the difference between the characteristics of the titles printed in the upper left part of each one of the pages with the title printed in the upper right part of page number 2. On the other hand, we observed slight writing grooves on page 3.
	ESDA	When the document was submitted to the ESDA 2 equipment, writing grooves were observed; these were revealed.
	Stereoscope	When the document was submitted to the stereoscope, characteristics of the type of impression contained in the document were observed.
R262TN	Indented Writing	Using oblique lighting and EDD, no decipherable impressions were developed on Item 001 page 1 or Item 001 page 2. Using oblique lighting and EDD, decipherable indented impressions that are not attributed to original writing on Item 001 (pages 1 and 2) were developed on Item 001 (page 3). The impressions on Item 001 page 3 appear to read "11/7/23 F/U - PT. reports abdominal pain."
	Macroscopic/ Microscopic Examination	Item 001 (pages 1, 2, and 3) were printed with black toner in landscape orientation. Item 001 (pages 1, 2, and 3) each have three holes punched along the top (long side when printing is oriented for writing). Holes punched in pages 1 and 3 align when the documents are stacked. Holes punched in pages 1 and 2 do not align when the documents are stacked. Holes punched in pages 2 and 3 do not align when the documents are stacked. No apparent stains, signs of previous wetness, or erasures. When examined with a stereomicroscope, Item 001 page 2 has yellow-ish paper fibers but Item 001 pages 1 and 3 do not.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Item 001 (pages 1, 2, and 3) do not contain a watermark. Item 001 page 1 is UV reactive and has IR reactive paper fibers. Item 001 page 2 is UV reactive and has IR reactive paper fibers. Item 001 page 3 is UV reactive with no IR reaction. In a side-by-side comparison, Item 001 page 1 appears UV brighter than Item 001 page 2; both pages have IR reactive fibers but quantity of fibers on Item 001 page 2 are denser than Item 001 page 1. In a side-by-side comparison, Item 001 page 1 and Item 001 page 3 appear equally UV reactive; Item 001 page 1 has some IR reactive fibers and Item 001 page 3 has no IR reactive fibers. In a side-by-side comparison, Item 001 page 3 appears UV brighter than Item 001 page 2; Item 001 page 3 has no IR reactive fibers and Item 001 page 2 has many IR reactive fibers.
R4RNKC	Microscopic Examination	Pages one through three of the Exhibit Q1 medical record were prepared with an office machine system that utilizes dry black toner.
	Ruler	Each page of the three-page Exhibit Q1 medical record contain holes that are consistent with a three-hole punch. The holes in page two are not in alignment with the holes in pages one and three. The holes in pages one and three are consistent with one another. The printed left margin and footer for page two of the Exhibit Q1 medical record is aligned differently than pages one and three. The printed left margins and footers on pages one and three are consistent with one another. Further, there is some typing in bold on page two for the Date and Progress Notes entries dated "11/6/2023." Typing in bold does not appear for the entries for notes and other typed information on pages one and three.
	Transmitted Light	No differences were noted (no watermarks) on pages one through three of the Exhibit Q1 medical record.
	Ultraviolet Light	The paper used to prepare page two of the Exhibit Q1 medical record has different optical properties than the paper used to prepare pages one and three. The paper used to prepare pages one and three fluoresce the same.
	Indented Writing	Evidence of indented writing appears on page three of the Exhibit Q-1 medical record that reads "11/7/23 F/U – PT. reports abdominal pain." The location of this indented writing is consistent with the empty spaces for Date and Progress Notes below the typewritten information that appears on page two dated "11/6/2023." Writing matching this indented entry does not appear on page one or two of the Exhibit Q1 medical record.
	Micrometer	The paper used to prepare page two (<.004") of the Exhibit Q1 medical record is a different thickness than the paper used to prepare pages one and three (≈.004"). The thickness of the paper used to prepare pages one and three are consistent with one another.
R9LHHD	ESDA	
	Macroscopic Examination	
	Video Spectral Comparator (VSC)	
RUDEME	Macroscopic/ Microscopic Examination	The column "DATE/ PROGRESS NOTE" on the document marked as "Q2" (page 2) is misaligned from the rest of the columns contained on the document under flood/white light and microscopic examination.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	The printing contained on the documents marked as "Q1" (page 1) and "Q3" (page 3) exhibits a different reaction under UV light exposure as the printing contained on the document marked as "Q2" (page 2) (i.e. has a fading effect which makes the word "page" on these documents almost illegible). The printing on the document marked as "Q2" (page 2) however, exhibits a clearly different reaction under UV light exposure as the printing remains clearly visible and has an almost fluorescing effect.
	Transmitted Light	Differences in respect of the punched holes sizes were observed between the document marked as "Q2" (page 2) and the documents marked as "Q1" (page 1) and "Q3" (page 3) under flood/white light, UV light exposure and exposure to transmitted lighting.
RYD74U	ESDA	Indented writing "11/7/23 F/U – PT. reports abdominal pain." was lifted on page 3 of Item Q1.
	Video Spectral Comparator (VSC)	Oblique light: Indented writing observed on page 3. Transmitted light: Dissimilarities observed for the paper substrate of page 2 when compared to page 1 and page 3. Ultraviolet light: Exclusionary differences observed for the luminescence of the paper on page 2 when compared to page 1 and page 3.
	Ruler	Exclusionary differences observed for the alignment and diameter of the punched-out holes on page 2 when compared to page 1 and page 3.
	Microscopic Examination	No exclusionary differences observed for the printing process on the 3 pages.
T9TYKD	Ultraviolet Light	Page 1 and page 3 differs from page 2 under ultraviolet light.
	Magnification	The puncture holes of page 2 differs from page 1 and page 3
	Video Spectral Comparator (VSC)	The paper fibers of page 2 are different from page 3 and page 1. The black highlighted raw on page 2 shows signs of misalignment probably as a result of insertion
TB8Q4X	Ultraviolet Light	It is evident that the whiteness of the three attached supports, two are the same and one different
	Visual Examination	It is observed that the circumference of the holes in two supports is the same and one is different
TCFY9C	ESDA	The questioned documents, Items 1A-1C, were examined for the presence of any indented writing, typing or other identifying impressions. These are impressions sometimes left on paper from writing, typing, or other markings done on another page while it was superimposed over the questioned material. The following impressions were recovered: Item 1C Front - Unsourced impressions that appear to read "11/7/23 F/u - PT. reports abdominal pain." Mechanical transport device impressions (roller marks) were recovered in the front and back of the questioned documents.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	The Items 1A and 1C sheets of paper exhibited similar class characteristics, such as size, color, and response to ultraviolet and infrared light sources indicating they may share a common source. However, when these documents were compared to the Item 1B sheet of paper, there was a difference observed in some class characteristics such as color and response to ultraviolet and infrared light sources. Therefore, due to these differences in class characteristics, the 1B sheet of paper does not share a common source with the 1A and 1C sheets of paper. Various microscopic examinations, including examinations with different light sources were performed on the questioned documents, Items 1A-1C. These examinations did not reveal characteristics associated with eradications or obliterations.
	Visual Examination	The questioned documents, Items 1A-1C, were each observed to contain a 3-hole punch pattern. The diameter of the punch holes on Item 1B was found to be larger than the punch hole diameter on Items 1A and 1C. In addition, the alignment of the 3-hole punch pattern on Item 1B was different to the alignment located on 1A and 1C.
	Microscopic Examination	The machine printing on Items 1A-1C was produced with an office machine system utilizing black toner. Toner is utilized in some office machines such as laser printers, photocopiers, and facsimile devices.
TMWRBR	Visual Examination	Clearly the punched hole for paper 2 is miss aligned compared the paper 1 and paper 3.
	Ultraviolet Light	The paper 2 shows reaction under the UV light appear darker compared to paper 1 and paper 3.
	Ruler	The distance of the top left hole to the top margin of paper on 2nd paper is differs than other two which is it is 0.6mm while other two papers is 0.9mm to the top of the papers.
TPPEG3	Visual Examination	- each page has 3 round holes; the holes on the 1st and 3rd page have a comparable diameter, but the holes on the 2nd page are much larger; - holes on 2nd page are closer to the Edge of the page than holes on 1st and 3rd page; - on 3rd page, in the „REASON FOR VISIT", „DIAGNOSIS" „TREATMENT SUMMARY" column line, were observed brighter areas
	Microscopic Examination	- the paper of „Page 2/3" has characteristic yellow fibers that are not found in other papers of questioned documents; - all contents of all three pages were printed by use black laser jet technique; - there were no differences in the structure of black toner beetween the pages; - on 3rd page, in the „REASON FOR VISIT", „DIAGNOSIS" „TREATMENT SUMMARY" column line, were observed: brighter areas-toner loss and slight writing indentations in the paper
	Analitycal scale	the paper of 2nd page is heavier than pages one and three - it has a higher grammage

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	- the paper of „Page 2/3" has characteristic yellow fibers that are not found in other papers of questioned documents; - all contents of all three pages were printed by use black laser jet technique; - there were no differences in the structure of black toner beetween the pages; - each page has 3 round holes; the holes on the 1st and 3rd page have a comparable diameter – about 7mm, but the holes on the 2nd page are much larger - about 7,8mm; - holes on 2nd page are closer to the edge of the page than holes on 1st and 3rd page; - observation in VIS, UV, IR showed that optical properties of 1st and 3rd page are different than 2nd page; - observation in oblique light showed indentations from handwriting on 3rd page, in the „REASON FOR VISIT", „DIAGNOSIS", „TREATMENT SUMMARY" column line; indentations in „REASON FOR VISIT" were read as „11/7/23" Analysis after ESDA examination: – observation in mix image mode showed that indentation revealed by ESDA on 3rd page match to the second row of the "DATE" and "PROGRESS NOTES" columns on 2nd page
	ESDA	on 3rd page were revealed indentations in the „REASON FOR VISIT", „DIAGNOSIS", „TREATMENT SUMMARY" column line which were read as „11/7/23 F/U PT reports abdominal pain"
TQ4N3V	ESDA	By making use of an electrostatic detection apparatus, indentations of writing were made visible on Page 3 of the medical records, indicating that the writing was executed on the preceding page.
	Video Spectral Comparator (VSC)	Page 2 of the three-page medical records differs from Page 1 and 3 in respect of the paper used, as well as the size and shape of the punch holes.
TRVWFX	Visual Examination	Physical examination: paper tone, measurements and thickness.
	Ruler	Measurements of length and thickness of paper with ruler and micrometer.
	Micrometer	Diameter of the three holes and their location in front of the edge with a micrometer and ruler.
	Video Spectral Comparator (VSC)	Examination with infrared light and oblique light of the front and back of the three sheets for traces of pinch rollers. Transmitted light for fiber detection and perforation comparison. The VSC6000 with UV LIGHT, infrared light and grazing/oblique
	Overlays	Examen of the substrate with UV radiation. Examination of the fibers with magnification and magnifying lenses.
U3QP2U	Visual Examination	Page 2 is a different shade of white compared to pages 1 and 3 - matches. Hole punches at the top of page 2 does not align with pages 1 and 3 - aligns
	Video Spectral Comparator (VSC)	Page 2 reacted differently under UV
U47PKJ	Infrared Light	No significant differences were observed
	Ultraviolet Light	Document number 1 (medical record) consists of 3 pages. Upon examination with an ultraviolet light source, it was discovered that the fluorescence reaction of PAGE 2 is different from that of PAGE 1 and PAGE 3. It is assessed that the paper of PAGE 2 does not originate from the same source as PAGE 1 and PAGE 3.

TABLE 2

WebCode	Methods/Techniques	Observations
	Visual Examination	Upon examining the overlaid documents PAGE 1 to PAGE 3 under a floodlight source with localized magnification, it was found that the hole-punch positions at the top of PAGE 1 and PAGE 3 are the same, while the hole-punch position on PAGE 2 differs from PAGE 1 and PAGE 3. Upon inspecting the overlapping page numbers in the bottom right corner —Page 1|3, Page 2|3, and Page 3|3—no significant differences were observed. It is deduced that the three documents were not bound together at the same time.
U6D93R	Infrared Light	Upon exposure of the three sheets that make up the medical record of Mrs. Kendra Smith, homogeneity of the light absorption capacity was found.
	Ultraviolet Light	There was no evidence of paper damage on the three pages that make up Mrs. Kendra Smith's medical record.
	Visual Examination	The chromatic tone and larger diameters of the perforations on page 2 do not correspond to what was seen on pages 1 and 2, when according to the medical office the three documents were printed at the same time.
UGB8VJ	Infrared Light	Under the Infrared Light, it was shown that page number (2) contained luminescent fibers that was not present in pages number (1 and 3).
	Ultraviolet Light	Difference in printing quality and color vibrancy.
	Magnification	Different paper perforation (size and position) in page number (2) compared to pages number (1 and 3).
UKQFJH	Ultraviolet Light	
	Visual Examination	
	Magnification	
	Indented Writing	
	Infrared Light	
UXGAR7	ESDA	Indentations revealed on p.3: "11/7/23 F/U - PT reports abdominal pain". These indentations align with the 2nd row in the "Progress notes" field in the table on the page 2 that was received.
	Video Spectral Comparator (VSC)	Page 2 dissimilar paper stock to Pages 1 and 3
	Visual Examination	Holes at top of page line up in pages 1 and 3. The holes in page 2 do not line up with the holes on pages 1 and 3.
	Micrometer	Pages consistent thickness
	weight	Pages consistent weight
UYA6GZ	Video Spectral Comparator (VSC)	The characteristics of the page 2 are observed differently in multi-source light inspection such as UV, IR
	Overlays	The holes at the top of the paper(page 2) are located differently.
UYQGWJ	Video Spectral Comparator (VSC)	Video spectral comparator of the Projectina brand, model Docucenter Nirvis.
	Microscopic Examination	Leica stereo microscope, model S6D.

TABLE 2

WebCode	Methods/Techniques	Observations
UZ8DPJ	ESDA	I found indented impressions of writing on page 3 of Q1 which I have interpreted as: "11/7/23 F/U - PT. reports abdominal pain". I found no decipherable indented impressions of writing on pages 1 or 2 of Q1. Marks found on the ESDA lift from the back of page 2 of Q1, which could be due to paper handling mechanism (e.g. during paper manufacture). I found no marks like this on pages 1 or 3.
	Indented Writing	See ESDA
	Infrared Light	See Video Spectral Comparator (VSC)
	Macroscopic Examination	Pages 1-3 of Q1 all nominally measure 8.5 inches by 11 inches (215.9mm x 279.4mm) which equates to the US paper size called 'Letter'.
	Macroscopic/ Microscopic Examination	The punch holes in page 2 of Q1 are larger than those on pages 1 and 3, and they are closer to the upper edge of the paper compared to those on pages 1 and 3.
	Magnification	The printing on pages 1-3 of Q1 shows the features of black, dry toner which is used in black and white laser printers. The punch holes in page 2 of Q1 show significantly different edge characteristics to the equivalent punch holes on pages 1 and 3.
	Overlays	When the ESDA lift from page 3 of Q1 is overlaid onto page 2 with the page edges in alignment the position of the indented impressions which I have interpreted as: "11/7/23 F/U - PT. reports abdominal pain" align with the "DATE" ("11/7/23") and "PROGRESS NOTES" ("F/U - PT. reports abdominal pain") boxes directly below those containing the printed text "11/6/2023" and "F/U - PT. reports no change in symptoms. Recommend continuation of medication." The punch holes in page 2 of Q1 do not align with those of pages 1 and 3 when the page edges are aligned. The punch holes in page 1 and 3 of Q1 closely align with each other when the page edges are aligned
	Ultraviolet Light	The paper of page 2 of Q1 is significantly less flourescent than the paper of pages 1 and 3 when examined under a 350-380nm UV light source (peak 365nm). The paper of pages 1 and 3 show slightly different fluorescence to each other but much less difference when compared to page 2.
	Video Spectral Comparator (VSC)	The paper of page 2 of Q1 shows many fibres which are apparent under visible, UV and IR luminescence whereas the paper of page 1 and page 3 do not show these. Page 2 could be 'recycled' paper
V3LANU	Macroscopic/ Microscopic Examination	SE REALIZÓ UN ESTUDIO SIN INSTRUMENTOS OPTICOS Y CON INSTRUMENTOS OPTICOS, EN EL CUAL SE PUDO OBSERVAR QUE LA PÁGINA 2 DEL DOCUMENTO MOTIVO DE ESTUDIO DESCRITO COMO "HISTORIAL MÉDICO DE TRES PÁGINAS DE LA PACIENTE KENDRA SMITH" PRESENTA DISTINTA TONALIDAD DE IMPRESIÓN CON RESPECTO A LAS PÁGINAS 1 Y 3. LA PÁGINA 3 PRESENTA SURCOS EN PARTE CENTRAL. A STUDY WAS CARRIED OUT WITHOUT OPTICAL INSTRUMENTS AND WITH OPTICAL INSTRUMENTS, IN WHICH IT COULD BE OBSERVED THAT PAGE 2 OF THE DOCUMENT REASON FOR STUDY DESCRIBED AS "THREE-PAGE MEDICAL HISTORY OF PATIENT KENDRA SMITH" HAS A DIFFERENT PRINTING SHADE WITH RESPECT TO THE PAGES 1 AND 3. PAGE 3 PRESENTS GROOVES IN THE CENTRAL PART.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	CONTINUANDO CON EL VIDEO COMPARADOR ESPECTRAL SE UTILIZÓ PARA CONFIRMAR QUE LA PÁGINA 2 SI PRESENTA CARCATERÍSTICAS DE DISCORDANCIA CON RESPECTO A LAS HOJAS 1 Y 3 EN REFERENCIA A LA TONALIDAD DE IMPRESIÓN, LOGRANDO ACERCAMIENTOS DE ESTAS OBSERVACIONES. ADEMÁS DEL USO DE DISTINTAS LUCES EN ESPECIAL LA LUZ RASANTE PARA OBSERVAR LOS SURCOS QUE PRESENTA LA PÁGINA 3. CONTINUING WITH THE VIDEO SPECTRAL COMPARATOR WAS USED TO CONFIRM THAT PAGE 2 DOES PRESENT CHARACTERISTICS OF DISCORDANCE WITH RESPECT TO SHEETS 1 AND 3 IN REFERENCE TO THE PRINTING TONALITY, ACHIEVING APPROACHES TO THESE OBSERVATIONS. IN ADDITION TO THE USE OF DIFFERENT LIGHTS, ESPECIALLY GRASS LIGHT, TO OBSERVE THE FURROWS PRESENTED ON PAGE 3.
	ESDA	SE UTILIZÓ EL ESDA CON LAS TRES PÁGINAS DEL DOCUMENTO MOTIVO DE ESTUDIO, UTILIZANDO EN CADA UNO DE LAS PÁGINAS, OBSERVANDO QUE LA PÁGINA 3 SI CONTIENE ESCRITURA INDENTADA UBICADA EN PARTE CENTRAL Y QUE SE LEE COMO: "11/7/2023 F/U-PT Reports abdominal pain" THE ESDA WAS USED WITH THE THREE PAGES OF THE DOCUMENT UNDER STUDY, USING IT ON EACH OF THE PAGES, OBSERVING THAT PAGE 3 DOES CONTAIN INDENTED WRITING LOCATED IN THE CENTRAL PART AND READ AS: "7/11/2023 F/U- PT Reports abdominal pain"
V6B2D6	Macroscopic/ Microscopic Examination	(1) The paper color of page 2 was different from pages 1 & 3. (2) The punch holes on page 2 were closer to the long edge of the paper when compared to those on pages 1 & 3. (3) The punch holes on page 2 were bigger when compared to those on pages 1 & 3. (4) The cut edges of the punch holes on page 2 were serrated whereas the those on pages 1 & 3 were not.
	Video Spectral Comparator (VSC)	Page 1 & 3 and Page 2 displayed different optical properties under UV & spot light
	ESDA	Indented marks of handwriting “11/7/23 F/U- PT. reports abdominal pain.” were found on page 3
VFTH7C	Visual Examination	Examination with the unaided eye revealed that (1) the color of page 2 is slightly different than that of pages 1 and 3, (2) the hole punch size on page 2 is larger than those on pages 1 and 3, demonstrated when the pages are all stacked together, and (3) the entry in the table on page 2 is a bold font, whereas all other entries are not bold.
	Microscopic Examination	Microscopic and visual font examination show no clear difference in the font used on page 2 compared to that used on pages 1 and 3, aside from the bolded entry mentioned above. Microscopic examination of the printing process shows that all three pages were printed using a toner process. No differences in the toner could be detected at a magnification of 160x. No differences in the shape of the paper corners between the three pages were observed.
	Video Spectral Comparator (VSC)	Examination with the VSC using an excitation filter of 400-640 nm and a barrier filter of 695nm reveals luminescing paper fibers on page 2 but not on pages 1 and 3. Under UV (312nm), page 2 doesn't luminesce as strongly as pages 1 and 3. Using magnification from the VSC, the contours of the hole punches on page 2 are different than those on pages 1 and 3.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Handwriting impressions "11/7/23 F/U - PT. reports abdominal pain" were found on page 3 using the ESDA. Adobe Photoshop was used to show where the impressions would be found if the source of the writing had been a different, unsubmitted page 2. The ESDA lift of page 3 was first scanned at 300ppi. The original scan of page 2 was then saved as a separate image at 300ppi, and the ESDA lift scan was added as a new Layer to the page 2 image. The images were lined up, and the opacity of the ESDA lift layer was reduced to 43%. The handwriting impressions found on page 3 fit perfectly in the second row of page 2 using the overlay. ESDA examination also shows impressions of what are commonly seen from rollers or other parts of some printer devices found on page 2 but not on pages 1 and 3. Other impression marks of unknown origin were found on pages 2 and 3 that are very similar to each other but not exactly the same.
	Thickness	Use of calipers showed no significant difference in the thickness of the paper used to print the three pages.
VKLMWU	Magnification	The paper used on all 3 pages of the medical report was examined under the same magnification of X35.88 under flood light on the VSC8000 and it was observed that the fibre arrangement on pages 1 and 3 was similar and this differed from those seen on page 2. Page 2 was seen to have some unique yellowish fibres scattered randomly on the paper.
	Video Spectral Comparator (VSC)	On the VSC under the same magnification it was noted that there were similar printer properties characterised by particles of toner on edges of the typed letters and therefore probably the same type of printer was used in production of the 3pages of the medical report.
VKP3AV	Macroscopic/ Microscopic Examination	The questioned machine-generated entries on Exhibits Q1(1)a, Q1(2)a, and Q1(3)a were prepared using black toner printing technology. Additionally, differences in the size and placement were observed in the three-hole perforations between Exhibits Q1(1)(a and b) and Q1(3)(a and b) and the three-hole perforations found on Exhibits Q1(2)(a and b). See image 2 for details. [Referenced image not included.]
	ESDA	Electrostatic Detection Apparatus (ESDA) examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted. Indented machine-created impressions were observed on these exhibits. Indented handwriting impression were observed on Exhibits Q1(3)(a and b). No further indented impressions were observed on Exhibits Q1(1)(a and b) and Q1(2)(a and b). Indentation lifts were created to preserve the results of the ESDA examination. The questioned handwritten indented impressions on Exhibit Q1(3)(a and b) appear to read “11/7/23 F/U: PT. reports abdominal pain”.
	Handwriting Examination	The questioned handwritten indented impression are suitable for comparison with submitted known handwriting.
	Video Spectral Comparator (VSC)	Alternate light source examination of Exhibits Q1(1)a, Q1(2)a, and Q1(3)a was conducted. Differences were observed in the paper used in the production of Exhibits Q1(1)(a and b) and Q1(3)(a and b) and Q1(2)(a and b).
	Magnetic-optical visualizer	Magnetic properties were observed within the machine-generated entries on Exhibits Q1(1)a, Q1(2)a, and Q1(3)a.
VN7AXV	ESDA	developed indented writing on page 3 of 3 and there are no handwritten entries on page 2 of 3 or page 1 of 3: -indented writing must have come from another piece of paper. -indented writing reads "11/7/23 Flu- PT reports abdominal pain"

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	paper comparison: -the paper used on page 2 of 3 reacts differently to UV 254nm and UV 312nm than the paper used on page 1 of 3 or page 3 of 3. -could not differentiate paper on page 1 of 3 from page 3 of 3 using various light sources. ink comparison: could not differentiate ink on pages of Q1. also used VSC to examine: -hole punch sizes and obtain approximate measurements. - oblique lighting to view the indented writing
	Macroscopic/ Microscopic Examination	the three hole punch size/diameter on page 2 of 3 is larger than the three hole punch size on page 1 of 3 and page 3 of 3. the three hole punch hole size/diameter on page 1 of 3 and page 3 of 3 are consistent
VZJUUW	ESDA	Indentation was observed on page 3. The entries are '11/7/2023 F/u - PT reports abdominal pain'.
	Video Spectral Comparator (VSC)	1. Using measurement - size of punch holes for page 2 are bigger than page 1 and page 3. 2. Using spot light - page 2 showed darker image than page 1 and page 2. 3. When magnify – some yellow/brown fibers were observed on page 2 but not observed on page 1 and 3. 4. Using UV light - fibers were observed on page 1 but not observed on page 1 and 3. 5. Using side light - Handwriting embossment was observed at back side of page 3.
	Microscopic Examination	All pages showed similar printing characteristics those are presence of toner particles, raised image, which consistent with being printed using electrophotographic printing process. However, title on page 2 showed darker image than title on page 1 and 3
W3NEKH	Ultraviolet Light	Different paper perforation (size and position) in page number (2) compared to pages number (1 and 3).
	Infrared Light	Under the Infrared Light, it was shown that page number (2) contained luminescent fibers that was not present in pages number (1 and 3).
	Magnification	Difference in printing quality and color vibrancy.
W9N2AW	Visual Examination	The paper of page 2 is a different colour than the other pages, with a more yellow tint. The punch holes for page 2 are bigger and have a different edge. The edges of the punch holes for pages 1 and 3 are smoother, while the edges for page 2 are jagged. The fonts are consistent between all pages.
	ESDA	The examination of pages 1 and 2 using ESDA did not reveal any indentations. Page 3 revealed indentations : "11/7/23 F/u PT. reports abdominal pain".
	Video Spectral Comparator (VSC)	Page 2 shows different reactions to various light sources compared to the other two pages: - Under UV, page 2 has a weaker reaction. - Under fluorescent light, page 2 has some reactive fibers. - With transmitted light, page 2 appears darker.

TABLE 2

WebCode	Methods/Techniques	Observations
WBEZNU	Video Spectral Comparator (VSC)	As a first measure, the 03 sheets provided for study as doubtful material were subjected to a general analysis with the different lights that make up the VSC-6000 Spectral Video comparator such as ultraviolet light, daylight, transmitted light, infrared light among others, with this analysis it was possible to establish that leaf number 2 presents a different reaction to leaves 1 and 3 under the incidence of ultraviolet light, on the other hand it was evident that the perforations that leaf number 2 has have a larger diameter than the perforations of the leaves. 1 and 3; Likewise, a more detailed analysis was carried out with the magnifying lenses (magnifiers) of the VSC-6000, finding that the impressions that are reflected on sheet 2 of the doubt document present different characteristics than the impressions reflected on sheets 1 and 2. In addition to this, no traces or vestiges of graphite, carbon paper, or remnants of ink other than that used in printing the document were found, however, ducts or grooves were seen on sheet 3 that allow us to infer that a writing was made. In the document which left traces of them, of which it was possible to identify the following "7/11/2023 F/U PT Rports -------- Pain", it is important to clarify that it was not possible to identify the word that is located between Rports and Pain.
WCBKBU	Microscopic Examination	2nd sheet of paper of the document contains yellow fibers. There is no alteration on the printed text of the document.
	Video Spectral Comparator (VSC)	2nd sheet of paper of the document reacts differently under various light sources than 1st and 3rd sheet of paper.
	Visual Examination	The size and position of the holes on the 2nd sheet of paper is different from size and position of the holes of the 1st and 3rd sheet of paper. The size and position of the holes of the 1st and 3rd sheet of paper are the same. Sheets of paper of the document are not stapled or attached one to another, this particular thing lead us to make probable conclusion and not categoric.
WYYDD9	ESDA	Unsourced indented impressions were observed on page 3; no indented impressions were observed on pages 1 or 2
	Micrometer	the average thickness of paper used in pages 1 through 3 was similar
	Visual Examination	No watermarks observed on pages 1 through 3
	Macroscopic/ Microscopic Examination	Machine printing on pages 1 through 3 was produced using toner technology; interior of holes punched in page 2 have a more scalloped edge than those punched in pages 1 and 3 (which are similar in appearance)
	Video Spectral Comparator (VSC)	Examined pages 1 through 3 using various light sources and filters; observed differences in optical properties of paper used in page 2 as compared to pages 1 and 3. Pages 1 and 3 shared similar optical properties. Additionally, size and design/shape of hole punches on page 2 different than those on pages 1 and 3 (which are similar to each other)
	Overlays	Overlays of hole punches show hole punches on pages 1 and 3 similar size, shape, location; different from size/shape of hole punches on page 2
X4AJTE	Infrared Light	Reviewed printing
	Ultraviolet Light	Reviewed paper and printing
	Macroscopic/ Microscopic Examination	Examination of printing, possible artifacts, fonts, and paper
	Visual Examination	Overall appearance of color, fonts, spacing, sizes, holes

TABLE 2

WebCode	Methods/Techniques	Observations
	Oblique Light	Indented writing impressions.
	Ruler	Used to measure paper, size of holes, fonts, etc.
	Transmitted Light	For observation of watermarks
X9J4C7	ESDA	Indented impressions from an unknown source were developed on the front and back sides of Q1c.
	Video Spectral Comparator (VSC)	Flood light & Transmitted light: The holes on Q1a and Q1c align. The holes on Q1b do not align with Q1a or Q1c. Ultraviolet (UV) radiation: The Q1a and Q1c substrates fluoresce similarly under UV radiation (254nm and 312nm). The Q1b substrate does not fluoresce similarly to Q1a and Q1c under UV radiation (254nm or 312nm). Infrared (IR) radiation: The Q1a and Q1c substrates react similarly under IR spot fluorescence. The Q1b substrate does not react similarly to Q1a and Q1c under IR spot fluorescence. Q1b bears more fluorescing fibers that Q1a and Q1c. Overlay with Transmitted light: The Q1c indented impressions align with the second row of the PATIENT PROGRESS table on Q1b.
	Visual Examination	The Q1b hole punches do not align with the Q1a and Q1c holes. Q1a, Q1b, and Q1c were generated with a back toner printing process.
XACUHK	Macroscopic/ Microscopic Examination	Scientific method taking into account the phases of: observation, indication or signaling of the distinctive characters (individualizing characteristics), confrontation and identity judgments.
	Ultraviolet Light	Macroscopy and Microscopy is observation with the naked eye, as through instruments and / or equipment, allows to visualize in general and in detail the particularities of the document, that from different magnifications and the use of episcopic / diascopic illumination of adjustable intensity (direct, oblique and grazing), can be evidenced the traces or vestiges left by the maneuvers made in the support of a document.
	Oblique Light	
XDL38R	Video Spectral Comparator (VSC)	Under Ultraviolet light, paper fibers were observed for page 2 of 3 and no visible fibers observed on page 1 of 3 and page 3 of 3.
	Video Spectral Comparator (VSC)	Under white light page 1 of 3 and page 3 of 3 appear to be lighter than page 2 of 3.
	Ruler	The punched hole sizes of page 2 of 3 are bigger than those of page 1 of 3 and page 3 of 3. On page 2 of 3,the top black shaded part of the table does not align with the rest of the bottom part of the table.
XEW6TQ	Video Spectral Comparator (VSC)	Examination and Ultraviolet (UV) light, page 2 is UV dull and has paper fibers whereas page 1 and page 3 are UV bright and has no paper fibres. Examination and flood light, paper punch holes of page 2 are not in line with the paper punch holes of page 1 and page 3. Also on page 2, there is an additional comma on the date (March 1, 1978) and the border lines on top right of page 2 are not in line with each other.
XGXMW6	Macroscopic/ Microscopic Examination	Q1 Pages 1, 2, and 3 measured ~8 ½ inches by 11 inches and did not contain watermarks; Pg 2 appeared more off-white in color and was slightly darker (less optically bright) under UV, whereas Pages 1, 3 appeared whiter in color and brighter under UV compared to Pg 2. Some fibers within Pg 2 luminesced under IRL, whereas they did not on Pgs 1, 3; the hole punches for Pgs 1, 3 were smaller in size, had smoother edges, and located farther away from the edge of the paper compared to Pg 2

TABLE 2

WebCode	Methods/Techniques	Observations
	Print Process	Pgs 1 – 3 were produced with black toner technology; the toner printing on Pg 2 appeared to have more printing in the non-print areas than Pgs 1, 3
	Indented Writing	Pgs 1, 2 – No decipherable indented writing impressions was observed with side lighting nor developed on the lifts; unsourced indented impressions were observed with side lighting and developed on the lifts from Pg 3. The indented impressions were deciphered as "11/7/23 F/U PT reports abdominal pain"
XHCCXW	ESDA	An indentation is observed on the 3rd page which reads "11/17/23 PI report abdominal pain"
	Video Spectral Comparator (VSC)	It is observed that there is a change in the fibers of the 2nd page in relation to the 1st and 3rd pages, this using a wavelength of 665 and ultraviolet light of 365nm. The identified document Q1 (3 pages) were produced using the same printer with the same printing method.
	Visual Examination	The construction format on page 2 is different from that observed on page 1
	Overlays	The three (3) pages contain some perforations. Page 1 and page 3 are the same size (diameter), however, those present on page 2 are larger in size (different diameter)
XVXN97	ESDA	Unsourced indented writing found on page 3 of 3 on questioned document.
	Macroscopic/ Microscopic Examination	3 pages of Q -No CPS codes, produced with toner technology
	Ultraviolet Light	Compared paper, page 2 fluoresced different than the first and 3rd pages.
	Visual Examination	Hole punch marks on 2nd page don't align with hole punch marks on first and 3rd page, 2nd page hole punch appears to be larger
	Transmitted Light	no watermarks observed
XWREEK	ESDA	Extraneous indentations were found on page 3. The extraneous indentations on page 3 read, "11/7/23 F/U PT. reports abdominal pain."
	Video Spectral Comparator (VSC)	The VSC was used for magnification and alternate light source purposes. All pages were found to be produced by a toner process. Page 2 reacted differently than pages 1 and 3 under alternate light sources.
	Magnification	Magnification was used to examine the printing process. All three pages were created from a toner process. Magnification was also used to examine the hole punches. The hole punches in page 2 were inconsistent with the hole punches in pages 1 and 3.
	Visual Examination	A visual examination of the three page document was also conducted.
XZEWW7	Video Spectral Comparator (VSC)	Examination using the VSC was conducted on the Q-1 exhibits. I did not observe any alterations to the Q-1 exhibits.
	Microscopic Examination	Examination using the Microscopic was conducted on the Q-1 exhibits. I did not observe any alterations to the Q-1 exhibits.
	ESDA	Examination using the ESDA was conducted on the Q-1 exhibits. I did observe alteration to the Q-1 3 exhibit.
Y3DMGQ	Visual Examination	Three page document with printed material thereon. No indented impressions observed.
	Oblique Light	No indented impressions observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Dry toner, different size punch holes in Q1b (page 2) from Q1a (page 1) and Q1c (page 3) which have the same size.
	Ultraviolet Light	Different optical properties observed on Q1b from Q1a and Q1c which both had the same optical properties.
	Video Spectral Comparator (VSC)	Different optical properties observed on Q1b from Q1a and Q1c which both had the same optical properties.
	ESDA	Indented impressions observed on Q1c (front and back).
	DIgital Imaging	N/A, used for documentation purposes.
Y7DXCQ	Visual Examination	
	Microscopic Examination	
	Indented Writing	
	Video Spectral Comparator (VSC)	
	Transmitted Light	
YEN69T	ESDA	ESDA was used to visualize the indented impressions on page 3. The impressions read: "11/7/23 F/U PT reports abdominal pain"
	Video Spectral Comparator (VSC)	VSC was used to visualize the differences in the papers for Q1-Q3. Pages 1 and 3 reacted consistently, page 2 reacted differently.
	Ruler	The ruler was used to approximate the size of the paper and the punch holes across the top of each document. Pages 1 and 3 were consistent in size and placement. Page 2 size and placement were not consistent with 1 and 3.
	Identifont	The Identifont program was used to identify the fonts used in the creation of the document template and added information.
	MICROREF SmartRule	The MICROREF SmartRule was used to approximate the size of the varying fonts used throughout the documents.
YGNGLK	Macroscopic/ Microscopic Examination	Paper Examination: Measured the approximate size of Exhibits Q1-1 through Q1-3 papers and noted no significant differences. Noted that Exhibits Q1-1 through Q1-3 were white in color; no significant color differences under visible light were noted. Examined hole punches on the paper macroscopically and under a microscope. Noted the 3 hole-punches on Exhibit Q1-2 did not align with Exhibits Q1-1 and Q1-3. Toner Examination: Using a microscope, determined that Exhibits Q1-1 through Q1-3 were produced with an office machine system(s) utilizing black-only toner technology. Indented Writing Examination: Performed a macroscopic and microscopic examination using side-lighting. No significant indented impressions were observed on Exhibits Q1-1 and Q1-2. Indented impressions were observed on Exhibit Q1-3.
	Indented Writing	Performed an indented writing examination utilizing a video spectral comparator and a stereomicroscope. No significant indented impressions were observed on Exhibits Q1-1 and Q1-2. Indented impressions were observed on Exhibit Q1-3. The indented impressions appear to read “11/7/23 T/? PT. rep?rts ?bd?m???? pain.”. Portions of the indented impressions are obscured by the toner printing on Exhibit Q1-3. No original writing was present on Exhibits Q1-1 and Q1-2.

TABLE 2

WebCode	Methods/Techniques	Observations
	Infrared Light	Paper Examination: Utilizing the video spectral comparator, compared the Q1-1, Q1-2, and Q1-3 papers under infrared energy and infrared luminescence. Noted differences under infrared luminescence. Exhibit Q1-2 paper had different spectral properties under infrared luminescence than Exhibits Q1-1 and Q1-3 papers. TLC Plate Imaging: Utilized the video spectral comparator to image the TLC plate to compare the toner and paper on the exhibits. Captured images under infrared energy. No differences in the spots on the TLC plate were noted under infrared energy.
	Oblique Light	Performed an indented writing examination utilizing a video spectral comparator and a stereomicroscope. Oblique lighting was utilized with both the stereomicroscope and video spectral comparator. No significant indented impressions were observed on Exhibits Q1-1 and Q1-2. Indented impressions were observed on Exhibit Q1-3. The indented impressions were captured using oblique light from both right and left directions utilizing the video spectral comparator. Images of unmarked and marked indented impressions were included in the case notes. The indented impressions appear to read "11/7/23 T/? PT. rep?rts ?bd?m???? pain.".
	Transmitted Light	Paper Examination: Utilized the video spectral comparator with transmitted light to examine Q1-1, Q1-2, and Q1-3 paper. No watermark(s) were observed on the exhibits. No significant differences were observed in the paper under transmitted energy.
	Ultraviolet Light	Paper Examination: Utilized the video spectral comparator with UV energy to examine Q1-1, Q1-2, and Q1-3 paper. Exhibit Q1-2 paper had different properties under ultraviolet energy than Exhibits Q1-1 and Q1-3 papers. TLC Plate Imaging: Utilized the video spectral comparator to image the TLC plate to compare the toner and paper on the exhibits. Captured images under UV energy. The spot on the TLC plate for Q1-2 behaved differently under UV energy than the spots for Q1-1 and Q1-3.
	Video Spectral Comparator (VSC)	Paper Examination: Utilized the video spectral comparator using visible light, infrared energy, ultraviolet energy, infrared luminescence, transmitted light, and oblique lighting. Noted differences between Exhibit Q1-2 paper and Exhibits Q1-1 and Q1-3 papers. Differences were noted under UV energy and infrared energy. Additionally, indentations were visualized on Exhibit Q1-3. Three-hole punch Examination: Utilized the video spectral comparator under visible light to show that Exhibit Q1-2 contained three-hole punches that were not in alignment with the three-hole punches on Exhibits Q1-1 and Q1-3. Toner Examination: Utilized the video spectral comparator to image the black-only toner on Exhibits Q1-1 through Q1-3 under visible light, UV energy, infrared energy, and infrared luminescence. No differences in the toner were noted. TLC Plate Imaging: Utilized the video spectral comparator to image the TLC plate to compare the toner and paper on the Exhibits Q1-1 through Q1-3. Captured images under visible energy, UV energy, and infrared energy. Differences under UV energy and infrared luminescence were noted for Exhibit Q1-2 paper in comparison to Exhibits Q1-1 and Q1-3 papers.

TABLE 2

WebCode	Methods/Techniques	Observations
	Thin Layer Chromatography	Paper Examination: Chemical examinations utilizing Thin-Layer Chromatography were conducted on representative samples from Exhibits Q1-1 through Q1-3 papers. After developing the thin-layer chromatography plate, the plate was imaged using the video spectral comparator under visible light, UV energy, and infrared energy. Exhibits Q1-1 through Q1-3 were determined to have been produced using at least two (2) different types of paper. Exhibits Q1-1 and Q1-3 papers were determined to be chemically indistinguishable. Therefore, Exhibits Q1-1 and Q1-3 papers cannot be excluded as sharing a common source. Exhibits Q1-1 and Q1-3 papers were determined to be different than Exhibit Q1-2 paper. Therefore, Exhibit Q1-2 paper does not share a common source with Exhibits Q1-1 and Q1-3 papers. Toner Examination: Chemical examinations utilizing Thin-Layer Chromatography were conducted on representative samples from the toner on Exhibits Q1-1 through Q1-3. The toner formulation(s) on Exhibits Q1-1 through Q1-3 was determined to be chemically indistinguishable. Therefore, the toner on Exhibits Q1-1 through Q1-3 cannot be excluded as sharing a common source.
YGU67T	Transmitted Light	Punctured holes on documents marked as (Q1) pages 1 and (Q3) page 3 are in alignment with each other compared to the different punctured holes on the document marked as (Q2) page 2 under transmitted light and flood light.
	Ultraviolet Light	Under Ultra Violet light (UV) 1. There are Visible fibers on the document marked as (Q2) page 2 and there are no visible fibers on both documents marked as (Q1) page 1 and marked (Q3) page 3. 2. The holes inside the numbers on document marked as (Q1) pages 1 and (Q3) page 3 are small compared to the holes inside the numbers on document marked as (Q2) page 2, which are big. 3. The colour printing on the numbers documents marked as (Q1) page 1 and (Q3) page 3 are light compared to the dark colour printing on the numbers on the document marked as (Q2) page 2.
	Visual Examination	Visual examination revealed that the colour pages are different. Document marked as (Q2) page 2 is off white in colour while documents marked as (Q1) page 1 and (Q3) page 3 are pure white in colour.
YNT8DQ	Transmitted Light	The punch holes were examined using transmitted light on the VSC80000. The punch holes on page 1 and page 3 are in alignment. The punch holes on Page two are not in alignment.
	Video Spectral Comparator (VSC)	The pages were examined under ultraviolet light at 365nm, 312nm, and 254nm. Pages 1 and 2 had similar reactions and page 2 had different reactions.
	Indented Writing	All three pages were examined with the ESDA2. Pages 1 and 2 were negative. Page three had the text "11/7/23 F/U PT reports abdominal pain".
YXF74W	Visual Examination	• Questioned document has 3 sheets. • The colour of the paper is different on sheet 2 (creamy whit). • There are 3 holes on the top edge of all three sheets. • The holes on the top of the edge are different size, the sheet 2 - the holes are bigger then holes on sheets 1 and 3 (different puncher)
	Microscopic Examination	• The text on all three sheets is printed with toner

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	• Paper -differences in UV light- paper of the sheet 2 fluorescences different than paper of the sheets 1 and 3. • Paper – differences in IR luminiscence - paper of the sheet 2 is different than paper of the sheets 1 and 3. • Oblique light – latent text visible on sheet 3
	ESDA	• Latent text is visible on the sheet 3: »11/7/23 F/U PT reports abdominal pain«
	Magnetic properties	• Toner on all three sheets shows magnetic properties
Z8HYMM	Magnification	X 10 magnifying lens show the difference in perforation (hole) between page 2 and the pages (1,3).
	Video Spectral Comparator (VSC)	UV Light show the difference in fluorescence reflect from page 2 and pages (1,3).
	Video Spectral Comparator (VSC)	Visible Light show the difference in whiteness of page (2) compared with pages (1,3).
Z8M3PE		**No Methods or Observations were reported by this participant.**
ZCXDFN	Visual Examination	Examination shows Page#2 hole punch do not line up with Page#1 and Page#3. Page#2 color doesn't match up with Page#1 and Page#3.
	Video Spectral Comparator (VSC)	Under UV Lighting Page#2 exhibit a different color and security features not present in Page#1 and Page#3.
ZUZXFW	ESDA	There are handwritten indentations showing on page 3, corresponding with the position of DATE and PROGRASS NOTES below the “11/6/2023” record on page2. The concrete content is “11/7/23 F/U-PT. reports abdominal pain” .
	Video Spectral Comparator (VSC)	The color and spectral characteristics of paper on page 2 is different from that on page 1 and page 3.
	Macroscopic/ Microscopic Examination	The position and shape of bookbinding holes on page 2 are different from that on page 1 and page 3.

Response Summary

Participants: 183

Methods Utilized

ESDA	96	Magnification	22	Thickness	3
Handwriting Examination	2	Micrometer	12	Transmitted Light	24
Indented Writing	23	Microscopic Exam	40	UV Light	58
Infrared Light	13	Oblique Light	23	Visual Exam	85
Macroscopic Exam	7	Overlays	20	VSC	133
Macroscopic/Microscopic Exam	51	Ruler	23		

Note: Methods listed are the preloaded options for selection via the CTS Portal and do not reflect all answers provided by participants.

Conclusions

TABLE 3

WebCode	Conclusions
2A8E3P	Forensic examinations using magnification and specialized lighting revealed that the medical record consisting of Exhibits 1-1 through 1-3 was altered. More specifically, the medical record was altered by the removal of an original page 2 and the insertion of Ex. 1-2. This finding is based on multiple differing physical and optical properties of Ex. 1-2 as compared to Exhibits 1-1 and 1-3. Additionally, examination with side lighting and the ESDA2 instrument revealed indented handwriting on the front surface of Ex. 1-3 that is different in content and contradicts the printed information appearing on Ex. 1-2.
2LHXBK	I have considered two alternative propositions in relation to the medical record: P1 - The medical record has been altered. P2 - The medical record has not been altered. The findings relating to the different paper type used for Page 2, the misalignment of the hole punches on Page 2, and the presence of indented impressions of writing on Page 3 that are not derived from the current document, provide much greater support for P1 over P2. In my opinion, there is very strong evidence that the original medical record has been altered, and the current Page 2 is a substituted page that did not form part of the original medical record.
33GKYN	[No Conclusions Reported.]
38XTMN	The document consisting of the medical history of the patient Kendra Smith November 2, 2023 does present alterations.
3BBTJF	The questioned document (Q1) has been altered by the substitution of the second page.
3FGYR3	The differences observed on medical record page 2/3 compared to pages 1/3 and 3/3 indicate that the questioned document (medical record) was altered.
3JR62M	According to the observations made on the documents submitted, the medical report has been altered by subsitution.
3LEN3K	According to the analysis, the following elements were determined for inspection: • The document subject to inspection presents alteration, in the substitute modality in the document (three (03) pages of medical record of the patient Kendra Smith), where it is evident that page 02 was changed.
3MQFXM	The questioned document - Item Q1 - has been altered by replacing page 2. Page 2 was made on different paper than pages 1 and 3, there are no handwritten text on it, and the punched holes on page are larger and in the different position than on pages 1 and 3. Indentations on page 3 confirmed statement of Kendra Smith.
3PV9PZ	Item 1 was examined for indented writing impressions. Pages 1 and 2 did not contain any indentations of evidentiary value, however, page 3 contained the following indented writing impressions: "11/7/23 F/U - PT reports abdominal pain". The electrographs of Item 1 are listed in Item 1.1. Item 1 was examined under ultraviolet lighting and revealed optical brighteners appearing in pages 1 and 3, however, page 2 turned darker indicating a different paper. Additionally, the three-hole punches along page 2 do not line up with the three-hole punches of pages 1 and 3 of Item 1. Based on these examinations, Item 1 has been altered.
3RZW7B	The 2Nd paper from the three pages of the record are not printed at the same time for The other two papers but the 1st and 3rd papers are printed at the same time.
43XKTK	Taking into consideration of the information that all three pages of the document in question (medical record) were purported to have been printed together at the same time, there is sufficient evidence to support that document in question (medical record) was altered and the alteration is on Page 2/3 of the questioned document.
4CGK4F	Based on the examination and comparison of the examined material, the following conclusion was reached: It is highly probable that the document described as Item Q1 has been altered via a page

TABLE 3

WebCode	Conclusions
	substitution of Page 2. The evidence indicates that an unsubmitted version of Page 2 exists in which the third row of the table had a handwritten entry that read "11/7/23 F/U PT. reports abdominal pain."
4CNHMR	The evidence supports a conclusion page two of the submitted three-paged medical report was a substituion of the original page two prepared on Nov. 7, 2023. The totality of differences, including the use of different paper stock for page two, the difference in the paper punch hole size and positioning on the paper, and particularly the indented writing recovered from page two, all provided logical evidence of the page substitution.
4FNTJR	Result: When analyzing the medical record in the name of Kendra Smith, which consists of three pages numbered from 1 to 3, it was determined that alterations were detected. Page 2 is grafted since it presents a difference in tone compared to pages 1 and 3 due to exposure to ultraviolet light and the fluorescence effect, which is indicative that said page was made with a different type of paper. Furthermore, the perforations visible at the top of page 2 do not match those on pages 1 and 3. There is also the presence of indented writing on page 3 which reveals “11/7/23 F/ “U reports abdominal pain” and misalignment of the printouts on page 2 with respect to pages 1 and 3. Interpretation: By virtue of what is indicated in the previous result, the questioned document is altered.
62LKEH	Latent impressions were made visible on page 3 of the medical record, which are currently not visible anywhere in the questioned record as written entries. The latent impressions "11/7/23 F/U – PT reports abdominal pain" substantiate the statements of Kendra Smith. The position of the latent impressions on page 3 corresponds to the current empty line 2 on page 2. Therefore page 3 was laying underneath while the note in question had been made which is not currently visible. The paper of page 2 is different from the papers of pages 1 and 3, which indicates paper of different production. Furthermore page 2 has different punch holes (size and position) and slightly deviating paper size which additionally suggests another producer. The second page of the medical report has been replaced with the currently visible page.
6H86TG	The document under inspection presents alteration on page 2, in the substitute modality, however, it was not possible to establish the text primal
6KUMB3	Upon completion of an examination and comparison of the three pages of the Q-1 exhibit, it is the opinion of this examiner that the Q-1 exhibit has been altered. Specifically, the document titled "MEDICAL PROGRESS" (second page, Q-1 2) was found to have inconsistencies in the paper punch holes when compared to the first and third documents (Q-1 1 and Q-1 3, respectively). In addition, an examination of the third page (Q-1 3) for latent writing impressions using the Electrostatic Detection Apparatus (ESDA) revealed impressions that read "11/7/23 F/U - PT. reports abdominal pain" in approximately the middle of this third page.
6L99MP	The questioned document HAS PROBABLY BEEN ALTERED. In addition to the fact that the paper material of page 2 of the document differs from the other identical paper of pages 1 and 3, the position and diameter of the perforations on the upper half of sheets 1 and 3 of the transferred document are the same, while sheet 2 has a different position and size (larger). The position of the page numbering of page 1 and page 3 is the same, while the page numbering of page 2 is shifted upwards to the right. The tables on sheets 1 and 3 fit to the same margin line from the left edge of the sheet, while on sheet 2 a shift to the right can be observed.
6NVRNM	Page 2 of the questioned document shows differences in the paper and in the holes made by the hole puncher, when compared to pages 1 and 3. Therefore, we conclude that the questioned document has probably been altered, due to a substitution of page 2.
6VTKWG	Results of Examinations: Alterations Were Detected. The following characteristics were observed which indicate Item 1 (Item Q1) was altered: • Indented writing was observed on page 3 of Item 1 (Item Q1) using side lighting and electrostatic processing. The indented writing on page 3 fits within the data fields on page 2 when overlaid (see Fig. 1). The electrostatic lift is considered secondary evidence and has been designated Item 2. A copy of Item 2 is enclosed. • Page 2 of Item 1 (Item Q1) exhibits different optically reflective properties under ultra violet light than pages 1 and 3 (see Fig. 2). • The 3-hole punches on page 2 of Item 1 (Item Q1) are larger than the holes on pages 1 and 3 and do not align

TABLE 3

WebCode	Conclusions
	with the 3-hole punches on pages 1 and 3 (see Fig. 3). Item 1 (Item Q1) was prepared using a toner printing process, common on various brands of laser printers, photocopiers, and other office machines. [Referenced figures not included.]
7KACPE	1. El item Q1; expediente medico de 03 paginas sobre la paciente Kendra Smith con fecha 02 de noviembre de 2023, si presenta indicios de alteracion. 2. El item Q1; expediente medico de 03 paginas sobre la paciente Kendra Smith con fecha 02 de noviembre de 2023, si presenta revelado. 1. Item Q1; 3-page medical file on patient Kendra Smith dated November 2, 2023, if it shows signs of alteration. 2. Item Q1; 03-page medical file on patient Kendra Smith dated November 2, 2023, if disclosed.
7NUA6H	In summary, it is stated that the 2nd page of the patient file has been exchanged.
7VNKAL	Our unit does not have a predetermined conclusion used for this type of case. Instead, we will refer to our report where our different observations will be explained t in detail for the police/case investigator to decide/act on. In this case we will explain and document the findings of our examination, which strongly supports that the original page 2 has been substituted with another page.
82W3AZ	The second page of Item 1 has been substituted for the original page 2 from Item 1. An indented impression was recovered from the third page of Item 1 that appears to read "11/7/23 F/U Pt. reports abdominal pain.". There were no indentations of significance detected from the first and second pages of Item 1. One ESDA lift sheet was created from all three pages of Item 1 and were made sub-items 1.1 through 1.3 The transparent plastic-like lifts used to recover the indentations are being returned to you in evidence container # 1. The lifts should be retained as evidence.
842V2D	The questioned document HAS BEEN ALTERED.
8CT7ET	Q1 has been altered by inserting a new page 2.
8KKNQG	The item identify as Q1 has not beed altered.
8NNHQ8	We have concluded that the office of Dr. suite replaced the page 2/3 with a new sheet of the medical record, which consists of total three pages, in which the communications and notes about the patient are recorded. The second page is different from the first and third pages in terms of the type of paper used in the loss of fibers, color tone, font size, and type of printing used, as well as difference in the size of the perforation, which resulted in the perforation of the second page being bigger than of that the perforation on the first and third pages.
8THGYB	The document was forged by replacing the page no two - signs: a different raster appearing in the records, different UV luminescence, the presence of fibers, which are absent on the other pages, in the structure of the paper, different structure of the print, differences in the color of the print, lack of fit of the cards visible in the area of holes resulting from the punch and the shape of the holes, the pages do not constitute a uniform print made during one printing act.
8XWU7P	On comparison, I found that, the electro photographic printing process was observed on all three pages of the Item Q1 (Three page medical record concerning patient Kendra Smith). However, there are some differences observed as follows: i) Absence of handwritten entries on Page 2 I 3 as presence of indented handwriting on Page 3 I 3. ii) The indented handwriting on Page 3 I 3 located consistent on second row of 'Patient Progress' table on Page 2 I 3. iii) The holes punched on Page 2 I 3 differ in size to the holes punched on Page 1 I 3 and Page 3 I 3. iv) The color of paper Page 2 I 3 slightly yellowish compared to paper Page 1 I 3 and Page 3 I 3. v) The Page 2 I 3 showed different appearances from Page 1 I 3 and Page 3 I 3 when exposed to different wavelengths of ultra-violet light. Hence, I am opinion that the questioned document Item Q1 (Three page medical record concerning patient Kendra Smith) has been altered and the second page of the questioned document (Item Q1 – Medical record) had been replaced.

TABLE 3

WebCode	Conclusions
99RK2G	Methods: A visual examination of the submitted item was completed. Instrumental analysis was also done. Instrumental Analysis: The printing process used on pages 1-3 of the questioned medical record in Item #1 could not be differentiated. However, this does not preclude that they may have come from a different source (Inconclusive). The paper from pages 1 and 3 of the questioned medical record in Item #1 could not be differentiated from one another. However, this does not preclude that the paper may have come from different sources (Inconclusive). The paper from page 2 of the questioned medical record in Item #1 could be differentiated from the paper from pages 1 and 3 using various light sources. Pages 1 and 2 of Item #1 were processed for indented writing, however, none was developed. Instrumental examination of page 3 in Item #1 revealed the presence of indented writing. The developed indented writing on page 3 appears to be "11/7/23 F/U - PT. reports abdominal pain." Based on all the findings listed above, the medical records in Item #1 were altered. Remarks: The hole punches in page 2 of Item #1 were not consistent with the hole punches in pages 1 and 3 of Item #1. Based on these facts and the developed indented writing listed above, page 2 was not part of the original document. It should be noted that it cannot be determined when the original document was altered. VSC images are being retained with the case documentation in LIMS. Images from the developed indented writing in Item #1 are being retained in LIMS. The developed ESDA sheets were re-packaged in Item #1. All items are available for return. If additional items are to be submitted, please re-submit the original items in their original [Laboratory] labeled packaging.
9RHQJF	Three pages medical record named as Q1 concerning patient Kendra Smith, has been"altered".
9URLEK	Given the observations noted during our examination, in our opinion, there is strong support that the document has been altered.
9V3NZJ	Pages 1/3 and 3/3 of the questioned document could be printed at the same time, but page 2/3 was clearly not printed at the same time as pages 1/3 and 3/3.
9VX9MH	The medical records of the patient Kendra Smith (Item Q1) HAS BEEN ALTERED.
9WJ6DJ	After an examination of the three page medical report I came to the following conclusions. 6.1 The punched holes on the medical report on 'Page 2' are bigger in size by 1.23mm as compared to that of 'Page 1 & 3' of the medical report. 6.2 The punched holes on Page 2 are not aligned with the punched holes on both 'Page1 & 3' of the medical report. 6.3 The font size and colour intensity of the words on 'Page 2' is big and darker than those on 'Page1 & 3' of the medical report. 6.4 The paper fibres on 'Page 2' under ultraviolet light are visible and the paper under white light is off white while 'Page 1 & 3', show no paper fibres and the papers are white in colour. 6.5 There is a misalignment on column "Date & Progress notes" on 'Page 2' of the medical report. Thus the three page medical report of 'Kendra Smit' was altered.
ARHZYH	Examination and comparison of exhibits Q1A-C were conducted, and the following conclusions and observations are based upon my education, training and experience and the results are as follows: Exhibits Q1A-C were scanned for preservation by Forensic Document Examiner XXX. An ESDA (ElectroStatic Detection Apparatus) examination for the detection and reading of indented writing, typing or other identifying impressions was performed on exhibits Q1A-C and the documents were negative for indentations of value except for Q1C. Exhibit Q1C contains indentations approximately half way down the page (landscape orientation) and is deciphered as: "11/7/23 F/U – PT reports abdominal pain". Exhibits Q1A-C were examined with oblique/side lighting and the results are as follow: Negative impressions were located on exhibits Q1A and Q1B. Exhibit Q1C contains indentations approximately half way down the page (landscape orientation) and were not entirely decipherable. An ESDA examination was conducted with positive results as stated above. A VSC (Video Spectral Comparator) examination was conducted on exhibits Q1A-C and the observations demonstrate that the toner on the three pages react consistently. The paper in exhibits Q1A-C were examined with an ultra-violet light source and exhibit Q1C reacts differently and appears a darker purple than exhibits Q1A or Q1B. The papers were examined with a micrometer and the three pages measured approximately .0045" inches thick. None of the pages contained a watermark. Exhibits Q1A-Q1C did appear to contain gripper and feeder marks that were consistent between the three pages demonstrating it went through a printer or

TABLE 3

WebCode	Conclusions
	photocopier. The three pages were hole punched and exhibits Q1A and Q1C contain holes that match in size and placement; however, exhibit Q1B contains holes that are slightly larger and do not overlay with Q1A or Q1C. Exhibits Q1A-C were examined, and it was determined that they were created via an electrophotographic process. The exhibits were examined for magnetic toner and results were negative. The main body of text on exhibits Q1A-C were produced with a Twentieth Century font of varying point sizes (approximately 9, 11 and 12) and a secondary font known as FF Kievit of varying point sizes (approximately 9 and 17). A third font was located on the lower right hand side of pages Q1A-Q1C and is identified as a serif font, however, there were not enough characters for a font examination/classification. Based upon the evidence submitted, it was determined that exhibit Q1B was an insertion/page substitution and exhibit Q1C contained evidence in the form of deciphered indented writing that was contrary to the initial submission and supports that the medical records were altered.
AWCXNA	Through the support of different equipment and special illuminations such as diascopic, episcopical, infrared and fluorescence, it was observed that the second page of the medical record was changed in its entirety, which is evidenced by the difference in the chromatic tone of the substrate, the holes made by a drill are larger and show a different cut than the other holes. the behaviour under the influence of UV light differs and the characteristics of the print vary, so it can be determined that it presents a substitute alteration of the second sheet
AZRPDG	Based on the examinations, the medical record page 2/3 has many different findings from page 1/3 and page 3/3 consisting of paper color, the hole punched size, the vertical alignment of printed text “Page 2|3”, paper UV fluorescence, moreover, the indented writing “11/7/23 F/U - PT reports abdominal pain” was found on page 3/3, therefore the conclusion is the medical record has been altered by page 2/3 substituted.
B7DZ7C	Visual, microscopic, magnetic and alternate light source examinations of Exhibits Q1(1)a, Q1(2)a and Q1(3)a were conducted. Visual examination of Exhibits Q1(1)b, Q1(2)b and Q1(3)b was conducted. The results are as follows: Printing Process Examination: The questioned machine-generated entries on Exhibits Q1(1)a through Q1(3)a were inter-compared. The questioned machine-generated entries on Exhibits Q1(1)a through Q1(3)a were produced with toner printing technology with magnetic properties and could neither be identified, nor eliminated, as having been prepared by the same printer, due to a lack of individualizing characteristics. Indented Impression Examination: Electrostatic Detection Apparatus (ESDA) examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted. The following was observed: Indented machine-created impressions were observed on Exhibits Q1(1)(a and b) through Q1(3)(a and b); Unknown impressions were observed on Exhibit Q1(2)b; Indented handwriting impressions were observed on Exhibits Q1(3)(a and b); No further indented impressions were observed on Exhibits Q1(1)(a and b) and Q1(2)(a and b); Indentation lifts were created to preserve the results of the ESDA examination. Paper Examination: The questioned paper within Exhibit Q1 was inter-compared. The questioned paper of Exhibit Q1(2) does not originate from or share a common source with the questioned paper of Exhibits Q1(1) and Q1(3). In addition, no watermark was observed on Exhibits Q1(1) through Q1(3). Therefore, due to the above results, characteristics of an alteration were observed within Exhibit Q1.
BMXQ6B	The differences in the size and position of the binder hole punches in page 2 show that the pages of the questioned document have not all been produced together. This, the difference in paper stock and the absence of the entry that caused the indentations on page 3, is consistent with the document having been altered by the substitution of the original page 2 with the one now present. The positioning of the indentations on page 3 reading "11/7/23 F/U - PT reports abdominal pain" is consistent with being caused by a handwritten entry being completed on the second line of the patient progress notes.
BNFGEV	It is this examiner's opinion the Q-1 document has been altered.
BPA8KB	IT WAS ALSO EVIDENT THAT THE THREE HOLES LOCATED AT THE UPPER PART OF LEAF No. 2 ARE LARGER AND THEIR LOCATION IS CLOSER TO THE MARGIN OR UPPER LIMIT OF THE LEAF. ON THE CONTRARY, THE HOLES PRESENT ON PAGES 1 AND 3 ARE SMALLER AND ARE LOCATED MORE DISTANT FROM THE TOP MARGIN OF THE SHEETS.

TABLE 3

WebCode	Conclusions
BVDAMP	The document, item 1, was examined with the following results: 1: No significant indentations were detected on pages 2 and 3 of the document, item 1. 2: Indentations were detected on page 3 of the document, item 1, which were caused by handwritten entries from an unknown source and interpreted as follows: "11/7/23 {F/U}- PT. reports abdominal pain." 3: Pages 1, 2 and 3 of the document, item 1, were created using a monochrome electrophotographic (laser) printing process. 3: Differences in hole punch size and placement of hole punches were observed between page 2 and pages 1 and 3 of the document, item 1. 4: Page 2 of the document, item 1, behaved differently to pages 1 and 3 under infra-red luminescence and ultra-violet light. It is my opinion that the evidence provides strong support for the proposition that the document, item 1, has been altered by the substitution of page 2. NOTE: In the interpretation of indentations, the underscore "_" represents indentations that could not be deciphered, and characters enclosed in brackets "{}" are a possible interpretation of unclear indentations.
BX67CJ	Based on utilized techniques it was concluded that the three-page medical record was altered. Page 2 was substituted with altered page.
C3TC6C	UNIQUE: The three-page medical record of patient Kendra Smith, with ID number 111, dated November 2, 2023. Identified as evidence Q1 in her respective Chain of Custody record; IF IT PRESENTS DOCUMENTARY ALTERATION.
C4UTAQ	Based on the aforementioned observations, I came to the finding that the exhibit in question was altered
C7TFYK	Resultatene taler med stor sikkerhet for at ark 2 er byttet ut. Translated to English as: "The results confirm with high certainty that page 2 has been altered."
CBLFFZ	In my opinion, page 2 is not the original page 2.
CJGHGC	Page 2 can be differentiated from pages 1 and 3 by size and placement of the 3-fold perforation and the different optical reaction under UV light. This indicates that page 2 was not produced at the same time as pages 1 and 3. The indented writing found on page 3 confirms Kendra Smith's statement and proves that the current page 2 is not the original page.
CQCKJN	Based on spectral differences in the paper observed between pages 1/3 and page 2, the dissimilarities in hole punch position/size between pages 1/3 and page 2, and the latent handwriting impressions observed, I have formed the opinion that all three pages in Item Q1 were not produced on one occasion and that the questioned document has been altered by substituting page 2. Further, a handwritten entry reading '11/7/23 F/U - PT. reports abdominal pain.' was written on a separate page while on top of page 3.
CT4G8G	The clue(medical records) are altered hence the paper of the page 2 has different characteristics.
CV9AZV	In my opinion, there is evidence of alteration to the questioned document (Item Q1) by replacement/substitution of page 2 from the original three-page medical record.
CYT2AC	Comparisons between Page 1|3 and Page 3|3 to Page 2|3 revealed multiple significant differences. These differences include text formatting/alignment in the location of page numbering, hole punch alignment, and Page 2|3 being produced on a different type of paper than Page 1|3 and Page 3|3. Additionally, an indented hand written notation was located on the front side of Page 3|3 which was interpreted as follows: 11/7/23 F/U PT reports abdominal pain. The words interpreted from the indented writings support the claim of the the patient claiming she had called in with abdominal pain. This writing impressions would have been created when writing was produced on a piece of paper that was laying above Page 3|3, in some manner, and is now not present. Based on all the evidence revealed and outlined above, the document in question was altered and Page 2|2 is a new page which has been added later.
D3P6FP	The Item 1 three-page medical record was examined to determine if there had been any alterations to the document set. Visual, stereomicroscope, measurement, overlays, electrostatic detection apparatus

TABLE 3

WebCode	Conclusions
	and video spectral comparator examinations were conducted. The electrostatic detection apparatus, ESDA, was used to visualize impressions on Items 1, 2, and 3. The ESDA is typically used to visualize handwriting impressions, but also visualizes other paper fiber disturbances. The following significant characteristics were found. 1. Each page has been three-hole punched. The holes in pages 1 and 3 were the same in size, edge characteristics, and placement relative to the edge and to each other. The holes in page 2 were larger than those in pages 1 and 3, had different edge characteristics, and were closer to the edge than those in pages 1 and 3. Also, the punches that made the holes in pages 1 and 3 were moving through the paper from face to back, whereas the punches that made the holes in page 2 were moving through the paper from back to front. The three holes in page 2 were very slightly closer together than those on pages 1 and 3. 2. The page 2 paper had significantly different fluorescent brighteners than what was found on pages 1 and 3. 3. Page 3 has indentations of handwriting from a different sheet that was lying on top of page 3 when written. The ESDA was used to visualize those impressions. The handwriting read, "11/7/23 F/U – PT. reports abdominal pain." This visualized handwriting was captured as layers of plastic in a lift. 4. The ESDA lift from page 3 was overlayed on page 2. The handwriting aligns with the second box for comments under Progress Notes. Based upon all the findings above, it is the conclusion of this examiner that a page substitution occurred. Page 2 is inconsistent with pages 1 and 3, and the handwriting impressions in page 3 are not found as handwriting on the current page 2.
D9BXUA	The analyses on the document shows that : - the indented impressions of handwritting "11/7/23 F/U-P.T reports abdominal pain" is revealed on page 3. If pages 2 and 3 are overlayed, the location of the indented impressions revealed on page 3 corresponds to the second line of the table on page 2. - the perforations on page 2 are different sizes and positions than those on pages 1 and 3. - the paper on page 2 fluoresces less than pages 1 and 3 and the look through appearance is less flaky. Considering the analyses carried out and the information available to the undersigned, the document has been altered by substituting the page 2.
DFWVFC	Based on inconsistencies observed in the location and size of the hole punches, optical properties of the paper, and indented writing observed on Page 3 of Item 1 (Item Q1), it was determined that the Item 1 (Item Q1) document was altered by a substitution of Page 2. Indented writing of value was observed on Item 1 (Item Q1) Page 3 using side-lighting and the Electrostatic Detection Apparatus (ESDA). The ESDA lifts used to capture and retain the indented writing are considered secondary evidence and have been designated Item 2. Images of the Item 2 ESDA lifts are enclosed for your investigative assistance. No other indented writing was observed on Item 1 (Item Q1) Page 1 and Item 1 (Item Q1) Page 2. Additional observations and assessments have been made regarding the submitted items and recorded. [Referenced images not included.]
DHJRN3	Examination of Item Q1 showed the following: 1). A similar type of paper was used to print pages 1 and 3 but it was different to that of paper used to print page 2. 2). Pages 1, 2 and 3 were printed using a similar printing process and font style. 3). The punch holes in pages 1 and 3 were made using a same hole punch but it was different to that used to make holes in page 2. 4). The presence of indentations on page 3 indicates that there was one document having a similar format as that of page 2, placed on top of page 3, where the deciphered handwriting was written on. Based on the above findings, in my opinion, the examination of Item Q1 revealed there was evidence of alteration which supported the patient's claims. Therefore, the questioned three-page medical record (Item Q1) HAS BEEN ALTERED by the removal of the 'original' page 2 and substituted it with a 'new' page 2.
DMPCL8	Comparison of the three pages reveals a number of differences between the paper used to print pages 1 and 3 onto, compared with with page 2. These differences can be visualised using a miScope, ir range. There are also differences between the binding holes of page 2 compared to pages 1 - 3. In my opinion, there is therefore, sufficient evidence to indicate that questioned document has probably been altered.
DQVQHD	Visual and alternate light source examinations of Exhibits Q1(1)(a and b) through Q1(3)(a and b) were conducted. Microscopic examination of Exhibits Q1(1)a, Q1(2)a and Q1(3)a was conducted. Electrostatic Detection Apparatus (ESDA) examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted. The results are as follows: - Indented machine-created (vertical) impressions were

TABLE 3

WebCode	Conclusions
	observed on Exhibits Q1(1)(a and b). - Indented machine-created (vertical and diagonal) impressions, and paper hole impressions were observed on Exhibit Q1(2)(a). - Indented machine-created (vertical) impressions, and paper hole impressions were observed on Exhibit Q1(2)(b). - Indented machine-created (vertical) impressions, and handwriting impressions were observed on Exhibit Q1(3)(a). The handwriting impressions appear to read: "11/7/23 F/U- PT. reports abdominal pain." - Indented machine-created (vertical and diagonal) and handwriting impressions were observed on Exhibit Q1(3)(b); however, the handwriting impressions are not of evidentiary value. The questioned machine-generated entries on Exhibits Q1(1)a, Q1(2)a and Q1(3)a were prepared using toner printing technology. No font differences were observed within the questioned machine-generated entries on Exhibits Q1(1)a, Q1(2)a and Q1(3)a. The questioned paper in Exhibit Q1(1) was compared with the questioned paper within Exhibits Q1(2) and Q1(3). Differences in the properties (i.e., optical or spectral characteristics, paper hole sizes) of the paper within Exhibits Q1(1), Q1(2) and Q1(3) were observed. The questioned paper in Exhibit Q1(1) does not originate from or share a common source with the questioned paper within Exhibits Q1(2) and Q1(3). Exhibit Q1 and ESDA indentation lifts were digitally preserved. Exhibit Q1(3)a and the ESDA indentation lifts were digitally processed.
DXC4GC	Alterations Were Detected. Alterations of the Item 1 (Item Q1) document were detected due to inconsistencies in physical and optical characteristics of page 2 as well as the presence of indented writing on page 3, which was observed using electrostatic processing and side lighting. The electrostatic lift used to capture and retain the indented writing, which is considered secondary evidence, has been designated Item 2. An image of the indented writing is depicted in Figure 1. No indented writing was observed on pages 1 and 2 of Item 1 (Item Q1) using electrostatic processing or side lighting. Additional observations and assessments have been made regarding the submitted items and recorded for possible future examinations. [Referenced figure not included.]
E8E48P	[No Conclusions Reported.]
E99UD4	The 3 pages subject to review were not created together and the second page were created at different times.
EPDKRA	Based on the abovementioned observations I came to the conclusion that the document in question was altered.
EXNH4C	The Medical History document, patient names: Kendra Smith, patient ID: 111, dated “November 2, 2023” numbered “Page 1 / 3”, “Page 2 / 3” and “Page 3 / 3”, identified Q1, PRESENTS ALTERATION by intercalation of the second Page of the document “Page 2 / 3”, taking into account that this has different characteristics from the other sheets “Page 1 / 3” and “Page 3 / 3”.
EZB36A	This report contains the results of the questioned document examinations. Results of Examinations: It was determined that the Item 1 (Item Q1) document was altered due to the presence of indented writing on page three of Item 1 (Item Q1) and the dissimilarities of the optical characteristics of paper and the alignment and size of the hole punches between page 2 and the remaining pages of Item 1 (Item Q1). Indented writing was observed on Item 1 (Item Q1) using side-lighting and electrostatic processing. An image of the indented writing is below in Figure 1 for your investigative assistance. Item 1 (Item Q1) was prepared using a toner printing technology. This technology is commonly found on numerous brands of printers/photocopiers/machines. Additional observations and assessments have been made regarding the submitted item and recorded for possible future examinations. Figure 1: Indented writing observed on Item 1 page 3 (Item Q1). [Referenced figure not included.]
FBR2EC	The questioned document had been altered.
FX8LCD	There is strong evidence that item Q1 has been altered by way of page substitution of Q1.2.
FXFDUP	Based on the aforementioned observations I came to the conclusion that the document in question was altered.

TABLE 3

WebCode	Conclusions
GAC6MD	Paper of the medical records are altered because of the UV fluorescent and the position of the binding holes.
GEALY8	The medical records for the patient, Kendra Smith cannot be considered to be an authentic document as page 2 of the records, in my opinion has been inserted into the document and did not form part of the three page records when it was initially constructed.
GF2GNZ	The structure and colour of the paper on the second page of the document is different from the first and third pages. The text of the blank on the second page different from the text of the blank on the first and third pages by the structure and intensity of the paint. The paper hole punch on the second page is different in size and shape from the paper hole punch on the first and third pages. All three pages of the document are not printed at the same time.
GGW6Z6	Performed the above analyses, where suppressive and additive alterations were found, it is established: The document in question has been altered.
GRTGP4	The results extremely strongly support that the questioned document has been altered (Level +4).
GTRDND	The doctor's records (Pages 1 through 3) were altered from their original form.
GXZY84	Results of Examinations: Page substitution alterations were detected. Indented writing of value was observed on page 3 of Item 1 (Item Q1) using oblique lighting and the Electrostatic Detection Apparatus (ESDA). One lift, used to capture and retain the indented writing, is considered secondary evidence and has been designated Item 2. One image of the ESDA lift is attached to this report. Item 1 (Item Q1) page 2 contained physical, optical, and print alignment characteristics inconsistent with Item 1 (Item Q1) pages 1 and 3. Additional assessments and observations have been made and recorded for future reference. [Referenced image not included.]
GZMFPP	Date Range of Testing Activities: 2/16/2024 to 2/26/2024. Material Submitted: Item: #01 - One sealed envelope containing a three-page medical record, consisting of three sheets of paper (8 ½" x 11" (nominal)) and further described as follows: Q1 - Page designated at the lower right hand corner as "Page3". Q2 - Page designated at the lower right hand corner as "Page3". Q3 - Page designated at the lower right hand corner as "Page3". Issue to be Determined: Whether item #01 has been altered. Findings: Visual and macroscopic examination, infrared luminescence, Black and White infrared reflectance, ultraviolet examination, and type font comparison resulted in the following conclusion: 1) Item #01 has been altered. 1.1) The Q2 paper is dissimilar in physical characteristics (UV response at 365nm) as compared to items Q1 and Q3 (which are similar amongst themselves). 1.2) The Q2 - "3 ring punch-out" holes are dissimilar (larger) than those found on items Q1 and Q3 (which are similar amongst themselves). 1.3) The Q2 - "3 ring punch-out" holes are located in a dissimilar location (closer to the top paper edge) than those found on items Q1 and Q3 (which are in a similar amongst themselves). Items Q1, Q2, and Q3 were examined with oblique light (side lighting) and the use of the ESDA (Electrostatic Detection Apparatus) for the possible presence of indented impressions with the following results: 2) Items Q1 and Q2 were examined; no impressions of investigative value were found 3) An indented impression was located on item Q3, the visible source or corresponding indented impression of which, was not found on items Q1 or Q2. 3.1) The indented impression is deciphered as follows: "11/7/23 F/u – Pt. reports abdominal pain". 3.2) The indented impression is located on the next available horizontal line space as would be found on item Q2. Thus, item Q2 has a font entry of "11/6/2023…" and the indented impression found on item Q3 ("11/7/23…") would be located under the "11/6/2023…" entry if it was written in sequence after the "11/6/2023…" entry. 3.3) A machine copy of the developed indented writing found on item Q3 is attached to this report. Note: If further attention is needed in this matter concerning type font, toner composition, margin orientation analysis and printer transfer roller markings, the submission of at least 5 known three-page medical record forms from one month prior to the date of Item #01 and one month after the date of item #01 will be necessary. Remarks: The above findings are demonstrable through the use of enlarged illustrative charts. If testimony is anticipated, please allow at least three weeks for the necessary preparation. Evidence Disposition: 1) Item #01 is being returned to the [Laboratory], Property Bureau for

TABLE 3

WebCode	Conclusions
	safekeeping. 2) The developed indented impression lifts are being saved as item #01.01 and are being returned to the [Laboratory], Property Bureau for safekeeping.
H2XN63	The questioned document HAS BEEN ALTERED.
HCX767	Characteristics and marks were revealed indicating that the document has been altered with by replacing the page 2. The deleted page 2 contained the handwritten entries "11/7/23 F/UI - PT. reports abdominal pain".
HD8BJU	The questioned document HAS BEEN ALTERED.
HP2Q7A	The questioned three-page medical record (Q1) has been altered. Specifically, page 2 of the questioned document has been substituted for the original page
HTKQJ6	Due to the above, page 2 of the document was replaced in its entirety.
HW792P	It was observed that the printing on all of the document's pages 1, 2 and 3 has been made with a printer/photocopier based on electrophotography. No significant differences between the appearance or positioning of the printing on pages were observed. It was observed that the location and size of the holes made with a hole puncher differ on page 2 in comparison with pages 1 and 3. Also it was observed that the composition and reaction under UV light differs on page 2 in comparison with pages 1 and 3. On pages 1 and 2, no indented impressions were observed. On page 3, indented impression of markings made with pen were observed. No corresponding markings made with pen were not observed on pages 1 and 2. Interpretation of the indented impressions on page 3: "11/7/23 F/U* – PT. reports abdominal pain". *uncertain interpretation "F/U". Based on all the findings listed above it is concluded that the document has been altered by switching the page 2.
HXDQZL	Measurements used in this report are approximate. There is extremely strong support for the proposition that Exhibit 1 has been altered by means of page substitution (i.e., the removal of a previous page 2 and a substitution with the current page 2). There is extremely limited support for the proposition that Exhibit 1 was not altered. Nondestructive examinations disclosed no significant differences between pages 1 and 3 other than the handwriting indentations discussed later in this report. Nondestructive examinations disclosed the following differences on page 2 when compared to pages 1 and 3: a. The color of page 2 is slightly darker than pages 1 and 3. b. When examined with ultraviolet light, the ultraviolet fluorescence is significantly brighter for pages 1 and 3 when compared to page 2. c. When examined using an infrared light technique, there is a much higher number of luminescent fibers in the paper of page 2 than pages 1 and 3. d. The punched holes along one side of page 2 are larger (8-millimeter diameter) than the corresponding holes on pages 1 and 3 (7-millimeter diameter). e. The punched holes on page 2 are closer to the edge of the paper than the corresponding holes on pages 1 and 3. f. Microscopic examination of the paper disclosed light brown fibers in page 2, which were not observed in pages 1 and 3. In addition, Exhibit 1 was processed for indented writing impressions using an Electrostatic Detection Apparatus (ESDA). ESDA lifts were created each time a page was processed (Sub-exhibits 1-13). An indented writing impression reading, "11/7/23 F/U¬ – PT. reports abdominal pain" was developed on page 3 of Exhibit 1. The existence of this impression indicates that the original writing occurred on a different piece of paper, but not the current pages 1 and 2, which do not bear any handwriting. The developed writing impression was preserved by the creation of ESDA lifts (Sub-exhibits 1.5, 1.6, 1.11, 1.12, and 1.13). When the lift is placed over page 2 in such a manner that the developed page edges from page 3 are in aligned with the edges of page 2, the developed writing impression fits into the two empty DATE and PROGRESS NOTES blocks on page 2, which immediately follows the 11/6/2023 entry. Indented writing impressions were not developed on pages 1 and 2 of Exhibit 1. ESDA lifts were made (Sub-exhibits 1.1 through 1.4, and 1.7 through 1.10). Nondestructive examinations disclosed no differences in the electrostatic toner used to create the computer-printed text and boxes on Exhibit 1. Chemical examination of electrostatic toner is not conducted in this laboratory system.
HZ6LPF	On further examination and comparison, I found as follows: 1. The punch hole on the Page 1 is similar

TABLE 3

WebCode	Conclusions
	in size with the punch hole in Page 3. The punch hole on the Page 1 is different in size from the punch hole in Page 2. 2. The paper's color on page 1 is similar with the paper's color in Page 3. The paper's color on the Page 1 is different from the paper's color in Page 2. 3. Indented impressions were found on the page 3 to read as "11/7/23" and "F/D – PT. reports abdominal pain". 4. There are evidence of alterations observed. Hence, I am of the opinion that the questioned medical record has been altered.
J8XGYH	According to the results of the examination, if it is altered.
JJANX4	The document under inspection presents a total alteration of page 2, in the substitute mode.
K4VXEV	Based on expertise results I conclude that on documents of exhibit QD1 has been altered
KA2HC2	The examinations indicate that: Another paper type was used for page 2 compared to page 1 and 3. The paper punch used for page 2 differs from page 1 and 3. On top of page 3 there has been a handwritten note that supports the claim of the patient. These findings suggest that page 2 has been substituted. Alternative scenarios cannot be excluded but are considered unlikely.
KBNPDK	After examination of questioned material I reached the conclusion that the questioned medical record mentioned in paragraph 3 is not authentic, in light of the following observations: 3.1 Page 2/3 paper colour is different from paper colour of page 1/3 and page 3/3. 3.2 Page 1/3 and page 3/3 paper colour is the same. 3.3 Page 2/3 punch holes are bigger in size as compared to the punch holes of page 1/3 and page 3/3. 3.4 Page 1/3 and page 3/3 punch holes are equal in size. The questioned medical record was altered. Page 2/3 was not part of the original medical record.
KEN29K	After examination of the pages in question, I reached a conclusion that the Medical Records were altered by inserting a page 2 that does not appear to have been produced on the same time as the rest of the report.
KPBFJ7	The disputed medical record, in the name of patient Kendra Smith, is a falsified document, since the 2/3 page that currently appears replaces the original.
KQ8Z87	THE QUESTIONED DOCUMENT CALLED ITEMP Q1, IF IT PRESENTS ALTERATION.
KTXYK4	ALTERATIONS: Alterations Were Detected. It was determined that Item 1 (Item Q1) was altered via page substitution due to inconsistencies in optical properties and other physical characteristics between page 2 and the remaining pages and the presence of indented writing (detailed below) not attributed to any visible writing on Item 1 (Item Q1). Indented writing was observed on page 3 of Item 1 (Item Q1) using oblique lighting and electrostatic processing and is best read as: "11/7/23 F/U – PT. reports abdominal pain". The electrostatic lift, used to capture and retain the indented writing, is considered secondary evidence, and has been designated Item 2. No other indented writing was observed on the remaining pages of Item 1 (Item Q1) using oblique lighting and/or electrostatic processing. ADDITIONAL EXAMINATIONS: Item 1 (Item Q1) was prepared using toner printing technology. This technology is available on numerous brands of printers/photocopiers/machines. Additional observations and assessments have been made regarding the submitted item and recorded for possible future examinations.
KU78R4	ALTERED (PAGE SUBSTITUTION): Examination of document Q-1 has revealed evidence of page substitution. The holes present in page 2 do not align properly with the holes present in pages 1 and 3 and the characteristics of the paper page 2 is printed on (color and paper additives present under UV light) are different than the characteristics of the paper of pages 1 and 3. Documents Q-1 through Q-3 was examined for impressions with negative results, using the above listed methods.
KX4AAL	In light of the above observations, I reached the conclusion that the were alterations made on the medical records pertaining to "Kendra Smith" . Page 2/3 differs with "page 1/3and page 3/3.
L7CVVX	The medical record document dated November 2, 2023, with patient name Kendra Smith if altered.

TABLE 3

WebCode	Conclusions
LB9BQZ	FIRST. The questioned document identified as [Lab naming convention] (Q1), Medical History consisting of three letter-sized sheets of bond paper, of patient Kendra Smith. Q1A.- Sheet 1/3 presents the following data: MEDICAL CHART, PATIENT ID 111, PATIENT NAME Kendra Smith, DATE November 2, 2023 and a series of notes. Q1B.- Sheet 2/3 presents the following data: MEDICAL PROGRESS, PATIENT NAME Kendra Smith, DATE 11/6/2023 and PROGRESS NOTES. Q1C.- Sheet 3/3 presents the following data PATIENT VISIT SUMMARY, PATIENT NAME Kendra Smith, DATE 11/2/2023, PATIENT ID 111, PHYSICIAN APPROVAL, REASIN FOR VISIT, DIAGNOSIS, TREATMENT SUMMARY. By virtue of the characteristics found in its component elements, AN ALTERED DOCUMENT IS DETERMINED.
LDEVFK	The questioned documents, Page 1— Page 3, were viewed macroscopically and microscopically and with the aid of various light sources and filters using the Video Spectral Comparator (VSC). The questioned documents were also processed for latent writing impressions using the Electrostatic Detection Apparatus (ESDA). Latent writing impressions may be made when writing is performed on one sheet of paper and leaves indentations on the pages below. The ESDA lift provides a restoration or partial restoration of the original writing which created the impressions. Latent writing impressions were developed on the front and back of Page 3. It has been determined that the three-page medical record concerning patient Kendra Smith has been altered.
LH9QF8	Physical, microscopic, comparative and instrumental examinations resulted in the following: Item Q1, which purports to be a single three-page document, has been altered by page substitution. Page 2 differs from pages 1 and 3; it has a different response to ultraviolet light (less optically bright) and contains larger punched holes that are closer to the edges of the page than the holes on pages 1 and 3. In addition, page 3 contains indented handwriting, visible with side light and legible with ESDA examination, that reads “11/7/23 F/-- PT. reports abdominal pain” (where the “--” represents letter(s) that resemble a “u” but may be something else). Since pages 1 and 2 do not contain any handwritten text, the source of the indentations is a page that was previously on top of page 3, but has been removed. Additional differences were noted between page 2 and pages 1 and 3. The page 2 paper contains visible brown fibers, while pages 1 and 3 do not. The grey areas of the toner printing on page 2 exhibit a pattern of lighter and darker bands. There is not sufficient corresponding grey area on page 1 to evaluate this feature, however, the grey areas on page 3 do not exhibit a pattern of lighter and darker bands.
LHGGXJ	In light of all observations, I reached a conclusion that there was indeed alteration done on page 2 of the medical records.
LM4KD9	Our investigation revealed that page 2 is clearly different from pages 1 and 3. We can therefore refute the statement "that all pages were printed at the same time". Page 2 was printed at a different time to pages 1 and 3.
LP964U	There are indentations of handwriting retrieved on page 3, that do not appear on page 2. The indentation clearly show the recoding of the phone call with abdominal pain as a symptom. Therefore it is concluded that the medical records have been altered and that the second page has been substituted.
LQLJQ4	Physical, alternate light source, and indented writing examinations were conducted and it was determined that Item 1 (Item Q1) has been altered. The following observations were noted: • Item 1 (Item Q1) page 2 reacts optically different under ultraviolet light than pages 1 and 3. • Item 1 (Item Q1) page 2 holes on left side of page are approximately .8cm in diameter and do not align with holes on pages 1 and 3 which are approximately .7cm in diameter. • Item 1 (Item Q1) page 3 contains indented writing that is not observed on pages 1 or 2. A lift of the indented writing that was observed on Item 1 (Item Q1) page 3 using side light and the Electrostatic Detection Apparatus (ESDA)® is considered secondary evidence and has been designated as Item 2. No other indented writing was observed on the remaining pages. Additional assessments and observations have been made regarding the submitted item and are recorded for possible future comparison.
LYEU4J	the document was forged: changes, alterations were made in page 2.

TABLE 3

WebCode	Conclusions
MGGUQD	In my opinion, Q1 has been altered through the substitution of Pg2.
MHMCPA	In my opinion, my findings show that the original Page 2 of the medical records has been removed and replaced with the current Page 2 of Item Q1 (i.e. Page 2 has been substituted). The impressions of writing reading '11/7/23 F/U - PT. reports abdominal pain.' found indented on Page 3 of Item Q1 align with the second row of the Progress Notes on Page 2 of Item Q1 and show that the original Page 2 was written while resting on Page 3 of Item Q1.
MW2UAW	The three-page questioned medical record (Item Q1) has been altered by way of a page substitution. The original page two was removed, and a new page two was inserted as part of the questioned medical record.
N2WVWW	In relation to the analysis carried out, it is established that the questioned document (pages 1/3, 2/3 and 3/3) has been altered.
NAQJP2	The second page "B" of the medical record is inconsistent with the first "A" and the third "C", it was inserted afterwards in-between the first page "A" and the third page "C", hence the medical record was altered.
NH73A2	In light of the afore mentioned observations , i came to the conclusion that Page 2 was not printed together with page 1 and page 3.
P3P7AB	The findings provide extremely strong support for the proposition that the original page 2 of questioned document has been substituted.
PDQUL2	1.There is sufficient evidence to support the proposition that the documents in question marked as "Q2" was altered, the documents in question marked as "Q1" and "Q3" were not printed together with the document marked as "Q2".
PFWWAX	Document Q1 medical history subject to inspection, presents alteration of page 2-3.
PHHTHN	Pages 1 and 3 of the questioned document showed consistencies with the color of the paper, and the notable inconsistencies in the hole punches caused by the hole punch device. Page 2 of the questioned document consisted us a different type of paper, and the hole punches did not reflect the irregularities in the hole punches noted in pages 1 and 3. Therefore, it is my opinion that page 2 is excluded as having been created at the same time of pages 1 and 3.
PTXNV3	It is concluded that the questioned document has been altered. Page 2 of the orignal document was replaced with a new page, page 2.
PWGM9X	it is seen that page No. 2 presents inconsistencies in relation to pages 1 and 3.
PZED7W	There are impressions on page 3 of handwritten entries which appear to relate to the scenario as presented by the complainant. The paper at page 2 differs from that on pages 1 and 3. Taken together these findings show that an original page 2 has been replaced with the current version.
QD3Q7C	It was concluded the paper from page 2 did not originate from the same source as pages 1 and 3. No conclusions are given for alteration examinations.
QMA6BY	Indented writing best read as "11/7/23 _/_ - PT. reports abdominal pain" was observed on Item 1 page 3 (Item Q1) using side lighting and the Electrostatic Detection Apparatus (ESDA). The ESDA lift, used to capture and retain the indented writing, is considered secondary evidence and has been designated Item 2. No indented writing was observed on Item 1 pages 1 and 2 (Item Q1) using side lighting and the ESDA. Optical differences between Item 1 (Item Q1) page 2 and the remaining pages were noted using the Video Spectral Comparator 8000 (ultra-violet light). The hole punch sizes and alignments on Item 1 (Item Q1) page 2 are different from those on the remaining pages. Based on the aforementioned indented writing observed on Item 1 page 3 (Item Q1), optical differences in pages, and hole punch size/alignment differences, alterations to the Item 1 (Item Q1) medical record were

TABLE 3

WebCode	Conclusions
	detected. The printing on the Item 1 pages 1 through 3 (Item Q1) was prepared using a black toner process that is commonly found on numerous brands of office machines.
QMJJAT	- All pages were printed on the same printer. - Page 2, line 2, does not support the handwritten notes that are revealed on page 3. - The paper used for page 2 is different from that used for pages 1 and 3.
QRHNCD	An examination of item Q1 using non-destructive testing techniques (VSC 6000/HS) resulted in the following opinion: - There is evidence to support the contention that item Q1 has been altered. Page 2 of item Q1 has likely been substituted. All three pages of item Q1 were processed for indented writing using an ESDA2. - A handwritten entry of "11/7/23 Flu PT. reports abdominal pain" was developed on page 3. - No indented writing was developed on pages 1 and 2. - The derivative indented writing lifts (item Q1a) were returned with the submitted evidence.
QRKY3X	I found sufficient evidence to support that the medical record in question was altered.
QTCEHR	The technical findings support the proposition that the second medical record sheet is not the original and was not printed at the same time as sheets 1 and 3.
QTVDEQ	In my opinion, based on the observations and the information provided, the medical record Q1 has been altered by the substitution of page 2.
QX9XLC	Given the assumptions made from the case scenario, that the medical record was printed as one contiguous, complete document, there is very strong support for the proposition that this 3-page medical record has been altered.
QXR6K2	The observations suggest that the questioned document has been altered (i.e. the second page has been substituted or printed at a different time).
QZENLY	After analyzing the document in question through the specialized equipment mentioned above, it was concluded that the document was altered.
R262TN	Physical and instrumental examinations were conducted on Item 001. It was determined Item 001 was probably altered. The claim Item 001 page 2 was printed at the same time as Item 001 pages 1 and 3 is not supported based on the below findings. However, it could not be determined whether or not Item 001 page 1 and Item 001 page 3 were printed at the same time. ·Decipherable indented impressions that are not attributed to original writing on Item 001 pages 1 and 2 were developed on Item 001 page 3. The impressions appear to read "11/7/23 F/U - PT. reports abdominal pain." ·No decipherable impressions were developed on Item 001 page 1 and Item 001 page 2. ·The hole punches in Item 001 page 2 do not align with the hole punches in Item 001 pages 1 and 3. ·Item 001 page 2 has different physical and optical properties than Item 001 page 1 and Item 001 page 3.
R4RNKC	Pages one through three of the Exhibit Q1 medical record were prepared with an office machine system that utilizes dry black toner. Each page of the three-page Exhibit Q1 medical record contain holes that are consistent with a three-hole punch. The holes in page two are not in alignment with the holes in pages one and three. The holes in pages one and three are consistent with one another. The printed left margin and footer for page two of the Exhibit Q1 medical record is aligned differently than pages one and three. The printed left margins and footers on pages one and three are consistent with one another. Further, there is some typing in bold on page two for the Date and Progress Notes entries dated “11/6/2023.” Typing in bold does not appear for the entries for notes and other typed information on pages one and three. The paper used to prepare page two of the Exhibit Q1 medical record has different optical properties than the paper used to prepare pages one and three. The paper used to prepare pages one and three fluoresce the same. Evidence of indented writing appears on page three of the Exhibit Q-1 medical record that reads “11/7/23 F/U – PT. reports abdominal pain.” The location of this indented writing is consistent with the empty spaces for Date and Progress Notes below the typewritten information that appears on page two dated “11/6/2023.” Writing matching this indented entry does not appear on page one or two of the Exhibit Q1 medical record. Based on the evidence outlined above, it has been concluded that the Exhibit Q1 medical record has been altered by substituting the current page two for another that contained the entry found indented on page three.

TABLE 3

WebCode	Conclusions
R9LHHD	1. The questioned medical record, Exhibit 1(1-3), has been altered. 2. Exhibits 1(1-3) were processed for the presence of indented writing impressions. Unsourced impressions were found on Exhibit 1(3). No impressions were found on Exhibits 1(1-2)
RUDEME	In light of the analysis and comparison, I reached the following conclusion: I found sufficient evidence to support the proposition that the document marked as “Q2” (page 2) was in fact altered.
RYD74U	The questioned document "Item Q1" contained evidence of alterations.
T9TYKD	1. There are alterations on the medical report. 1.1 page 2 of the medical report has been altered. 1.2 page 2 of the medical report has not been printed at the same time as alleged. 1.3 page 2 of the medical report fluoresces differently from page 1 and page 3. 1.4 the puncure holes on page 2 differs from page 1 and page 3.
TB8Q4X	The evidence identified as Item Q1, which consists of three pages of the medical history of the patient Kendra Smith, DOES PRESENT ALTERATIONS DUE TO ADDITION.
TCFY9C	The questioned documents, Items 1A-1C, were examined for alterations microscopically, digitally, and with various light sources. The questioned documents were also examined for indented writing. These examinations revealed that the paper used to print Item 1B did not share a common source with the paper used to print Item 1A or 1C. Also, the 3-hole punch size and pattern alignment on Item 1B was different when compared to the punch size and alignment on Items 1A-1C. In addition, Item 1C also contained indented writing impressions that appeared to read "11/7/23 F/u - PT. reports abdominal pain." that were not sourced to either Item 1A or 1B. Based on these examinations, it is my opinion that the questioned medical record 1A-1C was altered by means of a page substitution of the 2nd page (Item 1B).
TMWRBR	The two main points were found are enough to conclude the examination. Thus, examination no need further evidence to show that 2nd paper (Medical Progress) is different paper and was produced at different time as Paper 1 and Paper 3. Our expert opinion is that the medical record HAS BEEN ALTERED where there was replacement for the paper 2.
TPPEG3	The questioned document has been altered. It has been forgered by replacing 2nd page of the document.
TQ4N3V	The medical records in question have been altered in that page 2 of the document has been removed and replaced by the page currently in its place.
TRVWFX	There is alteration due to change of page 2/3 of Kendra Smith's medical history.
U3QP2U	ALTERED (PAGE SUBSTITUTION): Examination of Q-1 revealed a page substitution. Page 2 of Q-1 was revealed to have been substituted due to being a different shade of white compared to pages 1 and 3 under regular light, hole punches at the top not aligning with pages 1 and 3, and reacting under UV light differently compared to pages 1 and 3.
U47PKJ	Document number 1 (medical record) consists of 3 pages. Upon examination with an ultraviolet light source, it was discovered that the fluorescence reaction of PAGE 2 is different from that of PAGE 1 and PAGE 3. It is assessed that the paper of PAGE 2 does not originate from the same source as PAGE 1 and PAGE 3. There's no significant differences were observed by IR. Upon examining the overlaid documents PAGE 1 to PAGE 3 under a floodlight source with localized magnification, it was found that the hole-punch positions at the top of PAGE 1 and PAGE 3 are the same, while the hole-punch position on PAGE 2 differs from PAGE 1 and PAGE 3. Upon inspecting the overlapping page numbers in the bottom right corner—Page 1|3, Page 2|3, and Page 3|3—no significant differences were observed. It is deduced that the three documents were not bound together at the same time. Evidence shows the questioned document HAS BEEN ALTERED. The second page was not printed with page 1 and page 3 at the same time , and the paper source different from the page 1 and page 3.

TABLE 3

WebCode	Conclusions
U6D93R	Mrs. Kendra Smith's medical record was altered.
UGB8VJ	After examining the three pages long medical report, concerning patient Kendra Smith, it is concluded that pages number (1 and 3) was printed simultaneously and derived from the same source, whereas page number (2) was printed separately and does not share the same origin as pages (1 and 3).
UKQFJH	The questioned document HAS BEEN ALTERED.
UXGAR7	* ESDA result: There are unsourced indentations on page 3 which appear to be a handwritten entry that reads "11/7/23 F/U - PT reports abdominal pain". This entry aligns with the 2nd row in the "Progress notes" field in the table on the presented page 2. * VSC result: When viewed under IR luminescence, the paper on page 2 is dissimilar to the paper on pages 1 and 3. * Alignment of holes at the top of the pages: The three holes at the top of pages 1 and 3 align with each other while the holes at the top of page 2 do not align with the holes on pages 1 and 3.
UYA6GZ	The characteristics of the page 2 are observed differently in multi-source light inspection such as UV, IR, and The holes at the top of the paper(page 2) are located differently.
UYQGWJ	The item under study shows sheet 2/3 in a different color from sheets 1/3 and 3/3. In addition, to the perforated holes of different sizes and slightly displaced upwards, indicating that the three sheets were not printed at the same time.
UZ8DPJ	The following assumes that all three pages of Q1 were originally printed out in one go and hole punched together. In my opinion, the original version of page 2 has been replaced with the current page 2, which is made from different paper to pages 1 and 3 and has been hole punched using a different hole punching device (in a different position on the paper) to that used for pages 1 and 3. In my opinion, text which I have interpreted as ""11/7/23 F/U - PT. reports abdominal pain" was handwritten onto an unknown piece of paper when it was resting on page 3, causing indented impressions on page 3. Given the information provided, the nature of the handwritten text and the alignment of the indented impressions, in my opinion, it is very likely that the writing ""11/7/23 F/U - PT. reports abdominal pain" which caused these indented impressions was made in the second set of boxes titled: ""DATE"" (""11/7/23"") and ""PROGRESS NOTES"" (""F/U - PT. reports abdominal pain"") on the original version of page 2 when the edges of this original page were in close alignment with page 3 (for example bound by the hole punches).
V3LANU	HAGO DE SU CONOCIMIENTO QUE CON BASE A LOS ANALISIS REALIZADOS AL DOCUMENTO MOTIVO DE ESTUDIO SE CONCLUYE LO SIGUIENTE: LA PÁGINA DOS MOTIVO DE ESTUDIO PRESENTA ALTERACIÓN POR SUSTITUCIÓN COMPLETA AL PRESENTAR DISCORDANCIA DE TONALIDAD CON RESPECTO A LAS PAGINAS 1 Y 3. LA PÁGINA TRES SI ADVIERTE ESCRITURA INDENTADA UBICADA EN PARTE CENTRAL Y QUE SE LEE COMO "11/7/2023 F/U-PT REPORTS ABDOMINAL PAIN". I MAKE YOUR KNOWLEDGE THAT BASED ON THE ANALYSIS CARRIED OUT ON THE DOCUMENT UNDER STUDY, THE FOLLOWING IS CONCLUDED: PAGE TWO REASON FOR STUDY PRESENTS ALTERATION BY COMPLETE SUBSTITUTION BY PRESENTING A DISCORDANCE IN TONALITY WITH RESPECT TO PAGES 1 AND 3. PAGE THREE DOES NOTICE INDENTED WRITING LOCATED IN THE CENTRAL PART AND READS AS "7/11/2023 F/U-PT Reports abdominal pain"
V6B2D6	The questioned medical record in item Q1 was examined. Comparison of page 2 with pages 1 & 3 of the questioned record revealed discrepancies in colour and optical properties of the paper. Moreover, the punch holes on page 2 were found to display discrepancies in size, cutting edge and relative position with respective to the edge of paper when compared with those on pages 1 & 3. In addition, indented marks of handwriting "11/7/23 F/U- PT. reports abdominal pain." were found on page 3. The above findings indicated that page 2 of the questioned medical record has been substituted. As such, the questioned medical record in item Q1 has been altered.
VFTH7C	The questioned medical record has been altered. Following are observations that support that (1) a note of the patient having abdominal pain on 11/7/23 had previously been included in the questioned

TABLE 3

WebCode	Conclusions
	record and (2) that the three pages were not printed together at the same time: 1. Indented writing impressions of "11/7/23 F/U - PT. reports abdominal pain" were recovered on page 3 of the medical record. (See Fig. A below.) This means that the writing that made the impressions was done on a different, unsubmitted document while on top of the submitted page 3. 2. When the document containing the impressions found on page 3 is overlaid on page 2, the impressions fit in the second row of the table on page 2. (See Fig. B below.) This supports that the "11/7/23 F/U - PT. reports abdominal pain" was written on a document of the same format as page 2 and while lined up on top of page 3, rather than on a document with a different format or with the writing executed randomly. 3. The three hole punches on page 2 are larger and have a different contour than those on pages 1 and 3. (Fig. C below depicts the difference in contour.) 4. Impressions commonly seen as a result of the action of rollers or other printer parts were found on the back of page 2 but not on the back of pages 1 and 3. 5. The paper on which page 2 is printed is a different color and has different luminescing properties than the paper on which pages 1 and 3 are printed. (Fig. D below shows that page 2 has luminescing fibers, whereas the other pages do not.) [Referenced figures were not included.]
VKLMWU	There was probably an alteration made to the medical report on only page 2 which showed differences in the quality of paper compared to paper of the pages 1 and 3.
VKP3AV	Visual examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted. Microscopic examination of Exhibits Q1(1)a, Q1(2)a, and Q1(3)a was conducted. The questioned machine-generated entries on Exhibits Q1(1)a, Q1(2)a, and Q1(3)a were prepared using black toner printing technology. Electrostatic Detection Apparatus (ESDA) examination of Exhibits Q1(1)(a and b) through Q1(3)(a and b) was conducted. Indented machine-created impressions were observed on these exhibits. Indented handwriting impressions were observed on Exhibits Q1(3)(a and b). No further indented impressions were observed on Exhibits Q1(1)(a and b) and Q1(2)(a and b). Indentation lifts were created to preserve the results of the ESDA examination. The questioned handwritten indented impressions on Exhibit Q1(3)(a and b) appear to read “11/7/23 F/U: PT. reports abdominal pain”. See Image 1 for details. The questioned handwritten indented impressions are suitable for comparison with submitted known handwriting. Alternate light source and magnetic examinations of Exhibits Q1(1)a, Q1(2)a, and Q1(3)a were conducted. Magnetic properties were observed within the machine-generated entries on Exhibits Q1(1)a, Q1(2)a, and Q1(3)a. Differences were observed in the paper used in the production of Exhibits Q1(1)(a and b) and Q1(3)(a and b) and Q1(2)(a and b). Therefore, Exhibits Q1(1)(a and b) and Q1(3)(a and b) do not originate from or share a common source with the paper used in the production of Exhibit Q1(2)(a and b). Additionally, differences in the size and placement were observed in the three-hole perforations between Exhibits Q1(1)(a and b) and Q1(3)(a and b) and the three-hole perforations found on Exhibits Q1(2)(a and b). See image 2 for details. Therefore, the device used in the production of the three-hole perforations on Exhibits Q1(2)(a and b)was not prepared by the same device used in the production of the three-hole perforations on Exhibits Q1(1)(a and b) and Q1(3)(a and b). [Referenced images not included.]
VN7AXV	Methods: Item Q1 was instrumentally and microscopically examined. Examination Findings: The document in item Q1 was altered at some point. Page 2 of 3 in item Q1 is not original to item Q1. Magnification revealed that the diameter of the holes created by a hole punch are larger on page 2 of 3 than on page 1 of 3 or page 3 of 3 in Q1. Instrumental examination of item Q1 using various light sources revealed the paper used on page 2 of 3 in item Q1 is different than the paper used on page 1 of 3 or page 3 of 3. Instrumental examination of item Q1 revealed indented writing on page 3 of 3. The indented writing reads as "11/7/23 Flu- PT reports abdominal pain". Pages 1 of 3 and 2 of 3 contain no handwritten entries and could not have been the source of this entry. An additional paper must have contained the handwritten entry that is not included in item Q1.
VZJUUW	On further examination, I observed indentation on page 3 to read as ‘11/7/23 F/u – PT. reports abdominal pain.’. I also found that paper fibers on page 2 were different from page 1 and 3, and punch hole size on page 2 was bigger than page 1 and 3. Hence, I am of the opinion that the questioned document has been altered.
W3NEKH	After examining the three pages long medical report, concerning patient Kendra Smith, it is concluded that pages number (1 and 3) was printed simultaneously and derived from the same source, whereas

TABLE 3

WebCode	Conclusions
	page number (2) was printed separately and does not share the same origin as pages (1 and 3).
W9N2AW	Questioned document Q1 has been altered by substituting page 2.
WBEZNU	The investigated document provided for analysis as doubtful, presents alteration due to deletion and addition, sheet number 2 was replaced by another; Likewise, traces of handwriting were found on sheet number 3, which was described and illustrated in the findings item.
WCBKBU	2nd sheet of paper of the document has probably been altered.
WYYDD9	Based on visual and instrumental examinations, it was determined that Item Q1 (a three-page document) was altered via page substitution of Page 2. This finding is based on the following observations: • The paper used in Item Q1-2 (Page 2) has different optical properties than the paper used in Items Q1-1 (Page 1) and Q1-3 (Page 3). The paper used in Items Q1-1 and Q1-3 share similar optical properties. • The hole punches present at the top of Item Q1-2 are different in size and shape than the hole punches present at the top of Items Q1-1 and Q1-3. The hole punches present at the top of Items Q1-1 and Q1-3 share a similar size and shape. • Unsourced indented impressions were observed on Item Q1-3; see image below. Note: image is not to scale. No discernible indented impressions were observed on Items Q1-1 and Q1-2. [Referenced image not included.]
X4AJTE	The questioned document demonstrates characteristics indicative of alterations.
X9J4C7	No indented impressions of evidentiary value were developed on Q1a or Q1b. Indented impressions from an unknown source that read "11/7/23 F/U - PT. reports abdominal pain." were developed on Q1c. The Q1 document has been altered. The Q1b UV reaction, IR reaction, misaligned hole punches, and the aligned indented impressions developed on Q1c is evidence to support that Q1b is a page insertion.
XACUHK	The document of doubt as "medical history of patient Kendra Smith", presents a substitutive alteration of the sheet numbered as "Page 2/3", which presents differences in the fluorescence of the paper and printing screening of the titles of the sheet, compared to the sheets numbered as "Page 1/3" and "Page 3/3".
XDL38R	After analysis,I found sufficient evidence to support that page 2 of 3 of the medical record was altered.
XEW6TQ	In light of the above observations, I reached a conclusion that the questioned document (Page 2) was altered.
XGXMW6	The items listed were assessed and examined based on methodology described in the Forensic Document Unit Test Methods (unless otherwise noted). The methodology used included macroscopic, microscopic, paper, print process, and indented impression examinations. Macroscopic and Microscopic Examination: Pages 1, 2, and 3 in Item Q1 measured ~8 ½ inches by 11 inches and lacked watermarks. Page 2 in Item Q1 appeared more off-white in color and was optically dull under ultraviolet light compared to Pages 1 and 3 in Item Q1, which appeared whiter and more optically bright. Additionally, some paper fibers within Pg 2 in Item Q1 luminesced under infrared luminescence, whereas fibers did not luminesce within Pages 1 and 3 in Item Q1. The hole punches for Pages 1 and 3 were smaller in size, had smoother edges, and located farther away from the edge of the paper compared to Page 2 in Item Q1. Pages 1, 2, and 3 in Item Q1 were produced with black toner technology. Page 2 in Item Q1 contained more printing in non-print areas surrounding the edges of the characters compared to Pages 1 and 3 in Item Q1. No handwriting or hand printing was observed on Pages 1 – 3 in Item Q1. Indented Impression Examination: Pages 1 – 3 in Item Q1 were examined for the presence of indented impressions. These, generally, are impressions left on a document which has been in contact with another document during the writing process. Indented impressions are subject to more than one interpretation when deciphered. The six electrostatic detection device lifts that were produced during the indented impression examination of Pages 1 – 3 in Item Q1 may be viewed in Item Q1A. Unsourced indented impressions developed on lifts Q1A5 and Q1A6 in Item Q1A, which were

TABLE 3

WebCode	Conclusions
	from Page 3 in Item Q1. The indented impressions were deciphered as "11/7/23 F/U PT reports abdominal pain" and were located approximately in the middle of the lifts. No additional unsourced, decipherable indented impressions developed on lifts Q1A1 – Q1A4 in Item Q1A, which were from the front and reverse of Pages 1 and 2 in Item Q1. Evidence of Alteration: The differences observed between the paper, hole punches, and toner as well as the presence of the unsourced indented impressions on Page 3 in Item Q1 supports the contention of a substitution of Page 2 in Item Q1. Therefore, the medical record in Item Q1 was altered.
XHCCXW	The page 2 in the document identified Q1 was replaced with the original page which presented the note of the call to the medical office on 7/11/23 reporting her abdominal pain, as alleged by patient Kendra Smith.
XVXN97	The questioned document has been altered. The questioned documents were examined for the presence of indented writing impressions. Unsourced impressions were found on page 3. No impressions were found on pages 1 and 2.
XWREEK	Item 1/QD, a three-page computer generated medical record, was examined in attempts to determine if it was altered. There is evidence that supports the finding that the three-page medical record has been altered. There is evidence that the original Page 2 was removed and substituted with the current Page 2.
XZEWW7	Upon completion of an examination of the Q-1 exhibits submitted in this case, it is the opinion of this examiner that the Q-1 was altered, specifically the Q-1 3. This is a conclusive opinion. The Q-1 1, Q-1 2, and Q-1 3 exhibits were examined using the ESDA and latent writing impressions were discovered on the third page of the Q-1 exhibits "11/7/23 F/U PT reports abdominal pain".
Y3DMGQ	Microscopic examination revealed that the document was altered by page substitution of Q1B in the following manner: difference in size of punched holes from Q1A and Q1C which have the same size. See page 3 or interpretation. Utilizing the VSC (Video Spectral Comparator), revealed that the document was altered by page substitution of Q1B in the following manner: difference in optical properties from Q1A and Q1C. See page 4 for interpretation. Laboratory item 1 (Q1C Front and Back), Invoice #Q200855 was examined utilizing oblique/side lighting and EDD (Electrostatic Detection Device) for the possible presence of indented impressions. Multiple impressions were found. Q1C Back used for reporting purposes. See page 5 for interpretation. Laboratory item 1 (Q1A Front and Back, Q1B Front and Back), Invoice #Q200855 was examined utilizing oblique/side lighting and EDD (Electrostatic Detection Device) for the possible presence of indented impressions. Aside from the laboratory number, lab item number, envelope outline, paper outline, or extraneous markings - no impressions were found.
Y7DXCQ	1. Laboratory item #1, was visually and microscopically examined. Visual examination of Laboratory item #1 failed to disclose the presence of any handwriting. Visual and microscopic examination of the printing process on the three pages of laboratory item #1, Q1A, Q1B and Q1C revealed the presence of a dry toner printing process. 2. Laboratory item #1, Q1A and Q1B pages were examined utilizing oblique/side lighting and EDD (Electrostatic Detection Device) for the possible presence of indented impressions. Aside from the laboratory number, lab item number, envelope outline, paper outline, or extraneous markings - no impressions were found. 3. Laboratory item #1, Q1C page was examined utilizing oblique/side lighting and EDD for the possible presence of indented impressions. Multiple impressions were found on Q1C Front and Q1C Back. For a representative image of these indented impressions see page 2 of this report. 4. Utilizing the VSC (Video Spectral Comparator) revealed dissimilarities between the Q1B paper and Q1A and Q1C papers with respect to their color, texture and response to alternate light sources. For a representation of the UV response comparison between Q1B and Q1A and Q1C see page 3 of this report. 5. Utilizing visual, microscopic, EDD and VSC analysis revealed that the document submitted as Laboratory item #1 was altered in the following manner: Q1B page substitution.
YEN69T	As a result of examination and comparison based solely on the material submitted the following conclusions and observations are opinions based upon my experience, education and training and are as follows: 1. The Q1-Q3 documents were scanned for preservation by Forensic Document Examiner

TABLE 3

WebCode	Conclusions
	XXX. 2. A VSC (Video Spectral Comparator) examination using various microscopic, infrared, ultraviolet, and alternate light source examination techniques was performed on the Q1a-c documents. The paper used for Q1 and Q3 and reacted consistently using UV. The paper used for Q2 reacted differently and was darker in color. 3. An ESDA (ElectroStatic Detection Apparatus) examination for the detection and reading of indented writing, typing or other identifying impressions was performed on the Q1-Q3 documents. Impressions were recovered from the Q3 document. This impression read: "11/7/23 F/U PT reports abdominal pain". 4. The Q1-Q3 documents were oriented in a horizontal position. There were three hole punches across the top of each document. Q1 and Q3 punch holes were consistent in size and placement across the top of the page. Q2 was not consistent with size and placement. 5. The Q1-Q3 documents were produced by an electrophotographic process/laser printer on white copy paper. 6. The fonts used for producing the Q1-Q3 documents were Gratimo Grotesk, Twentieth Century and FF Kievit . The font sizes varied throughout the document and were measured at 18pt, 11pt, 10pt and 9pt. 7. The images visualized under section 3 above, indicate that the second page of the chart, not included in the Q1-Q3 documents, was above Q3 when handwritten content was executed. 8. It is my opinion that page 2 of the Medical Chart has been inserted and therefore the Q1-Q3 document has been altered.
YGNGLK	Alteration Examination: Visual and microscopic examinations were conducted on Exhibit Q1 utilizing a video spectral comparator and stereomicroscope. Exhibit Q1 was produced using an office machine(s) utilizing black-only toner technology. No original writing was observed on Exhibits Q1-1 through Q1-3. Exhibit Q1 has been altered. Exhibit Q1-2 was not originally a part of Exhibits Q1-1 and Q1-3. Hole Punch Examination: Exhibits Q1-1 through Q1-3 each contain three-hole punches. The three-hole punches on Exhibit Q1-1 and Q1-3 are in alignment with one another. However, the three-hole punches on Exhibit Q1-2 are not in alignment with Exhibits Q1-1 and Q1-3. Therefore, Exhibit Q1-2 was likely hole punched at a separate time than Exhibits Q1-1 and Q1-3. Indented Writing Examination: No significant indented impressions were observed on Exhibits Q1-1 and Q1-2. Indented impressions were observed on Exhibit Q1-3. The indented impressions appear to read “11/7/23 T/? PT. rep?rts ?bd?m???? pain.”. Portions of the indented impressions are obscured by the toner printing on Exhibit Q1-3. No original writing was present on Exhibits Q1-1 and Q1-2. Therefore, the source of the indented impressions observed on Exhibit Q1-3 could not be determined. Toner Examination: Comparative examinations utilizing a video spectral comparator and chemical examinations utilizing Thin-Layer Chromatography were conducted on representative samples from the toner on Exhibits Q1-1 through Q1-3. The toner formulation(s) on Exhibits Q1-1 through Q1-3 was determined to be chemically indistinguishable. Therefore, the toner on Exhibits Q1-1 through Q1-3 cannot be excluded as sharing a common source. Paper Examination: Comparative examinations utilizing a video spectral comparator and chemical examinations utilizing Thin-Layer Chromatography were conducted on representative samples from Exhibits Q1-1 through Q1-3 papers. Exhibits Q1-1 through Q1-3 were determined to have been produced using at least two (2) different types of paper. Exhibit(s): Q1-1 and Q1-3, Paper Family: 1; Exhibit(s): Q1-2, Paper Family: 2. Exhibits Q1-1 and Q1-3 papers were determined to be chemically indistinguishable. Therefore, Exhibits Q1-1 and Q1-3 papers cannot be excluded as sharing a common source. Exhibits Q1-1 and Q1-3 papers were determined to be different than Exhibit Q1-2 paper. Therefore, Exhibit Q1-2 paper does not share a common source with Exhibits Q1-1 and Q1-3 papers.
YGU67T	In light of the analysis and comparison, I reached the conclusion that the document marked as (Q2) page 2 was not printed together at the same time with the documents marked as (Q1) page 1 and (Q3) 3, it was altered.
YNT8DQ	Forensic examinations using specialized lighting and examinations for indented writing revealed inconsistencies with the stated method of production. Page 2 was not printed at the same time as pages 1 and 3. Page 2 reacted differently under ultraviolet light indicating that it was not printed from the same ream of paper. The punch holes on page 2 are not in alignment with pages 1 and 3, indicating that it was punched at a different time. There is indented writing on page 3, not sourced to pages 1 and 2 and is consistent with the patient's statement. Based on the above observations, page 2 was inserted, and the record is altered.

TABLE 3

WebCode	Conclusions
YXF74W	The results of the investigations show that the questioned document has been altered. There were no limitations to the investigation. Our expert opinion is that the questioned document has been altered. The sheet number 2 was replaced with a different one.
Z8HYMM	2nd page substitution.
Z8M3PE	[No Conclusions Reported.]
ZCXDFN	Questioned Document Q-1 Has Been Altered through Page#2 being Replaced. The hole punch on Page#2 does not line up with Page#1 and Page#3. Page#2 color under UV Lighting reveal it is not from the same origin as Page#1 and Page#3.
ZUZXFW	The page2 of the questioned record was changed.

Additional Comments

TABLE 4

WebCode	Additional Comments
2LHXBK	The strength of the evidence is due to the information that all three pages of the medical record are printed together at the same time, yet there are indented impressions on page 3 that do not result from writing on the current page 2. Had there only been the differences with the appearance of the paper and the position of the punched holes, the evidence in relation to alteration would have been weaker. These differences could have possibly been explained by different paper types having been present in the printer at time of printing and/or pages may have been hole punched separately.
3BBTJF	-The second page of the questioned document (Q1) is different (Color, size of the punch-holes and reaction under UV) compared to the first and third page. -The indented writing of the expression «11/7/23 F/U – PT. reports abdominal pain» was revealed on the third page of the questioned document (Q1) which corresponds to the statements made by the patient «Kendra Smith». -The overlay of the third page which contains the indented writing of the expression «11/7/23 F/U – PT. reports abdominal pain» with the second page of the questioned document (Q1) shows that this indented writing is located on the first empty line of the table in the second page. -The absence of the handwriting «11/7/23 F/U – PT. reports abdominal pain» on the second page of the questioned document (Q1). All these findings prove that the questioned document (Q1) has been altered by the substitution of the second page.
3JR62M	The different paper, alignement/shape/size of punched holes and the indented writings visible only on p.3 are consistent with the hypothesis that the present page 2 has been subsituted.
4CNHMR	A consideration would be to request redacted medical files from other patients to show the normal protocol for writing chart notes.
6L99MP	The black text print elements of all three sheets were displayed using monochrome (black/white) laser printing equipment with an electrophotographic operating principle. The FT-IR microscopy (ATR) examination of the printing ink confirmed the same composition on all three sheets, and the prints of the sheets show magnetic characteristics in the same way and to the same extent.
6NVRNM	In real case work, a template of the medical records would have also been requested for examination.
7KACPE	Dicho lo anterior en la hoja del Scenario o guión donde la paciente Kendra Smith ha reclamado que el médico ha alterado su expediente médico, ya que declaró que recibió una llamada telefónica el 6 de noviembre de 2023 de su médico Dr. Suite, tras una visita médica, en la que informó a su médico que sus síntomas persistían. El 7 de noviembre de 2023, la paciente llamó al consultorio médico para explicar que ahora tenía lolor abdominal. Le informaron que se había tomado una nota en su expediente y su médico la llamaría pronto. Sin embargo, nunca recibió una llamada de su médico. Esa noche fue llevada al hospital por un problema médico grave. La paciente ha reclamado negligencia por parte de su médico. En la Page 2/3 del expediente se anotó la fecha y el síntoma que tenía la paciente la cual se borro después y que la hendidura de esos surcos fue impresos en otras hojas. Al ser sometido al equipo de Detección Electrostática se puede observar en la Page 3/3 las leyendas "11/7/23 F/M - PT. report's abdominal pain.", las cuales no son visualizadas a ojo desnudo. Por lo que: El ITEM Q1.- Expediente médico de tres páginas sobre la paciente Kendra Smith, con fecha 02 de noviembre de 2023, SI PRESENTA INDICIOS DE ALTERACIÓN. The above said in the Scenario sheet or script where the patient Kendra Smith has claimed that the doctor has altered her medical record, since she stated that she received a phone call on November 6, 2023 from her doctor Dr. Suite, after a visit medical, in which she informed her doctor that her symptoms persisted. On November 7, 2023, the patient called the doctor's office to explain that she now had abdominal pain. She was informed that a note had been made in her chart and her doctor would call her soon. However, she never received a call from her doctor. That night she was taken to the hospital for a serious medical problem. The patient has claimed negligence on the part of her doctor. On the page of the file, the date and the symptom that the patient had were noted, which she later erased and that the indentation of those grooves was printed on other sheets. When subjected to the Electrostatic Detection equipment, the legends can be seen in the Page 3/3 "11/7/23 F/M - PT. report's abdominal pain.", which are not visible to the naked eye. Hence: ITEM Q1.- Three-page medical record on patient Kendra Smith, dated November 2, 2023, IF IT PRESENTS INDICATIONS OF ALTERATION

TABLE 4

WebCode	Additional Comments
7VNKAL	We will explain in our report that a handwriting examination is possible if needed during the investigation (e.g. if doctor Suite denies that the handwriting developed on the ESDA film from page 3 is his). We find that the indentations developed on the ESDA film from page 3 is of sufficient quality for further examination. We shortly specify what material (writing samples) the investigators should collect to get the most valid result in a handwriting comparison case. Further advice regarding a possible handwriting examination is done by mail or phone if relevant for the investigators.
9RHQJF	All notes, we found on page 3/3, it combines “Reason for visit, diagnosis and treatment summary” which shows that it is wrote on November 2, 2023 are additional notes.
9VX9MH	Page 3 of patient Kendra Smith's medical record shows indented handwriting marks, while page 2 of the record shows no handwriting.
AZRPDG	Recommend the investigators to inspect a phone call history of the patient and the doctor's office on November 7, 2023.
BMXQ6B	If authorship of the handwritten indented entry is in question, please contact this office to discuss obtaining suitable specimen material.
DMPCL8	I would produce an illustration attached to my report which would show the differences I have revealed between pages 2 and 1/3,
E99UD4	Since the medical practice management mentioned in the scenario is applied differently in our country, our experts had difficulty in understanding the scenario.
EXNH4C	The “Page 2 / 3” sheet does not present the characteristics that the “Page 1 / 3” and “Page 3 / 3” sheets entail, in terms of texture and opacity of the paper, even in reaction to ultraviolet light said sheet “Page 2 / 3” is different from the others. The “Page 2 / 3” sheet has perforations in the upper part that do not perfectly coincide with the perforations exhibited by the “Page 1 / 3” and “Page 3 / 3” sheets, in terms of position and cutting edges caused by drilling. The “Page 2 / 3” sheet has blue, red and yellow fibers, placed randomly and indistinctly in the sizing or gluing of the paper, while the “Page 1 / 3” and “Page 3 / 3” sheets lack of them, which makes them part of a different type of paper. In the technical analysis, it was found that the “Page 2 / 3” sheet does not present any alteration due to (deletion, scraping, grafting, chemical washing, addition), with which they have tried to modify its original content. The texts printed on the sheets “Page 1 / 3”, “Page 2 / 3” and “Page 3 / 3”, present morphostructural characteristics that result in them coming from the same printing source, even when they present the distribution and size of different signs, whose content may be part of the original format. During the completion of the format, the computer user, when executing the commands and processing the data, can vary the size and morphology of the signs, to accommodate them in the pre-established spaces, which in this case means not being able to give a technical concept. regarding printed content.
FXFDUP	After an examination, the following observations and conclusion were made: 6.1 The pages have puncher holes. 6.2 The pages marked by myself as “Q1” and “Q3” have puncher holes that correspond when put side by side. 6.3 The page marked by myself as “Q2” has puncher holes that do not correspond to any of the pages i.e “Q2” and “Q3”, therefore is an insertion.
GGW6Z6	Does not apply.
GRTGP4	Scale of conclusions including levels from -4 to +4.
GTRDND	While differences between the sheets of paper, hole punches and optical brighteners, could potentially be explained, the presence of the indented writing on the pages provides the remaining proof that this is a composite document and does not follow the protocol that was stated for how the document was produced. There is no uncertainty. This is an altered document.
H2XN63	Based on the analysis carried out on the questioned document Q1: Three-page medical record concerning patient Kendra Smith, applying the method for the alteration examination in its four stages, preliminary analysis, with the senses, analysis with optical instruments and video spectral comparator (VSC). Where the different light sources were applied and at different wavelenghts, thus determining the alteration of the Q1: Three-page medical record concerning patient Kendra Smith, so the second page (2/3) of the file was changed, since the note that was originally made in file Q1 on 11/7/23, the latent

TABLE 4

WebCode	Additional Comments
	handwritten writing appears on the third page (3/3).
J8XGYH	According to the results obtained in the aforementioned test, there are signs of alteration on page three of the three-page medical history document on patient Kendra Smith.
JJANX4	They changed page 2.
KA2HC2	[Laboratory] does not conduct destructive examinations. Our results are solely based upon the visual examinations, both microscopic and macroscopic, which we conduct in our laboratory. Our laboratory conducts two types of examinations – examinations for manipulation and examinations for authenticity in which we compare the questioned document with reference materials. This examination has been conducted as an examination for manipulation in which we have used our laboratory's standards for normal case handling.
KU78R4	Page substitution alteration is present here, due to characteristics differing between pages 1 and 3 and page 2. The scenario states that the doctor's office stated "that all three pages of the record are printed together at the same time for every in-office visit".
KX4AAL	The documents were not printed the same time.
L7CVVX	Light transmitted with sheet 2 below sheet 3, these grooves are located in the area of the second row of the printed table that presents sheet 2, without this containing handwritten writing
N2WVWW	The documents correspond to the same print
PDQUL2	1.The punching holes on the document marked as "O2" are not in line with the punching holes on the documents marked as "Q1" and "Q3". 2.The document in question marked as "Q2" has some fibers whereas the documents in question marked as "Q1" and "Q3" has no fibers. 3.The page numbering of the documents marked as "Q1"and "Q3" under the high magnification they are fading away whereas the page numbering of the document marked as "Q2" under the high magnification is not fading away.
PZED7W	Doesn't seem a realistic scenario - where entries are input online wouldn't normally expect there to be original handwritten additions.
QZENLY	In addition, when the document was submitted to the specialized equipment, some differences in the structure of the format can be seen at a glance, i.e., there is a discrepancy in the margins of the tables shown in the document, as well as different font sizes in the titles of these same tables.
R262TN	Indented impressions are markings or imprints on a paper surface caused by the pressure of a writing instrument on paper or papers above.
T9TYKD	There are no signs of alterations on page 1 and page 3
TCFY9C	The evidence was examined and imaged. In the event that a handwriting examination of the indented writing located on the front of Item 1C is requested in the future, resubmission of Item 1C Front ESDA Lift (Container 2) is desired. Please contact the Questioned Document Unit regarding obtaining known writing samples, if necessary. The resulting ESDA lift (electrograph/imaging film) and test strip are being supplied to the submitting agency.
TMWRBR	For further information on the medical report, the questioned document paper 2 might go through for ink analysis using destructive method to get information on printed ink that used is the same or not as paper 1 and paper 3.
U6D93R	The observation of the medical office was taken into account, consisting of the printing at the same time of the three pages for each visit of the patients to the office, a situation that does not allow the texture, color and diameters of the perforations of sheet No. 2 are different from the rest.
UXGAR7	Illustrations would be provided with the findings.
UYQGWJ	The letterprint has the same font on all three sheets and the printing is laser printed on all three pages.
UZ8DPJ	Possible further examinations: Comparison of the handwriting of the indented impressions with reference writing from a suitable individual(s). Comparison of printing and paper with potential reference sources.

TABLE 4

WebCode	Additional Comments
	Comparison of the holes in Q1 with potential reference hole punch(es).
VFTH7C	Images are attached to the report. The report also includes a section stating the analysis requested and the case information: "Examine the three-page questioned medical record to determine if it has been altered as per the following scenario: The patient claims that she called the doctor's office on 11/7/23 to say that she was having abdominal pain and that she was informed a note of this had been made in her record. However, the three-page medical record submitted does not show a record of the call. The doctor's office asserts that all three pages of the medical record were printed together at the same time." [Report was not included.]
VKP3AV	If a handwriting comparison is needed, please submit fifteen to twenty exact-text exemplars and/or comparable normal course-of-business known writing samples, containing words, letters, and numerals as within the questioned entries, of the subject(s) and/or victim(s). Exhibits Q1(1)(a and b), Q1(2)(a and b), Q1(3)(a and b) and the ESDA indentation lifts were digitally preserved.
X9J4C7	Examiner's note: If handwriting examination and comparison of the Q1c indented impressions is required, an adequate quantity of known writing from a suspect or suspects that is similar in content and format to that seen on the Q1c ESDA lift must be submitted.
XGXMW6	Images of the documents in Item Q1 and the EDD lifts in Item Q1A have been retained by the Forensic Document Unit.
Y7DXCQ	Microscopic examination of the punch hole from page 2 (Q1B) revealed fringed edges while the edges of punch holes from pages 2 and 3 (Q1A and Q1C respectively) are straight. Comparison of the punch hole from page 2 (Q1B) to the punch holes from pages 2 and 3 (Q1A and Q1C respectively) disclosed that they are dissimilar in appearance of the edge characteristics corresponding to their respective hole punch toolmarks.
YGNGLK	REMARKS: 1) The results are opinions and interpretations formed using accepted scientific and professional practices. 2) Digital images of the evidence are retained in Criminal Investigative Division. 3) Toner/paper are “chemically indistinguishable” when the comparison of two or more exhibits reveals no significant, reproducible, inexplicable differences and there is significant agreement in all observable aspects of the results. It may be concluded that the exhibits are indistinguishable at that level of analysis. This does not imply that the toner/paper are identical. The toner/paper could not be excluded from one another. 4) In a toner examination, common source association means that exhibits are associated through observed class characteristics. Commonalities may include toner formulations, indicating different exhibits share a similar toner formulation and/or manufacturer(s). This does not imply that the exhibits share the same cartridge or printer. 5) In a paper examination, common source association means that exhibits are associated through observed class characteristics. Commonalities may include paper characteristics, such as watermark(s), texture(s), and/or defect(s). This does not imply that the exhibits are from the same ream of paper. 6) In the paper manufacturing process, reams of paper and other paper products can be comprised of sheets from one or more rolls of paper. Differences in paper characteristics may be present in individual sheets from the same ream or product.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 24-5211: Questioned Documents Examination

DATA MUST BE SUBMITTED BY **April 22, 2024, 11:59 p.m. EDT** TO BE INCLUDED IN THE REPORT

Participant Code: U1234J WebCode: R7HMYA

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Scenario:
This is a case where a patient has claimed that the physician has altered medical records. The patient, Kendra Smith stated that she received a phone call on November 6, 2023, from her physician Dr. Suite, following a medical visit, in which she informed her physician that her symptoms persisted. On November 7, 2023, the patient called the doctor's office to explain that she was now having abdominal pain. She was informed that a note had been made in her record, and her doctor would call her soon. However, she never received a return call from her physician. That evening she was taken to the hospital for a serious medical issue. The patient has claimed negligence on the part her physician. The doctor's office has provided a three-page medical record on the patient that does not show any record of a phone call from the patient on November 7, 2023. The doctor's office has informed investigators that all three pages of the record are printed together at the same time for every in-office visit. Investigators are submitting this three-page medical record for your examination.

Items Submitted (Sample Pack QD):
Item Q1: Three-page medical record concerning patient Kendra Smith

1.) Based on the findings of your examination, to what degree can it be confirmed or refuted that the questioned document has been altered?

(Select from the following list. If the wording below differs from the normal wording of your conclusions adapt these conclusions as best you can and use your preferred wording for question 3.)

A. The questioned document HAS BEEN ALTERED.
B. The questioned document HAS PROBABLY BEEN ALTERED.
C. CANNOT DETERMINE whether or not the questioned document has been altered.
D. The questioned document HAS PROBABLY NOT BEEN ALTERED.
E. The questioned document HAS NOT BEEN ALTERED.

Q1

2.) Methods and techniques utilized.

Please note: The list of methods/techniques provided in the dropdown list is not an all inclusive list and should not be used to determine what methods/techniques should be performed. Methods/techniques not on this list may be utilized.

Please briefly indicate the observations made from each method/technique utilized.

Please note: *Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

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3.) What would be the wording of the Conclusions in your report?

4.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ANAB and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

○ This participant's data is intended for submission to ANAB and/or A2LA. (Accreditation Release section below must be completed.)
○ This participant's data is **not** intended for submission to ANAB and/or A2LA.

Have the laboratory's designated individual complete the following steps
only if your laboratory is accredited in this testing/calibration discipline
by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ANAB Certificate No.

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)