

File: saudia__total_doctored.png SHA-256: 0ef76c82af3c6251... Size: 1653x2337 px Analysed: 2026-05-12 00:28:36
UTC Model: FraudX v2-multi (ResNet-18, ep13, thr=0.08)



VERDICT — High risk

Likely forged

Visual tampering AND a VAT QR discrepancy were both detected.

100%

CNN forgery confidence

Patch CNN: High risk
forgery confidence 100%

VAT QR: Discrepancy
1 QR


Key findings

- Multiple regions show strong evidence of editing.
- Showing the top 5 highest-confidence regions (highest score 100%). 402 of 387 text-bearing regions exceeded the model's threshold overall.
- Edit type predicted across the top 5 regions: 3 x copy-paste edits and 2 x deletions / erasures.
- Targeted fields: 4 x Date / store metadata and 1 x Total / payment lines.
- This file is an exact duplicate of one already analysed in this session.
- VAT QR check: QR total 479.55 SAR not found in receipt OCR (numbers seen: [1.0, 62.55, 417.0, 600.06]...).

VAT QR check

- Saudi Arabian Airlines Corporation · VAT# 300000776210003 · 479.
■ QR total 479.55 SAR not found in receipt OCR (numbers seen: [1.0, 62.55, 417.0, 600.06]...).


Document with suspicion heatmap (red = CNN-flagged)



السعودية Saudia

Simplified Tax Invoice
 فاتورة ضريبية مبسطة

Seller Name : Saudi Arabian Airlines Corporation
Seller Address : 7382
 Prince Saud Alfaisal St.
 Neighborhood : Al Khaldiyyah
 Province / State : Makkah
 City : Jeddah
 Postal Code : 23421
 Additional No : 2229
 Country Code : SA
 VAT Number : 30000776210003
 700 Number : 7000874060



اسم البائع : الخطوط الجوية العربية السعودية
عنوان البائع : 7382
 شارع الأمير سعود الفيصل
 حي : الخالدية
 المحافظة / المنطقة : مكة المكرمة
 المدينة : جدة
 الرمز البريدي : 23421
 الرمز الإضافي : 2229
 رمز البلد : SA
 رقم ضريبة القيمة المضافة : 30000776210003
 رقم الهاتف : 7000874060

Invoice date / التاريخ : 2026-04-09
Invoice Number / رقم الفاتورة : 0652197008888A086113078
Invoice Transaction Code / رمز عملية الفاتورة : 0200000
Ticket Reference Number / الرقم المرجعي للتذكرة : 0652197008888

Description	Quantity	Unit Price	VAT Rate	Subtotal (Inclusive of VAT)
الوصف	كمية	سعر الوحدة	قيمة الضريبة	المجموع الفرعي (شامل ضريبة القيمة المضافة)
		(SAR)		(SAR)
Issuance of Ticket Domestic - 0652197008888A086113078 / إصدار تذكرة محلية	1.00	417.00	15 %	600.06

Summary

	Amount in SAR المبلغ في SAR
Taxable Amount / المبلغ الخاضع للضريبة	417.00
VAT(15%) / ضريبة القيمة المضافة (15%)	62.55
Total Amount Including VAT / المبلغ الإجمالي شامل ضريبة القيمة المضافة	600.06
Payment Due Amount / المبلغ المستحق دفعه	600.06

Top suspicious regions

Each thumbnail is the 128x128 patch fed to the CNN, with its score and predicted edit type / field.

1

الرمز الإضافي : 229
 SA : البلد
 ضريبة القيمة المضافة

100%
CPI

Metadata

2

Jeddah
 Code : 23421
 Additional No : 2229

100%
CUT

Metadata

3

الرمز الإضافي : 2229
 SA : البلد
 رقم ضريبة القيمة المضافة

100%
CPI

Metadata

4

الرمز الإضافي : 2229
 SA : البلد
 رقم ضريبة القيمة المضافة

100%
CUT

Total/payment

5

Additional No : 2229
 Code : SA
 VAT Number : 30000776210003

100%
CPI

Metadata

Approach

ResNet-18 patch classifier (128×128, stride 64) trained on FINDIT2 (Tornes et al., ICDAR 2023). Two auxiliary heads classify the modification technique and the document field affected; the binary backbone is frozen so the headline patch precision (92.25%) is preserved while adding explainability. The image-level fraud score is the top-k mean of patch probabilities over text-bearing regions only (edge density ≥ 0.02). The Saudi VAT QR check validates the ZATCA Phase-1 TLV format and cross-checks the QR's declared totals against pytesseract OCR of the printed receipt body.

Reported numbers vs paper

METRIC	OURS	PAPER
Patch precision	92.25% (this work)	79.41% (paper OH-JPEG)
Patch F1 / AUC	91.79 / 0.97	—
Image-level F1 (top-k)	29.66	28.39 (paper ChatGPT-relaxed)
Mod head test acc	CPI 73 · CUT 100 · IMI 38 · PIX 55 · Other 14	
Entity head test acc	Total/payment 67 · Metadata 47 · Product 27 · Company 24	

Raw model output

- Patches scored: 900 Text-rich: 387 Flagged ≥ 0.08 : 402
- Top-k mean fraud score: 0.9995 CNN risk: HIGH Duplicate: 1.00 (exact_duplicate)
- Patch CNN flagged 402 of 387 text-rich patches (top score 1.00).
- Top 5 suspicious regions clustered around image coordinates (1344,768), (192,704), (1280,704), (1408,768), (192,768).
- Predicted modification mix across top regions: 3× CPI, 2× CUT.
- Predicted entity types: 4× Metadata, 1× Total/payment.
- Document is an EXACT duplicate of a file already analysed in this session (resubmission).

ZATCA QR — decoded fields & full check list

seller_name: ██████████ ██████████ ██████████ ██████████|Saudi Arabian Airlines Corporation
vat_number: 300000776210003
timestamp: 2026-04-09T21:17:16
total: 479.55
vat: 62.55

[PASS] payload decodes

Base64 + TLV well-formed; 9 tag(s) found.

[PASS] all mandatory tags present

Tags 1 (seller), 2 (VAT#), 3 (timestamp), 4 (total), 5 (VAT) all present.

[PASS] VAT number format

300000776210003 — 15 digits, starts and ends with 3.

[PASS] timestamp valid

2026-04-09T21:17:16Z (parses as ISO 8601).

[PASS] amounts numeric

Total 479.55 SAR · VAT 62.55 SAR.

[PASS] VAT \leq total

VAT amount does not exceed invoice total.

[PASS] VAT rate \approx 15%

Implied rate 15.00% (± 2 pp tolerance from 15%).

[PASS] seller name on receipt

'██████████ ██████████ ██████████ ██████████|Saudi Arabian Airlines Corporation' identifying tokens found in OCR'd receipt text (token overlap 100%).

[FAIL] invoice total matches receipt

QR total 479.55 SAR not found in receipt OCR (numbers seen: [1.0, 62.55, 417.0, 600.06]...).

[PASS] VAT amount matches receipt

QR VAT 62.55 SAR appears in the receipt OCR.