



# **Questioned Documents Examination**

## **Test No. 22-5211 Summary Report**

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Each sample set contained one questioned sublease agreement, consisting of two pages (Q1). Participants were asked to review the pages of the original agreement to determine if there were any signs of alteration that would support the subtenant's claims of changed terms. Data were returned from 172 participants and are compiled into the following tables:

	<u>Page</u>
<u><a href="#">Manufacturer's Information</a></u>	<u><a href="#">2</a></u>
<u><a href="#">Summary Comments</a></u>	<u><a href="#">3</a></u>
<u><a href="#">Table 1: Examination Results</a></u>	<u><a href="#">4</a></u>
<u><a href="#">Table 2: Methods and Observations</a></u>	<u><a href="#">8</a></u>
<u><a href="#">Table 3: Conclusions</a></u>	<u><a href="#">70</a></u>
<u><a href="#">Table 4: Additional Comments</a></u>	<u><a href="#">96</a></u>
<u><a href="#">Appendix: Data Sheet</a></u>	

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 sublease agreement, consisting of two pages (Q1). Participants were asked to review the pages of the original agreement to determine if there were any signs of alteration that would support the subtenant's claims of changed terms.

### **SAMPLE PREPARATION -**

Both pages of the document were printed on an HP LaserJet Enterprise laser printer. The sublessor, Julie Laich, completed entries associated with section 1 and sections 3-11. The subtenant, Natalie Potter, completed the entries in section 2. Each individual signed their own names on page 2. All sections were completed with a Paper mate Ink joy black ballpoint pen. Page 2 of the sublease was scanned into an imaging software, the subtenant's signature was copied and placed onto the digital version of page 2 of the sublease, and this new page with the digital signature was printed. Both the original page 1 and the new page 2 of the lease were then stacked together.

The sublessor used a Pilot Acro ball black ballpoint pen to make the following modifications: added an entry of "trash \$30" to section 6; changed the number of days from "15" to "45" in section 8; and completed the date and her own signature on the new page 2 in section 11.

### **SAMPLE SET ASSEMBLY -**

After visual quality reviews of both known and questioned items were complete, each item was packed into a pre-labeled item envelope with protective chipboard. The two associated pages were maintained together in an unsealed sample set envelope. Following predistribution testing, all item envelopes were sealed and initialed with "CTS," then packed together within sample set envelopes, which were also sealed and initialed.

### **VERIFICATION -**

Predistribution examiners determined that the questioned sublease agreement (Q1) had been altered. This was supported by the following observations: idented writing that altered the words "trash" and "30" and the edit of the number "15" to "45"; macroscopic/microscopic examinations indicated that the signature on the first page of the Q1 and the signature on the second page of the Q1 were not duplicate signatures.

## **Summary Comments**

Each sample set contained one questioned sublease agreement, consisting of two pages (Q1). Investigators are asked to review the pages of the original agreement to determine if there were any signs of alteration that would support the subtenant's claims of changed terms. The Q1 document was altered (Refer to the Manufacturer's Information for preparation details).

For question 1, 169 of the 172 (98.9 %) responding participants reported that the agreement had been altered ("A", 167 participants) or probably originated ("B", 2 participants). One participant reported that the agreement had not been altered ("E") and two left their question blank.

A majority of participants provided the following observations to support their conclusion that the questioned agreement was altered: An alteration from "15" to "45" on page one was made, which left an indentation on page two. Most participants noticed the difference between the sublessors original signature and the subtenant's printed signature under various light sources and wavelengths. The subtenant's signature was reported to be pixilated and thicker compared to the signature of the sublessor, and made by toner. Another pen was reported to be used to write "trash" and "30" on the first page compared to the rest of the entries on page one. Finally, indentations were also reported to be left on page two from the additions of "trash" and "30" made on page one.

Across the 172 responding participants, 584 methods of analysis were reported in total. Some of these methods were reported more than once by a single participant, indicating the technique was possibly performed more than once to examine different features of the document or to use different equipment settings. The most commonly reported technique utilized was Video Spectral Comparator (VSC), reported 149 times. Other commonly used methods were: ESDA, Microscopic Examination, Macroscopic/Microscopic Examination, and Visual Exam. The methods listed in the response summary are the preloaded options for selection via the CTS Portal and do not reflect all answers provided by participants.

In the Methods and Observations or Conclusions sections, some participants reference images, photos, and supplemental reports that would normally be provided as part of their casework. CTS is unable to collect and provide these additional materials, so references to these addenda are not applicable to the CTS Summary Report.

# Examination Results

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

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
22KPK7	A	4N2M3J	A	7AW8UL	A
2CJN96	B	4PEAKY	A	7DD3LX	A
32WCR7	A	4UTUKT	A	7ML6WJ	A
34MFDL	A	4WC2Q8	A	7NUAFZ	A
3BLXW4	A	4YMQAJ	A	7TP4D2	A
3EZV37	A	63J6J8	A	7X3UVP	A
3FXHN3	A	63LUN4	A	8GV8P8	A
3LGF3W	A	676C23	A	8RQTX6	A
3MFEL6	A	68WFNH	A	8T4WKN	A
3W7W3Y	A	69PXD3	A	9387PT	A
43JFQQ	A	6F9RM2	A	9A7W9H	E
48F48X	A	6LEKGW	A	9J7KU2	A
49CGUQ	A	6N2Y67	A	9M6VP2	A
4EYWA3	A	6NLFK9	A	9MXGVZ	A
4FDLT2		6U9D6P	A	A6AZAV	A
4GZZY4	A	6UPM3W	A	A9V6Z2	A
4MAJF6	A	796697	A	ANLDEQ	A

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
AVPDXT	A	DYC6VZ	A	HY2U6X	A
AZXJRE	A	DZ8PGE	A	J3B4FK	A
B6NBDG	A	DZLLXX	A	J46CGV	A
B7G7YP	A	EJCGMQ	A	J9G6PA	A
B7YFNJ	A	ELYVBZ	A	JXZK7D	A
BAF8QQ	A	EMELUZ	A	JZRCLP	A
BDL23X	A	EQCYHP	A	K2VPJH	A
BG2TTQ	A	FA4CLG	A	K9FPYU	A
BRY44Y	A	FBEF23	A	K9XHTD	A
BTVL7Z	A	FDLW7B	A	KCFBVK	A
BWE2TU	A	FMNKAL	A	KQWUKM	A
BZQLKT	A	FP3E8U	A	KRNW82	A
BZUGFE	A	FVMJXA	A	KTYYRF	A
C7J99U	A	FZENQE	A	KUY89R	A
C8C6V3	A	G8FFGM	A	L28TL9	A
D6YLUP	A	GDXVZK	A	L2BAK7	A
DGT7Q3	A	GGZQL9	A	LAN4Y9	A
DL4T9Q	A	H8QETN	A	LCRYJC	A
DXFLUY	A	HAWZYW	A	LEEQEE	A

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
LJTBE9	A	QR9NJ9	A	VB34U8	A
LN6P9L	A	QUFYKJ	A	W4L3EB	A
LW2W39		QWLJ8J	A	W6TKD7	A
LXPXUU	A	R2QFRJ	A	WL6L6A	A
LY6MDU	A	RF97QL	A	WMWNRP	A
MM784J	A	RKJVXE	A	X7LHX7	A
MRZDDE	A	RN8AMN	A	X8GZY8	A
N88JRN	A	RTFD7H	A	X9VCVQ	A
N8C992	A	RVRVPN	A	XLUJMZ	A
N9KHZY	A	T3YLAH	A	XYZYKB	A
NL9VNM	A	TEQDVM	A	Y2AWMD	A
NULC74	A	THPNQM	A	Y2PZCY	B
PAEJLG	A	TUMZCV	A	YANHX3	A
PDCH2R	A	TWTFRE	A	YERQUX	A
PL3ZGL	A	TZVW7N	A	YU8RN3	A
PNWNZG	A	UKEQKW	A	YUL734	A
PRAY38	A	UPQ4E9	A	YZDDKC	A
QJEFZ4	A	UT449F	A	ZF4N2M	A
QKNKC7	A	UXYX7G	A	ZFLRFE	A

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
ZKXKNT	A				
ZP7DRG	A				
ZPBFC3	A				
ZUKBY6	A				
ZUL7HB	A				
ZVFU27	A				
ZXLHX4	A				

<b>Response Summary - Q1</b>		Total Participants: <b>172</b>
<i>Based on the findings of your examination, to what degree can it be confirmed or refuted that the agreement has been altered?</i>		
<u>Response</u>	<u>Q1</u>	
A	167	<b>Response Key:</b> A. The questioned agreement HAS BEEN ALTERED. B. The questioned agreement HAS PROBABLY BEEN ALTERED. C. CANNOT DETERMINE whether or not the questioned agreement has been altered. D. The questioned agreement HAS PROBABLY NOT BEEN ALTERED. E. The questioned HAS NOT BEEN ALTERED.
B	2	
C	0	
D	0	
E	1	

# Methods and Observations

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

TABLE 2

WebCode	Methods/Techniques	Observations
22KPK7	Microscopic Examination	Both pages of the document are printed with laser/toner printer. All handwritten information on page 1 is written with some kind of roller ball pen, the same goes for the handwritten information on page 2 EXCEPT FOR the signature of the subtenant. This signature is printed with a laser/toner printer and shows typical, and very coarse, reproduction defects.
	Infrared Light	On page 1 some handwritten information has been made with a pen (pen paste) that differs optically from the rest. The word "trash" with corresponding amount "30" (section 6) as well as a small line/angle changing "15" to "45" (section 8) has been added. These additions correspond optically with the handwritten information on page 2.
2CJN96	ESDA	Indentations were detected on the front of page 2 of the 2-page document which were caused by some of the handwritten entries appearing on page 1 of the 2-page document. The indentations detected were the entries 'trash', '30' and a portion of the numeral '4'.
	Video Spectral Comparator (VSC)	When page 1, section 6 was subjected to infra-red reflectance (545nm longpass filter), the handwritten entries 'trash' and '30' reacted differently to the remainder of the handwritten entries, indicating a different writing implement was used. When page 1, section 8 was subjected to infra-red reflectance (545nm longpass filter), a portion of the numeral '4' reacted differently to the remainder of the numeral as well as the '5', indicating that a different writing implement was used. This indicates that the original entry '15' has been altered to '45'.
	Microscopic Examination	The 'Natalie B. Potter' signature appearing on page 1 of the two-page document was written with a black ball point pen. The 'Natalie B. Potter' signature appearing on page 2 of the two-page document is a non-original signature and generated using a monochrome electrophotographic (laser) printing process.
32WCR7	Video Spectral Comparator (VSC)	1. On page 1: a. The ink of the entries "trash" and "30" (did not fluoresce) were different from the other entries (fluoresce). b. The ink of added stroke (did not fluoresce) was different from the figure "1" and "5". Figure "1" was altered to figure "4" on the entry "45 days". 2. On page 2: a. The ink of the entries "5th", "May" and "21" (did not fluoresce) were different from the ink of other entries (fluoresce) on page 1. b. The ink of the sublessor's signature (did not fluoresce) was different from the ink of the sublessor's signature (fluoresce) on page 1. c. The subtenant's signature on page 2 was a printed signature. Under the microscopic examination, the images of this questioned signature showed similar characteristics as an electrophotographic printing process.
	ESDA	1. There is no indented impression found on the page 1. 2. Indented impressions were found on the page 2. The indented writing deciphered on page 2 reading as "trash" and "30". Angular stroke was also deciphered. 3. Therefore, indented writing revealed on page 2 ("trash" and "30") were consistent to the handwritten entries ("trash" and "30") on page 1.
34MFDL	Handwriting Examination	Through direct observation, it can be seen in numeral 8 of the time established for the return of the deposit, the addition of strokes in the digit "1", where it is transformed into a digit "4"

TABLE 2

WebCode	Methods/Techniques	Observations
	Magnification	With the use of the magnifying glasses it was possible to observe that the word TRASH, the figure 30 present a different tonality of the ink and the horizontal line of the digit four that makes up the days of delivery of the deposit presents tremors, likewise, it is appreciated that the signature of Mrs. Natalie B. Potter on the second page is a digital reproduction.
	Video Spectral Comparator (VSC)	With the support of the document comparator, the document is exposed to different wavelengths in the infrared range, in order to identify, through physical phenomena of absorption and luminescence, characteristics or elements that evidence the physical behavior of the inks where the At 645nm, a difference in the behavior of the inks is observed in the texts "Trash" and "30" in point 6.
3BLXW4	Microscopic Examination	The sublease agreement, page 2: two signatures applied: 1) sublessor, and 2) subtenant. The subtenant signature is printed in toner.
	Video Spectral Comparator (VSC)	The sublease agreement, page 1: By application of NIR absorption /reflection: the data entries: "trash", "30" and and an angle at the number "45", were visible, whilst the rest of the text was not.
	Infrared Light	The sublease agreement, page 1: Application of Luminescence shows that the entries: "trash", "30" and an angle at the number "45", fluoresces, and that the number "45" is altered from "15" to "45" by adding and angle to "1".
3EZV37	Oblique Light	F+F CrimeLite 82L Initial screening of the questioned document to determine any areas of potential interest/greater focus for follow-up ESDA examination. Indentations were observed in the lower left quadrant on the face of the 2nd page.
	Video Spectral Comparator (VSC)	non-destructive ink analysis - F+F VSC 6000 Examination of the inks on the paper for differentiation and to observe characteristics of the paper used to determine if similar paper was used between the first and second pages. Left (L): visible light Right (R): 485-590nm light with 645nm barrier filter In these images we can see that we clearly have two different inks as the "30" entry is more persistent and does not drop out at the same point as the other two entries. Left (L): visible light Right (R): 485-590nm light with 645nm barrier filter In these images we can see that the arm of the "4" in "45" has similar characteristics to the "30" in the previous set of images. This indicates that it is likely the amount was altered and increased from "15" to "45". Left (L): visible light Right (R): 485-590nm light with 645nm barrier filter In these images we can see that the entry of "trash" has similar characteristics to the previous entries of "30" and the arm of the "4" and can be separated from the other corresponding entries in those sections as being a different ink. The combination of these differences in these sections for the inks used are consistent with the claim that alterations were made to the document. The changes in ink are not relegated to sections of the document (e.g., all the entries in a particular section or group of inked writings) but are consistent with additions being made to previously inked entries on the document.
	Ultraviolet Light	Ultraviolet light examination (for optical brighteners) @ 365nm - no discernable differences between pages 1 and 2 of the questioned document

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	detection of indentations - F+F ESDA As noted in the oblique light examinations, faint indentations were noted in the lower left quadrant on the face of page 2. These indentations were too weak to develop from the face of page 2 but were partially developed from the examination of the reverse of page 2. Indentations were developed that appear to correspond to the word "trash" from page 1 (but these are somewhat difficult to visualize and may be subject to interpretation). No other indentations were developed.
	Microscopic Examination	high resolution microscopy - Leica S8APO A microscopic examination of the document revealed that the subtenant signature entry for Natalie Braxton-Porter on page 2 is the product of a dry toner production process. The signature is not an original inked entry, and the printed text/line is not as fine in formation of the printed entries to include dots of excessive toner deposited around the entries.
3FXHN3	ESDA	No indentations observed on page 1 (p1). Indentations observed on page 2 (p2) consistent with the handwritten entries "trash 30" and the initial L shaped stroke of the "4" in "45" on p1. No other indentations observed on p2.
	Video Spectral Comparator (VSC)	Handwritten entries on p1 reading "trash 30" and the initial L shaped stroke of the "4" in "45" as well as the original handwritten entries and sublessor signature on p2 display similarities in spectral reaction (IR absorption/reflectance/luminescence) when compared with each other, and differences in spectral reaction when compared with the rest of the handwritten entries and signatures on p1. The rest of the handwritten entries and signatures on p1 also display similarities in spectral reaction amongst themselves. Paper of both p1 and p2 display similar UV fluorescence under 254-365nm.
	Macroscopic/ Microscopic Exam.	The "SUBTENANT" signature on p2 is not written on the document with ink but has been printed with black toner laser printing. All other signatures on p1 and p2 have been written with black paste ink. All typed text on p1 and p2 have been printed with similar black toner laser printing, except "SUBTENANT" and corresponding signature on p2 being poorer quality printing than remainder of document, with greater pixilation and toner (contamination) dots in surrounding non-image area. No significant defects or identifiable features in printing observed.
	Overlays	Indentations observed on p2 superimposable with the handwritten entries "trash 30" and the initial L shaped stroke of the "4" in "45" on p1. Font, margins and comparable single line spacing formatting similar between p1 and p2. Multi line spacing different between p1 and p2. Pagination of p1 and p2 slightly misaligned when page titles aligned. Difference in line spacing between p2 "SUBLESSOR" signature printed text/underline and "SUBTENANT" signature printed text/underline when compared with the rest of the line spacing on p2. "SUBTENANT" signature printed text/underline slightly thicker than "SUBLESSOR" signature printed text/underline and remaining printed text. Slight difference in size of paper between p1 and p2 when overlaid.

TABLE 2

WebCode	Methods/Techniques	Observations
3LGF3W	ESDA	ESDA method applied on page 1 and 2. Indented writing ("trash", "30" and upper part of the number 4) detected on page 2, recto, matching handwriting on page 1, suggesting that page 1 was placed on top of page 2, when "trash", "30" and upper part of the number 4 was written - altering the number 1 to the number 4. No indentations on page 2 matching the additional handwriting on page 1 was detected, suggesting that page 1 was not placed on top of page 2, when the additional handwriting on page 1 was written. No indentations on page 1 was detected.
	Video Spectral Comparator (VSC)	Using spot fluorescence. The ink in the pen used for writing "trash", "30" and the upper part of the number 4 (altering the number 1 to the number 4) on page 1 has different optical properties than the ink in the pen used when writing the additional writing on page 1, suggesting that "trash", "30" and the upper part of the number 4 was written with another pen, than the pen used for the additional handwriting on page 1. In addition to this, the ink in the pen used for the handwriting in section 11 and sublessor's signature on page 2 has the same optical properties as the ink in the pen used for the words "trash", "30" and the upper part of the number 4 on page 1 - suggesting that the handwriting in section 11 and sublessor's signature on page 2 were written with the same pen or a different pen containing ink with the same optical properties as the pen used for writing the words "trash", "30" and the upper part of the number 4 on page 1.
	Magnification	Subtenant's signature on page 2 proved to be a printed signature (electrography), which suggests that the original signature (or a copy of the original signature) has been transferred to page 2.
3MFEL6	Video Spectral Comparator (VSC)	Observation in VIS, UV and IR showed: no differences in the optical properties of papers; differences in the optical properties of handprinting; 'trash', '30' and part of digit 4 in number '45' on page 1 and '5th', 'May', '21' and SUBLESSOR signature on page 2 were written with first type of black ballpen; other handprinting was written with second type of black ballpen.
	Microscopic Examination	Microscopic examination showed: different characteristics of ballpens – two types of black ballpens; titles, contents on both pages and position 'SUBSTENANT' with SUBSTENANT signature on page 2 were printed by use black laser jet technique.
	ESDA	On page 2 were revealed indentations: 'trash' and '30', which are identical to the handwriting on page 1. No other indentations were revealed.
	Laser Inducted Breakdown Spectroscopy (ECCO2)	Paper analysis of both pages showed no differences in the ratios of the elements.
3W7W3Y	Macroscopic/ Microscopic Exam.	the ink on the trash line of section 6 and the deposit refund amount appear different from the rest of the handwritten entries on page 1 the subtenant signature on page 2 is not an original signature
	ESDA	no indented writing developed on page 1 developed indented writing on page 2 is consistent with the trash line on section 6 of page 1 and the altered "1" to a "4" in section 8 of page 1
	Video Spectral Comparator (VSC)	UV filters did not differentiate paper in pages 1 and 2 oblique light did not reveal indented writing on page 1 or 2 spot and IR filters revealed more than one pen ink on page 1 -the trash line in section 8 and the deposit refund amount was altered from a "1" to a "4" with a different pen than the rest of the handwritten entries on page 1 -could not differentiate pen ink used on page 2 from the trash line and altered "4" on page 1 the subtenant signature line was copied from another unknown document, not an original signature

TABLE 2

WebCode	Methods/Techniques	Observations
43JFQQ	Handwriting Examination	Analysis of handwritten texts in a sublease agreement (sublease contract) filled or calligraphic completions and signatures. Examination under the document buyer (VSC8000), radiation with different direct lights in space Infrared light at 645 nm
	Macroscopic/ Microscopic Exam.	Examination in direct light and help with the VSC8000 equipment where analyzes are carried out with different fields of infrared light (645nm). On page 2, the signature as "Natalie Branston Potter", it can be seen that it was transplanted to the format, by means of a digital mechanism (photocopy)
	Infrared Light	Infrared light (645nm), regarding some additions to handwritten texts, those in which the primitives disappear and the added or added texts are displayed in the "trash" fields. \$30"; equal addition of strokes (interpolation), in the zone or space of the numeral 8, referring to the days (the digit 1 transformed to 4 is composed – originally it was 15 and not the one displayed there "45").
48F48X	Video Spectral Comparator (VSC)	Identified alterations in the section 6 and section 8 of the agreement were visible under the Infrared light source.
	Microscopic Examination	Toner's characteristics related to the printer's technique were identified by means of microscopic examination.
49CGUQ	Magnification	Magnification showed the signature of the subtenant on pg. 2 of the lease was not original. It was a scan of a signature that was affixed to the document.
	Infrared Luminescence	Using infrared luminescence on the inks on pg. 1 and pg. 2 also confirmed the subtenant signature on pg. 2 was not of the same consistencies as the ink used in the genuine "wet ink" signature.
4EYWA3	Macroscopic/ Microscopic Exam.	Below are indicated the observations made with the help of all examinations. The questioned agreement Q1 is composed by two pages, that will be named Q1-1 and Q1-2. The Q1 agreement has been altered. This was supported by the following observations:
	ESDA	1. Page Q1-1 presents two different types of black ball point pen inks. Sections 1 to 5, lines 1 and 2 of section 6, entry "250" and the number "15" of section 8 were written with a same type of ink. The handwritten entries "trash", "30" (line three) of section 6 and the transformation of the original number "15" into "45" of section 8 were written with a second type of ink. 2.The second type of black ink was also used to fill section 11 and the signature of the Sublessor on page Q1-2. 3.Indented writing from the handwritten entries "trash", "30" and the modification of the original number "15" of page Q1-1 were found on page Q1-2; all the other entries figuring on page Q1-1 were not observed on page Q1-2.
	Video Spectral Comparator (VSC)	4.The signature of Subtenant on page Q1-2 is not original because it has been affixed by an electro photographic printing process. 5. The morphology of the font used for the word "SUBTENANT" on page Q1-2 is slightly different from the font used to print all the rest of the Q1 document. 6.The morphology of the line under the Subtenant signature is different from all other lines of the Q1 agreement.
	Keyence 5000	7. The observations made on the abovementioned paragraphs 4 to 6 strongly suggest that the word "SUBTENANT", the underline and the signature of Ms Natalie B. Potter have been copied and pasted together from another document. 8. The printed signature of Ms Natalie B. Potter on page Q1-2 has not been copied from the signature of Ms Natalie B. Potter on page Q1-1.

TABLE 2

WebCode	Methods/Techniques	Observations
4FDLT2	Microscopy and macroscopy with diascopy and episcopyc illumination. Preliminary review of the material to verify originality, coeternity, similarity and variety	analysisi of the physical characteritids exhibited by the hadwriting of document Q1 as far as ik ares concerned to verify variations and possible alterations, using optical elements, as well asthe required thechniques, in addition to direct observation or with the naked eye with natural and artificial light
	Visual Examination	The originality of the study elements was observed. The general structure of the handwriting and printed writing on the sheets of the Q1 document is appreciated.
	Ultraviolet Light	To verif reactions on the paper and possible stains produced by abrasive elements or possible existing security on its surface or gluing the pages of the Q1 document.
	Oblique Light	To observe writings on the surface of the paper product of pressure by amanuense, stalishingpossible ductus or traes and vestiges of signs that could be eradicated from document Q1
	Macroscopic Examination	Analysis of handwriting in general, to verify thas its printed and manual content is uniform in terms of inking
	Microscopic Examination	To verify that the graphic signs of each of the words that constitute the document, present uniformity in the conformation of the signs, inking and possible vestiges of ink product or eradication of signs.
	Video Spectral Comparator (VSC)	To perform photospectrometric sweep of the inks in the writings of the pages of the Q1 Contract and stablish possible modifications in their inks and alterations caused to the Q1 document obtainig images thar allow to evidence the results obtained.
4GZZY4	STEREOSCOPY MICROSCOPIC	The study of the questioned document under the S.M. suggests the use of a different type of ink in the words "trash", the amount "\$30" and the addition of a stroke on the first digit of n° "45". Regarding the second page of the questioned document, its observation under the S.M. allows to establish that both the word "Subtenant" as wells as the subtenant signature are additions to the document and have been printed with a toner, unlike the rest of the document.
	Video Spectral Comparator (VSC)	The study of the questioned document under the VSC allows us to observe a different behaviour between the words "trash", the amount "\$30" and a partial stroke on the first digital of n° "45" and the rest of the handwritten words and amounts on the document. From the observed differences on behaviour, we can deduce that the partial stroke on the first digit of n° "45" is an addition to the document, transforming the original amount of "15" to "45". Additionally, the observation under the VSC, allowed us to observe an identical behaviour between the added partial stroke on the fist digit of n° "45" and the word "trash" as well as the amount "\$30"
4MAJF6	Visual Examination	There was no physical changes observed in the questioned writing and the questioned signatures on Page 1 and Page 2 of Item Q1.
	Infrared Absorption	At 695nm: Page 1: All the questioned writing and the questioned signatures disappeared except the word 'trash' and the figure '30' at point 6 and the formation 'L' that made the figure '4' of '45' at point 8 of Item Q1. Page 2: All the questioned writing and the questioned signatures on Item Q1 did not disappear. There was no changes observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Infra red Fluorescence	Page 1 - All the questioned writing and the questioned signatures fluoresce except the word 'trash' and the figure '30' at point 6 and the formation 'L' that made the figure '4' of '45' at point 8 of Item Q1. Page 2: All the questioned writing and the questioned signatures fluoresce except the Subtenant signature on Item Q1.
	Microscopic Examination	Page 1 - All the questioned writing and the questioned signatures on Item Q1 consisted of original pen ink strokes / pen striations. Page 2 - All the questioned writing and the questioned signature except the questioned subtenant signature 'Natalie B. Potter' on Item Q1 consisted of original pen ink strokes / pen striations. The Subtenant signature 'Natalie B. Potter' consisted of circular toner dots indicating a printed, scanned or photocopied signature.
	ESDA	There was no indentations observed on Page 1 and Page 2 of Item Q1.
	Oblique Light	There was no physical changes observed on Page 1 and Page 2 of Item Q1.
4N2M3J	Magnification	The preliminary inspection of the questioned documents is carried out where the two documents are observed in terms of being in original and in good condition, finding that it is indeed in original and in good condition for analysis. Upon gross inspection it is found that the handwritten lease is in ballpoint pen and Natalie B. Potter's signature appears darker to the naked eye. The document is then observed by microscopic observation with the use of magnifying glasses, finding that on page 1 of the contract there is a difference in ink in the public garbage service writings worth 30 dollars with a different tonality, as well as digit 4 of the number. 45 whose angled line has a different tonality from the vertical line, initially being the quantity 15, converting it to quantity 45. On the second page of the contract, after observing it with the magnifying glass, it is found that the signature corresponding to Natalie B. Potter is found made in digital laser printing and not in handwriting.
	Video Spectral Comparator (VSC)	Subsequently, through the use of the video comparator, a detailed observation of what was found is carried out with the magnifying glass, ratifying the finding, through observation at different magnifications in the described areas and also under the infrared fluorescence technique at 645nm. As a conclusion of the analysis it is determined that: The document subject to inspection presents additive alteration in the area of public services with the handwritten texts "trash" and the amount "30" as well as additive alteration in the amendment modality of the first page of the contract, initially the amount "15", converting it into an amount "45", and on the second folio the additive alteration of the signature of "Natalie B. Potter".
4PEAKY	Video Spectral Comparator (VSC)	In the infrared luminescence observation, some character in the phrase 6 has different brightness. Written ink was not identical on phrase 6. Phrase 8 '45' was also altered.
	Oblique Light	Signature of the Subtenant on page 2 is not written, but copied.
	Overlays	

TABLE 2

WebCode	Methods/Techniques	Observations
4UTUKT	ALTERATION ANALYSIS METHODOLOGY: Which allows us to determine if a documents was or not altered	Analysis of documents without optical devices (hand, magnifying glass): The document consists of two pages, which have a printed filling in black, showing a similar margin on the left side of the "Sublease Agreement" as opposed to the right side. It contains handwriting in black in some sections, except for the signature of the sublessee on page two, since it is a digitized signature. Analysis of documents with optical devices (stereomicroscope) with this device it was observed that the printing method is laser. The title of the "Sublease Agreement" displays a different font than the rest of the printed completion. The signature of the sublessee on page two is digitized. Analysis of the document with different light sources (VSC 6000 AND 8000 FOSTER AND FREEMAN): The handwritten filling of ITEM Q1. Page 1 of 2 "Sublease agreement" when subjected to infrared with 715 nanometers, shows transparency in the boxes marked in lines and total absorption in the boxes marked by dots, that is, it showed two different reactions. When applying infrared at 715 nanometers, the handwritten legends "trash", "30" and a vertex-shaped line in the "----days" section remain in the image; determining that the primitive handwritten legend was a digit 15 and a stroke was added to it to form 45. The handwritten filling of ITEM Q1. Page 2 of 2 "Sublease agreement" when subjected to infrared with 715 nanometers, shows total absorption in the boxes marked by dots, except for the signature that is digitized. The handwritten filling of ITEM Q1. Page 1 of 2 "Sublease agreement" when subjected to fluorescence with 695 nanometers, shows luminescence in the boxes marked in lines and total absorption in the boxes marked by dots, that is, it showed two different reactions. The handwritten filling of ITEM Q1. Page 2 of 2 "Sublease agreement" when subjected to fluorescence at 695 nanometers, shows total absorption in the boxes marked by dots, except for the signature that is digitized.
	ESDA	ESDA EQUIPMENT: the document was placed in the humidifier for 1 to 2 minutes, to reach an adequate humidity of 60%, then it was placed on the plate, after removing the plastic cover. The vacuum pump is turned on and placed in the control skylight. The document is covered with a filler film (plastic film) and cut with the film cutter to separate it from the film roll. The background of the high voltage corona is illuminated in blue. The document is shaken with a high-voltage corona wire to electrostatically charge it, until the light stops flashing. The electrostatic image is then created and the cascade method can now be carried out to develop IDs. Therefore, the platen must be tilted at a position of about 45° and toner drops can be poured onto the surface, using the waterfall method. Once developed, a fixing film (adhesive lift) is carefully placed. Finally, the document is carefully separated from the change film and the fixation film, resulting in all the handwritten and printed fillings containing ITEM Q1 showing no additions or deletions to it.
4WC2Q8	Visual Examination  ESDA  Overlays	Pages 1 and 2 have a similar paper size, colour and page layout such as the aligned left margin and unaligned right margins.  1). No indentations were detected on the front and back of page 1, and the back of page 2 of Q1. 2). Indentations were observed on the front of page 2 of Q1. (Note: ESDA-2 was used for the indentation examinations).  An overlay of the indentations developed on the ESDA lift of the front of page 2 on the written entries 'trash' and '30' on page 1, showed consistency. Therefore, the indentations observed on the front of page 2 originated from page 1.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	1). Under visible light, the inks used to write "trash" and 30" are darker than those used to write all other handwritten entries on page 1, and the printed text SUBTENANT and Natalie's signature are darker than other printed texts on page 2. 2). Under high magnifications, pages 1 and 2 have similarities in their font style and size; and line spacings, but a difference in paragraph spacing. The signature of Natalie on page 2 was not handwritten, but part of the printing. 3). Using side lighting, no indentations were observed on the front and back of pages 1 and 2. 4). Under ultraviolet light, pages 1 and 2 showed that they have a similar reaction. 5). Under infrared light, at wavelength intervals between 695nm and 925nm, all the handwritten entries on page 1 became invisible except 'trash' and '30' remained visible.
	Microscopic Examination	1). All the ink lines of the handwritten entries except 'trash' and '30' on page 1 are grey-black, bearing striations and no fiber diffusions were observed. 2). The ink lines of the handwritten entries 'trash' and '30' on page 1 and the date and signature of Juli are black, mostly uniformly distributed (fewer striations) and fiber diffusions were observed. 3). Pages 1 and 2 were printed using a similar type of printing process (electrophotographic printing process). 4). On page 2, tiny black dots were observed in the background of all the printed texts and lines whereas bigger black dots were only present in the background and along the printed line of SUBTENANT and the signature of Natalie.
4YMQAJ	Visual Examination	Juli Laich's signature on page 1 and 2 of the sublease agreement are observed in a different color in relation to the ink color of Natalie B. Potter's signature on page 1.
	Macroscopic/ Microscopic Exam.	Natalie B Potter's signature that appears in the SUBTENANT section on page 2 of the sublease agreement is a digitized and laser-printed signature
	Video Spectral Comparator (VSC)	With IR light at 860 nm in section 6 the handwriting disappears except for the word Trash and the number 30; in section 8 to the number (15) an angular stroke was added to the number 1 to convert it into 4
	Document analysis method	In the physical comparison of sheet 1 and 2 of the sublease contract applying IR light (infrared) at a wavelength of 860 nm, it is observed that the document written text disappears, except for the word Trash and the number 30; in section 8 to the number (15) an angular stroke was added to the number 1 to convert it into 4; on page two in the "SUBTENANT" space the signature of Natalie B. Potter is presented in a darker tone
63J6J8	Magnification	both microscope and vsc were used to examine printing method and ink. both pages were printed with toner. in the second page the whole line pertaining to the subtenant and including the signature were printed in toner and were copied from a different source.
	Indented Writing	both oblique light and ESDA were used to locate indented writing. on page 2 the words "trash" and "30" were identified. no other indentations were found.
	Video Spectral Comparator (VSC)	different light sources including uv, ir and transmitted light were used to examine both pages. overlays and grids were used as well. under examination with the spot light, the ink used in section 6 to write the words "trash" and "30" differed from all other writing on page one except one part of the number 4 in sec. 8. the ink was used to change the number 15 to 45. the ink on page 2 reacted similarly to the ink different ink in sections 6 and 8.

TABLE 2

WebCode	Methods/Techniques	Observations
	Thickness	both pages were measured using a micrometer. the thickness was the same.
	magnetic reader	the toner on both pages was magnetic.
63LUN4	Microscopic Examination	Signature of subtenant on page 2 is not handwritten. Signature was produced by a toner-based printing device. - Difference in printing quality between the preprints SUBLESSOR and SUBTENANT (signature lines included).
	Ultraviolet Light	No relevant findings
	ESDA	No relevant findings
	Infrared luminescence	Page 1, point 6: Writing ink of "trash" and "30" can be differentiated from the other handwritten entries in this section. - Page 1, point 8: "15" was altered to "45" by using a writing device with a different ink. - Page 2, point 11 and "SUBLESSOR": Writing inks are different than the ones used in sections 1 to 5 and "gas", "electric" in point 6.
	Transmitted Light	Paper structure of page 1 and page 2 could not be differentiated visually.
676C23	Microscopic Examination	Stereomicroscope / Digital Microscope (Keyence) Page 1 of 2 - Printed text: black toner (EP) - H/W and sigs: black ballpoint - 2 different font types: title/page# + body text. Page 2 of 2 - Printed text: black toner (EP) - H/W and sigs: black ballpoint + Subtenant sig 'Natalie B. Potter' in black toner. (EP) - Dots are present on top of the Subtenant signature line as well as in the non-image areas in the surroundings of the 'Natalie B. Potter' signature - Artefacts are present to the top right and left sides of the 'B' in the 'Natalie B. Potter' signature - 2 different font types: title/page# + body text
	Magmouse	Qualitative detection of magnetic properties of toner - The 2 pages of the Sublease Agreement were produced by magnetic black toner
	Video Spectral Comparator (VSC)	Ink used on pages 1 and 2 exhibit different luminescing properties. On page 1, a different ballpoint ink was used to produce the handwritten entries 'trash', '30' and a top left stroke on '4' of the entry '45' at paragraph 8. The handwritten entries on page 2 exhibit similar luminescing properties as the entries 'trash', '30' and the top left stroke on '4' of the entry '45' on page 1.
	ESDA	ESDA was used to develop and record potential latent indentations on the front of the 2 pages of the Sublease Agreement. Page 1: no indentations. Page 2: indentations Latent indentations on page 2: 'trash' '30' and a small 'L' shape stroke. Sourced to the visible entries on page 1. The relative position between the 3 indented entries on page 2 is the same as the relative position of the original entries on page 1. Indentations of the remaining handwritten entries and signature from page 1 were not found on page 2.
	Imaging software (Photoshop)	LINE SPACING MEASUREMENT: 1) The ruler tool was used to measure single spaced text lines on page 1 and page 2. Page 1: line spacing is uniform through the printed text. Page 2: more space is observed between 'SUBLESSOR' signature line and 'SUBTENANT' signature line than what is observed in the remainder of the document. 2) layers overlay was used as a second method to determine the line spacing consistency in the printed text. Same observations as previous measurement method INDENTATION SOURCING: The indentations found on the page 2 ESDA lift were sourced to the handwritten entries on page 1 original document by using the overlay feature.

TABLE 2

WebCode	Methods/Techniques	Observations
68WFNH	Infrared Light	Page 1 of the agreement, presents a difference in the behavior of inks in the manuscripts, when the page is exposed to the action of infrared light of 645 nanometers, establishing that the ink of the manuscripts of numerals 1, 2, 3, 4, 5, 6 (manuscripts "gas", "25", "electric" and "50"), and numeral 8 (manuscript "250" and number "15") present image abomination, while the ink of the "trash" manuscripts " and "30" of numeral 6 and lines of the strokes added to digit 1 of the figure 45 in numeral 8, re-mains visible. The foregoing means that on page 1 of document Q1 the manuscripts "trash" and "30" were added to numeral 8, and strokes were added to digit 1 of the original number "45" of numeral 8, that is, that the original figure "15" was converted into the figure "45".
	Video Spectral Comparator (VSC)	SUBTENANT's signature on page 2 of the agreement corresponds to a digital impression and is not in the original.
69PXD3	ESDA	First page (Page 1 of 2) designated as - Q1a. Second page (Page 2 of 2) is designated as - Q1b. Q1a obv. – negative. Q1a rev - negative. Q1b obv - Positive: "trash", "30", "L" (shape) (very very faint) Q1b rev - Positive: "trash", "30"
	Macroscopic/ Microscopic Exam.	Print Process: a) The "SUBTENANT" signature on Q1b is a toner process produced signature, and is not an "original" "wet-inked" signature. b) The "SUBTENANT" entry, signature entry, and signature line entry located as the last line entries on Q1b are a toner process and all have the appearance of a scanned image insert onto the document due to the pixelated "halo" associated each entry.
	Ultraviolet Light	UV Examination at 365nm, 312nm, and 254nm failed to reveal any noticeable differences in paper optical brighteners.
	Infrared Light	IR Black and White Infrared Reflectance, IR Luminescence revealed the following: At least two different inks were used to produce the handwritten entries on Q1a. At paragraph 8 – the visible entry "45" is composed of at least two different inks: The entry "15" was altered with an "L" shape stroke to the left of the vertical line of the to form the number "45" An ink which absorbs infrared radiation at 715nm (appears dark [black]) resulted in the following entries: "trash" "30" and "L" shape stroke to the left of the vertical line of the "1" of "15" to form the number "45" All of the remaining handwritten entries on item Q1a were written with an ink that transmits infrared radiation at 715nm (appears colorless.)
	Font	Font No differences in font noted between Q1a and Q1b (with the exception of the last line entry of Q1b – "SUBTENANT" which appears as a 'heavier' bold print text entry originating from a scanned image)
6F9RM2	Macroscopic Examination	None
	Microscopic Examination	None
	microspectrophotometry	None
6LEKGW	Visual Examination	Two papers (Q1 and Q2) with printed material and handwriting in ink. No indented impressions observed. Printed name says Potter, all Potter signatures appear to say Porter.
	Microscopic Examination	Ball point pen, dry toner, reproduced signature on Q2.
	Digital Imaging	N/A
	Oblique Light	No indented impressions observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	No difference(s) observed between the two papers (Q1 and Q2).
	ESDA	Indented impressions observed on Q2 (Front) that contained a singular line of writing that is on Q1.
	Video Spectral Comparator (VSC)	Optical differences observed in the inks on Q1. "Trash", "\$30" are possibly inserted on the line and an arm was possibly inserted to the "1" to appear as a "4" on the bottom line for the amount of days. The ink of the possible above insertions appear to have the same optical properties as the ink used on Q2.
6N2Y67	Macroscopic/ Microscopic Exam.	Q page 1 section 6. "trash" and "30" black ink entries are darker than the handwritten black ink entries above. Side-light examination of Q page 2 shows indentations consistent with the Q page 1 visible handwritten ink entries "trash" and "30" in section 6. No other indentations were observed on Q pages 1 and 2. On Q page 2 the lowest printed text SUBTENANT, signature line, and handwritten "Natalie Brandon-Porter" signature, were printed by a dry toner process, but they are more heavily pixilated and thicker compared to the other texts and lines printed above; the handwritten entries above were made with a wet ink writing instrument. These toner-printed text, signature line and signature, were digitally added to create the printed Q page 2. Q page 2 was probably printed before the "trash" and "30" ink entries were added to section 6 on Q page 1.
	Video Spectral Comparator (VSC)	Q page 1 section 6. entries "trash" and "30" were written in black ink that responded differently from the inks in the handwritten entries above.
	ESDA	ESDA processing of Q page 2 confirmed indentations present that are consistent with, and produced by, the "trash" and "30" visible handwritten entries in section 6. of Q page 1. No other indentations were observed on Q page 2 or page 1.
6NLFK9	Microscopic Examination	A microscopic examination was completed on the Item 1 document revealing that the Natalie Brandon Porter signature found on page 2 is not an original signature. The signature was printed using an office machine system that utilizes toner.
	Video Spectral Comparator (VSC)	A Video Spectral Comparator (VSC) examination was conducted on the Item 1, 2 page document. The page 1 writing ink used to write the word "trash", the number "30", and the writing ink on page 2 reacted differently under the same lighting and filtering conditions as the remainder of the writing ink on page 1. The writing ink used to write the word "trash" and the number "30" on page 1 and the writing ink on page 2 fluoresced under spot lighting while remainder of the writing ink on page 1 did not. The writing ink used to write all the information on page 1 became invisible through infrared absorption while the word "trash" and the number "30" remained.
	Indented Writing	An Electrostatic Detection Device (EDD) examination was conducted. An EDD examination was conducted on both pages and sides of Item 1. On the second page and front side of the document the word "trash" and the number "30" appeared with no other indication of any other writing.
6U9D6P	Video Spectral Comparator (VSC)	Equipment that allows through the different illuminations and wavelengths to observe alterations and differential physical behaviors of the inks used in the completion of the questioned document: it also allows to obtain images of what was observed

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Nikon SMZ1500 stereo microscope with digital camera. It allows the detailed observation of the physical characteristics of the documents, so that in the present case the identifying aspects of the printing system with which the signature is embodied in the second folio
	Portable magnifiers	Allows to evidence details of the documents
6UPM3W	Macroscopic/ Microscopic Exam.	3. Visual and microscopic examination of lease revealed that the handwriting and signatures on Q1 as well as the handwriting on Q2 are in original ink: liquid ink, while the signature of the sub-lessor on Q2 is a reproduced copy: dry toner.
	ESDA	1. Laboratory item #1, [Invoice #], Q1 (front and back) and Q2 (back) were examined utilizing oblique/side lighting and ESDA (Electrostatic Detection Apparatus) 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. 2. Laboratory item #1, [Invoice #], Q2 (front) was examined utilizing oblique/side lighting and ESDA (Electrostatic Detection Apparatus) for the possible presence of indented impressions. Multiple impressions were found
	ESDA	VSC (Video Spectral Comparator) examination of the ink used for the handwriting on page 1, Q1 and comparison to the ink of the handwriting on page 2, Q2 revealed that they are different with respect to their response to IR (Infrared) Absorption and Reflectance. Additionally, VSC examination of Q1 revealed that the ink used for handwritten entries on page 1, paragraph 6, line 3 as well as the bottom of page 1 is different than the rest of the handwritten entries on the same page with respect to their response to IR (Infrared) Absorption and Reflectance
796697	Visual Examination	Compared with other handwritten items on the first page of the contract, partial strokes in the section 6 (ex: trash, 30), section 8 (ex: 4), section 11 (ex: 5th, May, 21) and sublessor signature on the second page show different characteristics of the writing media.
	Video Spectral Comparator (VSC)	Compared with other handwritten items on the first page of the contract, partial strokes in the section 6 (ex: trash 30), section 8 (ex: 4), section 11 (ex: 5th, May, 21) and sublessor signature on the second page show significant difference in ink reaction when conducting infrared reflectance (IRR) and luminescence (IRL) examinations.
	3D microscope	Signature of the subtenant on the second page of the contract was made up of toner, it was NOT handwritten item.
7AW8UL	ESDA	Item 1 (Item Q1) : Indented writing consistent with the word "trash", number "30" and a portion of number "4" from page 1 was detected on page 2 using the Electrostatic Detection Apparatus (ESDA). No indented writing was observed on page 1 using side-lighting and the ESDA.
	Video Spectral Comparator (VSC)	Item 1 (Item Q1): The word "trash" and number "30" in section 6 as well as a portion of the number "4" in section 8 were prepared using an optically different ink than the remaining writing on page 1 of Item 1 (Item Q1).
	Microscopic Examination	The "SUBTENANT" signature "Natalie Braxton-Porter" on page 2 was prepared using a toner printing process which may be found on numerous printing devices. Characteristics were observed which indicate page insertion/substitution of second page of Item 1 (Item Q1).
7DD3LX	ESDA	Used ESDA2. On page 2, developed indentations of "trash", "30", and a part of the "4" made by writing from page 1. No indentations developed on page 1.

TABLE 2

WebCode	Methods/Techniques	Observations
	Oblique Light	No indentations detected.
	Video Spectral Comparator (VSC)	Used VSC 6000/HS. At least two different inks are used on Exhibit 1. The "trash", "30", and a part of the "4" were written with an ink that is different than the other ink on page 1, but similar to the ink on page 2 (note: subtenant signature on page 2 is not ink).
	Macroscopic/ Microscopic Exam.	There are at least two dissimilar inks on Exhibit 1. The "trash", "30", and a part of the "4" were written with an ink that was dissimilar to the other ink on page 1, but similar to the ink on page 2. All computer-generated text is dry electrostatic toner. Subtenant signature on page 2 is not an original signature. It is made with dry electrostatic toner as is the the accompanying "SUBTENANT" text entry and signature line. Also, the print quality of these entries is worse that the other text on the document.
	Micrometer	Detected no differences in the thickness of the pages.
	Overlays	The developed indentations from page 2 overlay the corresponding handwritten entries on page 1.
	Transmitted Light	Detected no differences in the paper morphology.
	Ultraviolet Light	Detected no differences in the paper ultraviolet fluorescence.
	Visual Examination	Detected differences in the weight of the text and signature line accompanying the subtenant signature on page 2, when compared to the other text and lines. Did not observe any issues with text alignment. Also used test grids and straight edge.
	Handwriting Examination	Determined that the two subtenant signatures are not the same instance of handwriting.
	Hue/Saturation adjustment in Photoshop	Hue (+100) and saturation (+100) adjustments in Photoshop detected the same differences in the inks as previously described. 1200 ppi scans were used.
7ML6WJ	Macroscopic/ Microscopic Exam.	The pre-printed text on both pages of the questioned agreement results from a laser printing. The signatures of Juli Laich and Natalie B. Potter appearing on page 1/2 are established directly on the support by a black ballpoint pen. The signature of Natalie B. Potter appearing on page 2/2 does not result from a direct affixing on the support but it is abnormally resulting from a laser printing.
	Ultraviolet Light	Examination of the questioned agreement under ultraviolet light did not reveal any trace of washing, subtraction, addition or overload.
	Video Spectral Comparator (VSC)	The examination under spot light highlights the use of two black ballpoint pens with different chemical composition: - Use of black ballpoint pen to fill in and sign section 1, to fill in and sign section 2, to fill in section 3, 4, 5 and to fill in the first two lines of section 6; - Use of another black ballpoint pen to fill in the third line of section 6, to fill in section 11 and to sign.
7NUAFZ	Visual Examination	The physical properties, such as size, whiteness and 'look-through' characteristics, of the paper of Pages 1 and 2 are similar.
	Microscopic Examination	The text on pages 1 and 2 has been produced using a dry fused toner process such as copying or laser printing. The subtenant signature on Page 2 has also been produced using a dry fused toner process, rather than being written in 'wet' ink. There is an increased amount of background toner spatter around the 'SUBTENANT' text and signature on Page 2 compared to the rest of the text on that page.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	The ink entries 'trash 30' and part of the '4' of '45' on Page 1 and all of the ink entries on Page 2 appear darker in colour and show fewer striations to the rest of the ink entries on Page 1.
	Video Spectral Comparator (VSC)	The ink of the entries 'trash 30' and part of the '4' of '45' on Page 1 and the ink of all of the entries on Page 2 are indistinguishable from each other, and significantly different to the ink of the rest of the entries on Page 1. The UV brightness of the paper of Pages 1 and 2 is similar.
	Indented Writing	Impressions of the handwritten entries 'trash 30' and part of the '4' of '45' from Page 1 are indented on to Page 2. There are no decipherable impressions of the other handwritten entries from Page 1 indented on to Page 2.
	Overlays	The alignment and font size of the text on Page 1 is similar to that on Page 2, apart from the page numbering text of 'Page 1 of 2' and 'Page 2 of 2' which are marginally misaligned with respect to each other.
	ESDA	Paper manufacturing/roller marks are visible on Pages 1 and 2. I find no significant differences between those on Pages 1 and those on Page 2.
7TP4D2	Visual Examination	
	Macroscopic Examination	
	Macroscopic/ Microscopic Exam.	
	Thickness	small differences of the used paper for page 1 and 2 were detected
	Docucenter (Projectina, IR 780, luminescence 635 and 780 nm)	differences in the lines of the ballpoint pen under point 6 trash 30 at the end of the page 1 alteration of the number 4 within 45 days (first there was a 15)
	MSP (microspectrophotometer)	
	FT-IR	no differences of the used toner for page 1 and 2 was found
7X3UVP	Video Spectral Comparator (VSC)	An observation was made under IR fluorescence at 645 nm, showing ink differences in some areas of the writings.
	Infrared Light	645 nm observation
8GV8P8	Macroscopic/ Microscopic Exam.	To check the Linear strokes of the questioned signature of Subtenant "Natalie B. Potter on the two pages, the word "SUBTENANT" and the typeface of the signature position.
	Infrared Light	To check whether the ink used in writing the content of the sublease agreement on the first page is different from the ink used in writing the date and signature of the Sub lessor, "Juli Laich" on the second page.
	Video Spectral Comparator (VSC)	To check all hand written and printed content and signatures on both pages.
	Oblique Light	To examine the Linear strokes of the questioned signature of Subtenant "Natalie B. Potter" on both the pages.
	Visual Examination	To check all hand written and printed content and signatures on both pages.
	Ruler	To check and measure the size of the signature of the subtenant "Natalie B. Potter" on the two pages.

TABLE 2

WebCode	Methods/Techniques	Observations
	ink tester device ( foram 658-3 )	To examine and compare the inks for the signature strokes of the subtenant "Natalie B. Potter" on the two pages, as well as for the word "SUBTENANT". And to examine and compare the inks used for writing "Item No. 6" the word "trash" and the amount in numbers "30" and "Item No. 8" the number "45" in the first page.
	Magnification	To check all written and printed content and signatures on both pages.
8RQTX6	Visual Examination	The signature "Natalie Brandon-Porter" on Submission 001-B and the printed text "SUBTENANT" and preceding baseline looked darker and thicker than the rest of the printed text on Submission 001-A and 001-B
	Microscopic Examination	The signature "Natalie Brandon-Porter" on Submission 001-B is not a wet ink signature but a copy produced via toner technology. Also, the printed text "SUBTENANT" and preceding baseline are of a poorer quality than the rest of the printed text on Submission 001-A and 001-B.
	Video Spectral Comparator (VSC)	The words "trash" and "30" in Section 6 of 001-A along with a small "L" like stroke in Section 8 of 001-A were prepared with a different ink than the rest of the writing on 001-A. This ink reacted similarly to the writing in Section 11 and the "Sublessor" signature on 001-B
	ESDA	ESDA processing of Submission 001-B revealed indentations from the words "trash" and "30" in Section 6 of Submission 001-A and a small "L" shaped stroke, corresponding to the "4", in Section 8 from Submission 001-A. No unexplainable indentations were observed on Submission 001-A.
	Indented Writing	Sidelighting revealed no latent indentations.
8T4WKN	ESDA	No indented writing observed on page 1 ; Indented writing was observed on page 2 of Item 1 (Item Q1) using the Electrostatic Detection Apparatus (ESDA). The indented writing corresponds to the "trash 30" entry on page 1.
	Microscopic Examination	The handwritten entries and signatures (except the "Natalie Porter signature on page 2) appear to be original, inked entries. The machine printed text, formatting, and the "Natalie Braxton-Porter" signature on page 2 were prepared using a toner printing process, common on various brands of laser printers, photocopiers, and other office machines. It should be noted that the print quality of the "SUBTENANT" and corresponding signature line is inferior to the printing on the remaining machine printed portions.
	Video Spectral Comparator (VSC)	The "trash 30" entry, a portion of the "4" on the number "45" on page 1, and the inked entries on page 2 appear to have been prepared with an optically different ink than the remaining hand printed entries on page 1 utilizing alternate light sources on the VSC 8000. The "4" in "45" appears to have been altered from "1".
	Oblique Light	No indented writing observed on page 1 ; very faint, illegible indented writing observed on page 2.
9387PT	Método De Análisis De Alteracion De Documentos	Through the use of specialized equipment (VSC) he observed that the document presents different types of ink, likewise it was found that it presents alteration in page two at the bottom, precisely in the printing of the paragraph (sub-tenant) and in the signature that it is printed and not captured by an inscriber.
9A7W9H	Visual Examination	The form is executed with the black dye printer. But the writings are in black dye, with a scriptural object.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	The headings and props on the form are laser printed. Inscriptions: numbers, letters, words are made with a black gel ballpoint pen. There were no signs of damage to the paper support, letter changes, dye changes.
	Ultraviolet Light	The document has no security clues. There is no lack of dye in the inscriptions, or color changes.
9J7KU2	Video Spectral Comparator (VSC)	1. Analyzing page 1 of 2, applying filters of lights of the VSC 8000, to the 725 nanometers, the filling with handwriting disappears, not so the text that reads: "Trash 30", of the numeral 6. 2. I observed that in numeral 8, on page 1 of 2, the text reading: "45", when subjected to the VSC 8000 light filters, at 725 nanometers, the vertical stroke of number 4 and number 5 disappears; not so the upper left stroke of the number "4". 3. When performing the analysis on page 1 of 2, applying a fluorescence point of the VSC 8000, I observed that the filling ink with handwritten writing reads: "Trash 30" and the upper left stroke of the number "4", of the numeral 8 where it reads: "45", reacts differently to the rest of the filling ink with handwritten writing.
	Video Spectral Comparator (VSC)	4. When analyzing the page 1 of 2, applying a fluorescence point of the VSC 8000 in paragraph 8 where it reads: "45", note that the ink of the upper left stroke of number 4 reacts differently to the ink of the vertical stroke of number 4 and number 5, revealing the number "15". 5. When analyzing page 2 of 2, applying light filters of the VSC 8000, at 725 nanometers, the ink of the text that reads: "5th May 21" and the signature after the text that reads: "SUBLESSOR", presents the same behavior as the ink of the text: "Trash 30" and the upper left line of the number "4", from the numeral 8 where it reads: "45", from page 1 of 2. 6. By applying ultraviolet light from the VSC 8000 to the signature after the text reads: "SUBTENANT" on page 2, paragraph 11 of 2, it is observed that it has toner residues around the outlines and graphs that make up the signature, characteristic of reproduction by an electrophotographic means.
	Microscopic Examination	7. When performing the analysis on the Leica EZ4D microscopic stereoscope with diopter magnification in the signature after the text reading "SUBTENANT" on page 2 of 2, numeral 11, I noted that the strokes and graphs that make up the signature have not been made with ink but through an electro-photographic medium.
9M6VP2	ESDA	Identified document Q1A, I did not observe indentation. In the document identified Q1B, I recovered and preserve an indentation that reads "trash", "30" and an angled stroke.
	Microscopic Examination	When performing the microscopic analysis in the document identified Q1A, observe difference in characteristics produced by writing instrument used by Julie Laich to make the word "trash", "30" and a stroke that make up the number "45". When performing the microscopic analysis in the document identified Q1B, observe the signature that reads Natalie Potter is not original. The characteristics present are the product of toner.
9MXGVZ	Transmitted Light	Visual Examination/Transmitted Light The document was printed on white paper stock. Neither page 1 nor page 2 has a watermark.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	<p>Q1-1: The text is printed with a machine using black toner. Handwritten entries - All of the entries were written with what appears to be a black ballpen ink; however, not all of the writing has the same microscopic characteristics. Most of the entries exhibit ballpen striations, however the following entries appear to have fewer striations from the rest: Section 6: "trash" and "30" Section 8: the "L" stroke of the "4" in "45" Q1-2: The text is printed with a machine using black toner (the text appears crisper/more detailed than Q1-1 and there appears to be less "overspray" in the white/non-printed areas). Handwritten entries The date "5th May 21" and Sublessor signature were written with what appears to be black ballpen ink (with ballpen striations visible). The Subtenant signature: The text "Subtenant", "Natalie Braxton-Porter", and the signature line were all printed with black toner, and have a digitized/rastered/"stairstep" appearance. There are toner dots appearing around them.</p>
	Video Spectral Comparator (VSC)	<p>VSC 6000/HS exam (reflectance and luminescence) Q1-1: The handwritten ink entries have two groups of VSC characteristics that agree with the microscopic characteristics above. 1) Section 6: "trash" and "30", and Section 8: the "L" stroke of the "4" in "45" - these entries absorbed (remained dark) in the Infrared Reflectance mode and luminesced weakly beginning at 780nm in the Luminescence mode. (Black Ink B.) 2) Sections 1-6 and 8: the remaining entries disappeared in the Infrared Reflectance mode at 695nm and luminesced to some extent in the Infrared Luminescence mode beginning at 665nm. (Black Ink A.) Q1-2: The handwritten ink entries faded but were still visible at 1000nm in the Infrared Reflectance mode and luminesced weakly beginning at 780nm in the Luminescence mode. The paper appeared to have the same UV and luminescent characteristics as Q1-1. (Black Ink C.)</p>
	ESDA	<p>ESDA 2/A exam for Indentations Q1-1 front-no indentations from writing were developed. Q1-1 reverse-there was embossing from the writing on the front of Q1-1. Q1-2 front-Faint partial indentations of the handwritten entries "trash" and "30" on Q1-1 were developed. When the edges of Q1-1 and the Q1-2 lift are aligned, the indentations are aligned over the written entry on Q1-1. Q1-2 reverse-there was embossing from the writing on the front of Q1-2. Also on the reverse of Q1-1 and Q1-2, there appears to be a machine indentation or "void" (a vertical white band starting at the top edge and gradually fading out before the middle). The band is approximately one inch wide and is centered along the top edge (approximately 3 3/4 inches from each side of the sheet). This may have come from a business machine that either printed the pages, or from a copier or scanner that was used to image the pages.</p>
	Magnetic Flux Detection	<p>Magnetic Flux Detection (using Mag-Mouse 4197) There were microscopic differences in the appearance of the toner on Q1-1 and Q1-2, but they were both printed with magnetic toner.</p>

TABLE 2

WebCode	Methods/Techniques	Observations
A6AZAV	Microscopic Examination	<p>(a) Microscope examination (x6 to x40) revealed that most of the writing/signatures on the two page document are in ballpoint pen ink and the printed text appeared to be a clean original toner print (laser print). However, of importance, the Natalie Potter signature and the immediately surrounding area (including the printed "SUBTENANT" and signature line) on page 2 of item Q1 ("Q1.2") are each in the form of a toner reproduction. This reproduction included pixelation in the form of dots, indicating that this part of this page is the result of a scanned copy and paste process. The original writing on the two pages divided into at least two types of black ballpoint pen according to the microscopic details of the ink lines. Ink type 1 appeared to include all of the writing on page 1 apart from the entries "trash" and "30". Ink type 2 (less striated than ink type 1) included the entries "trash" and "30" on page 1 and all of the original writing on page 2 (date and sublessor signature only). After reviewing the IR images (see below) [attachment not provided by participant], it could also be seen that the characteristics observed using the microscope in the angular part of the numeral "4" in the entry "45" (in paragraph 8 on page 1) were similar to those characteristics observed in the ink type 2 entries. Thus "15" has been altered to read "45". Although part of ink type 1, the Natalie Potter name and signature in paragraph 2 has a slightly different microscopic (darker) appearance from that of other ink 1 entries although the infrared properties (see below) were indistinguishable. No differences were observed in surface toner appearance or in the paper appearance under the microscope between pages 1 and 2.</p>
	Video Spectral Comparator (VSC)	<p>(b) Infrared and Ultraviolet. The infrared absorption and infrared luminescence properties of the black ballpoint pen ink writing on Q1, examined with a VSC 6000, showed the presence of at least two distinguishable ink types as described in section (a) above. Ink type 1 became transparent (zero or minimal optical absorption) at wavelengths above 715 nm, whereas ink type 2 remained dark (absorbed) in the red-near infrared regions of the spectrum (645-925 nm). Ink 1 exhibited strong infrared luminescence (e.g. with illumination at 545-675 nm and infrared detection at and above 725 nm whereas ink 2 did not show detectable luminescence at these wavelengths; very weak luminescence of ink 2 was detected at longer wavelengths). No differences were detected in the infrared luminescence or ultraviolet stimulated fluorescence properties of the paper of the two pages.</p>
	Oblique Light	<p>(c) Oblique lighting observation did not reveal the presence of any detectable indented writing impressions in either of the pages (Q1.1 and Q1.2) of document Q1.</p>

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	(d) ESDA examination has revealed the following. Q1.2 bears writing impressions which correspond exactly with the original entries on Q1.1 "trash", "30" and the horizontal portion of the angular part of the numeral "4" within the entry which reads "45", referring to the days after the end of the term for refund of a deposit. These writing impressions were created when Q1.1 was located (directly or indirectly) over Q1.2 and in one relative orientation of these two pages. This relative orientation was close to (but not exactly) that which occurs with page edge alignment. No writing impressions were detected (on page 2) of any of the other handwritten entries written on page 1. A similar pattern of vertical banding, typically associated with machine roller marks, was observed on the ESDA transparencies of the front of each page and a similar pattern on the ESDA transparencies of the back of each page. This result is what would be expected if each page had been through the same machine (such as toner printer) or machine combination but does not prove that the same machine was used.
	Transparency alignment grid	(e) A transparency alignment grid was used to check the alignment of the printed text on each of Q1.1 and Q1.2. No significant misalignment was detected. Thus the "SUBTENANT" and associated signature line (together with the signature), which have been shown to have been copy-pasted on to Q1.2, have been accurately placed. The signature line associated with "SUBTENANT" is shorter than that associated with "SUBLESSOR" on Q1.2 but no conclusion can be drawn from this observation.
	Micrometer, ruler and transmitted light	(f) Other paper observations. As well as the observations described within points (a) and (b) above, each page was examined under transmitted lighting conditions and subject to thickness measurements (using a micrometer at five points) and to length and width measurements (using a Galaxy Gauge transparency print measuring device at left, middle and right (for length) and top, middle and bottom (for width)). No significant differences between the two pages were detected in transmitted light appearance, thickness (~0.100mm +/- 0.001) or length (278.3mm +/- 0.1). However, the width at bottom of the pages was greater for the first page (216.2mm) than for the second page (215.8 mm) which appeared to be significant. However, the overall significance of this observation depends on the natural variability in dimensions of the paper stock being used at the time. Specimen documents printed on the same machine(s) at the time(s) when Q1.1 and Q1.2 were produced would be required to further assess the significance of this observation.
A9V6Z2	ESDA	No significant indentations were observed on page 1. Only the indentation of "trash", "30" and a short curved stroke were observed on page 2. The indentation of "trash", "30" corresponded with the entry on page 1. The short curved stroke also corresponded with a part of figure "4" at the bottom of page 1.
	ESDA	Indentation of the other handwritten entries were not observed on page 2.
	Video Spectral Comparator (VSC)	Under spotlight, the word "trash", "30" and the short curved stroke did not fluoresce whilst the other handwritten entries fluoresced; indicating "trash", "30" and the short curved stroke was written using a different pen.
	Video Spectral Comparator (VSC)	The handwritten entries on page 2 also did not fluoresce under the same conditions.
	Magnification	The signature of Natalie Potter on page 2 of the agreement was observed to be a printed signature and not handwritten.

TABLE 2

WebCode	Methods/Techniques	Observations
ANLDEQ	METODO DE ALTERACION  Video Spectral Comparator (VSC)	The alteration method was used, applying the corresponding stages, within which the use of various light filters is used, including infrared light, ultraviolet light, transmitted, fluorescence point  the vsc spectral video comparator was used for the study with the different lights and filters (infrared, ultraviolet, transmitted, fluorescence point) in addition to taking images with macro and micro approaches
AVPDXT	Video Spectral Comparator (VSC)	Macroscopy and Microscopy with diascopic and episcopic visible lighting, applied to the analysis and qualitative evaluation of color characteristics related to coloration and tonality.
AZXJRE	Visual Examination  Video Spectral Comparator (VSC)	Once the contract has been directly observed on pages 1 and 2, it can be seen that Natalie Potter's signature, observed on page No. 2 of the contract, is made by digital laser printing. Which is totally contrary to what is observed in the completion of the contract and the lessor's signature, which are prepared in a handwritten manner and directly on the support.  On the other hand, when observing the contract with the help of technical instruments such as a thread-counting magnifying glass and a VSC 8000 video document comparator in the infrared spectrum, it can be seen that the word "TRASH", the number 30 located on the third line of numeral 6, and the line that makes up the Angle in the number 4 in the number "45", react in a different way to the reaction of the other writings, when observed through the same wavelength. What is described above indicates that the document "Lease Agreement" HAS BEEN ALTERED" ON PAGES 1 AND 2.
B6NBDG	ESDA/ oblique light  Macroscopic/ Microscopic Exam.  Video spectral comparator/ infrared light	No indented impressions were revealed on the questioned sublease agreement (Q1).  The handwritten signature of the SUBTENANT on the second page of the questioned sublease agreement (Q1) was produced using a laser printer. -Examination of the questioned sublease agreement (Q1) has revealed significant differences in toner patterns (density printing (dot pattern)) between the word "SUBTENANT" and the handwritten subtenant signature appearing on the last line of the second page and the other printed information of the questioned sublease agreement (Q1).  Under infrared light (665nm wavelength): The reaction of the ink's pen used to write the word "trash" and the amount "30", appearing on the 6th term of the first page, is different from the reaction of the ink's pen used to write the other handprint information written on the first page of the questioned sublease agreement (excluding the left portion of the number "4" of the written number "45" wich indicates the time limit for the sublessor to refund the deposit). The reaction of the ink's pen used to write the left portion of the number "4" of the handwritten number "45", wich indicates the time limit for the sublessor to refund the deposit, mentioned in the 8th term of the first page of the questioned sublease agreement (Q1), is different from the reaction of the ink's pen used to write the remain portions of the handwritten number "45".

TABLE 2

WebCode	Methods/Techniques	Observations
B7G7YP	Video Spectral Comparator (VSC)	The two pages of the agreement were subjected to oblique light in Infrared on the VSC . On page 1 of the agreement, majority of the handwritten entries in black ink disappeared with exception of the words 'trash' and '30'. This indicates that a different writing implement was used to add the entries 'trash' and '30' and it was probably done at a different time. I also observed an alteration on the entry No.8 on page 1 of the agreement; the digit '4' in '45' was altered from '1' indicating that the initial number of days was '15' and not '45'. The digit '15' disappears leaving behind a stroke that makes '1' into '4'
	Infrared Light	On page 2 of the agreement on the VSC, the handwritten entries do not disappear under infra-red oblique light. This also indicates that page 2 of the agreement was not made at the same time as page 1 of the agreement and a different writing implement of the same colour black was used to make the handwritten entries.
	Macroscopic/ Microscopic Exam.	A Leica microscope was used in magnification, examination and comparison of the handwritten entries on page 2 of the agreement which revealed that the entries of date (5th May 21) and the signature of the sublessor have a shiny paste-like appearance characteristic of fresh ballpoint pen ink whereas the signature of the subtenant was in black tiny carbon particles characteristic of toner. This indicates that the subtenant signature on page 2 was printed onto the document which is not consistent with the mode of application of the same signature on page 1.
B7YFNJ	Visual Examination	With the 10x optical instrument, it was observed that on page one, in literal 8, that the digit "4" in its design does not correspond to those elaborated in the document, for which an addition of the stroke is evidenced, additionally, it is observed in page two where the signature of Mrs. NATALIE B. POTTER is located, in the space for SUBSTANCE corresponds to a laser digital signature, and not to a manually placed signature.
	Video Spectral Comparator (VSC)	Subsequently, the documents are subjected to different wavelengths, specifically infrared spectra, in order to identify possible alterations in the graphics (digits and letters) in the substrate, through physical phenomena of absorption and luminescence, which allow observing the physical behavior of the ink.
	Infrared Light	The physical-light behavior observed in the text "trash" and "30" and the number "45" of the document page 1, allows us to determine that they are different from the other texts of the document.
BAF8QQ	ESDA	Indentations observed on page 2 of the questioned agreement, indentations were from writing on page 1
	Microscopic Examination	The subtenant signature on page 2 of the agreement was not an original signature, not an inked entry.
	Video Spectral Comparator (VSC)	VSC exam, optical differences observed on Ex 1(1) between the "trash" and "30" entries in block 6 and the remaining inked entries on Ex 1. Optical differences observed between the inked entries on Ex 1(1) (excluding "trash" and "30") and the inked entries on Ex 1(2). No optical differences observed between the inked "trash" and "30" entries on Ex 1(1) and the inked entries on Ex 1(2). Alteration observed in the "45" in section 8 on page 1 of the agreement
BDL23X	Visual Examination	No physical changes observed in the Handwriting, signatures and the printed matter on both pages 1 and 2 of Item Q1.

TABLE 2

WebCode	Methods/Techniques	Observations
	Infrared Absorption	Handwriting and Signatures on entire Page 1 disappeared @695nm except for handwriting at Point 6 - "trash 30" and Point 8 - "L" that makes the number 4 of "45 Handwriting and Signatures on Page 2 did not disappear throughout the range.
	Infrared Fluorescence	On Page 1 - All Handwriting and Signatures fluoresce except for handwriting at Point 6 - "trash 30" and Point 8 - "L" that makes the number 4 of "45". On page 2 - All Handwriting and Signatures fluoresce except for the Subtenant Signature.
	ESDA	No indentations detected on both pages 1 and 2 of Item Q1.
	Microscopic Examination	Page 1 - All Handwriting and Signatures consisted of original pen ink strokes as evident by observed striations. Page 2 - All other Handwriting and Signatures except for the subtenant signature consisted of original pen ink strokes as evident by observed striations. Subtenant Signature, "Natalie B Porter" consisted of toner circular dot which is indicative of a printed/photocopied Signature.
BG2TTQ	Visual Examination	Visual examination showed the second signature on laboratory item #1 (Q2) is a reproduced signature. It also shows that there is no term of the contract regarding return of charges for unused utilities present.
	Microscopic Examination	Microscopic examination showed the second signature on laboratory item #1 (Q2) is a reproduced signature. It also shows that there is no term of the contract regarding return of charges for unused utilities present.
	Oblique Light	Oblique/side lighting did not reveal the presence of any indented impressions on the documents Q1 or Q2.
	ESDA	ESDA analysis revealed the presence of indented impressions on page 2 (Q2 front and back). (No impressions found on Q1). The impressions and lack thereof found on (Q2 front) ESDA lift indicate an insertion/alteration/and or page substitution. The impressions and lack thereof found on (Q2 back) ESDA lift indicate only one of the signatures on (Q2) is original and the other is reproduced.
	Video Spectral Comparator (VSC)	Video Spectral Comparator (VSC) analysis revealed the presence of multiple inks with different optical properties and indicate alterations/insertions/page substitutions were made on Q1 and Q2.
	Digital Imaging	The evidence was photographed/scanned during analysis and the images can be made available upon request. The images visually capture and document the optical and physical differences of the documents.
	Ultraviolet Light	Ultraviolet light box analysis shows no visible difference in optical properties of the physical paper documents.
BRY44Y	Visual/ Microscopic	"Subtenant" and signature on page 2 is entirely printed by toner technology. "Subtenant" and signature on page 2 is misaligned with the text above it. "Subtenant" and signature on page 2 was printed using a different toner quality than that used above it.
	Video Spectral Comparator (VSC)	Ink used for the date and sublessor signature on page 2 is different than that used on page 1, excluding the cross bar of the "4" from "45" and the "trash" and "30" portions of page 1. The ink used for the cross bar of the "4" from "45" and the "trash" and "30" portions of page 1 is different from the ink used to create the other entries. The inked entry "___ days" on page 1 has been altered from "15" to "45". The ink used for the cross bar of the "4" from "45 and the "Trash" and "30" portions of page 1 is similar to that used for the date and sublessor signature on page 2, but no conclusion if same pen.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	No indentations from page 1 on page 2. May or may not be significant.
BTVL7Z	Video Spectral Comparator (VSC)	UV, IR, transmitted, sidelighting was used to examine pages one and two including the ink on the pages. Resulting in following observations: The pen used for "trash", "30", and the left downstroke and cross bar of "4" in "45" on Exhibit Q1 page 1 is different microscopically and optically than the remaining handwritten entries on Exhibit Q1 page 1. - The pen used for the "trash", "30", and the left downstroke and cross bar of "4" in "45" entries on Exhibit Q1 page 1 appears similar microscopically and optically to the pen used for handwritten entries on Exhibit Q1 page 2. However, due to limitations of non-destructive ink examination it cannot be determined whether these entries were written by the same pen.
	ESDA	Sourced indented impressions were observed on Exhibit Q1 page 2. These impressions were sourced to the "trash", "30", and the left downstroke and cross bar of "4" in "45" entries on Exhibit Q1 page 1. - Based on these observed impressions and the lack of other indented impressions on Exhibit Q1 page 2, it was determined: - The entry "15" on Exhibit Q1 page 1 was turned into "45" with the addition of the left down stroke and the crossbar. - The "trash" and "30" entries on Exhibit Q1 page 1 were written at a different time than the remaining entries on Exhibit Q1 page 1. No discernible indented impressions were observed on Exhibit Q1 page 1.
	Macroscopic/ Microscopic Exam.	The pen used for "trash", "30", and the left downstroke and cross bar of "4" in "45" on Exhibit Q1 page 1 is different microscopically and optically than the remaining handwritten entries on Exhibit Q1 page 1. o The pen used for the "trash", "30", and the left downstroke and cross bar of "4" in "45" entries on Exhibit Q1 page 1 appears similar microscopically and optically to the pen used for handwritten entries on Exhibit Q1 page 2. - The SUBTENANT signature on Exhibit Q1 page 2 is not an original inked signature but produced with toner technology (e.g., toner printer, photocopier). o The SUBTENANT signature block on Exhibit Q1 page 2 appears microscopically different than the remainder of the toner entries on Exhibit Q1 page 2.
	Overlays	SUBTENANT signature block text on page 2 overlay with SUBLESSOR text on page 2 and like characters on page 1 - differences were noted.
BWE2TU	Infrared Light	Different response to infrared light by the writing media used (fatty ink pens). Different response to infrared light by the writing media used (fatty ink pens). On page 2 the ink remains under the infrared spectrum, contrary to page 1 where the fatty inks disappear except for the writing "trash 30" and there is an addition in the last paragraph of page 1, where visibly appears the number "45" written with black fatty ink, the initial number was "15". On the 2nd sheet of the contract, the writing of "5th" "May" reacts similarly to the additions on page 1.
	Transmitted Light	The contract has different spacing between paragraphs (9, 10 and 11) on page 2 compared to (7 and 8) on page 1.
	Macroscopic/ Microscopic Exam.	The "SUBTENANT" section containing Mrs. Potter's signature is an image inserted on page 2 of the document, previously scanned from another document.
	Handwriting Examination	Both signatures of the different sheets are compared, attributing the authorship to the person who alludes to them.

TABLE 2

WebCode	Methods/Techniques	Observations
BZQLKT	Visual Examination	Visual examination including oblique light. White paper. Page 1; No additional HW impressions on face. All HW embossed to back to some extent. Page 2; no add'l HW impressions visible on face. Date and sublessor signature emboss to back, not subtenant signature No watermarks on either.
	Macroscopic/ Microscopic Exam.	White paper with toner printed form. Lots of toner trash and some shaped marks. Particle size variable. At least two ball point pen inks. Darker at "Trash" "30" and angled stroke of "4" Page 2 subtenant signature is a half tone toner image, not original ink.
	Video Spectral Comparator (VSC)	Most of black ball point ink on page 1 is not discriminated, except for "Trash", "30" and angled stroke of "4" Black ball point ink on page 2 is different from either ink on page 1.
	ESDA	No additional HW impressions on page 1. Page 1 written while in contact with paper fiber surface. Page 2 show impressions from Trash 30, but none other from page 1 Page 2 written while in contact with paper fiber surface.
BZUGFE	Macroscopic Examination	
	Oblique Light	
	Ultraviolet Light	
	Infrared Light	
C7J99U	Microscopic Examination	The optical evaluation carried out on the content of the Lease Agreement allowed the identification of various differences in terms of tonality, intragrammatical striation; on sheet No. 2 irregular edges of some strokes and line to deposit the signature final, alteration details in the inscription of the Sub-lessee's final signature, dark pigments in the outline of the Word "SUBTENANT", the line and the final signature of the Mrs. Potter.
	Video Spectral Comparator (VSC)	Verifications with different types of light, adequate magnification, filter scans at different scales allowed corroborating altering aspects in the content of the document, different composition of the ink was found in some texts and signature of the Sub-lessee.
C8C6V3	Video Spectral Comparator (VSC)	THE INK USED IN THE DATA PRESENT IN PAGE 2 IS DIFFERENT THAN THE INK USED IN PAGE 1
	Macroscopic Examination	THE SIGNATURE OF THE "SUBTENANT" IN PAGE 2 CONSISTES OF SMAAL DOTS, THIS MEANS THIS SIGNATURE SUBMITTED AT THE SCEND PAGE VIA SCANNER
D6YLUP	Magnification	The machine generated printing on Q1 was printed with a black toner process, such as a laser printer or photocopier. The handprinting, numerals, and signatures on Q1a were written in black ballpoint ink. The handprinting, numerals, and sublessor signature on Q1b were written in black ballpoint ink. The subtenant signature on Q1b is a non-original signature printed with black toner.
	Video Spectral Comparator (VSC)	The black ballpoint ink used to write "trash", "30", alter the numeral "15" on Q1a, and write "5th May 21" and the sublessors signature on Q1b absorbs the infrared (IR) radiation and stays dark under the 645nm and 725nm longpass filters. Under the same longpass filters the remainder of the writing in black ballpoint ink on Q1 reflects the IR radiation and becomes lighter (and drops out).

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	No indented impressions of evidentiary value were developed on Q1. The indented impressions developed on the back sides of Q1a and Q1b are the result of the writing on the front sides of Q1a and Q1b.
	Visual Examination	The headers that read "SUBLEASE AGREEMENT" on both Q1a and Q1b were typed using Calibri font or similar. The body of both Q1a and Q1b was typed using Times New Roman font or similar.
DGT7Q3	Magnification	Magnification of the Natalie Braxton-Porter signature on page 2 of 2 of the Sublease agreement is a signature that is created from toner (ie: from a laser printer/photocopier machine), and not from a writing instrument.
DL4T9Q	Visual Examination	3-21-2022 Visual examination to look for any obvious features. Handwritten portions appear to be black ball point ink. Subtenant signature on page 2 appears very dark and may not be original ink.
	Microscopic Examination	3-21-2022 Microscopic examination revealed handwritten entries are black ball point ink with the exception of the Subtenant signature appearing on page 2 - this consists of toner technology. The word "trash" and the numerals "30" on page 1 appear blacker and do not contain as many striations as the remaining handwritten portions on page 1. Additionally, the "L" portion of the numeral "4" in the number "45" has this same appearance. The Subtenants signature on page 2 is produced with toner technology and the remaining handwritten entries on this page have a similar blacker appearance and not as many striations. All printed text on pages 1 and 2 consist of toner.
	Indented Writing	3-31-2022 Pages 1 and 2 of were examined for indented writing impressions. Test strip was positive. The following indentations were observed on page 2 and appear to be: trash 30 L (this appears at an angle and is faint) These indentations line up with the entries appearing on page 1 in Section 6 and Section 8 for the numeral "4" of the number "45". No other indentations of evidentiary value were observed.
	Video Spectral Comparator (VSC)	3-31-2022 Item Q1 was examined under infrared lighting on the VSC6000. Ink differentiation was observed on page 1 in Sections 6 and 8 and Section 11 appearing on page 2. In section 6, the word "trash" and the numerals "30", in Section 8 the "L" portion of the numeral "4" in "45" and the original handwritten entries appearing in Section 11 on page 2, with the exception of the "Subtenant" signature, were written with a different ink than the remaining handwritten entries.
	Transmitted Light	4-5-2022 Item Q1 was examined with transmitted light. No watermark observed.
	Ultraviolet Light	4-6-2022 Item Q1 was examined under Ultraviolet light and no differences were observed.
DXFLUY	Microscopic Examination	Naked-eye and low-magnification stereo microscopy with ordinary task lighting at various angles of incidence. To observe nature of the typed text and of the ink-lines of the writing. The appearances were typical of dry-toner typing and conventional ball-pen writing respectively. Apparent difference in densities of black inks and differing quantity of burr striae observed.
	Viewing ink lines with microscope through a variety of dichroic filters.	Differing colours showed differences in the inks.

TABLE 2

WebCode	Methods/Techniques	Observations
	Use of a permanent magnet and a magnetic viewer to inspect magnetic properties of the fused toner.	No difference found in the magnetic properties of the toner of the typed text and that of the signature of subtenant.
	Oblique Light	Visual search for indented impressions; none observed.
	Transmitted Light	No difference found between the two sheets of the agreement with regard to opacity, "mottle, or watermark.
	Ultraviolet Light	No difference found between the two sheets of the agreement with regard to luminescence. No difference between the toner of typed text and signature of sub-tenant. Slight difference observed between writing inks but no more than in ordinary task lighting.
DYC6VZ	ESDA	Page 2 of bears impressions of the handwritten text "trash" and "30" from page 1. No other impressions were located in page 2 from the original writing on page 1, meaning that "trash" and "30" were written at some other time than the remaining text on page 1.
	Video Spectral Comparator (VSC)	Infrared examinations revealed that the ink used to produce the entries "trash" and "30" are different than the remaining original inked entries on page 1.
	Microscopic Examination	Microscopic examinations revealed that the Natalie Porter signature on page 2 is toner and not an original inked signature.
	Formatting	Formatting examinations revealed differences in the line spacing between each section number on page 2 when comparing the spacing between section numbers on page 1.
DZ8PGE	ESDA	Indented writing on page 2 supports that page 1 was altered.
	Indented Writing	Indented writing on page 2 supports that page 1 was altered.
	Infrared Light	Optical variations on the entries on page 1 support notion that document was altered
	Visual Examination	Toner used to produce document and signature on page 2-not original ink. Toner also appear visually different in signature versus rest of printed areas.
DZLLXX	Visual Examination	The signature of Natalie B. Potter, on page 2, was darker than other writing on contract
	Microscopic Examination	The signature of Natalie B. Potter on page 2, was printed ink, not written in ink pen
	Video Spectral Comparator (VSC)	Under utilities "trash", the number "30", hook of 4, date on page 2 and signatures on page 2 did not absorb under IR as rest of writing. These same items did not fluoresce under spot fluorescence
EJCGMQ	ESDA	No indented impressions were detected on page 1. Indentations were observed on page 2 of the Sublease Agreement. Two words were detected about three quarters of the way down the page, namely the words "trash" and "30", which appear in paragraph 6 on page 1. An "L" that aligns with that portion of the numeral "4" in paragraph 8 of page 1 was also detected. This indicates that page 1 of the Agreement was on top of page 2 when these entries were written, and that these entries were written at a different time than the other ink entries on page 1.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Microscopic examination revealed differences in ink colour and the amount of striation marks present in the ink line, indicating that different writing implements were used throughout the agreement. On page 1, differences were observed in the words "trash" and "30" in paragraph 6, and the "L" portion of the numeral "4" in paragraph 8, when compared to the other ink entries on the page that the sublessor is also responsible for. The subtenant signature on page 2 is a non-ink signature, but probably one that has been copied then pasted electronically on to the page before printing, being an electrophotographic process. Toner deposits are observed around the characters of the signature as well as the word "SUBTENANT".
	Ruler	Both sheets of paper were measured and found to be approximately the same size. There were differences in the line spacing between paragraphs eg 3-4, 4-5, on page 1 when compared to the distances in line spacing between comparable paragraphs 9-10 and 10-11 on page 2.
	Spectral Imaging	Differences in the spectral properties of the black inks used on page 1 were observed. Based on the absorption and fluorescence properties under certain lighting conditions, the ink of entries "trash", "30" and the "L" portion of numeral "4" were able to be differentiated from the other ink entries on page 1 that the sublessor is also responsible for. The ink of the date and sublessor signature on page 2 was similar in spectral properties to a few entries on page 1 namely "trash", "30" and "L" portion of the numeral "4".
ELYVBZ	Macroscopic/ Microscopic Exam.	Visually no exclusionary differences in the inks of the handwritten entries in "Q1 Page 1 of 2" and "Q1 Page 2 of 2" when examining using microscope. No exclusionary differences in the printing process and printing quality in "Q1 Page 1 of 2". Printing quality of signature against 'SUBTENANT' and the printed text 'SUBTENANT' found to have exclusionary differences from those of the remaining printed texts in "Q1 Page 2 of 2". No exclusionary differences in printing process and quality of the remaining printed texts in "Q1 Page 2 of 2".
	ESDA	Handwritten entries of "trash", "30" in Paragraph 6 and [shape added to "1" to create "4"] in Paragraph 8 corresponded to the indented impressions lifted off ESDA lift "Q1 Page 2 of 2 (Front)".
	Video Spectral Comparator (VSC)	Handwritten entries of "trash", "30" in Paragraph 6 and [shape added to "1" to create "4"] in Paragraph 8 were found to have exclusionary differences from those of the remaining handwritten entries in "Q1 Page 1 of 2". No exclusionary differences in optical properties of the handwritten entries in "Q1 Page 2 of 2".
EMELUZ	Macroscopic/ Microscopic Exam.	Examined each handwritten ink for originality. Page 2 signature of the subtenant is not wet ink. All other ink is wet ink. Page two may have been recreated and cut and paste of the subtenant's sig.
	Indented Writing	used side light to possibly determine latent writing. None found. There was an odd texture to the paper.
EQCYHP	Visual Examination	Printing and paper the same. Signature printed: poor image, evidence of cut & paste.
	Video Spectral Comparator (VSC)	Different pens page 1 and page 2. Addition of Trash 30 section 6. Change of 15 to 45 section 8.
	ESDA	Indents don't pass from page 1 to page 2 except Trash 30.
FA4CLG	ESDA	Indented writing "trash" and "30" and portion of "4" on page 1 observed on page 2 but no other writing.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	"Subtenant" signature on Item 1 page 2 is toner printed and not original.
	Video Spectral Comparator (VSC)	"Trash", "30" and initial stroke of "4" react differently under IR light than remainder of writing.
FBEF23	Macroscopic/ Microscopic Exam.	The analysis revealed: differences between the fiber pattern of the paper on page 1 when compared to the paper on page 2; differences in the edges of the paper on page 1, when compared to the paper on page 2 (more irregular in page 1); differences regarding touch (higher softness present in the paper of page 1). As such, the papers of pages 1 and 2 were considered different.
	Video Spectral Comparator (VSC)	Differing optical properties of the pen ink, in: the writing of "trash 30", on item 6 in page 1; additional strokes used to convert number "1" into "4", in the deadline for refund deposit on item 8 in page 1; the date and signature of the Sublessor on page 2, when compared to page 1. These observations were made using ultraviolet light (365nm, 665nm filter), visible light (630nm and 665nm filters) and Spot light (520-640nm, 695nm filter).
	Microscopic Examination	The signature of the Subtenant on page 2 shows toner deposits, low definition and digitalization marks. Therefore, it is not original writing.
	Indented Writing	No indented writing of page 1 was present on page 2, and vice-versa.
	Grid	No misalignments were detected on page 1. On page 2, the line of the signature of the Subtenant is longer than the line of the signature of the Sublessor. The position of the title "Sublease Agreement" and the page number (Page 1 of 2 and Page 2 of 2 ) does not coincide on both pages.
FDLW7B	Infrared Light	Scientific method taking into account the phases of: observation, indication or signaling of the distinctive characters (individualizing characteristics), confrontation and identity judgments.
	Video Spectral Comparator (VSC)	A spectral scan was carried out in the range of light, to the lines present in the completion of page 1 of the sublease agreement document, using lamps of different characteristics and a spectrometer that is equipped in the VSC 6000 Document Spectral Comparator video. HS, in order to evaluate the behavior and spectrum of the inks.
	Macroscopic/ Microscopic Exam.	
FMNKAL	ESDA	
	Video Spectral Comparator (VSC)	
	Microscopic Examination	

TABLE 2

WebCode	Methods/Techniques	Observations
FP3E8U	Macroscopic/ Microscopic Exam.	Paper characteristics (visible) were consistent between pages 1 and 2. Page 1: Form printing was done using black EP dry toner and all form entries align properly. All handwritten entries were executed in black ballpoint ink but the "trash" and "30" entries were a slightly different colour, as was the left-hand bent stroke in the "4" in "45" at the bottom of the page, than the remaining ink entries on the page. Page 2: Form printing was done using black EP dry toner. The entire subtenant line, including signature, was also produced using black toner. Toner deposition and fusing characteristics are similar throughout the page, but the subtenant entry appears to be slightly 'bold' and of poorer resolution than the rest of the entries suggesting a different generation of production. The date and sublessor signature were written in black ballpoint ink and that ink is visually similar to that used on page 1 for the entries "trash" and "30", as well as the left-hand bent stroke in "4" of "45".
	Video Spectral Comparator (VSC)	Page 1: Significantly different spectral response was observed (both in terms of IR luminescence and IR fading) for following entries: - (ink 1) "trash", "30", and the left-hand bent stroke in "4" of "45", - (ink 2) all other entries on page 1. Page 2: All ink entries display spectral response (both IR lumin and IR fading) similar to ink 1 (described above) on page 1.
	ESDA	No detectable indentations were developed on page 1 (front). Decipherable indentations were developed on page 2 (front) that were sourced to the "trash 30" entry on page 1. A small indentation was developed on page 2 (front) that was sourced to left-hand bent stroke in "4" of "45". No indentations were developed on page 2 (front) relating to any other written entries on page 1. Indentations relating to transport markings were developed on the reverse of pages 1 and 2 and those were similar for both pages.
FVMJXA	Visual Examination	The inked entry "trash 30" on Page 1 appears to be a slightly different color than the other inked entries on that page.
	Macroscopic/ Microscopic Exam.	The inked entry "trash 30" on Page 1 appears to be a slightly different color than the other inked entries on that page. The computer-printed entries were produced using a toner printing process and appear to be the same font. The Natalie B. Porter signature on page 2 is not an original signature and was produced using a toner process.
	Video Spectral Comparator (VSC)	The inked entry "trash 30" on Page 1 reacted differently to infrared light infrared luminescence than the other inked entries on that page.
	Oblique Light	Page two has some faint indented writings that appear to read "trash"
	ESDA	No handwriting indentations were recovered from Page 1. The entry "trash 30" was recovered from Page 2.
	Transmitted Light	No alterations or differences between the paper were noted on Page 1 and Page 2.
	Ultraviolet Light	Both Pages 1 and 2 reacted similarly to ultraviolet light.
FZENQE	Magnification	Using magnifying glass in page one no.6 the words "trash" "30" and page two no.11 the words "5th May 21" and the signature of sublessor found that the pen ink used is darker than the other area of the sublease agreement.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	By using VSC 6000/HS in page one no.6 the words "trash" "30", page two no.11 "5th May 21" and the sublessor signature found that the color of pen ink used is different from other area in no.1-5 , no.6"gas" "25" "electric" "50" and no.8 the digit "250" that was examined by luminescence mode. On no.8 also found the digit "45" of the sublease agreement was changed from "1" to "4".
G8FFGM	Visual/ microscopic	Visual and microscopic examinations of Exhibits Q1(1)a and Q1(2)a were conducted. Visual examinations of Exhibits Q1(1)b and Q1(2)b were conducted. The paper in Exhibit Q1(1)a was compared with the paper in Exhibit Q1(2)a. The questioned machine-generated entries on Exhibits Q1(1)a and Q1(2)a, and the questioned Natalie Potter signature on Exhibit Q1(2)a were prepared using toner printing technology.
	Video Spectral Comparator (VSC)	Alternate light source examinations of Exhibits Q1(1)a and Q1(2)a were conducted. The questioned hand printed entries on Exhibits Q1(1)a and Q1(2)a, and the questioned Juli Laich signature on Exhibit Q1(2)a, were prepared using black ballpoint ink; however, ink differences were observed between the "trash" and "30" entries and the remaining entries on Exhibit Q1(1)a. No ink differences were observed between the date and the Juli Laich signature on Exhibit Q1(2)a. An alteration was observed in the "45" entry on Exhibit Q1(1)a; a stroke was added to the original "15" entry. No differences were observed within the paper of Exhibits Q1(1)a and Q1(2)a.
	ESDA	Exhibits Q1(1)a, Q1(1)b, Q1(2)a and Q1(2)b were examined for the presence of indented impressions using the Electrostatic Detection Apparatus (ESDA). Indented handwriting and machine-created impressions were observed on Exhibits Q1(1)b, Q1(2)a and Q1(2)b; however, the handwriting impressions on Exhibits Q1(1)b and Q1(2)b are not of evidentiary value. Machine-created impressions were observed on Exhibit Q1(1)a. No further indented impressions were observed on Exhibit Q1(1)a. Indentation lifts were created to preserve the results of the ESDA examination.
	Digital processing and preservation	The ESDA indentation lifts were digitally processed and preserved. Exhibit Q1 was digitally preserved.
GDXVZK	Visual Examination	Page 1, the tonality of the ink of the full manuscripts is different from the tonality Natalie Potter's signature Page 2 The tonality of ink between Juli's signature and Natalie Otter's is notoriously different
	Macroscopic/ Microscopic Exam.	Natalie's signature, toner dots can be seen on its outline, the signature line is not continuous, it is cut out with blank spaces, from which it can be deduced that the signature is not original, it is a reproduction.
	Video Spectral Comparator (VSC)	Page 1 of the document when applying IR infrared light, at RG925 nm, it was observed: In the section 6, the handwriting disappears except for the word, "trash", and the number "30"; from which it follows that another type of ink was used. In section 8 the number "250" completely disappeared and in the number "45" it also disappears, but not in its entirety since in the number "4" only an angular line remains visible, from which it can be deduced that this number was originally it was a "1" and the angular stroke was added with another type of ink, to turn it into a "4"

TABLE 2

WebCode	Methods/Techniques	Observations
	Document analysis method	Page 1 of the document when applying IR infrared light, at RG925 nm, it was observed: In the section 6, the handwriting disappears except for the word, "trash", and the number "30"; from which it follows that another type of ink was used. In section 8 the number "250" completely disappeared and in the number "45" it also disappears, but not in its entirety since in the number "4" only an angular line remains visible, from which it can be deduced that this number was originally it was a "1" and the angular stroke was added with another type of ink, to turn it into a "4"
GGZQL9	Visual Examination	Size of paper sheets. Letter fonts, right and left margins, line spacing, distance between paragraphs. The separation between clauses 9-10 and 10-11 of the second sheet is significantly smaller than the space between the clauses on the first page.
	Microscopic Examination	Characteristics of printed texts. No differences have been detected between sheet 1 and 2. Characteristics of handwritten texts. Used viscose ink pens. Natali Brandon-Porter's signature (page 2) is not handwritten, as it should be. It is a black toner laser print. Page 2: the printing of the word "SUBTENANT" does not correspond to the rest of the agreement.
	Video Spectral Comparator (VSC)	Clause 6: word "Trash" and number "30" (dollars). The fluorescence of the ink is clearly different from the rest of the texts handwritten by Juli Laich.
	Indented Writing	Indented writing on page 2 of the contract: word "Trash" and number "30". Conversely, no indented writing has been detected from the rest of the handwritten texts on page 1.
H8QETN	Video Spectral Comparator (VSC)	The following handwritten entries were found to display different optical properties when compared the other handwritten entries : (1) the "trash" and "30" in section 6 on P.1 (2) the "□" of "4" of "45" in section 8 on P.1 (3) the "5th", "May", "21" in section 11 on P.2 (4) the signature of sublessor on P.2
	Microscopic Examination	The signature of subtenant on P. 2 was found to be toner-printed
	ESDA	Indented marks of "trash", "30" & [shape added to "1" to create "4"] were found on P.2 and could be superimposed with the corresponding handwritten entries on P.1
HAWZYW	Video Spectral Comparator (VSC)	Different ink used to execute the handwritten number "30" the word "Trash" and a portion of the number "4" from the remainder of written entries on page 1. Ink used to execute all the written entries except the signature "Natalie Braxton- Porter" and signature block on page 2 reacted the same as the above suspect entries on page 1
	Macroscopic/ Microscopic Exam.	The "Natalie Braxton- Porter" signature block and signature on page 2 is a machine copy that appears to have been copied on to the page from another document.
	ESDA	Indented Impressions of the number "30" the word "Trash" found on page 2.
	Transmitted Light	Pages 1 and 2 are different thicknesses and opacity.
HY2U6X	Video Spectral Comparator (VSC)	On page 1, at point 6, the concept "Trash" and the quantity 30 are printed and not handwritten. In point 8, the digit 1 has been transformed into a digit 4, to alter the quantity 15 in the quantity 45.
	Microscopic Examination	The data on page 2 of the document under study has been printed and not handwritten. The signature in the name of "Antalie" has been printed with a different printing system to the one used to print the other data that had to be handwritte.

TABLE 2

WebCode	Methods/Techniques	Observations
J3B4FK	Microscopic Examination	Observed differences in the signatures on page 2. One signature is original ink, the second signature is copy, indicative of cut and paste forgery. The signatures were examined and photographed at 6.7X magnification. There was also evidence remnants of previous toner in an awkward place under the signature of Juli Laich. This was observed and photographed at 10X magnification. It appears as though there was a previous entry that was removed.
	Video Spectral Comparator (VSC)	There were differences in the ink on Page 1. The VSC showed that the area in question number 6, was written in 2 different inks. Also, the date in number 8, an alteration was made to the "4" in the number of days.
J46CGV	Visual Examination	To examine the document and the type of writing
	Microscopic Examination	To examine the document the the type of writing
	Infrared Light	To visualize the difference between the type of used pen
J9G6PA	Microscopic Examination	page 1 and 2 both prepared using black toner; HW prepared using black ballpoint pen (striations, gooping); writing instrument used to prepare "trash" and "30" entries on page 1 appear to be a different tone of black than the previous utility entries "Natalie Braxton-Porter" signature on page 2 is not original, but rather prepared in black toner (plastic-like beads sitting on top of paper surface, extraneous toner) to this area appears to exhibit poorer print quality and have extraneous print areas compared to remaining portion of the 2nd page
	Oblique Light	Side light used, noted positive for indented writing on bottom half of page 2 in similar area of "trash" and "30" entries on page 1
	ESDA	ESDA positive for IW on page 2, shows indented writing from portions of original writing on page 1, including "trash" and "30", but not the rest of the writing on page 1 as expected.
	Video Spectral Comparator (VSC)	Examined item 1 using the VSC 8000 system, IR luminescence showed an alteration on the bottom of page 1 changing 15 to 45. Also, the "trash" and "30" entries as well as the portion that is added to change "15" to "45" show differences in their optical response in comparison to the rest of the original writing page 1. The handwritten entries on page 2 have a similar optical response as the alteration and the additions on page 2. Differences in optical response of writing inks on Page 2 and portions of page 1 indicate they were not prepared using the same writing instrument or were prepared at different times. Chemical ink testing recommended
JXZK7D	ESDA	Indented writing on page 2 consistent with purported additions from page 1. ESDA positive on page 2; negative on page 1
	Video Spectral Comparator (VSC)	Optical differentiation of inks on page 1 used to prepare purported additions as well as inks used between page 1 and 2
	Macroscopic/ Microscopic Exam.	SUBTENANT section print quality as well as signature non-original (toner)
	Oblique Light	negative on page 1 & 2
JZRCLP	Video Spectral Comparator (VSC)	By the infrared observation with wavelength filters, some words became nearly transparent.
	Magnification	The signature of the subtenant was consist of toners by magnifier and optical microscope.

TABLE 2

WebCode	Methods/Techniques	Observations
K2VPJH	Visual Examination	Both pages printed on white paper, of the same size when aligned with each other.
	Microscopic Examination	Page 1 pre-printed text is printed using toner, with all hand printed entries and signatures completed with ink pen. Page 2 pre-printed text is printed using toner, with date and "SUBLESSOR" signatures written with ink pen. The "SUBTENANT" signature is printed using toner. Artifacts noted.
	Micrometer	The thickness of each page was randomly sampled, with the measurements taken in the same spots on each page, in inches. P1 - .00038, .00039 .00037, .00039 P2 - .00039, .000365, .000375, .00037
	Video Spectral Comparator (VSC)	Both pages are similar in flood, ultraviolet, and transmitted lighting. Infrared filters revealed the "trash" and "30" entries on page 1 were written with a different ink than the remainder of the entries. The same ink was used to make an alteration changing the "15" to "45" and the SUBLESSOR signature.
	Video Spectral Comparator (VSC)	Side lighting was used to reveal similar roller marks on each page. There were 2 thin roller marks, approximately 2 inches in from each edge of the page. Additionally, impressions of the word "trash" and "30" were lightly visible on page 2.
	ESDA	ESDA examination of front and reverse of both pages revealed the words "trash" and "30" impressed on the front of page 2, and the added mark to change "15" to "45" is visible in the lower left corner, indicating that when those entries were added, page 1 was on top of page 2.
K9FPYU	Macroscopic/ Microscopic Exam.	The first page, of the two-page Sublease Agreement, appeared to be from the original Agreement. A ball point pen, having a unique striation pattern, was used for the writing on the page, except for the last line entry. The entries "trash" and "30" were written with a different writing instrument based upon the darker coloration as well as the different striation pattern. Additionally, the second page had the date and signature of the Sublessor written with the pen used for the "trash" and "30" entries from the prior page. The purported original signature of the subtenant on the second page was not an original but printed with laserjet technology, as the printed text on the page.
	Video Spectral Comparator (VSC)	The VSC confirmed the differences in ink chemistry between the two pens, discussed above. The second page was a fabrication, based upon the use of a different pen for the first page and the use of a non-original signature of the subtenant. The non-original signature was likely a "cut and paste" transfer of Ms. Potter's signature from the original Agreement. The fabricated second page also allowed the omission of the language related to the return of charges for unused utilities.
	Indented Writing	No indications of value were recovered.

TABLE 2

WebCode	Methods/Techniques	Observations
K9XHTD	Video Spectral Comparator (VSC)	<p>INGLES: In the use of infrared lights, it was observed on the first page, different reactions in the inks of the manuscripts, observing that these are different; its fading is different. On the second page, it was observed that the inks of the manuscripts react in the same way with each other, being that they do not show fading. in the use of fluorescent lights with the filters offered by the equipment, a different luminescence reaction is observed in the manuscripts on the first page. on the second page, no luminescence reaction was observed in the manuscripts. UV light on the first and second pages did not show any reaction beyond the support substrate. ESPAÑOL: En el uso de las luces infrarrojas se observó en la primera pagina, reacciones distintas en las tintas de los manuscritos, observando que estas son diferentes; su desvanecimiento es diferente. en la segunda pagina, se observó que las tintas de los manuscritos reaccionan de la misma forma entre sí, siendo que no presentan desvanecimiento. en el uso de luces fluorescentes con los filtros que ofrece el equipo, se observa en la primera pagina una reacción de luminiscencia diferente en los manuscritos. en la segunda pagina, no se observó reacción de luminiscencia en los manuscritos. luz ultravioleta en la primera y segunda pagina no se observó alguna reacción mas allá del sustrato del soporte.</p>
	Macroscopic/ Microscopic Exam.	<p>INGLES: With the use of the microscope, the printing systems of the first and second pages were observed, which is laser printing (toner), as well as the type of useful inscriber of the manuscripts, which is a colored fluid black ink pen. On the second page, it was observed that the "SUBTENANT" signature was made using a laser printing system (toner). ESPAÑOL: Con el uso del microscopio se observó los sistemas de impresión de la primera y segunda pagina, el cual es impresión láser (toner), así también se observó el tipo de útil inscriptor de los manuscritos, el cual es un bolígrafo de tinta fluido de color negro. En la segunda pagina se observó, que en la firma del "SUBTENANT" se encuentra realizada en sistema de impresión por láser (toner).</p>
	ESDA	<p>INGLES: In the use of the ESDA, the presence of additional grooves of the information already visible in the first and second sheets was not observed. ESPAÑOL: En el uso del ESDA, no se observó la presencia de surcos adicionales de la información ya visible en la primera y segunda foja.</p>
KCFBVK	Macroscopic/ Microscopic Exam.	<p>The two pages in Q1 measure approximately 8 ½ inches wide by 10 31/32 inches high. Both pages contain black toner printing and writing in black ballpoint ink. All the writing on page 1 is in black ink. The following writing on page 2 is in black ink: "5th May 21" and the stylized signature starting with 'J' in the middle of the page. The "Natalie Braxton-Porter" signature on page 2 in Q1 is not original, it is black toner printing. Additionally, the printing of this signature, the word "SUBTENANT", and the black line under the signature appear to be of a poorer print quality with additional toner throughout the background and more stair-step pattern in the printing than the rest of the printing on page 2. The font of "SUBLEASE AGREEMENT" at the top and "Page _ of 2" at the bottom of each page in Q1 is a different style than the font in the body of the document. Full font classification is available upon request if deemed of interest to the investigation.</p>

TABLE 2

WebCode	Methods/Techniques	Observations
ESDA		<p>The two pages in Q1 were examined for the presence of indented impressions. These, generally, are impressions left on a sheet of paper which has been in contact with another during the writing process. The indented impressions that developed from the two pages in Q1 may be viewed on the EDD lifts uniquely identified as Q1A1 – Q1A4 in Item Q1A. Indented impressions are subject to more than one interpretation when deciphered. Q1A1 The lift from the front of page 1 in Q1, uniquely identified as Q1A1, contained no indented impressions of writing visible with side lighting or EDD examination. Q1A2 The lift from the reverse of page 1 in Q1, uniquely identified as Q1A2, contained indented impressions from the writing on the front of page 1 in Q1. No other unsourced, decipherable indented impressions developed on lift Q1A2 in Item Q1A. Q1A3 The lift from the front of page 2 in Q1, uniquely identified as Q1A3, contained the following indented impressions from the writing on page 1 in Q1: "trash 30" Additionally, indented impressions of an angular bar that corresponds to the angular arm of the "4" in "45" written on page 1 in Q1 near the bottom of the page developed on lift Q1A3. These indented impressions indicate that page 2 in Q1 was only in contact with page 1 when these entries were written and that these entries were written at a different session than the other writing on page 1. No indented impressions from the other writing on page 1 in Q1 developed on lift Q1A3 in Item Q1A. Q1A4 The lift from the reverse of page 2 in Item Q1, uniquely identified as Q1A4, contained indented impressions from the writing in black ink on the front of page 2 in Q1. No other unsourced, decipherable indented impressions developed on lift Q1A4 in Item Q1A.</p>
Video Spectral Comparator (VSC)		<p>Using macroscopic and microscopic non-destructive examinations, Q1 was examined with alternative light sources. Page 1 At least two ink formulations were observed in the writing on the front of page 1 in Q1. The entries "trash 30" and the angular bar that corresponds to the angular arm of the "4" in "45" near the bottom of page 1 react differently than the rest of the writing on page 1 in Q1. Page 2 No differences were observed among the ink on page 2 in Q1 at this level of analysis.</p>
Handwriting Examination		<p>The handwriting on page 1 and page 2 is suitable for comparison with the submission of known writing (including request, known writing with repetitions of the exact words in question) from subjects of interest to the investigation. Contact the Document Unit prior to collection known writing.</p>
KQWUKM	Visual Examination	<p>The documents were observed to be on letter size pages. Entries on page 1 that appear to be handwriting were found to be original entries. The entries "trash", "30" and part of the "4" have a slightly different appearance than the other handwritten entries. Page 2 has a signature block for the SUBTENANT that has visual differences to others on this page.</p>
Macroscopic/ Microscopic Exam.		<p>Examination disclosed that the machine generated entries were done with dry black toner. Macroscopic and microscopic examination of page 1 disclosed the appearance of a different writing instrument for the entries "trash", "30" and the portion of the alteration from "1" to "4". For page 2 the signature block of "Natalie B. Potter" was observed to be made with dry black toner and copying artefacts indicative of a composite document construction.</p>
Indented Writing		<p>Visualisation of indented writing on page 2 by electrostatic means by an electrostatic detection device (EDD) disclosed the indentation "trash", "30" and the portion of the alteration from "1" to "4".</p>

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Examination disclosed optical differences between most entries on page 1 and the entries "trash", "30" and an alteration from "15" to "45" at the bottom of the same page.
KRNW82	Video Spectral Comparator (VSC)	1) Microscopic and macroscopic examination shows a difference in the shades of the ballpoint pen ink of section 6 (trash 30) and section 8 (in the angular line that forms the number 4). 2) It is observed that the signature of the Section Subtenant section on page two is printed.
	Video Spectral Comparator (VSC)	When examined with IR light, it shows transmittance of the ballpoint pen ink of section 6 (trash 30) and section 8 (in the angular line that forms the number 4) unlike the rest of the ballpoint pen writing showing luminescence.
	Video Spectral Comparator (VSC)	When examining the back of page two, with the left and right oblique light, the absence of relief is observed in the area of the signature of the Subtenant section.
KTYYRF	ESDA	Examined Q1A&B front and reverse for indented writing. Indentations for paper roller feeders/grippers were found on Q1A front and reverse and Q1B reverse.
	Indented Writing	Indented impressions were found from paper roller feeders/grippers.
	Video Spectral Comparator (VSC)	Examinations were conducted on Q1A&B and it was determined that that the word "trash", "30" and the crossbar of the number "4" had been altered on Q1A. Exhibit Q1B contained an alteration in that the signature had been imported for the subtenant from another source and was not an original signature. Also found on Q1B a vertical luminescing line that ran from the top to the bottom of the page with the ultra violet light source.
	Macroscopic/ Microscopic Exam.	Stereoscopic examination determined that the ink on Q1A with the exception of the altered writing was created with a ball point pen with a defect that demonstrated striations throughout the writing; the second pen also had a defect, however, the defect was a skipping in the inked line.
	Micrometer	Q1A & B measured .006" thick and were consistent.
	Oblique Light	Oblique light was utilized with the VSC and side lighting, VSC results showed paper feeder gripper marks that were not consistent between the two papers. Negative indentations for oblique light.
	Overlays	The two signatures on Q1A and B did not overlay. The signature on Q1B had been enlarged, however, the signature did not overlay with Q1A.
	Ruler	Measured the indented paper feeder/gripper marks, they were not consistent on both documents.
	Transmitted Light	No watermarks were found on either exhibit.
	Ultraviolet Light	Paper examinations - the paper was consistent between the exhibits.
	Specular Reflection	Specular reflection was utilized and neither ink in question reacted.
	Interlineation	Exhibit Q1A&B were examined for interlineation issues, it appears the signature that was imported on exhibit Q1B was placed into the document and then straightened out through a computer software program to match the remaining lines.
Fonts	Utilized an e-ruler and Identifont to determine font sizes and types - Times New Roman, Calibri 15 pt, 10 pt.	

TABLE 2

WebCode	Methods/Techniques	Observations
KUY89R	ESDA	Indented impressions "trash" and "30" observed on page 2 matching the corresponding markings on page 1. Moreover, uncertain observation of indented impression on page 2 of a pen stroke that matches the alteration with which the number 15 has been changed to number 45 on page 1.
	Video Spectral Comparator (VSC)	Alterations observed in handwritten entries on page 1. Entries "trash" and "30" have been written with a different pen than original entries and entry "15" has also been changed to "45". Handwritten entries on page 2 are not made with the same pen that was used for writing the original entries on page 1. However, no significant differences were observed in the ink's optical properties when we compared the ink on page 2 with the ink that was used for making the alterations observed on page 1.
	Visual Examination	The subtenant's signature on page 2 has been made with a technique based on electrophotography. The text "SUBTENANT" and the line below the signature are of significantly lower printing quality than other printing on page 2.
L28TL9	ESDA	Examinations using oblique lighting and the ESDA for indented impressions failed to reveal any indented impressions on the front and/or backsides of on PAGE 1 and PAGE 2. Control +
	Microscopic Examination	PAGE 1: Microscopic examinations of the black ink(s) used to produce all the writing on PAGE 1, excluding the words "trash" and "30", revealed dull black ink, with heavy ink build up behind the paper fibers with multiple striations present. Microscopic examinations of the black ink(s) used to produce the words "trash" and "30" on PAGE 1, revealed darker black ink, with heavy ink build up behind the paper fibers and fewer striations present. Page 2: Microscopic examinations of the black ink(s) used to produce "5th", "May", "21" and SUBLESSOR signature on PAGE 2, revealed darker black ink, with heavy ink build up behind the paper fibers and fewer striations present. The darker hue of this ink and number of striations present in the ink on PAGE 2 appears similar to the ink that produced the words "trash" and "30" on PAGE 1. Microscopic examinations of the black material used to produce the SUBTENANT signature on PAGE 2, revealed the name is produced in black, shiny, granular material otherwise known as toner. This SUBTENANT signature on PAGE 2 is not produced in black ink. Control +
	Video Spectral Comparator (VSC)	PAGE 1: Examinations of the black ink(s) used to produce all the writing on PAGE 1, excluding the words "trash" and "30", reacted similarly when examined using all the light source and filter combinations available on the VSC. Examinations of the black ink(s) used to produce the words "trash" and "30" on PAGE 1 revealed the black ink(s) reacted differently from the black ink(s) used to produce the remaining writings on PAGE 1 when examined using all the light source and filter combinations available on the VSC. However, the black ink(s) used to produce the words "trash" and "30" on PAGE 1 reacted similarly to each other when examined using all the light source and filter combinations available on the VSC. Page 2: Examinations of the black ink(s) used to produce "5th", "May", "21" and SUBLESSOR signature on PAGE 2, failed to reveal any differences when examined using all the light source and filter combinations available on the VSC. Examinations of the SUBTENANT signature was not conducted with the VSC because this signature is produced in toner, instead of ink. Control +

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	PAGE 1 AND PAGE 2: Examinations of the black ink(s) used to produce the words "trash" and "30" on PAGE 1 and the black ink(s) used to produce "5th", "May", "21" and the SUBLESSOR signature on PAGE 2 reacted similarly to each other when examined using all the light source and filter combinations available on the VSC. PAGE 1 AND PAGE 2: Examinations and comparisons of the two pieces of paper used to create the questioned document Q1 reacted similarly when examined using all the light source and filter combinations available on the VSC. Control+
L2BAK7	Visual Examination	Overall review of documents; observations of whether font style and font size are consistent or inconsistent; visual examination of inks; text alignment
	Microscopic Examination	Printing processes, evaluation of writing
	ESDA	Attempt to reveal any indented writing of value
	Video Spectral Comparator (VSC)	Ink consistency/comparison; paper properties
LAN4Y9	Handwriting Examination	Analysis of handwritten texts in the data filling of a sublease agreement is done with the use of magnification elements as well as specialized laboratory equipment.
	Macroscopic Examination	Examination in direct light and different wavelength ranges of the electromagnetic spectrum, in which it becomes visible at 645nm, evident additions of the handwritten texts "trash" "30" in sixth item of the sublease agreement.
	Infrared Light	On the second page of the sublease agreement, the signature as of "Natalie Branston Potter", you can see the addition of the signature digitally transplanted to the format, by means of a digital mechanism (copy).
LCRYJC	Macroscopic Examination	Pages 1 and 2 are both off-white paper with no watermark. The text on both pages has been produced using the same typeface, Times New Roman.
	Microscopic Examination	Pages 1 and 2 have been produced using black toner typical of a laser printer. The ink entries on page 1 have all been produced using black ballpoint ink(s). The date and Sublessor signature on page 2 have also been produced using black ballpoint ink(s). The signature of the Subtenant on page 2 is not in original ink and has been printed using black toner. The text of the SUBTENANT entry and printed line appears to be of lower resolution than the other printed entries on page 2 (and page 1).
	Video Spectral Comparator (VSC)	The entries 'trash', '30' and part of the figure '4' of '45' have been written using a different ink from the other entries on page 1. The ink for these altering entries appears similar to that used for the handwritten entries on page 2, although it is not possible to confirm whether or not they are from the same pen or different pens containing similar ink.
	ESDA	Indented impressions of the altering entries were found on page 2. No other impressions were found on either page 1 or page 2.
LEEQEE	Video Spectral Comparator (VSC)	the paper and printing processes of pg. 1 and 2 could not be differentiated; "trash" and "30" on pg. 1 were written in a different ink; "15" days in #8 on pg. 1 was altered to a "45"; Subtenant signature on pg. 2 is a copy, not an original signature; possible indented writing on pg. 2
	ESDA	the word "trash" and "30" were recovered from pg. 2

TABLE 2

WebCode	Methods/Techniques	Observations
LJTBE9	Magnification	Through direct observation and with the help of the 10x optical instrument (magnifying glass), it was evidenced that the tenant's signature on page 2 exhibits a digital printing system unlike the other original manuscripts.
	Video Spectral Comparator (VSC)	also with the support of the VSC-8000 document video comparator, which when exposing the document to infrared light, showed differences in ink, which, according to the behavior exhibited, shows alteration in the areas in the additive modality of the texts "trash-30" from the section 6 and the number "45" where the prime number was 15.
	Infrared Light	Through the exposure of infrared light, the alteration is evidenced.
LN6P9L	ESDA	The questioned documents, Items 1A and 1B, 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: Mechanical transport device impressions (roller marks) were recovered in the front and back of both documents. Item 1B Front: The impressions "trash 30" and the arm of the "4" in "45" sourced to the original writing on the front of Item 1A, were recovered in the front of Item 1B. There were no other meaningful impressions located.
	Video Spectral Comparator (VSC)	Various microscopic, infrared, and ultraviolet examinations were performed on the questioned documents Items 1A and 1B. These examinations revealed that at least two different ink formulations were used to produce the writing on the Item 1A document. The word "trash" and the number "30" in section #6 (utilities description and cost) and the arm of the "4" in "45" in section #8 (deposit/refund timeframe) of the document were produced with a different ink formulation than the remaining written entries on the Item 1A document.
	Macroscopic/ Microscopic Exam.	Microscopic examinations of the Item 1B document revealed that the signature in the name of Natalie Brandon-Porter in the "SUBTENANT" portion of the document was produced by an office machine system utilizing black toner. Toner, is utilized in some office machines such as laser printers, photocopiers, and facsimile devices. The other written entries were completed with ink. The area surrounding the Natalie Brandon-Porter signature on Item 1B, including the machine printed word "SUBTENANT", contained numerous toner printed satellites that were not found in the other areas of the document. In addition, the machine printed word "SUBTENANT", the Natalie Brandon-Porter signature and the signature line beneath it, exhibit jagged uneven machine printing with a dark appearance, not found in the other machine printed areas of the document.
LW2W39	<b>No Methods or Observations were reported by this participant.</b>	
LXPXUU	Visual Examination	When papers are placed together with bottom edge aligned, "Page 1 of 2" and "Page 2 of 2" are slightly misaligned. These are better aligned when the papers are placed together with the top edge aligned, but page 2 appears just slightly larger than page 1. Subtenant signature on page 2 does not appear to be original - no pen pressure felt and some trash marks noted around the signature, suggesting a copy-paste forgery.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Viewed documents laying on top of one another with transmitted light to visualize and photograph the slight alignment differences in the pages, via the page numbers at the bottom of the page. Viewed pages under UV light (365nm) to determine if papers reacted similarly. No dissimilarities noticed. Viewed pages with oblique lighting to determine if any impressions were present on one or both sheets. Noticed impressions on page 2, but none on page 1. Viewed pages separately and together under spot lighting to see if inks had been made with similar components. Determined that the words "trash 30" and the L-shaped stroke of the "4" in "45" in paragraph 8 were made with an ink that reacted differently than the remainder of page 1. Inks on page 2 for paragraph 11 and the Sublessor's signature also reacted in this way, differently than the remainder of the inks present on page 1. Viewed and photographed Subtenant's signature under magnification - evidence present that it was printed similarly to the remainder of the document, and not signed in an ink. Some trash marks are present under magnification around the Subtenant's signature on page 2 that are not present throughout the rest of the document.
	Microscopic Examination	Viewed signatures under 16x and 40x magnification. Sublessor signature shows evidence of striations throughout the ink line. Subtenant signature appears similar to the remainder of the printed document with no striations present, suggesting that it was printed and not signed.
	Oblique Light	Observed documents under oblique lighting to determine if page 1 was written while sitting above page 2. Evidence of impressions of the words "trash 30" can be seen on page 2 of Q-1. No other evidence of impressions from the handwritten words from page 1 present on page 2.
	ESDA	Positive ESDA Control and positive results. Three (3) ESDA Lifts retained and sub-itemized. Front of Page 1 of Document Q-1 did not contain any impressions, so no ESDA lifts retained. One (1) ESDA lift retained from back of page 1 of Q-1. All handwritten entries on front of page 1 of Q-1 were present with no additional unexplainable impressions noted. One (1) ESDA lift retained from front of page 2 of Q-1. Impressions were noted of "trash 30" and an L-shaped stroke, consistent with areas present on page 1 of Q-1 to "trash 30" in Section 6 and "45" in Section 8. No other impressions of handwritten entries on page 1 of Q-1 were present. One (1) ESDA lift retained from back of page 2 of Q-1. Impressions of "5th May 21" were present from Section 11 and the Sublessor "Juli Laich" signature on page 2 of Q-1. Impressions of the Subtenant "Natalie Braxton-Porter" signature were not present on the ESDA lift. This analysis indicates that "trash 30" and the L-shaped stroke of the "4" in "45" on page 1 of document Q-1 were added to the document separate from the remainder of the writing. The lack of impressions from the Subtenant signature on page 2 of Q-1 also supports the indication that this signature is not an original handwritten signature and has been printed onto the document.
LY6MDU	Microscopic Examination	All handwriting entries and the signature in the line "SUBLESSOR" are filled with a ballpoint pen's ink (uneven coverage of the writing material in the lines, thickenings, imprints) and the signature in the line "SUBTENANT" is filled with toner (the lines consist of small black dots arranged irregularly on the surface of the paper), line edges are not sharp, many black dots around them) The tone of the ink of handwriting entries on page 2 and the third line of point 6 of page 1 ("trash", "30") and the last line entry (in the point 8) "45" in the left-hand hook element "4" differ from the tone of the ink of the handwriting entries on page 1 (except those mentioned)

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Handwriting entries on page 2 and the third line of page 1, point 6 ("trash", "30") and the last line entry "45" in the left-hand hook element "4" absorb IR rays, the other entries (on page 1) for IR rays are transparent. Handwritten entries on page 1: "Juli Laich" and "Natalie B.Porter" and both signatures, entries "246 Dak St. # 4", "900", "1st", "P.O.BOX 1875", "gas", "25", "electric", "50", "250" and the entry "15" (part of the entry "45" in the last line) show bright IR luminescence, but all handwriting entries and signature in the line "SUBLESSOR" on page 2 and entry on point 6 in the third line ("trash", "30") and in the last line, the left-hand hook "4" on page 1 of the entry "45" is non-luminescent. In oblique lighting no imprints of entries were found on page 1, imprints of handwritten entries were found on page 2. One pair of non-doubling paper feeders on the printing device is detected on both pages.
	ESDA	No handwritten footprints were found on page 1. On page 2, the imprints of the handwriting entries: "trash", "30" and the hook-like element are found, which in their configuration and mutual arrangement coincide with the corresponding entries on page 1
	FTIR	The obtained toner spectra on pages 1 and 2 are the same- the polymer composition is the same.
	Raman Spectroscopy	According to the obtained spectra, the handwritten entries on page 1 "Juli Laich" and "Natalie B.Porter" and both signatures, the entries "246 Dak St. # 4", "900", "1st", "P.O.BOX 1875", "gas", "25", "electric", "50", "250" and the entry "15" (part of the last entry in the line "45") have a different composition of dyes/ pigments from all the handwriting entries and the signature in the line "SUBLESSOR" on the page 2 and entries of the third line of item 6 ("trash", "30") and the left-hand hook "4" of the entry "45" on page 1. The obtained toner spectra on pages 1 and 2 are the same- no differences in composition were found.
	Investigation of optical physical properties of paper	Visual examining and comparison of the color and surface structure of the paper of the page 1 and 2 showed that it is the same. Examining and comparing the transparent views of the paper with the VSC 8000 in transmitted light, it was found that they are the same; when irradiated with UV rays (365 nm), the same luminescence of both sheets of paper was found. The thickness and size- the same. Comparing the paper screen markings on pages 1 and 2 with the Fast Fourier filter (in Photoshop), the same picture was found. It is concluded that the paper of the contract pages 1 and 2 is the same according to the optical properties.
MM784J	Microscopy	Used to observe substrate morphology and characteristics and inks
	Comparison by juxtaposition	Used to observe impressions simultaneously
	microspectrophotometry	Used to observe spectral reaction of inks
MRZDDE	Visual Examination	The analysis is performed by optical inspection from left to right, from top to bottom, on both sides, without identifying possible alterations such as erasures or amendments.
	Infrared Light	The whole document is analyzed from top to bottom from left to right through the infrared light, in which two types of ink can be seen, when applying this filter it can be observed how the ink of the pen disappears, except where it says "trash" and "30" which remain; in the sheet n° 2 the ink has the same reaction as where it says "trash" and "30".

TABLE 2

WebCode	Methods/Techniques	Observations
	luminescence	Luminescence The contract is analyzed through the luminescence technique, with a band of 590 manual 680 and an emission of 830 in the Docucenter Projectina video comparator equipment, with which it can be appreciated, on sheet n° 1, the ink of the pen shines almost in its entirety, except where it says "trash" and "30" which are opaque, while with the same filters on sheet n° 2 the ink has the same reaction as where it says "trash" and "30". Likewise, an analysis is made with the two sheets of the contract simultaneously, where the above mentioned is corroborated.
	Ultraviolet Light	With ultraviolet light in the contract, no possible alterations are identified.
	ESDA	The contract is analyzed through the ESDA equipment, in sheet No. 1 no grooves are revealed; likewise, in sheet No. 2, grooves corresponding to sheet No. 1 are revealed, where the word "trash" and "30" can be seen.
N88JRN	Video Spectral Comparator (VSC)	On page 1 section 6 of the questioned sublease agreement, the ink used for the handwritten entries "Trash" and "30" can be differentiated from the ink used on the other handwritten entries in the document using IR drop out and spot florescence on the VSC. This provides evidence that the handwritten entries "Trash" and "30" were added with a different pen to the rest of the entries in this section of the document. On page 1 section 8 of the questioned sublease agreement the ink in line forming the number four in the handwritten entry "45" can be differentiated from the ink in the rest of the number using IR drop out and spot florescence on the VSC. This provides evidence that the original entry of 15 was altered to read "45". The handwritten entries on page 2 of the document give the same reaction using IR drop out and spot florescence as the ink used for the additions (trash, 30) and alterations (45) on page 1. This provides evidence that the same ink was used for these entries.
	Macroscopic/ Microscopic Exam.	On page 2 of the questioned sublease agreement, the subtenant's signature, which is supposed to be a handwritten entry, is printed. This provides evidence that this is not the original page 2 of this questioned sublease agreement.
	ESDA	Indented impressions of "Trash" and "30", corresponding to the handwritten entries on page 1 section 6, were developed on ESDA lifts taken of page 2 of the document. No indentations of the other handwritten entries on page 1 were developed. This provides evidence that the handwritten entries "Trash" and "30" were not added at the same time as the other handwritten entries in this section of the document. An indentation corresponding to the line used to form the four in the handwritten entry "45" in section 8 on page 1 was developed on ESDA lifts taken of page 2 of the document. No indentations of the remainder of this number were visible on the ESDA lifts. This provides evidence that this line was added at a different time to the original entry, altering the original number, 15, to read "45".
N8C992	Macroscopic Examination  Video Spectral Comparator (VSC)  Visual Examination	
N9KHZY	Visual Examination	It is about (01) SUBLEASE AGREEMENT celebrated between Natalie B. Potter and Juli Laich, which consists of 2 Sheets with pre-printed content and lines for complementary filling and individualization of concepts made to a computer system on bond paper, writing is used made with black ink pen as complementary filling. (Internally identified as Q1)

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Printing system: Content printed to LASER system. Signature and writing done with pen. Sheet 2: SUBTENANT section, reference line and signature (digital): It has different printing characteristics.
	Video Spectral Comparator (VSC)	INFRARED LIGHT AND LUMINESCENCE: From the analysis it is determined, that it presents additions: • Inter vocabulary: in section 6 of sheet 1 (word "trash" and the number "30" in the third line). Inter grammatical: in section 8 of sheet 1 (a stroke is added to modify from number 15 to number 45). Interline: presents on sheet 2 of the SUBTENANT section, reference line and digital signature in the name of Natalie B. Potter.
NL9VNM	Macroscopic/ Microscopic Exam.	The filled-in portions and signatures on page 1 of 2 (Q1) appear to be written in black ballpoint ink. The signature of Juli Laich on page 2 of 2 (Q2) appears to be written in black ballpoint ink. The signature of Natalie B. Porter (Potter) on page 2 of 2 (Q2) appears to be a reproduction signature in toner.
	Video Spectral Comparator (VSC)	(plus use of spectrometer) Various light sources, filters and magnification to visualize the filled-in portions and signatures on the questioned documents, Q1 and Q2. There appears to be an addition of the word "trash" and the amount "30" as well as an alteration of "15" to "45" on Q1. Moreover, the inks were viewed spectrally on the words "trash", "electric" and "gas" on Q1. The word "trash" does not appear to react similarly.
	Indented Writing	The documents were then examined using the ESDA for any latent writing impressions. The documents were not humidified. No notable latent writing impressions were visible on the front of Q1. Latent writing impressions were developed on the back of Q1 and appear to be writing from the reverse. Impressions were developed on the front and back of Q2. The impressions on the front appear to be the word "trash" and the number "30". The impressions on the back appear to be the writing from the reverse.
	Oblique Light	The questioned documents were viewed with oblique fiber optic lighting and all latent writing impressions present appeared to be from the reverse side of the document(s). No apparent new latent writing impressions.
NULC74	Macroscopic/ Microscopic Exam.	1) Macroscopic examination: Printed letters point and system of the itemes 2) Microscopic Examination: Printer system character - Ball point pen kind of character of handwriting and sign - Ballpoint pen ball character
	Video Spectral Comparator (VSC)	1) Fluorescence response of handwriting ink 2) Fluorescence response test of signiture ink 3) Refraction spectrum test of two kind of ink 4) Fluorescence response test of numeral "4"
	TLC Separation of Ink & Solubility test	Chemical Examination of Ink Test by TLC 1) Solubility test with solvent wetted polymer disk - oil based ballpoint ink 2) TLC ink examination of 5 point of strock resultes of VSC Examination 3) TLC Solution; EtOAc:EtOH:H2O = 70:35:30
PAEJLG	ESDA	1. No other indentation observed on Page 1 (Front side) and Page 2 (back side). 2. Indentations were observed on Page 1 (Back side) and Page 2 (Front side) and the revealed indented writings read as 'trash' and '30'. Short angular stroke was also observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Examination of Alteration 1. Additional entries were observed on paragraph 6 written as 'trash' and '30'. 2. Additional stroke was observed on paragraph 8 for entries read as "45". The original entries was "15". Both additional entries and stroke can be observed under spot light with 645nm of wavelength filter. Two different types of ink were observed. Additional entries and stroke did not fluoresce as compared to the other entries that fluoresced. 3. The handwritten entries on paragraph 11 and SUBLESSOR (Page 2) showed similar type of ink with the additional entries and stroke on Page 1 when observed under spot light with 645nm of wavelength filter. The ink did not fluoresce. Examination of Printing Process 4. The printing process of sublease agreement Page 1 and Page 2 are similar which printed by an electrophotographic printing process. 5. The signature on SUBTENANT (Page 2) was not handwritten but printed by an electrophotographic printing process.
PDCH2R	Video Spectral Comparator (VSC)	Entries "trash" and "30" in section "6." were written with a different black ballpoint pen ink than the other entries in this section - differences visible in infrared luminescence and absorption.
	Video Spectral Comparator (VSC)	The number "45" in section "8." was made by overwriting the number "15". The number "1" was changed to the number "4" by adding the lines with a different black ballpoint pen ink - differences visible in infrared luminescence and absorption.
	Microscopic Examination	The signature in the "SUBTENANT" field on page 2 was printed with the use of monochrome laserjet printing.
	Microscopic Examination	The printed word "SUBTENANT" and the horizontal line printed on page 2 are lower quality than other text prints on both pages of the document.
	Video Spectral Comparator (VSC)	Handwritten entries on page 2, the entries: "trash", "30" in section "6." and also lines overwriting the number "1" to the number "4" in "45" in the section "8." on page 1 were made with the same ballpoint pen ink, but different than the other handwritten entries on page 1.
	Oblique Light	On page 2 indented writing from handwritten entries: "trash", "30" in section "6." and also from the lines overwriting the number "1" to the number "4" in section "8." were revealed. On page 2 no other indented writing from handwritten entries on page 1 were disclosed.
PL3ZGL	ESDA	Both pages of the questioned document were processed on the ESDA. Nothing of evidentiary value was discovered.
	Video Spectral Comparator (VSC)	VSC examination revealed that the "trash 30" entry on Q-1 1, at this level of analysis, is a spectrally different ink than the other ink entries on this document. Also, the "45" entry appearing at the bottom of the Q-1 1 document displays a spectrally different ink than even the other ink within the number. Specifically, a spectrally different ink was used to create the crossbar and short vertical stroke to alter this entry from "15" to "45". Both documents have similar UV properties @ 254 nm illumination (light blue hue).
	Microscopic Examination	Microscopic examination revealed that the Subtenant signature on Q-1 2 is a toner-based signature and was not handwritten onto the document, but rather placed there by unknown means. The other entries on the questioned document were executed in ink.
	Micrometer	Paper thickness for both questioned documents measured similarly at approx. 0.004 in. No watermark appears on either document. Fonts are very similar/same between the documents.

TABLE 2

WebCode	Methods/Techniques	Observations
PNWNZG	ESDA	Impressions on the front side of page 2 appear to read "trash", "30" and the portion to change "1" to "4" (section 8), which can be sourced from page 1. No other impressions from page 1 were observed on the front side of page 2. Impressions observed on the back sides of page 1 and page 2 could be sourced to the front side of the page, respectively
	Video Spectral Comparator (VSC)	The ink used to complete page 1, excluding "trash", "30", and the portion to change "1" to "4" (section 8), appear to have similar optical ink properties, such as: Light examination: black ballpoint ink with multi-line striation pattern. IR luminescence: Ink appeared lighter than substrate. IR reflectance: Ink was transparent with a 695nm filter. The ink used to complete "trash", "30", and the portion to change "1" to "4" (section 8) on page 1 and page 2, excluding the subtenant signature, appear to have similar optical ink properties, such as: Light examination: black ballpoint ink; different striation pattern and darker tone than ink mentioned above. IR luminescence: Ink appeared darker than substrate. IR reflectance: Ink was opaque with a 695nm filter
	Macroscopic/ Microscopic Exam.	Both pages of the document was created with a toner printing process. In addition, the subtenant signature on page 2 was produced by a toner printing process.
PRAY38	ESDA	Observed inconsistent indented writing via ESDA
	Indented Writing	Indented writing revealed that some markings were made at different times
	Microscopic Examination	SUBTENANT signature was non-original and of a lesser quality toner printing process than the rest of the document.
	Video Spectral Comparator (VSC)	Optical differences observed in inks used
	Macroscopic Examination	Spacings of the document text varied from page 1 to page 2
QJEFZ4	Visual Examination	When performing the visual verification of sheet 1 and 2, we observed irregularities in the "sub-tenant" section, presenting a print of the signature that reads Natalie Brandon Porter, with respect to all the other full handwritten points numbers that make up the agreement.
	Macroscopic/ Microscopic Exam.	When we carry out the verification with optical magnification equipment, we verify that the signature that is in the "sub-tenant" section corresponds to an impression, likewise, the numeral "45" that is found in point 8 of page 1, presents a different shade of ink, showing a possible alteration.
	Infrared Light	With the application of infrared light on sheet 1 and 2, the following is observed: 1. The handwritten fills in points 1, 2, 3, 4,, 5, 6 in its first two lines, as well as point 8 in its "deposit" space, present a discordant reaction with the handwritten fills that are in point 6, third line, dot 8 on the corresponding line for "days"; point 11 and the line destined for signature of the reference "sub-lessor". 2. It presents a modification of the numeral observed as "45" in point 8 of the "days" line; when verifying graphical addition that alters from 15 days to 45.
QKNKC7	Indented Writing	No indentations of evidential value were found
	Handwriting Examination	Examination of the signature on page 2 at "SUBTENANT" reveals that it is not an original signature, but a copy, from an unknown source. It is not a copy of the signature found on page 1.

TABLE 2

WebCode	Methods/Techniques	Observations
	Magnification	Examination of the area on page 2 at "SUBTENANT" reveals that the printed word has no straight edges - the edges appear crenelated. Examination of the the signature line reveals it is crenelated. Both the line and the word are darker than the equivalent text at "SUBLESSOR". The signature, together with the word "SUBTENANT" have a lot of toner scatter associated with them. Suggestive that the whole has been copied from an unknown source.
	Video Spectral Comparator (VSC)	Examination of the numerals "45" at the bottom of page 1 reveals that the "4" should read "1". There has been an additional stroke to the numeral "1", the effect of which is to increase it's value to "4". Examination of the word and numerals "trash 30" reveal they are in a different ink to the remainder of the writing on the page, with the exception of the additional stroke at "45". Examination of the date and signature at "SUBLESSOR" on page 2 reveals they are in different ink to the signature on page 1 at "sublessor", but a similar ink to the additional stroke at "45" and the writing "trash 30".
	Document examiantion	Examination of the font, font size, margins, position of headings, page number format, line spacing reveals no apparent differences between pages 1 and 2.
QR9NJ9	Video Spectral Comparator (VSC)	A VSC (Video Spectral Comparator) examination using various microscopic, infrared, ultraviolet, and alternate light source examination techniques reveal that there are multiple inks on the front of the Q1a document. The first ink would be classified as the original ink first placed on the document, this ink appears as luminescence under the VSC Infrared Luminescence. These images are read as the Sublessor name and signature; the Subtenant name and signature; the location, dates, amount, address and the "gas/25, electric/50", the deposit of "250" and "15". The second ink is the visible black ink that composes the words and numbers "trash 20" under utilities and the "L" shape that changes the refund date from 15 to 45. These letter and number forms absorb the infrared and appear darker instead of luminescing. The original ink on the Q1b document is not consistent with the primary ink on Q1a or the secondary ink on Q1a. The paper used for Q1a and Q1b react consistently under VSC examination.
	Identifont and Grids	There are two fonts used to create the contract documents. Header: SUBLEASE AGREEMENT on Q1a and Q1b appears to be Calibri font and is a 15 pt. The footer also appears to be Calibri font and is 9 pt. The limited amount of numbers and letters prevents a more positive font identification. The content on both Q1a and Q1b appears to be Times New Roman in 12 pt. The spacing on both pages (measured using typewriter grids), except the inserted SUBTENANT section on Q1b, is consistent throughout the contract.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	A visual examination of the Q1a document shows that the contract is computer by laser jet generated with handwritten personal and rental information in cursive and printing, executed in black ballpoint ink. There is no information on the reverse of the Q1a document. A visual examination of the Q1b document shows that the continued contract is computer generated by laser jet, and that the date and sublessor signature information are handwritten in cursive and printing, executed in black ballpoint ink. The subtenant section has been added to the original document and the signature is not an original signature and has been imported into the contract from another source. There is no information on the reverse of the Q1b document. The entire SUBTENANT section on Q1b has been imported from a secondary source and is not an original signature. The linear pattern and trash marks that are visible in this section indicate that a photocopied image was used. This is considered an alteration to the original documents.
QUFYKJ	Video Spectral Comparator (VSC) Oblique Light	When using infrared luminescence and infrared, some parts of the ink had different brightness. Signature of the Subtenant did not have any pressure trace. It is meant that the signature has been copied.
QWLJ8J	Video Spectral Comparator (VSC)  Macroscopic Examination  Oblique Light	(1) Regarding point 8 on page 1, the number "45" was revised from "15". The original number and the additional stroke show different luminance. (2) Regarding point 6 on page 1, the writings of column 3 "trash 30" was added afterwards. It show different luminance with the rest of the writings(exclusive of the additional stroke in point 8) on page 1, whereas the same as the writings on page 2(exclusive of the signature of subtenant). The signature of subtenant on page 2 is laser printed. The indentation shown on page 2 doesn't correspond with the writings of page 1.
R2QFRJ	Macroscopic/ Microscopic Exam.  ESDA  Video Spectral Comparator (VSC)	When viewed through the microscope the subtenant signature on page 2 was produced using a dry-toner process, whereas all of the remaining handwriting within the document was in "original" ink. Impressions of the text "Trash" and "30" (section 6 page 1) and the left hand and horizontal strokes of the "4" in "45" (section 8 page 1) were present as indented impressions on page 2. No other impressions from handwriting on page 1 were noted on page 2. IR-Absorbance and IR-Luminescence - The IR-Absorbance and IR-Luminescence properties of the text "Trash" and "30" (section 6 page 1) and the left hand and horizontal strokes of the "4" in "45" (section 8 page 1) are different from the remaining handwriting on page 1. The IR-Absorbance and IR-Luminescence properties of the text "Trash" and "30" (section 6 page 1) and the left hand and horizontal strokes of the "4" in "45" (section 8 page 1) are similar to those in the date and sublessor signature entry on page 2. The UV properties of page 1 and page 2 are similar.
RF97QL	ESDA  Infrared Light	ESDA on the second page revealed the words "trash" & "30" as well as the change from "15" to "45" having left indentations on it, whilst no other writing had Infrared examination revealed that the words "trash" & "30" were written with a different ink than the previous entries, and that the originally written number "15" was altered to "45"

TABLE 2

WebCode	Methods/Techniques	Observations
RKJVXE	Macroscopic/ Microscopic Exam.	I observed that the handwritten entries had been produced using black ballpoint ink, and noticed that some entries appeared darker than others. I observed that the subtenant signature on page 2 is non-original, and the SUBTENANT heading and the signature line also displayed evidence of having been copied.
	Video Spectral Comparator (VSC)	Using infra red reflectance, two different inks were detected. - Within section 6, the handwritten entries "trash" and "30" have been produced using a different ink to the remainder of the entries. - Within section 8, the handwritten entry in the day field contains two different inks. In my opinion, "15" has been altered to "45" using a different ink - The ballpoint ink on page 2 displayed optical similarities to those of the additional entries described above
	Visual Examination	Page 2 did not contain any terms regarding return of charges for unused utilities, however, no signs of alteration were detected
RN8AMN	ESDA	Latent indented impressions of the handprinting in section 6 "trash" \$ "30" and in section 8 a "L"-shaped line could be detected on page 2. There is no latent impression of any other handprinting from page 1 on page 2.
	Video Spectral Comparator (VSC)	IR-Absorption: On page 1 the handprinting in section 6 "trash" \$ "30" and in section 8 the "L"-shaped line differs in its optical property from the remaining entire handprinting on page 1 but corresponds in its optical property with the date and signature of sublessor on page 2.
	Video Spectral Comparator (VSC)	IR-Fluorescence: On page 1 the handprinting in section 6 "trash" \$ "30" and in section 8 the "L"-shaped line differs in its optical property from the remaining entire handprinting on page 1 but corresponds in its optical property with the date and signature of sublessor on page 2.
	Transmitted Light	Page 1 and 2 show the same paper structure (wire, mesh, transparency).
	Ultraviolet Light	Page 1 and 2 show the same degree of fluorescent.
	Microscopic Examination	The text of both pages of the contract (except the handprinting) is printed with black toner as "text". Apart from that the word "SUBTENANT" and the subtenant signature on page 2 is printed together as an image. The subtenant signature is not handwritten.
RTFD7H	ESDA	Indentation analysis was conducted with negative results.
	Video Spectral Comparator (VSC)	Non destructive ink exam results. 1. the handwritten entry in paragraph 8 page 1 was changed from 15 to 45 2.The word "trash" and the amount "30" is a different ink formulation that the preceding entries
	Video Spectral Comparator (VSC) Magnification	The handwriting entries "5th", May 21 and the Sublessor's signature page 2 was written with a different ink formulation than page 1 The subtenant on page 2 is non original
RVRVPN	Visual Examination	Naked eye and transmitted light: the text (head (title of the document) and footnote) of sheet 1 and sheet 2 match (overlap) no differences in position of edges (left and right) and no differences in slopes (horizontal and vertical) of the text

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Print: black toner on both sheets, including Natalie B. Potter 's signature on sheet 2 (Subtenant section), which is therefore not the original signature but a copy; print quality is uniform on both sides (lots of impurities on both sheets), except for Natalie B. Potter's signature below, where print quality (both text Subtenant and signature and also line under signature) deteriorates (this part is an image file, everything else is a text file). Handwriting: black ballpoint pen, except Natalie B. Potter 's signature on sheet 2 (Subtenant section), which is copy; visually similar
	Video Spectral Comparator (VSC)	Transmitted light: Print: the text (head (title of the document), footnote and edges (left and right)) of sheet 1 and sheet 2 match (overlap); uniform shape and size of the letters on both sheets; no differences in positions of edges (left and right) and no differences in slopes (horizontal and vertical) of the text. Paper: no differences between sheet 1 and sheet 2 Ultraviolet light: Paper: no differences between sheet 1 and sheet 2 IR luminescence: - Handwriting: different reaction of ink of the written text on sheets 1 and 2; same reaction of ink of written text on sheet 1, except for "trash" and "30" (item 6) and part of number 4 in entry 45 (item 8). This reaction of ink matches to reaction of ink on sheet 2 - Paper: same reaction of paper between sheet 1 and sheet 2 IR absorption: Handwriting: different ink absorption on sheets 1 and 2; same ink absorption on sheet 1, except for "trash" and "30" (point 6) and part of number 4 in entry 45 (point 8), this ink absorption matches the ink absorption on sheet 2. Paper: same reaction of paper between sheet 1 and sheet 2 Oblique light: no traces of indented impressions
	Indented Writing	Docustat: - indented impressions of handwriting "trash", "30" and part of number 4 on sheet 2 (sheet 1 was on sheet 2 when it was written)
	Magnetic properties visualisation	Magnetic Ink Reader: - toner on both sheets shows magnetic properties
T3YLAH	ESDA	Impressions attributable to the writing on the front of pg. 1, reading "trash 30" and the "L" shaped left stroke of the "4" in "45," were recovered from the front of pg. 2. No other writing impressions were recovered from the front of pg. 2. The back of pgs. 1 and 2 contained impressions attributable only to the ink writing on the front of those documents themselves, and no impressions were detected on the front of pg. 1.
	Macroscopic Examination	The "SUBTENANT" signature on page 2 appeared to be machine-generated printing. The rest of the writing and signatures on pgs. 1 and 2 appeared to be original ink. The "SUBTENANT" text, signature line, and the signature itself appeared darker than the rest of the printed material on the page. The spacing between numbered points on pg. 2 was narrower than that on pg. 1.
	Microscopic Examination	The machine-generated text of the contract and the "SUBTENANT" signature on pg. 2 were printed using a toner print process. The entire "SUBTENANT" line on pg. 2 is also of a poorer quality than the rest of the printed material on the contract. It contains larger and more numerous extraneous toner marks around it, voids in the printed material, and there are "saw tooth" edges to some of the printed lines.
	Oblique Light	Two vertical lines in relatively the same place were observed on the back of pages 1 and 2 of the agreement. The surface of the back of page 2 appeared less even and bumpier than that of page 1.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Alternate light examination revealed differences between the optical properties of the ink used to write the majority of the entries on page 1, and that used to write "trash 30," the left stroke of the "4," and the ink entries on page 2. The ink used to write the entries on page 2 and that used to write "trash 30" and the left stroke of the "4" displayed similar optical properties. No significant differences in the optical properties of the paper were observed.
	Transmitted Light	No difference in the paper used for pages 1 and 2 was observed.
	Overlays	A 1:1 image of page 1 was made to overlay with ESDA lift from the front of page 2. The written entries "trash 30" and the left stroke of the "4" superimposed with the recovered writing impressions.
	Micrometer	No significant differences in the thickness of the pages of the agreement were observed.
	Macroscopic/ Microscopic Exam.	No significant differences in the paper color, corners, or font used were observed between pages 1 and 2.
TEQDVM	Microscopic Examination	Signature "Natalie Braxton Potter" on page 2 is made out of toner. Pixelization is also visible in the same area (i.e. signature, signature line and "SUBTENANT").
	Video Spectral Comparator (VSC)	Two different inks were detected: Ink A was used for all the writings present on page 1, with the exception of "trash", "30" and part of the numeral "4" in "45". Ink B was used for all the aforementioned exceptions on page 1, and the date and sublessor signature on page 2.
	ESDA	All ink B writings present on page 1 were detected as indented writings on page 2.
THPNQM	Microscopic Examination	The questioned agreement (item Q1) was printed on a laser printer (electrophotography printing process). Signature of Natalie B. Potter on the second page of the agreement was printed as well and it is a computer generated copy. On the first page different ballpoint pen ink colour was observed between the word "trash", number "30", stroke in number "4" and the rest of the written text.
	Video Spectral Comparator (VSC)	Examination of optical properties (IR luminescence and IR absorption) indicate that on the first page of the questioned document (item Q1) two different ballpoint pen inks were used. The following words were added with another ink: „trash“, „30“ and the number „15“ were changed to „45“ by adding a stroke. There isn't any optical differences between the black ballpoint pen ink used to write additional text ("trash", "30" and extra stroke changed "1" to "4") and the black ballpoint pen ink on the second page of the Q1.
	ESDA	On the second page of questioned agreement (Q1) indentation were found which are corresponding with handwritten text „trash“, „30“ and small stoke changing "1" to "4" from the first page of the Q1. No others indentation were found on the second page.
TUMZCV	Visual Examination	con instrumento óptico de magnificación de 10x fue posible apreciar diferencias impresivas en la firma de la señora NATALIE B. POTTER ubicada en el espacio del subarrendador de la página 2, siendo esta impuesta mediante impresión digital lasser y no manualmente mediante la acción de un elemento escritor (bolígrafo) sobre el papel. [Requested translation was not provided by time of report publication.]

TABLE 2

WebCode	Methods/Techniques	Observations
	Macroscopic/ Microscopic Exam.	Through the use of the microscope, it was possible to identify the external contamination that gave the lasser impression by which the signature of Mrs. NATTALIE B. POTTER was stamped, located in the space of the sub-lessor on page 2.
	Infrared Light	in the range of 645 nm, in which light behavior was perceived different from the handwritten completions of the items "trash" and "30" of numeral 6. Similarly, the digit "4" of the figure "45" located in numeral 8 of the contract, was the result of the alteration of the initial digit "1".
TWTFRE	Video Spectral Comparator (VSC)	A study of alterations is carried out with the VSC equipment (video spectrum comparator) PJ 633676, with the different types of light: day, transmitted, infrared light with projector 530, 610, 715, 830 and 925, ultraviolet light 365, 312, 254 nanometers ; stereoscopic examination with grazing, direct and oblique light.
TZVW7N	ESDA	The original handwritten entries on page 1 did not register as indentations on page 2 except for the word 'trash' the associated entry '30' and the vertical and horizontal strokes forming the left side of the number '4' in section 8 of page 1. (These strokes have the effect of changing the number from 1 to 4).
	Video Spectral Comparator (VSC)	Differing responses in IRR and IRL were observed between the majority of the original handwriting on page 1 of the agreement and the following entries: the word 'trash' and associated entry '30'; the vertical and horizontal strokes forming the left side of the number '4' in section 8 of page 1; and the original handwriting and original sublessor signature on page 2.
	Microscopic Examination	The handwriting and signatures on the two pages of the questioned document are original, with one exception. The Subtenant signature on page 2 of the questioned Sublease Agreement is non-original. This signature, and the printed Subtenant signature field heading and underline are all electrostatically printed and contain evidence of image degradation not seen in other printed content on the questioned document.
UKEQKW	Macroscopic/ Microscopic Exam.	Page 1 The use of two (2) different black ball point inks observed Ink 1 Sections 1, 2, 3, 4, 5, 6 (with exception), and 8 (with exception) Ink 2 Section 6 - "trash" and "30" Section 8 - "l-shaped formation" of Number 4 Page 2 Black ball point ink observed Section 11 and Sublessor signature Subtenant signature is toner technology generated
	Video Spectral Comparator (VSC)	Page 1 Observations of two (2) different black ball point inks supported Page 2 Observations indicate use of different or third black ball point ink when compared to the inks used on Page 1
UPQ4E9	ESDA	Indentations of "trash", "30", and [shape added to "1" to create "4"] were found on page two. [Shape added to "1" to create "4"] is a portion of the hand printed number "4" from section 8 on page one. The source of these indentations is from the hand printing on the first page.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	The handwriting "trash", "30", [shape added to "1" to create "4"], which is a portion of the "4", and the handwriting on page two (except "Natalie Braxton-Potter" signature), had different visible ink characteristics than the remaining handwriting on page one. The ink in these areas exhibited more density and a neutral black tone vs. the remaining handwriting which exhibited a reddish tint in the ink. The "Natalie Braxton-Potter" signature on page two was produced with a toner printing process machine. The remaining handwriting on page two were produced with a writing instrument. "SUBTENANT", its baseline, and the "Natallie Braxton-Potter" signature exhibits lower image quality and they are darker than the rest of the toner printing on page two.
	Video Spectral Comparator (VSC)	The handwriting "trash", "30", [shape added to "1" to create "4"] (except "Natalie Braxton-Potter" signature), had different optical ink reactions than the rest of the writing on page one. See notes. Therefore, the hand printing "45" was altered from a "15" and "trash" and "30" were inserted.
UT449F	Macroscopic/ Microscopic Exam.	different color deposit on page 1 in the third line of point 6 (trash and 30) and at point 8 (was 15 days and changed into 45 days) - the signature on page 2 has been integrated by xerography - no recognizable differences in the deposition characteristics of the toner between page 1 and 2 - traces of reproduction in the subtenant's signature
	Infrared Light	compared to the rest of the handwritten entries "trash", "30" and the attached area of digit 4 of "45" are showing a different reaction
	Ultraviolet Light	no visible differences between both papers
	Transmitted Light	no differentiable paper structure
	Ruler	no differences in paper size
	Micrometer	no differences in thickness
	Scales	no significant weight deviations
	ESDA	"trash", "30" and the attached area of digit 4 of "45" can be seen on page 2 as a print-through trace
	Magnetizability of the toner	toner on both pages are magnetizable
UXYX7G	Macroscopic/ Microscopic Exam.	The typewritten information appearing on Pgs. 1 and 2 and Subtenant Sig. on Pg. 2 was prepared with an office machine system that utilized dry black toner. The image quality for the printed "SUBTENANT," Natalie Braxton-Porter signature and signature line on page 2 is different than the remainder of the printed information appearing on that page. The printed SUBTENANT information and Natalie Braxton-Potter signature were added to page 2 utilizing some method of cut and paste.
	Ultraviolet Light	Papers consistent
	Video Spectral Comparator (VSC)	Inks used to prepare the entries of "Trash", "30" and the upper left portion of the "4" in "45" luminesce and absorb IRL differently from the remainder of the writing ink on page 1 and is consistent with the writing ink on page 2.
	Indented Writing	Indented writing appears on the front of page 2 that is consistent with the execution of the entries of "Trash", "30" and the upper left portion of the "4" in "45". No other significant indented writing was noted on pages 1 or 2.

TABLE 2

WebCode	Methods/Techniques	Observations
	Overlays	(Typewriter Grids) No significant alignment issues were found within any of the typewritten information. The lack of apparent alignment issues on page two leads to the greater potential that the Subtenant information and signature were added with a method of electronic cut and paste
	Thickness	Pages 1 and 2 are approximately 0.004" thick.
VB34U8	Microscopic Examination	none
	Video Spectral Comparator (VSC)	none
	Oblique Light	none
W4L3EB	Macroscopic/ Microscopic Exam.	Colour and ink morphology differences were observed within the ink on page 1 and between pages 1 and 2. The subtenant signature on page 2 consists of toner particles and not ink. The subtenant title and line are poorer print quality than the rest of the printing on pages 1 and 2.
	Video Spectral Comparator (VSC)	Different infrared absorption/reflectance and luminescence responses were observed within the ink on page 1 ("trash", "30" and the arm of the "4" in "45" had different responses compared to the rest of the ink on page 1), and between the inks on pages 1 and 2.
	ESDA	Indentations attributable to "trash", "30" and the arm of the "4" in "45" on page 1 were observed on page 2. No indentations of the other handwritten entries from page 1 were observed on page 2.
W6TKD7	ESDA	Front of Page 1: Found no significant latent writing impressions Back of Page 1: Latent writing impressions were from its front side Front of Page 2: impressions read "trash", "30", and what appears to be the top part of the "4" excluding the stem that sourced from page 1. The other writing on page 1 did NOT produce latent impressions. Back of Page 2: Impressions from the front of the page, but no impression from the toner signature for "Natalie B. Potter"
	Video Spectral Comparator (VSC)	Examination was done under the VSC-6000. Inks had different ink properties on page 1 for the following areas: "trash", "30", and the top part of "4" excluding the stem from 45 from the rest of the writing on the page. Page 2 had the same optical ink properties as the areas mentioned previously ("trash", "30", and top part of "4" excluding the stem).
	Macroscopic/ Microscopic Exam.	Inks had different physical properties, appearing darker and thicker for the following areas: Page 1, section 6: "trash" and "30" Page 1, section 8: top part of "4" (excluding the stem) Page 2, section 11 and Sublessor signature The other ink areas had a lighter black/reddish hue and contained more striations. Page 2 has the "Natalie B. Potter" signature produced by toner
WL6L6A	Macroscopic/ Microscopic Exam.	A high level visual exam showed that the "Subtenant" signature on Page 2 appeared markedly darker than it should be. A stereomicroscopic exam showed that the word "Subtenant" and its associated signature and signature line were produced in black electrophotographic toner instead of pen ink. This indicates that either a physical or digital cut-and-paste process was used to copy and relocate it from an unknown original document, not present, to a progenitor document, also not present, used to produce Page 2.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	The "trash 30" portion on page 1, and the leftmost part of the "4" of "45" on the same page, were observed to respond differently from the rest of the handwriting on the same page under a 400-640 nm spot light with a 695 nm longpass filter. The bulk of handwriting fluoresced while the aforementioned handwritten portions did not. There was no difference in the response between the two handwritten signatures on Page 1.
	ESDA	Latent handwriting impressions of the "trash 30" portion and the leftmost part of the "4" of "45" on Page 1 were observed on Page 2. No other latent handwriting impressions were found. This indicates that these portions were added at a time after the majority of the handwritten text, given that the "4" was changed from a "1".
	Mag-Mouse	Magnetic properties were observed within the "Subtenant" handwritten signature portion of Page 2, indicating that it was produced with electrophotographic toner, and consistent with the rest the printed text on the same page.
	Ultraviolet Light	There was no difference in response to UV light (365 nm) among the handwritten entries on either page.
	Photoshop	There was no difference in response to separation by RGB, CMYK, or LAB color channels among the handwritten entries on either page.
WMWNRP	ESDA	Both pages of Q1 were processed with ESDA. Inspected each ESDA lift to discern whether any significant indentations could be observed. Although minimal indentations were observed, both documents did not contain a sufficient quantity of observable indentations of any forensic value that could be deciphered or interpreted.
	Handwriting Examination	Handwriting comparisons were limited due to insufficient exemplar materials.
	Video Spectral Comparator (VSC)	IR examination revealed the following: Q1 (Page 1): Lines 1-6 and line 8 were found to be consistent in terms of IR illumination. However, the entries "trash" and "30" appearing in line 6, and the beginning stroke of the "4" in "45", (originally the number "15") were found to be inconsistent. The optical brightness of both pages 1 and 2 were consistent when subjected to UV fluorescence. Q1 (Page 2): Lines 9, 11, and the the signature of "Juli Laich" were found to be consistent in terms of IR illumination. Furthermore, these entries were also consistent with the entries "trash" and "30" appearing in line 6, and the beginning stroke of the "4" in "45" on page 1.
	Microscopic Examination	Both pages of Q1 were produced by a non-impact printer utilizing laser technology. All wet-ink entries appearing on Q1 (pages 1/2) were produced by a black-ball point writing instrument. The printed entry "SUBTENANT" and the signature "Natalie Braxton-Potter", are both non-original, meaning both were produced by means of a machine copy due to its physical properties when microscopically examined. Additionally, the signature line of "Potter" appearing on page 2, is slightly shorter than the signature line of "Laich", also on page 2.
X7LHX7	Macroscopic/ Microscopic Exam.	The handwritten entries on Exhibits Q1(1)a and Q1(2)a were produced with black ball point ink with the exception of the "Natalie Broxton-Porter" Sublessor signature on Exhibit Q1(2)a. The "Natalie Broxton-Porter" Sublessor signature on Exhibit Q1(2)a was produced with toner printing technology.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Ink differences were observed within the inked handwritten entries on Exhibits Q1(1)a and Q1(2)a and are described as follows: "trash" and "30" in Section 6 were produced with different inks from the remaining inked handwritten entries on Exhibit Q1(1)a. At least two inks were used in the production of the handwritten inked "4" entry in the inked handwritten "45" entry in Section 8. The original inked entry appears to be "15" which was altered to "45" with a different ink. The inked handwritten entries on Exhibit Q1(2)a were different from the inked handwritten entries on Exhibit Q1(1)a, with the exception of "trash" and "30" in Section 6 and the altered portion of "4" in "45" in Section 8. The "trash" and "30" inked handwritten entries in Section 6 and the altered portion of the "45" in Section 8 on Exhibit Q1(1)a and the inked handwritten entries on Exhibit Q1(2)a, were indistinguishable at this level of analysis.
	Indented Writing	Side-lighting and Electrostatic Detection Apparatus (ESDA) examinations were conducted on Exhibits Q1(1)(a), Q1(1)b, Q1(2)a and Q1(2)b. Indented machine-created impressions were observed on Exhibits Q1(1)a, Q1(1)b, Q1(2)a and Q1(2)b. Indented handwriting impressions were observed on Exhibits Q1(1)b, Q1(2)a, and Q1(2)b. No further indented impressions were observed on Exhibit Q1(1)a. The indented handwriting impressions observed on Exhibits Q1(2)a were sourced to the "trash", "30" and altered portion of the "4" in the "45" entry on Exhibit Q1(1)a, however no other indented handwriting impressions were observed on Exhibit Q1(2)a. The results of the side-lighting examination were preserved digitally. Indentation lifts were created to preserve the results of the ESDA examination.
	Visual Examination	Visual examinations of Exhibits Q1(1)a, Q1(2)a, Q1(1)b and Q1(2)b were conducted.
	Preservation and digital processing	Exhibits Q1(1)(a and b), Q1(2)(a and b) were digitally preserved. The original ESDA indentation lifts and alternate light source images were digitally preserved and processed.
X8GZY8	Microscopic Examination	The printed text on each page was produced by a laser printer using black toner. On the first page the handwritten entries were made with black ballpoint pens. On the second page the subtenant's signature is not genuine, a copy of the signature was made using a laser printer.
	Video Spectral Comparator (VSC)	Based on the significantly different hue and optical behavior (IR absorption properties) of the inks the following were concluded: In part 6, the third line was not written with the same ballpoint pen as the first two. In part 8, the deadline for repaying the deposit was changed from 15 days to 45 days. Two different ballpoint pens were used on the first and second pages to write the sublessor's signatures.
	FTIR (Fourier transformed infrared spectroscopy)	There is no difference between the chemical composition of printed text on page 1 and page 2 based on infrared spectra. Based on different infrared spectra of the ballpoint inks the following were concluded: In part 6, the third line was not written with the same ballpoint pen as the first two. In part 8, the deadline for repaying the deposit was changed from 15 days to 45 days. Two different ballpoint pens were used on the first and second pages to write the sublessor's signatures.
X9VCVQ	Visual Examination	A total visualization of the document is made, it is observed that the signature of Mrs. Natalie B. Potter that is on page two is not original but digital

TABLE 2

WebCode	Methods/Techniques	Observations
	Magnification	When using the magnifying glass, it was appreciated that the strokes that make up the word TRASH, the number 30 and two strokes of the digit four that make up the days of delivery of the deposit, do not present paragrammatic blanks inside, likewise, it is appreciated that the signature of Mrs. Natalie B. Potter present on the second page is a digital reproduction.
	Video Spectral Comparator (VSC)	Through the use of the document comparator, the addition of strokes that make up the word TRASH and the value of 30 in point six of the contract was appreciated, since while the rest of the ink that makes up the other graphs stops reacting to infrared light of 645 nm, the traces that make up the word TRASH and the value 30 present a visible reaction. Likewise, the addition of strokes in digit one of the time established for the return of the deposit is observed, making it pass digit one through digit four, which alters the number of days from 15 to 45, presenting the same reaction to the infrared light that was mentioned in the previous paragraph.
XLUJMZ	ESDA	The tool marks left by the printer are identical on both pages.
	Video Spectral Comparator (VSC)	Printing techniques: The two pages are printed in laser, mono component toner. On page 2, Ms. Laich's signature is handwritten and Ms. Potter's signature is laser printed, mono component toner, it has been added. Ink differentiation: Page 1, Under infrared (645nm), we observe that a different ink was used for the handwritten notes : « trash...30 » in§6 and to change « 15 » into « 45 » in §8.
XYZYKB	Microscopic Examination	Examining pen strokes and Ink for variations.
	ESDA	Examining for Impressions and Indented Writings.
	Video Spectral Comparator (VSC)	Examining for pen strokes, ink variations, additional entries, also impressions and indented writings.
Y2AWMD	Video Spectral Comparator (VSC)	After careful examination and comparison of original questioned two pages Sublease Agreement between Natalie B. Potter and Juli Laich (Q1) using Video Spectral Comparator (VSC-8000, Software Version 7.2), following observations are noted: a) At least two different kinds of inks/ writing instruments (pens) have been used to write on two pages Questioned Sublease Agreement between Natalie B. Potter and Juli Laich (Q1). b) The handwritten added entries "trash", "30" at serial no. 6, stroke "L" before "1" to convert "15" into "45" at serial no. 8, entries "5th", "May" & "21" at serial no.11 and Signature of Sublessor have been written using different kind of ink/writing instrument (pen) than that used to write the rest of entries. c) Subtenant Signature on 2nd page is non-genuine and has been produced using printing process.
	ESDA	After careful processing of original questioned two pages Sublease Agreement between Natalie B. Potter and Juli Laich (Q1) using Electrostatic Detection Apparatus (ESDA2), following observations are noted: a) Indentations corresponding to the added/tampered writing on 1st page were developed on 2nd page. b) Indentations on 2nd page were deciphered as "trash", "30" and "stroke "L".
Y2PZCY	ESDA	ESDA examination show no indentations on page 1. On page 2 the ESDA examination show indentations of the text "trash - 30" thereby indicating that this text has been added to page 1 at a different time than the rest of the handwritten text on page 1.
	Indented Writing	See "ESDA" observations

TABLE 2

WebCode	Methods/Techniques	Observations
	Infrared Light	IR imaging to record photo-induced luminescence in inks and to differentiate between different inks. This identified the use of different inks and changes made to text on both page 1 and page 2. This examination was performed in the VSC8000 HS.
	Macroscopic/ Microscopic Exam.	Microscopy and the use of different angles of light, including transmitted light, to examine if the same printer was used for both page 1 and page 2. Furthermore, microscopic examination to determine whether different writing tools were used to fill in the handwritten part of the pages. The examination showed that this was the case. Furthermore, visual examination showed that on page 2 the signature of one party was handwritten, whereas the signature of the other party was printed in xerographic black toner.
	Magnification	See "Macroscopic/Microscopic Examination" observations.
	Overlays	An overlay examination of the signatures of SUBTENANT on page 1 and page 2 show a difference in the pattern of the signature. This examination is, however, not regarded as an actual handwriting examination. Furthermore, an overlay examination using transmitted light in the VSC also shows that the numbering of the two pages in question is not aligned, suggesting a second print-phase for page 2.
	Ultraviolet Light	Examination in UV light shows the same substrate reaction from both page 1 and page 2, indicating that the substrate of the two pages could be similar.
	Video Spectral Comparator (VSC)	Visual examination in VSC8000 HS, including the use of oblique light and transmitted light. Furthermore, comparison of absorption spectra to visualize colour differences in the writing ink used on the two pages, which show that at least two different ink colours - and therefore likely also two different pens - were used in the handwritten part of the documents.
	Visual Examination	All of the mentioned observations carried out by visual examination using different sources of light, magnification and equipment.
YANH3	Macroscopic/ Microscopic Exam.	Using the unaided eye and magnification with the stereo microscope, I examined Q1 and Q2: Q1: Computer generated information printed with black toner. Original handwriting and signatures written with black ball point pen Q2: Computer generated information printed with black toner. Original handwriting and signature written with black ball point pen. Toner (black) produced signature (Natalie Potter). No "cut and paste" marks were observed. The print quality of the toner for the entire line of Subtenant and signature is lower and darker than the print quality of the remaining toner printed information. Has a thicker and more disperse toner distribution and stair stepping/digitization of the signature. No fastening marks were observed on either exhibit. No staple holes or fastener/clip indentations.
	Indented Writing	Using the Crime-Lite instrument (side lighting), I examined the front and back of Q1 and Q2 for the presence of indented writing. No indented writing was observed. Using the ESDA2 instrument, I examined the front and back of Q1 and Q2 for the presence of indented writing, humidifying the documents for 1 minute each prior to processing. I verified the functionality of the ESDA with a verification test strip each time an item of evidence was processed. Negative results. Repeated the whole process again with negative results.
	Ultraviolet Light	The paper of Q1 and Q2 appear visually similar under UV light.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	Measured both Q1 and Q2 with a ruler. Both Q1 and Q2 measure approx. 8.5x11".
	Overlays	Using a typewriter grid overlay, I examined Q1 and Q2 for any misalignment. None observed.
	Micrometer	Measured both Q1 and Q2 with a micrometer (2 locations each). Both Q1 and Q2 measure approx. 0.10mm thickness.
	Infrared Light	Q1: With IR filters and spot fluorescence, the handwritten words "trash" and "30" and the left arm of "4" in "45" react differently than the other handwritten entries/marks. This is evidence that they were written in a different ink. Q2: With IR filter and spot fluorescence, the handwritten entries react similarly. When I compared the handwritten entries on Q1 and Q2 under IR filters, the words "trash" and "30" and the left bar of "4" in "45" on Q1 reacted similarly to the handwritten entries on Q2 and reacted differently than the other handwriting on Q1 which is evidence that these entries were written with a different ink or inks.
	Transmitted Light	The paper of Q1 and Q2 appear visually similar under transmitted light. No watermarks were observed on either.
YERQUX	ESDA	Indented writing which is best read as "trash" and "30" as well as an "L" shape was observed on the second page of the submitted document.
	Video Spectral Comparator (VSC)	Writing inks with two different optical properties were observed.
	Macroscopic/ Microscopic Exam.	The subtenants signature on the second page of the submitted document was toner printed. Also, determined that the signature on the first page and the signature on the second page were not duplicate signatures (no cut and paste).
	Oblique Light	No indented writing was observed with oblique lighting.
	Transmitted Light	No watermarks were observed on either page with transmitted light.
YU8RN3	Visual Examination	Step 1: The two pages of item Q1: sublease agreement between Natalie B. Potter and Juli Laich were examined to determine if the document in question is suitable for examination and comparison. We looked for any form of contamination on the document (such as grease stains or chemicals) that would make analysis impossible. Step 2: We looked for any differences in the substrate and the use of a different ink.
	Microscopic Examination	The first page of item Q1: sublease agreement was examined for the hand printing ink, and examination of this page showed that the ink had a different shade in the utilities payment and deposit refund days' spaces.
	Video Spectral Comparator (VSC)	An IR light source was applied to determine if text had been added to the spaces for the utilities payment and deposit refund. The analysis showed that the text in the utilities space: "trash -\$30" was added; and the text "15" was transformed to "45" in the space of the deposit refund days.
YUL734	ESDA	Pressure groove (trash 30) found on page 1, section 6, 6.
	Macroscopic Examination	The printing techniques could be determined under reflected light. The filling-in writing is a ballpoint pen, the pre-printed text is toner-based and the signature on page 2 "Subtenant" was printed using toner. In the grazing light, it was possible to determine that side 2 might be a different carrier material (fiber structure)

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Under IR it was found that two different writing media were used (trash 30 and 45). On page 2, with "Subtenant" and the signature, a slightly different formatting than in the rest of the document could be determined (possibly copied from the original page 2 into a new document).
YZDDKC	Infrared Light	the section 6. [trash \$30] was seen different to other handwrite part it might use different pen
	Microscopic Examination	in the end of page 2, Subtenant signature [Natalie B. Potter] wasn't write by pen, it's might by machine printing
	Video Spectral Comparator (VSC)	the section 8. [45] days was seen different to other handwrite part it might use different pen alter [15] to [45]
ZF4N2M	Alteration analysis method	In this analysis, with the application of I.R. at a wavelength of 750 nm, it was observed that text was added in points 6 and 8 and the signature of Natalie Braxton Porter, in the printing of sheet 2, is digitized.
	Visual Examination	The Q1 sublease agreement is made up of 11 terms of which 8 have spaces with writing, no interference was detected that could affect the development of the analysis.
	Macroscopic/ Microscopic Exam.	It was observed that the sublease agreement is printed on a laser printing system with black toner and the spaces were filled in with a black ink pen.
	Video Spectral Comparator (VSC)	With the application of I.R. at a wavelength of 750 nm, text addition was observed at points 6 and 8. Natalie Braxton Porter's signature, printed on sheet 2, is digitized
ZFLRFE	Infrared Light	distinguish between different type of ink
	Magnification	examination the hand writings and ink on the document
	Visual Examination	examination the writing on the document
ZKXKNT	Indented Writing	Oblique lighting & EDSA - Indented writing was observed on page 2 of Item 1 (Item Q1), best read as "trash 30", as well as a possible 'L-shaped' stroke in the bottom left corner
	Video Spectral Comparator (VSC)	Optical inconsistencies were observed using the VSC8000 when comparing "trash" and "30" in entry 6, the 'L-shaped stroke' in the "4" of entry 8, and the original writing on page 2 of Item 1 (Item Q1) to the remaining original questioned entries on page 1 of Item 1 (Item Q1).
	Microscopic Examination	The 'Natalie B. Potter' signature is non-original and printed with a toner printing process
ZP7DRG	ESDA	Revealed on page 1 and page 2: physical marks on the paper caused by rollers of the printer. Revealed on page 2: only the handwritten mention "trash 30" from page 1.
	Macroscopic Examination	On page 1: ballpoint pen(s) was used for the handwritten mentions. - others mentions were printed by a laser printer. On page 2: ballpoint pen(s) was used for the handwritten mentions except the subtenant signature that was printed by a laser printer and digitization traces was noticed. Others mentions were printed by a laser printer.
	Video Spectral Comparator (VSC)	On page 1: two kinds of ballpoint inks were used: one composed of pigment ("trash 30" and a part of the number 4 in the eighth part) and the other composed of dye. On page 2: only the ballpoint ink composed of pigment was used.

TABLE 2

WebCode	Methods/Techniques	Observations
	Chemical analysis (FTIR, Raman, XRF)	optical microscopy observations were confirmed: two kinds of ballpoint inks were used. One kind of toner used on the two pages: composed of magnetite, styrene and acrylate.
	FFT2D	The paper of page 1 is not differentiated from the paper of page 2: wire marks (paper structure) not distinguishable.
ZPBFC3	ESDA	The entries "trash", "30" and the arm of the "4" in "45" on Exhibit Q1(1)a were observed as indented impressions on Exhibit Q1(2)a.
	Macroscopic/ Microscopic Exam.	The entries "trash", "30" and the arm of the "4" in "45" appear different than the remaining ink on Exhibit Q1(1)a. The Subtenant signature on Exhibit Q1(2)a was produced by toner printing technology.
	Video Spectral Comparator (VSC)	Ink differences were observed between the entries "trash", "30" and the arm of the "4" in "45" when compared to the remaining ink on Exhibit Q1(1)a. No ink differences were observed between the entries "trash", "30" and the arm of the "4" in "45" on Exhibit Q1(1)a when compared to the date and Sublessor signature on Exhibit Q1(2)a. No paper differences were observed.
ZUKBY6	Macroscopic/ Microscopic Exam.	Paper stock appears similar. Subtenant signature block including signature on p2 is reproduced. All other pen entries on both pages original. Printing on p2 signature block dissimilar in appearance to remainder of printing on both pages.
	Video Spectral Comparator (VSC)	Different reactions suggest at least two different writing inks have been used on the document. The inks that react the same can be grouped as follows: 1. The entries "trash" and "30" as well as part of the first numeral in the number "45" on p1, as well as all written entries on p2. 2. All other entries. The first numeral in the number "45" on p1 has been altered from a "1" to a "4".
ZUL7HB	ESDA	No impressed or indented writing of value was observed on the Q-1(1) or Q-1 (2) exhibits.
	Video Spectral Comparator (VSC)	Q-1 (1) - The VSC revealed that the handwritten inked entries "trash", "30" and the initial downward and cross bar stroke on the number 4 within the "45" were all spectrally a different ink compared to all other inked entries within the exhibit. Additionally, the VSC revealed the subtenant signature within the Q-1 (2) was produced via a toner based method.
	Microscopic Examination	This method revealed within the Q-1(1) exhibit the "trash", "30" and the initial downward stroke and crossbar of the number 4, within the "45" entries appear darker than all other handwritten inked entries. Additionally, the subtenant signature within the Q-1(2) was not produced by an inked handwritten application, but rather via a toner based method.
	Micrometer	The thickness of both the Q-1(1) and the Q-1(2) exhibits was approximately 0.004 inches.
	Ruler	The measurement of both the Q-1(1) and the Q-1(2) exhibits were 21.6 cm X 27.9 cm.
	Visual Examination	This examination visually revealed an anomaly with the subtenant signature on the Q-1 (2) exhibit. The signature to the unaided eye clearly stands out as darker and with a heavier line quality from all other inked entries within the exhibit.
ZVFU27	Macroscopic/ Microscopic Exam.	All handwritten inked entries on page 1 are black ball point. The handwritten date and sublessor signature on page 2 are original black ball point. The subtenant signature is not original writing ink and is comprised of toner.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	The "trash" and "30" along with a portion of the "4" of "45" on page 1 are in a different ink than the other handwritten entries. The handwritten date and sublessor signature on page 2 are similar to the ink used in the above mentioned entries on page 1. The "45" on page 1 was raised from "15".
	Oblique Light	No indentations noted on the fronts of pages 1 and 2. Some slight differences in writing pressure noted between the added handwritten entries on page 1 and the other handwritten entries on page 1.
ZXLHX4	ESDA	Positive results on the second page. The words "Trash" and "30" from page 1 appear. No other entries visible.
	Video Spectral Comparator (VSC)	Various light and filter selections revealed that "trash" and "30" were written with different ink. The days in section 8 was originally written as a 1 and a different ink was used to change it to a "4". Spectrometer revealed that the same or similar ink was used the additions on page 1 and the ink on page 2.
	Visual Examination	Used grids, no obvious miss-alignment (vertical or horizontal).
	Macroscopic/ Microscopic Exam.	The Subtenant on page 2 is toner and not original ink.

<b>Response Summary</b>	<b>Participants: 172</b>
<b>Methods Utilized</b>	

ESDA	91	Magnification	17	Thickness	3
Handwriting Examination	8	Micrometer	8	Transmitted Light	14
Indented Writing	21	Microscopic Exam	70	UV Light	21
Infrared Light	25	Oblique Light	25	Visual Exam	46
Macroscopic Exam	13	Overlays	11	VSC	149
Macroscopic/Microscopic Exam	56	Ruler	6		

**\*\*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
22KPK7	The results of the examination extremely strongly support that the questioned agreement has been altered (Level +4).
2CJN96	The two-page document, item 1, was examined with the following results: 1. The subtenant signature appearing on page 2 of the two-page document, item 1, is a non-original signature and has been generated using a monochrome electrophotographic (laser) printing process. All other signatures appearing on the two-page document, item 1, are executed with a ball point pen. 2. When all of the handwritten entries appearing on page 1 of the two-page document, item 1, were examined under infra-red radiation, the following entries reacted differently indicating a different writing implement was used: (a) The 'trash 30' handwritten entries present on section 6 of page 1. (b) The body of the numeral '4' entry present on section 8 of page 1. 3. It is my opinion that the evidence provides support for the proposition that the two-page document, item 1, has been altered in the following ways: (a) Non-contemporaneous addition of the 'trash 30' entry on section 6 of page 1. (b) The original handwritten entry '15' on section 8 of page 1, changed to '45'. (c) Page 2 substitution with the inclusion of a non-original 'SUBTENANT' signature.
32WCR7	On further examination, I found as follows: 1. The handwritten entries "trash" and "30" on page 1 and "5th", "May" and "21" on page 2 showed different inks from the other handwritten entries on page 1 and therefore were added later. 2. The figure "45 days" on page 1 was altered by adding angular stroke at the first digit using different pen. The original entry was "15 days". 3. The subtenant's signature on page 2 was a printed signature. Under the microscopic examination, the images of this questioned signature showed similar characteristics as an electrophotographic printing process. 4. Hence, I am of the opinion that the questioned agreement titled "Sublease Agreement" has been altered.
34MFDL	The document subject to inspection presents alteration in literal 6, in the additive modality of the text "Trash" and "30" The document under inspection presents alteration in literal 8, in the additive modality, where the original text "15" was changed by the current text "45" The document subject to inspection shows alteration(s) in the SUBTENANT zone in the additive modality of the text "signature as of Mrs. Natalie B. Potter on page 2".
3BLXW4	The findings strongly support that item Q1 has been altered.
3EZV37	The questioned document was examined visually, microscopically, with various light sources, and for indented impressions to determine whether the presented document was altered. It is the opinion of this examiner that the questioned document was altered. This was determined by the presence of: Non-original entries by dry toner deposition in place of an inked signature for the subtenant. Differing inks used in entries consistent with additions to the document that were not part of its original creation. Entry for "30" and "trash" as additions. Entry of "15" being changed to "45". Indentations recovered corresponding to an entry in question but not the other entries purported to have been part of the original contract.
3FXHN3	I have conducted visual, magnified and spectral examinations of both pages of item Q1, along with an examination for latent writing impressions. I have evaluated the evidence observed. Based on the microscopic examination of the 'subtenant' signature on page 2, I conclude that the signature is not an original ink signature and has been printed on the document by black laser printing. Based on the indentations observed on page 2 and the similarities and differences in spectral reactions of the handwritten entries on pages 1 and 2, I conclude that the handwritten entries on page 1 reading "trash 30" were added and the number "15" was altered to read "45" with a different pen and/or at a different time to the rest of the written entries on page one, whilst on top of page 2, and in a similar/same ink as the written entries and 'sublessor' signature on page 2. Based on these findings, it is my opinion that the questioned document has been altered from its original state.
3LGF3W	The questioned agreement has been altered. This conclusion is based on the following forensic findings: The subtenant signature on page 2 has been printed using toner (electrography) and is therefore not an original signature. The ink that spells the handwritten words "trash", "30" and the upper part of the

TABLE 3

WebCode	Conclusions
	<p>number 4 on page 1 has different optical properties than the ink used for the additional handwriting on page 1, which suggests that the words "trash", "30" and the upper part of the number 4 have been added using a different pen. Furthermore, the ink that spells the handwritten words "trash", "30" and the upper part of the number 4 on page 1 has similar optical properties as the ink used for the handwriting in section 11 and sublessor's signature on page 2, which suggests that the words "trash", "30" and the upper part of the number 4 on page 1 have been written with the same pen as the handwriting in section 11 and sublessor's signature on page 2 (or different pens containing ink with similar optical properties). The result of the ESDA method applied on page 1 and 2 of the questioned agreement suggests that the words "trash", "30" and the upper part of the number 4 on page 1 have not been written at the same time as the additional writing on page 1, as the indented writing on page 2 matches the words "trash", "30" and the upper part of the number 4 on page 1, and as no indentations deriving from the additional writing on page 1 were detected on page 2. To sum up the results of the forensic findings: The forensic findings suggest that page 1 of the questioned agreement has been altered, as the words "trash", "30" and the upper part of the number 4 have been added (altering the number 1 to the number 4). Furthermore, the forensic findings suggest that page 2 has been substituted.</p>
3MFEL6	<p>The questioned agreement has been altered by: adding handprinting 'trash', '30', remaking 1 into 4 in '45', exchanging second page with printed SUBSTENANT signature and handprinting made by the same type of ballpen as additives and remakes.</p>
3W7W3Y	<p>The document in item Q1 is has been altered. More than one ink pen was used on page one of the sublease agreement. The listed portions of writing were written with a different pen than the rest of the handwritten entries on page one. •the trash line in section 6 •the number of deposit days in section 8 was altered from the number "1" to a "4" using two pens Indented writing was developed on page 2 of the sublease agreement with only the trash line in section 6 and the alteration of the number "1" to a "4" in section 8. None of the other handwritten entries from page one were indented onto page two. The subtenant signature line on page 2 is copy of a signature line from another unknown document.</p>
43JFQQ	<p>The contested agreement HAS BEEN ALTERED</p>
48F48X	<p>Submitted questioned Sublease Agreement has been altered, namely: On the page 1, on the last line of the section 8, initial digit "1" has been changed into digit "4". On the page 1, on the 3rd line of the section 6, words "trash" and "30" were written with the different pen than the other words in this section. On the page 2, the subtenant's signature is not made with the writing tool (pen, pencil etc.), it is printed.</p>
49CGUQ	<p>Using SWGDOC standards and guidelines for the examination of questioned documents, it is my opinion that the signature in question on pg 2 identified as subtenant can be eliminated as genuine.</p>
4EYWA3	<p>The questioned agreement has been altered in two ways. The second page does not bear an original signature of Ms Natalie B. Potter (suggesting a page substitution) and the first page bears added entries ("trash" and "30") and altered entries (transformation of the original number "15" into "45").</p>
4FDLT2	<p>1. The lease agreement "SUBLEASE AGREEMENT" Q1, presents three intensities of ink in its genera content. 2. The lease agreement "SUBLEASE AGREEMENT" Q1, presents addition in section 6, third line "trash 30" which present different spectral response. 3. The lease agreement "SUBLEASE AGREEMENT" Q1, presents in section 8, in the area corresponding to days "45", an adition of stroke sby amendment in the unit area "4", which corresponded to a "1" and therefore to a number "15". 4. Ther second sheet of the lease agreement SUBLEASE AGREEMENT" Q1, is added, since its manual writing have different inking to those of the first page.</p>
4GZZY4	<p>The questioned document has been altered. - on page one the word "trash", the amount "\$30" and the partial stroke on the first digit of number "45" present a different behaviour than the rest of the handwritten text of the document, both under the MS and the VSC. - the partial stroke on the fist digit of n° "45" is an addition to the document. - On page two both the word "Subtenant" and the "subtenant signature" are an addition to the document, and have been printed with a toner.</p>
4MAJF6	<p>It has been concluded that the questioned Item Q1 i.e. Two-page agreement between Natalie B. Potter</p>

## TABLE 3

WebCode	Conclusions
	and Judi Laich) was altered.
4N2M3J	The document subject to inspection presents additive alteration in the area of public services with the handwritten texts "trash" and the amount "30" as well as additive alteration in the amendment modality of the first page of the contract, initially the amount "15", converting it into an amount "45", and on the second folio the additive alteration of the signature of "Natalie B. Potter".
4PEAKY	The document has been added and edited.
4UTUKT	SOLE.- ITEM Q1.- Sublease agreement between Natalie B. Potter and Juli Laich, issued on May 5, 2021 IF IT SHOWS INDICATIONS OF ALTERATION.
4WC2Q8	Examination of Item Q1 showed the following: 1). A similar type of paper was used to print pages 1 and 2 of Item Q1. 2). A similar black non-ballpoint ink was used to write the entries 'trash' and '30' on page 1 and the date and signature of Juli on page 2 but this ink was different from the ink used to write the other entries on page 1 (black ballpoint ink). 3). Unlike on page 1, Natalie's signature on page 2 was a scanned signature. Therefore, this indicates that an original page 2 of the contract has been removed and substituted with a new one. 4). The indentations observed on page 2 showed that the new page 2 was underneath page 1 when the entries 'trash' and '30' were written later on page 1. Based on the above findings, in my professional opinion, the examination of Item Q1 revealed there was evidence of alteration which supported the subtenant's claims. Therefore, the questioned sublease agreement (Item Q1) HAS BEEN ALTERED following its completion by the subtenant.
4YMQAJ	Applying the alteration analysis method, concluded that the sublease contract has been altered by addition.
63J6J8	The document has been altered by deleting/exchanging and/or inserting details/elements which were not included in the original document.
63LUN4	On page 1, point 6, the handwritten entries "trash" and „30“ can be differentiated from the entries "gas", "25", "electric" and "50". In point 8, the number of days was altered from "15" to "45". According to the sublessor (Juli Laich) the submitted document is the original agreement. Due to the fact that the signature of the subtenant was produced by means of a toner-based printing system, her statement is not true. The poor printing quality of the whole section "SUBTENANT" (preprint, signature and signature line) indicates that this section has another source and was not part of the original document. The fact that the entries "trash", „30“ and the alteration from "15" to "45" could be differentiated from the other entries support our conclusion that this sublease agreement is not in it's original state.
676C23	The following set of competing propositions were considered: H1: The 2 page Sublease agreement was completed in a contiguous manner with no alterations to any information after its initial completion. H2: The 2 page Sublease agreement was altered to change some information after its initial completion The evidence outlined above provides very strong support for proposition H2 over proposition H1. Specifically, the entries 'trash' and '30' appear to have been added. Additionally, a small 'L' shape stroke from a different pen was found on the number '45' in paragraph 8 of page 1, modifying the initial entry of '15'. The evidence supports the belief that a cut and paste process was used for the Subtenant signature of 'Natalie B. Potter' on page 2 of the Sublease agreement (see Additional Comments) The evidence also strongly supports the belief that a complete page substitution was made for page 2 of the original Sublease agreement.
68WFNH	The agreement was altered, especially the digit "1" from the original figure "15" in numeral 8 on page 1.
69PXD3	Problem: Whether items Q1a and Q1b bear any alterations to support the claim that the terms of the subtenant lease have been altered or changed. Findings: Indented impression examination (oblique lighting, electrostatic detection device), visual and microscopic examination, ultraviolet and infrared reflective and infrared luminescence examination, comparison and evaluation resulted in the following conclusion: 3.2) There are at least two different black ball point pen inks used to produce the handwritten entries present on item Q1a at the level of testing conducted on this item. 3.2.1) The

TABLE 3

WebCode	Conclusions
	<p>majority of the handwritten inks present on item Q1a show similar visible and infrared reflective characteristics within themselves, with the EXCEPTION of the following entries: "trash", "30" - which are located at paragraph 6 and "L" (shape) - which is located at paragraph 8 Note: The "L" (shape) intersects the vertical "1" in "15" to give the appearance of "45" 3.2.2) The "trash", "30" entries which are located at paragraph 6 and the "L" (shape) - which is located at paragraph 8 show similar visible and infrared reflective characteristics within themselves, which are different from the remaining handwritten inked entries on item Q1a. 3.3.1) Black ball point pen inks was used to produce the handwritten entries present on item Q1b at paragraph 11 (date) and for the SUBLESSOR handwritten signature entry. 3.3.2) The Subtenant signature is comprised of machine copier toner and is not an original "wet-inked" handwritten signature entry. 3.4.1) Item Q1a was examined utilizing oblique lighting and the Electrostatic Detection Apparatus (ESDA) for the possible presence of indented impressions; no impressions of investigative value were found. 3.4.2) Item Q1b was examined utilizing oblique lighting and the Electrostatic Detection Apparatus (ESDA) for the possible presence of indented impressions with positive results. While a copy of the developed ESDA image will be included with this report, the developed impressions consisted of the following: "trash", "30", "L" (shape) - which are located in a similar area of those entries which are found on item Q1a. 3.5) The developed ESDA lifts are labeled as item # 01.01 and are being returned to your agency for safekeeping. Remarks: 1) 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 chart preparation. 2) Items# 01 and 01.01 are being returned to the submitting agency.</p>
6F9RM2	<p>3.1 Alteration by amendment of the first handwritten digit at the beginning of line 4 of item 8. 3.2 Alteration by adding the autographs of the third line (both columns) of item 6. 3.3 Alteration by adding the word "subtenant", the juxtaposed horizontal line and the signature at the bottom of page 2 of 2.</p>
6LEKGW	<p>1. Utilizing visual and microscopic examinations, ESDA (Electrostatic Detection Apparatus) and the VSC (Video Spectral Comparator) revealed that the document was altered in the following manner: a. Visual and microscopic examination revealed a reproduced signature on item 1 (Q2). b. ESDA revealed indented impressions of writing from item 1 (Q1) being observed on item 1 (Q2) revealing possible page substitution. c. The inks on item 1 (Q1) and (Q2) could not have originated from the same source based upon observed optical differences utilizing the VSC. The differences in the optical properties of the inks revealed the possible presence of written insertions on item 1 (Q1). 2. No differences were observed by alternate light source examination.</p>
6N2Y67	<p>Examinations confirmed pages 1 and 2 of the Questioned agreement were altered. Visual examination of Q page 1 of 2 by microscope and a fiber optic light source, showed section 6. entries "trash" and "30" were written with a black ink that is darker and different from the handwritten ink entries above. Also, side light examination of Q page 2, revealed indentations consistent with the Q1 page 1 section 6. handwritten entries "trash" and "30". No other indentations were observed on Q pages 1 and 2. Visual examination confirmed that the lower printed text SUBTENANT, signature line, and handwritten "Natalie Brandon-Porter" signature on Q page 2, were printed by a dry toner process; they are thicker and more heavily pixilated than the other texts and lines printed above, plus the handwritten entries above were made with a wet ink writing instrument. These toner-printed text, line and signature, were digitally added to create the printed Q page 2 document; Q page 2 was probably printed prior to the addition of the handwritten "trash" and "3" entries on page 1, since the indentations of these handwritten entries from Q page 1 exist in Q page 2. Hyperspectral examination by a VSC demonstrated entries "trash" and "30" on Q page 1 were written in a different black ink from the black ink(s) of the handwritten entries above. ESDA processing of Q page 2 of 2, revealed indentations consistent with (made by) the handwritten "trash" and "30" visible handwritten entries on Q page 1. No other indentations were observed in Q pages 1 and 2.</p>
6NLFK9	<p>Physical, visual, and microscopic examinations were conducted on the submitted material that resulted in the following conclusion: It was determined that the Item 1 document has been altered.</p>
6U9D6P	<p>The lease is altered in the first sheet, more precisely in numeral 6, where they added the text "trash" and "\$30" and in numeral 8 where they added strokes to the first number, where I changed the appearance of 1 for 4, that is, initially it was 15 and was changed to 45. These aspects are observed due to the</p>

TABLE 3

WebCode	Conclusions
	<p>difference in the behavior of the inks with which the document was derived. As for the second sheet, the difference in stamping of the signature as natali Porter can be appreciated, since the entire document is inscribed in manuscript except for this signature that corresponds to a digital print, probably corresponds to an alteration by means of a montage of the signature on this document</p>
6UPM3W	<p>1. Laboratory item #1, [Invoice #], Q1 (front and back) and Q2 (back) were examined utilizing oblique/side lighting and ESDA (Electrostatic Detection Apparatus) 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. 2. Laboratory item #1, [Invoice #], Q2 (front) was examined utilizing oblique/side lighting and ESDA (Electrostatic Detection Apparatus) for the possible presence of indented impressions. Multiple impressions were found (see page 3 for interpretation). 3. Visual and microscopic examination of lease revealed that the handwriting and signatures on Q1 as well as the handwriting on Q2 are in original ink: liquid ink, while the signature of the sub-lessor on Q2 is a reproduced copy: dry toner. 4. VSC (Video Spectral Comparator) examination of the ink used for the handwriting on page 1, Q1 and comparison to the ink of the handwriting on page 2, Q2 revealed that they are different with respect to their response to IR (Infrared) Absorption and Reflectance. Additionally, VSC examination of Q1 revealed that the ink used for handwritten entries on page 1, paragraph 6, line 3 as well as the bottom of page 1 is different than the rest of the handwritten entries on the same page with respect to their response to IR (Infrared) Absorption and Reflectance (see pages 4 and 5 for a representation of results). 5. Utilizing visual, microscopic, ESDA and VSC revealed that the document was altered in the following manner: substitution of page 2, insertion of handwritten entries in paragraph 6 as well as the bottom of page 1.</p>
796697	<p>After document examinations, it was found that some strokes on the two-page sublease agreement were inserted and written with different writing instruments; moreover, the signature of the subtenant on the second page of the sublease agreement was not original writing. Our observations support the subtenant's claims, and we reach a conclusion that the questioned sublease agreement HAS BEEN ALTERED.</p>
7AW8UL	<p>Results of Examinations: ALTERATIONS: It was determined that Item 1 (Item Q1) was altered due to the following observations: INK EXAMINATIONS: The word "trash" and number "30" in section 6 as well as a portion of the number "4" in section 8 were prepared using an optically different ink than the remaining writing on page 1 of Item 1 (Item Q1). This was detected using the Video Spectral Comparator (VSC 8000). INDENTED WRITING: Indented writing consistent with "trash","30" and a portion of number "4" from page 1 was detected on page 2 using side-lighting and the Electrostatic Detection Apparatus (ESDA). No indented writing was observed on page 1 using side-lighting and the ESDA. One ESDA lift which is considered secondary evidence was designated Item 2. PRINTING The "SUBTENANT" signature "Natalie Braxton-Porter" on page 2 was prepared using a toner printing process which may be found on numerous printing devices. Characteristics were observed which indicate page insertion/substitution of second page of Item 1 (Item Q1).</p>
7DD3LX	<p>There is extremely strong support for the proposition that Exhibit 1 is an altered document. There is no support for the proposition that Exhibit 1 has not been altered (the likelihood that the document has not been altered is so small that it is considered negligible). The following findings regarding the examination of Exhibit 1 form the bases for the above opinion. a) A minimum two black ballpoint pen inks were used to make the inked handwriting entries. This finding does not include the subtenant signature on page two, which is not made with ink. This determination was made by microscopic examination and examination using a Video Spectral Comparator (VSC). It should be noted that these techniques can detect when inks are different inks or similar inks, but not the same ink. As a result, the number of inks cannot be limited to two. b) On page one, there is a handwritten number "45" in Section 8 near the lower left corner of the page. At least two different black ballpoint inks were used to write the "45" entry. One type of ink was used to write a "15". A second type of ink was used to make an "L-like" formation over the "1" in "15" to create a number "4" and thereby changing the number from "15" to "45". In addition, the "trash" and "30" entries on page one were written with ink similar to that used to make the "L-Like" formation, but is different than all the other ink entries on the page. However, the ink is similar to all ink entries on page two. c) Examination for the presence of writing indentations with an</p>

TABLE 3

WebCode	Conclusions
	<p>Electrostatic Detection Apparatus (ESDA) disclosed indentations of the "trash", "30", and the "L-like" formation entries on page two. These indentations were made by the corresponding writing on page one while page two was underneath. The finding of the indentation of "L-like" formation without the remainder of the number is evidence that the "15" part of the "45" entry was not made at the same time as the "L-like" formation". No other indentations were found on page two. No indented writing images were found on page one. d) The "SUBTENANT" signature on page is not an original signature. It is made up of dry electrostatic toner, such as that commonly used in photocopiers and laser printers. The print quality of the "SUBTENANT" entry and the printed signature line is much worse than the other computer-printed text on both pages. The signature also has a similar print quality to the "SUBTENANT" and printed signature line. This is evidence that the signature, and accompanying text/line, were manipulated onto the document by means of a "copy-and-paste" manipulation of the page. e) The overall evidence suggests that the second page was substituted for the original second page; while in addition, the first page was altered by adding the "Trash/30" entries and changing "15" to "45".</p>
7ML6WJ	The questioned agreement has been modified.
7NUAFZ	<p>In my opinion, Q1 has been altered in the following way: a) By the addition of the handwritten entry 'trash 30' to the utilities list in Section 6 of Page 1 b) By the alteration of the number of days to refund the deposit from '15' to '45' in Section 8 of Page 1 c) Page 2 has been substituted with a new page which incorporates the 'cut &amp; paste' (either physically or digitally) of the 'SUBTENANT' text and associated 'Natalie B Potter' signature in Section 11 of Page 2 from another document. I am unable to determine when these alterations were made.</p>
7TP4D2	<p>Under the incident light of the stereomicroscope, line-like, light structures (scratches) can be seen within the letters and numbers of the original entries on page 1. These structures are repeated in all the original entries. In the obviously later entry on page 1 under position 6. at the word "trash" and the number "30" these features are not detectable. Under position 8. at the number 45, it can be determined that the original number was subsequently made into a number 4. In the original stroke of the number 1, the light stroke-like structures are visible. In the subsequent entry for the number 4, these structures are missing. Likewise, the structures cannot be detected in the entries on page 2. These first indications of possible changes were subsequently confirmed when the various light sources were used for further investigations. Under IR 715 nm and luminescence at 645 nm, the original entries disappear and only the subsequently made entries or the modification at number 15 (45) are visible. In addition, under luminescence 780 nm, it can be determined that the original entries were made with a blue writing medium and the entries made subsequently or the change at the number 15 were made with a black writing medium. On page 2, the entries are also present with black writing medium. Due to our investigations it is certain that on page 1 afterwards made entries are present and additionally a change with the number 15 (45) was made. In addition, page 2 no longer corresponds to the original, because the same writing medium was used as for the entries and alterations on page 1. The text on both sheets was printed with a toner-processing printing system. Whether it is the same printer we can not determine.</p>
7X3UVP	<p>Initially, by using a 10x magnifying glass, it was established that in numeral 6 the word trash – 30 and in numeral 8 the digit 4 of the number 45 are darker. In the comparator video, an IR absorption at 645 nm was carried out, which resulted in the fact that in the aforementioned fields there are: addition of the word trash – 30 and at point 8 the number 45 that can be seen initially was 15, the first digit being subject to an alteration by adding strokes. Likewise, it can be seen that the signature of subtenant Natalie B. Potter is not manually elaborated, but digitally embodied.</p>
8GV8P8	CONCLUSION BASED ON OUR FINDINGS OF OUR EXAMINATION, WE CONFIRM THAT THE QUESTIONED AGREEMENT "HAS BEEN ALTERED" .
8RQTX6	<p>After analyzing the evidence in this case, the following opinions have been formed: It has been determined that the agreement in Submission 001 has been altered. The signature "Natalie Brandon-Porter" on Submission 001-B is not a wet ink signature but a copy produced via toner technology. Also, the printed text "SUBTENANT" and preceding baseline are of a poorer quality than the rest of the printed text on Submission 001-A and 001-B. Demonstrative chart attached to this report. Submission 001-A and 001-B were examined visually, with sidelighting, and with the electrostatic</p>

TABLE 3

WebCode	Conclusions
	<p>detection apparatus (ESDA) for the presence of indentations from indented writings. Indentations of this sort are often caused on one document when writing is done on another document that is physically on top of it. Sidelighting revealed no latent indented writing on either Submission. ESDA processing of Submission 001-B revealed indentations from the words "trash" and "30" in Section 6 of Submission 001-A and a small "L" shaped stroke, corresponding to the "4", in Section 8 from Submission 001-A. No unexplainable indentations were observed on Submission 001-A. As per [Company] standard operating procedures the ESDA lifts were given a Submission number and have been returned with the evidence. The writing ink on Submissions 001-A and 001-B was examined with the video spectral comparator (VSC). The words "trash" and "30" in Section 6 of 001-A along with a small "L" like stroke in Section 8 of 001-A were prepared with a different ink than the rest of the writing on 001-A. This ink reacted similarly to the writing in Section 11 and the "Sublessor" signature on 001-B. Demonstrative images are attached with this report. All requested examinations have been completed on this evidence. Submissions 001-A and 001-B will be forwarded to the [Company] and will be returned to the submitting agency upon completion of the analysis. If further examinations are required, these submissions should be resubmitted along with any additional materials.</p>
8T4WKN	<p>Alterations were detected on Item 1 (Item Q1). The "trash 30" entry, a portion of the "4" on the number "45" on page 1, and the inked entries on page 2 appear to have been prepared with an optically different ink than the remaining hand printed entries on page 1 utilizing alternate light sources on the VSC 8000. The "4" in "45" appears to have been altered from "1". The machine printed text, formatting, and the "Natalie Braxton-Porter" signature on page 2 were prepared using a toner printing process, common on various brands of laser printers, photocopiers, and other office machines. It should be noted that the print quality of the "SUBTENANT" and corresponding signature line is inferior to the printing on the remaining machine printed portions, indicating this portion may have been digitally or physically added from another source at some point in time. Indented writing was observed on page 2 of Item 1 (Item Q1) using the Electrostatic Detection Apparatus (ESDA). The indented writing corresponds to the "trash 30" entry on page 1 (reference image enclosed). The ESDA lift of page 2 is considered secondary evidence and has been designated Item 2.</p>
9387PT	<p>The questioned document presents alteration</p>
9A7W9H	<p>No clues were found in the contents of the document examined (Q1) indicating changes. But when presenting the next sheet of the original contract, the expert will be able to expose some changes in the second part of the contract.</p>
9J7KU2	<p>CONCLUSIONS: The agreement between Natalie B. Potter and Juli Laich, has been altered by adding text in numeral 6, page 1 of 2, with the text reading: "Trash 30". The agreement between Natalie B. Potter and Juli Laich, has been altered by the addition of the upper left stroke of the number "4" in numeral 8, from page 1 of 2, where it reads: "45", being the correct number "15". The signature after the text reading: "SUBTENANT", from page 2 of 2, is a reproduction by an electrophotographic medium.</p>
9M6VP2	<p>The documents identified Q-1A and Q-1B has been altered.</p>
9MXGVZ	<p>The two pages of Item Q1 were examined to determine if there was any evidence of alteration. There is evidence of the following: that Q1-1 was produced in a different manner or with different materials than Q1-2. An alteration was made to Q1-1 by means of added writing, and that a signature on Q1-2 was reproduced from another source. Q1-1 All of the handwritten entries on the two pages were written with black ballpoint ink. There is evidence that the entries "trash" and "30" were added to Section 6 with a different black ink that was used for the other entries on the page. The last handwritten entry in Section 8 appears to have been altered from "15" to "45" days. The added ink stroke has the same characteristics as the "trash" and "30" entries. Q1-2 The Judi Laich signature and date "5th May 21" are original ink entries. The Natalie Braxton-Porter signature is not handwritten but was printed with toner. The entire line consisting of SUBTENANT, signature, and signature line appears to have been scanned from another document and inserted into this page. There is evidence that the black ink used to write the Judi Laich signature and many other entries on Q1-1 is a different formulation from the black ink used on Q1-2. A chemical examination may confirm or refute this. Faint partial indentations of the handwritten "trash" and</p>

## TABLE 3

WebCode	Conclusions
	"30" entries on Q1-1 were developed on Q1-2. This indicates that when they were added to Section 6 of Q1-1, Q1-1 was positioned on top of and aligned with Q1-2.
A6AZAV	Document Q1 is the result of alterations as follows. The subtenant signature on page 2 is the result of an image copy/paste process from an original signature together with the printed "SUBTENANT" and signature line. Thus page 2 has not been signed in original ink by subtenant Natalie Potter. This implies the possibility that page 2 is the result of altered print content compared with a presumed original of that page. However, it is not possible to determine from the observations made that such changes to the print content of page 2 have been made or the nature of any such changes. Page 1 of the document is the result of alterations to the handwritten content. The entries "trash", "30" and the angular part of the numeral "4" of "45" have been written in a different ink (ink 2) from that used (ink 1) for the remaining handwritten entries on page 1. Thus the entry "45" is the result of an alteration from an original "15" by the addition of this angular component. The ink 2 apparent additions have been written when page 1 was located (directly or indirectly) over the paper of current page 2 leaving writing impressions (as detected using the ESDA) on page 2. The other writing on page 1 has not left any detectable writing impressions on page 2. The additions/alteration made to page 1 have been written in an ink indistinguishable from that used for the original entries (date and sublessor signature) on page 2. This observation is what would be expected if the same one pen had been used for these entries on pages 1 and 2 but does not prove that one pen had been used as many black ballpoint ink pens would be in existence containing indistinguishable ink. It is not possible to determine when the additions to page 1 were made other than to state that they were made when the paper of page 2 was available to receive writing impressions.
A9V6Z2	On further examination, I found that the words "trash" and "30" on page 1 and handwritten entries on page 2 were not written using the same pen as the rest of the handwritten entries on page 1. Furthermore, only the indentation of the word "trash" and "30" was observed on page 2. The handwritten entry number "45" was altered from the original entry "15" by adding a short curved stroke using a different pen. The signature of Natalie Potter on page 2 was also printed instead of being handwritten. Therefore, I am of the opinion that the questioned Sublease Agreement has been altered where the word "trash" and "30" and the second page as well as the altered number "45" was produced at a later time.
ANLDEQ	After an exhaustive, thorough and detailed analysis of the questioned document, I realized the following: It was observed that in section number 6, the words that read: "trash" and "30" present a similarity in the tone of the ink, however, there is a difference with respect to the rest of the black ink filling in the document. In addition, it can be seen that in section number 8, in relation to the days of the deposit, an addition to the stroke was found in numeral "45", where it is observed that there is a stroke corresponding to number 1, and that a angled stroke to form the numeral "4". Upon application of the filter for infrared light, the fading of the ink on sheet number 1 is observed, a situation that does not occur on sheet number 2, so it is inferred that they have different ink. Therefore, it is clearly denoted that the document was modified or altered.
AVPDXT	[No conclusions reported.]
AZXJRE	Once the contract has been directly observed on pages 1 and 2, it can be seen that Natalie Potter's signature, observed on page No. 2 of the contract, is made by digital laser printing. Which is totally contrary to what is observed in the completion of the contract and the lessor's signature, which are prepared in a handwritten manner and directly on the support. On the other hand, when observing the contract with the help of technical instruments such as a thread-counting magnifying glass and a VSC 8000 video document comparator in the infrared spectrum, it can be seen that the word "TRASH", the number 30 located on the third line of numeral 6, and the line that makes up the Angle in the number 4 in the number "45", react in a different way to the reaction of the other writings, when observed through the same wavelength. What is described above indicates that the document "Lease Agreement" HAS BEEN ALTERED" ON PAGES 1 AND 2.
B6NBDG	The questioned sublease agreement (Q1) has been altered by: The substitution of the second page. The addition of the word "trash" and the amount "30" mentioned on the 6th term appearing on the first page of the questioned sublease agreement (Q1). The modification of the refund period from 15 days to

TABLE 3

WebCode	Conclusions
	45 days mentioned on the 8th term appearing on the first page of the questioned sublease agreement (Q1).
B7G7YP	I have found conclusive evidence of additions made on the utilities to support the subtenant's claim that she was overcharged for utilities. I also found conclusive evidence of alterations made on the number of days within which a refund of the deposit for damages should be made. This further supports the subtenant's claim that she did not receive her deposit in the agreed timeframe. I found conclusive evidence of different mode of application of the signature of the subtenant on page 2 of the agreement compared to page 1 of the agreement which proves that page 2 of the agreement must have been tampered with.
B7YFNJ	The physical-light behavior observed in the text "trash" and "30" and the number "45" of the document page 1, allows us to determine that they are different from the other texts of the document. As for the signature, it was not placed manually through the action of a writing element (ballpoint pen) on the paper.
BAF8QQ	The questioned document was altered.
BDL23X	It has been concluded that the questioned document, Item Q1, has been altered.
BG2TTQ	Utilizing the VSC (Video Spectral Comparator), ESDA (Electrostatic Detection Apparatus), and Visual and Microscopic Examinations revealed that the documents were altered in the following manner: The writing on laboratory item #1 (Q1 and Q2) could not have originated from the same source uniformly, based upon observed differences in optical properties of the inks. Therefore, revealing the possible presence of insertions. Indented impressions on laboratory item #1 (Q2 front and back) revealed the possible presence of written insertions or a page substitution. Visual and microscopic examinations of the second signature on laboratory item #1 (Q2) revealed it is a reproduced signature.
BRY44Y	The inked portion of the " ___ days" section from page 1 of Item 1 has been altered from "15" to "45". The cross bar of the "45" from the " ___ days" section, "trash" and "30" were written with a different ink than that used to write the other entries on page 1 of Item 1. The "Subtenant" signature on page 2 of Item 1 is not an original signature and has been printed using toner technology. The entire "Subtenant" signature portion on page 2 of Item 1 displays features and characteristics of a cut and paste alteration to page 2 of Item 1. The ink used to write the date and the "Sublessor" signature portions of page 2 of Item 1 were written using a different ink than that used to prepare page 1 of Item 1, excluding the cross bar of the "45" from the " ___ days" section, the "trash" and "30" portions of page 1. The ink used to write the date and the "Sublessor" signature portions of page 2 of Item 1 displays similar characteristics to the ink used for the cross bar of the "45" from the " ___ days" section, the "trash" and "30" portions of page 1. However, there is no conclusion (meaning cannot be eliminated or identified) as to whether or not the similar inks on pages 1 and 2 were written with the same pen. No unidentified indented impressions were detected from Item 1, page 1 or page 2. One ESDA lift sheet was created from each page of Item 1 and were made sub-items 1.1 and 1.2. 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. Investigative Preexisting signatures from the real writer of the "Subtenant" signature on page 2 of Item 1 can be compared to the machine printed signature on page 2 in order to determine the actual source of the machine printed "Subtenant" signature on page 2 if evidence of that nature is located.
BTVL7Z	Based on visual and instrumental examinations, it was determined Exhibits Q1 page 1 and Q1 page 2 were altered based on the following observations: - The pen used for "trash", "30", and the left downstroke and cross bar of "4" in "45" on Exhibit Q1 page 1 is different microscopically and optically than the remaining handwritten entries on Exhibit Q1 page 1. The pen used for the "trash", "30", and the left downstroke and cross bar of "4" in "45" entries on Exhibit Q1 page 1 appears similar microscopically and optically to the pen used for handwritten entries on Exhibit Q1 page 2. However, due to limitations of non-destructive ink examination it cannot be determined whether these entries were written by the same pen. Sourced indented impressions were observed on Exhibit Q1 page 2. These impressions were sourced to the "trash", "30", and the left downstroke and cross bar of "4" in "45"

TABLE 3

WebCode	Conclusions
	<p>entries on Exhibit Q1 page 1. Based on these observed impressions and the lack of other indented impressions on Exhibit Q1 page 2, it was determined: The entry "15" on Exhibit Q1 page 1 was turned into "45" with the addition of the left down stroke and the crossbar. The "trash" and "30" entries on Exhibit Q1 page 1 were written at a different time than the remaining entries on Exhibit Q1 page 1. The SUBTENANT signature on Exhibit Q1 page 2 is not an original inked signature but produced with toner technology (e.g., toner printer, photocopier). The SUBTENANT signature block on Exhibit Q1 page 2 appears microscopically different than the remainder of the toner entries on Exhibit Q1 page 2. It cannot be determined whether page two of the contract bearing the original inked signature of the SUBTENANT contained different text entries than the submitted Exhibit Q1 page 2; this is due to the limitations of examination of a non-original document. No discernible indented impressions were observed on Exhibit Q1 page 1.</p>
BWE2TU	<p>The inscriptions contained in the document have been altered by adding blank spaces as in the 1st page has been added the paragraph "trash 30", in paragraph (6); and a stroke to the current "45" that in its beginnings was "15", within paragraph (8). The inscriptions on page 2 of the document have been digitally processed (Natalie's signature in the "Subtenant" section). The additions on page 1 are consistent with the writing on page 2. It is not possible to determine whether clauses on page 2 have been removed from the document.</p>
BZQLKT	<p>The two page lease agreement was examined by visual, microscopic, specialized light apparatus, and electrostatic detection apparatus examinations. The purpose of the examinations was to determine whether or not the document set had be altered. The findings are listed below. 1. A second ink was found at "trash", "30", and the angled stroke of "4". 2. Impressions of "Trash" and "30" were found on the second page, but none of the other handwriting from page one appeared as impressions on page two. 3. The ink used to write "5th", "May", "21" and the sublessor signature on page two were a different black ink than any of the ink on page one. 4. The subtenant signature on page two is a half-tone toner image. These findings lead this examiner to the conclusion that the two page lease agreement has been altered. The word Trash and number 30 were added, the number 1 in "15" was changed to a 4, and the second page has been substituted and includes a subtenant signature that is a digital image.</p>
BZUGFE	<p>The questioned contract was examined by oblique light under a Leica M205C microscope and in ultraviolet, infrared rays using VSC6000 / HS equipment. The examination has revealed that the handwritten text „trash 30" on line 3, section 6, page 1 of the questioned document has been made with different ink (different ballpoint pen) compared to the rest of the handwritten entries on the same page of the document. The analysis has also demonstrated that the entry „45" in section 8 on page 1 has been altered. Specifically, left element has been added to the number "4" with different ink i.e. instead of "45", there was originally the entry "15". The SUBTENANT signature on page 2, was not made with ink, it was produced with scanner and printer i.e. it was scanned and inserted onto the questioned contract from another document. Also, dates on page 2 and SUBLESSOR signature are produced with different ink compared to the main handwritten text on page 1 of the same document (this implies that at least two different inks were used when producing this document).</p>
C7J99U	<p>3) The challenged sublease agreement presents acts of alteration by inserting the texts "garbage" and the number "30" on page 1, as well as the Word SUBTENANT, the final line and signature of Mrs. Potter on page 2. It presents alteration on the digit "4" of the figure "45" of paragraph No. 8, being the number "1" the original one.</p>
C8C6V3	<p>(Q1) DOCUMENT HAS BEEN ALTERED BY CHANGING THE ORIGINAL SCEND PAPER BY THE CURRENT PAPERM USIND DIFFRENT INK IN DATA HANDWRITING AND THE SIGNATURE OF THE "SUBTENANT" IN THE SCECOND PAGE IS HAS BEEN FORERED USING "SCANNER" TO DOWNLOAD IT TO THE MENTIONED PAGE.</p>
D6YLUP	<p>Q1 has been altered, specifically regarding the addition of "trash \$30" under section 6, the alteration of "15" to "45" in section 8, and the substitution of page 2 (Q1b) which has a non-original subtenant signature. No indented impressions of evidentiary value were developed on Q1.</p>

TABLE 3

WebCode	Conclusions
DGT7Q3	It is my opinion, based upon the documents submitted, that page 2 of 2 of the Sublease Agreement has been altered. The questioned Natalie Braxton-Porter signature on page 2 is not a wet-ink signature, but a signature that consists of black toner (ie: from a laser printer or photocopy machine).
DL4T9Q	Infrared examination of Item Q1 revealed more than one black ball point ink was used to prepare the document. The handprinted word "trash" and the numerals "30" appearing in Section 6 on page 1, the "L" portion of the numeral "4" appearing in Section 8 on page 1, the date "5th May 21" appearing in Section 11 on page 2 and the Sublessor signature appearing on page 2 were written with a different black ball point ink than the remaining handwritten entries, excluding the "Subtenant" signature which consists of toner technology. Additionally, Item Q1 was examined for indented writing impressions. The following indentations were observed on page 2: trash 30 L The source of the indentations listed above are from the original handwritten entries appearing on page 1 in Sections 6 and 8. The "L" portion was added to the number "1" to change the number "15" to number "45" in Section 8. These indentations are subject to more than one interpretation. No other indentations of evidentiary value were observed.
DXFLUY	The Sublease Agreement as it now appears is the result of alteration. On the first page the wording "Trash" and "30" has been added at the end of the list of utilities and the number "15", near the bottom left corner, has been altered to "45". The second page bears a photocopy of a signature in the name of Natalie Potter rather than a handwritten signature and, therefore, that page is a substitute for an earlier second page.
DYC6VZ	On the basis of a complete and through forensic examination, it is my opinion that the questioned agreement has been altered.
DZ8PGE	Alterations were detected on the Item 1 (Item Q1) sublease agreement. Optical differences in ink were observed between the entries "trash", "30", and "45" (portion) on Item 1 page 1 (Item Q1) and the remaining inked entries on both pages of Item 1 (Item Q1). Indented writing was observed on Item 1 page 2 (Item Q1) corresponding to portions of the text on Item 1 page 1 (Item Q1) using oblique 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 other indented writing was observed on the remaining questioned item using oblique lighting and the ESDA. The Item 1 (Item Q1) text, as well as the "Natalie Braxton Porter" signature on Item 1 page 2 (Item Q1) was prepared using toner technology. This technology may be found in numerous brand name laser printers, photocopiers and other office equipment (machines).
DZLLXX	On page one, the ink in the word "trash" the number "30" and the written entries on page 2 reacted differently than the ink in the rest of the document under IR and spot fluorescence. This indicated that these items were written with a different pen than the rest of the entries on the document. At the bottom of page one, the ink of the hook in "45" reacted differently than the ink of the staff and the number five under IR and spot fluorescence. This indicated that the original number was 15. The signature of Natalie B. Potter and the signature line on page 2 was composed of printing ink. This occurs with copy and paste forgery.
EJCGMQ	In my opinion, the Sublease Agreement has been altered. Evidence for this includes: *Additional utilities added to paragraph 6 ("trash", "30") in a different ink than the other entries on page 1 *Alteration to timeframe for deposit refund from "15" to "45" *Electronic cut and paste of subtenant signature on page 2 *Differences in line spacing between some of the comparable paragraphs on pages 1 and 2.
ELYVBZ	The above evidence shows: a. The entries "trash" and "30" in Paragraph 6 of "Q1 Page 1 of 2" were made with different types of ink from the remaining handwritten entries in the same paragraph. b. The entries "45" in Paragraph 8 of "Q1 Page 1 of 2" was altered from "15" to "45". c. Indented impressions lifted off "Q1 Page 2 of 2" corresponded to "trash" and "30" in Paragraph 6, and [shape added to "1" to create "4"] in Paragraph 8 of "Q1 Page 1 of 2".
EMELUZ	The ink on questioned document page one is authentic wet ink. Page one does not appear to any alterations. Page two: The signature of the Subtenant is a photo copy while the ink for all other writing is wet ink. This leads to the conclusion that the signature of the subtenant was cut and pasted onto the

TABLE 3

WebCode	Conclusions
	page, copied and the remainder of the page was filled out in wet ink.
EQCYHP	In my opinion, the contract has been altered.
FA4CLG	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: The "SUBTENANT" signature on Item 1 (Item Q1) page 2 is toner printed. The Item 1 (Item Q1) words "trash" and "30" and the initial stroke of the "4" in "45" in section 8 of page 1 and all of the original writing on page 2 react optically different under infrared light than the remainder of the original writing on page 1. The Item 1 (Item Q1) words "trash" and "30" and the initial stroke of the "4" in "45" in section 8 of page 1 were observed to be indented on page 2 however no other writing from page 1 was observed to be indented on page 2. A lift of the indented writing that was observed on Item 1 (Item Q1) page 2 using side light and the Electrostatic Detection Apparatus (ESDA)® is considered secondary evidence and has been designated as Item 2. No other indented writing of value was observed.
FBEF23	There is evidence that Q1 was altered by means of: addition of the writing of "trash 30" to item 6 (utilities) on page 1, change in the deadline for refund deposit from 15 days to 45 days in item 8 on page 1, and replacement of page 2.
FDLW7B	The ink used in the elaboration of the strokes that make up the letters "Trash" and the numbers "30", contained in the completion of page 1, of the sublease agreement document, do not present the same behavior in a certain range of the spectrum, regarding the ink with which the other signs, letters and numbers on page 1 of the same document were made, being different types of ink. The legible signature linked as "Natalie Braxton Porter" arranged on the support line, together with the preprinted texts "SUBTENANT (subtenant)", on page 2 of the sublease agreement document, corresponds to a photostatic reproduction. The document questioned as a sublease agreement, presents on page 2, an alteration by indirect transfer, where the texts "SUBTENANT" and the legible signature linked as "Natalie Braxton Porter" were implanted, corresponding to a photostatic reproduction.
FMNKAL	The sublease agreement was altered.
FP3E8U	Item Q1, the questioned agreement, has been altered by 1) insertion of the entry "trash 30" on page 1, 2) alteration of "15" days to "45" days for the period of deposit return shown on page 1, and, 3) substitution of page 2 of the agreement.
FVMJXA	The "trash 30" entry on Page 1 was written with a different ink than the rest of the handwritten entries on Page 1. The "Natalie Braxton-Porter" signature on Page 2 was produced using a toner printing process and is not an original inked entry. The only handwritten entry from Page 1 that was indented on to Page 2 is the "trash 30" entry. These findings indicate that the "trash 30" entry and Page 2 were added after the original agreement was prepared.
FZENQE	there was adding the statement and digit in page one no.6 the words "trash" "30" and no.8 there was also changing the original digit "15" to be "45". The second page of the sublease agreement was also changed.
G8FFGM	Visual, microscopic and alternate light source examinations of Exhibits Q1(1)a and Q1(2)a were conducted. Visual examinations of Exhibits Q1(1)b and Q1(2)b were conducted. The questioned hand printed entries on Exhibits Q1(1)a and Q1(2)a, and the questioned Juli Laich signature on Exhibit Q1(2)a, were prepared using black ballpoint ink; however, ink differences were observed between the "trash" and "30" entries and the remaining entries on Exhibit Q1(1)a. No ink differences were observed between the date and the Juli Laich signature on Exhibit Q1(2)a. An alteration was observed in the "45" entry on Exhibit Q1(1)a; a stroke was added to the original "15" entry. The questioned machine-generated entries on Exhibits Q1(1)a and Q1(2)a, and the questioned Natalie Potter signature on Exhibit Q1(2)a were prepared using toner printing technology. No differences were observed within the paper of Exhibits Q1(1)a and Q1(2)a. Exhibits Q1(1)a, Q1(1)b, Q1(2)a and Q1(2)b were examined for the presence of indented impressions using the Electrostatic Detection Apparatus (ESDA). Indented handwriting and machine-created impressions were observed on Exhibits Q1(1)b, Q1(2)a and Q1(2)b;

TABLE 3

WebCode	Conclusions
	however, the handwriting impressions on Exhibits Q1(1)b and Q1(2)b are not of evidentiary value. Machine-created impressions were observed on Exhibit Q1(1)a. No further indented impressions were observed on Exhibit Q1(1)a. Indentation lifts were created to preserve the results of the ESDA examination. The ESDA indentation lifts were digitally processed and preserved. Exhibit Q1 was digitally preserved. The digital images will be retained.
GDXVZK	Applying, the document analysis method, is determined that the questioned document (sublease agreement) is altered.
GGZQL9	The technical findings support the proposal that the second page of the agreement is not the original and Clause 6 has been altered (first page).
H8QETN	1. The questioned sublease agreement in item Q1 was examined. 2. Under special lighting conditions, the optical properties of the following handwritten entries were found to be different from other handwritten entries on P.1 :- (a) the "trash" and "30" in section 6 on P.1 (b) the [shape added to "1" ] of "4" of "45" in section 8 on P.1 (the original number of the entry "45" could be deciphered as "15") (c) the "5th", "May", "21" in section 11 on P.2 (d) the signature of sublessor on P.2 3. Moreover, the signature of subtenant on P. 2 was found to be toner-printed instead of handwritten. 4. Furthermore, indented marks of "trash", "30" & [shape added to "1" to create "4"] mentioned in paragraph 2(a) & (b) were found on P.2 and could be superimposed with the corresponding handwritten entries on P.1. However, indented marks of the remaining handwritten entries on P.1 were not found on P.2. 5. The above findings indicated that P.1 of the questioned agreement has been modified by addition and alteration of entries whereas P.2 has been substituted. As such, the questioned sublease agreement in item Q1 was altered.
HAWZYW	Significant evidence was found to indicate that alterations and/additions had occurred on pages 1 and 2 of Q1. The number "30" and the word "Trash" were not prepared contiguously with the rest of written entries on page 1 and were probably added. Additionally, evidence was found to indicate that the number, "4" in the number "45" appearing in the lower left corner of page 1 was altered from "1" to read "4". The "Natalie Braxton- Porter" signature and signature line on page 2 is a machine copy and is not an original entry. Ink used to execute original the written entries on page 2 reacted the same as the above suspect entries on page 1 and there were differences noted between the thickness and opacity of pages 1 and 2.
HY2U6X	In section 6, the concept "trash" and the number 30 are printed and not handwritten. In section 8, the digit 1 has been modified, turning it into a 4, to transform the quantity 15 into 45. Page 2 of item 1 has been printed in its entirety. The signature in the name of "Natalie", in the "SUBTENANT" field of section 11, is printed with a different printing method than the one used in the rest of the document.
J3B4FK	Using the VSC, there were characteristics of different inks on page 1. In number 6, the word "trash" and the amount "30" and in number 8, a section in the "4", remained while all other ink was absorbed under IR 725; under spot fluorescence the same two items did not fluoresce while all the other ink did; under UV 365 the same two items reflected back while other ink was absorbed. In page 2, the signature Julie Laich was original, and the signature Natalie Porter was a copy. This indicated a possible cut and paste forgery. There were also evidence remnants of previous toner in an awkward place under the signature of Juli Laich. It appeared as though there was a previous entry that was removed.
J46CGV	The questioned agreement HAS BEEN ALTERED
J9G6PA	Alterations of the Item 1 document (Item Q1) were detected due to differences in the optical and physical characteristics throughout the Item 1 document, as described below. Differences were observed in the optical characteristics of the writing ink in portions of the Item 1 document as shown in Figure 1, which indicates the entries were not filled out consecutively or that multiple writing instruments were used at the time of the preparation. Chemical examination of the writing inks may yield further information. In addition, only a portion of the original writing on Item 1 page 1 is indented on page 2 as shown in Figures 2 and 3, which indicates that the entries were not filled out consecutively. The indented writing on Item 1 page 2 was observed using electrostatic detection and side lighting. The electrostatic lift used

TABLE 3

WebCode	Conclusions
	to capture and retain the indented writing is considered secondary evidence and has been designated Item 2. An image of Item 2 is enclosed for your investigative assistance. Furthermore, the "Natalie Braxton-Porter" signature on page 2 is not original writing, but rather has been prepared using a black toner printing technology. This technology is commonly found on numerous brands of printers, photocopiers, and multifunction machines. Additional observations and assessments have been made regarding the submitted items and recorded for possible future examinations.
JXZK7D	Results of Examinations: Based on optical inconsistencies of the ink, indented writing, and the non-original subtenant signature on Item 1p2 (Item Q1), it was determined that Item 1 (Item Q1) was altered. The subtenant signature on Item 1p2 (Item Q1) is a non-original signature that was prepared using a toner printing process which may be found on numerous laser printers, copiers, and other machines. Indented writing consistent with portions of Item 1p1 (Item Q1) was observed on Item 1p2 (Item Q1) using the Electrostatic Detection Apparatus (ESDA). The indented writing observed on page 2 was consistent with the portions of writing on page 1 that were optically different from the remaining writing on page 1. One ESDA 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 was examined using the Video Spectral Comparator 8000 (VSC) and optically dissimilar inks were observed between portions of page 1 as well as between pages 1 and 2 (images attached). Additional observations and assessments have been made and recorded for future examination purposes.
JZRCLP	The document has been altered. The received document is not original.
K2VPJH	Physical, microscopic, instrumental, and comparative examinations resulted in the following findings: Exhibit Q1 has been altered. The entries "trash" and "30" in section 6 have been added in a different ink than the remainder of the hand printed entries and signatures on page 1 of Exhibit Q1. In addition, the number "45" in section 8 has been altered, with an addition made with a different ink changing the original "1" to the current "4". Further on page 2, the "SUBTENANT" signature in the name "Natalie Braxton-Porter" is not an original signature and has been printed with toner. There is no further evidence of alteration. An examination of Exhibit Q1 utilizing the Electrostatic Detection Apparatus (ESDA) revealed the presence of indentations. The alterations from page 1 ("trash", "30" and the stroke changing "15" to "45") were impressed on page 2, and were the only portions of page 1 impressed on page 2.
K9FPYU	There was conclusive evidence the Sublease Agreement was altered based upon the non-original signature of the subtenant (Ms. Potter) on page two, as well as the use of different pens for the entries "trash," "30," and the date and sublessor's signature on page two. The "original" of any document will have signatures written with a writing instrument and not printed with the same technology as the text on a page. Also, with exceptions, it is common for one pen to be used for all entries as a document is prepared.
K9XHTD	INGLES: The questioned document with identification code DC-22-5211-DQ-Q1, has been altered. ESPAÑOL: El documento cuestionado con clave de identificación DC-22-5211-DQ-Q1, si esta alterado.
KCFBVK	There is evidence to suggest that the contract in Q1 was altered. Page 1 in Q1 contains two different ink formulations, particularly, the entries "trash 30" and the crossbar on the "4" in "45" near the bottom of the page is a different ink than the other entries. The "Natalie Braxton-Porter" signature on page 2 in Q1 is not original and is of poorer print quality than the other printing on this page. Page 2 in Q1 also does not contain indented impressions of most of the writing on page 1 which indicates that it was not in contact with page 1 in Q1 when those entries were written.
KQWUKM	Examination disclosed that page 1 has alterations made with different writing instruments from the original writing. Examination disclosed that page 2 has features indicative of a composite document construction.
KRNW82	The questioned agreement has been altered.

## TABLE 3

WebCode	Conclusions
KTYYRF	<p>Examination and comparison of exhibits Q1A&amp;B were conducted, and the following conclusions and observations are based upon my education, training and experience and the results are as follows: Exhibits Q1A&amp;B 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&amp;B and the documents were positive for indentations (see below). Exhibit Q1A contains paper feed roller marks on the front and reverse of exhibit Q1A and exhibit Q1B contains paper feed roller marks on the reverse of the document. There are paper roller marks approximately 2" and 2 3/4" from the left and right margin (Q1A-front) and 2 1/4" and 2 3/4" from the left margin (Q1A-reverse). Exhibit Q1B-reverse contains paper roller marks approximately 2 3/4" from the left margin. Exhibits Q1A&amp;B were examined with oblique/side lighting and the results were negative. A VSC (Video Spectral Comparator) examination was conducted on exhibits Q1A&amp;B and the results are as follows: Exhibit Q1A contains a difference in the inks displaying the word "trash", "30" and a crossbar in the number "4" has been added with a second ink that reacts by absorbing or appearing dark. The remaining ink is consistent and transmits/disappears at 715 nm. Exhibit Q1B contains inks that are written with varying pressures and visually appear slightly different under IRL. Both sets of writing display areas of dark and luminescing inked lines that vary possibly due to pressure variances between the bowl, descending and ascending strokes. It was also observed that this writing instrument may have a defect which is displayed by sporadic skipping in the inked line which allowed luminescence to bleed through the inked line in the areas containing the skipping. It was observed under stereo microscope that the ink on exhibit Q1A with the exception of "trash", "30" and the crossbar in the number "4" all contain heavy pressure and continual striations throughout all of the inked strokes that indicate the black ball point pen likely contains a defect in the ball within the housing of the pen to create these striations. Additional observations on exhibit Q1A of the word "trash", "30" and the crossbar in the number "4" do not contain the same striations, however, contain sporadic skipping in certain areas of the letters. This was also observed in the date and signature contained on exhibit Q1B. This demonstrates that exhibit Q1A was altered by adding writing to the document and that exhibit Q1B was written with ink that is not consistent with the ink on Q1A with the exception of the words "trash", "30" and the crossbar on the number "4". Additional examinations were conducted for specular reflection to differentiate the ink on the altered sections of Q1A with the ink on Q1B. These examinations did not demonstrate differences between the inks and neither ink reacted for specular reflection. Exhibits Q1A&amp;B were examined with an ultra-violet source and the papers appear to be consistent. Exhibit Q1B on the reverse side contains a luminescing vertical line from the top to the bottom of the page approximately 2 inches from the right margin. Both exhibits Q1A&amp;B were examined, and it was determined that they were created with an electrophotographic process. The exhibits were examined for magnetic toner and results were negative. Exhibit Q1B contains the Natalie Braxton-Porter signature which contains trash marks and has been cropped and imported from a different source as demonstrated by the linear and digitized lines present on Q1B. This signature's overall size proportion appears to have been enlarged when compared to the original inked signature on exhibit Q1A which appears to be of normal size, however, these two signatures do not overlay. The main body of text on exhibits Q1A&amp;B were produced with a 12-point Times New Roman font, however, the title "SUBLEASE AGREEMENT" was produced with a 15-point Calibri font. The lower right corner in exhibits Q1A&amp;B contain "Page 1 of 2" or "Page 2 of 2" that are 10-point fonts and the characteristics indicate they may be from the Calibri font family, however, there is a limited amount of text to examine and is a limitation. The text of both exhibits was examined with typography grids to determine if a line of text had been inserted. Exhibit Q1A did not contain any line insertions, however exhibit Q1B did contain a small amount of text and the signature that had been inserted. While the grids did not display an issue with the vertical alignment, the signature line on subtenant was slightly shorter on both sides when compared to the sublessor line. The signature contained trash marks indicating that the signature had been imported from another source as it also contained digitized and linear patterned lines which were inconsistent with the remainder of the document. The imported signature on Q1B was larger and the proportions inconsistent from the original signature written in black ball point ink on exhibit Q1A.</p>
KUY89R	<p>Alterations in handwritten texts were observed on page 1. Entries "trash" and "30" have been added and entry "15" has been changed to "45" with a pen stroke. Page 2 of the document has been replaced with a page that doesn't contain subtenant's original, handwritten signature. Instead, on page 2 subtenant's</p>

## TABLE 3

WebCode	Conclusions
	signature made with electrophotographic process was observed.
L28TL9	<p>Microscopic examinations and examinations using the Video Spectral Comparator, of the black ink(s) used to produce the handwritten material on PAGE 1 revealed the words "trash" and the number "30" were written in a different black ink(s) than the black ink(s) used to produce the remaining writing on PAGE 1. Microscopic examinations and examinations using the Video Spectral Comparator, of the black ink(s) used to produce the handwritten material produced on PAGE 2 revealed the "5th", "May" and "21" and the SUBLESSOR signature were written in black ink(s) that reacted similarly to each other while the SUBTENANT signature on PAGE 2 reacted differently. Microscopic examinations and examinations using the Video Spectral Comparator, revealed the black ink(s) used to produce the handwritten "5th", "May", and "21" and SUBLESSOR signature on PAGE 2 and the black ink(s) used to produce the handwritten words "trash" and number "30" on PAGE 1, reacted similarly. Microscopic examinations and examinations using the Video Spectral Comparator, of the black ink(s) used to produce the handwritten "5th", "May" and "21" on PAGE 2 and the black ink(s) used to produce the handwritten material on PAGE 1 excluding the words "trash" and "30", reacted differently. Microscopic examinations and examinations using the Video Spectral Comparator, of the SUBTENANT signature on PAGE 2 revealed this signature was not produced in ink. The SUBTENANT signature on PAGE 2 is produced in toner and is not a wet inked original signature. The SUBLEASE AGREEMENT document was altered. Comments: This is supported by the evidence revealed when the black ink(s) used to produce the writing concerned with an increase in utility pricing, "trash" and "30" and the black ink(s) used to produce the writing on PAGE 2, excluding the SUBTENANT signature, reacted similarly. In addition, the SUBTENANT signature on PAGE 2 is not an original inked signature and instead is a copy of the SUBTENANT signature. And lastly, the black ink(s) used to produce the remaining writing on PAGE 1, excluding the words "trash" and "30", reacted differently to the black ink(s) used to produce the words "trash" and "30" and all the handwritten material produced in black ink(s) on PAGE 2.</p>
L2BAK7	<p>This report contains the results of the questioned document examinations. Results of Examinations: It was determined that the Item 1 (Item Q1) questioned agreement was altered due to the following observations: Optical differences were observed in the ink used to produce the "trash", "30", and portion of "4" (in "45") on page 1 compared to the remaining inked entries on page 1 (Figure 1) The "Natalie Braxton-Potter" signature on page 2 is a non-original signature produced with toner technology Indented writing was observed on page 2 of Item 1 (Item Q1) using electrostatic processing (Figure 2). The indentations correspond with the "trash", "30", and portion of "4" in the "45" entry on page 1 of Item 1 (Item Q1). 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 of value was observed on Item 1 (Item Q1). Additional observations and assessments have been made regarding the submitted item and recorded for possible future examinations.</p>
LAN4Y9	The contested agreement HAS BEEN ALTERED
LCRYJC	<p>In my opinion, there is conclusive evidence that page 1 of the Agreement has been altered to include the entries 'trash' and '30' and the figure 15 on the bottom line has been altered to read '45'. These entries were written whilst page 1 was lying above page 2. In addition, the signature of the Subtenant on page 2 has been produced in black toner and is not an original ink signature.</p>
LEEQEE	<p>Methods: A visual examination of the submitted item was completed. Instrumental analysis was also done. Instrumental Analysis Page 1 and page 2 of the Sublease Agreement in Item #1 could not be differentiated from one another. However, this does not preclude that the paper may have come from different sources. The printing process on page 1 and page 2 of the Sublease Agreement in Item #1 could not be differentiated. However, this does not preclude that they may have come from different sources. More than one ink is present on the Sublease Agreement in Item #1. One ink was used to write the word "trash" and the number "30" under #6 on page 1, and another ink was used to write the additional utilities under #6. Examination of the ink in #8 on page 1 of the Sublease Agreement: in Item #1 showed that the number "15" was changed to a "45". The Subtenant signature on page 2 of the Sublease Agreement in Item #1 is a copy, not an original signature. Instrumental examination of the Sublease Agreement in #1 revealed the presence of indented writing on page 2. The developed</p>

TABLE 3

WebCode	Conclusions
	indented writing includes portions of writing from page 1 including the word "trash" and the number "30". No additional indented writing was developed. Based on all the findings listed above, the Sublease Agreement in Item #1 has been altered, and is therefore not an original document. Remarks VSC images and developed indented writing from #1 are being returned to your agency as Item #1.1. 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.
LJTBE9	Through direct observation and with the help of the 10x optical instrument (magnifying glass), it was evidenced that the tenant's signature on page 2 exhibits a digital printing system unlike the other original manuscripts, also with the support of the VSC-8000 document video comparator, which when exposing the document to infrared light, showed differences in ink, which, according to the behavior exhibited, shows alteration in the areas in the additive modality of the texts "trash-30" from the section 6 and the number "45" where the prime number was 15.
LN6P9L	On the basis of all the examinations, it is my opinion that the Item 1A-1B sublease agreement has been altered.
LW2W39	The document has been altered. In page 1, section 6: the item 'trash' and its value '30' were constructed using a different pen. In section 8: the number 45 has been altered. The original number was 15. Two strokes were added to the digit 1 to make it 4. The subtenant signature in page two is digital (copy). There is a possibility that this page has been reproduced, and the subtenant signature was added digitally.
LXPXUU	1. Pages 1 and 2 of document Q-1 were examined for impressions with positive results, using the Foster and Freeman VSC 6000 H/S and the Foster and Freeman ESDA. Three (3) ESDA lifts were retained in the Document Examination Unit case file. Examination of the document using oblique lighting, the Foster and Freeman VSC 6000 H/S, and the Foster and Freeman ESDA assisted in deciphering the indentations present on page 2 of document Q-1 to read: "trash 30" "L" Impressions from the remaining handwritten words present on page 1 of document Q-1 were not found on page 2 of document Q-1. 2. EVIDENCE OF TRANSFERENCE PRESENT: Examination of the Subtenant signature on page 2 of document Q-1 revealed areas consistent with printed material and not consistent with original ink, suggesting that the Subtenant signature was superimposed on page 2 of document Q-1. 3. EVIDENCE OF MULTIPLE INKS PRESENT: Examination of page 1 of document Q-1 revealed that the words "trash 30" in section 6 and the L-shaped stroke of the "4" in "45" of section 8 reacted differently when viewed using the Foster and Freeman VSC 6000 H/S than other handwritten entries on page 1 of document Q-1. The handwritten entries and Subtenant signature present on page 2 of document Q-1 reacted similarly to the words "trash 30" in section 6 and the L-shaped stroke of the "4" in "45" in section 8 of page 1 and differently from the other handwritten entries present on page 1 of document Q-1. This indicates that multiple inks were used to create document Q-1. 4. ALTERED ENTRY: Examination of section 8 on page 1 of document Q-1 revealed an altered handwritten entry. The handwritten "45" entry of section 8 on page 1 of document Q-1 originally read "15".
LY6MDU	The sublease agreement submitted for research, dated 5 May 2021, changes the original content by adding the word "trash" and the number "30" in point 6 of the first page of the sublease agreement, adding the vertical and horizontal (hook) element to the original number "1" in point 8, thus fulfilling the existing digit "4" of the entry "45", as well as replacing page 2 of the sublease agreement, which contains the last paragraphs: the printed text "SUBTENANT", subtitle Natalie Brakton Porter's signature montage.
MM784J	The document "SUBLEASE AGREEMENT " was altered. The Sheet 2 of this document was changed
MRZDDE	The document in question does present an alteration by addition.
N88JRN	In my opinion, there is evidence of alteration to the questioned sublease agreement.
N8C992	PAGE 1: In point 6: the entries "trash" and "30" have been added with a different writing device (different ink). In point 8: digit "1" was changed to "4" by retouch, with use different writing device (different ink).

TABLE 3

WebCode	Conclusions
	PAGE 2: Whole part /SUBTENANT/ and the signature 'Natalie Branton-Potter' have been scanned and printed using a monochrome laser printing device. The signature scan is not a scan of the signature from the first page of the document. Whole page number 2 has been forged.
N9KHZY	The sublease agreement identified internally as Q1, presents alteration by addition.
NL9VNM	The questioned documents, Q1 and Q2, were viewed macroscopically and microscopically and with the aid of various light sources, filters, magnification and spectral examination using the Video Spectral Comparator (VSC). It has been determined that the questioned documents have been altered. The questioned items were also examined 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 Q2 that read "trash" and "30" from the front of Q1. Furthermore, the signature of Natalie B. Porter (Potter) on the questioned document, Q2, appears to be reproduced using toner technology. After macroscopic and microscopic examination of the questioned document, Q2, it has been determined that the signature appears to have been digitally/manually/electronically manipulated onto the document.
NULC74	The sublessor Juli Laich provided contract is forged because of 1) There are another kind of handwriting ink added to main handwriting ink at section 6, section 8(numeral "4"=1+L) on page 1 and on all handwriting ink on page 2. 2) And subtenant print and signed name on page 2 of contract are forged and may be all of the page by image patching and printing with normal character, which were completed by Ms. Potter. And, the subtenant's claims that a term of the contract regarding return of charges for unused utilities has been removed from the second page of the contract may be possible.
PAEJLG	On further examination, I found as follows: (i) The handwritten entries on Page 1 (paragraph 8) which read as "45" was altered. The original entries was "15". (ii) The additional handwritten entries on Page 1 (paragraph 6) which read as "trash" and "30" were observed. (iii) All handwritten entries on Page 2 had similar type of ink as the additional handwritten entries on Page 1. (iv) The subtenant signature on Page 2 was a printed signature which printed using an electrophotographic printing process. Hence, I am opinion that, the two page sublease agreement between Natalie B. Potter and Juli Laich has been altered.
PDCH2R	Page 1 of the document has been altered by: adding the handwritten entries "trash" and "30" in section "6." and also by overwriting the number "15" to "45" in section "8.". These altered handwritten entries were made with the use of a different black ballpoint pen ink and at a different time than the other handwritten entries on page 1. Page 2 has been fabricated by making handwritten entries with the same black ballpoint pen ink as the altered handwritten entries on page 1 and by printing the "SUBTENANT" field with a signature.
PL3ZGL	Upon completion of an examination of the two-page questioned exhibit submitted in this case, it is the opinion of this examiner that the exhibit has been altered. Specifically: The entries "trash 30" and "45" appearing on the first page of the exhibit display, at this level of analysis, spectrally different inks than the other ink entries of the exhibit. The "45" entry has been altered from a number of "15" to a number of "45". - The "SUBTENANT" signature appearing on the second page of the exhibit is a toner-based signature and was not prepared in handwritten ink. Rather, it was placed onto the document by unknown means.
PNWNZG	The questioned document exhibits evidence of an alteration based on the following: the indentations of "trash", "30", and the portion to change "1" to "4" on page 2 and the lack of other indentations sourced from page 1; the writing instrument used to complete "trash", "30" and the portion to change "1" to "4" (section 8) on page 1 and page 2 (excluding the subtenant signature) appear to have similar optical ink properties but are different than the optical ink properties used to complete the remaining areas of page 1; and a toner printing process was used to produce the subtenant signature on page 2. Page 2 was not underneath page 1 when the handwritten areas, excluding the altered areas mentioned above, were completed on page 1.

## TABLE 3

WebCode	Conclusions
PRAY38	<p>This report contains the results of the questioned document examinations. Results of Examinations: Alterations were detected in the Item 1 (Item Q1) document. Ink of inconsistent optical characteristics to the remaining handwriting on the document prepared the "trash" and "30" entries of Section 6, a portion of the "4" in "45" of Section 8, the date in Section 11, and the SUBLESSOR signature. In addition, indented writing from only these portions was observed utilizing electrostatic processing on the second page of Item 1 (Item Q1). The electrostatic lifts used to capture and retain the indented writing are considered secondary evidence and have been designated Item 2. Images of the Item 2 electrostatic lifts and indented writing are enclosed for your investigative assistance. The spacing between sections of page 1 of the Item 1 (Item Q1) document is inconsistent with the spacing between sections of page 2 of the Item 1 (Item Q1) document. The SUBTENANT signature on page 2 of the Item 1 (Item Q1) document is not an original inked signature and was prepared using toner printing technology. This technology is commonly found on numerous brands of printers, photocopiers, and other office machines. It should be noted that the SUBTENANT signature and line is of a lessor, more pixelated quality toner than the remainder of the document. The Item 1 (Item Q1) writing is suitable for future hand printing and signature comparisons. If future examinations are desired, dictated and undictated known signatures and hand printing from any logical suspect(s) should be submitted. The known writing should be comparable to the questioned signatures and hand printing in wording, style, and format. Dictated known writing should be prepared in the exact wording as the questioned writing and obtained on separate types of documents similar to the questioned item. Each repetition should be removed from the writer's view upon completion and numerous repetitions may be necessary in order to obtain naturally prepared writing. Undictated known writing consists of writing prepared during normal course of business activity. Possible sources of undictated known writing include business papers, letters, canceled checks, and/or applications.</p>
QJEFZ4	<p>The document indicated as a sublease agreement entered into between July Laich and Natalie B. Potter dated May 05, 2021, presents content modification, which confirms that there has been a documentary alteration.</p>
QKNKC7	<p>In my opinion (1) there have been a number of alterations and additions to Page 1 of the Agreement. These are at paragraph 6 - the addition of the writing "trash 30" and at paragraph 8, the number "15" has been altered to read "45". This has been done using a different black ball point pen ink to the remaining writing on page 1. (2) The signature "Juli Laich" and date "5th May 21" written on page 2 have been completed using a similar ink to the additional writings on page 1. Again, this is a different ink than that used to complete the "Juli Laich" signature at paragraph 1. (3) The signature at "SUBTENANT" on page 2 is not an original signature. All details relating to this signature, including the signing line, word "SUBTENANT" are indicative of having been copied from another, unknown document, possibly using a graphics program such as "photoshop" or by "pasting" an image within the within the word processor document. (4) These alterations and additions, suggest therefore that this Sublease is a composite document, with the addition of charges at paragraph 6; an increase in costs at paragraph 8 and a different page 2 inserted.</p>
QR9NJ9	<p>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 Q1a and Q1b documents were scanned for preservation by Criminalist [Name]. 2. A visual examination of the Q1a document shows that the contract is computer by laser jet generated with handwritten personal and rental information in cursive and printing, executed in black ballpoint ink. There is no information on the reverse of the Q1a document. 3. A visual examination of the Q1b document shows that the continued contract is computer generated by laser jet, and that the date and sublessor signature information are handwritten in cursive and printing, executed in black ballpoint ink. The subtenant section has been added to the original document and the signature is not an original signature and has been imported into the contract from another source. There is no information on the reverse of the Q1b document. 4. A VSC (Video Spectral Comparator) examination using various microscopic, infrared, ultraviolet, and alternate light source examination techniques reveal that there are multiple inks on the front of the Q1a document. The first ink would be classified as the original ink first placed on the document, this ink appears as luminescence under the VSC Infrared Luminescence. These</p>

TABLE 3

WebCode	Conclusions
	<p>images are read as the Sublessor name and signature; the Subtenant name and signature; the location, dates, amount, address and the "gas/25, electric/50", the deposit of "250" and "15". The second ink is the visible black ink that composes the words and numbers "trash 20" under utilities and the "L" shape that changes the refund date from 15 to 45. These letter and number forms absorb the infrared and appear darker instead of luminescing. The original ink on the Q1b document is not consistent with the primary ink on Q1a or the secondary ink on Q1a. This is an alteration to the original document. The paper used for Q1a and Q1b react consistently under VSC examination. 5. An ESDA (ElectroStatic Detection Apparatus) examination for the detection and reading of indented writing, typing or other identifying impressions was not performed on the Q1a and Q1b documents by Criminalist Guscott. Oblique lighting from the VSC and handheld lighting sources were used. On Q1a there is a vertical indentation, possibly from a roller or grip from the printer, approximately 70mm from the right edge, on the front side of the document. 6. There are two fonts used to create the contract documents. Header: SUBLEASE AGREEMENT on Q1a and Q1b appears to be Calibri font and is a 15 pt. The footer also appears to be Calibri font and is 9 pt. The limited amount of numbers and letters prevents a more positive font identification. The content on both Q1a and Q1b appears to be Times New Roman in 12 pt. The spacing on both pages (measured using typewriter grids), except the inserted SUBTENANT section on Q1b, is consistent throughout the contract. 7. The original handwriting contained on the front of the Q1a and Q1b documents appear to be naturally prepared. 8. The entire SUBTENANT section on Q1b has been imported from a secondary source and is not an original signature. The linear pattern and trash marks that are visible in this section indicate that a photocopied image was used. This is considered an alteration to the original documents.</p>
QUFYKJ	The document has altered.
QWLJ8J	The questioned agreement HAS BEEN ALTERED.
R2QFRJ	<p>The nature of our findings [Visual/ESDA/VSC] is such that, in our opinion, page 2 of the Tenancy Agreement submitted is not the original page 2. The current entry "45" (section 8 page 1) was originally "15" and has has been altered by the addition of a left hand and horizontal stroke, changing the "1" to a "4" while the current page 1 was resting on the current page 2. Furthermore the text "Trash" and "30" (section 6 page 1), which appear to be in a similar ink to the above additional marks, were made while the current page 1 was resting on the current page 2. The additional entries on page 1 appear to be in a similar ink to the the date and sublessor signature entries on page 2.</p>
RF97QL	<p>Evidence show that the document has been altered. The disputed entries "trash" &amp; "30" were completed with a different ink, on a different time than the rest of the document, and the initially written number "15" was altered to "45" by adding the necessary part with a different ink.</p>
RKJVXE	<p>In my opinion, the Q1 contract has been altered via: the addition and alteration of handwritten entries on the first page. The entries "trash" and "30" have been added and the entry "15" has been altered to "45", and the substitution of the second page, with the page containing a printed copy of the subtenant's signature instead of an original signature.</p>
RN8AMN	<p>According to the findings of latent impressions and optical examinations the handprinting in section 6 "trash" \$ "30" and in section 8 a "L"-shaped line on page 1 have been added to the original sublease agreement. As a result of the addition of the "L"-shaped line the timeframe for the refund has been changed from 15 days to 45 days. The amount of payment for the utilities increased because of the alteration "trash" \$ "30". The ink of the later assigned handprinting on page 1 corresponds with the ink of the handprinting on page 2. The subtenant signatur is not handwritten but printed by a laserprinter. This proves that page 2 of the contract was substituted. It cannot be stated which agreements were shown on the original page 2 of the contract.</p>
RTFD7H	<p>The handwritten entry in paragraph 8 on page 1 which appears visually as "45" was altered. The original entry was "15" and changed to appear visually as "45" The handwritten entry in paragraph 6 "Trash 30" was written with a different ink formulation than the adjacent entries.</p>

TABLE 3

WebCode	Conclusions
RVRVFN	<p>The results of the investigation show that the agreement has been altered. There were no limitations to the investigation. Our expert opinion is that the agreement has been altered. On the first page (sheet) the words "trash" and "30" are added in point 6. In point 8 the number 15 is changed to the number 45. The second page (sheet) has been replaced.</p>
T3YLAH	<p>Conclusion: The questioned agreement was altered. The subtenant signature on the second page of the agreement is not an original ink signature; instead it is machine-generated printing produced via a toner print process. The machine printed line that contains this signature, including the text "SUBTENANT" and the signature line are also toner and of a poorer quality than the rest of the toner printing on the page. Several variables can affect print quality, including copying/printing a document produced via one type of printing process on a machine that utilizes a different printing process, or producing multi-generational copies of a document. When considering that the subtenant signature is toner and not original ink, that the signature intersects the "SUBTENANT" text, and that the print quality of the entire "SUBTENANT" line is poorer than the rest of the printed text, the only reasonable explanation is that the content was removed from a different source and added to the second page of the questioned agreement. Additionally, the evidence indicates that a different writing ink was used on the "trash," "30," and the left "L" shaped stroke of the "4" from "45" than was used on the rest of the hand-printed entries on the first page of the agreement. The addition of the "L" shaped stroke changed a "1" to a "4", effectively lengthening the timeframe for that entry from "15" to "45" days, and the addition of "trash" and "30" supports the claim that the cost of utilities was raised. Note that it can't be determined when the "trash," "30," or "L" shaped stroke were added to the first page. Indented writing impressions further support that the agreement was altered. Present on the front of the second page were impressions reading "trash," "30," and "L," and these impressions superimpose with the hand-printed entries on the front of the first page. These impressions mean that the first page was on top of the second page when those entries were made. Impressions from the rest of the writing on the first page are absent from the second page however, meaning that these entries were written at a different instance. Methods: The agreement was examined with the unaided eye and with a microscope capable of 50x magnification. Alternate light source examinations were conducted using the Video Spectral Comparator (VSC). The questioned agreement was examined for indented impressions using oblique light from the VSC and the Crime-lite 80L. The Electrostatic Detection Apparatus (ESDA), which is used to detect and visualize indented impressions, was also used on the documents. The preserved visualized impressions detected by the ESDA are called ESDA lifts. These lifts serve as a record of the impressions present and can be used for future analysis. The ANSI/ASB Standard for Examination of Documents for Alterations and Standard for Examination of Documents for Indentations were followed. Interpretation and Results Visual and microscopic examination revealed that the machine printing on both pages of the agreement, and the "SUBTENANT" signature on the second page were produced via a toner print process. The print quality of the line containing "SUBTENANT," the signature, and the signature line were poorer quality than the toner printing on the rest of the agreement. Alternate light examinations revealed differences in optical properties of the ink used to write on the documents. The ink used to write "trash," "30," and the left stroke of the "4" in "45" reacts differently than the rest of the original ink on the first page. The original ink begins to reflect (lighten) when viewed under Infrared Reflectance with a barrier filter of 530nm and transmits (disappears) fully when viewed with a barrier filter of 695 nm. The ink used for "trash," "30," and the left stroke of the "4" instead darkens (absorbs) when viewed with filters up to 1000nm. The original ink on the second page reacts similarly to the ink used to write "trash," "30," and the left stroke of the "4," but it can't be ascertained if it is the same ink without chemical testing. The ink used to write "trash," "30," and the left-hand stroke of the "4" does not fluoresce (glow) under infrared luminescence settings, but the rest of the original ink on the page fluoresces using an excitation filter range of 400-640 nm with a barrier filter of 695nm. Again, the original ink on the second page reacts as does the ink used to write "trash," "30," and the left stroke of the "4." Microscopic examination revealed that the majority of the writing ink on the first page had more burr striations (inkless areas in a written line that are typically caused by damage to the pen's rotating ball housing) than the ink on the second page and in "trash" and "30." This also supports the above-mentioned difference in inks. Indented writing impressions reading "trash," "30," and "L" (the left stroke of the "4") were present on the front of the second page. These impressions superimpose with the writing on the first page. This means that the first page was on top of the second page when these entries were written. The absence of</p>

TABLE 3

WebCode	Conclusions
	indentations from any of the other entries on the first page means that the rest of the entries were written at a different time than the "trash," "30," and the left stroke of the "4".
TEQDVM	Item Q1 shows evidence that the following alterations were made on the document: a) addition of "trash" and "30" on page 1 of the original document; b) modification of a numeral "15" in section 8 on page 1 to a numeral "45"; c) substitution of page 2 of the original document with a new page, bearing a reproduction of a signature for the subtenant.
THPNQM	The first page of the questioned two pages agreement (item Q1) has been altered by adding new handwriting by different ballpoint pen ink. Original second page of the questioned document (item Q1) was removed and replaced by new one with printed signature of the Natalie B. Potter.
TUMZCV	The lease agreement signed between NATTALIE B. POTTER and Juli Laich presents alterations in the handwritten completion of the items "Trash" and "30" of numeral 6, number "4" of the figure "45" of numeral "8" of the first page. In the same way, there was an alteration on the second sheet when the signature of Mrs. NATTALIE B. POTTER was printed by digital printing and not manually.
TWTFRE	The element in question described as a "SUBLEASE AGREEMENT" which consists of two pages of white paper printed in black ink and handwritten in ink black color, presents additions, found on: page 1, actually in point 6, the word "trash" and the number "30" are in a different type of ink than the rest of the document; page 1, actually at point 8, there is a stroke of a different type of ink that modifies the number "1" by the number "4" that is currently read. Also on page 2, it can be seen that the apparent signature located in the space corresponding to "SUBTENANT", does not correspond to a manuscript, but rather to an electronic reproduction. Interpretation: By virtue of what is indicated in the previous result, the questioned document is altered
TZVW7N	The Natalie Potter signature on page 2 of the questioned Sublease Agreement is non-original. This shows that the second page of the questioned document is not the page she originally signed. The indentation and ink evidence shows that the entries 'trash', '30' and the vertical and horizontal strokes changing the number from 1 to 4 in section 8 were completed in a different sitting to the rest of the entries on page 1. A possible explanation for the observed evidence is that a new page 2 has been created incorporating a copy of the original Subtenant signature. While resting on top of this substituted page the entries 'trash' and '30' have been added to page 1. Additionally, in section 8 the entry '15' has been altered by the addition of vertical and horizontal strokes to read '45'.
UKEQKW	The use of two (2) different black ballpoint inks was observed in the handwritten material appearing on Page 1. The handwritten entries in Section 6 - "trash" and "30" along with the "l-shaped formation" of the Number 4 in Section 8 were prepared with a different ink than the balance of the handwritten material appearing on Page 1. The handwritten material appearing on Page 2 was observed to have been prepared with a different black ball point ink than the two (2) inks observed on Page 1. The signature appearing on Page 2 is not ink and has been generated using toner technology.
UPQ4E9	The questioned agreement has been altered as evidenced by the following: the handwriting "trash" and "30" was inserted on page one; an alteration was made in section 8 in the handwritten entry "45", it was originally "15"; and the "Natalie Braxton-Potter" signature on page two was produced with a toner printing process machine. Therefore, the alteration and insertion were produced with a different writing instrument than the rest of the handwriting on the agreement and page two was not part of the original agreement.
UT449F	In summary, it is established that the first page of the contract has been falsified by additions and the entire page 2 has been exchanged for a forgery.
UXYX7G	The writing ink used to prepare the entries of "Trash", "30" and the upper left portion of the "4" in "45" on page one (1) of Exhibit Q1 is different from the remainder of the writing ink on that page and the writing ink is consistent with the writing ink found on page two (2). The typewritten information appearing on pages one (1) and two (2) and the Natalie Braxton-Porter signature appearing on page two (2) of Exhibit Q1 was prepared with an office machine system that utilized dry black toner. The printed Subtenant information and Natalie Braxton-Porter signature appear to have been added to page 2

TABLE 3

WebCode	Conclusions
	utilizing some method of electronic cut and paste. Indented writing appears on the front of page two (2) that is consistent with the execution of the entries of "Trash", "30" and the upper left portion of the "4" in "45" on page one (1) of the Exhibit Q1 item. No other significant indented writing was noted on the Exhibit Q1 item.
VB34U8	There are ALTERATIONS BY ADDITION OF WRITINGS in the "sublease agreement"; signed between JULI LAICH who act like sublessor and by the other hand NATHALIE B POTTER acting like subtenant. Those alterations are visibles on the two sheets of white bond paper letter size, it was made in print letter and italic, this changes was writing in black ink. It come like reference material. The alterations are: 1) In "page 1 of 2", section eight (8), where it shows the number "45" and the original number was "15". At the same page, was found difference between black ink tonality, used to fill out lines 1 and 2 in front of third line in the section six (6). 2) The second alteration was made in the lower area of page "2 of 2", section where the subtenant have to write and sign "SUBTENANT _____"; that were write with toner printing.
W4L3EB	Item Q1 has been altered by the addition of "trash" and "30" to section #6, changing "15" to "45" in section #8 and substituting a new second page.
W6TKD7	The questioned Sublease Agreement has been altered in the following areas: Page 1, section 6: entry "trash" and "30". Page 1, section 8: number "4" was changed from "1". These areas were produced by a different writing instrument than the rest of the page. Page 2 was not part of the original agreement as evidence by: "Natalie B. Potter" signature is produced by toner The latent writing impressions found on page 2 was produced by the writing mentioned above from page 1 and not the other ink writing from page 1.
WL6L6A	Both pages 1 and 2 of Q1 have been altered.
WMWNRP	Based upon the examination of the Sublease Agreement (Q1), it was determined that the entry "SUBTENANT" and the questioned signature "Natalie Braxton-Potter", appearing on page 2, was created by some method of alteration, fabrication, or manipulation using digital imaging technology.
X7LHX7	Visual, microscopic, and alternate light source examinations of Exhibits Q1(1)a and Q1(2)a were conducted. Visual examination of Exhibits Q1(1)b and Q1(2)b were conducted. The handwritten entries on Exhibits Q1(1)a and Q1(2)a were produced with black ball point ink with the exception of the "Natalie Broxton-Porter" Sublessor signature on Exhibit Q1(2)a. The "Natalie Broxton-Porter" Sublessor signature on Exhibit Q1(2)a was produced with toner printing technology. Ink differences were observed within the inked handwritten entries on Exhibits Q1(1)a and Q1(2)a and are described as follows. "trash" and "30" in Section 6 were produced with different inks from the remaining inked handwritten entries on Exhibit Q1(1)a. Please see Image 1 for details. At least two inks were used in the production of the handwritten inked "4" entry in the inked handwritten "45" entry in Section 8. The original inked entry appears to be "15" which was altered to "45" with a different ink. Please see Images 1, 2, 3, and 4 for details. The inked handwritten entries on Exhibit Q1(2)a were different from the inked handwritten entries on Exhibit Q1(1)a, with the exception of "trash" and "30" in Section 6 and the altered portion of "4" in "45" in Section 8. Please see Image 4 and 5 for details. The "trash" and "30" inked handwritten entries in Section 6 and the altered portion of the "45" in Section 8 on Exhibit Q1(1)a and the inked handwritten entries on Exhibit Q1(2)a, were indistinguishable at this level of analysis. Side-lighting and Electrostatic Detection Apparatus (ESDA) examinations were conducted on Exhibits Q1(1)(a), Q1(1)(b), Q1(2)(a) and Q1(2)(b). Indented machine-created impressions were observed on Exhibits Q1(1)(a), Q1(1)(b), Q1(2)(a) and Q1(2)(b). Indented handwriting impressions were observed on Exhibits Q1(1)(b), Q1(2)(a), and Q1(2)(b). No further indented impressions were observed on Exhibit Q1(1)(a). The indented handwriting impressions observed on Exhibits Q1(2)(a) were sourced to the "trash", "30" and altered portion of the "4" in the "45" entry on Exhibit Q1(1)(a), however no other indented handwriting impressions were observed on Exhibit Q1(2)(a). Please see Image 6 for details. The results of the side-lighting examination were preserved digitally. Indentation lifts were created to preserve the results of the ESDA examination. Exhibits Q1(1)(a and b), Q1(2)(a and b) were digitally preserved. The original ESDA indentation lifts and alternate light source images were digitally preserved and processed.

TABLE 3

WebCode	Conclusions
X8GZY8	The questioned agreement has been altered. The conditions of the agreement written in parts 6 and 8 have been altered and the second page of the agreement has been substituted.
X9VCVQ	The document subject to inspection presents alteration in the sixth point area of the contract, in the additive modality of the text "trash" and "30" The document subject to inspection presents alteration in the area days of return of the deposit point eight of the contract, in the substitute modality, where the original text "1" was changed by the current text "4"
XLUJMZ	Page1 : The handwritten notes « trash...30 » §6 were written with a different ink. §8, different inks were used to change « 15 » into « 45 ». Page 2: The Ms. Potter's signature has been added on the document. both pages have been altered.
XYZYKB	1. Document Q-1 was examined for Impressions and Indented Writings with Positive Result, utilizing the Foster and Freeman ESDA. One (1) ESDA lift was retained. 2. The Foster and Freeman ESDA also assisted in deciphering the indented writings present on Document Q-1 page 2 that read: "trash" and the number "30". 3. Examination of Document Q-1 using the VSC 6000 H/S, revealed additional entries were made to page 1. Section 6 the entry "trash and the number "30". Section 8 a vertical and horizontal stroke were added to the number "1", so it appears to be the number "4".
Y2AWMD	After careful examination of original questioned two pages Sublease Agreement (Q1) using Video Spectral Comparator (VSC-8000, Software Version 7.2) and Electrostatic Detection Apparatus (ESDA2), it is concluded that the original questioned two pages Sublease Agreement (Q1) has been altered. The detail of alterations is as follows: 1. On first page for utilities, the handwritten entries at serial no. 6, "trash" and "30" have been added using different kind of ink/writing instrument (pen) than that used to write rest of the entries at serial no. 6 . For timeframe, at serial no. 8, stroke "L" before "1" has been added using different kind of ink/writing instrument (pen) to tamper/convert "15" into "45". 2. On 2nd page, subtenant signature is non-genuine and has been produced using printing process. Indentations corresponding to the added/tampered writing on 1st page were developed on 2nd page as "trash", "30" and stroke "L" while indentations of rest of the writings on 1st page are not found on 2nd page.
Y2PZCY	In our system the two pages have been assessed individually as two separate documents in order to identify any types of interference with the content of each page individually. The pages would be given the following conclusions according to our LAB conclusion scale: Page 1: The document show signs of manipulation Page 2: The document has likely been forged
YANH3	The Q1 questioned agreement has been altered. This finding is based on differences observed between some of the entries appearing on pages one and two. More specifically, the word "trash", the number "30" and the left arm of the "4" in "45" on page 1 and the handwritten entries and signature on page 2 were written using a different ink than the other handwritten entries on page 1. Additionally, the "Natalie B. Potter" signature on page 2 is not original. It is produced using black toner and appears a lower print quality than the other toner printed information on both pages. The other handwritten entries and "Juli Laich" signature on page 2 are original and are written in ink. These findings support the claim of the subtenant.
YERQUX	Based on different optical properties of the writing instruments, indented writing observed, and the non-original nature of the subtenant signature on the second page of Item 1, it was determined that the Item 1 document was altered. Figure 1 below, which demonstrates the different optical properties observed, has been included for your investigative assistance. Indented writing which corresponds to the areas of different optical properties and best reads as "trash", "30", and a right angle used to change a 1 into a 4, was observed on Item 1 Page 2 using the electrostatic processing. The lift used to capture and retain the indented writing is considered secondary evidence and has been designated Item 2. An image of the Item 2 electrostatic lift has been enclosed for your investigative assistance. The subtenant signature located on Item 1 Page 2 was prepared using a toner printing technology. This technology is commonly found on numerous brands of printers, photocopies, and other office machines. (Image not included) Figure 1: Demonstration of different optical properties observed on Item 1 Page 1 Additional observations and assessments have been made regarding the submitted item and recorded for possible future examinations.

TABLE 3

WebCode	Conclusions
YU8RN3	The questioned sublease agreement HAS BEEN ALTERED.
YUL734	When examining the document under different lighting conditions, it was found that the entries were made with two different writing media. The entry "trash 30" as well as the entries on page 2, section 11 show the same reactions. In section 8, the "4" from the number 45 also shows the same reaction as the entries already mentioned. Based on the above findings, the handwritten entry "trash 30" appears to have been added to page 1 and the period for refunding the deposit was changed from 15 days to 45 days. The fact that page 2 was filled out with the same writing medium as the new entries on page 1 suggests that page 2 was subsequently completely created or falsified. In addition, Mrs. Potter's signature was printed on it.
YZDDKC	The questioned agreement HAS BEEN ALTERED
ZF4N2M	The questioned document Q1 Sublease Agreement, between Natalie B. Potter and Juli Laich, consisting of two pages, was ALTERED. It presents alterations by addition in the following points: in term no.6, referring to the services that the sublessor must pay each month, trash and number 30 were added; in point 8, a stroke was added to the number of days, converting 1 into 4; Natalie Braxton Porter's signature, embodied on sheet 2, is digitized and printed; in the filling of the spaces of the contract, 2 useful inscriptions (pens) were used.
ZFLRFE	The questioned agreement HAS BEEN ALTERED
ZKXKNT	Based on physical, optical, and printing inconsistencies, it was determined that Item 1 (Item Q1) was altered. Indented writing was observed on page 2 of Item 1 (Item Q1) using oblique lighting and electrostatic processing and is best read as: "trash 30" , as well as a possible 'L-shaped' stroke in the bottom left corner. The Electrostatic Detection Apparatus (ESDA) 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 during the examination of Item 1 (Item Q1) using the aforementioned methods. Optical inconsistencies were observed using the VSC8000 when comparing "trash" and "30" in entry 6, the 'L-shaped stroke' in the "4" of entry 8, and the original writing on page 2 of Item 1 (Item Q1) to the remaining original questioned entries on page 1 of Item 1 (Item Q1). The 'Natalie B. Potter' signature is non-original and printed with a toner printing process available on numerous brands of printers, photocopiers, and office machines.
ZP7DRG	If the Sublease Agreement has to be signed on page 2 by the subtenant as alleged on the scenario, the signature must not be printed. The signature is not an original, photomontage traces were noticed. The handwritten mentions on page 1 was modified, at least two ballpoint pens with different compositions were used.
ZPBFC3	Visual, microscopic and alternate light source examinations of Exhibits Q1(1)a and Q1(2)a were conducted. Visual examination of Exhibits Q1(1)b and Q1(2)b were conducted. Exhibit Q1(1) was compared with Exhibit Q1(2). Alterations were observed on Exhibit Q1 due to the following: Ink differences between the entries "trash", "30" and the arm of the "4" in "45" with the remaining entries on Exhibit Q1(1)a were observed. No ink differences were observed between the entries "trash", "30" and the arm of the "4" in "45" on Exhibit Q1(1)a with the date and Sublessor signature on Exhibit Q1(2)a. The questioned Subtenant signature on Exhibit Q1(2)a was prepared using toner printing technology. No differences between the paper of Exhibits Q1(1) and Q1(2) were observed. Indented handwriting and machine-created impressions were observed on Exhibits Q1(1)b, Q1(2)a and Q1(2)b. All of the indented handwriting impressions on Exhibits Q1(1)b are not of evidentiary value. Indented machine-created impressions were observed on Exhibit Q1(1)a. No further indented impressions were observed on Exhibit Q1(1)a. Indentation lifts were created to preserve the results of the ESDA examination. The ESDA indentation lifts were digitally preserved and processed. Exhibit Q1 was digitally preserved.
ZUKBY6	(i) All pen entries on the document are original pen entries with the exception of the subtenant signature on p2 which is a reproduction. The dissimilar appearance of the printing in the signature block

TABLE 3

WebCode	Conclusions
	<p>compared to the rest of the document is suggestive of a cut and paste. (ii) The number "45" on the bottom left of the first page has been altered, with the first numeral having been changed from a "1" to a "4". (iii) The written details on p2 were not written at the same time with the same pen as the written entries on p1, with the possible exception of the p1 entries "trash", "30" and the alteration to the first numeral in "45" on the bottom left.</p>
ZUL7HB	<p>Upon completion of an examination of the two page questioned exhibit submitted in this case, it is this examiners opinion that alterations have been made to the exhibit. Those alterations include: The handwritten inked entries "trash", "30" and a portion of the "45" appearing on page one of the exhibit appear spectrally different than all other inked entries within the exhibit. The "45" entry was altered from its original state of "15" to the number "45". The subtenant signature found on the second page of the exhibit was produced through a toner-based process and placed on the exhibit by unknown means.</p>
ZVFU27	<p>An examination of item Q1 for the presence of alterations resulted in the following observations and conclusions: The handwritten entries "trash", "30" and part of the "4" of "45" on page 1 and the date and sublessor signature on page 2 were executed with a different ink than the other handwritten entries appearing on Q1. The handwritten "45" on the bottom on page 1 was originally a "15". The "Natalie Braxton-Porter" subtenant signature on page 2 is not an original inked signature and is comprised of toner. Item Q1 has been altered by the addition of handwritten entries on page 1 and a complete page substitution of page 2.</p>
ZXLHX4	<p>The Sublease Agreement is an altered document. The entries "trash" and "30" were written with a different ink than the other entries. The entry in section 8 for days was written as a "1" and altered to a "4" with a different ink. The subtenant signature on page 2 is not original ink and is toner.</p>

# Additional Comments

## TABLE 4

WebCode	Additional Comments
22KPK7	Our scale of conclusion ranges from level +4 to level -4 with a level 0 in the middle corresponding to "inconclusive".
3FXHN3	I cannot determine the time at which page 2 was printed or additional handwritten entries on page 1 added. Further, I cannot determine as to whether or not these changes were made legitimately with the knowledge of both parties. Based on the subtenant signature on page 2 being a printed signature, further examination and comparison for the source may be possible if potential source signatures are located and supplied for comparison.
3LGF3W	A handwriting comparison could possibly determine whether the alterations on page 1 and the handwriting on the substituted page 2 have been made by sublessor Juli Laich.
49CGUQ	Although the signature itself may conform to the handwriting style of Natalie Braxton Potter, it has been artificially affixed to the document, rendering the Subtenant Agreement to be non-genuine.
4EYWA3	Too simple.
4FDLT2	The illegible signature that works on the second sheet, "SUBTENANT" area of contracti Q1, is scanned, given the structure it presents based on microdots that are typical of a print. It is important to note that alterations can be detected in original documents
4UTUKT	The handwritten filling of ITEM Q1.- Page 1 of 2 "Sublease agreement" when subjected to infrared with 715 nanometers, shows transparency in the boxes marked with lines and total absorption in the boxes marked with dots, that is; Two different reactions are identified. The handwritten filling of ITEM Q1.- Page 2 of 2 "Sublease agreement" when submitted to infrared with 715 nanometers, shows total absorption in the boxes marked with dots, showing a similar reaction. The handwritten filling of ITEM Q1.- Page 1 of 2 "Sublease agreement" when subjected to fluorescence with 695 nanometers, shows luminescence in the boxes marked in lines and total absorption in the boxes marked by dots, that is, it showed two different reactions. The handwritten filling of ITEM Q1.- Page 2 of 2 "Sublease agreement" when subjected to fluorescence at 695 nanometers, shows total absorption in the boxes marked by dots, except for the signature that is digitized. By applying the furrow development analysis method, the document presented the exact copy of ITEM Q1 "Sublease Agreement" in original; this on both pages without showing additions or deletions to it.
4YMQAJ	Subtenant Natalie B. Potter's signature on sheet 2 of the sublease agreement was digitally transferred.
63LUN4	Visually the ink of the entries "trash", „30“, the handwritten entries on page 2 and the alteration from "15" to "45" could not be differentiated. The same goes for the papers of page 1 and page 2. In a real life case we would rely on the results of our chemical analysis if it is the same ink or the same paper.
676C23	The most definitive evidence that the 'Natalie Braxton-Porter' signature on page 2 is a cut and paste process would be to locate the source signature. Therefore, if specimen signatures of Natalie Braxton-Porter are available, they should be submitted.
7ML6WJ	These findings attests that the second initial page of the questioned agreement was replaced by the existing one: on the latter, the image of the authentic signature of the subtenant would have been inserted before the printing of the page, then, on this printed page, Juli Laich filled in, with another black point pen, section 11 and signed. This finding therefore attests the fraudulent origin of the questioned agreement.
8GV8P8	WE FOUND THAT THE SECOND PAGE WAS FORGED BY ARTIFICIALLY REPLACING THE ORIGINAL WITH THE METHOD OF FORGERY WITH MONTAGE THEN PHOTOGRAPHY IN BLACK FOR THE SIGNATURE OF THE ORIGINAL SUBTENANT (NATALIE B. POTTER) AND PASTING THE SIGNATURE UNDER CONTRACT CONTENT. IT IS EVIDENT FROM THE LINEAR STROKES OF THE SIGNATURE WHICH CAME FROM A TONER INK WHICH IS USUALLY USED IN PRINTING. WE NOTICED THAT THE SIGNATURE IS FREE OF THE WRITING PRESSURE THAT COMES ON THE BACK OF THE PAPER BY HAND EXAMINATION AND USING DIAGONAL LIGHT. THAT MEANS THE SIGNATURE IS NOT MADE BY DIRECT HAND WRITING. BUT THE CONTRACT PAPER COME FROM AUTOMATED DEVICE USING DIGITAL PHOTOGRAPHY BY INDIRECT TRANSFER METHOD USING THE SIGNATURE OF THE

TABLE 4

WebCode	Additional Comments
	CORRECT TENANT. WE FOUND THAT THE FONT SIZE OF THE SIGNATURE AS A RESULT OF PHOTOGRAPHY AND THE NORMAL SIGNATURE WROTE BY THE TENANT ARE DIFFERENT. WE FOUND THAT THE PRINTING ON THE SECOND PAGE FOR THE WORD "SUBTENANT" AND THE PRINTING FONT IN SIGNATURE POSITION ARE MADE BY DIGITAL IMAGING COMPARED TO THE PREVIOUS PRINTING WHEN WE EXAMINED WITH MAGNIFYING LENSES AND MICROSCOPES. ALSO WE FOUND THAT THE INK WHICH USED IN WRITING THE CONTENT IN THE FIRST PAGE IS DIFFERENT FROM THE INK WHICH USED TO WRITE THE DATE AND THE SIGNATURE FOR SUBLESSOR " JULI LAICH" IN SECOND PAGE WHEN EXAMINED WITH INFRARED AND THE INK TESTER DEVICE, FORAM 658-3. FINALLY WE FOUND A PARTIAL PHYSICAL FORGERY IN THE CONETNT OF THE FIRST PAGE BY ADDING WORD " TRASH " AND THE AMOUNT IN NUMBER " 30 " IN SECTION 6 , AND CHANGING INSURANCE PERIOD FROM " 15 " TO "45" IN SECTION 8 , BY USING DIFFERENT INK OTHER THAN THE ONE USED IN THE CONTRACT CONTENT .
8RQTX6	"Explainable" indentations are those indentations wherein their source can be determined. For example, indentations found on the front of page 2 are easily recognized as coming from the writing on page 1. "Unexplainable" indentations are those indentations wherein their source cannot be determined. It should be noted that the Technical Review was conducted by [Name], sole proprietor of [Company].
9387PT	As a result of the analysis described above, an alteration was found due to the fact that in the second page, in its lower part, precisely in the subtenant script, the signature is not expressed with a pen as it is in the filling of the document, it is digitized and in the same way the line that is below the signature were made with a different printing system in reference to that of the entire document
9M6VP2	In the identified document Q1A, I did not observe indentation. In the identified document Q1B, I recovered and preserved indentation that reads "trash", "30" and an angled stroke. When performing the microscopic analysis of the signature present in the identified document Q1B that reads Natalie Potter, I observed that it is not original. The characteristics present are the product of toner and there is a difference in proportion and size when performing a comparative analysis with the signature present in the identified document Q1A. The printed that reads "subtenant" and the line under the signature that reads Natalie on the document identified as Q1B has excess of toner. These findings show that the document was manipulated digitally Crop and Paste. A difference is observed in the space between paragraphs when performing the comparative analysis of the identified document Q1B with the identified document Q1A. When performing the microscopic analysis of the identified document Q1A, I observe fluency in writing and signatures, proportion, beginning and end of strokes. At the same time, I observed a difference in the characteristics produced by the writing instrument used by Julie Laich to make the word "trash", "30" and a stroke that makes up the number "45". There is a difference in Burr Striations, ink failure when covering completely the ball in its rotation. There is difference in the grooves along the strokes and have a darker appearance than the rest of the writing. These findings together with the recovery and preservation of the indentation in the identified document Q1B evidence that were added later.
9MXGVZ	The apparent difference in ink formulations A and C may be resolved by a chemical examination. The magnetism of the toners used on the two pages could be compared by a magnetic flux examination.
A6AZAV	The reproduction copy and paste signature on Q1.2 does not originate in the subtenant signature on Q1.1. It may be worth examining other relevant documents bearing the subtenant signature to determine whether one of the further documents bears the original of the signature reproduced on Q1.2.
AVPDXT	According to the studies carried out, the doubtful material and the technical reasoning explained above, it was verified that the document (Sublease Agreement of two pages. (Q1).) Was altered on page 1 of 2. Clause number 6. Third line "transn"....."\$30". By intercalation mode. In the same way, there is an alteration due to the amendment modality in clause number (8). Specifically in the initial digit number (1), Turning it onto number (4). Conducted the study on page 2 of 2, it was observed that at the end "SUBTENANT" and the signature are scanned. There is an alteration.
BWE2TU	Reiterate on the same response to the infrared light of the additions on page 1 versus the writing on page 2. Natalie's signature on page 2, is a digitized image printed in toner.

TABLE 4

WebCode	Additional Comments
D6YLUP	It is unknown to me if any text was digitally removed from Q1b prior to it being printed.
DZLLXX	According to our SOP we do not report a conclusion for altered document, just the results of examination.
EMELUZ	After examining thousands of documents I don't feel that this is a fair question since it's asking about alterations, but we don't know what could have been deleted from page two. There are no 'terms' on page two, which seems like a trick question. Since there are no 'terms' and the signature is a machine copy, does that constitute an 'alteration?'
FP3E8U	An assumption was made that the original sublease agreement would consist of two pre-printed and templated pages to which all form details and signatures would be added in original ink, respectively by the two parties, to complete and validate the overall document.
GDVZK	Natalie's signature is not original, it was added to the questioned document by scanning or phototypesetting In section 6, what currently reads "Trash" and "30" was added with another ink. In section 8, the number that was originally "15" was changed to
GGZQL9	Very interesting test. Thank you
J3B4FK	We do not report conclusions for Altered Documents, so this in more of a reported result.
K2VPJH	In accordance with laboratory policy, images depicting positive results are treated as derived evidence. The laboratory will maintain and store this derived evidence in accordance with its established policy.
K9XHTD	INGLES: In the complete analysis of the document, it was observed graphoscopically that on the first page, the number "4" of the number "45" is morphologically different from the other numbers "4" that are located in the document. ESPAÑOL: En el análisis completo del documento, se observó grafoscópicamente que en la primera pagina, el numero "4" de la cifra "45", es distinto morfológicamente a los demás números "4" que se ubican en el documento.
KCFBVK	The EDD lifts in Items Q1A will be returned with the submitted items. Images of the items listed above are being retained by the Document Unit. The Document Unit conducts only non-destructive ink examinations. If chemical analysis is requested of the inks, the evidence may be sent to a laboratory that conducts destructive ink examinations.
KRNW82	Once the analysis has been carried out and based on the results obtained, an addition of text is observed in point number 6, specifically the word "trash" and the amount of "30". Also, note the addition of an angled stroke to form a number 4 that was originally a number 1, this in point number 8 of the agreement. Finally, it is observed that the "Subtenant" segment of the second sheet is printed.
L28TL9	These ink examinations and comparisons are limited. If the ink(s) were to be examined via destructive ink testing and comparisons, stronger and more conclusive opinions may be reached. This destructive form of testing is not conducted at this laboratory but if needed, please contact this laboratory for names of laboratories that do these forms of testing. These paper examinations and comparisons are limited. If the papers(s) were to be examined via destructive paper testing and comparisons, stronger and more conclusive opinions may be reached. This destructive form of testing is not conducted at this laboratory but if needed, please contact this laboratory for names of laboratories that do these forms of testing.
LXPXUU	This analysis indicates that "trash 30" and the L-shaped stroke of the "4" in "45" on page 1 of document Q-1 were added to the document separate from the remainder of the writing. This suggests that the original number listed in section 8 of page 1 is consistent with being "15". The lack of impressions from the Subtenant signature on page 2 of Q-1 and the microscopic examination also supports the indication that this signature is not an original handwritten signature and has been printed onto the document.
MM784J	The printed texts are uniform in terms of size, morphology and spaces, they do not show signs of manipulation, insertion of letters or words. The substrate does not show signs of alteration by subtraction, there are no broken fibers, curls or thinning of the paper. The data the document "SUBLEASE AGREEMENT" present three kinds of ink: Pasty ink, black colour, light shade, in the data : item 1: "July Laich", item 2 signature, gas/25 y electric/50 , item 8 sections 250,15 Pasty black ink, dark hue, in the graphics of items 6 section trash/30, item 8 in the complementary sign of the number "1"

TABLE 4

WebCode	Additional Comments
NL9VNM	<p>number "15", item 11 and the signature found in the space "SUBLESSOR" "Dry" ink for the signature available in the item "SUBTENANT", which indicates that it is a digitized signature and printed with laser printer -Alteration in the digit "1" of the number "15" available in point "8", making it the number "4"</p> <p>A chromatogram or spectrum may be visualized as a pattern in multivariate or multi-layered space. Samples displaying similar features often cluster together and those displaying dissimilar features are located away from each other in this space. See the attached spectral chart for your review and interpretation. Furthermore, irrespective of the degree to which a signature may appear to be genuine, an image of a signature appearing on a copy of an official document does not demonstrate that the original of that signature was written on the original document, unless and until the original document is submitted for forensic examination. The reason is any document and signature can be merged by photocopy or digital techniques to produce a copy that appears to be an image of a signed document.</p>
QKNKC7	An illustration would be attached which would demonstrate how I have reached my conclusions.
VB34U8	We used the PETs that are accord and approved by the [Company]
X9VCVQ	It is appreciated that the signature of Mrs. Natalie B. Potter on page two is made digitally and does not correspond to an original signature, which would support the theory that there was an alteration on said page.
YERQUX	Due to nature of submission, the image taken with the VSC included in the report is not included above; however, the references to the image (Figure 1) were left for the most accurate representation of what the report would be.
ZF4N2M	With a black ink pen the spaces on page 1 were filled in and with another black ink pen the spaces on page 2 were filled in, with this same pen the alterations of addition of points 6 and 8 of the first page of the sublease agreement
ZVFU27	Other forensic tests, such as paper and toner composition comparisons, were not conducted due to other existing evidence of an alteration being present.

-End of Report-  
(Appendix may follow)

## Test No. 22-5211: Questioned Documents Examination

DATA MUST BE SUBMITTED BY **April 25, 2022, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: RPWV6

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:

A subtenant and sublessor are having a dispute regarding the terms of their sublease following the subtenant's departure. The subtenant, Natalie B. Potter, states that she was overcharged for utilities and did not receive her deposit back in the timeframe to which they agreed. She also claims that a term of the contract regarding return of charges for unused utilities has been removed from the second page of the contract, as these were never refunded. Ms. Potter is unable to locate her copy of the sublease, but the sublessor Juli Laich has provided the alleged original, which she claims contains all terms to which her subtenant agreed. Ms. Laich is responsible for the handprinting in the document in its entirety, except section 2 (subtenant print and signed name) on page 1 and subtenant signature on page 2, which were completed by Ms. Potter. Investigators are asking you to review the two-page contract and determine if any alterations are indicated that may support the subtenant's claims.

*Please Note: The difference between the subtenant's printed last name (Potter) and signature (Porter) is not intended to be a part of your examination.*

### Items Submitted (Sample Pack QD):

Item Q1: Two-page sublease agreement between Natalie B. Potter and Juli Laich.

### **1.) Based on the findings of your examination, to what degree can it be confirmed or refuted that the agreement 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 agreement HAS BEEN ALTERED.
- B. The questioned agreement HAS PROBABLY BEEN ALTERED.
- C. CANNOT DETERMINE whether or not the questioned agreement has been altered.
- D. The questioned agreement HAS PROBABLY NOT BEEN ALTERED.
- E. The questioned agreement HAS NOT BEEN ALTERED.

Q1

## 2.) Methods and techniques utilized.

Please briefly indicate the observations made from each method/technique 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 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 ASCLD/LAB, 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 ASCLD/LAB, ANAB, and/or A2LA. (Accreditation Release section below must be completed.)
- This participant's data is not intended for submission to ASCLD/LAB, 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.   
(Include ASCLD/LAB Certificate here)

A2LA Certificate No.

**Step 2: Complete the Laboratory Identifying Information in its entirety.**

Authorized Contact Person and Title

Laboratory Name

Location (City/State)