Collaborative Testing Services, Inc
FORENSIC TESTING PROGRAM

Footwear Imprint Evidence
Test No. 17-5331/2/5 Summary Report

This test was sent to 261 participants. Each sample pack contained either digitally produced photographs (17-5331), a DVD with digital images (17-5332), or directly downloadable digital images (17-5335) of seven questioned imprints and photographs of two suspect shoe soles and test imprints made with those shoes. Participants were requested to compare the imprints from the crime scene with the suspect shoes and report their findings. Data were returned by 215 participants (82% response rate): 154 for 17-5331, 40 for 17-5332, and 21 for 17-5335 and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample pack consists of nine photographs. One photograph (K1a) shows the soles of the two suspect shoes lit from above. Two photographs (K1b and K1c) show the suspect soles lit with oblique lighting on the heels and toes, respectively. Four photographs (K1d, K1e, K1f and K1g) show known imprints made with the suspect shoes. Two photographs contain images of the seven questioned imprints, Q1-Q4 in the first photograph and Q5-Q7 in the second photograph. Participants were asked to compare the suspect shoe soles and their known imprints with the questioned imprints to determine if any associations or identifications could be established.

SAMPLE PREPARATION -
The shoes used in this test had been worn frequently over the course of three months. Once the shoes were no longer worn, the soles were cleaned of any debris with water and paper towels. The owner of the suspect shoes wore them to produce the known imprints on K1f and K1g.

KNOWN IMPRINTS (K1d-K1g): Known imprints were created by coating the sole of each suspect shoe with ink and producing individual imprints on white paper. The imprints on K1d and K1e were created by rolling the toe and heel areas of each shoe separately. The heels were placed above their respective toes to distinguish the imprints from those on K1f and K1g. The imprints on K1f and K1g were produced by walking across paper targets while wearing the suspect shoes.

QUESTIONED IMPRINTS (Q1-Q7): Questioned imprints Q1-Q7 were created by coating the sole of each shoe (see table below) with fingerprint ink and having the wearer of each pair of shoes walk across the substrates.

SAMPLE PACK ASSEMBLY -
Once verification was complete and sample preparation was done, each photo set was placed into a pre-labeled sample pack envelope, sealed with evidence tape, and initialed with "CTS." Each DVD was checked to ensure all images were accessible. Digital download media were provided in a zipped file uploaded to the CTS portal.

VERIFICATION -
Laboratories that conducted the predistribution examination of the images associated imprint Q7 with the suspect's left shoe and associated imprints Q2 and Q5 with the suspect's right shoe. They eliminated imprints Q1, Q3, Q4, and Q6.

Imprints	Shoe Type	Manufacturer	Left/Right	Size (U.S.)
Q1, Q6	Athletic shoe (images not provided)	Saucony	Left	7.5
Q3, Q4	Athletic shoe (images not provided)	Saucony	Right	7.5
Q2, Q5	Athletic shoe (Suspect shoe K1)	Saucony	Right	9
Q7	Athletic shoe (Suspect shoe K1)	Saucony	Left	9

Summary Comments

This test was designed to allow participants to assess their proficiency with footwear imprint examination. Test material consisted of two photographs containing seven questioned footwear imprints (Q1-Q7), a photograph of the two suspect shoe soles (K1a), two photographs of oblique lighted images of the same soles (K1b-K1c), and four photographs of inked exemplar imprints made with the shoes (K1d-K1g). Participants were requested to determine if any of the questioned imprints were made by the suspect shoes, utilizing a seven-point conclusion scale. Two of these imprints (Q2, Q5) were made by the suspect right shoe; one imprint (Q7) was made by the suspect left shoe. The remaining four imprints were made by two other shoes (Refer to the Manufacturer's Information for preparation details).

Of the 215 responding participants, 205 (95%) reported the associations and non-associations consistent with the consensus and expected results. For those imprints that were associated with the known shoes (K1), all responses of association (A-D) were tallied together. For those imprints that were not associated with the known shoes, all responses of non-association (F-G) were tallied together. Overall, most participants were confident to report an Identification (A) or Exclusion (G) for all seven questioned items; Item Q5 had the lowest reported percentage of Identifications (86.5%), with 12.5% reporting only a High Degree of Association (B).

Of those ten participants found to be outliers, there were a variety of reasons for this categorization. Six participants reported an Association (C) or Limited Association (D) between a known shoe and a questioned print that was not associated. One of these six also identified Q7 with the known shoes, but misidentified the left/right orientation of the print. One participant eliminated the known shoes as the source of Q7. One participant identified Q5 with the known shoes, but misidentified the left/right orientation of the print. One participant gave an Inconclusive (E) response for all prints that were not associated with the known shoes; this did not align with the written conclusions section for this participant. Finally, one participant did not report their answers in the requested manner, and as such, no conclusions could be drawn from their results.

Several participants commented on difficulty of comparison due to insufficient lighting in the oblique light photographs (K1b and K1c). Although the lighting issues were not intentional, CTS recognizes the limitations this may have caused for some participants. The challenge of this test was not meant to be derived from the quality of suspect shoe photographs. Although CTS is limited in the number and variety of oblique shots that can be reasonably provided to participants, measures will be taken in future tests to best capture wear and damage characteristics in these photos. The quality of the oblique shots did not appear to hinder participants from reaching expected conclusions.

The introduction of a larger, seven-point conclusion scale to the test was offered as a means to allow examiners to use terminology published by a recognized authority in the impression discipline (SWGTREAD). It also allows for those labs who will not make a definite determination without actual footwear to better represent their conclusions. As this scale still includes the conclusions previously offered in the test, those who do not use the SWGTREAD conclusions scale did not need to modify their reporting methods.

Examination Results

Indicate the results of your comparisons of the suspect shoes with the questioned imprints

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
2BHAJ3-5331	G	A (R)	G	G
2N7GCW-5331	G (L)	A (R)	G (R)	G (R)
2WXUDH-5335	G	A (R)	G	G
3CBP7J-5331	G	A (R)	G	G
3D2NKG-5331	G	A (R)	G	G
3G6GG2-5331	G (L)	A (R)	G (R)	G (R)
3K334X-5331	G	A (R)	G	G
3LVW4M-5331	G	A (R)	G	G
3QU4VE-5331	F (F)	F (A)	F (F)	F (F)
3TGURA-5331	G	A (R)	G	G
3TYVFX-5331	G	A (R)	G	G
3ZXFMZ-5331	G	A (R)	G	G
434ZBZ-5331	G	A (R)	G	G
47HPNG-5331	G	A (R)	G	G
4897GP-5331	G	A (R)	G	G
4J73NX-5331	G	A (R)	G	G
69MNKV-5335	G	A (R)	G	G
6AFJ3X-5331	G	A (R)	G	G
6EBDYE-5331	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
6L4WRT-5331	G	A (R)	G	G
6MGKCT-5331	G	A (R)	G	G
6NYA2Z-5331	G	A (R)	G	G
6RVT4Y-5335	G	A (R)	G	C (R)
6U2DRY-5335	G	A (R)	G	G
6UL289-5331	G (L)	A (R)	G (R)	G (R)
6UNQDQ-5331	G	A (R)	G	G
6W9T6W-5332	G	A (R)	G	G
77D8HH-5331	G	A (R)	G	G
79DFK8-5331	G	A (R)	G	G
79F6QP-5331	G	A (R)	G	G
7B4JDE-5331	G	A (R)	G	G
7JHJVW-5331	G	A (R)	G	G
86CT7A-5332	G	A (R)	G	G
8B2322-5331	G	A (R)	G	G
8BXMLF-5331	G	A (R)	G	G
8BZG2E-5331	G (L)	A (R)	G (R)	G (R)
8N7869-5332	G	A (R)	G	G
8NLN3L-5331	G (L)	A (R)	G (R)	G (R)
8P24D3-5331	G (L)	A (R)	G (R)	G (R)
8P24HB-5332	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
8WFWKR-5332	G	A (R)	G	G
9BFVCV-5331	G	A (R)	G	G
9BJDEZ-5332	G	A (R)	G	G
9JBVMG-5331	G	A (R)	G	G
9JQGWH-5332	G	A (R)	G	G
9NFWJ6-5331	G	A (R)	G	G
9NHLPM-5331	G	A (R)	G	G
9R3KXP-5331	G	A (R)	G	G
9VKKEQ-5331	G	A (R)	G	G
A3HKDJ-5332	G	A (R)	G	G
A8AUJB-5332	F	A (R)	F	F
AJPNYB-5331	G	A (R)	G	G
APUENV-5331	G	A (R)	G	G
ATWGAQ-5331	G	A (R)	G	G
AVXMMB-5331	G	A (R)	G	G
AYK46W-5331	G	A (R)	G	G
B3EH6Q-5331	G	A (R)	G	G
B3HZ8V-5332	G	A (R)	G	G
BF2P3R-5331	G	A (R)	G	G
BRTGKB-5331	G	A (R)	G	G
BVUGMT-5332	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
BYCJRD-5335	G	A (R)	G	G
CCXBR8-5331	G	A (R)	G	G
CH3XZA-5331	G	A (R)	G	G
CL6VDN-5331	G	A (R)	G	G
CND2YP-5331	G	A (R)	G	G
CPNX93-5331	G (L)	A (R)	G (R)	G (R)
CUG87F-5332	G	A (R)	G	G
CWNH7P-5331	G	A (R)	G	G
CYB4V7-5331	G	A (R)	G	G
D2UKNB-5331	G	A (R)	G	G
D4Z6CB-5331	G	A (R)	G	G
DA8CA3-5332	G	A (R)	G	G
DMEH7M-5335	F	A (R)	F	F
DTLN4E-5331	G	A (R)	G	G
DUFE88-5331	G (L)	A (R)	G (R)	G (R)
EC8Z9P-5331	G	A (R)	G	G
EJR3D7-5331	G	A (R)	G	G
EPWYYR-5331	G	A (R)	G	G
FCPBLN-5331	G	A (R)	G	G
FCPD6Z-5331	G	A (R)	G	G
FJNXAG-5331	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
FKZP9P-5335	G	A (R)	G	G
FLV9EZ-5331	D (R)	B (R)	C (R)	C (R)
FMRNMN-5331	G	A (R)	G	G
FVY92D-5332	G	A (R)	G	G
G6YFV4-5331	G	A (R)	G	G
G8RBHC-5335	G	A (R)	G	G
GBPQCT-5331	G	A (R)	G	G
GEP24M-5331	G	A (R)	G	G
GH8498-5331	G	A (R)	G	G
GHBJNT-5331	D (L)	A (R)	G (R)	G (R)
GJKQQL-5331	G	A (R)	G	G
GKDNW8-5331	G	A (R)	G	G
GTRA7B-5332	G	A (R)	G	G
GW82UJ-5331	G	A (R)	G	G
GXNYN4-5331	G	A (R)	G	G
GXZVU9-5331	G	A (R)	G	G
GYW9EF-5331	F (L)	A (R)	F (R)	F (R)
H3U6LL-5335	G	A (R)	G	G
H7C64M-5331	G	A (R)	G	G
H9YTG9-5331	G	A (R)	G	G
HBP3DW-5332	D (L)	B (R)	D (R)	D (R)

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
HCZW7A-5332	G	A (R)	G	G
HPL9GX-5332	E	A (R)	E	E
J8KWBW-5332	G	A (R)	G	G
J8LW7N-5335	G	A (R)	G	G
JMDG4B-5331	G	A (R)	G	G
JTLUUM-5332	G	A (R)	G	G
JURG3K-5331	G	A (R)	G	G
K3ZF7U-5335	G (L)	A (R)	G (R)	G (R)
KFAUQ2-5331	G	A (R)	G	G
KGKV9U-5332	G	A (R)	G	G
KHVVCF-5332	G	B (R)	G	G
KMM6H8-5335	G	A (R)	G	G
KTECZF-5332	G	A (R)	G	G
KTYQQE-5331	G	A (R)	G	G
KXTRRT-5331	G	A (R)	G	G
KZUQ67-5332	G	A (R)	G	G
KZX9CH-5331	G	A (R)	G	G
L2NZDE-5331	G (L)	A (R)	G (R)	G (R)
L4VAPK-5331	G	A (R)	G	G
LCBQJF-5331	G	A (R)	G	G
LHVXWD-5332	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
LJ66Z7-5332	G	A (R)	G	G
LLCFWA-5332	G	A (R)	G	C (R)
LP97ZZ-5331	G	A (R)	G	G
LWRA83-5331	G	A (R)	G	G
LXQBFF-5331	G	A (R)	G	G
M3FEFX-5331	G	A (R)	G	G
M7DWDP-5331	G	A (R)	G	G
MQ2ENB-5331	G	A (R)	G	G
MQK4AC-5331	G	A (R)	G	G
MW7ZWD-5331	G (L)	B (R)	G (R)	G (R)
NRCJWT-5331	G	A (R)	G	G
NXGKV2-5331	G	A (R)	G	G
NXXDUQ-5332	F (L)	A (R)	F (R)	F (R)
P8XLU8-5331	G	A (R)	G	G
P9CV2M-5331	G	A (R)	G	G
P9EK96-5331	G (L)	A (R)	G (R)	G (R)
PDA88K-5331	G	A (R)	G	G
PLLJZC-5332	G	A (R)	G	G
PRQ8VY-5335	G	A (R)	G	G
PTMM7B-5331	G	A (R)	G	G
PZ2QT4-5335	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
Q294EB-5331	G	A (R)	G	G
Q6M48W-5335	G	A (R)	G	G
Q8TDD8-5331	G	A (R)	G	G
Q9B9DN-5332	G	A (R)	G	G
Q9TGWB-5332	G	A (R)	G	G
QAJKQH-5332	G	A (R)	G	G
QHZ2F7-5332	G	A (R)	G	G
QLWU6U-5331	G	A (R)	G	G
QNZHQC-5331	G	A (R)	G	G
QZWHFA-5332	G	A (R)	G	G
R264PV-5331	G	A (R)	G	G
R9QYQY-5331	G	A (R)	G	G
RGMPFF-5332	G	A (R)	G	G
RNHT3P-5331	G	A (R)	G	G
T3XFM8-5331	G	A (R)	G	G
T47GWM-5331	G	A (R)	G	G
T9GN27-5331	G	A (R)	G	G
TBCZBD-5331	G	A (R)	G	G
TC29EM-5335	G (L)	A (R)	G (R)	G (R)
TVWWR4-5331	G	A (R)	G	G
TWRHGN-5331	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
U2XND7-5331	G	A (R)	G	G
U79T3K-5331	F (L)	A (R)	F (R)	F (R)
UAAWTM-5332	G	A (R)	G	G
UCDM2M-5331	G	A (R)	G	G
UELXV6-5331	G	A (R)	G	G
UHMNHK-5335	G	A (R)	G	G
UHPDP3-5331	G	A (R)	G	G
UK9RQH-5331	G (L)	C (R)	G (R)	G (R)
UKBGWZ-5335	G	A (R)	G	G
URW4BD-5335	G	A (R)	G	G
UWK4Y6-5331	G	A (R)	G	G
UWLPZR-5331	G	A (R)	G	G
V42QUV-5331	G	A (R)	G	G
VD7XAV-5331	G	A (R)	G	G
VHVHBP-5331	G	A (R)	G	G
VHWAAX-5331	G	A (R)	G	G
VKME36-5331	G	A (R)	G	G
VLZ36G-5331	G	A (R)	G	G
WJR3W4-5332	G	A (R)	G	G
WR3CAN-5331	G	A (R)	G	G
WU764M-5331	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

	Questioned Imprints			
WebCode-Test	Q1	Q2	Q3	Q4
WUWZU6-5331	G	A (R)	G	G
WXTJW4-5331	G	A (R)	G	G
WY3PCD-5331	G (L)	B (R)	G (R)	G (R)
X2M8KN-5331	G	A (R)	G	G
X8VGXC-5335	G	A (R)	G	G
XDER3Z-5331	G	A (R)	G	G
XEC3ZN-5331	G	A (R)	G	G
XFNR88-5331	G	A (R)	G	G
XGJBDG-5331	F	B (R)	D (R)	F
XGYE4Z-5331	G	A (R)	G	G
XJ47TT-5331	G	A (R)	G	G
XRHVRZ-5331	G	A (R)	G	G
Y94V3W-5331	G (L)	A (R)	G (R)	G (R)
YDWZV2-5331	G	A (R)	G	G
YGW7B8-5331	G	A (R)	G	G
YLVFPG-5331	G	A (R)	G	G
YRRLTG-5332	G	A (R)	G	G
YWP2MX-5331	G	A (R)	G	F
Z3RAPJ-5331	G	A (R)	G	G
ZCKMPJ-5331	G	A (R)	G	G
ZCVP9W-5331	G	A (R)	G	G

TABLE 1a *(Shipping Box)*

Questioned Imprints				
WebCode-Test	Q1	Q2	Q3	Q4
ZGDPQX-5331	G	A (R)	G	G
ZJGHMH-5332	G	A (R)	G	G
ZJKX24-5332	G	A (R)	G	G
ZMYMEK-5331	G	A (R)	G	G
ZP7VN6-5331	G	A (R)	G	G
ZUZU32-5331	G	A (R)	G	G
ZX2XPG-5335	G	A (R)	G	G

Response Summary

Participants: **215**

Responses	Q1	Q2	Q3	Q4
Identification (A)	**0** *(0.0%)*	**207** *(96.3%)*	**0** *(0.0%)*	**0** *(0.0%)*
High Degree of Ass'n. (B)	**0** *(0.0%)*	**6** *(2.8%)*	**0** *(0.0%)*	**0** *(0.0%)*
Association (C)	**0** *(0.0%)*	**1** *(0.5%)*	**1** *(0.5%)*	**3** *(1.4%)*
Limited Ass'n. (D)	**3** *(1.4%)*	**0** *(0.0%)*	**2** *(0.9%)*	**1** *(0.5%)*
Inconclusive (E)	**1** *(0.5%)*	**0** *(0.0%)*	**1** *(0.5%)*	**1** *(0.5%)*
Non-Association (F)	**7** *(3.3%)*	**1** *(0.5%)*	**6** *(2.8%)*	**8** *(3.7%)*
Exclusion (G)	**204** *(94.9%)*	**0** *(0.0%)*	**205** *(95.3%)*	**202** *(94.0%)*

Examination Results

Indicate the results of your comparisons of the suspect shoes with the questioned imprints

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
2BHAJ3-5331	A (R)	G	A (L)
2N7GCW-5331	A (R)	G (L)	A (L)
2WXUDH-5335	A (R)	G	A (L)
3CBP7J-5331	A (R)	G	A (L)
3D2NKG-5331	A (R)	G	A (L)
3G6GG2-5331	A (R)	G (L)	A (L)
3K334X-5331	A (R)	G	A (L)
3LVW4M-5331	A (R)	G	A (L)
3QU4VE-5331	F (A)	F (F)	A (F)
3TGURA-5331	A (R)	G	A (L)
3TYVFX-5331	A (R)	G	A (L)
3ZXFMZ-5331	A (R)	G	A (L)
434ZBZ-5331	A (R)	G	A (L)
47HPNG-5331	A (R)	G	A (L)
4897GP-5331	A (R)	G	A (L)
4J73NX-5331	A (R)	G	A (L)
69MNKV-5335	A (R)	G	A (L)
6AFJ3X-5331	A (R)	G	A (L)
6EBDYE-5331	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
6L4WRT-5331	A (R)	G	A (L)
6MGKCT-5331	A (R)	G	A (L)
6NYA2Z-5331	A (R)	G	A (L)
6RVT4Y-5335	B (R)	G	A (L)
6U2DRY-5335	A (R)	G	A (L)
6UL289-5331	A (R)	G (L)	A (L)
6UNQDQ-5331	A (R)	G	A (L)
6W9T6W-5332	A (R)	G	A (L)
77D8HH-5331	A (R)	G	A (L)
79DFK8-5331	B (R)	G	B (L)
79F6QP-5331	A (R)	G	A (L)
7B4JDE-5331	A (R)	G	A (L)
7JHJVW-5331	A (R)	G	A (L)
86CT7A-5332	A (R)	G	A (L)
8B2322-5331	A (R)	G	A (L)
8BXMLF-5331	A (R)	G	A (L)
8BZG2E-5331	A (R)	G (L)	A (L)
8N7869-5332	A (R)	G	B (L)
8NLN3L-5331	A (R)	G (L)	A (L)
8P24D3-5331	B (R)	G (L)	A (L)
8P24HB-5332	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
8WFWKR-5332	A (R)	G	A (L)
9BFVCV-5331	A (R)	G	A (L)
9BJDEZ-5332	A (R)	G	A (L)
9JBVMG-5331	A (R)	G	A (L)
9JQGWH-5332	A (R)	G	A (L)
9NFWJ6-5331	A (R)	G	A (L)
9NHLPM-5331	A (R)	G	A (L)
9R3KXP-5331	A (R)	G	A (L)
9VKKEQ-5331	A (R)	G	A (L)
A3HKDJ-5332	A (R)	G	A (L)
A8AUJB-5332	A (R)	F	A (L)
AJPNYB-5331	A (R)	G	A (L)
APUENV-5331	A (R)	G	A (L)
ATWGAQ-5331	A (R)	G	A (L)
AVXMMB-5331	A (R)	G	A (L)
AYK46W-5331	A (R)	G	A (L)
B3EH6Q-5331	A (R)	G	A (L)
B3HZ8V-5332	A (R)	G	A (L)
BF2P3R-5331	A (R)	G	A (L)
BRTGKB-5331	A (R)	G	A (L)
BVUGMT-5332	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
BYCJRD-5335	A (R)	G	A (L)
CCXBR8-5331	A (R)	G	A (L)
CH3XZA-5331	A (R)	G	A (L)
CL6VDN-5331	B (R)	G	A (L)
CND2YP-5331	A (R)	G	A (L)
CPNX93-5331	A (R)	G (L)	A (L)
CUG87F-5332	A (R)	G	A (L)
CWNH7P-5331	A (R)	G	A (L)
CYB4V7-5331	A (R)	G	A (L)
D2UKNB-5331	A (R)	G	A (L)
D4Z6CB-5331	A (R)	G	A (L)
DA8CA3-5332	A (R)	G	A (L)
DMEH7M-5335	A (R)	F	A (L)
DTLN4E-5331	A (R)	G	A (L)
DUFE88-5331	A (R)	G (R)	B (L)
EC8Z9P-5331	A (R)	G	B (L)
EJR3D7-5331	A (R)	G	A (L)
EPWYYR-5331	A (R)	G	A (L)
FCPBLN-5331	B (R)	G	A (L)
FCPD6Z-5331	A (R)	G	A (L)
FJNXAG-5331	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
FKZP9P-5335	B (R)	G	A (L)
FLV9EZ-5331	B (R)	D (L)	D (R)
FMRNMN-5331	A (R)	G	A (L)
FVY92D-5332	B (R)	G	A (L)
G6YFV4-5331	A (R)	G	A (L)
G8RBHC-5335	A (R)	G	A (L)
GBPQCT-5331	A (R)	G	B (L)
GEP24M-5331	A (R)	G	A (L)
GH8498-5331	A (R)	G	A (L)
GHBJNT-5331	A (R)	G (L)	A (L)
GJKQQL-5331	A (R)	G	A (L)
GKDNW8-5331	A (R)	G	A (L)
GTRA7B-5332	A (R)	G	A (L)
GW82UJ-5331	A (R)	G	A (L)
GXNYN4-5331	A (R)	G	A (L)
GXZVU9-5331	A (R)	G	A (L)
GYW9EF-5331	A (R)	G (L)	A (L)
H3U6LL-5335	A (R)	G	A (L)
H7C64M-5331	A (R)	G	A (L)
H9YTG9-5331	A (R)	G	A (L)
HBP3DW-5332	B (R)	D (L)	B (L)

TABLE 1b *(Store Tile)*

Questioned Imprints			
WebCode-Test	Q5	Q6	Q7
HCZW7A-5332	A (R)	G	A (L)
HPL9GX-5332	A (R)	E	A (L)
J8KWBW-5332	A (R)	G	A (L)
J8LW7N-5335	B (R)	G	B (L)
JMDG4B-5331	A (R)	G	A (L)
JTLUUM-5332	A (R)	G	A (L)
JURG3K-5331	A (R)	G	A (L)
K3ZF7U-5335	B (R)	G (L)	B (L)
KFAUQ2-5331	A (R)	G	A (L)
KGKV9U-5332	A (R)	G	A (L)
KHVVCF-5332	B (R)	G	B (L)
KMM6H8-5335	A (R)	G	A (L)
KTECZF-5332	A (R)	G	A (L)
KTYQQE-5331	A (R)	G	A (L)
KXTRRT-5331	A (R)	G	A (L)
KZUQ67-5332	A (R)	G	A (L)
KZX9CH-5331	A (R)	G	A (L)
L2NZDE-5331	A (R)	G (L)	A (L)
L4VAPK-5331	B (R)	G	A (L)
LCBQJF-5331	A (R)	G	A (L)
LHVXWD-5332	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
LJ66Z7-5332	A (R)	G	A (L)
LLCFWA-5332	A (R)	F	A (L)
LP97ZZ-5331	A (R)	G	A (L)
LWRA83-5331	A (R)	G	A (L)
LXQBFF-5331	A (R)	G	A (L)
M3FEFX-5331	A (R)	G	A (L)
M7DWDP-5331	A (R)	G	A (L)
MQ2ENB-5331	A (R)	G	A (L)
MQK4AC-5331	A (R)	G	A (L)
MW7ZWD-5331	B (R)	G (L)	B (L)
NRCJWT-5331	A (R)	G	A (L)
NXGKV2-5331	A (R)	G	A (L)
NXXDUQ-5332	A (R)	F (L)	A (L)
P8XLU8-5331	A (R)	G	A (L)
P9CV2M-5331	B (R)	G	A (L)
P9EK96-5331	A (R)	G (L)	A (L)
PDA88K-5331	B (R)	G	A (L)
PLLJZC-5332	A (R)	G	A (L)
PRQ8VY-5335	A (R)	G	A (L)
PTMM7B-5331	A (R)	G	A (L)
PZ2QT4-5335	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
Q294EB-5331	A (R)	G	A (L)
Q6M48W-5335	A (R)	G	A (L)
Q8TDD8-5331	A (R)	G	A (L)
Q9B9DN-5332	A (R)	G	A (L)
Q9TGWB-5332	A (R)	G	A (L)
QAJKQH-5332	B (R)	G	A (L)
QHZ2F7-5332	A (R)	G	A (L)
QLWU6U-5331	A (R)	G	A (L)
QNZHQC-5331	A (R)	G	A (L)
QZWHFA-5332	A (R)	G	B (L)
R264PV-5331	A (R)	G	A (L)
R9QYQY-5331	A (R)	G	A (L)
RGMPFF-5332	A (R)	G	A (L)
RNHT3P-5331	A (R)	G	A (L)
T3XFM8-5331	A (R)	G	A (L)
T47GWM-5331	A (R)	G	A (L)
T9GN27-5331	A (R)	G	A (L)
TBCZBD-5331	A (R)	G	A (L)
TC29EM-5335	A (R)	G (L)	A (L)
TVWWR4-5331	A (R)	G	A (L)
TWRHGN-5331	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

Questioned Imprints			
WebCode-Test	Q5	Q6	Q7
U2XND7-5331	A (R)	G	A (L)
U79T3K-5331	B (R)	G (L)	B (L)
UAAWTM-5332	B (R)	G	A (L)
UCDM2M-5331	A (R)	G	A (L)
UELXV6-5331	A (R)	G	A (L)
UHMNHK-5335	B (R)	G	A (L)
UHPDP3-5331	A (R)	G	A (L)
UK9RQH-5331	C (R)	G (L)	G (L)
UKBGWZ-5335	B (R)	G	A (L)
URW4BD-5335	A (R)	G	A (L)
UWK4Y6-5331	A (R)	G	A (L)
UWLPZR-5331	A (R)	G	A (L)
V42QUV-5331	A (R)	G	A (L)
VD7XAV-5331	A (R)	G	A (L)
VHVHBP-5331	A (R)	G	A (L)
VHWAAX-5331	A (R)	G	A (L)
VKME36-5331	A (R)	G	A (L)
VLZ36G-5331	A (R)	G	A (L)
WJR3W4-5332	A (R)	G	A (L)
WR3CAN-5331	A (R)	G	A (L)
WU764M-5331	A (R)	G	A (L)

TABLE 1b *(Store Tile)*

	Questioned Imprints		
WebCode-Test	Q5	Q6	Q7
WUWZU6-5331	A (R)	G	A (L)
WXTJW4-5331	A (R)	G	A (L)
WY3PCD-5331	B (R)	G (L)	A (L)
X2M8KN-5331	A (R)	G	A (L)
X8VGXC-5335	A (R)	G	A (L)
XDER3Z-5331	A (R)	G	A (L)
XEC3ZN-5331	A (R)	G	A (L)
XFNR88-5331	B (R)	G	A (L)
XGJBDG-5331	B (R)	F	B (L)
XGYE4Z-5331	A (R)	G	A (L)
XJ47TT-5331	A (R)	G	A (L)
XRHVRZ-5331	A (R)	G	A (L)
Y94V3W-5331	A (R)	G (L)	A (L)
YDWZV2-5331	A (R)	G	A (L)
YGW7B8-5331	A (R)	G	A (L)
YLVFPG-5331	A (R)	G	A (L)
YRRLTG-5332	B (R)	G	B (L)
YWP2MX-5331	A (R)	G	A (L)
Z3RAPJ-5331	A (R)	G	A (L)
ZCKMPJ-5331	B (R)	G	A (L)
ZCVP9W-5331	A (R)	F	A (L)

TABLE 1b *(Store Tile)*

Questioned Imprints			
WebCode-Test	Q5	Q6	Q7
ZGDPQX-5331	A (R)	G	A (L)
ZJGHMH-5332	A (R)	G	A (L)
ZJKX24-5332	A (L)	G	A (L)
ZMYMEK-5331	B (R)	G	A (L)
ZP7VN6-5331	A (R)	G	A (L)
ZUZU32-5331	A (R)	G	A (L)
ZX2XPG-5335	A (R)	G	A (L)

Response Summary

Participants: **215**

Responses	Q5	Q6	Q7
Identification (A)	**186** *(86.5%)*	**0** *(0.0%)*	**199** *(92.6%)*
High Degree of Ass'n. (B)	**27** *(12.6%)*	**0** *(0.0%)*	**14** *(6.5%)*
Association (C)	**1** *(0.5%)*	**0** *(0.0%)*	**0** *(0.0%)*
Limited Ass'n. (D)	**0** *(0.0%)*	**2** *(0.9%)*	**1** *(0.5%)*
Inconclusive (E)	**0** *(0.0%)*	**1** *(0.5%)*	**0** *(0.0%)*
Non-Association (F)	**1** *(0.5%)*	**7** *(3.3%)*	**0** *(0.0%)*
Elimination (G)	**0** *(0.0%)*	**205** *(95.3%)*	**1** *(0.5%)*

Examination Results

TABLE 1c - Complete Results

Response Summary Participants: **215**

Response s	Q1	Q2	Q3	Q4
Identification (A)	**0** *(0.0%)*	**207** *(96.3%)*	**0** *(0.0%)*	**0** *(0.0%)*
High Degree of Ass'n. (B)	**0** *(0.0%)*	**6** *(2.8%)*	**0** *(0.0%)*	**0** *(0.0%)*
Association (C)	**0** *(0.0%)*	**1** *(0.5%)*	**1** *(0.5%)*	**3** *(1.4%)*
Limited Ass'n. (D)	**3** *(1.4%)*	**0** *(0.0%)*	**2** *(0.9%)*	**1** *(0.5%)*
Inconclusive (E)	**1** *(0.5%)*	**0** *(0.0%)*	**1** *(0.5%)*	**1** *(0.5%)*
Non-Association (F)	**7** *(3.3%)*	**1** *(0.5%)*	**6** *(2.8%)*	**8** *(3.7%)*
Elimination (G)	**204** *(94.9%)*	**0** *(0.0%)*	**205** *(95.3%)*	**202** *(94.0%)*

Response s	Q5	Q6	Q7
Identification (A)	**186** *(86.5%)*	**0** *(0.0%)*	**199** *(92.6%)*
High Degree of Ass'n. (B)	**27** *(12.6%)*	**0** *(0.0%)*	**14** *(6.5%)*
Association (C)	**1** *(0.5%)*	**0** *(0.0%)*	**0** *(0.0%)*
Limited Ass'n. (D)	**0** *(0.0%)*	**2** *(0.9%)*	**1** *(0.5%)*
Inconclusive (E)	**0** *(0.0%)*	**1** *(0.5%)*	**0** *(0.0%)*
Non-Association (F)	**1** *(0.5%)*	**7** *(3.3%)*	**0** *(0.0%)*
Elimination (G)	**0** *(0.0%)*	**205** *(95.3%)*	**1** *(0.5%)*

Conclusions

TABLE 2

WebCode-Test	Conclusions
2BHAJ3-5331	Item 8 One partial left shoe impression labeled “Q1, found on a shipping box in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 8, the partial left shoe impression labeled "Q1, found on a shipping box in the store", to the suspect's left shoe did not reveal similar class characteristics or corresponding individualizing characteristics. The suspect's left shoe is eliminated as the source for item 8. Item 9 One right shoe impression labeled “Q2, found on a shipping box in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 9, the right shoe impression labeled "Q2, found on a shipping box in the store", to the suspect's right shoe revealed similar class characteristics and corresponding individualizing characteristics. Level 1 association. Item 10 One partial right shoe impression labeled “Q3, found on a shipping box in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 10, the partial right shoe impression labeled "Q3, found on a shipping box in the store", to the suspect's right shoe did not reveal similar class characteristics or corresponding individualizing characteristics. The suspect's right shoe is eliminated as the source for item 10. Item 11 One partial right shoe impression labeled “Q4, found on a shipping box in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 11, the partial right shoe impression labeled "Q4, found on a shipping box in the store", to the suspect's right shoe did not reveal similar class characteristics or corresponding individualizing characteristics. The suspect's right shoe is eliminated as the source for item 11. Item 12 One partial right shoe impression labeled “Q5, found in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 12, the partial right shoe impression labeled "Q5, found in the store", to the suspect's right shoe revealed similar class characteristics and corresponding individualizing characteristics. Level 1 association. Item 13 One left shoe impression labeled “Q6, found in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 13, the left shoe impression labeled "Q4, found in the store", to the suspect's left shoe did not reveal similar class characteristics or corresponding individualizing characteristics. The suspect's left shoe is eliminated as the source for item 13. Item 14 One partial left shoe impression labeled “Q7, found in the store”. Examined visually and with 1 to 1 photographic overlays. Comparison of item 14, the partial left shoe impression labeled "Q7, found in the store", to the suspect's left shoe revealed similar class characteristics and corresponding individualizing characteristics. Level 1 association.
2N7GCW-5331	The footwear impressions in Items Q2 and Q5 were made by the right shoe in Item K1. The footwear impression in Item Q7 was made by the left shoe in Item K1. The right shoe impressions in items Q3 and Q4 are of a different size than the footwear impressions made by the right shoe in item K1. Therefore, the Q3 and Q4 impressions were not made by the right shoe in item K1. The left shoe impressions in items Q1 and Q6 are of a different size than the footwear impressions made by the left shoe in item K1. Therefore, the Q1 and Q6 impressions were not made by the left shoe in item K1.
2WXUDH-5335	The footwear impressions Q1 – Q7 all had generally similar outsole designs. These footwear impressions were compared to the photos of the recovered K1 shoes with the following results: Impressions Q2 and Q5 corresponded in outsole design, physical size, and general wear to the K1 right shoe. In addition, several randomly acquired characteristics also corresponded between the impressions and the right shoe. In my opinion, the K1 right shoe made the Q2 and Q5 impressions and another item of footwear being the source of these impressions is considered a practical impossibility. Impression Q7 corresponded in outsole design, physical size, and general wear to the K1 left shoe. In addition, three randomly acquired characteristics also corresponded between the impression and the left shoe. In my opinion, the K1 left shoe made the Q7 impression and another item of footwear being the source of this impression is considered a practical impossibility. The impressions Q1, Q3, Q4, and Q6 did not correspond in outsole design to either the K1 right or left shoe. In my opinion, the K1 shoes were not the source of, and did not make, these impressions.

TABLE 2

WebCode-Test	Conclusions
3CBP7J-5331	[No Conclusions Reported.]
3D2NKG-5331	The Items Q1, Q2, Q3, Q4, Q5, Q6 and Q7 questioned footwear impressions were analyzed, compared and evaluated with the Item K1 known footwear. The Item Q1 questioned footwear impression does not correspond in physical size with the Item K1 right/left shoes. The Item Q2 questioned footwear impression corresponds in tread design, physical size, general wear and accidental characteristics with the Item K1 right shoe. The Item Q3 questioned footwear impression does not correspond in physical size with the Item K1 right/left shoes. The Item Q4 questioned footwear impression does not correspond in physical size with the Item K1 right/left shoes. The Item Q5 questioned footwear impression corresponds in tread design, physical size, general wear and accidental characteristics with the Item K1 right shoe. The Item Q6 questioned footwear impression does not correspond in physical size with the Item K1 right/left shoes. The Item Q7 questioned footwear impression corresponds in tread design, physical size, general wear and accidental characteristics with the Item K1 left shoe. Based upon the above factors, it is the opinion of this examiner that the Item K1 right shoe was the source of, and made the Items Q2 and Q5 questioned footwear impressions. The combination of characteristics observed between the Items Q2 and Q5, questioned footwear impressions, and the Item K1 right shoe occurring from another source is considered a practical impossibility. The Item K1 left shoe was the source of, and made the Item Q7 questioned footwear impression. The combination of characteristics observed between the Item Q7, questioned footwear impression, and the Item K1 left shoe occurring from another source is considered a practical impossibility. The Items Q1, Q3, Q4 and Q6 questioned footwear impressions share a high degree of non-association with the Items K1 right/left shoes. The Items Q1, Q3, Q4 and Q6 questioned footwear impressions were not made by the Items K1 right/left shoes. All conclusions listed herein have been verified by a second qualified latent print examiner.
3G6GG2-5331	In a first step all the questioned items were checked for class association. All Scene of crime prints show the same class characteristics. In the next step the prints were given a closer look, with the result, that the following items could be excluded (as possibly been made by printmaker K1): Q1, Q3, Q4, Q6 same pattern as K1 but different shoe size and wear: Therefore EXCLUSION. CONCLUSION Q2, Q5, Q7 = There is high degree of association or evidence beyond doubt (Identification), that the afore mentioned Q-Prints were made /caused by one of the soles of the suspect shoes K1 (class association and enough individualizing characteristics or wear).
3K334X-5331	The following impressions were observed on the shipping box: A partial left heel impression (Q1) observed on this item is consistent in tread design but different in relative size and wear pattern to the known left shoe from the suspect. It is my opinion this impression was not made by the suspect's left shoe (Category 5). A right shoe impression (Q2) observed on this item is consistent in tread design, relative size and shares at least two randomly acquired characteristics with the known right shoe from the suspect. It is my opinion this impression was made by the suspect's right shoe (Category 1). A partial right toe impression (Q3) observed on this item is consistent in tread design but different in relative size and wear pattern to the known right shoe from the suspect. It is my opinion this impression was not made by the suspect's right shoe (Category 5). A partial right shoe impression (Q4) observed on this item is consistent in tread design but different in relative size and wear pattern to the known right shoe from the suspect. It is my opinion this impression was not made by the suspect's right shoe (Category 5). The following impressions were observed on the ceramic tile: A partial right heel impression (Q5) observed on this item is consistent in tread design, relative size and shares at least two randomly acquired characteristics with the known right shoe from the suspect. It is my opinion this impression was made by the suspect's right shoe (Category 1). A left shoe impression (Q6) observed on this item is consistent in tread design but different in relative size and wear pattern to the known left shoe from the suspect. It is my opinion this impression was not made by the suspect's left shoe (Category 5). A partial left shoe impression (Q7) observed on this item is consistent in tread design, relative size and shares at least two randomly acquired characteristics with the known left shoe from the suspect. It is my opinion this impression was made by the suspect's left shoe (Category 1).

TABLE 2

WebCode-Test	Conclusions
3LVW4M-5331	Per our QA Manual no report is required for proficiency tests.
3QU4VE-5331	It was determined utilizing side by side and overlay techniques of comparison that the Q1, Q3, Q4 and Q6 partial footwear impressions were not created by the known footwear. It was determined utilizing side by side and overlay techniques of comparison that Q2 and Q5 were positively made by the known right shoe. It was determined utilizing side by side and overlay techniques of comparison that Q7 was positively made by the known left shoe.
3TGURA-5331	Impressions Q2, Q5, and Q7 correspond in general outsole design, physical size, and areas of damage to the pair of K shoes. Accordingly, impressions Q2, Q5, and Q7 were made by the K shoes. Impressions Q1, Q3, Q4, and Q6 correspond in general outsole design to the pair of K shoes. However, differences in design element spacing and wear were found between the K shoes and these impressions. As a result of these differences, it was determined that impressions Q1, Q3, Q4, and Q6 were not made by the K shoes.
3TYVFX-5331	The results of the examination provide conclusive support for the proposition that two of the submitted marks were made by the right shoe and one by the left. The remaining marks were not made by the submitted footwear.
3ZXFMZ-5331	It is the opinion of the examiner that the track depicted in Laboratory Item (001.B.01) (Q1), questioned imprint found on a shipping box in the store was not made by item 001.A, the Saucony brand women's size 9 shoes, recovered from the subject. Sufficient differences were noted in the physical size and shape and in the individual characteristics between the questioned imprint and the known footwear. It is the opinion of the examiner that the track depicted in Laboratory Item (001.B.02) (Q2), questioned imprint found on a shipping box in the store was made by item 001.A, the Saucony brand women's size 9 right shoe, recovered from the subject. It is the opinion of the examiner that the track depicted in Laboratory Item (001.B.03) (Q3), questioned imprint found on a shipping box in the store was not made by item 001.A, the Saucony brand women's size 9 shoes, recovered from the subject. Sufficient differences were noted in the physical size and shape and in the individual characteristics between the questioned imprint and the known footwear. It is the opinion of the examiner that the track depicted in Laboratory Item (001.B.04) (Q4), questioned imprint found on a shipping box in the store was not made by item 001.A, the Saucony brand women's size 9 shoes, recovered from the subject. Sufficient differences were noted in the physical size and shape and in the individual characteristics between the questioned imprint and the known footwear. It is the opinion of the examiner that the track depicted in Laboratory Item (001.C.01) (Q5), questioned imprint found in the store was made by item 001.A, the Saucony brand women's size 9 right shoe, recovered from the subject. It is the opinion of the examiner that the track depicted in Laboratory Item (001.C.02) (Q6), questioned imprint found in the store was not made by item 001.A, the Saucony brand women's size 9 shoes, recovered from the subject. Sufficient differences were noted in the physical size and shape and in the individual characteristics between the questioned imprint and the known footwear. It is the opinion of the examiner that the track depicted in Laboratory Item (001.C.03) (Q7), questioned imprint found in the store was made by item 001.A, the Saucony brand women's size 9 left shoe, recovered from the subject.
434ZBZ-5331	The questioned impressions (Q2 and Q5) were made by the right shoe (K1). The right shoe revealed significant similarities in class characteristics such as tread design and physical dimension, as well as corresponding general condition of wear, specific wear and random accidental characteristics to conclude these questioned impressions were made by this known right shoe. The questioned impression (Q7) was made by the left shoe (K1). The left shoe revealed significant similarities in class characteristics such as tread design and physical dimension, as well as corresponding general condition of wear, specific wear and random accidental characteristics to conclude that this questioned impression was made by this known left shoe. Visual examination and comparison of four of the questioned impressions (Q1, Q3, Q4 and Q6) with the known shoes (K1) reveals they are dissimilar with respect to tread design. Therefore, it is concluded that the shoes did not make the questioned impressions.

TABLE 2

WebCode-Test	Conclusions
47HPNG-5331	The questioned imprints, identified "Q2, Q5" were made by the right suspect shoes, identified "R". The questioned imprint, identified Q7 was made by the left suspect shoe, identified "L". The questioned imprints, identified Q1, Q3, Q4, Q6 were NOT made by suspect shoes identifed "R" or "L".
4897GP-5331	The submitted images and known impressions of the suspect shoes (K1a-K1g) were examined and compared to the questioned impressions visible in Q1-Q7. Q2 and Q5 correspond to the known right shoe in tread pattern, tread size, tread wear, and individual characteristics including scratches and nicks in the surface. Thus, Q2 and Q5 were made by the known right shoe. Q7 corresponds to the known left shoe in tread pattern, tread size, tread wear, and individual characteristics including scratches and nicks in the surface. Thus, Q7 was made by the known left shoe. Q1 corresponds to the known left shoe in tread pattern and tread size, however, they are different in tread wear and individual characteristics. Thus, Q1 could not have been made by the known shoes. Q3 and Q4 correspond to the known right shoe in tread pattern, however, they are different in tread size, tread wear, and individual characteristics. Thus, Q3 and Q4 could not have been made by the known shoes. Q6 corresponds to the known left shoe in tread pattern, however, they are different in tread size and individual characteristics. Thus, Q6 could not have been made by the known shoes.
4J73NX-5331	Q1, Q3, Q4, Q6 The K1 right and left shoes were excluded as the source of impressions Q1, Q3, Q4, and Q6 due to differences in physical size and wear (extent of erosion on the outsole). Q2, Q5 Impressions Q2 and Q5 exhibited similar physical size, tread design (design elements and patterns), wear, and accidental/individual characteristics (randomly acquired cuts, scratches, tears, holes, etc) when compared with the right K1 shoe. It was therefore determined that the right K1 shoe was the source of impressions Q2 and Q5 from the crime scene. Q7 Impression Q7 exhibited similar physical size, tread design, wear, and accidental/individual characteristics when compared with the left K1 shoe. It was therefore determined that the left K1 shoe was the source of impression Q7 from the crime scene.
69MNKV-5335	I visually examined the submitted photos, using Adobe® Photoshop® CS4 to adjust the images and produce digital overlays. Based on differences in size and elements, the known shoes were eliminated as the source of impressions Q1, Q3, Q4, and Q6. Based on individualizing characteristics and specific wear patterns, the known right shoe was identified as the source of Q2 and Q5 and the known left shoe was identified as the source of Q7.
6AFJ3X-5331	Impressions Q2 and Q5 share a similar tread pattern as the right outsole of the suspect's shoes. Impressions Q2 and Q5 are identified as having been created by the right outsole of the suspect's shoes. Impression Q7 shares a similar tread pattern as the left outsole of the suspect's shoes. Impression Q7 is identified as having been created by the left outsole of the suspect's shoes. Impressions Q1, Q3, Q4 and Q6 share a similar tread pattern as the outsoles of the suspect's shoes. Impressions Q1, Q3, Q4 and Q6 did not display similar wear or individual characteristics that were present on the outsoles of the suspect's shoes. Impressions Q1, Q3, Q4 and Q6 are eliminated as having been created by the outsoles of the suspect's shoes.
6EBDYE-5331	The footwear impressions identified as Exhibits Q2 and Q5 possess sufficient quality and quantity of corresponding class characteristics and randomly acquired features with the K1 right shoe to conclude that the K1 right shoe made the Q2 and Q5 impressions. The footwear impression identified as Exhibit Q7 possesses sufficient quality and quantity of corresponding class characteristics and randomly acquired features with the K1 left shoe to conclude that the K1 left shoe made the Q7 impression. The footwear impressions identified as Exhibits Q1, Q3, Q4 and Q6 each have similar tread patterns to the K1 shoes; however they exhibit sufficient differences in class characteristics and/or randomly acquired features to conclude these impressions were not made by the K1 shoes.
6L4WRT-5331	Q1 Correspondence between Q1 and K1g left shoe in terms of relative size and design element orientation and no correspondence with the right shoe. Q1 had Schallamach patterns that differed from the left shoe of K1g. K1g had more wear than Q1 in the heel area exceeding what I

TABLE 2

WebCode-Test	Conclusions
	would expect from one day of wear. Q1 had an apparent random characteristic not present in K1g. K1g had at least two random characteristics not present in Q1. Some of the design element patterns did not correspond between Q1 and K1g. Q2 Correspondence between Q2 and K1g right shoe in terms of relative size and design element orientation and no correspondence with the left shoe. Significant agreement of wear and unique characteristics between Q2 and K1g right shoe. Q3 No correspondence of relative design element placement with the left shoe of K1f. Significant differences in relative design element placement with the right shoe of K1f and it appears to be related to a difference in size. Significant differences in both unique characteristics and wear patterns between Q3 and K1f right shoe. Q4 No correspondence of the relative design element placement with the left shoe of K1g. Correspondence but significant differences in relative design element placement with the right shoe of K1g and it appears to be related to a difference in size. The right shoe of K1g shows more wear and a unique characteristic not present in Q4 that exceeds what is expected for one day of normal wear and tear. Q5 No correspondence of the relative design element placement with the left shoe of K1f. Correspondence in relative design element placement with the right shoe of K1f. Significant agreement in wear and unique characteristics between Q5 and K1f right shoe. Q6 Q6 is designated by CTS to be an impression, an apparent smear, and another impression that appears to be connected to the first impression by the apparent smear. The second impression will be referred to as the toe area of the impression and the first will be referred to as the heel. Sequence of impression deposition is not implied by the naming convention. The toe area alone has no significant agreement or differences with K1f and is smeared – limited association of class characteristics. The first impression has no correspondence of the relative design element placement with the right shoe of K1f. The first impression has correspondence but significant differences in relative design element placement with the left shoe of K1f and it appears to be related to differences in size. Q6 and K1f have differences in wear and unique characteristics. Q7 No correspondence of relative design element placement with the right shoe of K1f. Correspondence with the relative design element placement with the left shoe of K1f. No wear differences and agreement of unique characteristics between Q7 and the left shoe K1f. Summary: Q1 was not made by the suspect's shoes. (G) Q2 was made by the suspect's right shoe. (A) Q3 was not made by the suspect's shoes. (G) Q4 was not made by the suspect's shoes. (G) Q5 was made by the suspect's right shoe. (A) Q6 was not made by the suspect's shoes. (G) Q7 was made by the suspect's left shoe. (A) A=Identification G=Exclusion The above conclusions are based on the assumptions: Q impressions made the same day as K impressions/images. Outsoles of suspect's shoes were exposed to normal wear and tear.
6MGKCT-5331	The Item Q1 through Q7 questioned footwear impressions were analyzed, compared and evaluated with the Item K1 right and left women's Saucony US size 9 shoes. The Item Q1 questioned footwear impression shares a similar tread design with the Item K1 left shoe, however the Item Q1 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 left shoe. The Item Q2 questioned footwear impression corresponds in tread design, physical size, specific wear and identifying characteristics with the Item K1 right shoe. The Item Q3 questioned footwear impression shares a similar tread design with the Item K1 right shoe, however the Item Q3 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 right shoe. The Item Q4 questioned footwear impression shares a similar tread design with the Item K1 right shoe, however the Item Q4 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 right shoe. The Item Q5 questioned footwear impression corresponds in tread design, physical size, specific wear and identifying characteristics with the Item K1 right shoe. The Item Q6 questioned footwear impression shares a similar tread design with the Item K1 left shoe, however the Item Q6 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 left shoe. The Item Q7 questioned footwear impression corresponds in tread design, physical size, specific wear and identifying characteristics with the Item K1 left shoe. Based upon the above factors it is the opinion of this examiner that: The Item Q1, Q3, Q4 and Q6 questioned footwear impressions were not made by either of the K1 right or K1 left shoes. The Item Q2 and Q5 questioned footwear impressions were made by the Item K1 right shoe. The Item Q7 questioned

TABLE 2

WebCode-Test	Conclusions
	footwear impression was made by the Item K1 left shoe.
6NYA2Z-5331	Questioned impressions Q1 through Q7 were compared to the known left and right shoes (K1L & K1R), as well as test impressions generated by K1L and K1R with the following results: i. Q2 and K1R are consistent and exhibit no discriminating differences with respect to class characteristics: size, shape, tread design and wear pattern. In addition, Q2 and K1R exhibit 8 corresponding individual characteristics and feathering pattern. ii. Q5 and K1R are consistent and exhibit no discriminating differences with respect to class characteristics: size, shape, tread design and wear pattern. In addition, Q5 and K1R exhibit 3 corresponding individual characteristics and feathering pattern. iii. Q7 and K1L are consistent and exhibit no discriminating differences with respect to class characteristics: size, shape and tread design. In addition, Q7 and K1L exhibit 4 corresponding individual characteristics. iv. Q1, Q3, Q4, Q6 and K1L, K1R are different with respect to their size, shape, tread design and wear pattern (class characteristics). 1. It is the opinion of the undersigned that questioned footwear impression Q2 and Q5 was made by the known right shoe (K1R) submitted as Laboratory items # 1 & 2. 2. It is the opinion of the undersigned that questioned footwear impression Q7 was made by the known left shoe (K1L) submitted as Laboratory items # 1 & 2. 3. It is the opinion of the undersigned that questioned footwear impression Q1, Q3, Q4 and Q6 could not have been made by the known shoes (K1L/K1R) submitted as Laboratory items # 1 and 2.
6RVT4Y-5335	Q1 : made by a left shoe, no visible characteristic whereas visible on the left shoe: EXCLUSION. Q2 : made by a right shoe, same dimension and acquired characteristic visible: IDENTIFICATION with RIGHT SHOE. Q3 : indeterminate shoe, different size, no acquired characteristic visible: EXCLUSION. Q4 : made by a right shoe, same size like Right shoe and possibility wear: ASSOCIATION OF CLASS CHARACTERISTICS with RIGHT SHOE. Q5 : made by a right shoe, same size and wear: HIGH DEGREE OF ASSOCIATION with RIGHT SHOE. Q6 : made by a left shoe, no visible characteristic whereas visible on the left shoe: EXCLUSION. Q7 : made by a left shoe, same acquired characteristic like left shoe: IDENTIFICATION with LEFT SHOE
6U2DRY-5335	The impressions Q2 and Q5 were made by the right shoe in K The impression in Q7 was made by the left shoe in K The impressions in Q1, Q3, Q4 and Q6 were not made by the shoes in K
6UL289-5331	The photographs of the suspect's shoes and questioned impressions were visually examined and processed by superimposed comparison. We copied the photographs of known imprints of suspect's shoes K1f and K1g on transparent films and superimposed them over the photographs of questioned impressions Q1 to Q7, and the result as below : 1.Questioned impressions lablled Q2 and Q5 were found to be consistent in shape, physical size and individual characteristics with the suspect's right shoe. 2.Questioned impressions labelled Q7 were found to be consistent in shape, physicel size and individual characteristics with the suspect's left shoe. 3.Questioned impressions labelled Q1(L), Q3(R), Q4(R) and Q6(L) were found to have similar shape with the suspect's shoes, however they were dissimilar in physical size and characteristics from the suspect's shoes. Therefore, questioned impressions labelled Q1, Q3, Q4 and Q6 can be eliminated.
6UNQDQ-5331	Items Q2, Q5, and Q7 were made by K (suspect's shoes). Items Q1, Q3, Q4 and Q6 were not made by K.
6W9T6W-5332	The Questioned partial imprint, Q1, does not correspond in physical size and square arrangements with the Known left shoe. It is the opinion of the undersigned examiners that the Questioned partial imprint, Q1, was not made by the Known left shoe. The Questioned imprint, Q2, corresponds in outsole design, physical size, physical shape, wear characteristics and individual characteristics with the Known right shoe. It is the opinion of the undersigned examiners that the Questioned partial imprint Q2, was made by the Known right shoe. The Questioned partial imprint, Q3, does not correspond in physical size with the Known right shoe. It is the opinion of the undersigned examiners that the Questioned partial imprint, Q3, was not made by the Known right shoe. The Questioned partial imprint, Q4, does not correspond in physical size with the Known right shoe. It is the opinion of the undersigned examiners that the Questioned partial imprint, Q4, was not made by the Known right shoe. The Questioned partial imprint, Q5,

TABLE 2

WebCode-Test	Conclusions
	corresponds in outsole design, physical size, physical shape, wear characteristics and individual characteristics with the Known right shoe. It is the opinion of the undersigned examiners that the Questioned partial imprint, Q5, was made by the Known right shoe. The Questioned imprint, Q6, does not correspond in physical size with the Known left shoe. It is the opinion of the undersigned examiners that the Questioned imprint, Q6, was not made by the Known left shoe. The Questioned partial imprint, Q7, corresponds in outsole design, physical size, physical shape, wear characteristics and individual characteristics with the Known left shoe. It is the opinion of the undersigned examiners that the Questioned partial imprint, Q7, was made by the Known left shoe.
77D8HH-5331	[No Conclusions Reported.]
79DFK8-5331	The impressions depicted in the Q2 and Q5 photographs were made by the K1 right shoe. The impression depicted in the Q7 photograph was made by the K1 left shoe. The impressions depicted in the Q1, Q3, Q4, and Q6 were not made by the K1 shoes.
79F6QP-5331	Q2 and Q5 were made by the right known shoe. Q7 was made by the known left shoe. Q1, Q3, Q4 and Q6 could not have been made by the known shoes.
7B4JDE-5331	The Questioned imprint found on a shipping box Q2 and the questioned imprints found in the store Q5 and Q7 may have originated from the soles of the recovered shoes. The questioned imprints Q1, Q3 and Q4 found on a shipping box and Q6 found in the store did not originate from the soles of the recovered shoes.
7JHJVW-5331	In the opinion of the examiner, the left Saucony brand women's tennis shoe recovered from the suspect's home was not the source of, and did not make, the Laboratory Item 001.H.01 (Q1) partial left heel imprint on the cardboard shipping box found in the store. In the opinion of the examiner, the right Saucony brand women's tennis shoe recovered from the suspect's home was the source of, and made, the Laboratory Item 001.H.02 (Q2) right imprint on the cardboard shipping box found in the store. In the opinion of the examiner, the right Saucony brand women's tennis shoe recovered from the suspect's home was not the source of, and did not make, the Laboratory Item 001.H.03 (Q3) partial, right toe imprint on the cardboard shipping box found in the store. In the opinion of the examiner, the right Saucony brand women's tennis shoe recovered from the suspect's home was not the source of, and did not make, the Laboratory Item 001.H.04 (Q4) partial right imprint on the cardboard shipping box found in the store. In the opinion of the examiner, the right Saucony brand women's tennis shoe recovered from the suspect's home was the source of, and made, the Laboratory Item 001.I.01 (Q5) partial right heel imprint on the ceramic tile found in the store. In the opinion of the examiner, the left Saucony brand women's tennis shoe recovered from the suspect's home was not the source of, and did not make, the Laboratory Item 001.I.02 (Q6) left imprint on the ceramic tile found in the store. In the opinion of the examiner, the left Saucony brand women's tennis shoe recovered from the suspect's home was the source of, and made, the Laboratory Item 001.I.03 (Q7) partial, left toe imprint on the ceramic tile found in the store.
86CT7A-5332	[No Conclusions Reported.]
8B2322-5331	Impression FIEP #Q1 was compared against the known footwear #K1 (left heel). The shoes exhibited the same general outsole design as impression Q1 but there are noticeable differences in texturing precluding this shoe from having made impression Q1. In my opinion, the known footwear (item #K1 left) was not the source of, and did not make, the questioned impression (item FIEP #Q1). Exclusion. Impression FIEP #Q2 was compared against the known footwear #K1 (right). There is a correspondence in outsole design and physical size/alignment. There is a good correspondence in the degree of wear exhibited on both the impression FIEP #Q2 and the right shoe #K1. There are at least seven corresponding randomly acquired cuts and gouges apparent. In this examiner's opinion, these corresponding characteristics are sufficient to conclude that the known footwear (item #K1 right) was the source of the questioned impression (item FIEP #Q2). There are no notable indications that the question impression (item FIEP #Q2) was made by

TABLE 2

WebCode-Test	Conclusions
	another source. Identification. Impression FIEP #Q3 was compared against the known footwear #K1 (right mid-toe). The shoes exhibited the same general outsole design as impression Q3 but there are noticeable differences in texturing and physical size (shoe appears larger than impression) precluding this shoe from having made impression Q3. In my opinion, the known footwear (item #K1 right) was not the source of, and did not make, the questioned impression (item FIEP #Q3). Exclusion. Impression FIEP #Q4 was compared against the known footwear #K1 (right heel-ball). The shoes exhibited the same general outsole design as impression Q4 but there are noticeable differences in texturing and physical size (shoe appears larger than impression) precluding this shoe from having made impression Q4. In my opinion, the known footwear (item #K1 right) was not the source of, and did not make, the questioned impression (item FIEP #Q4). Exclusion. Impression FIEP #Q5 was compared against the known footwear #K1 (right heel). There is a correspondence in outsole design and physical size/alignment. There is a good correspondence in the degree of wear exhibited on both the impression FIEP #Q2 and the right shoe #K1. There are at least six corresponding randomly acquired cuts and gouges apparent. In this examiner's opinion, these corresponding characteristics are sufficient to conclude that the known footwear (item #K1 right) was the source of the questioned impression (item FIEP #Q5). There are no notable indications that the question impression (item FIEP #Q5) was made by another source.
8BXMLF-5331	[No Conclusions Reported.]
8BZG2E-5331	Based on my examination, I found that: (i) The questioned imprints Q2 found on a shipping box in the store (cardboard box) are similar to that known imprints made with suspect shoes. (ii) The questioned imprints Q5 dan Q7 found in the store (ceramic file) are similar to that known imprints made with suspect shoes. (iii) The questioned imprints Q1, Q3, Q4 and Q6 were dissimilar to that known imprints made made with suspect shoes.
8N7869-5332	Q1: G - Correspondence of class characteristics in general but the small parts in the pattern (squares) differs in numbers and position. The size of the outsole is not the same as the size of the questioned imprint. In addition, there are randomly acquired characteristics in the outsole that can't be seen in the imprint and there are details in the imprint that can't be seen in the outsole. Q2: A - Correspondence of class characteristics, several wear surfaces in addition to at least five randomly acquired characteristics. Q3, Q4, Q6: G - Correspondence of class characteristics in general but the small parts in the pattern (squares) differs in numbers and position. In addition, the wear and randomly acquired characteristics differs between the outsole and the imprint and also the size of the outsole is not the same as the size of the questioned imprint. Q5: A - Correspondence between class characteristics, several wear surfaces in addition to at least three randomly acquired characteristics. Q7: B - Correspondence between class characteristics, a few wear surfaces in addition to at least three randomly acquired characteristics.
8NLN3L-5331	EXAMINATIONS: Determine whether any footwear marks present in Items Q1 through Q7 can be associated with the known pair of outsoles. FINDINGS AND OPINIONS: The questioned footwear mark Item Q7 was made by the known left shoe. This opinion is the highest degree of association expressed by a footwear examiner. The questioned mark and the known footwear must share sufficient agreement of observable class and individual characteristics. In the opinion of the examiner the known footwear was the source of and made the questioned mark. The questioned footwear marks, Items Q2 and Q5 were made by the known right shoe. This opinion is the highest degree of association expressed by a footwear examiner. The questioned mark and the known footwear must share sufficient agreement of observable class and individual characteristics. In the opinion of the examiner the known footwear was the source of and made the questioned mark. The Items Q1, Q3, Q4 and Q6 questioned marks were not made by the known pair of shoes. This opinion means that there are observable differences in class and/or identifying characteristics between the questioned mark and the known shoe. The following equipment was employed in the examination of the footwear marks: magnifying glass, caliper and transparencies.
8P24D3-5331	I observed an excellent correspondence of size, pattern, damage and wear between the

TABLE 2

WebCode-Test	Conclusions
	questioned shoeprint, Q2 and test-prints made with the recovered right shoe. I also observed an excellent correspondence of pattern, damage and wear between the questioned shoeprint, Q7 and test-prints made with the forefoot region of the recovered left shoe. In my opinion, these correspondences mean that the recovered shoes have made the questioned shoeprints Q2 and Q7. I observed a correspondence of pattern, an area of damage and wear between the questioned shoeprint, Q5 and test-prints made with the heel of the recovered right shoe. In my opinion, these correspondences mean that there is a high degree of association between the recovered right shoe and the questioned shoeprint Q5. Although there was a correspondence of general sole pattern observed between the recovered shoes and the remaining questioned prints (Q1, Q3, Q4, Q6) there were differences observed in the hatch pattern within the blocks of the sole as well as differences in wear and damage and or size. Therefore in my opinion, the questioned shoes could not have made the questioned prints Q1, Q3, Q4 and Q6.
8P24HB-5332	[No Conclusions Reported.]
8WFWKR-5332	Comparison of the latent footwear impressions were made with Items K1a – K1g. It is the opinion of this examiner, that the following conclusions were made: Q1-imp1: Exclusion: The submitted footwear was not the source of, and did not make, the impression. Q2-imp1: Identification: The Right shoe was the source of and made the impression. Q3-imp1: Exclusion The submitted footwear was not the source of, and did not make, the impression. Q4-imp1: Exclusion The submitted footwear was not the source of, and did not make, the impression. Q5-imp1: Identification The Right shoe was the source of and made the impression. Q6-imp1: Exclusion The submitted footwear was not the source of, and did not make, the impression. Q7-imp1: Identification: The Left shoe was the source of and made the impression. Images of K1a through Q7 will be retained at the laboratory and will be available for any requested comparisons.
9BFVCV-5331	Q1 through Q7 (questioned imprints) were compared to photographs of suspect shoes (K1a-K1g). K1 is a pair of womens Saucony brand athletic shoes, S15269-1, USA size 9. Q1 is an imprint of a left heel/arch area of a shoe. Q1 and K1 (left) have similar overall gross design elements; however, the physical size, randomly acquired characteristics, and wear are not the same. In the opinion of this examiner, K1 (left shoe) is excluded as having produced imprint Q1. Q2 is a nearly full imprint of a right shoe. Q2 and K1 (right) share the agreement of class and randomly acquired characteristics of sufficient quality and quantity. In the opinion of this examiner, K1 (right shoe) has been identified as having produced imprint Q2. Q3 is an imprint of a right toe area of a shoe. Q3 and K1 (right) have similar overall gross design elements; however, the physical size, randomly acquired characteristics, and wear are not the same. In the opinion of this examiner, K1 (right shoe) is excluded as having produced imprint Q3. Q4 is a partial imprint of a right shoe. Q4 and K1 (right) have similar overall gross design elements; however, the physical and wear are not the same. In the opinion of this examiner, K1 (right shoe) is excluded as having produced imprint Q4. Q5 is an imprint of a heel area of a right shoe. Q5 and K1 (right) share the agreement of class, wear, and randomly acquired characteristics of sufficient quality and quantity. In the opinion of this examiner, K1 (right shoe) has been identified as having produced imprint Q5. Q6 is nearly full imprint of a left shoe. Q6 and K1 (left) have similar overall gross design elements; however, the physical size, randomly acquired characteristics, and wear are not the same. In the opinion of this examiner, K1 (left shoe) is excluded as having produced imprint Q6. Q7 is an imprint of a toe area of a left shoe. Q7 and K1 (left) share the agreement of class, wear, and randomly acquired characteristics of sufficient quality and quantity. In the opinion of this examiner, K1 (left shoe) has been identified as having produced imprint Q7.
9BJDEZ-5332	There were sufficient differences noted in the comparisons between characteristics in impressions Q1, Q3, Q4 and Q6 and the left and right 'Saucony' shoes. In the opinion of the examiner neither the left or right 'Saucony' shoe was the source of and therefore did not make impressions Q1, Q3, Q4 or Q6. Impressions Q2 and Q5 and the right 'Saucony' shoe share agreement of class and randomly acquired characteristics of sufficient quality and quantity. In the opinion of the examiner, the right 'Saucony' shoe was the source of and made impressions Q2 and Q5. The likelihood of another item being the source of these impressions is considered negligible. There

TABLE 2

WebCode-Test	Conclusions
	were sufficient differences noted in the comparisons between characteristics in impressions Q2 and Q5 and the left 'Saucony' shoe. In the opinion of the examiner the left 'Saucony' shoe was not the source of and did not make impressions Q2 or Q5. Impression Q7 and the left 'Saucony' shoe share agreement of class and randomly acquired characteristics of sufficient quality and quantity. In the opinion of the examiner the left 'Saucony' shoe was the source of and did make impression Q7. The likelihood of another item being the source of the this impression is considered negligible. There were sufficient differences noted in the comparison between characteristics in impression Q7 and the right 'Saucony' shoe. In the opinion of the examiner the right 'Saucony' shoe was not the source of and did not make impression Q7.
9JBVMG-5331	[No Conclusions Reported.]
9JQGWH-5332	The known "Saucony" shoes (size 9), as represented by Items K1a through K1g, were visually compared to the questioned footwear impressions (Items Q1 through Q7). The known “Saucony” shoes were similar in tread design, but dissimilar in size of tread design to Items Q1, Q3, Q4 and Q6; therefore, the known "Saucony" shoes were eliminated from having made Items Q1, Q3, Q4 and Q6 (Exclusion). Items Q2 and Q5 were each similar in tread design, size of tread design and wear characteristics to the known right “Saucony” shoe. Additionally, Items Q2 and Q5 each contained several randomly acquired characteristics which were similar to the known right “Saucony” shoe, and which were sufficient to conclude that the known "Saucony" right shoe made Items Q2 and Q5 (Identification). Item Q7 was similar in tread design, size of tread design and wear characteristics to the known left “Saucony” shoe. Additionally, Item Q7 contained several randomly acquired characteristics which were similar to the known “Saucony” left shoe, and which were sufficient to conclude that the known "Saucony" left shoe made Item Q7 (Identification). Association Scale for Footwear and Tire Impressions: The following descriptions are meant to provide context to the levels of opinions reached in footwear and tire impression comparisons. Each level may not include every variable in every case. Lacks sufficient detail - No comparison was conducted: the examiner determined there were no discernible questioned footwear/tire impressions or features present. Or – A comparison was conducted: the examiner determined that there was insufficient detail in the questioned impression for a meaningful conclusion. This opinion only applies to the known footwear or tire that was examined and does not necessarily preclude future examinations with other known footwear or tires. Exclusion - This is the highest degree of non-association expressed in footwear and tire impression examinations. Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between the questioned impression and the known footwear or tire. Indications of non-association - The questioned impression exhibits dissimilarities when compared to the known footwear or tire; however, the details or features were not sufficiently clear to permit an exclusion. Limited association of class characteristics - Some similar class characteristics were present; however, there were significant limiting factors in the questioned impression that did not permit a stronger association between the questioned impression and the known footwear or tire. These factors may include but were not limited to: insufficient detail, lack of scale, improper position of scale, improper photographic techniques, distortion or significant lengths of time between the date of the occurrence and when the footwear or tires were recovered that could account for a different degree of general wear. No confirmable differences were observed that could exclude the footwear or tire. Association of class characteristics - The class characteristics of both design and physical size must correspond between the questioned impression and the known footwear or tire. Correspondence of general wear may also be present. High degree of association - The questioned impression and known footwear or tire must correspond in the class characteristics of design, physical size, and general wear. For this degree of association there must also exist: (1) wear that, by virtue of its specific location, degree and orientation make it unusual and/or (2) one or more randomly acquired characteristics. Identification - This is the highest degree of association expressed by a footwear and tire impression examiner. The questioned impression and the known footwear or tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity.

TABLE 2

WebCode-Test	Conclusions
9NFWJ6-5331	[No Conclusions Reported.]
9NHLPM-5331	Q2 and Q5 were made by K1 right sneaker. Q7 was made by K1 left sneaker. Q1, Q3, Q4 and Q6 could not have been made by K1 left or right sneakers.
9R3KXP-5331	The Impressions Q1, Q3, Q4, and Q6 were not made by the suspect's right or left shoe. The Impressions Q2 and Q5 were made by the suspect's right shoe. The Impression Q7 was made by the suspect's left shoe.
9VKKEQ-5331	I can exclude both shoe types submitted from having made imprints labelled Q1, Q3, Q4 & Q6. The imprints Q2 & Q5 are similar in terms of pattern, size, wear distribution and contain sufficient unique features in agreement to have been made by the suspects footwear captured on K1f & K1g (RIGHT). The imprint Q7 is similar in terms of pattern, size, wear distribution and contain sufficient unique features in agreement to have been made by the suspects footwear captured on K1f & K1g (LEFT).
A3HKDJ-5332	Q2 and Q5 correspond in physical size, outsole design, wear pattern, and multiple randomly acquired characteristics to the known right shoe and therefore, were made by that shoe. Q7 corresponds in physical size, outsole design, wear pattern, and multiple randomly acquired characteristics to the known left shoe and therefore, was made by that shoe. Although similar in general design, Q1, Q3, Q4 and Q6 are different in physical size, specific design (precise arrangement of design elements) and wear pattern to the known footwear and therefore, could not have been made by those sneakers.
A8AUJB-5332	The shoe print identify Q-1, Q-3, and Q-6 correspond in same design, pattern, and size with impression K-1, but don't correspond in individual characteristics. The shoe print identify Q-2 correspond in same design, pattern, size and general and individual characteristic, with impression identify K-1 (Right Shoe). The shoe print fragment identify Q-5, correspond in the same design, pattern, size and general and individual characteristic with impression identify K-1 (Right shoe). The shoe print fragment identify Q-7, correspond in the same design, pattern, size and general and individual characteristics with impression identify K-1 (Left shoe).
AJPNYB-5331	There is correspondence of class characteristics:design, physical size, wear characteristics and RACs between Q2, Q5 and right shoe sole from known pair. There is also correspondence of class characteristics, wear characteristics and RACs between Q7 and left shoe sole from known pair. For Q1, Q3, Q4, Q6 conclusion is elimination because: Q1 was left by smaller shoe with different wear characteristics. Q3 was left by smaller shoe different wear characteristics. Q4 was left by smaller shoe different wear characteristics. Q6 was left by smaller shoe.
APUENV-5331	Impression Q7 was made by the submitted left shoe. Impression Q2 and Q5 were made by the submitted right shoe. Impression Q1 and Q6 were made by a second left shoe, with a similar outsole design as the submitted shoes. Impression Q4 was made by a second right shoe, with a similar outsole design as the submitted shoes. Impression Q3 is a partial footwear impression, possibly from a right shoe, with a similar outsole design as the submitted shoes.
ATWGAQ-5331	Q1 – The Q1 impression was not made by the K1 Saucony left or right shoe. Q2 – This unknown impression was identified as being made by the K1 right Saucony shoe. Q3 – The Q3 impression impression was not made by the K1 Saucony left or right shoe. Q4 – The Q4 impression was not made by the K1 Saucony left or right shoe. Q5 – This unknown impression was identified as being made by the K1 right Saucony shoe. Q6 – The Q6 impression was not made by the K1 Saucony left or right shoe. Q7 – This unknown impression was identified as being made by the K1 left Saucony shoe.
AVXMMB-5331	The known right footwear K1 was the source of, and made, the questioned impressions Q2 and Q5 in exhibit FIEP. Another item of footwear being the source of the impressions is considered a practical impossibility. The known left footwear K1 was the source of, and made, the questioned impression Q7 in exhibit FIEP. Another item of footwear being the source of the impression is considered a practical impossibility. The known footwear K1 was not the source of, and did not

TABLE 2

WebCode-Test	Conclusions
	make, the questioned impressions Q1, Q3, Q4 and Q6 present in exhibit FIEP. Images of the unidentified questioned footwear impressions have been retained in our files in the event that future comparisons are requested.
AYK46W-5331	Footwear impression Q1 shares gross outsole design features and orients with the K1 left shoe. However, differences in outsole design and physical size were observed between this impression and the K1 left shoe. Therefore, the K1 left shoe was eliminated as the source of this impression. Footwear impression Q2 corresponds to the K1 right shoe in outsole design, physical size, wear and four randomly acquired characteristics. Therefore, the K1 right shoe was identified as the source of this impression. Footwear impression Q3 shares gross outsole design features and orients with the K1 right shoe. However, differences in outsole design, physical size and wear were observed between this impression and the K1 right shoe. Therefore, the K1 right shoe was eliminated as the source of this impression. Footwear impression Q4 shares gross outsole design features and orients with the K1 right shoe. However, differences in outsole design, physical size and wear were observed between this impression and the K1 right shoe. Therefore, the K1 right shoe was eliminated as the source of this impression. Footwear impression Q5 corresponds to the K1 right shoe in outsole design, physical size, wear and three randomly acquired characteristics. Therefore, the K1 right shoe was identified as the source of this impression. Footwear impression Q6 shares gross outsole design features and orients with the K1 left shoe. However, differences in outsole design, physical size and wear were observed between this impression and the K1 left shoe. Therefore, the K1 left shoe was eliminated as the source of this impression. Footwear impression Q7 corresponds to the K1 left shoe in outsole design, physical size, wear and three randomly acquired characteristics. Therefore, the K1 left shoe was identified as the source of this impression.
B3EH6Q-5331	The partial outsole impressions on the photographs labeled Q1, Q3, Q4 and Q6 were excluded from having been made by the outsole of either shoe in K1 based on class characteristic differences (size). The outsole impression on the photograph labeled Q2 and the partial outsole impression on the photograph labeled Q5 were identified as having been made by the outsole of the right shoe in K1. The partial outsole impression on the photograph labeled Q7 was identified as having been made by the outsole of the left shoe in K1.
B3HZ8V-5332	Having conduct a shoemark comparison between the questioned impressions Q1-Q7 with the known shoes K1 I have formed the following opinions: The right shoe of K1 was the source of, and made, the questioned impressions Q2 & Q5. And the chance of another item of footwear being the source of the impression is negligible. The left shoe of K1 was the source of, and made the questioned impression Q7 and the chance of another item of footwear being the source of the impression is negligible. The shoes K1 was not the source of and did not make the questioned impressions Q1, Q3, Q4 & Q6.
BF2P3R-5331	Four imprints (Q1-Q4) were observed on the shipping box in the store and three imprints (Q5-Q7) were observed on the ceramic tile in the store. These imprints (Q1-Q7) all featured the same tread design consisting of alternating triangle-shaped elements containing wavy rows of squares. A pair of Women's size 9 Saucony shoes (K1) was submitted for comparison. The tread design observed on the outsole of the shoes (K1) consisted of alternating triangle-shaped elements containing wavy rows of squares. The imprints (Q1-Q7) were visually compared to the Saucony shoes (K1). The imprint (Q1) corresponds in tread design to the LEFT Saucony shoe (K1); however, there are differences in physical shape and size, wear, and individual characteristics. Therefore, the LEFT and RIGHT Saucony shoes (K1) can be ELIMINATED as a source of the imprint (Q1). The imprint (Q2) corresponds in tread design, physical shape and size, wear, and several individual characteristics to the RIGHT Saucony shoe (K1). Therefore, the imprint (Q2) was IDENTIFIED as having been made by the RIGHT Saucony shoe (K1). The imprint (Q3) corresponds in tread design to the RIGHT Saucony shoe (K1); however, there are differences in physical shape and size, wear, and individual characteristics. Therefore, the LEFT and RIGHT Saucony shoes (K1) can be ELIMINATED as a source of the imprint (Q3). The imprint (Q4) corresponds in tread design to the RIGHT Saucony shoe (K1); however, there are differences in physical shape and size, wear, and individual characteristics. Therefore, the LEFT and RIGHT

TABLE 2

WebCode-Test	Conclusions
	Saucony shoes (K1) can be ELIMINATED as a source of the imprint (Q4). The imprint (Q5) corresponds in tread design, physical shape and size, wear, and several individual characteristics to the RIGHT Saucony shoe (K1). Therefore, the imprint (Q5) was IDENTIFIED as having been made by the RIGHT Saucony shoe (K1). The imprint (Q6) corresponds in tread design to the LEFT Saucony shoe (K1); however, there are differences in physical shape and size, wear, and individual characteristics. Therefore, the LEFT and RIGHT Saucony shoes (K1) can be ELIMINATED as a source of the imprint (Q6). The imprint (Q7) corresponds in tread design, physical shape and size, wear, and several individual characteristics to the LEFT Saucony shoe (K1). Therefore, the imprint (Q7) was IDENTIFIED as having been made by the LEFT Saucony shoe (K1). Additionally, the imprints (Q1 and Q6) are consistent in tread design, physical shape and size, general wear, and a few individual characteristics. The imprints (Q1 and Q6) were likely made by the same unknown LEFT shoe.
BRTGKB-5331	Comparative analysis revealed significant differences (physical size, general condition of wear, and distinguishing damage characteristics) between the Item Q1 impression and the Item K1a left shoe. It was concluded that the Item K1a left shoe did not make the Item Q1 impression. Comparative analysis revealed significant differences (left vs. right) between the Item Q1 impression and the Item K1a right shoe. It was concluded that the Item K1a right shoe did not make the Item Q1 impression. Comparative analysis between the Item Q2 impression and the Item K1a right shoe revealed correspondence of class characteristics (pattern, physical size, and general condition of wear), and multiple distinguishing damage characteristics. It was concluded that the Item K1a right shoe was the source of, and made, the Item Q2 impression. Another shoe/tire being the source of the impression is considered a practical impossibility. Comparative analysis revealed significant differences (left vs. right) between the Item Q2 impression and the Item K1a left shoe. It was concluded that the Item K1a left shoe did not make the Item Q2 impression. Comparative analysis revealed significant differences (physical size, general condition of wear, and distinguishing damage characteristics) between the Item Q3 impression and the Item K1a right shoe. It was concluded that the Item K1a right shoe did not make the Item Q3 impression. Comparative analysis revealed significant differences (left vs. right) between the Item Q3 impression and the Item K1a left shoe. It was concluded that the Item K1a left shoe did not make the Item Q3 impression. Comparative analysis revealed significant differences (physical size, general condition of wear, and distinguishing damage characteristics) between the Item Q4 impression and the Item K1a right shoe. It was concluded that the Item K1a right shoe did not make the Item Q4 impression. Comparative analysis revealed significant differences (left vs. right) between the Item Q4 impression and the Item K1a left shoe. It was concluded that the Item K1a left shoe did not make the Item Q4 impression. Comparative analysis between the Item Q5 impression and the Item 1A1 right shoe revealed correspondence of class characteristics (pattern, physical size, and general condition of wear), and multiple distinguishing damage characteristics. It was concluded that the Item K1a right shoe was the source of, and made, the Item Q5 impression. Another shoe/tire being the source of the impression is considered a practical impossibility. Comparative analysis revealed significant differences (left vs. right) between the Item Q5 impression and the Item K1a left shoe. It was concluded that the Item K1a left shoe did not make the Item Q5 impression. Comparative analysis revealed significant differences (physical size, general condition of wear, and distinguishing damage characteristics) between the Item Q6 impression and the Item K1a left shoe. It was concluded that the Item K1a left shoe did not make the Item Q6 impression. Comparative analysis revealed significant differences (left vs. right) between the Item Q6 impression and the Item K1a right shoe. It was concluded that the Item K1a right shoe did not make the Item Q6 impression. Comparative analysis between the Item Q7 impression and the Item K1a left shoe revealed correspondence of class characteristics (pattern, physical size, and general condition of wear), and multiple distinguishing damage characteristics. It was concluded that the Item K1a left shoe was the source of, and made, the Item Q7 impression. Another shoe/tire being the source of the impression is considered a practical impossibility. Comparative analysis revealed significant differences (left vs. right) between the Item Q7 impression and the Item K1a right shoe. It was concluded that the Item K1a right shoe did not make the Item Q7 impression.

TABLE 2

WebCode-Test	Conclusions
BVUGMT-5332	THE SHOEPRINT Q2 AND Q5 HAVE BEEN PRODUCED BY THE SOLE OF THE RIGHT SHOE MARK SAUCONY. THE SHOEPRINT Q7 HAS BEEN PRODUCED BY THE SOLE OF THE LEFT SHOE MARK SAUCONY. THE SHOEPRINT Q1, Q3, Q4 AND Q6 DONT HAVE RELATION WITH THE TRAINERS MARK SAUCONY.
BYCJRD-5335	Q2 and Q5 were identified to the right shoe. Q7 was identified to the left shoe. Q1, Q3, Q4, and Q6 were excluded from being made by the shoes.
CCXBR8-5331	Impression Examination: In comparing the Questioned imprints (Items Q2 and Q5) to the Known recovered shoes and impressions (K1A - K1G), it was found that they have the same tread design, tread size, general and unique wear characteristics as the Known right shoe. Therefore, in the opinion of this examiner, Items Q2 and Q5 were made by the Known right shoe. In comparing the Questioned imprint (Item Q7) to the Known recovered shoes and impressions (K1A - K1G), it was found that it has the same tread design, tread size, general and unique wear characteristics as the Known left shoe. Therefore, in the opinion of this examiner, Item Q7 was made by the Known left shoe. In comparing the Questioned imprints (Q1, Q3, Q4 and Q6) to the Known recovered shoes and impressions, it was found that they appear to have the same tread design, however, the tread size and/or general wear patterns are different. Therefore, in the opinion of this examiner, Items Q1, Q3, Q4 and Q6 could not have been made by the Known recovered shoes.
CH3XZA-5331	The questioned imprints Q2 found on a box in the store and Q5 found in the store may have originated from the right side of the suspect's shoe. The questioned imprint Q7 found in the store may have originated from the left side of the suspect's shoe. The questioned imprints Q1, Q3, Q4 and Q6 did not originate from the suspect's shoe.
CL6VDN-5331	On the items Q1, Q3, Q4 and Q6 there are shoeprints which don't correspond in pattern with the shoe of the item K1. The shoeprints of the items Q3, Q4 and Q6 don't correspond also in wear and measurable size with the shoe of the item K1. The shoeprints of the items Q1, Q3, Q4 and Q6 are not left by the shoe of the item K1. (Conclusion G) On the item Q2 there is a shoeprint which correspond in pattern, wear, individual characteristics and measurable size with the right shoe of the item K1. The shoeprint of the item Q2 is left by the right shoe of the item K1. (Conclusion A) On the item Q5 there is a shoeprint which correspond in pattern, wear and a few individual characteristics with the heel of the right shoe on the item K1. The shoeprint of the item Q5 is probably left by the right shoe of the item K1. (Conclusion B) On the item Q7 there is a shoeprint which correspond in pattern, wear, individual characteristics and measurable size with the left shoe of the item K1. The shoeprint of the item Q7 is left by the left shoe of the item K1. (Conclusion A)
CND2YP-5331	FOOTWEAR IMPRESSION Q2 AND Q5 WERE MADE BY THE SUBMITTED RIGHT SHOE, K1G. FOOTWEAR IMPRESSION Q7 WAS MADE BY THE SUBMITTED LEFT SHOE, K1G. FOOTWEAR IMPRESSION Q1 AND Q6 WERE MADE BY THE SAME LEFT SHOE; AND WERE NOT MADE BY THE SUBMITTED LEFT SHOE BASED ON DIFFERENCES IN SUBCLASS AND INDIVIDUAL CHARACTERISTICS. FOOTWEAR IMPRESSION Q3 AND Q4 COULD HAVE BEEN MADE BY THE SAME RIGHT SHOE BASED ON SIMILARITIES IN CLASS CHARACTERISTICS; HOWEVER, INSUFFICIENT DETAIL PRECLUDES A MORE CONCLUSIVE DETERMINATION. FOOTWEAR IMPRESSION Q3 AND Q4 WERE NOT MADE BY THE SUBMITTED RIGHT SHOE BASED ON DIFFERENCES IN SUBCLASS AND INDIVIDUAL CHARACTERISTICS.
CPNX93-5331	Items Q2, Q5, and Q7 (evidence impressions) were identified as having been produced by Item K1 (known shoes). Items Q1, Q3, Q4, and Q6 (evidence impressions) were eliminated from having been produced by Item K1 (known shoes) due to a difference in class/individual characteristics. Items Q1 and Q6 were identified as having been produced by the same shoe.
CUG87F-5332	Questioned impressions Q1 - Q7 were visually compared to the photographs and the test impressions of the recovered Saucony shoes. Based on similarities observed in tread design, physical size, wear pattern and randomly acquired characteristics the known right Saucony shoe is identified as having produced questioned impressions Q2 & Q5 (Identification). Based on

TABLE 2

WebCode-Test	Conclusions
	similarities observed in tread design, physical size, wear pattern and randomly acquired characteristics the known left Saucony shoe is identified as having produced questioned impressions Q7 (Identification). Based on dissimilarities observed in physical size the known Saucony shoes are excluded from having produced questioned impressions Q1, Q3, Q4 and Q6 (Exclusion).
CWNH7P-5331	The suspect's left shoe positively made the imprint Q7. The suspect's right shoe positively made the imprints Q2 and Q5. The suspect's shoes did not make the imprints Q1, Q3, Q4, and Q6.
CYB4V7-5331	Size, design, pattern, physical dimensions and individual characteristics correspondences were noted between the shoe prints labeled Q2 and Q5 and the footwear making the submitted right test impressions. The footwear making the submitted right test impressions is identified as the source of the shoe prints labeled Q2 and Q5. Size, design, pattern, physical dimensions and individual characteristics correspondences were noted between the shoe print labeled Q7 and the footwear making the submitted left test impressions. The footwear making the submitted left test impressions is identified as the source of the shoe print labeled Q7. Outsole pattern and physical dimensions differences were noted between the shoe prints labeled Q1, Q3, Q4 and Q6 and the submitted test impressions The footwear making the submitted test impressions are excluded as the source of the shoe prints labeled Q1, Q3, Q4 and Q6.
D2UKNB-5331	No Report Necessary Per QA Manual
D4Z6CB-5331	[No Conclusions Reported.]
DA8CA3-5332	In the opinion of the examiner: The right shoe of K1 is the source of impressions Q2 and Q5 and the left shoe of K1 is the source of impression Q7. In the opinion of the examiner: The unknown impressions bear similar class characteristics to the known shoes; however, comparison of individualizing characteristics and wear patterns revealed the shoes of K1 are not the source of impressions Q1, Q3, Q4, and Q6.
DMEH7M-5335	Items numbered Q1 - Q7 were examined and compared to the photographs and impressions of the known shoes, Item K1. Questioned impressions Q2, Q5 and Q7 were consistent in tread design, size and wear pattern and each had some individualizing characteristics when compared to the known shoes. Therefore, it was determined that the impressions in Items Q2, Q5 and Q7 were made by the known shoes of K1. The known shoes from Item K1 were eliminated as possible sources of the impressions for Items Q1, Q3, Q4 and Q6.
DTLN4E-5331	[No Conclusions Reported.]
DUFE88-5331	[No Conclusions Reported.]
EC8Z9P-5331	The questioned impressions marked Q1 to Q4 found on a shipping box in the store and the questioned impressions marked Q5 to Q7 found in the store were compared to the 'Saucony' brand shoes recovered from the suspect's house. It was found that: a. Questioned impressions Q1, Q3, Q4, and Q6 were not made by the recovered shoes. b. Questioned impression Q7 was very likely to have been made by the left recovered shoe. However, other footwear with outsoles of the same pattern and physical size, and displaying similar wear and random characteristics could also have made the impression. c. Questioned impressions Q2 and Q5 were made by the right recovered shoe.
EJR3D7-5331	The Item Q1 through Q7 questioned footwear impressions were analyzed, compared and evaluated with the known footwear Item K1. The Item Q1, Q3, Q4 and Q6 questioned footwear impressions do not correspond in physical size with the Item K1 known footwear. The Item Q1 and Q6 were left footwear impressions and the Item Q3 and Q4 were right footwear impressions. The Item Q2 questioned footwear impression corresponds in tread design, physical size, general wear and accidental characteristics with the Item K1 right known shoe. The Item Q5 questioned footwear impression corresponds in tread design, physical size, general wear and accidental

TABLE 2

WebCode-Test	Conclusions
	characteristics with the Item K1 right known shoe. The Item Q7 questioned footwear impression corresponds in tread design, physical size, general wear and accidental characteristics with the Item K1 left known shoe. Based upon the above factors it is the opinion of this examiner that: The Item K1 right shoe was the source of and made the Item Q2 and Q5 questioned footwear impressions. The combination of characteristics observed between the Item Q2 and Q5 questioned footwear impressions and the Item K1 right shoe occurring from another source is considered a practical impossibility. The Item K1 left shoe was the source of and made the Item Q7 questioned footwear impression. The combination of characteristics observed between the Item Q7 questioned footwear impression and the Item K1 left shoe occurring from another source is considered a practical impossibility. The Item Q1, Q3, Q4 and Q6 questioned footwear impressions share a high degree of non-association with the Item K1 known right and left shoes. The Item K1 known right and left shoes were not the source and did not make the Item Q1, Q3, Q4 and Q6 questioned footwear impressions. All conclusions listed herein have been verified by a second qualified latent print examiner.
EPWYYR-5331	Disagreements of class characteristics confirmed the Q1, Q3, Q4, and Q6 impressions were not made by the known left or right shoes. Sufficient agreements of class and individual characteristics confirmed the Q2 and Q5 impressions were made by the known right shoe. Sufficient agreements of class and individual characteristics confirmed the Q7 impression was made by the known left shoe.
FCPBLN-5331	The questioned prints Q1, Q3, Q4, Q6 showed differences in details and wear. Therefore they could not have been made by the suspect`s shoes K1. Q2 and Q7 showed the same details in pattern, size, wear and individual characteristics to identify the suspect`s shoes K1. The questioned print Q5 showed a partial print with corresponding details, wear and a few individual characteristics. The print Q5 was very probably made by the right shoe K1.
FCPD6Z-5331	[No Conclusions Reported.]
FJNXAG-5331	Q2 is a right shoe impression that is similar in size, shape, tread design, and wear to the right suspect shoe. In addition, this impression shares at least 3 randomly acquired characteristics with the right suspect shoe. It is my opinion that this shoe impression was made by the right suspect shoe. Q5 is a right partial shoe impression that is similar in size, shape, tread design, and wear to the right suspect shoe. In addition, this impression shares at least 2 randomly acquired characteristics with the right suspect shoe. It is my opinion that this shoe impression was made by the right suspect shoe. Q7 is a left partial shoe impression that is that is similar in size, shape, tread design, and wear to the left suspect shoe. In addition, this impression shares at least 2 randomly acquired characteristics with the left suspect shoe. It is my opinion that this shoe impression was made by the left suspect shoe. Q1 and Q6 are partial left shoe impressions that are dissimilar in size and wear to the left suspect shoe. Q3 and Q4 are partial right shoe impressions that are dissimilar in size and wear to the right suspect shoe. It is my opinion that these shoe impressions were not made by the suspect shoes. It should be noted that Q6 appeared to be a double impression and contained a second impression with only limited detail.
FKZP9P-5335	CTS 17-5335 Footwear Imprint Evidence Summary of Results Q1 exclusion (G) Q2 identification with right shoe (A) Q3 exclusion (G) Q4 exclusion (G) Q5 high degree of association with right shoe (B) Q6 exclusion (G) Q7 identification with left shoe (A) On 29 March 2017 the following items were received in the laboratory in connection with an investigation into an alleged assault and attempted theft: Photographs K1a to K1c Photographs of the suspect's shoes Photographs K1d to K1g Photographs of imprints prepared from the suspect's shoes Photographs Q1 – Q4 Photographs of imprints found on a shipping box Photographs Q5-Q7 Photographs of imprints found on a ceramic tile. I have examined the items to determine whether or not either of the submitted shoes recovered from the suspect could have made any of the imprints photographed at the scene. The footwear imprint in photograph Q2 has been made by a right shoe bearing the same sole pattern and pattern size as that of the suspect's right shoe. Furthermore this imprint has corresponding wear and damage features as that present on the submitted right shoe. The

TABLE 2

WebCode-Test	Conclusions
	combination of pattern, pattern size, wear and damage demonstrates that this imprint has therefore, in my opinion, been made by this shoe and not any other shoe. The footwear imprint in photograph Q7 has been made by a left shoe bearing the same sole pattern and pattern size as that of the suspect's left shoe. Furthermore this imprint has corresponding wear and damage features as that present on the submitted left shoe. The combination of pattern, pattern size, wear and damage demonstrates that this imprint has therefore, in my opinion, been made by this shoe and not any other shoe. The footwear imprint in photograph Q5 has been made by the heel portion of a right shoe bearing the same sole pattern and pattern size as that of the suspect's right shoe. Furthermore this imprint has corresponding wear as that present on the submitted right shoe. There are also two damage areas of the submitted right shoe which correspond to areas of apparent damage on the scene footwear impressions. The combination of pattern, pattern size and wear along with these damage features demonstrates, in my opinion, a high degree of association between this imprint and the submitted right shoe. The footwear imprints in photograph Q1and Q6 have been made by a left shoe with a similar sole pattern to the suspect's left shoe. However these imprints appear to have been made by a shoe of different size to that of the submitted shoe and have different wear and damage features. I have concluded therefore that this imprint has been made by a different shoe to the submitted shoes from the suspect. The shoe producing imprint Q6 appears to have slipped whilst making this particular imprint causing some distortion in the toe area of this imprint. The footwear imprints in photograph Q3 and Q4 have been made by a right shoe with a similar sole pattern to the suspect's right shoe. However these imprints appear to have been made by a shoe of different size to that of the submitted shoe and have different wear and damage features. I have concluded therefore that this imprint has been made by a different shoe to the submitted shoes from the suspect.
FLV9EZ-5331	The footwear from the scene is the same size and make as the footwear from the suspects. there is similarities on the prints concerning wear and tear on the soles so it can be concluded that the prints on the scene was very probably caused by the suspects shoes. An identification could not be established but association could be made with the prints
FMRNMN-5331	Q2 and Q5 were identified as having been made by the known right shoe of K1 based upon discernable reproducible class, wear and individual characteristics. Q7 was identified as having been made by the known left shoe of K1 based upon discernable reproducible class, wear and individual characteristics. Q1 and Q6 were eliminated as having been made by the known left shoe of K1 based upon a dissimilarity of mold, wear and individual characteristics. However; Q1 and Q6 have a high degree of association based upon a correspondence of class, wear and mold characteristics and upon submission of a suspect shoe, a comparison can be performed. Q3 and Q4 were eliminated as having been made by the known right shoe of K1.
FVY92D-5332	[No Conclusions Reported.]
G6YFV4-5331	Q1 - The questioned footwear impression is similar in outsole design to the known left shoe submitted. However, the questioned footwear impression does not correspond in physical size with the known left shoe; therefore, the questioned footwear impression was not made by that shoe. The questioned footwear impression is of a left shoe; therefore, it could not have been made by the known right shoe submitted. Q2 - The questioned footwear impression corresponds in outsole design and physical size with the known right shoe submitted. Additionally, the questioned footwear impression contains sufficient unique identifying characteristics that are also present in the known right shoe; therefore, it was determined that the questioned footwear impression designated Q2 was made by the known right shoe. Q3 - The questioned footwear impression is similar in outsole design as the known right shoe submitted, however, the questioned footwear impression is of a different physical size than the known right shoe; therefore, the questioned footwear impression was not made by the known right shoe. The questioned footwear impression is of a right shoe; therefore, it could not have been made by the known left shoe submitted. Q4 - The questioned footwear impression is similar in outsole design as the known right shoe submitted; however, the questioned footwear impression is of a different physical size than the known right shoe; therefore, the questioned footwear impression was not made by the known right

TABLE 2

WebCode-Test	Conclusions
	shoe. The questioned footwear impression is of a right shoe; therefore, it could not have been made by the known left shoe submitted. Q5 - The questioned footwear impression corresponds in outsole design and physical size with the known right shoe submitted. Additionally, the questioned footwear impression contains sufficient unique identifying characteristics that are also present in the known right shoe; therefore, it was determined that the questioned footwear impression designated Q5 was made by the known right shoe. Q6 - The questioned footwear impression is similar in outsole design as the known left shoe submitted, however, the questioned footwear impression is of a different physical size than the known left shoe; therefore, the questioned footwear impression was not made by the known left shoe. The questioned footwear impression is of a left shoe; therefore, it could not have been made by the known right shoe submitted. Q7 - The questioned footwear impression corresponds in outsole design and physical size with the known left shoe submitted. Additionally, the questioned footwear impression contains sufficient unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression designated Q7 was made by the known left shoe.
G8RBHC-5335	The Q2 and Q5 impressions were made by the right shoe from K1. The Q7 impression was made by the left shoe from K1. The Q1, Q3, Q4, and Q6 impressions were not made by the left or right shoe from K1.
GBPQCT-5331	I conducted a comparison between the seven impressions (Q1 to Q7) and test impressions made by the suspect pair of shoes. In my opinion, the Q2 and Q5 impressions were made by the right shoe submitted. Q1, Q3, Q4 and Q6 can be excluded as having been made by the submitted pair of shoes. Q7 displays a high degree of association to the left shoe.
GEP24M-5331	The above evidence was submitted to the [Laboratory] for Footwear Impressions analysis. Upon visual examination of Laboratory items #4 and #5, the following was observed: Laboratory item #4: One full questioned footwear impression, designated Q2, and three partial questioned footwear impressions, designated Q1, Q3 and Q4 consisting of a black unknown residue on cardboard. Q3 and Q4 are partially overlapping Q2. Laboratory item #5 - Three partial questioned footwear impressions, designated Q5, Q6 and Q7 consisting of a black unknown residue on ceramic tile. Q6 is partially overlapping with Q7. Upon visual examination of questioned footwear impressions Q1 through Q7 and comparison to the known right and left sneakers K1 (as well as test impressions made by K1), the following was observed: A) Q2 and K1 (Right) are consistent with, and exhibit no discriminating differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q2 and K1 (Right) exhibit (18) corresponding individual characteristics. Therefore, it is the opinion of the undersigned that questioned footwear impression Q2 was made by the known right sneaker K1. B) Q5 and K1 (Right) are consistent with, and exhibit no discriminating differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q5 and K1 (Right) exhibit (7) corresponding individual characteristics. Therefore, it is the opinion of the undersigned that questioned footwear impression Q5 was made by the known right sneaker K1. C) Q7 and K1 (Left) are consistent with, and exhibit no discriminating differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q7 and K1 (Left) exhibit (14) corresponding individual characteristics. Therefore, it is the opinion of the undersigned that questioned footwear impression Q7 was made by the known left sneaker K1. D) Q1, Q3, Q4 and Q6 revealed that they are different in size/shape/tread design/wear pattern. Therefore, it is the opinion of the undersigned that the questioned footwear impressions Q1, Q3, Q4 and Q6 could not have been made by the known right/left sneaker K1.
GH8498-5331	[No Conclusions Reported.]
GHBJNT-5331	in conclusion the following results were obtained - Q1 had limited association of class characteristics in relation to physical size and design (similar) however there was evidence of inconsistent wear patterns on the suspect shoe that did not correlate with the questioned print. This mark cannot be confirmed as being made by the suspect shoe however the shoe cannot be

TABLE 2

WebCode-Test	Conclusions
	excluded. Q2 was identified due to the highest degree of association in that both the questioned print and the suspect shoe shared both class characteristics in size and design and also four randomly acquired individual characteristics of sufficient quality. It was identified that this mark was made by the suspects right shoe. Q3 was excluded as being made by the suspect shoes. Both brand and design were consistent with both the questioned mark and suspect shoe however there was a sufficient size discrepancy noted between the questioned mark and suspect shoes to negate the suspect shoe. Q4 was also excluded as being made by the suspect shoes. Again both the brand and design were consistent however there was a sufficient size discrepancy noted between the questioned mark and suspect shoes to negate the suspect shoes. Q5 had the highest degree of association with the mark and suspect shoe having similar characteristics in size, desigh and general wear. Both also had two randoml acquired charactieristics that matched. This mark was identified as being made by the suspect right shoe. Q6 was also excluded as being made by the suspect shoes. Again both the brand and design were consistent however there was a sufficient size discrepancy noted between the questioned mark and suspect shoes to negate the suspect shoes. Q7 was identified due to the highest degree of association in that both the questioned print and the suspect shoe shared both class characteristics in size and design and also three randomly acquired individual characteristics of sufficient quality. It was identified that this mark was made by the suspects left shoe.
GJKQQL-5331	There for four (4) footwear impressions depicted in Item 4, 4.1 through 4.4, and three (3) footwear impressions depicted in Item 5, 5.1 through 5.3. Footwear impressions 4.2 and 5.1 were made by the right saucony brand shoe and footwear impression 5.3 was made by the left saucony brand shoe depicted in Items 1, 2 and 3. Footwear impressions 4.1, 4.3, 4.4 and 5.2 were not made by either saucony brand shoe depicted in Items 1, 2 and 3. Disposition of Evidence: The evidence is being retained in section pending the completion of all requested analyses. This report contains opinions, conclusions or interpretations of the examiner whose signature appears below.
GKDNW8-5331	The seven shoe imprints depicted on the two photographs (Q1 – Q7) were directly compared to test imprints made by the Saucony shoes (K1) women's size 9 US, and the sources of any randomly acquired characteristics were confirmed on the photographs of the outsoles of the Saucony shoes (K1). The right Saucony brand shoe (K1) was compared and positively identified as having made partial shoe imprints Q2 and Q5; and the left Saucony brand shoe (K1) was compared and positively identified as having made partial shoe imprint Q7. These identifications are based on the correspondence of design, physical size of the design, and general wear of the Saucony brand shoes as well the size, shape, and position of randomly acquired characteristics. Shoe imprints Q1, Q3, Q4, and Q6 were excluded by size as having been made by either of the Saucony brand shoes in Item K1. These shoe imprints correspond in design with right and left Saucony brand shoes or another style or brand of shoes bearing the same physical design and smaller size. Further comparison of these shoe imprints can be attempted upon the submittal of suspect shoes.
GTRA7B-5332	Item 1 contained images of questioned footwear impressions identified as Q1-Q7 by the agency, images of the outsoles of "Saucony" shoes, and known impressions of the shoes. The images were printed natural size and overlays were made of the known impressions for direct comparison to questioned impressions Q1-Q7. Questioned impressions Q1, Q3, Q4, and Q6 had similar tread design to the known shoes, but differed in physical size and wear characteristics to the known shoes. The known Saucony shoes were excluded as a possible source of these impressions (Exclusion; See Scale Below). Impressions Q2 and Q5 were similar in tread design, physical size, wear, and randomly acquired characteristics to the known right Saucony shoe. The known right shoe was identified as having made impressions Q2 and Q5 (Identification). Impression Q7 was similar in tread design, physical size, wear, and randomly acquired characteristics to the known left Saucony shoe. The known left shoe was identified as having made impression Q7 (Identification).
GW82UJ-5331	Q1FWI - The Q1FWI partial footwear impression was not made by the left or right shoes represented in Item K1e. Q2FWI - The right shoe represented in Item K1g has been identified as

TABLE 2

WebCode-Test	Conclusions
	being the source of the Q2FWI impression. The Q2FWI impression was not made by the left shoe represented in Item K1g. Q3FWI - The Q3FWI partial footwear impression was not made by the left or right shoes represented in Item K1e. Q4FWI - The Q4FWI impression was not made by the left or right shoes represented in Item K1f. Q5FWI - The right shoe represented in Item K1f has been identified as being the source of the Q5FWI impression. The Q5FWI impression was not made by the left shoe represented in K1f. Q6FWI - The Q6FWI partial footwear impression was not made by the left or right shoes represented in Item K1g. Q7FWI - The left shoe represented in Item K1f has been identified as being the source of the Q7FWI impression. The Q7FWI impression was not made by the right shoe represented in Item K1f.
GXNYN4-5331	The Item Q1 through Q7 questioned footwear impressions were analyzed, compared and evaluated with the Item K-1 right and left Saucony, women's US size 9 shoes. The Item Q1 questioned footwear impression shares a similar tread design with the Item K1 left shoe. However, the Item Q1 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 left shoe. The Item Q2 questioned footwear impression corresponds in tread design, physical size, specific wear and identifying characteristics with the Item K1 right shoe. The Item Q3 questioned footwear impression shares a similar tread design with the Item K1 right shoe. However, the Item Q3 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 right shoe. The Item Q4 questioned footwear impression shares a similar tread design with the Item K1 right shoe. However, the Item Q4 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 right shoe. The Item Q5 questioned footwear impression corresponds in tread design, physical size, specific wear and identifying characteristics with the Item K1 right shoe. The Item Q6 questioned footwear impression shares a similar tread design with the Item K1 left shoe. However, the Item Q6 questioned footwear impression does not correspond in physical size or specific wear with the Item K1 left shoe. The Item Q7 questioned footwear impression corresponds in tread design, physical size, specific wear and identifying characteristics with the Item K1 left shoe. Based upon the above factors, it is the opinion of this examiner that: The Items Q1, Q3, Q4 and Q6 questioned footwear impressions were not made by the Item K1 left or right shoes. The Items Q2 and Q5 questioned footwear impressions were made by the Item K1 right shoe. The Item Q7 questioned shoe impression was made by the Item K1 left shoe.
GXZVU9-5331	[No Conclusions Reported.]
GYW9EF-5331	The Q2 and Q5 prints were compared and identified to photographs of the right suspect shoe. The Q7 print was compared and identified to photographs of the left suspect shoe. The Q6 print was eliminated as having been made by the suspect shoes due to differences in class characteristics. The Q1, Q3, and Q4 prints have indications of non-association with photographs of the suspect shoes.
H3U6LL-5335	The footwear impression depicted in Q2 and the partial footwear impression depicted in Q5 were made by the right shoe in K1. The partial footwear impression depicted in Q7 was made by the left shoe in K1. The remaining impressions depicted in Q1, Q3, Q4 and Q6 were not made by the shoes in K1.
H7C64M-5331	Impressions Q2 and Q5 were made by the submitted right Saucony shoe, K1. Impression Q7 was made by the submitted left Saucony shoe, K1. Impressions Q1 and Q6 were made by a second left shoe of similar design to the submitted Saucony shoes. Impressions Q3 and Q4 could have been made by different areas of a second right shoe of similar design to the submitted Saucony shoes.
H9YTG9-5331	No report needed per QA manual.
HBP3DW-5332	After I investigated ,the shoes that was found on the scene with the suspects shoes. I came to the conclusion that exhibit Q2,Q5,Q7 was found identical to the suspect shoes in connection with classification of the shoes and wear on the shoes. Q1,Q3,Q4,Q6 was found to be the same class characteristics but have not the same wear on the different shoes.

TABLE 2

WebCode-Test	Conclusions
HCZW7A-5332	The submitted DVD contained images of the known Saucony shoes (Items K1a - K1c), test impressions from the known shoes (Items K1d - K1g), and questioned footwear impressions (Items Q1 - Q7). The images of the known shoes and known test impressions were visually compared to the questioned impressions. The Saucony shoes (K1) differed in tread design and wear from the questioned impressions labeled Q1, Q3, Q4, and Q6. The Saucony shoes represented in the DVD are excluded as being the source of these questioned impressions (Exclusion). The questioned impressions labeled Q2 and Q5 corresponded in physical size, tread design, wear, and randomly acquired characteristics (RACs) to the right Saucony shoe. In the opinion of the examiner, the right Saucony shoe was the source of the questioned impressions, Q2 and Q5 (Identification). The questioned impression labeled Q7 corresponded in physical size, tread design, wear, and RACs to the left Saucony shoe. In the opinion of the examiner, the left Saucony shoe was the source of the questioned footwear impression, Q7 (Identification).
HPL9GX-5332	In the opinion of the examiner, the known footwear (K 1)was the source of, and made, questioned impressions Q2, Q5 and Q7. Another item of footwear being the source of these impressions is considered a practical impossibility. In the opinion of the examiner, the known footwear (K 1) was not the source of, and did not make, impressions Q1, Q3, Q4 and Q6.
J8KWBW-5332	The recovered right shoe was identified as having made the Q2 and Q5 impressions found at the crime scene based on the correspondence of class characteristics and multiple randomly acquired characteristics. The recovered left shoe was identified as having made the Q7 impression found at the crime scene based on the correspondence of class characteristics and multiple randomly acquired characteristics. The recovered shoes were eliminated as having made the Q1, Q3, Q4, and Q6 impressions based on differences in class characteristics.
J8LW7N-5335	I compared the photographs of impressions Q1 to Q7 with transparent overlays prepared from the sole test impresions of a pair of Saucony shoes. By comparing a shoe with a questioned impression, it is possible to determine whether or not the shoe made that impression. This conclusion is based on the correspondence or otherwise of characteristics such as sole pattern and size, degree of wear and the presence or absence of random sole damage, such as nicks, cuts and embedded stones. In determining the strength of a correspondence between an impression and a shoe I have considered the following two propositions: the likelihood of finding the shoeprint evidence if the shoe in question made the impression, and the likelihood of finding the shoeprint evidence if the shoe did not make the impression. The statement of opinion as to the significance of the correspondence between a shoe and an impression is selected from the following scale: is neutral, provides slight support, provides moderate support, provides strong support, provides very strong support, provides extremely strong support, is conclusive. There was a correspondence of pattern design, dimensions, wear and damage features between the Impression Q2 and the right Saucony shoe. In my opinion these findings provide conclusive evidence that this shoe made the impression. There was a correspondence of pattern design, dimensions, wear and some damage features between Impression Q5 and the right Saucony shoe. In my opinion these findings provide very strong support for the proposition that the right Saucony shoe made Impression Q5. However, another shoe with the same sole pattern, dimensions, wear features and areas of damage, could also have made the impression. There was a correspondence of pattern design, dimensions, wear and some damage features between Impression Q7 and the left Saucony shoe. In my opinion these findings provide very strong support for the proposition that the left Saucony shoe made Impression Q7. However, another shoe with the same sole pattern, dimensions, wear features and areas of damage, could also have made the impression. There were differences in either the pattern design, the dimensions or the wear features of Impressions Q1, Q3, Q4 and Q6 and the Left and right Saucony shoes. Therefore, in my opinion neither of the Saucony shoes could have made these four impressions.
JMDG4B-5331	The submitted footwear was examined and compared to the impressions visible in Q1-Q7. The question impressions in Q2 and Q5 correspond to the known right footwear in tread pattern, tread size, tread wear and individual characteristics including nicks, gouges and scratches in the surface of the tread. Thus, Q2 and Q5 were made by the known right shoe. The question

TABLE 2

WebCode-Test	Conclusions
	impression in Q7 corresponds to the known left footwear in tread pattern, tread size, tread wear and individual characteristics including nicks and scratches in the surface of the tread. Thus, Q7 was made by the known left shoe. The question impression in Q1 corresponds to the known left footwear in tread pattern and tread size; however differs in tread wear and individual characteristics. Thus, Q1 could not have been made by the known left shoe. The question impressions in Q3 and Q4 correspond to the known right footwear in tread pattern; however differ in tread size, tread wear and individual characteristics. Thus, Q3 and Q4 could not have been made by the known right shoe. The question impression in Q6 corresponds to the known left footwear in tread pattern; however differs in tread size, tread wear and individual characteristics. Thus, Q6 could not have been made by the known left shoe.
JTLUUM-5332	Q1 - Based on the class characteristic of dimensions, the known shoes can be eliminated from making Q1. Q2 - With class, wear and sufficient randomly acquired characteristics in common, Q2 was made by the right known shoe. Q3 - Based on the class characteristic of dimensions, the known shoes can be eliminated from making Q3. Q4 - Based on the class characteristic of dimensions, the known shoes can be eliminated from making Q4. Q5 - With class, wear and sufficient randomly acquired characteristics in common, Q5 was made by the right known shoe. Q6 - Based on the class characteristic of dimensions, the known shoes can be eliminated from making Q6. Q7 - With class ,wear and sufficient randomly acquired characteristics in common, Q7 was made by the left known shoe.
JURG3K-5331	EXAMINATION REQUESTED: 1. Examination for the presence of footwear impressions 2. Determine if the shoes submitted could be the source of the questioned footwear impressions METHODS USED: 1. Visual examination: Laboratory items #1-5 2. Test impressions prepared: a. Transparency Overlays: K1L/K1R RESULTS OF EXAMINATION/ANALYSIS: 1. Observed Impressions a. Laboratory item #4 - 4 questioned footwear impressions on cardboard i. Q1 - one partial impression in black residue ii. Q2 - one full impression in black residue iii. Q3 - one partial impression in black residue iv. Q4 - one partial impression in black residue b. Laboratory item #5 - 3 questioned impressions on ceramic tile i. Q5 - one partial impression in black residue ii. Q6 - one partial impression in black residue iii. Q7 - one partial impression in black residue 2. Comparison a. Questioned impressions Q1 through Q7 were compared to the known left and right sneakers (K1L and K1R), as well as test impressions generated by K1L/K1R with the following results: i. Q1, Q3, Q4, Q6 and the known sneakers (K1L and K1R) are different with respect to physical size, wear, and tread design. ii. Q2 and K1R are consistent and exhibit no discriminating differences with respect to class characteristics: physical size, shape, tread design, and wear pattern. In addition, Q2 and K1R exhibit 9 corresponding individual characteristics. iii. Q5 and K1R are consistent and exhibit no discriminating differences with respect to class characteristics: physical size, shape, tread design, and wear pattern. In addition, Q5 and K1R exhibit 6 corresponding individual characteristics. iv. Q7 and K1L are consistent and exhibit no discriminating differences with respect to class characteristics: physical size, shape, tread design, and wear pattern. In addition, Q7 and K1L exhibit 9 corresponding individual characteristics. INTERPRETATION OF RESULTS: 1.It is the opinion of the undersigned that questioned footwear impressions Q1, Q3, Q4, and Q6 could not have been made by the known sneakers K1L/K1R, submitted as Laboratory items 1 through 3. 2.It is the opinion of the undersigned that questioned footwear impressions Q2 and Q5 were made by the known right sneaker K1R submitted as Laboratory items 1 through 3. 3.It is the opinion of the undersigned that questioned footwear impression Q7 was made by the known left sneaker K1L submitted as Laboratory items 1 through 3.
K3ZF7U-5335	Q1, Q3, Q4 and Q5, have resulted excluded due to size. Q2, complet footprint. Positive identification. Q5 and Q7 offer valuable fragments.
KFAUQ2-5331	Photographs of the K1 shoe soles and shoe prints were compared to photographs of questioned shoe prints Q1-Q7. The shoe prints Q2 and Q5 were made by the K1 right shoe. The shoe print Q7 was made by the K1 left shoe. Shoe prints Q1, Q3, Q4, and Q6 were not made by the K1 shoes.

TABLE 2

WebCode-Test	Conclusions
KGKV9U-5332	The results speak with certainty that imprint Q7 has been made by the suspect's left shoe (Identification). The results speak with certainty that imprints Q2 and Q5 have been made by the suspect's right shoe (Identification). The results speak with certainty that imprints Q1, Q3, Q4 and Q6 have not been made by any of the suspect's shoes (Elimination).
KHVVCF-5332	Q1, Q3, Q4, Q6 are smaller than the known imprints, and the shape of the grid on the shoe sole is different from the known imprints. In addition, the damage on the suspect's shoes is not seen in these questioned imprints. Q2, Q5 and Q7 have similar class characteristics, grid shape of the shoe sole, and randomly aquired characteristics with known imprints. But the number of matched characteristics are not be sufficient to be identified(A).
KMM6H8-5335	The patterned impressions designated Q2 and Q5 were identified as having been made by the right shoe and the patterned impression designated Q7 was identified as having been made by the left shoe represented in the photos K1a through K1g. The patterned impressions designated Q1, Q3, Q4, and Q6 could not have been made by the shoes represented in the photos K1a through K1g due to significant differences in outsole pattern size.
KTECZF-5332	In the opinion of the examiner, neither the right or left known standards were the source of, and did not make, the questioned impressions Q1-imp1, Q3-imp1, Q4-imp1 or Q6-imp1. In the opinion of the examiner, the right known standard was the source of, and made the questioned impression Q2-imp1 and Q5-imp1. In the opinion of the examiner, the left known standard was the source of, and made the questioned impression Q7-imp1.
KTYQQE-5331	Physical comparison of the partial shoe prints in Q2 and Q5 with the right shoe in K1, revealed them to be consistent with respect to size, shape, tread design, wear and individual characteristics. Therefore, Q2 and Q5 were made by the right shoe in K1. Physical comparison of the partial shoe print in Q7, with the left shoe in K1, revealed the them to be consistent with respect to size, shape, tread design, wear and individual characteristics. Therefore, Q7 was made by the left shoe in K1. Physical comparison of the shoe prints in Q1, Q3, Q4 and Q6, with the shoes in K1 revealed them to be inconsistent with one or more of the following: size, wear or individual characteristics. Therefore, these shoe prints could not have been made by these shoes.
KXTRRT-5331	The submitted Saucony footwear was compared in detail against the 7 footwear scene marks (Q1-Q7). All of the marks are of the same pattern type, however marks Q1,Q3,Q4, and Q6 have been excluded as having been made by the submitted footwear due to a difference in size and wear. The remaining considered marks Q2, Q5 and q7 all correspond with the Saucony footwear in terms of pattern, size, pattern configuration and degree and distribution of wear. In addition there are several features visible in the marks that correspond with random damage features present on the soles of the Saucony footwear. Therefore, in my opinion, the findings provide conclusive evidence that the considered footwear marks have been made by the Saucony footwear, and can be classed as an identification.
KZUQ67-5332	A visual examination of Impressions Q1, Q2, Q3, Q4, Q5, Q6, and Q7 to the suspect's Saucony brand shoes was conducted. Impressions Q1 and Q6 corresponded in tread design to the suspect's left Saucony brand shoe; however, the physical size and wear characteristics were different. The suspect's left Saucony brand shoe was eliminated as having made impressions Q1 and Q6 based on differences in physical size and wear characteristics (Exclusion). Impressions Q3 and Q4 corresponded in tread design to the suspect's right Saucony brand shoe; however, the physical size and wear characteristics were different. The suspect's right Saucony brand shoe was eliminated as having made impressions Q3 and Q4 based on differences in physical size and wear characteristics (Exclusion). Impressions Q2 and Q5 corresponded in tread design, physical size, wear characteristics, and randomly acquired characteristics with the suspect's right Saucony brand shoe. The suspect's right shoe was identified as having made Impressions Q2 and Q5 (Identification). Impression Q7 corresponded in tread design, physical size, wear characteristics, and randomly acquired characteristics with the suspect's left Saucony brand shoe. The suspect's left shoe was identified as having made Impression Q7 (Identification).

TABLE 2

WebCode-Test	Conclusions
KZX9CH-5331	The impressions marked Q2, Q5 and Q7 correspond in class characteristics, namely design (arrangement of footwear design elements and pattern/s), wear (extent of erosion to the outsole) and physical size (length, width and relative positions of various design elements in the outsole) and in individual characteristics (random characteristics i.e. nicks, cuts, tears etc. similar in size, shape, orientation and location resulting from random events), therefore it can be stated that the Suspect's shoes were the source of the impressions. The impressions marked Q1, Q3, Q4 and Q6 correspond in general design, however, significant differences are noted in wear and specific design elements, therefore it can be stated that the Suspect's shoes were not the source of the impressions.
L2NZDE-5331	Q1 is a partial (heel area) left footwear impression. Both the left and right outsoles as represented by K1a were eliminated as making this impression. Q2 is an almost full right footwear impression. The right outsole as represented by K1a was identified as making this impression. Q3 is partial (toe and ball area) right footwear impression. Both the left and right outsoles as represented by K1a were eliminated as making this impression. Q4 is a partial (heel and arch area) right footwear impression. Both the left and right outsoles as represented by K1a were eliminated as making this impression. Q5 is a partial (heel area) right footwear impression. The right outsole as represented by K1a was identified as making this impression. Q6 is a partial (heel, arch, and ball) left footwear impression. Both the left and right outsoles as represented by K1a were eliminated as making this impression. Q7 is a partial (toe and ball area) left footwear impression. The left outsole as represented by K1a was identified as making this impression.
L4VAPK-5331	The questioned imprints Q1, Q3, Q4 & Q6 were not made by the suspect shoes identified in K1a, K1b, K1c, K1d & K1g due to the difference in sizing, therefore the suspect shoes are excluded.(Exclusion) Questioned imprint Q2 was identified as having been made by the right shoe of the suspect shoes. (Identification) Questioned imprint Q7 was identified as having been made by the left shoe of the suspect shoes. (Identification) Questioned imprint Q5 was identified as displaying a 'high degree of association' with the right heel of the suspect shoes. (High degree of association)
LCBQJF-5331	The footwear impressions depicted in the submitted photographs (Q2, Q5, and Q7) were produced by one of the shoes depicted in the submitted photographs. The footwear impressions depicted in the submitted photographs (Q1, Q3, Q4, and Q6) were not produced by either of the shoes depicted in the submitted photographs.
LHVXWD-5332	Q1-IMP1 through Q7-IMP1 were compared to the submitted shoe and shoe imprint images, as well as the overlays made from the referenced shoe imprints images. Based on these comparisons, it is the opinion of this examiner that the following conclusions were effected: Impression Q1-IMP1 The left shoe is excluded as the source of Q1-IMP1 based on mold characteristics, wear pattern, and accidental characteristics not in agreement between Q1-IMP1 and the left shoe. The right shoe is excluded as the source of Q1-IMP1 based on outsole design, wear pattern, and accidental characteristics not in agreement between Q1-IMP1 and the right shoe. Impression Q2-IMP1 The left shoe is excluded as the source of Q2-IMP1 based on outsole design not in agreement between Q2-IMP1 and the left shoe. The right shoe is identified as the source of Q2-IMP1 based on outsole design, design size, wear pattern, and accidental characteristics in agreement between Q2-IMP1 and the right shoe. Impression Q3-IMP1 The left shoe is excluded as the source of Q3-IMP1 based on outsole design and accidental characteristics not in agreement between Q3-IMP1 and the left shoe. The right shoe is excluded as the source of Q3-IMP1 based on outsole design, design size, general wear, and accidental characteristics not in agreement between Q3-IMP1 and the right shoe. Impression Q4-IMP1 The left shoe is excluded as the source of Q4-IMP1 based on outsole design not in agreement between Q4-IMP1 and the left shoe. The right shoe is excluded as the source of Q4-IMP1 based on design size, mold characteristics, wear pattern, and a possible accidental characteristic not in agreement between Q4-IMP1 and the right shoe. Impression Q5-IMP1 The left shoe is excluded as the source of Q5-IMP1 based on outsole design and accidental characteristics not in agreement between Q5-IMP1 and the left shoe. The right shoe is identified as the source of

TABLE 2

WebCode-Test	Conclusions
	Q5-IMP1 based on outsole design, design size, wear pattern, and accidental characteristics in agreement between Q5-IMP1 and the right shoe. Impression Q6-IMP1 The left shoe is excluded as the source of Q6-IMP1 based on design size, mold characteristics, wear pattern, and accidental characteristics not in agreement between Q6-IMP1 and the left shoe. The right shoe is excluded as the source of Q6-IMP1 based on outsole design and accidental characteristics not in agreement between Q6-IMP1 and the right shoe. Impression Q7-IMP1 The left shoe is identified as the source of Q7-IMP1 based on outsole design, design size, wear pattern, and accidental characteristics in agreement between Q7-IMP1 and the left shoe. The right shoe is excluded as the source of Q7-IMP1 based on outsole design and accidental characteristics not in agreement between Q7-IMP1 and the right shoe.
LJ66Z7-5332	The footwear impressions labeled Q1, Q3, Q4, and Q6 were eliminated as having been produced by the known Saucony shoes item K1. Exclusion The footwear impressions Q2 and Q5 exhibit tread design, physical size, wear patterns, and some randomly acquired characteristics in agreement to the submitted known right Saucony shoe of item K1. The footwear impressions Q2 and Q5 were produced by this shoe. Identification The footwear impression Q7 exhibits tread design, physical size, wear pattern, and some randomly acquired characteristics in agreement to the submitted known left Saucony shoe of item K1. The footwear impression Q7 was produced by this shoe. Identification
LLCFWA-5332	The design elements, physical size, and general wear present in the impression were found to correspond to the left known shoe. Features present in the impression were found to correspond to the position and orientation of general wear present on the shoe and void areas in the impression were found to correspond to damage on the shoe outsole. Based on the manufactured random accidental characteristics that were found to correspond between the impression and the outsole of the left shoe, it is the opinion of the examiner, that the left known shoe K1 was the source of the impression Q7.
LP97ZZ-5331	[No Conclusions Reported.]
LWRA83-5331	[No Conclusions Reported.]
LXQBFF-5331	Comparison examinations were conducted and the findings of this examiner are as follows: Impressions Q2 and Q5 were made by the submitted Right shoe (K1). Impressions Q7 was made by the submitted Left shoe (K1). Impressions Q1 and Q6 were made by an additional Left shoe with similar outsole design as the submitted (K1) shoe. Impressions Q3 and Q4 were not made by the submitted K1 shoes. Impression Q3 was made by a toe area, and impression Q4 was made by a heel area; however they could have been made by a second right shoe with a similar outsole design as the submitted right K1 shoe.
M3FEFX-5331	Q1-The questioned footwear impression appears to be that of the heel area of a shoe. The questioned footwear impression is similar in outsole design to the known left shoe submitted; however, the physical size of the questioned footwear impression and general wear of the individual elements do not correspond to the known left shoe submitted; therefore, the questioned footwear impression could not have been made by the left known shoe submitted. The questioned footwear impression is of a left shoe; therefore, it could not have been made by the known right shoe submitted. Q2-The questioned footwear impression contains the toe and heel area of a right shoe. The questioned footwear impression corresponds in outsole design, physical size, and general wear to the known right shoe submitted. The questioned footwear impression also contains the presence of unique characteristics that are also present in the known right shoe; therefore, the questioned footwear impression was identified as having been made by the known right shoe submitted. The questioned footwear impression is of a right shoe; therefore, it could not have been made by the known left shoe submitted. Q3-The questioned footwear impression contains the toe area of a right shoe. The questioned footwear impression is similar in outsole design to the known right shoe submitted, however, the physical size of the questioned footwear impression and the general wear of the individual elements do not correspond to the known right

TABLE 2

WebCode-Test	Conclusions
	shoe submitted; therefore, the questioned footwear impression could not have been made by the right shoe submitted. The questioned footwear impression is of a right shoe; therefore, it could not have been made by the known left shoe submitted. Q4-The questioned impression is that of the midsole to heel area of a right shoe. The questioned footwear impression is similar in outsole design to the known right shoe submitted; however, the physical size of the questioned footwear impression and general wear of the individual elements do not correspond to the known right shoe submitted; therefore, the questioned footwear impression could not have been made by the right shoe submitted. The questioned footwear impression is of a right shoe; therefore, it could not have been made by the known left shoe submitted. Q5-The questioned impression is that of the heel area of a shoe. The questioned footwear impression corresponds in outsole design, physical size, and general wear to the known right shoe submitted. The questioned footwear impression also contains the presence of unique characteristics that are also present in the known right shoe; therefore, the questioned footwear impression was identified as having been made by the known right shoe submitted. The questioned footwear impression is of a right shoe; therefore, it could not have been made by the known left shoe submitted. Q6-The questioned footwear impression consists of a midsole and heel area of a left shoe. There is slippage visible in the top of the impression. The questioned footwear impression is similar in outsole design to the known left shoe submitted, however, the physical size of the questioned footwear impression and general wear of the individual elements do not correspond to the known left shoe submitted; therefore, the questioned footwear impression could not have been made by the left shoe submitted. The questioned footwear impression is of a left shoe; therefore, it could not have been made by the known right shoe submitted. Q7- The questioned footwear impression consists of a toe area of a left shoe. The questioned footwear impression corresponds in outsole design, physical size, and general wear to the known left shoe submitted. The questioned footwear impression also contains the presence of unique characteristics that are also present in the known left shoe; therefore, the questioned footwear impression was identified as having been made by the known left shoe submitted. The questioned footwear impression is of a left shoe; therefore, it could not have been made by the known right shoe submitted.
M7DWDP-5331	[No Conclusions Reported.]
MQ2ENB-5331	The evidence in items 1D and 1E (Q1 - Q7) was visually examined for impression evidence. Seven (7) partial footwear impressions of value were determined to be present in items 1D (Q1, Q2, Q3, and Q4) and 1E (Q5, Q6, and Q7). All the partial footwear impressions (Q1 - Q7) in items 1D and 1E were visually examined and compared against the recovered shoes (K1a - K1g) in items 1A, 1B, and 1C. Two (2) partial footwear impressions (Q2 and Q5) present in items 1D and 1E were determined to have been made by the right shoe (K1a - K1g) in items 1A, 1B, and 1C. One partial footwear impression (Q7) present in item 1E was determined to have been made by the left shoe (K1a - K1g) in items 1A, 1B, and 1C. Four (4) partial footwear impressions (Q1, Q3, Q4, and Q6) present in items 1D and 1E were determined not to have been made by the recovered shoes (K1a - K1g) in items 1A, 1B, and 1C. Further analysis is pending submission of additional shoes for comparison.
MQK4AC-5331	It was determined that the questioned imprints represented by Q2 and Q5 were made by the K1 right shoe. It was determined that the questioned imprint represented by Q7 was made by the K1 Left shoe. It was determined that the questioned imprints represented by Q1, Q3, Q4 & Q6 were not made by the K1 right or left shoes.
MW7ZWD-5331	The above findings provide extremely strong support for the view that the right runner K1, rather than other footwear, made the impression Q2 from the scene. The findings provide very strong support for the view that the left runner K1, rather than other footwear, made the impression Q7 from the scene. They also provide strong support for the view that the right runner K1, rather than another runner, made the impression Q5 from the scene. Taken together these findings provide extremely strong support for the view that the runners K1 made some of the impressions at the scene. I have chosen the above from the following scale: weak support, moderate support, moderately strong support, strong support, very strong support, extremely strong support. The

TABLE 2

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	runners K1 have been excluded as a source of the impressions Q1, Q3 Q4 and Q6 from the scene.
NRCJWT-5331	A complete evaluation of an unknown impression and a known shoe includes looking at correspondence in tread design, physical size and shape of design present, wear characteristics, and any distinctive characteristics randomly acquired on the outsole of the shoe that are represented in the unknown impression. Seven unknown impressions (Q1 – Q7) in Item 1A were compared to the known shoes represented in the photographs in Items 1B and 1C (K1a – K1g). The unknown impressions in Q2, Q5 and Q7 correspond in general tread design, physical size and shape of tread, wear and the presence of randomly acquired characteristics to the known shoes represented in photographs K1a – K1g in Items 1B and 1C. Therefore, these shoes represented in the Items 1B and 1C photographs are the source of these unknown impressions (Type I Association/Identification). The unknown impressions in Q1, Q3, Q4, and Q6 exhibited different pattern on the tread, wear and/or randomly acquired characteristics to the known shoes represented in the photographs in Items 1B and 1C. Therefore, these shoes can be eliminated as being a possible source for the unknown impressions in Q1, Q3, Q4, and Q6 (Elimination). Interpretation: The following descriptions are meant to provide context to the opinions reached in this report. Every type of conclusion may not be applicable in every case or for every material type. Type I Association: Identification: An association in which items share individual characteristics and/or physically fit together that demonstrate the items were once from the same source. Type II Association: Association with distinct characteristics: An association in which items correspond in all measured physical properties, chemical composition and/or microscopic characteristics and share distinctive characteristic(s) that would not be expected to be found in the population of this evidence type. The distinctive characteristics were not sufficient for a Type I Association. Type III Association: Association with conventional characteristics: An association in which items correspond in all measured physical properties, chemical composition and/or microscopic characteristics and could have originated from the same source. Because it is possible for another sample to be indistinguishable from the submitted evidence, an individual source cannot be determined. Type IV Association: Association with limitations: An association in which items could not be differentiated based on observed and/or measured properties and/or chemical composition. As compared to the categories above, this type of association has decreased evidential value as a result of items that are more commonly encountered in the relevant population, the inability to perform a complete analysis, limited information, or minor variations observed in the data. Inconclusive: No conclusion could be reached regarding an association or an elimination between the items. Dissimilar: The items were dissimilar in physical properties and/or chemical composition, indicating that the items may not have originated from the same source. However, these dissimilarities were insufficient for a definitive Elimination. Elimination: Items exhibit dissimilarities in one or more of the following: physical properties, chemical composition or microscopic characteristics and, therefore, conclusively did not originate from the same source.
NXGKV2-5331	[No Conclusions Reported.]
NXXDUQ-5332	THE FOOTWEAR N° Q3 CAN NOT BE DETERMINED TO 100% WHICH IS RIGHT FOOT WHEN THE COMPLETION OF THE FOOTPRINT IS LACKED.
P8XLU8-5331	The evidence in items 1D and 1E (CTS # Q1 through Q7) was visually examined for impression evidence. Seven (7) questioned imprints of value were determined to be present in items 1D and 1E (CTS # Q1 through Q7). All seven (7) of the questioned imprints in items 1D and 1E (CTS # Q1 through Q7) were visually examined and compared against the recovered shoes in items 1A, 1B, and 1C (CTS # K1a through K1g). Two (2) of the questioned imprints in items 1D and 1E (CTS # Q2 and Q5) were determined to have been made by the recovered right shoe in items 1A, 1B, and 1C (CTS # K1a through K1g). One of the questioned imprints in item 1E (CTS # Q7) was determined to have been made by the recovered left shoe in items 1A, 1B, and 1C (CTS # K1a through K1g). Four (4) of the questioned imprints in items 1D and 1E (CTS # Q1, Q3, Q4, and Q6) were determined not to have been made by the recovered shoes in items 1A, 1B,

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	and 1C (CTS # K1a through K1g). Further analysis is pending submission of additional shoes for comparison.
P9CV2M-5331	Identification between Q2 & R Shoe, pattern, pattern arrangement & wear correspond. In addition a number of characteristic damage features correspond. Identification between Q7 & L Shoe for similar reasons. Q6 excluded for both L&R shoes. If single mark - Q6 made by a left shoe - same pattern & similar wear to L shoe - heel area well defined & no overlay with L shoe - indications of movement & sliding & void area between heel and toe area therefore possibly more than one mark. If toe area is a separate mark to heel area code D for L Shoe. High degree of association between Q5 & R due to correspondence in pattern, pattern arrangement & wear - few correspondence damage features but not well defined. Q1, 3 & 4 excluded as similar pattern but pattern arrangement is different.
P9EK96-5331	The comparisons of the enclosed footwear impressions (Q1-Q7 and K1a-K1g) concerned the physical size and shape of the outsole, the outsole design, and random individual identifying characteristics. From the performed comparative analysis we observed that on the surface of the outsoles of shoes, being the comparative material, there were present some individual identifying characteristics. Similar individual characteristics were also found in the evidence material marked Q2 and Q5 on the right outsole and Q7 on the left outsole. This we concluded that Items Q1, Q3, Q4 and Q6 are different from the comparative materials.
PDA88K-5331	I concluded that the questioned imprints Q1, Q3, Q4, and Q6 had different pattern and size (smaller) characteristics to the recovered shoes. Therefore the shoes are excluded from having made these imprints. I also concluded that the right recovered shoe is identified as having made the questioned imprint Q2 and that the left recovered shoe is identified as having made the imprint Q7. I also concluded that there was a high degree of association between the imprint Q5 and the right recovered shoe. Due to poor definition of random accidental characteristics in the imprint, a more positive conclusion (identification) could not be made regarding Q5.
PLLJZC-5332	Apparent footwear impressions suitable for comparative examination were noted in Exhibits Q1 through Q7. Two (2) right footwear impressions noted in Exhibits Q2 and Q5 were made by the right shoe photographed in Exhibits K1a through K1c. One (1) left footwear impression noted in Exhibit Q7 was made by the left shoe photographed in Exhibts K1a through K1c. The remaining footwear impressions noted in Exhibits Q1,Q3, Q4, and Q6 were not made by the shoes photographed in Exhibits K1a through K1c based on differences in physical size and design.
PRQ8VY-5335	Q1-Q7 were similar in shape and tread design to the shoes in K1. Impressions Q7 was in agreement in individualizing characteristics and therefore identified as having been made by the left shoe in item K1. Impressions Q2 and Q5 were in agreement in individualizing characteristics and therefore identified as having been made by the right shoe in item K1. Impressions Q1, Q3, Q4, and Q6 were excluded as having been made by the shoes in item K1 due to opposite tread alignment or disagreement in individualizing characteristics, size, and wear.
PTMM7B-5331	The Q2 and Q5 questioned impressions were made by the K1-R right shoe. These identifications are based on sufficient agreement of the combination of individual characteristics and all discernible class characteristics. The Q7 questioned impression was made by the K1-L left shoe. This identification is based on sufficient agreement of the combination of individual characteristics and all discernible class characteristics. The Q1, Q3, Q4, and Q6 questioned impressions were not made by either the K1-L left shoe or the K1-R right shoe. These eliminations are based on differences in class characteristics (design, physical size/shape).
PZ2QT4-5335	Examination of Exhibit #Q revealed seven footwear impressions suitable for comparison. Comparison revealed that three of the suitable footwear impressions were made by the shoes marked K. The remaining footwear impressions were not made by the shoes marked K.
Q294EB-5331	Upon examination, I found: i) Characteristic marks on the questioned imprints Q2 and Q5 were identified to be similar with the characteristic marks of the right suspect shoe. ii) Characteristic marks on the questioned imprint Q7 were identified to be similar with the characteristic marks on

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	of the left suspect shoe. iii) Characteristic marks on the questioned imprints Q1, Q3, Q4 and Q6 were dissimilar with the characteristic marks of the suspect shoes; hence they were excluded. Therefore, I am of the opinion that:- i) The questioned imprints Q2 and Q5 were made by the right suspect shoe. ii) The questioned imprint Q7 was made by the left suspect shoe. iii) The questioned imprints Q1, Q3, Q4 and Q6 were not made by the suspect shoes.
Q6M48W-5335	Two CDs (Items 001 and 002) were examined for the presence of footwear impressions. Four impressions (Impressions Q1 – Q4) were observed in the images from Item 001, and three impressions (Impressions Q5 – Q7) were observed in the images from Item 002. The seven impressions were preserved through digital imaging. Impressions Q1 – Q4 (Item 001) and Impressions Q5 – Q7 (Item 002) were compared to the images of the shoes and test impressions contained in Item 003. Impression Q2 (Item 001) and Impression Q5 (Item 002) were identified as having been made by the right shoe in Item 003. Impression Q7 (Item 002) was identified as having been made by the left shoe in Item 003. Impressions Q1, Q3, and Q4 (Item 001) and Impression Q6 (Item 002) were excluded as having been made by the shoes in Item 003 due to disagreement in tread design, tread alignment and/or individualizing characteristics.
Q8TDD8-5331	The right shoe made impression Q2 from the shipping box in the store and impression Q5 from the ceramic tile in the store. The left shoe made impression Q7 from the ceramic tile in the store. Neither the left nor the right shoe made the remaining impressions (Q1, Q3, Q4, Q6)
Q9B9DN-5332	[No Conclusions Reported.]
Q9TGWB-5332	VICTIM: Unknown SUSPECT: FR#17-45517 CRIME: 240/664/459 DATE: Unknown DEPT: CTS DR#: 17-5332 Examination(s): I was requested to compare photographs of seven (7) shoeprints to photographs of two (2) pair of shoes and exemplars that were contained on a CD to determine if the submitted shoes had made the impressions. Item(s) Examined: [Laboratory] Item Description 1 CD with footwear images Questioned impressions: Q-1 was a photograph of a partial shoeprint heel with square elements with a slanted void between them in the form of two triangles that faced away from each other. Within these elements were small squares. There was also part of the logo with a partial star pattern. Q-2 was a photograph of a right shoeprint with square elements with a slanted void between them in the form of two triangles that faced away from each other. In the heel area were hexagon shapes with a star type pattern inside them, and in the toe area were hexagon shapes with a star type pattern inside them that consisted of triangles that faced each other. Q-3 was a photograph of a partial shoeprint heel with square elements with a slanted void between them in the form of two triangles that faced away from each other. Within these elements were small squares. There was also part of the logo with hexagon shapes with a star type pattern inside them that consisted of triangles that faced each other. Q-4 was a photograph of a partial right shoeprint with square elements with a slanted void between them in the form of two triangles that faced away from each other. Within these elements were small squares. In the heel area were part of the logo and partial hexagon shapes with a star type pattern inside them that consisted of triangles that faced each other. Q-5 was a photograph of a partial shoeprint heel with square elements with a slanted void between them in the form of two triangles that faced away from each other. Within these elements were small squares. There was also the "SAUCONY" word logo with partial hexagon shapes with a star type pattern inside them that consisted of triangles that faced each other. Q-6 was a photograph of a two partial shoeprints with square elements with a slanted void between them in the form of two triangles that faced away from each other. In the heel area were partial hexagon shapes with a star type pattern inside them that consisted of triangles that faced each other. There was also part of the word logo "SAUCON". Q-7 were photographs of a partial left shoeprint with square elements with a slanted void between them in the form of two triangles that faced away from each other. In the toe area were hexagon shapes with a star type pattern inside them that consisted of triangles that faced each other. Known Shoes: K 1-2 (a-c) were photographs of a pair of Womens Saucony USA 9 shoes and photographs of exemplars (d-g). The outsoles displayed square elements with a slanted void between them in the form of two triangles that faced away from each other. In the heel area were hexagon shapes with a star type pattern inside them that consisted of

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	triangles that faced each other. There was also the word logo "SAUCONY". In the toe area were hexagon shapes with a star pattern inside them that consisted of triangles that faced each other. Results and Interpretations: There was an identification between the K-1 submitted known left shoe and the Q-7 questioned impression. The K-1 known left shoe was the source of, and made, the Q-7 questioned impression. Another item of footwear being the source of the impression is considered a practical impossibility. There was an identification between the K-2 submitted known right shoe and the Q-2 and the Q-5 questioned impressions. The k-2 known right shoe was the source of, and made, the Q-2 and Q-5 questioned impressions. Another item of footwear being the source of the impression is considered a practical impossibility. The K 1-2 submitted known shoes were excluded from being the source of the Q-1, Q-3, Q-4, and Q-6 questioned impressions. Although the shoes were the same design, the questioned impressions were a different size than the known shoes, and there were differences in specific degrees of wear and damage between the known shoes and the questioned impressions. The known shoes were not the source of, and did not make the impressions. The notes, photos, and exemplars used for this comparison will be in [Laboratory] ID Impression Evidence files.
QAJKQH-5332	The results of the examination extremely strongly support that the imprint Q2 were made with the right shoe K1 (Level +4). The results of the examination strongly support that the imprint Q5 were made with the right shoe K1 (Level +3). The results of the examination extremely strongly support that the imprint Q7 were made with the left shoe K1 (Level +4). The results of the examination extremely strongly support that the imprints Q1, Q3, Q4 and Q6 were not made with the shoes K1 (Level -4).
QHZ2F7-5332	Q2 is a full right shoe impression and Q5 is a right partial heel shoe impression. The impressions appear similar in physical size, tread design, wear, and individual characteristics to the K1 right shoe. In the opinion of the examiner, the right shoe in K1 was the source of, and made, the right footwear imprints Q2 and Q5. Another item of footwear being the source of the impression is considered a practical impossibility. Q7 is a left partial toe shoe impression and appears similar in physical size, tread design, wear and individual characteristics to the K1 left shoe. In the opinion of the examiner, the left shoe in K1 was the source of, and made, the left footwear imprint Q7. Another item of footwear being the source of the impression is considered a practical impossibility. The left shoe imprints in Q1 and Q6 were similar in design to the left shoe in K1, but were not similar in size and wear characteristics; therefore the imprints were not made by the left shoe in K1. The right athletic shoe imprint in Q4 was similar in design to the right shoe in K1, but was not similar in size and wear characteristics; therefore the imprint was not made by the right shoe in K1. The athletic shoe imprint in Q3 was similar in design to the left and right shoes in K1, but was not similar in size and wear characteristics; therefore the imprint was not made by the left or right shoe in K1.
QLWU6U-5331	Questioned imprints of Q1-Q7 were compared with known imprint made with the recovered shoes. Questioned imprints of Q2, Q5 were found to be consistent in shape, physical size, and individual characteristics with the imprint of the recovered right shoe. Questioned imprints of Q7 were found to be consistent in shape, physical size , and individual characteristics with the imprint of the suspect left shoe. Questioned imprints of Q1, Q3, Q4, Q6 were eliminated as having been made by the recovered shoe.
QNZHQC-5331	The questionned imprints, Q2 and Q5, have been made by the suspect right shoe. The questionned imprint Q7 have been made by the suspect left shoe. The questionned imprints, Q1, Q3, Q4 and Q6, have not been made by the suspect shoes. However,The questionned imprints, Q1 and Q6 have been made by the same left shoe.
QZWHFA-5332	In my opinion, at least one footwear impression recovered from each of the shipping box and the ceramic tile was by the right shoe in the submitted images. There were at least two different pairs of Saucony patterned sole impressions recovered from the scene.
R264PV-5331	[No Conclusions Reported.]

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R9QYQY-5331	[No Conclusions Reported.]
RGMPFF-5332	Shoe marks labelled Q2, Q5 and Q7 and the right shoe of known footwear K1 share an agreement of class and randomly acquired characteristics of sufficient quality and quantity. In my opinion, the footwear K1 right was the source of, and made, the questioned marks Q2, Q5 and Q7 and the chance of another item of footwear being the source of the marks is considered negligible. (Identification) Shoe marks labelled Q1 and Q6 had a similar sole pattern to the left shoe of known footwear Ki, however there were differences between the size, wear and randomly acquired characteristics. In my opinion, the footwear K1 was not the source of and did not make the marks. (Exclusion) Shoe marks labelled Q3 and Q4 had a similar sole pattern to the left shoe of known footwear Ki, however there were differences between the size, wear and randomly acquired characteristics. In my opinion, the footwear K1 was not the source of and did not make the marks. (Exclusion)
RNHT3P-5331	Q1 - One (1) questioned footwear impression was noted. It was determined to be that of a left heel. The overall outsole design pattern is similar to that of the submitted known left shoe. However, the questioned footwear impression is of a different physical size; therefore, it was not made by the submitted known left shoe. Q2 - One (1) questioned footwear impression was noted. It was determined to be that of a right shoe and was also determined to have been made by the known right shoe submitted. Q3 - One (1) questioned footwear impression was noted. It was determined to be that of a right toe. The overall outsole design pattern is similar to that of the submitted known right shoe. However, the questioned footwear impression is of a different physical size; therefore, it was not made by the submitted known right shoe. Q4 - One (1) questioned footwear impression was noted. It was determined to be that of a right heel. The overall outsole design pattern is similar to that of the submitted known right shoe. However, the questioned footwear impression is of a different physical size; therefore, it was not made by the submitted known right shoe. Q5 - One (1) questioned footwear impression was noted. It was determined to be that of a right heel and was also determined to have been made by the known right shoe submitted. Q6 - One (1) questioned footwear impression was noted. It was determined to be that of a left shoe. There was evidence of slippage in the impression as well as smudging. The overall outsole design pattern is similar to that of the submitted known left shoe. However, the questioned footwear impression is of a different physical size; therefore, it was not made by the submitted known left shoe. Q7 - One (1) questioned footwear impression was noted. It was determined to be that of a left shoe and was also determined to have been made by the known left shoe submitted.
T3XFM8-5331	In the opinion of the examiner, the footwear imprints labeled Q1, Q3, Q4, and Q6, are of a different pattern, overall physical size, and general wear, than the known shoes labeled K1. Therefore, the known shoes labeled K1, were not the source of, and therefore did not make, the imprints labeled Q1, Q3, Q4, and Q6. In the opinion of the examiner, the footwear imprints labeled Q2 and Q5, correspond in design/pattern, physical size, and general wear, and share several individual characteristics and/or specific wear with the right known shoe labeled K1. Therefore, the right known shoe labeled K1, was the source of, and was determined to have made, the imprints labeled Q2 and Q5. Another item of footwear being the source of the imprints is considered a practical impossibility. In the opinion of the examiner, the footwear imprint labeled Q7, corresponds in design/pattern, physical size, and general wear, and shares several individual characteristics and/or specific wear with the left known shoe labeled K1. Therefore, the left known shoe labeled K1, was the source of, and was determined to have made, the imprint labeled Q7. Another item of footwear being the source of the imprint is considered a practical impossibility.
T47GWM-5331	It was determined that the impressions Q-2, Q-5 and Q-7 were made by the submitted shoes, K-1. It was also determined that the impressions Q-1, Q-3, Q-4 and Q-6 were not made by the submitted shoes, K-1.
T9GN27-5331	Would produce an SFR as not at Reporting level. So would conclude using the highest level of findings on the SFR. "The footwear recovered from (name in brackets) consists of a pair of trainers

TABLE 2

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	coded as Saucony (exhibit K1). These trainers were compared in detail to the footwear marks recorded at (address), exhibts (Q1-7). The marks correspond with the submitted footwear in terms of pattern, configuration, size, general degree of wear, position of wear and identifying features taking movement, limited quality and limited area into account".
TBCZBD-5331	[No Conclusions Reported.]
TC29EM-5335	At least two different shoes where involved, both same brand and model as the suspect shoes, but one of them different size. We could clearly identify three of the unknown shoeprints (Q2, Q5 & Q7) as produced by the suspect shoe. All the rest where produced, at least, by another shoes. We also could relate two of the unknown shoeprints, Q1 & Q6, as produced by the same left shoe. (In the SWGTREAD Range we would classify it as B: High degree of association)
TVWWR4-5331	Examination of contributor items #Q1 through #Q7 revealed seven footwear impressions of value for comparison. Comparison of the footwear impressions with the known footwear and test impressions of contributor item K1 revealed the following. The shoes of contributor item #K1 were not the source of, and did not make, the questioned impressions of contributor items #Q1, #Q3, #Q4, and #Q6. The right shoe of contributor item #K1 was the source of, and made, the questioned impressions of contributor items #Q2 and #Q5. The left shoe of contributor item #K1 was not the source of, and did not make, the questioned impressions of contributor items #Q2 and #Q5 (based on different shape). The left shoe of contributor item #K1 was the source of, and made, the questioned impression of contributor item #Q7. The right shoe of contributor item #K1 was not the source of, and did not make, the questioned impression of contributor item #Q7 (based on different shape).
TWRHGN-5331	The K1 known test impressions were compared to the Q1-Q7 questioned impressions. Identification: Agreements of class and individual characteristics confirmed the Q2 and Q5 impressions had been made by the K1 right shoe. Identification: Agreements of class and individual characteristics confirmed the Q7 impression had been made by the K1 left shoe. Exclusion: Differences of class and/or individual characteristics confirmed the Q1, Q3, Q4 and Q6 impressions had not been made either of the K1 shoes.
U2XND7-5331	I compared the test impressions from the shoes in K1 with the evidence impressions with the following results: Q1, Q3, Q4, and Q6 - Based on differences in the spatial relationship of the design, I determined that the four evidence impressions were not made by the submitted shoes in K1. Q2 and Q5 - Based on consistent class characteristics and sufficient matching wear and individual characteristics, I determined that the two impressions were made by the right shoe submitted in K1. Q7 - Based on consistent class characteristics and sufficient matching wear and individual characteristics, I determined that the impression was made by the left shoe submitted in K1.
U79T3K-5331	a)The partial footwear outsole impression identified as Q1 was produced by the heel portion of a left article of footwear. Several dissimilarities were noted when Impression Q1 was compared to the outsole of the left article of footwear of K1. Thus, there are indications of non-association between Q-1 and the left article of footwear of K1. b)The footwear outsole impression identified as Q2 was produced by a right article of footwear. The impression corresponds in physical size and design and shares numerous randomly acquired characteristics with the outsole of the right article of footwear of K-1. Thus, the right article of footwear of K-1 is identified as having produced Q2. c)The partial footwear outsole impression identified as Q3 was produced by the toe portion of a right article of footwear. Several dissimilarities were noted when impression Q3 was compared to the outsole of the right article of footwear of K1. Thus, there are indications of non-association between Q3 and the right article of footwear of K1. d)The partial footwear outsole impression identified as Q4 was produced by the heel portion of a right article of footwear. Several dissimilarities were noted when impression Q4 was compared to the outsole of the right article of footwear of K1. Thus, there are indications of non-association between Q-4 and the left article of footwear of K1. e)The partial footwear outsole impression identified as Q5 was produced by the heel portion of a right article of footwear. Impression Q5 corresponds in

TABLE 2

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	class characteristics and shares one randomly acquired characteristics present in the outsole of the right articles of footwear of K1. Thus, there is a high degree of association between Q5 and the right article of footwear of K1. f)The partial footwear outsole impression identified as Q6 was produced by the heel and mid sole portions of a left article of footwear. Numerous dissimilarities were noted when impression Q6 was compared to the outsole of the left article of footwear of K1. There is a high degree of non-association between the Q6 and the right article of footwear of K1. Thus, K1 is eliminated as having produced Q6. g)The partial footwear outsole impression identified as Q7 was produced by the toe portion of a left article of footwear. Impression Q7 corresponds in class characteristics and shares two randomly acquired characteristics which are present in the outsole of the left articles of footwear of K1. Thus, there is a high degree of association between Q7 and the right article of footwear of K1.
UAAWTM-5332	The questioned footwear marks, Q1 to Q7, have been compared in detail to the submitted footwear impressions, K1a to K1g. The questioned impressions Q2, 5 and 7 correspond in pattern design, pattern element size and spacing with the respective area of the outsoles of the test impressions taken from the recovered footwear. Furthermore the overall dimensions of the marks are also consistent. Additonally, all of these marks correspond in general degree and distribution of wear, with number of randomly acquired damage features agreeing in size, shape position and orientation with corresponding features apparent on the outsoles of the test impressions of the recovered footwear. Further marks submitted for comparison, Q1, 3, 4 and 6 can be excluded from having been made by the submitted footwear on the basis of the observed differences noted in size, wear and damage features.
UCDM2M-5331	Q1: The questioned footwear impression noted was of the same outsole design, but had a different wear patterns in the heal area and did not include the star shaped area present in the known shoe; therefore, it was not made by the known pair of shoes submitted. Q2: The questioned footwear impression corresponds in outsole design, physical size, and general wear with the known right shoe (toe) submitted. The questioned footwear impression also contains sufficient unique identifying characteristics also present in the known right shoe; therefore, it was made by the known right shoe. Q3: The questioned footwear impression noted was of the same outsole design, but had a different physical size; therefore, it was not made by the known pair of shoes submitted. Q4: The questioned footwear impression noted was of the same outsole design, but had a different physical size; therefore, it was not made by the known pair of shoes submitted. Q5: The questioned footwear impression corresponds in outsole design, physical size, and general wear with the known right shoe (heel) submitted. The questioned footwear impression also contains sufficient unique identifying characteristics also present in the known right shoe; therefore, it was made by the known right shoe. Q6: The questioned footwear impression noted was of the same outsole design, but had a different wear patterns in the heal area and did not include the star shaped area present in the known shoe; therefore, it was not made by the known pair of shoes submitted. Q7: The questioned footwear impression corresponds in outsole design, physical size, and general wear with the known left shoe (heel) submitted. The questioned footwear impression also contains sufficient unique identifying characteristics also present in the known left shoe; therefore, it was made by the known left shoe.
UELXV6-5331	Examination of Contributor Items #Q1 – #Q7 revealed one questioned footwear impression on Contributor Item #Q1, one questioned footwear impression on Contributor Item #Q2, one questioned footwear impression on Contributor Item #Q3, one questioned footwear impression on Contributor Item #Q4, one questioned footwear impression on Contributor Item #Q5, one questioned footwear impression on Contributor Item #Q6 and one questioned footwear impression on Contributor Item #Q7 that are of value for comparison purposes. Comparison of the questioned footwear impressions with photographs of the known footwear and test impressions of Contributor Items #K1 (a-g) revealed: Q1 – The known footwear of #K1 was not the source of, and did not make, the questioned footwear impression. Q2 – The known footwear of #K1 (right shoe) was the source of, and made the questioned footwear impression. The left shoe of Contributor Item #K1 did not make and is not the source of the questioned footwear impression based on a different shape. Q3 – The known footwear of #K1 was not the source of, and did not

TABLE 2

WebCode-Test	Conclusions
	make, the questioned footwear impression. Q4 – The known footwear of #K1 was not the source of, and did not make, the questioned footwear impression. Q5 – The known footwear of #K1 (right shoe) was the source of, and made the questioned footwear impression. The left shoe of Contributor Item #K1 did not make and is not the source of the questioned footwear impression based on a different shape. Q6 – The known footwear of #K1 was not the source of, and did not make, the questioned footwear impression. Q7 – The known footwear of #K1 (left shoe) was the source of, and made the questioned footwear impression. The right shoe of Contributor Item #K1 did not make and is not the source of the questioned footwear impression based on a different shape.
UHMNHK-5335	Q1, Q3, Q4,Q6: The shoes could be conclusively excluded from having made the footwear impression. Q2: The findings conclusively demonstrate that the right shoe had made the footwear impression. Q7: The findings conclusively demonstrate that the left shoe had made the footwear impression. Q5: The findings provide extremely strong support for the proposition that the right shoe had made the footwear impression.
UHPDP3-5331	Q2 and Q5 were made by the right known shoe (K1a-K1g). Q7 was made by the left known shoe (K1a-K1g). Q1, Q3, Q4, and Q6 could not have been made by the known shoes (K1a-K1g).
UK9RQH-5331	imprints Q1, Q3, Q4, Q6, and Q7 have a high degree of non-association comparing them with the known items. whereas Q2 and Q5 have the same design and the physical size comparing it with the known items.
UKBGWZ-5335	The questioned imprint Q2 is associated with the right shoe. It shares agreement of class characteristics and randomly acquired characteristics of sufficient quality and quantity with the recovered right shoe and the known imprints, which were made with the right shoe. The recovered right shoe was the source of, and made, the questioned imprint Q2. Another item of footwear being the source of the imprint is considered a practical impossibility.The questioned imprint Q7 is associated with the left shoe. It shares agreement of class characteristics and randomly acquired characteristics of sufficient quality and quantity with the recovered left shoe and the known imprints, which were made with the left shoe. The recovered left shoe was the source of, and made, the questioned imprint Q7. Another item of footwear being the source of the imprint is considered a practical impossibility. The questioned imprint Q5 is associated with the right shoe. It corresponds in class characteristics of design, physical size, and general wear and randomly acquired charcteristics to the recovered right shoe and the known imprints, which were made with the right shoe. The randomly acquired characteristics observed exhibit strong associations between the questioned imprint Q5 and the sole of the right shoe. The quantity of the observed randomly acquired characteristics was insufficient for an identification. Other footwear with the same class characteristics observed in the imprint are included in the population of possible sources only if they display the same wear and randomly acquired characteristics observed in the questioned imprint Q5. Sufficient differences were noted in the comparison of class characteristics between the questioned imprints Q1, Q3, Q4 and Q6 and the known imprints of the recovered shoes. The recovered shoes were not the source of, and did not make, the questioned imprints Q1, Q3, Q4 and Q6.
URW4BD-5335	I was asked to compare the shoeprint images Q1 through Q7 to images and test impressions from a pair of shoes K1. By comparing the soles of the shoes to the shoeprints it is often possible to determine whether or not a particular shoe made a print. I have compared the shoes to the shoeprints. This comparison process examines the shoe and the shoeprint to investigate any correspondence in sole pattern and dimensions, the presence of any wear, and the location, size and shape of any area of random damage. In determining the strength of this correspondence I have considered: the likelihood of finding the shoeprint evidence if the shoe made the print, and the likelihood of finding the shoeprint evidence if the shoe did not make print. The statement of opinion as to the scientific significance of the correspondence between the shoe and the shoeprint is selected from the following scale: is neutral, provides slight support, provides moderate support, provides strong support, provides very strong support, provides extremely strong support, is conclusive. The shoeprint impressions Q1 and Q6 displayed the same generic sole pattern

TABLE 2

WebCode-Test	Conclusions
	features as the left K1 sole pattern. However, there were significant specific differences in the fine pattern detail to the left shoe, item K1. Therefore, in my opinion, these impressions were excluded and therefore could not have been made by the left shoe, item K1. The shoeprint impressions Q2 and Q5 each displayed a correspondence of sole pattern, wear features and damage features with the right shoe, item K1. Therefore, in my opinion, this was conclusive evidence, meaning that this shoe, and only this shoe, could have made these two shoeprint impressions. The shoeprint impressions Q3 and Q4 displayed the same generic sole pattern features as the right K1 sole pattern. However, there were significant specific differences in the fine pattern detail to the right shoe, item K1. Therefore, in my opinion, these impressions were excluded and therefore could not have been made by the right shoe, item K1. The shoeprint impression Q7 displayed a correspondence of sole pattern, wear features and damage features with the left shoe, item K1. Therefore, in my opinion, this was conclusive evidence, meaning that this shoe, and only this shoe, could have made this shoeprint impression.
UWK4Y6-5331	These shoes were compared in detail to the footwear marks recorded at an incident relating to test number 17/5331. The marks Q2, Q5 and Q7 correspond to the submitted footwear in terms of pattern, configuration, size, position and degree of wear. In addition, there are numerous identifying characteristics also corresponding.
UWLPZR-5331	[No Conclusions Reported.]
V42QUV-5331	[No Conclusions Reported.]
VD7XAV-5331	[No Conclusions Reported.]
VHVHBP-5331	In my opinion, my findings show conclusively that the footwear branded Saucony recovered from the suspects home have made 3 of the 7 footwear impressions (labelled Q2, Q5, and Q7) recovered from an area of the store where the incident took place.
VHWAAX-5331	Q1, Q3, Q4, and Q6 were a smaller size than the known shoes and were therefore eliminated as having been made by the know shoes. Q2 and Q5 were identified as having been made by the right know shoe. Q7 was identified as having been made by the left known shoe.
VKME36-5331	Q1, Q3, Q4 and Q6 were not made by (exclusion) the known footwear. Q2 was made by (identification) the known right shoe. Q5 was made by (identification) the known right shoe. Q7 was made by (identification) the known left shoe.
VLZ36G-5331	The right and left shoes are excluded as possible sources of unknown impressions item 8 (Q1), Item 10 (Q3), Item 11 (Q4) and Item 13 (Q6) based on class characteristics. The right shoe is the source of the unknown impressions Item 9 (Q2) and Item 12 (Q5) based on corresponding class and individual characteristics. The left shoe is the source of the unknown impression Item 14 (Q7) based on corresponding class and individual characteristics.
WJR3W4-5332	In my opinion, based upon my experience of undertaking and interpreting the results of footwear comparisons and the level of correspondence noted in pattern, pattern size, general degree of wear and numerous corresponding damage features, the findings show conclusively that the footwear marks Q2,5 and 7 were made by the training shoes K1.
WR3CAN-5331	Q1 - The questioned footwear impression is similar in outsole design to the known pair of shoes submitted. However, the questioned footwear impression does not correspond in physical size or general wear with either of the known shoes; therefore, the questioned footwear impression was not made by the known pair of shoes. Q2 - The questioned footwear impression corresponds in outsole design, physical size, and general wear with the known right shoe submitted. Additionally, the questioned footwear impression contains sufficient unique identifying characteristics that are also present in the known right shoe. Therefore, it was determined that the questioned footwear impression was made by the known right shoe submitted. Q3 - The questioned footwear impression is similar in outsole design to the known pair of shoes submitted. However, the

TABLE 2

WebCode-Test	Conclusions
	questioned footwear impression does not correspond in physical size or general wear with either of the known shoes; therefore, the questioned footwear impression was not made by the known pair of shoes. Q4 - The questioned footwear impression is similar in outsole design to the known pair of shoes submitted. However, the questioned footwear impression does not correspond in physical size or general wear with either of the known shoes; therefore, the questioned footwear impression was not made by the known pair of shoes. Q5 - The questioned footwear impression corresponds in outsole design, physical size, and general wear with the known right shoe submitted. Additionally, the questioned footwear impression contains sufficient unique identifying characteristics that are also present in the known right shoe. Therefore, it was determined that the questioned footwear impression was made by the known right shoe submitted. Q6 - The questioned footwear impression is similar in outsole design to the known pair of shoes submitted. However, the questioned footwear impression does not correspond in physical size or general wear with either of the known shoes; therefore, the questioned footwear impression was not made by the known pair of shoes. Q7 - The questioned footwear impression corresponds in outsole design, physical size, and general wear with the known left shoe submitted. Additionally, the questioned footwear impression contains sufficient unique identifying characteristics that are also present in the known left shoe. Therefore, it was determined that the questioned footwear impression was made by the known left shoe submitted.
WU764M-5331	In the opinion of this examiner, the particular known footwear was not the source of, and did not make the impressions identified as Q1, Q3, Q4, and Q6. This elimination is based on disagreement in size with known footwear and disagreement in wear pattern for impressions Q1, Q3, and Q4. In the opinion of this examiner, the particular known footwear was the source of, and did make, the crime scene impressions identified as Q2, Q5, and Q7. This is based on agreement of class characteristics, sizing, wear pattern, and the presence of multiple individual characteristics that are matching in size, orientation, and spatial relationship. Another item of footwear being the source of the impression is considered a practical impossibility.
WUWZU6-5331	The submitted photographs exhibit seven (7) questioned impressions labeled Q1 through Q7. The seven (7) questioned impressions were compared to the submitted K1 known left and right outsoles ("Saucony" brand, Women's size "USA 9"). The following conclusions were reached and are the opinion of this Examiner: The Q1 questioned impression exhibits a general design which is similar to that of the submitted K1 known left and right outsoles. However, multiple class characteristic differences were observed. Therefore, the submitted K1 known left and right outsoles are eliminated as possible sources of the Q1 questioned impression. The Q2 questioned impression corresponds to the submitted K1 known right outsole in physical shape, design, physical size, degree/position of wear and multiple randomly acquired characteristics. Therefore, the submitted K1 known right outsole was the source of, and made, the Q2 questioned impression. It is unlikely that another item of footwear would contain the same combination of characteristics observed. Based on physical shape differences, the submitted K1 known left outsole is eliminated as a possible source of the Q2 questioned impression. The Q3 questioned impression exhibits a general design which is similar to that of the submitted K1 known left and right outsoles. However, multiple class characteristic differences were observed. Therefore, the submitted K1 known left and right outsoles are eliminated as possible sources of the Q3 questioned impression. The Q4 questioned impression exhibits a general design which is similar to that of the submitted K1 known left and right outsoles. However, multiple class characteristic differences were observed. Therefore, the submitted K1 known left and right outsoles are eliminated as possible sources of the Q4 questioned impression. The Q5 questioned impression corresponds to the submitted K1 known right outsole in physical shape, design, physical size, degree/position of wear and multiple randomly acquired characteristics. Therefore, the submitted K1 known right outsole was the source of, and made, the Q5 questioned impression. It is unlikely that another item of footwear would contain the same combination of characteristics observed. Based on physical shape differences, the submitted K1 known left outsole is eliminated as a possible source of the Q5 questioned impression. The Q6 questioned impression exhibits a general design which is similar to that of the submitted K1 known left and right outsoles. However, multiple class characteristic differences are observed. Therefore, the submitted K1 known left and

TABLE 2

WebCode-Test	Conclusions
	right outsoles are eliminated as possible sources of the Q6 questioned impression. The Q7 questioned impression corresponds to the submitted K1 known left outsole in physical shape, design, physical size, degree/position of wear and multiple randomly acquired characteristics. Therefore, the submitted K1 known left outsole was the source of, and made, the Q7 questioned impression. It is unlikely that another item of footwear would contain the same combination of characteristics observed. Based on physical shape differences, the submitted K1 known right outsole is eliminated as a possible source of the Q7 questioned impression.
WXTJW4-5331	Q1 was not made by Item K right or left shoe. Q2 was made by Item K right shoe. Q3 was not made by Item K right or left shoe. Q4 was not made by Item K right or left shoe. Q5 was made by Item K right shoe. Q6 was not made by Item K right or left shoe. Q7 was made by Item K left shoe.
WY3PCD-5331	An examination was conducted using 2 dimensional photographs side by side. As a result of this examination between the scene impressions and the known impressions I found that I can positively identify Q7 as being the shoe that made the impression. Q2 and Q5 had a high association with the known impression. Q1, Q3, Q4 and Q6 were excluded
X2M8KN-5331	Q1: The questioned footwear impression is of a left heel and is similar in outsole design to the known left shoe submitted, however, the questioned footwear impression differs in general wear and unique identifying characteristics from the known left shoe. Therefore, the questioned footwear impression was not made by the known left shoe. The questioned footwear impression is of a left shoe and therefore was not made by the known right shoe submitted. Q2: The questioned footwear impression is of a right shoe (toe, instep, and heel) and corresponds in outsole design, physical size, and general wear with the right shoe submitted. Additionally the questioned footwear impression contains sufficient unique identifying characteristics (covering numerous elements) that are also present within the known right shoe (see red circles on photograph and overlay); therefore, it was determined that the questioned footwear impression was made by the right shoe submitted. Q3: The questioned footwear impression is of a right toe and is similar in outsole design to the known right shoe submitted, however, the questioned footwear impression differs in physical size, general wear, and unique identifying characteristics from the known right shoe. Therefore, the questioned footwear impression was not made by the known right shoe. The questioned footwear impression is of a right shoe and therefore was not made by the known left shoe submitted. Q4: The questioned footwear impression is of a right shoe (instep and heel) and is similar in outsole design to the known right shoe submitted; however, the questioned footwear impression differs in size, general wear, and unique identifying characteristics from the known right shoe. Therefore, the questioned footwear impression was not made by the known right shoe. The questioned footwear impression is of a right shoe and therefore was not made by the known left shoe submitted. Q5: The questioned footwear impression is of a right heel and corresponds in outsole design, physical size, and general wear with the right shoe submitted. Additionally the questioned footwear impression contains sufficient unique identifying characteristics (covering numerous elements) that are also present within the known right shoe (see red circles on photograph and overlay); therefore, it was determined that the questioned footwear impression was made by the right shoe submitted. Q6: The questioned footwear impression is of a left shoe (toe, instep, and heel) and is similar in outsole design to the known left shoe submitted, however, the questioned footwear impression differs in size, general wear, and unique identifying characteristics from the known left shoe. Therefore, the questioned footwear impression was not made by the known left shoe. The questioned footwear impression is of a left shoe and therefore was not made by the known right shoe submitted. Q7: The questioned footwear impression is of a left shoe (toe and instep)and corresponds in outsole design, physical size, and general wear with the left shoe submitted. Additionally the questioned footwear impression contains sufficient unique identifying characteristics (covering numerous elements) that are also present within the known left shoe (see red circles on photograph and overlay); therefore, it was determined that the questioned footwear impression was made by the left shoe submitted.
X8VGXC-5335	The questioned imprints Q2 and Q5 were made by the suspect's right shoe whilst Q7 was made by the suspect's left shoe shown in photos in items K1a-K1c. The questioned imprints Q1, Q3-Q4

TABLE 2

WebCode-Test	Conclusions
	and Q6 were not made by the suspect's pair of shoes shown in photos in items K1a-K1c.
XDER3Z-5331	Items #4 and #5 were visually analyzed for footwear impressions. Seven footwear impressions were located on Item #4 and #5. They were labeled Q1 through Q7. Footwear impressions Q1 through Q7 were compared to the known shoes K1 (Items 1-3). In the opinion of the examiner, the known footwear (K1) was not the source of, and did not make, the impressions Q1, Q3, Q4 and Q6. Due to the differences in wear, K1 could not have made these questioned impressions. The known footwear (K1 right) was the source of, and made, the questioned impressions Q2 and Q5. Known footwear (K1 left) was the source of, and made, the questioned impression Q7. Another item of footwear being the source of the impressions is considered a practical impossibility.
XEC3ZN-5331	[No Conclusions Reported.]
XFNR88-5331	Questioned impressions Q1, Q3, Q4 and Q6 were excluded from being made by the known shoes. Questioned impression Q2 has the highest degree of association with the known right shoe. Consistencies of class characteristics, wear patterns and randomly acquired characteristics provide strong support for an 'identification' conclusion. Questioned impression Q7 has the highest degree of association with the known left shoe. Consistencies of class characteristics, wear patterns and randomly acquired characteristics provide strong support for an 'identification' conclusion. Questioned impression Q5 corresponds in class characteristics, wear patterns and some randomly acquired characteristics. However, not all randomly acquired characteristics can be confirmed in the photographs of the shoe soles provided, and therefore Q5 is concluded as having a 'high degree of association' with the known right shoe.
XGJBDG-5331	The marks correspond with the submitted footwear in terms of pattern, size and pattern configuration and the degree and distribution of wear. Furthermore, there are numerous features in the marks which correspond with characteristic random damage on the suspects trainers. Strong - Very strong evidential value. Q3 - Would need further investigation with other types of test prints, especially since the suspect is thought to have washed the trainers. Therefore the mark can not be excluded as having been made by the suspects trainer.
XGYE4Z-5331	D) RESULTS OF EXAMINATION/ANALYSIS: Comparison a. Questioned impressions Q1 - Q7 were compared to the known left and right shoes K1L/K1R, as well as test impressions generated by K1L/K1R, with the following results: i. Q1, Q3, Q4, & Q6 and K1L/K1R are different with respect to size and tread design (grid-like pattern). ii. Q2 and K1R are consistent and exhibit no discriminating differences with respect to class characteristics: size, shape, and tread design. In addition, Q2 and K1R exhibit (6) corresponding individual characteristics. iii. Q5 and K1R are consistent and exhibit no discriminating differences with respect to class characteristics: size, shape, and tread design. In addition, Q5 and K1R exhibit (3) corresponding individual characteristics. iv. Q7 and K1L are consistent and exhibit no discriminating differences with respect to class characteristics: size, shape, and tread design. In addition, Q7 and K1L exhibit (3) corresponding individual characteristics. E) INTERPRETATION OF RESULTS: 1. It is the opinion of the undersigned that questioned footwear impressions Q1, Q3, Q4, & Q6 could not have been made by the known shoes K1L/K1R. 2. It is the opinion of the undersigned that questioned footwear impressions Q2, Q5, & Q7 were made by the known shoes K1L/K1R.
XJ47TT-5331	[No Conclusions Reported.]
XRHVRZ-5331	Item: 1 Photograph of the soles of the recovered shoes, lighted from above (K1a). Item: 2 Two oblique lighted images of the soles of the recovered shoes, light direction indicated by arrows (K1b-Kc). Item: 3 Photographs of known imprints made with the recovered shoes (K1d-K1g). Item: 3.1 Overlay test impression of Item 3 (K1f). Item: 4 Photograph of questioned imprints found on a shipping box in the store (cardboard box) (Q1-Q4). Item: 4.1 Unknown impression represented on Item 4 (Q1). RESULTS: The Item 4.1 impression was not made by the Item 1 shoe(s). Item: 4.2 Unknown impression represented on Item 4 (Q2). RESULTS: The Item 4.2 impression was made by the Item 1 right shoe. Item: 4.3 Unknown impression represented on Item 4 (Q3). RESULTS:

TABLE 2

WebCode-Test	Conclusions
	The Item 4.3 impression was not made by the Item 1 shoe(s). Item: 4.4 Unknown impression represented on Item 4 (Q4). RESULTS: The Item 4.4 impression was not made by the Item 1 shoe(s). Item: 5 Photograph of questioned imprints found in the store (ceramic tile) (Q5-Q7). Item: 5.1 Unknown impression represented on Item 5 (Q5). RESULTS: The Item 5.1 impression was made by the Item 1 right shoe. Item: 5.2 Unknown impression represented on Item 5 (Q6). RESULTS: The Item 5.2 impression was not made by the Item 1 shoe(s). Item: 5.3 Unknown impression represented on Item 5 (Q7). RESULTS: The Item 5.3 impression was made by the Item 1 left shoe. Impression evidence in this case was examined utilizing the ACE-V methodology.
Y94V3W-5331	The crime scene tracks Q2, Q5 and Q7 match the pattern and size of the soles of the comparative shoes of person x. The outer sole surface of the comparison shoes show individual marks that correspond to the crime scene marks mentioned above. Therefore, Q2, Q5 and Q7 are identified as tracks originating from the comparative shoes of person x. The crime scene tracks Q1, Q3, Q4 and Q6 show the same pattern as the soles of the comparative comparative shoes of person x. However, they differ markedly in size and show design freatures and individual marks which do not occur in the comparison shoe of person x. Therefore, it is excluded that the crime scene marks mentioned above originated from the comparison shoes of person x.
YDWZV2-5331	Impression Q-1 is excluded as having been made by the left or right known shoes of item K1. Impression Q-2 corresponds with the tread design, physical shape, physical size, degree of wear and accidental characteristics present in item K1 (Right Shoe) which is identified as the source of the impression. Impression Q-3 is excluded as having been made by the left or right known shoes of item K1. Impression Q-4 is excluded as having been made by the left or right known shoes of item K1. Impression Q-5 corresponds with the tread design, physical shape, physical size, degree of wear and accidental characteristics present in item K1 (Right Shoe) which is identified as the source of the impression. Impression Q-6 is excluded as having been made by the left or right known shoes of item K1. Impression Q-7 corresponds with the tread design, physical shape, physical size, degree of wear and accidental characteristics present in item K1 (Left Shoe) which is identified as the source of the impression.
YGW7B8-5331	The shoes from which the photos/impressions (item #K1) were taken are excluded as having made the questioned impressions Q1, Q3, Q4, and Q6 based on observed differences in class characteristics (specific tread design and size). The right shoe from which the photos/impressions (item #K1) were taken is identified as having made the questioned impressions Q2 and Q5 based on a correspondence of observed class characteristics (specific tread design and size), general wear, and randomly acquired characteristics of sufficient quality and quantity. The left shoe from which the photos/impressions (item #K1) were taken is identified as having made the questioned impression Q7 based on a correspondence of observed class characteristics (specific tread design and size), general wear, and randomly acquired characteristics of sufficient quality and quantity.
YLVFPG-5331	Four footwear impressions (4-01 through 4-04) suitable for comparison were observed on item 4. Three footwear impressions (5-01 through 5-03) suitable for comparison were observed on item 5. Items 2.1 and 2.2 are photographs of known left and right Saucony footwear outsoles. Items 3.1 through 3.4 are inked test impressions of the same footwear outsoles. Transparency test impressions (3.3.1 and 3.3.2) were made from item 3.3. The photographs, inked impressions and transparency impressions of the known Saucony shoes were compared to impressions 4-01 through 5-03 with the following results: The left and right Saucony shoes are excluded as the source of impression 4-01. The right Saucony shoe is identified as the source of impression 4-02. The left shoe is excluded. The left and right Saucony shoes are excluded as the source of impression 4-03. The left and right Saucony shoes are excluded as the source of impression 4-04. The right Saucony shoe is identified as the source of impression 5-01. The left shoe is excluded. The left and right Saucony shoes are excluded as the source of impression 5-02. The left Saucony shoe is identified as the source of impression 5-03. The right shoe is excluded.
YRRLTG-5332	Q1, Q3, Q4, Q6: The shoes has not made the imprints Q2: The investigation gives extremly strong support for the right shoe has made the imprint Q5: The investigation gives strong support

TABLE 2

WebCode-Test	Conclusions
	for the right shoe has made the imprint Q7: The investigation gives strong support for the left shoe has made the imprint
YWP2MX-5331	Impression Q1 has been excluded as having been produced by the known left and right shoes. Impression Q2 has been identified as having been produced by the known right shoe. There are multiple corresponding random accidental characteristics present in the known and questioned impressions. Impression Q3 has been excluded as having been produced by the known left and right shoes. There are indications of non-association between Impression Q4 and the known left and right shoes, however an exclusion cannot be made. Impression Q5 has been identified as having been produced by the known right shoe. here are multiple corresponding random accidental characteristics present in the known and questioned impressions. Impression Q6 has been excluded as having been produced by the known left and right shoes. Impression Q7 has been identified as having been produced by the known left shoe. here are multiple corresponding random accidental characteristics present in the known and questioned impressions.
Z3RAPJ-5331	The Item Q1 through Q7 questioned footwear impressions were analyzed, compared, and evaluated with the Item K1 right and left known footwear. The Item Q1 questioned footwear impression does not correspond in physical size with the Item K1 shoes. The Item Q2 questioned footwear impression corresponds in tread design, physical size, general wear, and accidental characteristics with the Item K1 right shoe. The Item Q3 questioned footwear impression does not correspond in physical size with the Item K1 shoes. The Item Q4 questioned footwear impression does not correspond in physical size with the Item K1 shoes. The Item Q5 questioned footwear impression corresponds in tread design, physical size, general wear, and accidental characteristics with the Item K1 right shoe. The Item Q6 questioned footwear impression does not correspond in physical size with the Item K1 shoes. The Item Q7 questioned footwear impression corresponds in tread design, physical size, general wear, and accidental characteristics with the Item K1 left shoe. Based upon the above factors, it is the opinion of this examiner that: The Item K1 right shoe was the source of, and made the Items Q2 and Q5 questioned footwear impressions. The combination of characteristics observed between the Items Q2 and Q5, questioned footwear impressions, and the Item K1 right shoe occurring from another source is considered a practical impossibility. The Item K1 left shoe was the source of, and made the Item Q7 questioned footwear impression. The combination of characteristics observed between the Item Q7, questioned footwear impression, and the Item K1 left shoe occurring from another source is considered a practical impossibility. The Items Q1, Q3, Q4 and Q6 questioned footwear impressions share a high degree of non-association with the Items K1 right/left shoes. The Items Q1, Q3, Q4 and Q6 questioned footwear impressions were not made by the Items K1 right/left shoes. All conclusions listed herein have been verified by a second qualified latent print examiner.
ZCKMPJ-5331	The questioned imprints (Exhibits Q1 through Q7) were compared to the outsole tread design elements and randomly acquired characteristics present on Exhibits K1a through K1g, the recovered shoes. Based on the outsole tread design elements and randomly acquired characteristics present on Exhibits K1a through K1g, Exhibits Q2 and Q5 have been identified as having been made by the right recovered shoe; Exhibit Q7 has been identified as coming from the left recovered shoe. Exhibits K1a through K1g can be eliminated as the source of the Exhibits Q1, Q3, Q4 and Q6, questioned imprints, based on the difference in randomly acquired characteristics. However, the tread design elements in Exhibits Q1, Q3, Q4 and Q6 are similar to the recovered shoes.
ZCVP9W-5331	The photographs on the soles of the suspect's shoes and the test impressions of these shoes were used for comparison purposes. Four impressions (further labeled Q1 through Q4) are depicted in the photograph of the cardboard box at the scene. Q2 is a right shoe impression that is similar in size, tread design, and shape to the suspect's right shoe (01-01). This right shoe impression also shares at least two randomly acquired characteristics with the suspect's right shoe. It is our opinion that this right shoe impression was made by the suspect's right shoe. (Conclusion A) Q1 is a partial left shoe impression which is dissimilar in size and wear to the suspect's left shoe (01-01). It is our opinion that this partial left shoe impression was not made by the suspect's left shoe. (Conclusion G) Q3 is a partial right shoe impression and Q4 is a right shoe impression which are

TABLE 2

WebCode-Test	Conclusions
	dissimilar in wear and/or size to the suspect's right shoe (01-01). It is our opinion that Q3 and Q4 were not made by the suspect's right shoe. (Conclusion G) Three impressions (further labeled Q5 through Q7) are depicted in the photograph of the ceramic tile at the scene. Q7 is a partial left shoe impression which is similar in size, tread design, and shape to the suspect's left shoe (01-01). Additionally, this partial shoe impression shares at least two randomly acquired characteristics with the suspect's left shoe. It is our opinion that this partial left shoe impression was made by the suspect's left shoe. (Conclusion A) Q5 is a partial right shoe impression which is similar in size, tread design, and shape to the suspect's right shoe (01-01). Additionally, this partial right shoe impression shares at least one randomly acquired characteristic with the suspect's right shoe. It is our opinion that this partial right shoe impression was made by the suspect's right shoe. (Conclusion A) Q6 is a left shoe impression that appears to be highly distorted. The impression is similar in tread design to the suspect's left shoe (01-01). However, differences in wear, size, and possible lack of randomly acquired characteristics were observed. We are unable to determine if these differences are due to the distortion or are true differences. Due to this, we are unable to determine if the suspect's left shoe could have or did not make this left shoe impression. (Conclusion F)
ZGDPQX-5331	ITEMS OF EVIDENCE: Item: 1 K1a: Photograph of the soles of the recovered shoes, lighted from above. Item: 2 K1b-K1c: Two oblique lighted images of the soles of the recovered shoes, light direction indicated by arrows. Item: 3 K1d-K1g: Known imprints made with the recovered shoes. Item: 3.1 Transparencies created from the Item 3 photographs. Item: 4 Q1-Q4: Questioned imprints found on a shipping box in the store (cardboard box). Item: 4.1 Questioned footwear impression represented as Q1 on Item 4. RESULTS: The Item 4.1 impression was not made by the Item 1 shoes. Item: 4.2 Questioned footwear impression represented as Q2 on Item 4. RESULTS: The Item 4.2 impression was made by the Item 1 right shoe. Item: 4.3 Questioned footwear impression represented as Q3 on Item 4. RESULTS: The Item 4.3 impression was not made by the Item 1 shoes. Item: 4.4 Questioned footwear impression represented as Q4 on Item 4. RESULTS: The Item 4.4 impression was not made by the Item 1 shoes. Item: 5 Q5-Q7: Questioned imprints found in the store (ceramic tile). Item: 5.1 Questioned footwear impression represented as Q5 on Item 5. RESULTS: The Item 5.1 impression was made by the Item 1 right shoe. Item: 5.2 Questioned footwear impression represented as Q6 on Item 5. RESULTS: The Item 5.2 impression was not made by the Item 1 shoes. Item: 5.3 Questioned footwear impression represented as Q7 on Item 5. RESULTS: The Item 5.3 impression was made by the Item 1 left shoe. Impression evidence in this case was examined utilizing the ACE-V methodology.
ZJGHMH-5332	Seven (7) questioned impressions of value for comparison purposes were observed on Item 001.02 and designated as Q1 through Q7. The questioned impressions Q1 through Q7 were compared to the submitted photographs and test impressions of the footwear outsoles and designated K1 (Item 001.01) with the following results: The impression Q1 in the provided photograph represents the heel area of a left footwear outsole impression. While general features of the design of the heel area of the impression are similar to those observed in the heel area of the left outsole of K1, specific features observed within the elements of the design in the heel area of Q1 and the left outsole of K1 do not correspond in their specific orientation. Additionally, K1 differs in physical size from the impression Q1. Based on this difference of manufactured characteristics, the left outsole of K1 was excluded as the source of impression Q1. It is the opinion of the examiner that impression Q1 was not made by the left outsole of K1. The impression Q2 in the provided photograph represents a nearly complete right footwear outsole impression. The design, physical size, and general degree of wear of the heel, arch, and forefoot areas of the impression correspond to that of the heel, arch, and forefoot areas of the right outsole of K1. Void areas in the forefoot and heel areas of impression Q2 were found to correspond in size, shape, and position to damage observed on the right outsole of K1. Additionally, a feature known as a Schallamach pattern that occurs on a shoe outsole as a result of abrasive wear was noted in both the forefoot area of impression Q2 and the forefoot area of the right outsole of K1. Schallamach patterns, also referred to as feathering, result from frictional abrasive forces perpendicular to the direction of travel crossing the outsole of the shoe, i.e. dragging or scuffing the shoe while walking. When examined microscopically, the specific

TABLE 2

WebCode-Test	Conclusions
	formations that make up the Schallamach patterns and their relation to one another are unique and can be used as the basis for a positive identification of a shoe. The Schallamach pattern observed in impression Q2 was found to correspond to the Schallamach pattern observed in the corresponding area on the right outsole of K1. Based on this correspondence of both manufactured and randomly acquired accidental characteristics related to wearing of the shoe, the right outsole of K1 was identified as the source of impression Q2. It is the opinion of the examiner that impression Q2 was made by the right outsole of K1. The impression Q3 in the provided photograph represents the forefoot area of a right footwear outsole impression. While general features of the design of the forefoot area of the impression are similar to those observed in the forefoot area of the right outsole of K1, specific features observed within the elements of the design in the forefoot area of Q3 and the right outsole of K1 do not correspond in their specific orientation. Additionally, K1 differs in physical size from the impression Q3. Based on this difference of manufactured characteristics, the right outsole of K1 was excluded as the source of impression Q3. It is the opinion of the examiner that impression Q3 was not made by the right outsole of K1. The impression Q4 in the provided photograph represents the heel and arch areas of a right footwear outsole impression. While general features of the design of the heel and arch areas of the impression are similar to those observed in the forefoot area of the right outsole of K1, specific features observed within the elements of the design in the forefoot area of Q4 and the right outsole of K1 do not correspond in their specific orientation. Additionally, K1 differs in physical size from the impression Q4. Based on this difference of manufactured characteristics, the right outsole of K1 was excluded as the source of impression Q4. It is the opinion of the examiner that impression Q4 was not made by the right outsole of K1. The impression Q5 in the provided photograph represents the heel area of a right footwear outsole impression. The design, physical size, and general degree of wear of the heel area of the impression correspond to that of the heel area of the right outsole of K1. Additionally, void areas in the heel area of impression Q5 were found to correspond in size, shape, and position to damage observed on the right outsole of K1. Based on this correspondence of both manufactured and randomly acquired accidental characteristics related to wearing of the shoe, the right outsole of K1 was identified as the source of impression Q5. It is the opinion of the examiner that impression Q5 was made by the right outsole of K1. The impression Q6 in the provided photograph represents a nearly complete left footwear outsole impression. While general features of the design of the heel, arch, and forefoot areas of the impression are similar to those observed in the heel, arch, and forefoot areas of the left outsole of K1, specific features observed within the elements of the design in the heel, arch, and forefoot areas of Q6 and the left outsole of K1 do not correspond in their specific orientation. Additionally, K1 differs in physical size from the impression Q6. Based on this difference of manufactured characteristics, the left outsole of K1 was excluded as the source of impression Q6. It is the opinion of the examiner that impression Q6 was not made by the left outsole of K1. The impression Q7 in the provided photograph represents the forefoot and partial arch area of a left footwear outsole impression. The design, physical size, and general degree of wear of the forefoot and arch areas of the impression correspond to that of the forefoot and arch areas of the left outsole of K1. Void areas in the forefoot area of impression Q7 were found to correspond in size, shape, and position to damage observed on the left outsole of K1. Additionally, a Schallamach pattern was observed in the forefoot areas of both impression Q7 and the left outsole of K1. The Schallamach pattern observed in impression Q7 was found to correspond to the Schallamach pattern observed in the corresponding area on the left outsole of K1. Based on this correspondence of both manufactured and randomly acquired accidental characteristics related to wearing of the shoe, the left outsole of K1 was identified as the source of impression Q7. It is the opinion of the examiner that impression Q7 was made by the left outsole of K1.
ZJKX24-5332	The Q1, Q3, Q4, and Q6 impressions are similar in design with the respective portions of the K1 shoe soles. However, these impressions differ in physical size with the respective portions of the K1 shoe soles. Therefore, the K1 shoes are not the source of the Q1, Q3, Q4, and Q6 impressions. The Q2 impression corresponds in physical size and design, general condition of wear as well as specific location of wear with the respective portions of the K1 right shoe. Additionally, the Q2 impression corresponds in at least five randomly acquired characteristics with the K1 right shoe

TABLE 2

WebCode-Test	Conclusions
	sole. Therefore, the K1 right shoe is identified as the source of the Q2 impression. The Q5 and Q7 impressions correspond in physical size and design, general condition of wear as well as specific location of wear with the respective portions of the K1 left shoe sole. Additionally, the Q5 and Q7 impressions correspond in at least five randomly acquired characteristics with the K1 left shoe sole. Therefore, the K1 left shoe is identified as the source of the Q5 and Q7 impressions.
ZMYMEK-5331	In order to reach my conclusion I have considered the following two propositions: 1. Footwear marks recovered from the scene were made by the submitted footwear. 2. Footwear marks recovered from the scene were not made by the submitted footwear. Given the agreement in pattern, pattern alignment, degree of wear and, where possible, approximate overall sizing between three of the footwear marks recovered from the scene and the soles of the submitted footwear, together with the presence of confirmable damage and wear features across three of the seven marks, in my opinion the first proposition is true and, therefore, the second proposition can be disregarded. In my opinion, the findings provide conclusive support for the view that some of the footwear marks recovered from the scene were made by the submitted footwear
ZP7VN6-5331	The footwear impressions labeled Q2 and Q5 correspond in physical size, outsole design, wear, and collectively share six RACs with the outsole of the K1 right shoe. Therefore, the K1 right shoe was identified as the source of these impressions. The footwear impression labeled Q7 corresponds in physical size, outsole design, wear, and shares three RACs with the outsole of the K1 left shoe. Therefore, the K1 left shoe was identified as the source of this impression. The footwear impressions labeled Q1 and Q6 share similar design features and orient with the K1 left shoe. However, differences in physical size/spacing and wear were observed between the aforementioned impressions and corresponding areas on the outsole of the left shoe. Therefore, the K1 left shoe was eliminated as the source of these impressions. The footwear impressions labeled Q3 and Q4 share similar design features and orient with the K1 right shoe. However, differences in physical size/spacing were observed between the aforementioned impressions and corresponding areas on the outsole of the right shoe. Therefore, the K1 right shoe was eliminated as the source of these impressions.
ZUZU32-5331	Q1, Q3, Q4 and Q6 were examined when they were noted to be similar in pattern elements with the submitted footwear. However, they were noted to be different in size from the footwear and as such the submitted footwear is not responsible for these marks. Q2 and Q5 were examined when they were noted to be similar in pattern, size, degree of wear and fine detail with the sole of the submitted right shoe. In our opinion, the right shoe is responsible for these two marks. Q7 was examined and noted to be similar in pattern, size, degree of wear and fine detail with the sole of the submitted left shoe. In our opinion, the left shoe is responsible for this mark.
ZX2XPG-5335	Seven footwear impressions were found on the Item 1 CD. There was one tread pattern within these impressions. The unknown impressions were compared to one pair of shoes, images of which were also found on the Item 1 CD. A complete evaluation of an unknown impression and a known shoe includes looking at correspondence in tread design, physical size and shape of design present, wear characteristics, and any distinctive characteristics randomly acquired on the outsole of the shoe that are represented in the unknown impression. The K1 shoes corresponded in physical shape, tread design, size of tread, wear and randomly acquired characteristics to three impressions that contained triangle, half circle and/or quarter circle-shaped elements (designated as impressions Q2, Q5 and Q7). Therefore, the K1 shoes are the source of these unknown footwear impressions from the scene. (Type I Association/Identification). Four other impressions, designated as Q1, Q3, Q4 and Q6, also contained triangle, half circle and/or quarter circle-shaped elements; however, the wear and/or randomly acquired characteristics did not correspond to the K1 shoes. Therefore, the K1 shoes can be eliminated as being a possible source of these unknown impressions (Elimination).

Additional Comments

TABLE 3

WebCode-Test	Additional Comments
3G6GG2-5331	Nice try to include the SWGTREAD Conclusion scale - however in a test of such dimension (number of participants) difficult to grade the participants findings.
3TYVFX-5331	It is not normal casework practice to confirm damage using photographs of the outsole. These would require confirmation through examination of the original item.
434ZBZ-5331	The quality of the images of the known shoe outsoles were very poor; low contrast due to color of the outsole surface.
47HPNG-5331	The arrow beside the sole print should be the same size (large) of the sole print.
6UL289-5331	1.Questioned impressions labelled Q1 was found to be consistent in shape, physical size and individual characteristics with questioned impressions labelled Q6, both two were left shoe. 2.Questioned impressions labelled Q3 and Q4 though to be right shoe imprint, the particial prints were too small to be identified if they were the same source or not.
8B2322-5331	The addition of the SWGTREAD 2013 conclusion scale to include all levels of association/non-association is a big improvement from previous tests. However, if the test only represents very clear questioned impressions you are not going to test examiners ability to report their conclusions like casework. The majority of impressions seen in casework are not of this quality which means that actual casework is significantly more difficult than this proficiency test. You are not therefore testing an examiners proficiency to perform casework.
8P24HB-5332	Our FW unit doesn't report to Evidential level; so the results from our screening analysis and comparison will only ever be: positive, negative or cannot exclude. The FW unit's role is to be "gate keepers" for the authorisation of footwear forensic expenditure. Victims footwear would be desirable to consider for excluded marks. If a pattern match etc, the both pairs in the marks would make for very good evidence.
9BJDEZ-5332	Q1. Differences noted were class characteristics of size and shape (alignment) for the right 'Saucony' shoe. Differences noted were class characteristics of size and wear and also differing randomly acquired characteristics for the left 'Saucony' shoe. Q3. Differences noted were size and shape (orientation) for the left 'Saucony' shoe. Differences noted were class characterstics of size and also differing randomly acquired characteristics for the right 'Saucony' shoe. Q4. Differences noted were class characteristics of size and shape (alignment) for the left 'Saucony' shoe. Differences noted were class characteristics of size and wear and also differing randomly acquired characteristics for the right 'Saucony' shoe. Q6 There is observable movement towards the forefoot of impression Q6 which limits the comparison in this area with respect to wear and randomly acquired characteristics. If this impression is to be considered as one as indicated in the photograph(as opposed to the possibility of two different impressions), then differences in the heel were considered sufficient enough to exclude both the left and right 'Saucony' shoes. Differences noted in the heel were class characteristics of size and shape (alignment) for the right 'Saucony' shoe. Differences noted in the heel were class charcteristics of size and also a difference in randomly acquired characteristics for the left 'Saucony' shoe. However in case work the area contained between 105mm and 3mm along the long axis of the L shaped ruler, may be considered as a separate impression. In this instance there is some similarities with the left 'Saucony' shoe in terms of size and alignment however the forefoot area lacks clarity and therefore the left 'Saucony' shoe could not be excluded from the population of potential sources of this impression. The right 'Saucony' shoe however does not share similarities in terms of size and alignment and therefore could be excluded as the source of this impression.
9VKKEQ-5331	Two different Saucony branded footwear test impressions have been submitted with this case, although only one outsole type has been photographed. Both shoe types have been compared.
AYK46W-5331	The K1a, K1b and K1c photographs/images were underexposed. Therefore, it was difficult to resolve detail in the dark areas of the outsoles. Applying the Shadows/Highlights image adjustment in Photoshop to these images enabled visualization of the features necessary to conduct my examinations. In future test samples, please ensure that the outsoles are properly

TABLE 3

WebCode-Test	Additional Comments
	illuminated to enable visualization of the outsole features without performing image processing. The definitions associated with the SWGTREAD conclusion scale provided on page 2 of the data sheet were incomplete. In future tests, please ensure that the entire definition of each conclusion is included. For example, SWGTREAD defines identification as "This is the highest degree of association expressed by a footwear and tire impression examiner. The questioned impression and the known footwear or tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity". However, CTS defined identification as the "Highest degree of association between the questioned and known item".
BVUGMT-5332	THE SHOEPRINT Q1, Q3, Q4 AND Q6 PRESENT THE SAME FORM AND DESIGN THAN THE SOLE OF THE TRAINER SAUCONY STUDIED, BUT THE MESSURES REALICED WERE LESS THAN THE UNKNOWN SHOEPRINTS.
CUG87F-5332	The randomly acquired characteristics on the photos of the known shoes were much more difficult to see this year.
EPWYYR-5331	The photographs of the outsoles w/ directional lighting (K1b, K1c) were of poor quality this year. The images were too dark and the directional light did not illuminate a sufficient portion of the outsoles in each image.
FJNXAG-5331	The SWGTREAD guidelines share some similarities with our association scale, but there are many differences as well. Our department was surprised with it's inclusion within a CTS test. Better detail would have been beneficial in the oblique lighting photographs of the known shoes.
G6YFV4-5331	Laboratory Policy and Procedure only allows for three conclusions - Identification, Could Have Made (agreement of class characteristics), and Elimination. Test is required to be completed using only language that is approved for use in laboratory reports.
G8RBHC-5335	The Q1 and Q6 impressions were possibly made by the same unknown shoe.
GBPQCT-5331	Q7 is highly likely to have been made by the left shoe submitted. However due to this impression being incomplete and missing some detail, it is prudent to be conservative.
GEP24M-5331	The photo of the known shoe soles was very dark making it difficult to observe the individualizing characteristics.
GTRA7B-5332	An Association Scale would be attached to the report.
HPL9GX-5332	In Q 1 a randomly acquired characteristic in the known was not reproduced in the questioned impression. Also, wear differences existed between the known and questioned. In Q3 randomly acquired characteristics in the questioned did not appear in the known footwear. Wear differences were also noted. In Q4 and Q6 wear (in the heal area) was noted in the questioned which differed from the known.
JTLUUM-5332	The body of the report discusses how a comparison is conducted and also the limitations of not examining all footwear ever produced. For identifications, the report uses the terms absolute certainty versus practical certainty, similar to the AFTE definition used for firearm and toolmark comparisons.
JURG3K-5331	The photographs of the known shoe outsoles were very underexposed. This made it difficult to see damages on the outsole and associate them with individualizing marks present on the test impressions.
KTYQQE-5331	As always no conclusions would be made without the submission of shoe for examination.
LHVXWD-5332	For impressions Q2 and Q5, the left shoe was excluded. For impression Q7, the right shoe was excluded.
M3FEFX-5331	Laboratory Policy and Procedure only allows for three conclusions - Identification, Could Have Made (agreement of class characteristics), and Elimination. Test is required to be completed using only language that is approved for use in laboratory reports.
MW7ZWD-5331	The excluded scene impressions Q1 and Q6 appear to be made from the same left runner. All

TABLE 3

WebCode-Test	Additional Comments
	four excluded scene impressions appear to be smaller in size than the test impressions made by the runners K1. I have taken into account that the runners have been washed.
PDA88K-5331	The association features observed in Q5 are also defined in the heel area of Q2. Because Q2 has been identified as being made by the recovered right shoe due to further random accidental characteristics located in the toe and ball areas, the heel imprint comparisons of Q5 and Q2 can support the proposition that the same shoe made both imprints. The shoe photographs were poor substitutes for the actual shoes. Prints were dark.
QAJKQH-5332	The appearance of the shoe soles K1 was very specific and highly detailed. Though the submitted pictures af the shoe soles (K1a-K1c) were of good quality, having access to the actual shoes would have been valuable and helpful in confirming the observed details.
QZWHFA-5332	I do not have access to the shoes, I have assumed that any features visible are in fact damage features.
RNHT3P-5331	Laboratory Policy and Procedure only allows for three conclusions - Identification, Could Have Made (agreement of class characteristics), and Elimination. Test is required to be completed using only language that is approved for use in laboratory reports.
TC29EM-5335	Actually we are working with the ENFSI conclusion scale, instead the SWGTREAD Range.
UAAWTM-5332	Recovered footwear has not been submitted for examination. Appearance of damage features would ordinarily be confirmed against source, however this has not affected my overall conclusions.
UCDM2M-5331	Laboratory Policy and Procedure only allows for three conclusions - Identification, Could Have Made (agreement of class characteristics), and Elimination. Test is required to be completed using only language that is approved for use in laboratory reports.
UHMNHK-5335	Comment would be made in the interpretation section of the report, stating that the shoe was similar (or different) in pattern,pattern dimensions, configuration of pattern elements, general wear and/or wear distribution. This would also state that indications of damage features were present or that unique damage features were identifed.
UWK4Y6-5331	The damage features appear the same in more tan one impression, adding to the value that these do relate to actual damage features. Also I was able to exclude certain impressions due to the texture found within the pattern elements not corresponding. They appear to be going in a different direction. This texture feature is normally a manufacturing one so could indicate shoes made at different times with different moulds. Also the time frame - one day's wear and damage would be virtually unchanged, even the fact that they have been washed would not affect these features. There are numerous differences on some of the scene impressions e.g. potential damage features and wear degree that are visible however these are not present on the undersoles and vice versa.
WJR3W4-5332	In my opinion, the footwear marks Q1,3,4 and 6 were made by shoes of a similar pattern to the tread of the submitted training shoes K1. There are, however, clear and consistent differences in size and wear. In my opinion, therefore, these marks were not made by the submitted shoes, but were made by shoes which are smaller and less worn.
WR3CAN-5331	Laboratory Policy and Procedure only allows for three conclusions - Identification, Could Have Made (agreement of class characteristics), and Elimination. Test is required to be completed using only language that is approved for use in laboratory reports.
WY3PCD-5331	This is the first use of the new reporting system so it will be interesting to see what results I have made compared to the results of the test
X2M8KN-5331	Laboratory Policy and Procedure only allows for three conclusions - Identification, Could Have Made (agreement of class characteristics), and Elimination. Test is required to be completed using only language that is approved for use in laboratory reports.
XGJBDG-5331	Scene marks Q1 and Q6 - Appear to be the same mark. There were no photographs provided for the submitted test prints K1e & K1d. Also, these test prints were 'rolled' where as K1f & K1g

TABLE 3

WebCode-Test	Additional Comments
	were 'walked' this is not a consistent set of test prints. The photographic images of the suspects trainers could have had better lighting prior to photographing, as they appear a bit dark.
XRHVRZ-5331	Examination of the actual shoes to confirm characteristics would be required prior to issuing a report containing identifications.
ZCVP9W-5331	The soles of the shoes were very poorly lit, especially the heel area. It was difficult to visualize and confirm nearly any of the randomly acquired characteristics on the shoes. If this were casework, I'd keep using different angles until I found the best one that would help me see the sole of the shoe clearly. If only pictures were provided by the agency for a case, I'd request the actual shoes or additional photographs and explain that if these weren't provided they could limit my analysis and opinion. Our laboratory as well as others do not use the SWGMAT conclusion scale, or have their own range of conclusions. Not enough information was provided about each category to allow the analysts of these labs to make the decisions about the impressions. For the impressions that call for some in-between category, a second opinion or a discussion with other trained analysts would be had before a report was issued. This cannot happen in a proficiency. For example, in Q6, there is a high distortion in the toe area, which led to some difference in size. Some analysts would make an exclusion, but other analysts might take that distortion into account and say this size difference may not be enough to fully eliminate the shoe and may give it a non-association or inconclusive instead. This test was not a fair representation of casework and especially unfair to those who do not use SWGMAT conclusions.I suspect you will have large discrepancies between both how analysts answered and how laboratories answered overall. My suggestion is to disregard this test (and possibly turned into a study to see how the responses differ between laboratories) and a new proficiency similar to the previous one be administered to be counted as the official proficiency.
ZGDPQX-5331	During normal casework, the known shoes would be required in order to confirm any random identifying characteristics observed in the unknown impressions.
ZJKX24-5332	The conclusions stated above are based on the assumption that should the actual K1 shoes be made available for examination, the corresponding randomly acquired characteristics observed on the K1 shoe outsoles would be confirmed as such.
ZMYMEK-5331	In my opinion conclusive support corresponds to A - Identification. The quality of the photographs of the sole prohibited thorough examination of some wear and damage detail. Also, some of the testmarks were heavy with ink such that apparent feathering (Schallamach) features were not reproduced as clear as I would have liked.
ZP7VN6-5331	The lighting used to illuminate the shoe outsoles was poor (images/photographic prints were too dark) making it difficult to see the features on the bottom of the shoes. The conclusion scale provided was incomplete. The entire definition for each conclusion should've been included.
ZUZU32-5331	For marks that are different in size, no further examination in relation to degree of wear or fine detail is carried out.

Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program *****

Test No. 17-5331: Footwear Imprint Evidence

DATA MUST BE RECEIVED BY ***May 22, 2017*** TO BE INCLUDED IN THE REPORT

Participant Code: WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and 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 on the last page must be completed and submitted.)

☐ This participant's data is NOT intended for submission to ASCLD/LAB, ANAB, or A2LA.

Scenario:

Police are investigating a case of assault and attempted theft on a woman exiting a store in a shopping mall. Footwear imprints were recovered from the area of the store where the assault occurred. The day after the incident, shoes were recovered from a suspect's home. The shoes appear to have been washed. Investigators are asking you to compare the imprints recovered at the scene with photographs of the shoe soles and known imprints made with the shoes. The recovered shoes are manufactured by Saucony, and the shoe tag reads: Women S15269-1; USA 9, UK 7, EUR 40.5; 60687 02/16; PO #4700345023.

Shoes and known imprints have been labeled with "L" and "R" to indicate "Left" and "Right" shoes. The inked imprints in images K1d and K1e were made by rolling the toe and heel areas separately onto paper. The inked imprints in images K1f and K1g were made by having the owner wear the shoe and walk across a sheet of paper.

***Please note: the imprint identification section (Question 1.) has been updated to include a larger range of conclusions. Please see page 2 for instructions.*

Items Submitted (Sample Pack FIEP):

K1a: Photograph of the soles of the recovered shoes, lighted from above.
K1b-K1c: Two oblique lighted images of the soles of the recovered shoes, light direction indicated by arrows.
K1d-K1g: Known imprints made with the recovered shoes.
Q1-Q4: Questioned imprints found on a shipping box in the store (cardboard box).
Q5-Q7: Questioned imprints found in the store (ceramic tile).

Please return all pages of this data sheet.

Participant Code:
WebCode:

Instructions:
Select from the following list of conclusions and insert the appropriate letter in the spaces provided. If the wording below differs from the normal wording of your conclusions, adapt these conclusions as best you can and use your preferred wording in your written conclusions. These conclusions are adapted from the SWGTREAD Range of Conclusions standard.

A. Identification - Highest degree of association between the questioned and known item.

B. High degree of association - Correspondence of class characteristics, in addition to unusual wear and/or one or more randomly acquired characteristics between the questioned and known item.

C. Association of class characteristics - Correspondence of design and physical size and possibly general wear between the questioned and known item.

D. Limited association of class characteristics - Some similar class characteristics between the questioned and known item with significant limiting factors.

E. Inconclusive* - Questioned item lacks sufficient detail for a meaningful conclusion in comparison to the known item. *(adapted from SWGTREAD "Lacks sufficient detail" conclusion)*

F. Indications of non-association - Questioned item exhibits dissimilarities in comparison to the known item.

G. Exclusion - Highest degree of non-association between the questioned item and the known item.

**Should the response "E" be used, please document the reason in the Additional Comments section of this data sheet.*

1.) Indicate the results of your comparisons of the recovered shoes with the questioned imprints by writing the letter of your conclusion next to each questioned imprint in the table.

If an identification or positive association is made (A-D), indicate whether the imprint is associated with the right or left suspect shoe. If a non-association or inconclusive finding is reported (E-G), do NOT indicate a right or left shoe.

Box in Store		***Store***	
Imprint	L/R	Imprint	L/R
Q1: _____	_____	**Q5:** _____	_____
Q2: _____	_____	**Q6:** _____	_____
Q3: _____	_____	**Q7:** _____	_____
Q4: _____	_____		

Please return all pages of this data sheet.

Participant Code:
WebCode:

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

3.) Additional Comments

Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by ***May 22, 2017*** to be included in the report. Emailed data sheets are not accepted.

QUESTIONS?
TEL: +1-571-434-1925 (8 am - 4:30 pm EST)
EMAIL: forensics@cts-interlab.com
www.ctsforensics.com

Participant Code:

ONLINE DATA ENTRY: www.cts-portal.com

FAX: +1-571-434-1937

MAIL: Collaborative Testing Services, Inc.
P.O. Box 650820
Sterling, VA 20165-0820 USA

Please return all pages of this data sheet.

Collaborative Testing Services ~ Forensic Testing Program

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code: WebCode:

for Test No. **17-5331: Footwear Imprint Evidence**

This release page must be completed and received by ***May 22, 2017*** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

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

ASCLD/LAB Certificate No. _____

ANAB Certificate No. _____

A2LA Certificate No. _____

Step 2: Complete the Laboratory Identifying Information in its entirety

Signature and Title _____

Laboratory Name _____

Location (City/State) _____

Return Instructions

Accreditation Release

Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.

Questions? Contact us 8 am-4:30 pm EST
Telephone: +1-571-434-1925
email: forensics@cts-interlab.com

Please return all pages of this data sheet.