

Forensic Examination of Suspiciously Similar Signatures

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Abstract

‘Is a signature genuine or forged?’ is one of the major questions that generally arise in the expert’s mind. When two signatures show various suspicious similarities between them and sometimes matching in shift in basis, it is considered as the case of superimposition. In such cases, when not any sign of forgery or disguise is present, then it may create an opaque view to express any opinion upon such signatures. In the present research, authors have created a hypothetical case and devised a method for the duplication of signatures. By using this method, the signatures written seem ‘alike signature’. Forensic examination of this hypothetical case is carried out by superimposition method on Docubox HD. But on the basis of this no opinion can be expressed until and unless a detailed examination related with all forensic aspect is carried out. The proposed paper is focused on the latest problem encountered by the questioned document experts.

Keywords: *Suspiciously Similar Signature, Natural Variation, Writing device, Docubox HD.*

1. Introduction

A number of cases are received in Forensic Science Laboratories every year, which requires the examination of signatures. Out of these cases, some cases are of high complexity as they require the examination of suspiciously similar signatures. Suspiciously similar signatures are nothing but the pictorially identical signatures. According to one of the principle of handwritings ‘No two person can write exactly alike’ and another principle says ‘Even the same person cannot write exactly the same way twice’. It means that the writing/signature, whether written by same person while repeating writing the similar content or by different person while copying any similar content, always be different if done after passage of time. This passage of time may be of one minute or one year or of any duration; the perfect duplication of original writing/signature is not possible et al. If it happens then there is another principle of handwriting, which says ‘exactly similar means traced forgery’. The examination of traced forgery is based on many characteristics of writing/signature but superimposition is mandatory. That is the reason; handwriting science is different from other branches of forensic science. In case of fingerprint examination, if two

fingerprints are exactly matching it is considered that they belong to the same person. It is the fundamental principle of fingerprint science. But if two signatures are exactly matching then it must be a forgery as discussed above.

It does not mean that handwriting comparison is not possible. It is possible and can be performed by examining various handwriting characteristics. The principle ‘No one can write exactly the same way twice’ is basically based on natural variation. As human’s writing is brain-writing not the machine generated writing. Therefore, the writing/signature written every time has to vary with each other but these variations should be within the range of natural variation.

Tracing is a widely used method to copy signatures, especially when the signature has to reproduce exactly as possible. In some cases, signatures are traced, but to do so possession of some signatures is required. Many a times, forensic experts receive the cases where two or more signatures are critically matching. Experts usually examine these signatures by various tools and techniques including one of the basic methods that is ‘Transparency Method’. In this method, two or more signatures are matched by means of superimposition after making transparency of one of the disputed signatures. If it matches exactly at the corresponding positions, then the opinion leads towards forgery.



Fig 1: Tracing of a signature

To reach on an opinion, an expert also examines the features that may occur during the forgery of signature.

If two signatures are pictorially identical in nature, matching with each other and there are no symptoms of forgery, then it may create the ambiguity in expert's mind. Definitely, an expert faces the problem during examination of such type of cases but such types of cases are rare one where signatures are matching without any symptom of forgery.

Possibility of Chance Match

During handwriting examination, an expert should also consider another factor that it may be possible to produce all the characteristics of a writer by forgery, however rare, by simulation. Therefore, in addition to looking for similarity in method of construction, proportions and general shapes of letters, the examiner should look for evidence of simulation. Inaccuracy, poor line quality, indentations or remains of pencil or carbon lines that have been traced onto the paper, are all indications of copied rather than natural writing. If these are found, there is a clear reason to believe that the resemblance is due to simulation and not a case of common authorship. If these characteristics are not found and the line quality is good or at least similar to that of the known writing and the resemblance is sufficiently close, then there are sufficient reasons to believe that the writing is a normal one. This itself do not totally exclude the possibility of simulation. Again, an assessment has to be made as to the likelihood that a person can copy the writing of another person so closely that no evidence remains. In the case of a large quantity of well-formed, smoothly and rapidly written text this would be virtually impossible. On the other extreme, if a small amount such as a single poorly written word is the only questioned writing, the possibility that this is not genuine but rather is a copy made by another person cannot be excluded. In other comparisons, a situation between these two positions can be found.



Fig 2: Suspiciously similar signature

The same principles apply when the writing/signature in question is in large amount; both

alternatives must be ruled out as a practical possibility. When a signature contains only a small amount of writing, it usually shows other personal features such as choice of names or initials, underlining and unusual letter forms that may provide adequate evidence against the possibility of chance match. The main consideration in the examination of signatures is the possibility of simulation.

Identification of Signatures

When two signatures are compared, by ruling out coincidence and simulation, an expert can reach on the conclusion that both the known and questioned writings/signatures are written by one and the same person. If the degree of certainty is very high, it is not merely an expression of likelihood or a vague indication of similarity; and if it is properly arrived at, it may be concluded that all the variations and similarities in the writings and their significance have been taken into account. Due to some remarkable coincidence and other inferences which may be well outside of expert's experience, someone with an extraordinary skill can produce the perfect simulation, leaving no evidence. These possibilities are so remote as to be negligible. This is what is meant by the identification of handwriting by comparing known and questioned writings.

The principle 'no two signature are written exactly alike' is related to the concept that each writer has a natural range of variation. Handwriting is pattern based and rather than relying on isolated handwriting features. Handwriting experts examine patterns in signatures and in order to establish range of variation for a writer, the pattern needs to be established in a number of comparison samples. Rarely, an identification or elimination of a signature is accomplished with one or even a few handwriting comparison samples. So due to natural range of variation, multiple signature samples are necessary in the examination.

Natural Variation in Signatures

In all document problems, there is yet another important element that must be considered - the question of natural variation. No repeated act is always accomplished with identically the same results regardless of whether it is produced by a machine or human effort. An individual's handwriting is made up of a complexity of habitual patterns that are repeated within a typical range of variation around the master patterns. In handwriting the proper consideration of natural variation is essential in order to distinguish between forged and genuine writing. Regardless of the class of problem, variation is ever present and must be accurately evaluated. It is as much a basic part of the identification as each identifying characteristic itself.

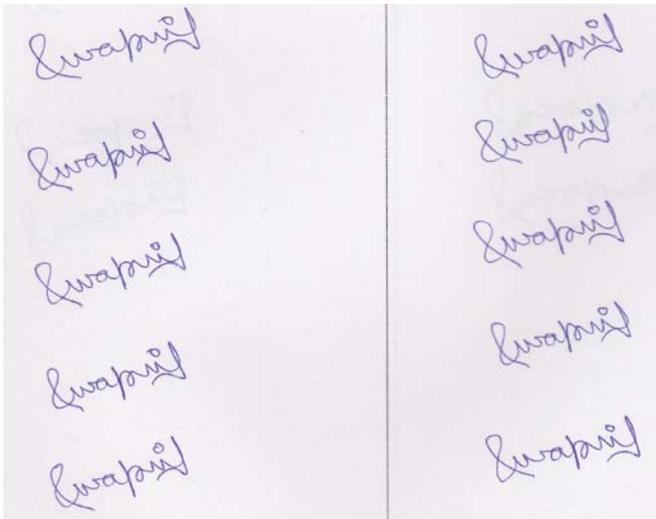


Fig 3: Natural variation in signatures

Hypothetical Case Study

In the present study, a hypothetical case was created in order to form/write some suspiciously similar signatures, in which some signatures were written on a document with the use of a writing device. This device is basically having two or three writing instruments and that are positioned just parallel to each other as well as they are connected together. (Fig 4)

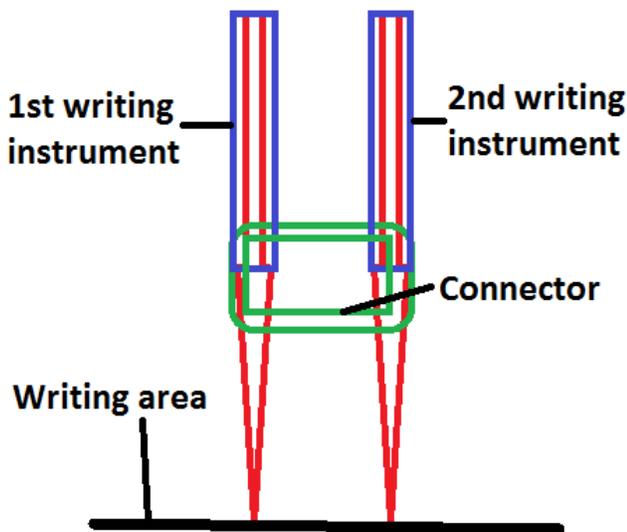


Fig 4: Writing Device

Then two different writing sheets were taken with some printed matter typed on it. Afterward, this writing instrument was placed on the bottom of the sheets, where generally the signatures are required, in such a way that 1st writing instrument touched the bottom of the first sheet and 2nd writing instrument touched the bottom of the second

sheet. When this position was fixed, then the writer started to write his/her original signatures. (Fig 5)

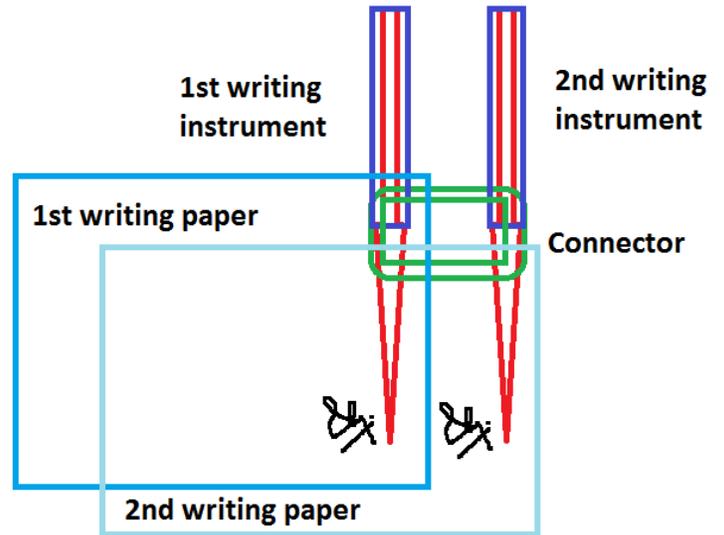


Fig 5: Signatures written by writing device

By applying this method, two signatures can be written on two different sheets at the same time. Because the person signs his original genuine signatures, then they may be pictorially identical in nature, hence named as ‘**Suspiciously Similar Signatures**’. In similar way, more than two signatures can be written by using multiple instrument writing device.

Forensic Examination

In this hypothetical case, total 17 signatures have been taken for examination. Firstly, signatures were encircled and marked from Q1 to Q17. After inter-se examination of all the signatures, some groups of signatures were formed as these were showing very close resemblance. The groups were categorized in the following manner:

- Group I - Q1 and Q2
- Group II- Q3 and Q4
- Group III - Q5 and Q6
- Group IV- Q7 and Q8
- Group V- Q9, Q10 and Q11
- Group VI- Q12, Q13 and Q14
- Group VII- Q15, Q16 and Q17

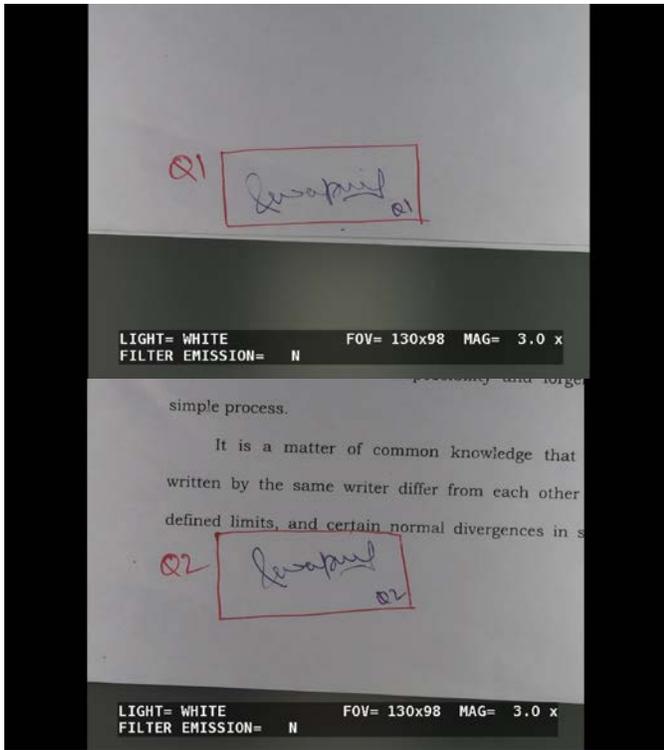


Fig 6: Group I - Q1 and Q2

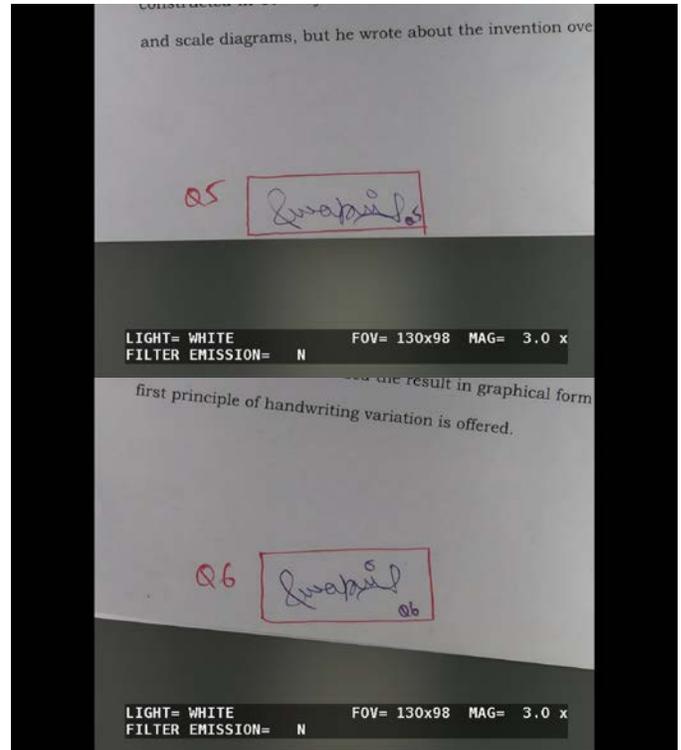


Fig 8: Group III - Q5 and Q6

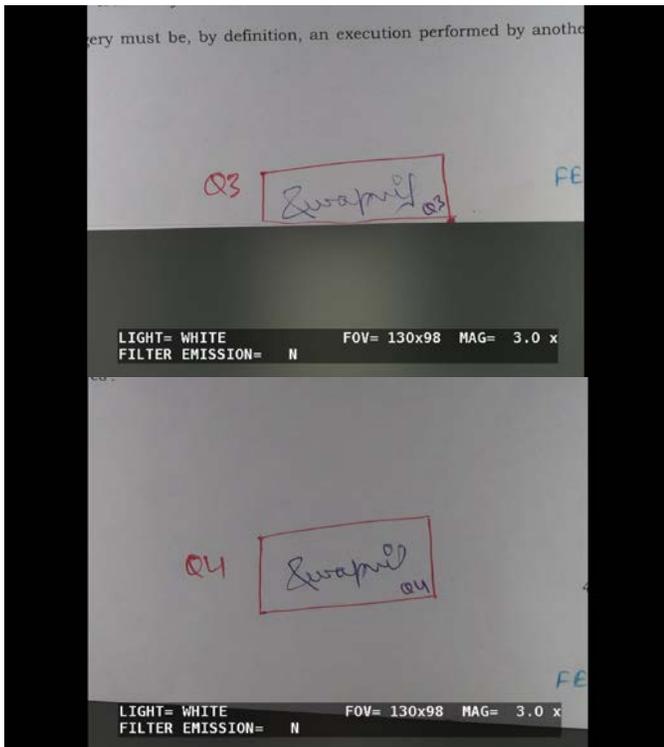


Fig 7: Group II - Q3 and Q4

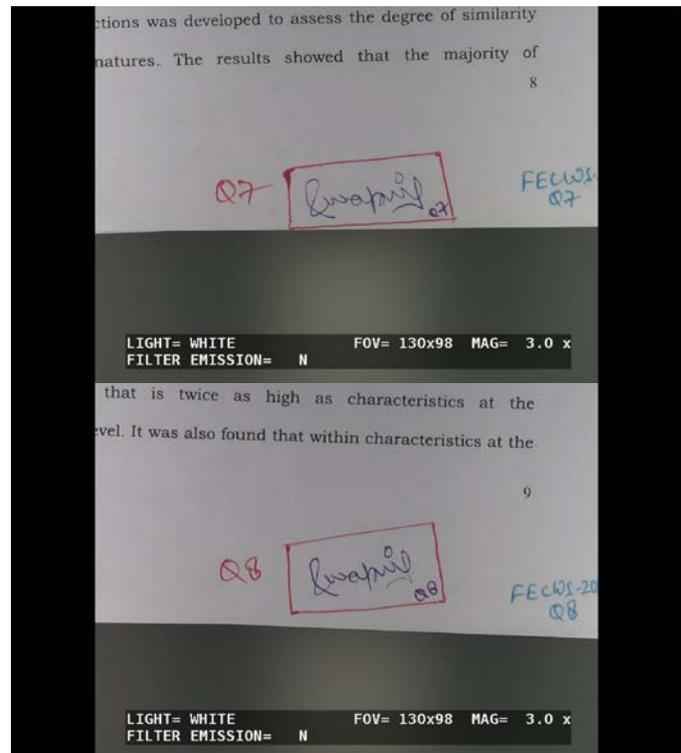


Fig 9: Group IV - Q7 and Q8

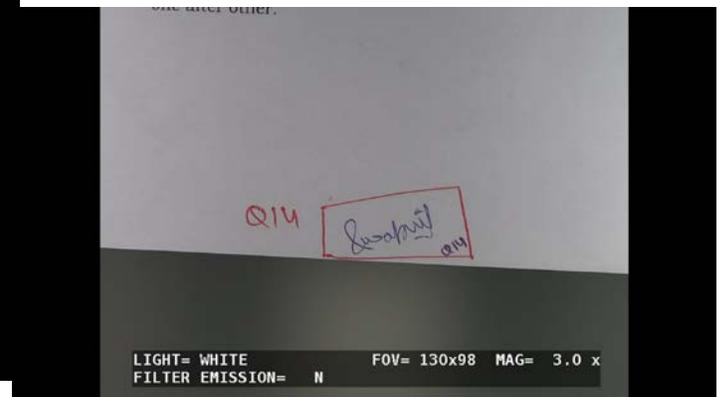
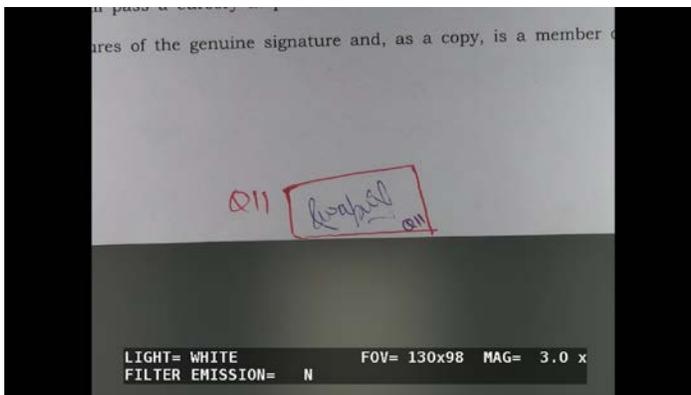
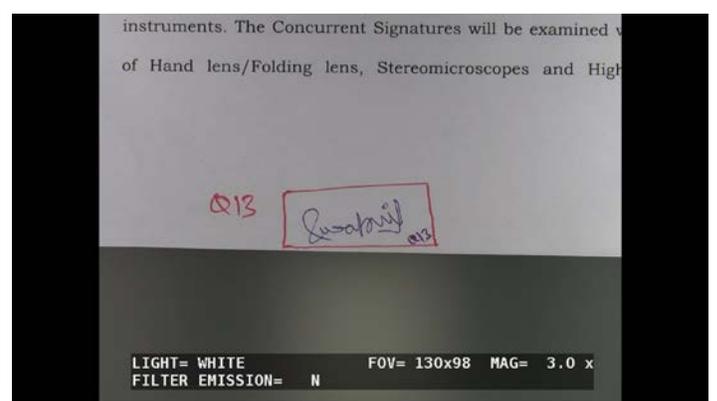
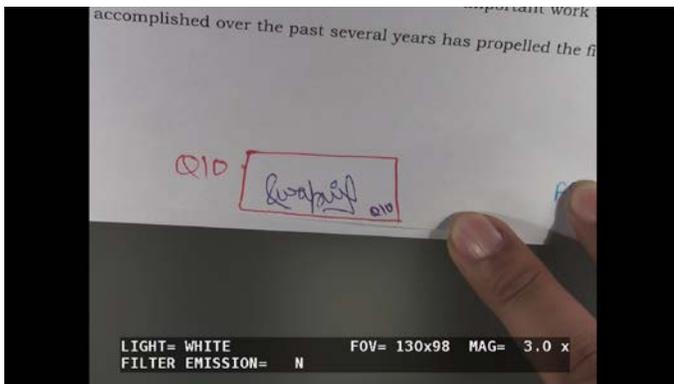
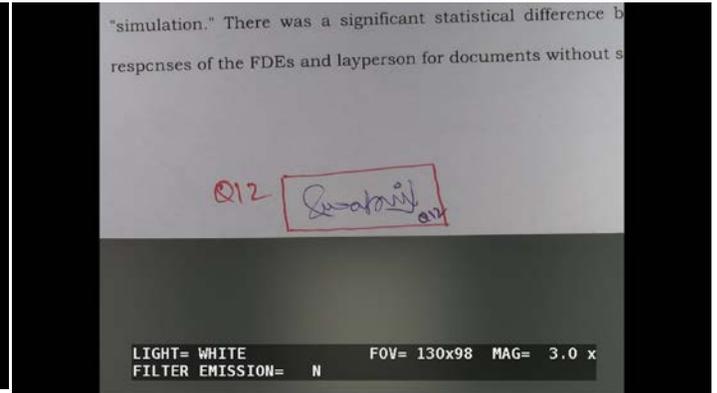
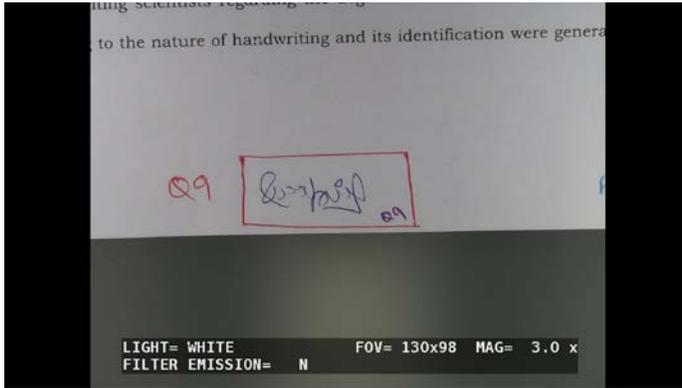


Fig 10: Group V - Q9, Q10 and Q11

Fig 11: Group VI - Q12, Q13 and Q14

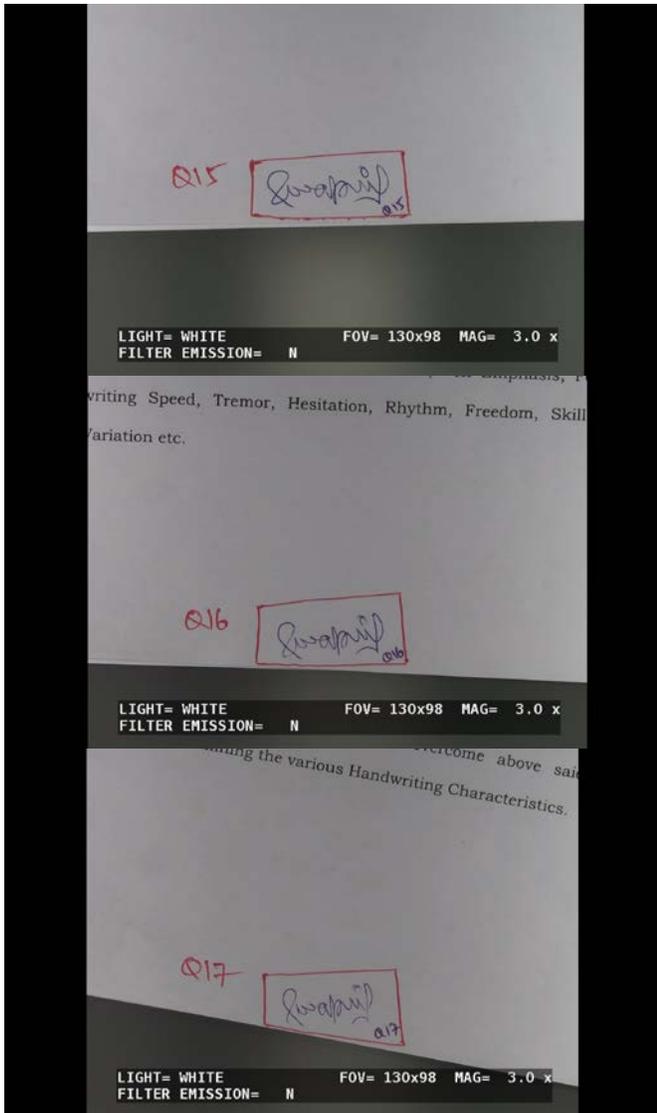


Fig 12: Group VII - Q15, Q16 and Q17

Examination by High Resolution Spectral Comparator

Now days, most of the experts have started to work on some sophisticated instruments, whenever these types of tedious problems are present. As there are some signatures having similar pictorial appearance. So, superimpositions of these signatures have to be performed. The method of superimposition can be performed by various techniques including many instruments. The present work has been carried out by using Docubox HD for the comparison of suspiciously similar signatures.

Docubox HD Projectina offers a new concept allowing comprehensive and systematic examination of documents in field application. Extensive examination

methods combined with efficient handling and operator convenience fulfil the increasing demands for a quick and efficient investigation of travel documents, banknotes and security printed matter, not only in the field, but also in the laboratory. Docubox HD offers comprehensive investigation possibilities in a compact design. It incorporates 14 integrated light sources, motorized 20x zoom optics and IR sensitive colour camera with auto-focus. A variety of monitors are available on request. With the operative software PIA-7 and a Personal Computer or Notebook the Docubox HD is extended to a complete system for documentation, comparison and measuring. The PIA-7 has a remote function to control the Docubox HD via a Personal Computer or Notebook. The Remote Control function can be extended to operate the Docubox HD directly via a local network from your working place. Image data and instrument settings can be stored and retrieved together.

All the seven groups starting from Group I to Group VII were examined with the help of Docubox HD. In case of Group I which includes two signatures, Q1 is superimposed with Q2. In case of Group II, III and IV same procedure was adopted as of Group I. Then in case of Group V which included three signatures, first of all Q9 is superimposed with Q10 and then again Q9 is superimposed with Q1. The similar procedure was adopted for Group VI and VII. Not only the superimposition but also the side by side comparison was performed by this instrument. (Fig 22 & 23), wherein artificial grids were formed for the inter-se comparison of signatures.



Fig 13: Docubox HD

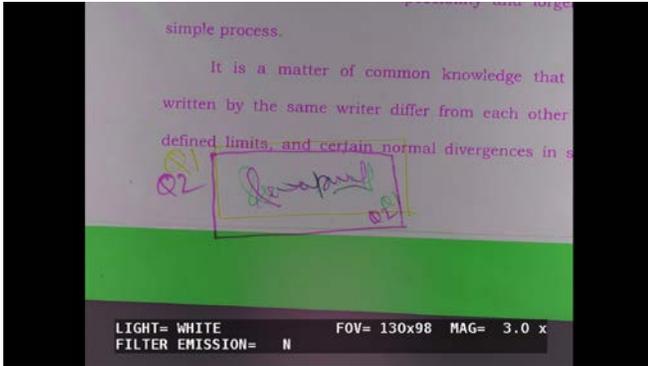


Fig 14: Superimposition of Group I - Q1 with Q2

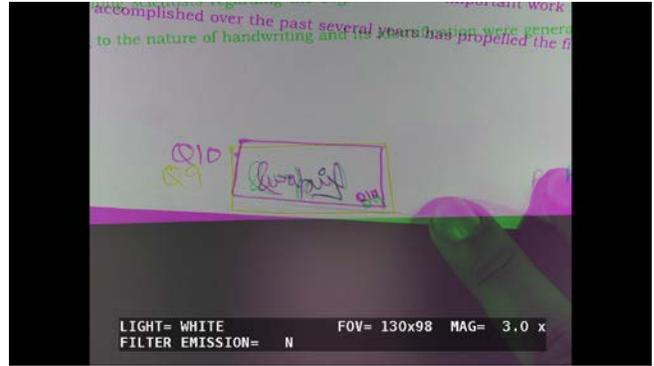


Fig 18: Superimposition of Group V - Q9 with Q10

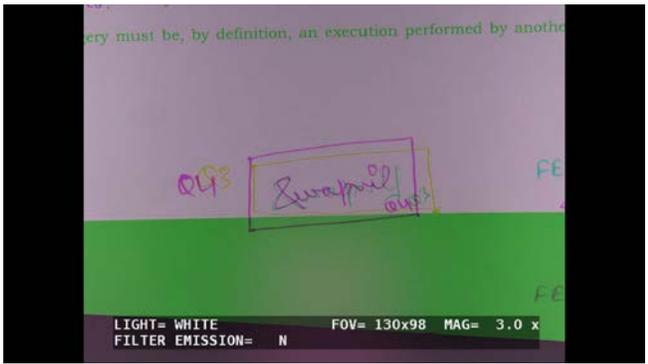


Fig 15: Superimposition of Group II - Q3 with Q4

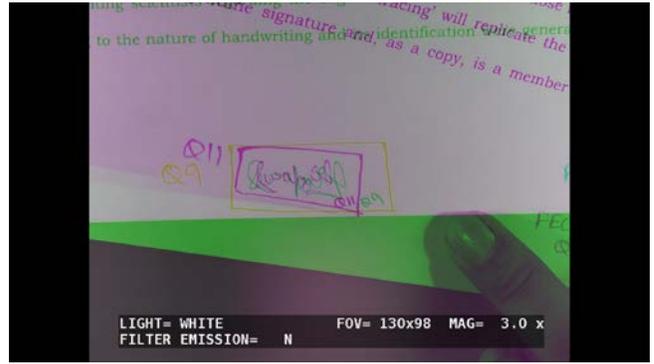


Fig 19: Superimposition of Group V - Q9 with Q11

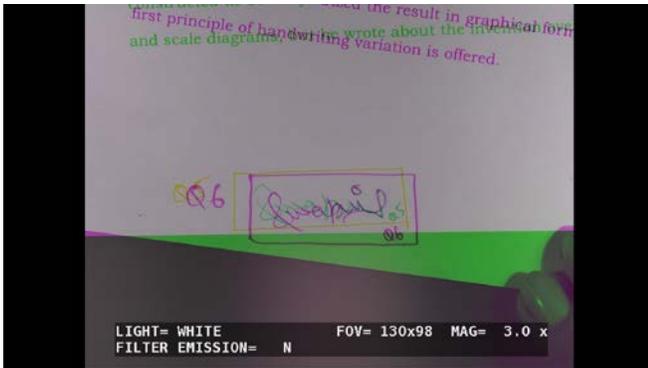


Fig 16: Superimposition of Group III - Q5 with Q6

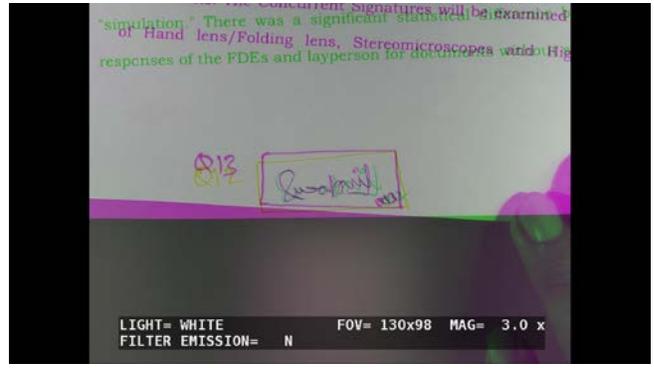


Fig 20: Superimposition of Group VI - Q12 with Q13

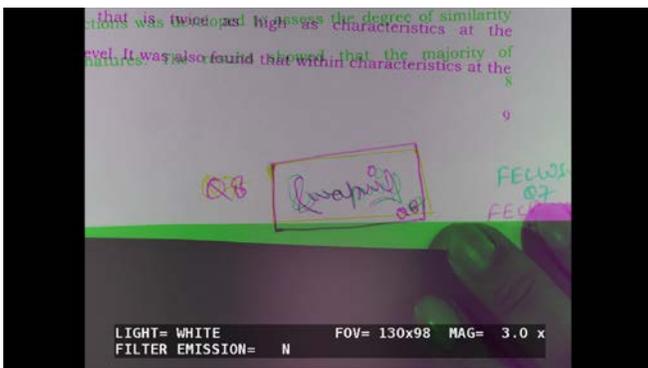


Fig 17: Superimposition of Group IV - Q7 with Q8

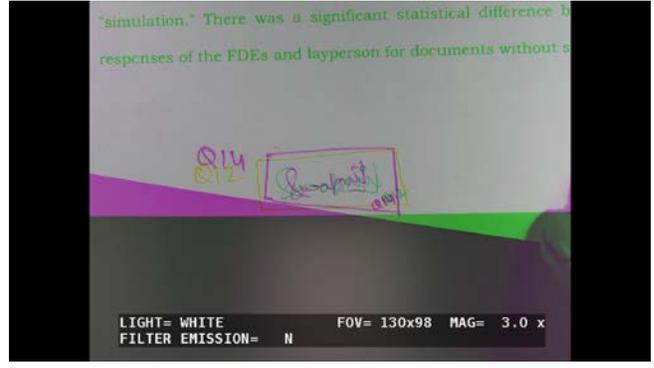


Fig 21: Superimposition of Group VI - Q12 with Q14



Fig 22: Inter-se comparison Q15 with Q16 by Grid

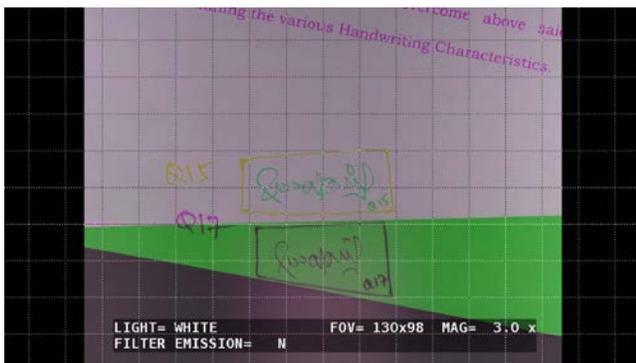


Fig 23: Inter-se comparison Q15 with Q17 by Grid

Conclusion

After examining all the signatures of this particular hypothetical case, authors reached on to the conclusion that these types of suspiciously similar signatures are critical in nature. Hence, only by its superimposition examination, expert should not reach to any conclusion because in such case signatures are originally present in all the sheets. Not only present in original but also shows the signs of genuineness and not of forgery. The case discussed herewith although a hypothetical one but if such cases received in original then that must be a challenge to the whole document examiners community. Therefore all the handwriting characteristics must be examined before expressing any opinion. Certainly, there is an urgent need of research to solve these types of cases of new origin.

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