

202 – Forged Contract

Team Information

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Instructions

Description

As a forensic analyst, you must analyze the contract submitted by the suspect in connection with the case of contract fraud. The complainant claims that he printed and signed the contract, but the submitted contract is partially different from what he remembers. The detective scanned the submitted contract and asked you to make an accurate judgment as to whether it was forged or not, and related information. Analyze the given contract file and answer the following questions.

Target	Hash (MD5)
Contract.pdf	fbcfd9552b49ef7d6c944b422941c723e

Questions

1. Identify forged pages in the given file. (100 points)
2. Provide the time the forged page was printed, and the serial number of the printer used. (100 points)

Teams must:

- Develop and document the step-by-step approach used to solve this problem to allow another examiner to replicate team actions and results.
- Specify all tools used in deriving the conclusion(s).

Tools used:

Name:	Stegsolve.jar	Publisher:	caesum
Version:	-		
URL:	http://www.caesum.com/handbook/Stegsolve.jar		

Step-by-step methodology:

실제 프린트본(종이)을 고화질로 스캔한 pdf파일이 주어집니다. 이미지 자체에 정보가 있을 것으로 판단하여 pdf내 이미지를 png로 추출하여 색조 adjust를 시도했습니다.

색조 adjust를 시도하였을 때 점들이 찍혀 있는 것을 확인할 수 있었으며 원본 이미지에서는 노란색 점으로 확인되었습니다. Printer identification code로 추측됩니다.

해당 노란색 점들을 명확히 추출하기 위해서, 일반적으로 사용하는 UV 라이트나 푸른 빛을 적용시켜 줘야합니다. 이에 16장 전부에 대해 Stegsolve를 사용하여 Blue plane4로 색조 변환을 했습니다.

DISTRIBUTORSHIP AGREEMENT

This Agreement, made and entered into this 1/4/2022 by and between AAA, a corporation duly organized and existing under the laws of the Japan, having its principal office at Tokyo (hereinafter referred to as "COMPANY") and BBB, a corporation duly organized and existing under the laws of the Republic of Korea, having its principal office at Seouli(hereinafter referred to as "Distributor").

Article 1. Definitions

In this Agreement except where the context otherwise requires, the following terms and expressions shall be understood to have the precise meaning as follows:

1.1 Contract Products or Products shall mean the products as follows. COMPANY may modify the design and type of the Contract Products or parts thereof or discontinue any Contract Products, in its sole discretion.

ITEM NO.	SPECIFICATION	etc.
DFT-1	Digital Forensic Tool	

1.2 Territory shall mean Japan, as the parties may from time to time vary upon mutual agreement.

1.3 Without the prior written consent of COMPANY, the Distributor, its subsidiary

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or affiliate shall not, directly and indirectly, sell the Contract Products to any other areas than Territory, nor shall the Distributor sell the Contract Products to any person or entity which may resell them outside the Territory.

Article 2. Appointment and Acceptance

- 2.1. During the term and subject to the conditions hereinafter set forth, COMPANY hereby appoints the Distributor as the sole and exclusive distributor for the Contract Products in the Territory and the Distributor accepts such appointment.
- 2.2. The Distributor shall not, directly or indirectly through another party, purchase, import, export, sell, distribute, or otherwise deal in products competitive with or similar to the Contract Products in the Territory.

Article 3. Orders and Shipment

In placing orders with COMPANY, the Distributor shall clearly describe the Contract Products and quantity required, and shall include precise instruction for packing, invoicing and shipping. The orders shall not be binding unless and until they are accepted by COMPANY in its discretion. COMPANY agrees to supply the Distributor with Contract Product to enable fulfillment of the minimum purchases as set forth in Article 5 herein.

Article 4. Price and Payment

- 4.1. The prices of the Contract Products may be determined mutually by both.

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parties from time to time. If the parties cannot agree on prices COMPANY reserves the right to terminate forthwith this Agreement upon giving a written notice to the Distributor with immediate effect.

4.2. Within 30 days after receipt of COMPANY confirmation of order, the Distributor shall have an irrevocable at sight letter of credit be issued in favor of COMPANY or its nominee by a first class, international bank satisfactory to COMPANY.

4.3. Unless otherwise agreed between the parties, currency of payment shall be in Dollar

4.4. The Distributor shall be liable for and shall pay any tax, duty, charge or any other impost of a similar nature imposed upon COMPANY or the Distributor, in accordance with the laws of the jurisdiction of the Distributor.

4.5. The Distributor shall be free to fix its own resale prices for the Contract Products but shall not set those prices so high as may make them uncompetitive in the Territory including any trade discounts or rebates and shall advise COMPANY of any subsequent changes.

4.6. Unless otherwise agreed in writing all prices quoted by COMPANY shall be for goods delivered on Tyoko basis.

Article 5. Minimum Purchase

5.1. The Distributor shall purchase the Contract Products from COMPANY at least in the following amount:

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	Contract Year	Contract Term	Quantity	Btc
<input checked="" type="radio"/>	First Contract Year	1 year	1000	
<input checked="" type="radio"/>	Second Contract Year	1 year	2000	
<input checked="" type="radio"/>	Third Contract Year	1 year	3000	

5.2. For the purpose of this Article, the Contract Products shall be considered to be purchased when shipped by COMPANY, excluding the sales returned to COMPANY.

Article 6. Technical Assistance

6.1 COMPANY is obligated to supply the Distributor with technical assistance such as, information and illustrated material, and to send advertising material suitable for the promotion and advertising of the Contract Products, as in the opinion of COMPANY may be necessary or useful to the Distributor.

6.2. COMPANY shall train a reasonable number of technical personnel of Distributor in Seoul by consent of both parties, if it becomes necessary due to the introduction of any new products, or generally, in order to achieve better installation and maintenance standards. Costs for round-trips, meals, lodging, and other expenses of the Distributor's personnel dispatched for training shall be borne by the Distributor, and the Distributor shall also bear the above costs and expenses for COMPANY personnel who will train the Distributor's personnel.

6.3. The above technical assistance and materials shall be implemented in the

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English language.

Article 7. Spare Parts

7.1 The Distributor shall keep a sufficient level of spare parts in order to provide efficient after-sales service. COMPANY shall also advise the Distributor of the required spare parts. Any stock will be discussed and mutually agreed upon before orders are placed.

7.2 COMPANY shall supply to the Distributor spare parts for the Contract Products as long as the Distributor continues to purchase the Contract Products pursuant to the terms and conditions of this Agreement and, in the absence of breach by the Distributor of this Agreement, for 3 years after the last shipment of the Contract Products to the Distributor.

7.3 The price for the spare parts shall be agreed on by both parties. With the prior written consent of COMPANY, the Distributor may purchase standard spare parts from COMPANY's suppliers directly for 5 years after the last shipment of Contract Products.

Article 8. Inspection and Warranty

8.1 Promptly after the receipt of the Contract Products, the Distributor shall inspect or shall cause its qualified agent to inspect the Contract Products at the Distributor's cost, to insure that the quality standards have been met as agreed to in writing by the parties. If, upon receipt of the Contract Products after proper and

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thorough inspection, any of the Contract Products is found not to be in compliance with the quality standards, COMPANY shall replace the Contract Product or the part of a Contract Products not meeting the quality standards, and shall indemnify the Distributor against any direct damage incurred actually by the Distributor.

8.2. COMPANY warrants that the Contract Products shall be free from defects in material and workmanship. This warranty does not extend to any of the said Contract Products which have been : (1) subjected to misuse, neglect, accident or abuse, (2) improperly repaired, or altered or modified in any way, and (3) used in violation of instructions furnished by COMPANY.

8.3. Claims by the Distributor in regard to any defect in the Contract Products shall be in writing and be dispatched by the Distributor with full particulars within 30 days after the receipt of the Contract Products.

8.4. The parties agree that the implied warranties of merchantability and fitness for a particular purpose and all other warranties or guarantees, express or implied, are excluded from this transaction and shall not apply for the Contract Products.

Article 9. Distributor's Responsibility

9.1. The Distributor agrees and undertakes to diligently and conscientiously use all reasonable efforts to promote and expand the sale of the products in the Territory, including but not limited to regularly and at its own expense distributing promotional literature, conducting multi media advertising and carrying out market

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surveys.

9.2 The Distributor shall maintain adequate stocks of the Contract Products throughout the Territory to meet its customer's demand in time. The Distributor shall maintain adequate stocks of replacement parts, facilities and qualified mechanics throughout the Territory and shall provide reasonable after-sales service to its customers.

9.3 The Distributor shall take all reasonable steps to ensure that the Products are properly transported, handled and stored so as to prevent any damage thereto.

9.4 The Distributor shall maintain adequate products liability and other appropriate insurance acceptable to the COMPANY, TO protect itself and the COMPANY from claims which may arise as a result of damage to the Products while in the possession or control of the Distributor, and the Distributor shall itself indemnify and save the COMPANY harmless from any claims which may be initiated against the COMPANY as a result of any such damage to the Products to the extent that such are not covered by the said insurance.

9.5 The Distributor shall arrange at its own expense, advertisement and sales promotion of the Contract Products and devote its best efforts toward obtaining the largest sales volume of the Contract Products in the Territory. If necessary, COMPANY supports cooperative advertising executed by COMPANY's Cooperative Advertising Agreement in a separate contract. The form and nature of advertisement and sales promotion of the Contract Products shall be submitted to

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COMPANY for the prior approval before publication and unless COMPANY notifies the Distributor that it does not approve of any advertising or sales literature within 30 days of receipt by COMPANY of details of the same COMPANY shall be deemed to have approved such advertisement or sales promotion.

9.6 Whenever COMPANY shall indicate to the Distributor any complaint concerning the activities of the Distributor under this Agreement, the Distributor shall immediately make investigation and take proper action.

Article 10. Request of Information

The Distributor shall cooperate with COMPANY's request on the sales of the Contract Products, and the Distributor shall send to COMPANY:

- (a) a written quarterly report on its activities in the Territory, such reports to include sales by product including both the value and units, sales by State, recommended retail price lists, advertising and promotion plans for the future and a commentary on the marketing, sales and distribution performance and plans, matters affecting pricing policies and achievements and proposals in respect of major customers;
- (b) A written monthly report on the stocks of the Contract Products and parts thereof held by the Distributor.

Article 11. Trademark

11.1 During the term of this Agreement, COMPANY hereby grants to the

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Distributor, a non-exclusive license to use the Trademark which is registered in the Territory by COMPANY ("Trademark") for the purpose of sales and promotion within the Territory. When the Distributor uses the Trademark, it shall indicate clearly that the Trademark is registered in the name of COMPANY.

11.2 When the Distributor intends to use the Trademark under paragraph 11.1, prior to use, the Distributor shall, inform COMPANY of the manner of such use and submit a sample of any materials including but not limited to, catalogues, leaflets, posters, newspapers, bearing the Trademark for prior inspection and approval by COMPANY. When the Distributor wishes to change the approved use of the Trademark, prior to change the Distributor shall inform COMPANY of the desired change and submit a sample of the materials bearing the altered use of the Trademark for prior inspection and approval by COMPANY. In any event, the manner of use of the Trademark or any change thereof shall be subject to COMPANY's prior approval and the Distributor shall not use the Trademark in any other manner than approved in advance by COMPANY.

11.3 The Distributor recognizes that any of the Trademarks, trade names, designs, copyrights and other proprietary rights, used on or embodied in the Contract Products ("Proprietary Rights") shall remain the exclusive property of COMPANY. The Distributor shall not have or acquire any right, title or interest in Proprietary Rights.

11.4 During the terms of this Agreement or even after termination, the Distributor

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shall not:

- (a) Use the Trademark or similar trademark on any other products than COMPANY's nor let other companies use the Trademark.
- (b) Directly or indirectly apply for the registration of the Trademark or any similar trademark with respect to the Contract Products or any other materials in any country of the world.

11.5 The Distributor may, with the prior written consent of COMPANY, indicate that it is an authorized distributor of the Contract Products.

11.6 When the Distributor finds that a third party infringes or impairs the Trademark or COMPANY's goodwill involved therein, or when a third party brings a claim, suit or action against COMPANY or the Distributor on the ground that the Distributor's use of the Trademark may infringe on the third party's rights, the Distributor shall promptly inform COMPANY thereof and co-operate with COMPANY to settle the problem.

11.7 Upon termination of this Agreement for any cause, the Distributor shall cease holding itself out as a distributor of the Contract Products and cease using, in any way, COMPANY's name, or its Proprietary Rights or any similar material.

11.8 COMPANY, at its discretion, shall have the right to record the existence of the licensee hereunder, or require the Distributor to register as a registered user.

11.9 The Distributor shall not alter, deface, remove, cover or mutilate in any manner the Trademark, serial or model number, brand, or COMPANY's name

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attached or affixed to any of the Contract Products, without the prior written consent of COMPANY.

Article 12. Status of Distributor

12.1 This Agreement does not in any way create the relationship of principal and agent between COMPANY and the Distributor; and under no circumstances shall the Distributor be considered to be the agent of COMPANY. The Distributor shall not act or attempt to act, or represent itself, directly or by implication, as an agent of COMPANY or in any manner assume or create, or attempt to assume or create any obligation, liability, representation, warranty or guaranteed on behalf of, or in the name of COMPANY. The Distributor shall conduct its business in the purchase and resale of the Contract Products as a principal for its own account and at its own expense and risk.

12.2 The Distributor shall, at all times, comply with all applicable laws, regulations, and orders of any government of the Territory or political subdivisions thereof, relating to or in any way affecting this Agreement and the Distributor's performance hereunder, including the obtaining of any required licenses, permits or approvals.

12.3 The Distributor shall not disclose to any third party, without the prior written consent of COMPANY, or use for any purpose other than the performance of its obligations under this Agreement, any confidential information concerning the Contract Product or business affairs of COMPANY (including, but not limited to,

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prices, discounts, terms and conditions of sale, customers, business affairs, Contract Products or Contract Product specifications) which it acquires, or develops in the course of its transactions with COMPANY.

Article 13. Term

13.1 This Agreement shall become effective upon signing, and shall continue in full force and effect for a period of 3 years from the date in the preamble hereof, unless earlier terminated pursuant to Article 14.

13.2 This Agreement shall be automatically extended for a successive 3 year period of time, unless three months prior to the expiration of the term or any extension thereof, a notice of intention to finally terminate is given in writing by one party to the other.

13.3 Upon the extension of this Agreement in accordance with Paragraph 13.2, the minimum purchase amount for such period shall be reviewed and a new minimum purchase shall be mutually agreed upon in writing by the parties within 90 days before the commencement of each new period.

Article 14. Termination

14.1 This Agreement may be terminated at the option of COMPANY, effective immediately upon giving a prior written notice of termination to the Distributor, in each of the following events:

(a) Should the Distributor become bankrupt or insolvent, or have its business

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placed in the hand of a receiver, assignee or trustee, whether by voluntary act or otherwise; or

- (b) Should the Distributor attempt to assign this Agreement or any rights hereunder to a third party without COMPANY's prior written consent; or
- (c) If the Distributor ceases to function as a going concern or to conduct its operations in the normal course of business voluntarily or otherwise; or
- (d) If the Distributor commits a breach of or fails to perform or observe any agreement or conditions herein contained and on the part of the Distributor to be performed or observed, and shall not have remedied such breach or failure to perform or observe within 20 days of a notice requiring the remedy of such breach or failure to perform or observe; or
- (e) Should the Distributor be acquired by, or should itself acquire, in whole or in part, a manufacturer of products which in the reasonable judgment of COMPANY competes to a material extent with the Contract Products;

14.2 Notwithstanding anything contained in this Agreement, either party may terminate this Agreement by a written notice served on the other, effective 3 months from the date of such notice.

14.3 In case the Distributor fails to achieve the minimum purchase requirements as specified in Article 5, for any reasons other than solely and apparently attributable to COMPANY, COMPANY has the right to terminate this Agreement, to request the compensation with respect to all damages, including but not limited to the loss of sales opportunity, express and implied, arising from its non-

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attainment of the minimum requirement and to sell Contract Products directly to any third party in the Territory, notwithstanding the paragraph 1 of the Article 2. Provided,

14.4 However, that, for the compensation to COMPANY subject to this paragraph, both parties recognize that damages arising from the said non-accomplishment by the Distributor would be extremely difficult to compute, but US\$ 1,000,000 represents a reasonable estimate of the damages.

Consequently, if the Distributor breaches or fails to satisfy its duty of minimum purchase requirements, then COMPANY may demand from the Distributor the lump sum

14.5 All payments owed to COMPANY upon termination shall become immediately due and payable and no cancellation or termination of this Agreement shall serve to release the Distributor or its successors or assignees from any obligations under this Agreement.

14.6 In cases of termination of this Agreement by either party for any reason, COMPANY may at its sole option repurchase from the Distributor, at the FOB loading point price paid by the Distributor to COMPANY, plus actual freight paid by the Distributor, any or all Contract Products or parts thereof in the possession of the Distributor.

Article 15. Indemnities

Distributor shall indemnify COMPANY and hold COMPANY harmless from and

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against, and shall defend against, any and all claims and damages of every kind for injury to or death of any person or persons and for damage to or loss of property, arising out of or attributed, directly or indirectly, to the conduct, operations, or performance of Distributor.

Article 16. Governing Law and Arbitration

16.1 This Agreement shall be interpreted and governed by the laws of the Republic of Korea.

16.2 Any dispute arising out of or in connection with this contract shall be finally settled by arbitration in Seoul in accordance with the Arbitration Rules of the Korean Commercial Arbitration Board.

Article 17. Miscellaneous Provisions

17.1 This Agreement constitutes the entire understanding of COMPANY and the Distributor with respect to the subject matter hereof.

17.2 No amendment, modification or alteration of any terms of this Agreement shall be binding on either party unless the same shall be made in writing, dated subsequent to the date hereof and executed by or on behalf of the parties hereto.

17.3 This agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors.

17.4 No assignment of this Agreement shall be valid without the prior written consent of the other party hereto.

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17.5 All waivers hereunder shall be in writing, and the failure of any party at any time to require the other party's performance of any obligations under this Agreement shall not affect the right subsequently to require performance of the obligation. Any waiver of any breach of any provision of this Agreement shall not be construed as a waiver of any continuing or succeeding breach of such provision or a waiver or modification of the provision.

17.6 This Agreement may be executed in English and in other languages (including Korean). In the event of any difference or inconsistency among different versions of this Agreement, the English version shall prevail over in all respect.

IN WITNESS WHEREOF, the parties hereto have authorized this Agreement to be executed by their respective duly authorized officers.

	COMPANY	DISTRIBUTOR
By	[<i>YAMASITA MING</i>]	[<i>Jinshik Jung</i>]
Name	[YAMASITA MING]	[Boko Jung]
Title	[CEO]	[Vice President]
	1 APR 2022	2022. 4. 1

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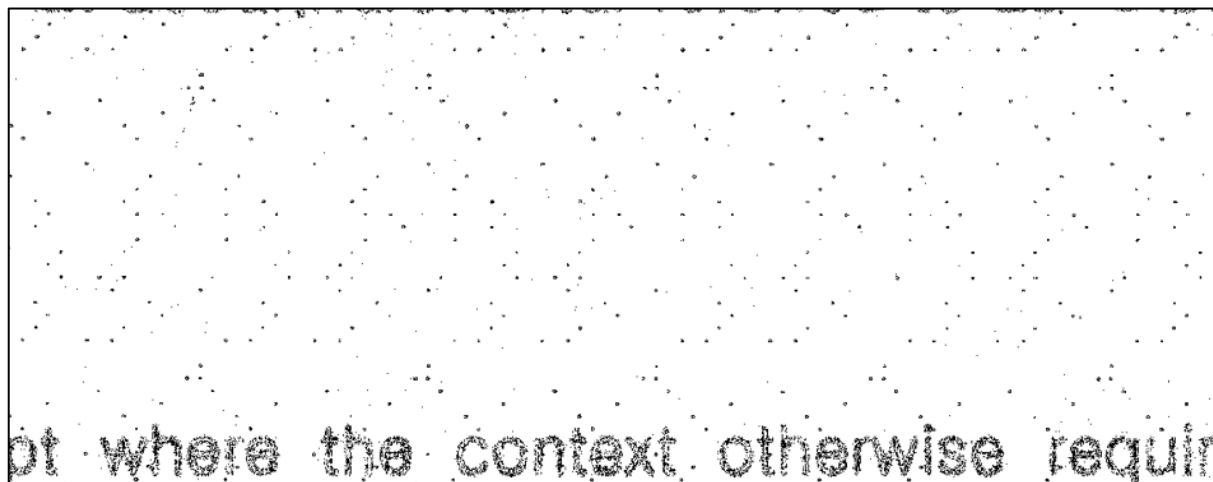
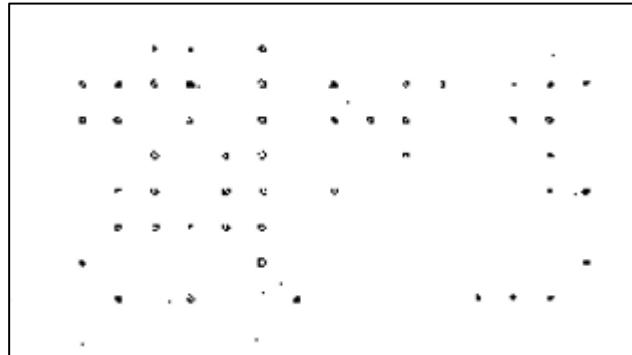


Figure 1: Where the context otherwise requires it

[그림] 1 ~ 13, 15, 16 페이지에 나타난 패턴



[그림] 14페이지에서 나타난 패턴

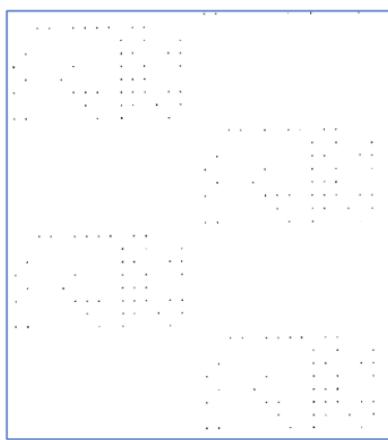


Figure 2: Isolated pattern alignment

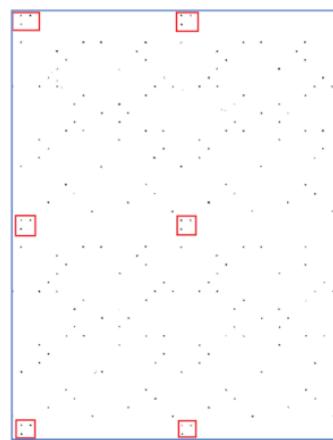


Figure 3: Grid pattern alignment

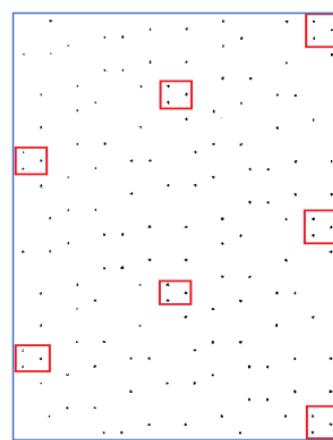
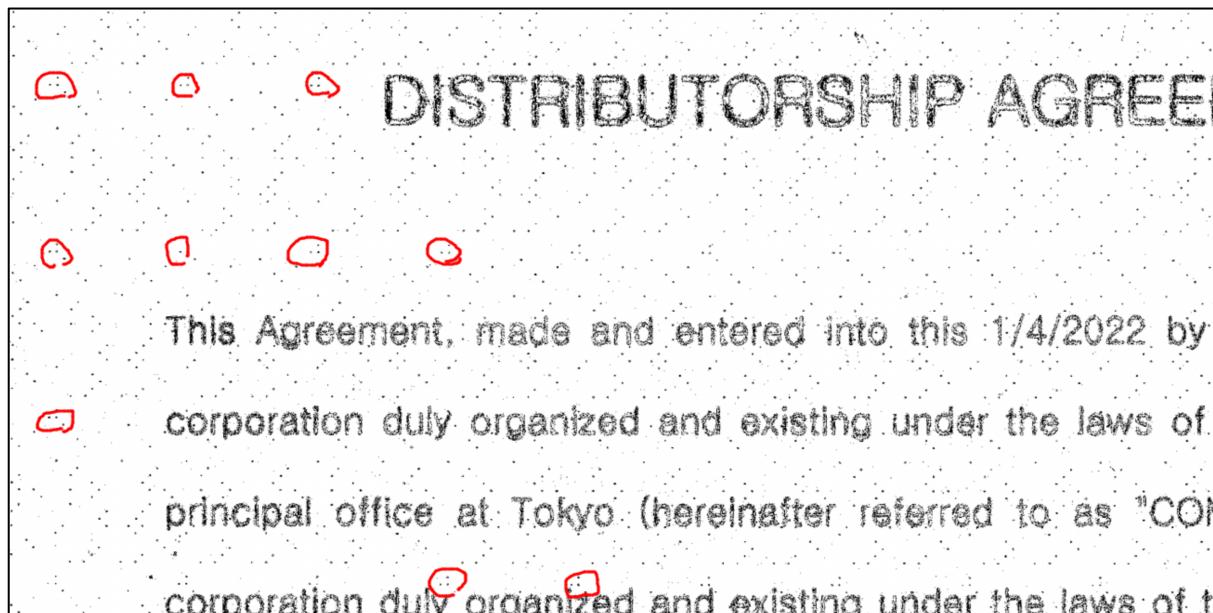


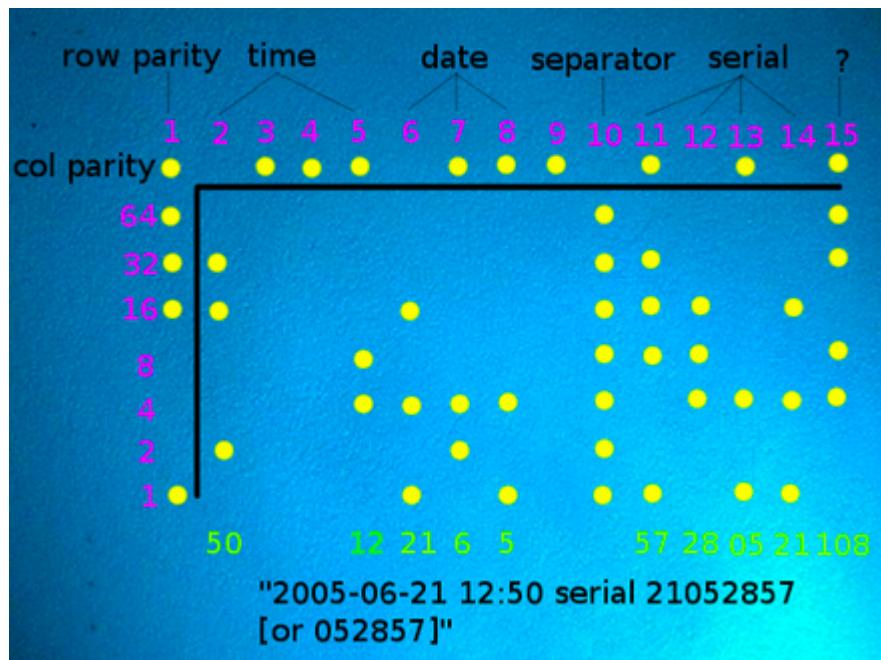
Figure 4: Diagonal pattern alignment

[그림] 패턴 종류



[그림] Grid 패턴 추정 근거

주어진 문서를 분석한 결과, 1~13, 15, 16 페이지는 Grid 패턴, 14페이지는 isolated 패턴으로 확인됩니다. 훌로 다른 패턴을 가지는 14페이지 하나만 패턴이 다르기 때문에 위조된 페이지는 14페이지로 추정 할 수 있다. 또한 14페이지에서 나타난 isolated 패턴에서는 출력된 시각과 프린터의 시리얼 넘버 식별 가능합니다.



[그림] isolated 패턴 해석 예시

14페이지 패턴 해석 과정

행: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

값: _ 30 6 0 2 14 4 22 0 _ 56 39 59 54 70

10행 : printed

11 - 15행 : product number / serial number

70 54 / 59 39 56

70 / 54 59 39 56

6 - 8행 : date 2022-4-14

2 - 5행 : time 02 : 30

페이지가 위조된 시각은 2022-04-14 11:30 (KST)이며, serial number는 593956 또는 54593956입니다. 스캔 된 파일만 가지고는 어떤 방식으로 위조되어 포함되었는지는 정확히 알 수 없으나 계약서 확인 및 싸인 과정에서 한 장 한 장 싸인하지 않아서, 마지막에 최종 싸인 이후 중간에 한 장만 다른 프린터로 출력된 걸로 바꿔 치기 한 것으로 추측됩니다.

References

<https://repository.root-me.org/St%C3%A9ganographie/EN%20-%20Printer-Steganography-Peter-Buck-2018.pdf>