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FORENSIC TESTING PROGRAM

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Footwear Imprint Evidence
Test No. 22-5331/5 Summary Report

Each sample pack contained either digitally produced photographs (22-5331) or directly downloadable digital images (22-5335) of ten 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 169 participants: 94 for 22-5331 and 75 for 22-5335 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 ten 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. Three photographs contain images of the ten questioned imprints, Q1-Q3 in the first photograph, Q4-Q7 in the second photograph and Q8-Q10 in the third 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 more than three months. Once the shoes were no longer worn, the soles were cleaned of any debris with water and paper towels.

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 having the owner wear the shoe and step down onto paper placed on top of a semi-soft surface (per ASB standards).

QUESTIONED IMPRINTS (Q1-Q10): Questioned imprints Q1-Q10 were created by coating the sole of each shoe with ink and having the wearer walk across the substrates (see table below).

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." Digital download media were provided in a zipped file uploaded to the CTS portal.

VERIFICATION -
All laboratories that conducted the predistribution examination reported the expected associations and exclusions for all questioned imprints with the suspect shoes. Specifically, all participants associated imprint Q2 with the suspect right shoe. The participants excluded the suspect shoes as the source of imprints Q1 and Q3-Q10.

Imprints	Shoe Type	Manufacturer	Left/Right	Size (U.S.)
Q1, Q5, Q6, Q8, Q10	Running shoe (Shoe not provided)	Adidas	Right	8
Q3, Q4, Q7, Q9	Running shoe (Shoe not provided)	Adidas	Left	8
Q2	Running shoe (Suspect shoe K1)	Adidas	Right	9.5

Summary Comments

This test was designed to allow participants to assess their proficiency with footwear imprint examination and comparison. Test materials consisted of three photographs containing ten questioned footwear imprints (Q1-Q10), 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. One of the questioned imprints was made by the suspect right shoe (Q2). Nine questioned imprints (Q1, Q3-Q10) were made by a second pair of unknown shoes (Refer to the Manufacturer's Information for preparation details).

Of the 169 responding participants, 156 (92.3%) reported all associations/exclusions and left/right orientations consistent with the consensus and expected results. Ten participants associated or reported inconclusive for which an exclusion was expected. Two participants reported a letter for orientation that differed from the options of "L" or "R" for imprint Q2 and one participant did not report an association response for Q10.

For imprint Q2 that was associated with the suspect right shoe (K1), all responses of association (A-D) were tallied together to determine the consensus. All participants reported either an Identification (A) or High Degree of Association (B) for this questioned imprint.

Seven participants reported some level of association (A-D) between the suspect shoes and imprint Q4 for which an exclusion was expected. Additionally, three participants reported inconclusive (E) for imprint Q4.

Examination Results

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

TABLE 1a *(Raw Wood)*

	Questioned Imprints					
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
2BF2KE-5335	G		A	R	G	
2HJZXP-5331	G		A	R	G	
2PGT4X-5335	G		A	R	G	
333MVH-5331	G	R	A	R	G	L
3EEUT4-5331	G		A	R	G	
3F8L4N-5335	G	R	A	R	G	L
3KLHBB-5331	G		A	R	G	
3M6FY2-5331	G		A	R	G	
3PXBLA-5331	G		A	R	G	
3QQ3VV-5331	G	R	A	R	G	L
3WVYFV-5331	G		A	R	G	
3XPMXQ-5335	G	R	A	R	G	L
42KVJC-5331	G		A	R	G	
494YQE-5331	G		A	R	G	
4F2TK7-5331	G		B	R	G	
4GXBL9-5335	F		B	R	F	
4HCVBC-5335	G		A	R	G	

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
4QMXWC-5335	G		A	R	G	
66ZPYA-5331	G	R	A	R	G	L
6AA66R-5331	G	R	A	R	G	L
6FFGJD-5335	G		A	R	G	
6GRC4J-5331	G	R	A	R	G	L
6ND86N-5331	G		A	R	G	
6T923P-5335	G		A	R	G	
6Z9FPB-5335	G		A	R	G	
73RWEA-5331	G	R	A	R	G	L
7CW3CH-5331	G		A	R	G	
7P7D6E-5335	G		A	R	G	
7XDE3K-5331	G		A	R	G	
84HBMK-5331	G		A	R	G	
8B4DNV-5331	G		A	R	G	
8D4LUQ-5331	G	R	A	R	G	L
8EX8LW-5331	G		A	R	G	
8EY6VR-5331	G	R	A	R	G	L
8MVXBD-5331	G		B	R	G	
8UD8F2-5335	G		A	R	G	

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
8ZGEV6-5335	G		A	R	G	
973NKT-5335	G		A	R	G	
9A2ZHE-5331	G		A	R	G	
9UA3FJ-5331	F		A	R	F	
9WEV9W-5331	G		A	R	G	
9XN3BP-5331	G	R	A	R	G	L
A26MVJ-5335	G	R	A	R	G	L
A8U6BF-5335	G	R	A	R	G	L
A9NTUC-5335	G		A	R	G	
AQLBJ7-5335	G		A	R	G	
BFZ9YQ-5335	G		A	R	G	
BM2KT3-5331	G		A	R	G	
BMXXFU-5331	G		A	R	G	
BPRMYQ-5335	G		A	R	G	
BQXACU-5331	G		A	R	G	
BU3TGH-5331	G		A	R	G	
BUKNZ6-5335	G	R	A	R	G	L
C44HUD-5335	G		A	R	G	
CB2CPP-5335	G	R	A	R	G	L

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
CLQY2F-5331	G		A	R	G	
CMVTEQ-5331	G		A	R	G	
CZXNM2-5335	G		A	R	G	
D37TNM-5331	G		A	R	G	
D6AJV2-5335	G		A	H	G	
DJPP2U-5335	G		A	R	G	
DLJBVL-5331	G	R	A	R	G	L
DMPX9Q-5331	G		A	R	G	
DZXJU4-5331	G		A	R	G	
EVYMJ4-5335	G		A	R	G	
F4DQB3-5335	G	R	A	R	G	L
F8AGET-5335	G		A	R	G	
FAFYEA-5331	G	D	A	D	G	I
FC7W8A-5331	G	R	A	R	G	L
FC7XT9-5335	G	R	A	R	G	L
FE627W-5335	G		A	R	G	
FQ3FH7-5335	G		A	R	G	
FQNU96-5335	G		A	R	G	
FWCGZ4-5331	G		A	R	G	

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
G22D2Z-5331	G		A	R	G	
G48V42-5331	G		A	R	G	
GJK69C-5331	G		A	R	G	
GT9Z4L-5331	G		A	R	G	
GU2QE7-5331	G		A	R	G	
GUJY32-5335	G	R	A	R	G	L
GYTZKX-5335	G		A	R	G	
HB48GA-5331	G		A	R	G	
HBPL89-5331	G		A	R	G	
HL2VRR-5331	G		A	R	G	
HL79D3-5335	G		A	R	G	
HMCXDQ-5335	G		A	R	G	
HT7M3B-5331	G		A	R	G	
J2EJL8-5331	G		A	R	G	
J2EL87-5335	G	R	A	R	G	L
JA8Y3Y-5335	G		A	R	G	
JD7AYY-5335	G		A	R	G	
JE3JDA-5331	G		A	R	G	
JUCGD2-5331	G		A	R	G	

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
JV3X9U-5331	G		A	R	G	
JYLVXK-5335	G		A	R	G	
K6UB79-5335	G		A	R	G	
K8A9AP-5331	G		A	R	G	
KDZHL9-5331	G		A	R	G	
KPG376-5335	G	R	A	R	G	L
KVHGR7-5335	G		A	R	G	
L23WV4-5331	G		A		G	
L3WKDY-5331	G		A	R	G	
LAVCHM-5331	G		A	R	G	
M2HFF2-5335	G	R	A	R	G	L
M4QP8Y-5331	G		A	R	G	
MB79PC-5331	G		A	R	G	
MF26CH-5331	G		A	R	G	
MF4TTW-5335	G		A	R	G	
MH8MBE-5335	G		A	R	G	
MT4U7X-5331	G		A	R	G	
MT8DRF-5335	G		A	R	G	
MWMDYP-5335	G		A	R	G	

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
N6Z2KU-5331	G		A	R	G	
N9XFA6-5335	G		A	R	G	
NBZG7V-5335	G	R	A	R	G	L
NGZKMM-5335	G		A	R	G	
NJTQGQ-5335	G		A	R	G	
NQU74D-5335	G		A	R	G	
NRNWAR-5331	G		A	R	G	
NUGKTM-5331	G		A	R	G	
NVRMEL-5331	G	R	A	R	G	L
PANYV3-5335	G	R	A	R	G	L
PFT3EA-5335	G	R	A	R	G	L
PKMYZU-5331	G		A	R	G	
PW2RX2-5331	F		A	R	F	
Q3HPVM-5335	G		A	R	G	
Q7JVBT-5331	G		A	R	G	
QHE7KL-5331	G		A	R	G	
R2KX3E-5331	G		A	R	G	
RG2W8E-5331	G		A	R	G	
RHUMHZ-5335	G		A	R	G	

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
T2E4WD-5331	G		A	R	G	
TBQZ6Q-5331	G		A	R	G	
TEMMWT-5335	G		A	R	G	
TFWWKJ-5335	G		A	R	G	
TMY2HV-5335	G		A	R	G	
TUELJL-5335	G		A	R	G	
U37EDX-5331	G	R	A	R	G	L
U4JU28-5335	G		A	R	G	
U8LUYJ-5331	G		A	R	G	
UBK4AK-5331	G		A	R	G	
UT4YMT-5335	G	R	A	R	G	L
UV9RDL-5331	G		A	R	G	
UW3FVG-5331	G		A	R	G	
V6RK7T-5335	G	R	A	R	G	L
V9BHW6-5331	G		A	R	G	
VB498P-5331	G	R	A	R	G	L
VBYWLE-5331	G		A	R	G	
VK44ZE-5331	G		A	R	G	
VQUA3V-5331	G	R	A	R	G	L

TABLE 1a *(Raw Wood)*

Questioned Imprints						
WebCode-Test	**Q1** Conclusion	L/R	**Q2** Conclusion	L/R	**Q3** Conclusion	L/R
VQW4GV-5335	G		A	R	G	
VVP99E-5331	G	R	A	R	G	L
W9RW3T-5331	G	R	B	R	G	L
WEGG4N-5331	G		A	R	G	
XMJD3B-5331	G		A	R	G	
XVXJUH-5335	G		A	R	G	
YB7D7H-5331	G		A	R	G	
YBAV9M-5331	G	R	A	R	G	L
YBCKGQ-5335	G		A	R	G	
YE9BGB-5331	G		A	R	G	
YGB9PH-5335	G		A	R	G	
YPTFTG-5331	G		A	R	G	
YTTQNG-5335	G		A	R	G	
ZL3XMZ-5335	G		A	R	G	
ZNQCCB-5335	G		A	R	G	
ZVEQJQ-5335	G		A	R	G	
ZVPR7P-5335	G	R	A	R	G	L
ZVPUQM-5331	G	R	A	R	G	L
ZYRR2F-5335	G		A	R	G	

Response Summary - Table 1a (Raw Wood)

Participants: **169**

	Q1 Conc.	L/R	Q2 Conc.	L/R	Q3 Conc.	L/R
Identification (A)	**0** *(0.0%)*	N/A for non-assoc.	**165** *(97.6%)*	L **0** *(0.0%)*	**0** *(0.0%)*	N/A for non-assoc.
High Degree of Ass'n. (B)	**0** *(0.0%)*		**4** *(2.4%)*	R **166** *(98.2%)*	**0** *(0.0%)*	
Association (C)	**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*	
Limited Ass'n. (D)	**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*	
Inconclusive (E)	**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*	
Non-Ass'n. (F)	**3** *(1.8%)*		**0** *(0.0%)*		**3** *(1.8%)*	
Exclusion (G)	**166** *(98.2%)*		**0** *(0.0%)*		**166** *(98.2%)*	

Examination Results

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

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
2BF2KE-5335	G		G		G		G	
2HJZXP-5331	G		G		G		G	
2PGT4X-5335	G		G		G		G	
333MVH-5331	G	L	G	R	G	R	G	L
3EEUT4-5331	G		G		G		G	
3F8L4N-5335	G	L	G	R	G	R	G	L
3KLHBB-5331	G		G		G		G	
3M6FY2-5331	G		G		G		G	
3PXBLA-5331	G		G		G		G	
3QQ3VV-5331	G	L	G	R	G	R	G	L
3WVYFV-5331	G		G		G		G	
3XPMXQ-5335	F	L	G	R	G	R	G	L
42KVJC-5331	G		G		G		G	
494YQE-5331	G		G		G		G	
4F2TK7-5331	G		G		G		G	
4GXBL9-5335	F		F		F		F	
4HCVBC-5335	G		G		G		G	
4QMXWC-5335	G		G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
66ZPYA-5331	F	L	G	R	G	R	G	L
6AA66R-5331	G	L	G	R	G	R	G	L
6FFGJD-5335	G		G		G		G	
6GRC4J-5331	G	L	G	R	G	R	G	L
6ND86N-5331	F		G		F		F	
6T923P-5335	G		G		G		G	
6Z9FPB-5335	G		G		G		G	
73RWEA-5331	G	L	G	R	G	R	G	L
7CW3CH-5331	D	L	G		G		G	
7P7D6E-5335	G		G		G		G	
7XDE3K-5331	G		G		G		G	
84HBMK-5331	G		G		G		G	
8B4DNV-5331	G		G		G		F	
8D4LUQ-5331	G	L	G	R	G	R	G	L
8EX8LW-5331	G		G		G		G	
8EY6VR-5331	G	L	G	R	G	R	G	L
8MVXBD-5331	G		G		G		G	
8UD8F2-5335	G		G		G		G	
8ZGEV6-5335	G		G		F		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
973NKT-5335	G		G		G		G	
9A2ZHE-5331	G		G		G		G	
9UA3FJ-5331	F		F		F		F	
9WEV9W-5331	G		G		G		G	
9XN3BP-5331	G	L	G	R	G	R	G	L
A26MVJ-5335	G	L	G	R	G	R	G	L
A8U6BF-5335	G	L	G	R	G	R	G	L
A9NTUC-5335	G		G		G		G	
AQLBJ7-5335	G		G		G		G	
BFZ9YQ-5335	G		G		G		G	
BM2KT3-5331	G		G		G		G	
BMXXFU-5331	G		G		G		G	
BPRMYQ-5335	G		G		G		G	
BQXACU-5331	G		G		G		G	
BU3TGH-5331	G		G		G		G	
BUKNZ6-5335	G	L	G	R	G	R	G	L
C44HUD-5335	G		G		G		G	
CB2CPP-5335	G	L	G	R	G	R	G	L
CLQY2F-5331	F	L	G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
CMVTEQ-5331	G		G		G		G	
CZXNM2-5335	G		G		G		G	
D37TNM-5331	G		G		G		G	
D6AJV2-5335	G		G		F		F	
DJPP2U-5335	G		G		G		G	
DLJBVL-5331	G	L	G	R	G	R	G	L
DMPX9Q-5331	G		G		G		G	
DZXJU4-5331	G		G		G		G	
EVYMJ4-5335	G		G		G		G	
F4DQB3-5335	G	L	G	R	G	R	G	L
F8AGET-5335	G		G		G		G	
FAFYEA-5331	G	I	G	D	G	D	G	I
FC7W8A-5331	G	L	G	R	G	R	G	L
FC7XT9-5335	G	L	G	R	G	R	G	L
FE627W-5335	G		G		G		G	
FQ3FH7-5335	G		G		G		G	
FQNU96-5335	G		G		G		G	
FWCGZ4-5331	G		G		G		G	
G22D2Z-5331	G		G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
G48V42-5331	G		G		G		G	
GJK69C-5331	G		G		G		G	
GT9Z4L-5331	G		G		G		G	
GU2QE7-5331	C	L	G		G		G	
GUJY32-5335	F	L	G	R	G	R	G	L
GYTZKX-5335	G		G		G		G	
HB48GA-5331	G		G		G		G	
HBPL89-5331	D	L	G		G		F	
HL2VRR-5331	G		G		G		G	
HL79D3-5335	G		G		G		G	
HMCXDQ-5335	G		G		G		G	
HT7M3B-5331	G		G		G		G	
J2EJL8-5331	D	L	G		G		G	
J2EL87-5335	G	L	G	R	G	R	G	L
JA8Y3Y-5335	G		G		G		G	
JD7AYY-5335	G		G		G		G	
JE3JDA-5331	G		G		G		G	
JUCGD2-5331	G		G		G		G	
JV3X9U-5331	G		G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
JYLVXK-5335	G		G		G		G	
K6UB79-5335	G		G		G		G	
K8A9AP-5331	G		G		G		G	
KDZHL9-5331	G		G		G		G	
KPG376-5335	F	L	G	R	G	R	G	L
KVHGR7-5335	F		G		G		E	
L23WV4-5331	G	L	G	R	G	R	G	L
L3WKDY-5331	G		G		G		G	
LAVCHM-5331	G		G		G		G	
M2HFF2-5335	G	L	G	R	F	R	E	L
M4QP8Y-5331	G		G		G		G	
MB79PC-5331	G		G		G		G	
MF26CH-5331	G		G		G		G	
MF4TTW-5335	G		G		G		G	
MH8MBE-5335	G		G		G		G	
MT4U7X-5331	G		G		G		G	
MT8DRF-5335	G		G		G		G	
MWMDYP-5335	G		G		G		G	
N6Z2KU-5331	G		G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
N9XFA6-5335	G		G		G		G	
NBZG7V-5335	G	L	G	R	G	R	G	L
NGZKMM-5335	G		G		G		G	
NJTQGQ-5335	G		G		G		G	
NQU74D-5335	G		G		G		G	
NRNWAR-5331	G		G		G		G	
NUGKTM-5331	G		G		G		G	
NVRMEL-5331	G	L	G	R	G	R	G	L
PANYV3-5335	F	L	G	R	G	R	G	L
PFT3EA-5335	G	L	G	R	G	R	G	L
PKMYZU-5331	G		G		G		G	
PW2RX2-5331	C	L	F		F		F	
Q3HPVM-5335	G		G		G		G	
Q7JVBT-5331	G		G		G		G	
QHE7KL-5331	G		G		G		G	
R2KX3E-5331	G		G		G		G	
RG2W8E-5331	G		G		G		G	
RHUMHZ-5335	G		G		G		G	
T2E4WD-5331	G		G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4**		**Q5**		**Q6**		**Q7**	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
TBQZ6Q-5331	G		G		G		G	
TEMMWT-5335	G		G		G		G	
TFWWKJ-5335	G		G		G		G	
TMY2HV-5335	G		G		G		G	
TUELJL-5335	G		G		G		G	
U37EDX-5331	D	L	G	R	G	R	G	L
U4JU28-5335	G		G		G		G	
U8LUYJ-5331	G		G		G		G	
UBK4AK-5331	G		G		G		G	
UT4YMT-5335	G	L	G	R	G	R	G	L
UV9RDL-5331	G		G		G		G	
UW3FVG-5331	G		G		G		G	
V6RK7T-5335	G	L	G	R	G	R	G	L
V9BHW6-5331	G		G		G		G	
VB498P-5331	G	L	G	R	G	R	G	L
VBYWLE-5331	G		G		G		G	
VK44ZE-5331	G		G		G		G	
VQUA3V-5331	G	L	G	R	G	R	G	L
VQW4GV-5335	G		G		G		G	

TABLE 1b *(Ceramic Tile)*

Questioned Imprints								
WebCode-Test	**Q4** Conclusion	L/R	**Q5** Conclusion	L/R	**Q6** Conclusion	L/R	**Q7** Conclusion	L/R
VVP99E-5331	F	L	G	R	F	R	G	L
W9RW3T-5331	C	L	G	R	G	R	G	L
WEGG4N-5331	G		G		G		G	
XMJD3B-5331	G		G		G		G	
XVXJUH-5335	G		G		G		G	
YB7D7H-5331	F	L	G		G		G	
YBAV9M-5331	G	L	G	R	G	R	G	L
YBCKGQ-5335	F		G		G		G	
YE9BGB-5331	G		G		G		G	
YGB9PH-5335	G		G		G		G	
YPTFTG-5331	G		G		G		G	
YTTQNG-5335	G		G		G		G	
ZL3XMZ-5335	G		G		G		G	
ZNQCCB-5335	G		G		G		G	
ZVEQJQ-5335	G		G		G		G	
ZVPR7P-5335	G	L	G	R	G	R	G	L
ZVPUQM-5331	G	L	G	R	G	R	G	L
ZYRR2F-5335	G		G		G		G	

Response Summary - Table 1b (Ceramic Tile)

Participants: **169**

	Q4 Conc.	L/R	Q5 Conc.	L/R	Q6 Conc.	L/R	Q7 Conc.	L/R
Identification (A)	**0** *(0.0%)*	N/A for non-assoc.	**0** *(0.0%)*	N/A for non-assoc.	**0** *(0.0%)*	N/A for non-assoc.	**0** *(0.0%)*	N/A for non-assoc.
High Degree of Ass'n. (B)	**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*	
Association (C)	**3** *(1.8%)*		**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*	
Limited Ass'n. (D)	**4** *(2.4%)*		**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*	
Inconclusive (E)	**0** *(0.0%)*		**0** *(0.0%)*		**0** *(0.0%)*		**2** *(1.2%)*	
Non-Ass'n. (F)	**13** *(7.7%)*		**3** *(1.8%)*		**8** *(4.7%)*		**7** *(4.1%)*	
Exclusion (G)	**149** *(88.2%)*		**166** *(98.2%)*		**161** *(95.3%)*		**160** *(94.7%)*	

Examination Results

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

TABLE 1c *(Vinyl Tile)*

	Questioned Imprints					
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
2BF2KE-5335	G		G		G	
2HJZXP-5331	G		G		G	
2PGT4X-5335	G		G		G	
333MVH-5331	G	R	G	L	G	R
3EEUT4-5331	G		G		G	
3F8L4N-5335	G	R	G	L	G	R
3KLHBB-5331	G		G		G	
3M6FY2-5331	G		G		G	
3PXBLA-5331	G		G		G	
3QQ3VV-5331	G	R	G	L	G	R
3WVYFV-5331	G		G		G	
3XPMXQ-5335	G	R	G	L	G	R
42KVJC-5331	G		G		G	
494YQE-5331	G		G		G	
4F2TK7-5331	G		G		G	
4GXBL9-5335	F		F		F	
4HCVBC-5335	G		G		G	

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
4QMXWC-5335	G		G		G	
66ZPYA-5331	G	R	G	L	G	R
6AA66R-5331	G	R	G	L	G	R
6FFGJD-5335	G		G		G	
6GRC4J-5331	G	R	G	L	G	R
6ND86N-5331	F		G		F	
6T923P-5335	G		G		G	
6Z9FPB-5335	G		G		G	
73RWEA-5331	G	R	G	L	G	R
7CW3CH-5331	G		G		G	
7P7D6E-5335	G		G		G	
7XDE3K-5331	G		G		G	
84HBMK-5331	G		G		G	
8B4DNV-5331	F		F		E	
8D4LUQ-5331	G	R	G	L	G	R
8EX8LW-5331	G		G		G	
8EY6VR-5331	G	R	G	L	G	R
8MVXBD-5331	G		G		G	
8UD8F2-5335	G		G		G	

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
8ZGEV6-5335	G		G		F	
973NKT-5335	G		G		G	
9A2ZHE-5331	G		G		G	
9UA3FJ-5331	F		F		F	
9WEV9W-5331	G		G		G	
9XN3BP-5331	G	R	G	L	G	R
A26MVJ-5335	G	R	G	L	G	R
A8U6BF-5335	G	R	G	L	G	R
A9NTUC-5335	G		G		G	
AQLBJ7-5335	G		G		G	
BFZ9YQ-5335	G		G		G	
BM2KT3-5331	G		G		G	
BMXXFU-5331	G		G		G	
BPRMYQ-5335	G		G		G	
BQXACU-5331	G		G		G	
BU3TGH-5331	G		G		G	
BUKNZ6-5335	G	R	G	L	G	R
C44HUD-5335	G		G		G	
CB2CPP-5335	G	R	G	L	G	R

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
CLQY2F-5331	G		G		G	
CMVTEQ-5331	G		G		G	
CZXNM2-5335	G		G		G	
D37TNM-5331	G		G		G	
D6AJV2-5335	G		G		G	
DJPP2U-5335	G		G		G	
DLJBVL-5331	G	R	G	L	G	R
DMPX9Q-5331	G		G		G	
DZXJU4-5331	G		G		G	
EVYMJ4-5335	G		G		G	
F4DQB3-5335	G	R	G	L	G	R
F8AGET-5335	G		G		G	
FAFYEA-5331	G	D	G	I	G	D
FC7W8A-5331	G	R	G	L	G	R
FC7XT9-5335	G	R	G	L	G	R
FE627W-5335	G		G		G	
FQ3FH7-5335	G		G		G	
FQNU96-5335	G		G		G	
FWCGZ4-5331	G		G		G	

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
G22D2Z-5331	G		G		G	
G48V42-5331	G		G		G	
GJK69C-5331	G		G		G	
GT9Z4L-5331	G		G		G	
GU2QE7-5331	G		G		G	
GUJY32-5335	G	R	G	L	G	R
GYTZKX-5335	G		G		G	
HB48GA-5331	G		G		G	
HBPL89-5331	G		G		G	
HL2VRR-5331	G		G		G	
HL79D3-5335	G		G		G	
HMCXDQ-5335	G		G		G	
HT7M3B-5331	G		G		G	
J2EJL8-5331	G		G		G	
J2EL87-5335	G	R	G	L	G	R
JA8Y3Y-5335	G		G		G	
JD7AYY-5335	G		G		G	
JE3JDA-5331	G		G		G	
JUCGD2-5331	G		G		G	

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
JV3X9U-5331	G		G		G	
JYLVXK-5335	G		G		G	
K6UB79-5335	G		G		G	
K8A9AP-5331	G		G		G	
KDZHL9-5331	G		G		G	
KPG376-5335	G	R	G	L	G	R
KVHGR7-5335	G		G		G	
L23WV4-5331	G	R	G	L	G	R
L3WKDY-5331	G		G		G	
LAVCHM-5331	G		G		G	
M2HFF2-5335	G	R	E	L	E	R
M4QP8Y-5331	G		G		G	
MB79PC-5331	G		G			
MF26CH-5331	G		G		G	
MF4TTW-5335	G		G		G	
MH8MBE-5335	G		G		G	
MT4U7X-5331	G		G		G	
MT8DRF-5335	G		G		G	
MWMDYP-5335	G		G		G	

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
N6Z2KU-5331	G		G		G	
N9XFA6-5335	G		G		G	
NBZG7V-5335	G	R	G	L	G	R
NGZKMM-5335	G		G		G	
NJTQGQ-5335	G		G		G	
NQU74D-5335	G		G		G	
NRNWAR-5331	G		G		G	
NUGKTM-5331	G		G		G	
NVRMEL-5331	G	R	G	L	G	R
PANYV3-5335	G	R	G	L	G	R
PFT3EA-5335	G	R	G	L	G	R
PKMYZU-5331	G		G		G	
PW2RX2-5331	F		F		F	
Q3HPVM-5335	G		G		G	
Q7JVBT-5331	G		G		G	
QHE7KL-5331	G		G		G	
R2KX3E-5331	G		G		G	
RG2W8E-5331	G		G		G	
RHUMHZ-5335	G		G		G	

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
T2E4WD-5331	G		G		G	
TBQZ6Q-5331	G		G		G	
TEMMWT-5335	G		G		G	
TFWWKJ-5335	G		G		G	
TMY2HV-5335	G		G		G	
TUELJL-5335	G		G		G	
U37EDX-5331	G	R	G	L	G	R
U4JU28-5335	G		G		G	
U8LUYJ-5331	G		G		G	
UBK4AK-5331	G		G		G	
UT4YMT-5335	G	R	G	L	G	R
UV9RDL-5331	G		G		G	
UW3FVG-5331	G		G		G	
V6RK7T-5335	G	R	G	L	G	R
V9BHW6-5331	G		G		G	
VB498P-5331	G	R	G	L	G	R
VBYWLE-5331	G		G		G	
VK44ZE-5331	G		G		G	
VQUA3V-5331	G	R	G	L	G	R

TABLE 1c *(Vinyl Tile)*

Questioned Imprints						
WebCode-Test	**Q8** Conclusion	L/R	**Q9** Conclusion	L/R	**Q10** Conclusion	L/R
VQW4GV-5335	G		G		G	
VVP99E-5331	F	R	G	L	F	R
W9RW3T-5331	G	R	G	L	G	R
WEGG4N-5331	G		G		G	
XMJD3B-5331	G		G		G	
XVXJUH-5335	G		G		G	
YB7D7H-5331	G		G		G	
YBAV9M-5331	G	R	G	L	G	R
YBCKGQ-5335	G		G		G	
YE9BGB-5331	G		G		G	
YGB9PH-5335	G		G		G	
YPTFTG-5331	G		G		G	
YTTQNG-5335	G		G		G	
ZL3XMZ-5335	G		G		G	
ZNQCCB-5335	G		G		G	
ZVEQJQ-5335	G		G		G	
ZVPR7P-5335	G	R	G	L	G	R
ZVPUQM-5331	G	R	G	L	G	R
ZYRR2F-5335	G		G		G	

Response Summary -Table 1c (Vinyl Tile)

Participants: **169**

	Q8 Conc.	L/R		Q9 Conc.	L/R		Q10 Conc.	L/R
Identification (A)	**0** *(0.0%)*	N/A for non-assoc.	(A)	**0** *(0.0%)*	N/A for non-assoc.	(A)	**0** *(0.0%)*	N/A for non-assoc.
High Degree of Ass'n. (B)	**0** *(0.0%)*		(B)	**0** *(0.0%)*		(B)	**0** *(0.0%)*	
Association (C)	**0** *(0.0%)*		(C)	**0** *(0.0%)*		(C)	**0** *(0.0%)*	
Limited Ass'n. (D)	**0** *(0.0%)*		(D)	**0** *(0.0%)*		(D)	**0** *(0.0%)*	
Inconclusive (E)	**0** *(0.0%)*		(E)	**1** *(0.6%)*		(E)	**2** *(1.2%)*	
Non-Ass'n. (F)	**6** *(3.6%)*		(F)	**4** *(2.4%)*		(F)	**6** *(3.6%)*	
Exclusion (G)	**163** *(96.4%)*		(G)	**164** *(97.0%)*		(G)	**160** *(94.7%)*	

Conclusions

TABLE 2

WebCode-Test	Conclusions
2BF2KE-5335	The questioned imprint marked “Q2” was examined and found to have been made by the right shoe in the photographs marked “K1a” to “K1c” that made the known test imprints in the photographs marked “K1d” to “K1g". The questioned imprints marked “Q1” and “Q3” to “Q10” were examined and found not to have been made by the left or right shoe in the photographs marked “K1a” to “K1c” that made the known test imprints in the photographs marked “K1d” to “K1g".
2HJZXP-5331	Marks Q1, Q5, Q6 & Q8 have all been made by a Right trainer of the same pattern type. However, only Q2 Right displayed similarity in damage features and pattern wear features. All other marks Q3, Q4, Q7 & Q9 were made by a Left trainer. Through the comparison process I did not see consistency in damage features visible on the trainers in the marks, including pattern wear features. I know from the case that the trainers have been washed which may eliminate those features cause by an artefact which has now now been removed, and there may been some shrinkage. But there were obvious features in the mark which I couldn't align with any of the test prints or the soles on the trainers, leaving me to conclude that no Left marks have been made by the recovered set of trainers.
2PGT4X-5335	[No Conclusions Reported.]
333MVH-5331	Q2 is identified as having being made by the suspected right shoe. Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 are excluded from being made by the suspected shoes.
3EEUT4-5331	Questioned impressions from raw piece of wood from scene (Items Q1-Q3): One of the questioned impressions (Q2) was determined to be a right shoe impression which is similar in tread design, size, and wear to A Suspect's right shoe. Additionally, this impression shares randomly acquired characteristics with A Suspect's right shoe. It is our opinion that this impression was made by A Suspect's right shoe. One impression (Q1) was determined to be a right shoe impression. The remaining impression (Q3) was determined to be a left shoe impression. These questioned impressions are dissimilar in size and wear to A Suspect's right and left shoe (respectively). It is our opinion that these impressions were not made by A Suspect's shoes. Questioned impressions from textured ceramic tile from scene (Items Q4-Q7): One impression (Q4) was determined to be a partial shoe impression which is dissimilar in wear to the left shoe and dissimilar in tread design to the right shoe. One impression (Q5) was determined to be a right shoe impression, one impression (Q6) was determined to be a partial right shoe impression, and the remaining impression (Q7) was determined to be a partial left shoe impression which are dissimilar in size and wear to A Suspect's right and left shoe (respectively). It is our opinion that these impressions were not made by A Suspect's shoes. Questioned impressions from textured ceramic tile from scene (Items Q8-Q10): Two impressions (Q8 and Q10) were determined to be right shoe impressions and the remaining impression (Q9) was determined to be a left shoe impression which are dissimilar in size and wear to A Suspect's right and left shoe (respectively). It is our opinion that these impressions were not made by A Suspect's shoes.
3F8L4N-5335	Neither the right nor the left outsoles portrayed in image K1a made impressions Q1 or Q3-Q10. The right outsole portrayed in image K1a made impression Q2.
3KLHBB-5331	Impression Q2 was made by the right shoe of item K1. Impressions Q1 and Q3-10 were not made by item K1.
3M6FY2-5331	The footwear impressions depicted in the submitted photographs (Items 001-Q1 through 001-Q10) were each compared to the photographs of the recovered shoes and known impressions made with the recovered shoes. I observed agreement of sole design features, general dimensions, wear patterns, and Randomly Acquired Characteristics (RAC’s) of sufficient quality and quantity to conclude that the footwear impression depicted in Item 001-Q2 was produced by the recovered right shoe. With respect to Items 001-Q1 and 001-Q3 through 001-Q10, I observed similar sole design features, but there are significant differences in the size and spatial relationship of the design elements within the tread

TABLE 2

WebCode-Test	Conclusions
	patterns, the wear patterns observed, and RAC's observed when compared to those represented in the known impressions and the recovered shoes. These differences are significant enough to conclude that none of these questioned impressions could have been made by either of the recovered shoes.
3PXBLA-5331	The right outsole of K1a is identified as the source of questioned impression Q2. The left outsole is excluded as a source for this impression. Both outsoles of K1a are excluded as a possible source for questioned impressions Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, and Q10.
3QQ3VV-5331	Impression Q2 orients with a right shoe. This impression corresponds with the K1 right shoe in outsole design, physical size, wear and randomly acquired characteristics (RACS). Therefore, this shoe was identified as the source of this impression. Impressions Q1, Q3, Q5 through Q10 correspond with the K1 shoes in outsole design. However, these impressions do not correspond with these shoes in physical size and wear. Therefore, these shoes were excluded as the source of this impression. Impression Q4 corresponds with the K1 left shoe in outsole design and is similar in physical size. However, the impression does not correspond with Item K1 left shoe in wear. Therefore, these shoes were excluded as the source of this impression.
3WVYFV-5331	Impression Q2 orients with a right shoe and corresponds in outsole design, physical size, wear, and randomly acquired characteristics with the K1 right shoe. Therefore, this shoe was identified as the source of this impression. Impressions Q1, Q3, and Q5 through Q10 correspond in outsole design with the K1 shoes. However, these impressions do not correspond in physical size and wear with these shoes. Therefore, these shoes were excluded as the source of these impressions. Impression Q4 orients with a left shoe and corresponds in outsole design with and is similar in physical size to the K1 left shoe. However, this impression does not correspond in wear with this shoe. Therefore, this shoe was excluded as the source of this impression.
3XPMXQ-5335	[No Conclusions Reported.]
42KVJC-5331	Questioned imprints of Q1-Q10 were compared with known imprint made with the the recovered shoes. Questioned imprints of Q2 were found to be consistent in shape, physical size, and individual characteristics with the imprint of the recovered right shoe. Questioned imprints of Q1, Q3 to Q10 were eliminated as having been made by the recovered shoe.
494YQE-5331	Questioned impressions Q1 - Q10 were compared to the known left (K1L) and right (K1R) sneakers, as well as the test impressions (K1d-K1g) generated with the following results: Q2 and K1R are consistent and exhibit no exclusionary differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q2 and K1R exhibit [6] corresponding individual characteristics. Q1, Q3-Q10 and K1(L/R) are different with respect to class characteristics. It is the opinion of the undersigned that questioned footwear impression Q2 was made by the known sneaker, K1R. It is the opinion of the undersigned that questioned footwear impressions Q1, Q3-Q10 could not have been made by the known sneakers K1(L/R).
4F2TK7-5331	The results offer extremely strong support for the view that impression Q2 was made by the runners of the suspect rather than other footwear. 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 findings show impressions Q1 and Q3-10 were made by footwear other than that of the suspect.
4GXBL9-5335	[No Conclusions Reported.]
4HCVBC-5335	The known right suspect shoe made impression Q2. The known shoes were eliminated from making impressions Q1, Q3-Q10.

TABLE 2

WebCode-Test	Conclusions
4QMXWC-5335	[No Conclusions Reported.]
66ZPYA-5331	Q1, Q5, Q6, Q8, Q10 - All of these marks showed agreement in pattern with the right shoe. However there were significant differences in size, such that the right shoe is not responsible for any of these marks. Q2 - This mark showed agreement in pattern, size, degree of wear and fine detail with the right shoe such that, in our opinion, the right shoe is responsible for the mark. Q3, Q9 - Both of these marks showed agreement in pattern with the left shoe. However there were significant differences in size, such that the left shoe is not responsible for either of these marks. Q4 - This mark showed agreement in pattern and size with the left shoe. However there were differences noted in terms of fine detail being present in the mark which did not appear to be on the shoe. These differences, when considered in isolation from the rest of the marks, were not sufficient to exclude the left shoe from having made the mark. (see Additional comments). Q7 - This mark showed agreement in pattern and size with the left shoe. However there were differences noted in terms of the degree of wear and fine detail being present in the mark which did not appear to be on the shoe. These differences, in our opinion, were sufficient to exclude the left shoe from having made the mark.
6AA66R-5331	Impression Q1 corresponds in outsole design to the K1 right shoe. However, this impression does not correspond in physical size and wear to the K1 right shoe. Therefore, the K1 right shoe was excluded as the source of this impression. The Q2 footwear impression corresponds to the K1 right shoe in outsole design, physical size, wear and 3 randomly acquired characteristics. Therefore, the K1 right shoe was identified as the source of this impression. Impression Q3 corresponds in outsole design to the K1 left shoe. However, this impression does not correspond in physical size and wear to the K1 left shoe. Therefore, the K1 left shoe was excluded as the source of this impression. Impression Q4 corresponds in outsole design to the K1 left shoe. However, this impression does not correspond in physical size and wear to the K1 left shoe. Therefore, the K1 left shoe was excluded as the source of this impression. Impression Q5 corresponds in outsole design to the K1 right shoe. However, this impression does not correspond in physical size and wear to the K1 right shoe. Therefore, the K1 right shoe was excluded as the source of this impression. Impression Q6 corresponds in outsole design to the K1 right shoe. However, this impression does not correspond in physical size and wear to the K1 right shoe. Therefore, the K1 right shoe was excluded as the source of this impression. Impression Q7 corresponds in outsole design to the K1 left shoe. However, this impression does not correspond in physical size and wear to the K1 left shoe. Therefore, the K1 left shoe was excluded as the source of this impression. Impression Q8 corresponds in outsole design to the K1 right shoe. However, this impression does not correspond in physical size and wear to the K1 right shoe. Therefore, the K1 right shoe was excluded as the source of this impression. Impression Q9 corresponds in outsole design to the K1 left shoe. However, this impression does not correspond in physical size and wear to the K1 left shoe. Therefore, the K1 left shoe was excluded as the source of this impression. Impression Q10 corresponds in outsole design to the K1 right shoe. However, this impression does not correspond in physical size and wear to the K1 right shoe. Therefore, the K1 right shoe was excluded as the source of this impression.
6FFGJD-5335	Ten nearly full and partial questioned footwear impressions, designated as Q1-Q10 by the submitting agency, were submitted in three digital images (Items 1-3). The questioned footwear impressions were visually compared to the known shoes (Items 4-6) and the inked test impressions of the known shoes (Items 7-10). Item 1: Q1: Although the known right shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q1 questioned footwear impression (Exclusion; see Association Scale below). Q2: Q2 corresponded in tread design, physical size, wear and randomly acquired characteristics to the known right shoe depicted in the submitted images K1a-K1g (Items 4-10). In the opinion of the examiner, the known right shoe depicted in K1a-K1g (Items 4-10) is identified as having made the Q2 questioned footwear impression (Identification; see Association Scale below). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Q3: Although the known left shoe and questioned footwear impression corresponded in tread design, there

TABLE 2

WebCode-Test	Conclusions
	was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q3 questioned footwear impression (Exclusion; see Association Scale below). Item 2: Q4: Although the known left shoe and questioned footwear impression corresponded in tread design and physical size in the heel and arch areas, the questioned impression contained multiple areas of apparent voids and excessive wear that were not present in the known suspect's shoe. In addition, the known shoe contained randomly acquired characteristics not present in the questioned impression. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q4 questioned footwear impression (Exclusion; see Association Scale below). Q5: Although the known right shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q5 questioned footwear impression (Exclusion; see Association Scale below). Q6: Although the known right shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q6 questioned footwear impression (Exclusion; see Association Scale below). Q7: Although the known left shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q7 questioned footwear impression (Exclusion; see Association Scale below). Item 3: Q8: Although the known right shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q8 questioned footwear impression (Exclusion; see Association Scale below). Q9: Although the known left shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q9 questioned footwear impression (Exclusion; see Association Scale below). Q10: Although the known right shoe and questioned footwear impression corresponded in tread design, there was a difference in physical size. In the opinion of the examiner, the known shoes depicted in the submitted images K1a-K1g (Items 4-10) did not make the Q10 questioned footwear impression (Exclusion; see Association Scale below). 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.

TABLE 2

WebCode-Test	Conclusions
	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.
6GRC4J-5331	[No Conclusions Reported.]
6ND86N-5331	(A). The questioned imprint item Q2 shares agreement of class and identifying characteristics of sufficient impression quality and quantity with the known imprint items K1a-K1g made with the recovered suspect right shoe. Therefore, in my professional opinion, the recovered suspect right shoe was the source of, and made, the questioned impression item Q2. (B). The questioned imprint items Q4, Q6, Q7, Q8 and Q10 exhibit dissimilarities with respect to class and identifying characteristics in comparison to the known imprint items K1a-K1g made with the recovered suspect shoes. Therefore, in my professional opinion, the dissimilarities between the questioned imprint items Q4, Q6, Q7, Q8 and Q10 and the recovered suspect shoes indicated non-association; however, the details or features were not sufficient to permit an exclusion. (C). The questioned imprint items Q1, Q3, Q5 and Q9 exhibit sufficient differences of class and identifying characteristics in comparison to the known imprint items K1a-K1g made with the recovered suspect shoes. Therefore, in my professional opinion, the recovered suspect shoes were not the source of, and did not make, the questioned impression items Q1, Q3, Q5 and Q9.
6T923P-5335	The results indicated that the traces of soles recovered Q1, Q5, Q6, Q8 and Q10 were made by the same right shoe, but they were not those of the suspect. Likewise, sole marks recovered Q3, Q4, Q7, Q9 were made by the same left shoe, but were not those of the suspect. The Q2 recovered sole mark was made by the suspect's right shoe.
6Z9FPB-5335	The exemplar right shoe is the source of the unknown footwear impression Item 2 (Q2). The exemplar right and left shoes are excluded as potential sources of Item 1 (Q1), Item 3 (Q3), Item 4 (Q4), Item 5 (Q5), Item 6 (Q6), Item 7 (Q7), Item 8 (Q8), Item 9 (Q9), and Item 10 (Q10), based on class characteristics.
73RWEA-5331	TrasoScan system, Lucia Forensic 7.40 software and additionally a transparent foil were used in this test. The comparisons of the enclosed footwear impressions (Q1-Q10 and K1a-K1g) concerned the physical size and shape of the sole of shoes, the sole design and random individual identifying characteristics. It was observed that on the surface of the soles of shoes, being the comparative material, there were present some individual identifying characteristics. Similar individual characteristics were only found in the evidence material marked Q2 on the right sole. Thus, it was concluded that Items Q1, Q3-Q10 are different from the comparative materials. Items Q1, Q5, Q6, Q8 and Q10 came from the right sole, and Q3, Q4, Q7 and Q9 came from the left sole.
7CW3CH-5331	Q2, a right footwear imprint on wood, was made by the K1 right shoe. This identification is based on shared class characteristics and sufficient, corresponding random accidental characteristics that are visible in both the imprint and the shoe. Q4, a partial left footwear imprint on ceramic tile, exhibits a limited association of class characteristics with the K1 left shoe. This limited association is based on some similar class characteristics of design and size with limiting factors. The limiting factors of the partial impression and textured substrate. Q1, Q5, Q6, Q8 and Q10, right footwear imprints, could not have been made by the K1 right shoe. This exclusion is based on differences in the class characteristics such as size and wear. The imprints were made by a smaller right shoe than the K1 right shoe. Q3, Q7 and Q9, left footwear imprints, could not have been made by the K1 left shoe. This exclusion is based on differences in the class characteristics such as size and wear. The imprints were made by a smaller left shoe than the K1 left shoe.
7P7D6E-5335	Based on the quality and quantity of corresponding randomly acquired characteristics observed in the shoe mark labelled Q2 and the right shoe submitted as Item K1, it is my opinion that this shoe was the source of, and made, the shoe mark. The chance of another shoe being the source of the mark is considered negligible. The shoe marks labelled Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10

TABLE 2

WebCode-Test	Conclusions
	displayed similar sole patterns to the shoes submitted as K1, however they were different dimensions. As such, these shoes were excluded from having produced the marks.
7XDE3K-5331	An excellent correspondence of pattern, size, wear and accidental damage was found between test prints made using the right shoe and one of the questioned imprints (Q2). In interpreting this shoeprint evidence, consideration is given to the probability of observing these correspondences given the shoe made the imprint on the raw piece of wood, as opposed to observing these correspondences given the shoe did not make the imprint. In my opinion, the probability of obtaining these correspondences, given the right shoe made the imprint is very high. Conversely, it is my opinion, that the probability of obtaining these correspondences, given this shoe did not make the imprint is very low. Therefore, it is my opinion that the evidence provides extremely strong support to the suggestion that the right shoe made the imprints on the raw piece of wood. Shoeprints Q1 and Q3 to Q10 were different to the test prints made using the pair of shoes and therefore these nine shoeprints were not made by the pair of shoes.
84HBMK-5331	I was asked to compare images of a pair of 'Adidas' US size 9.5 shoes to the images of impressions from an alleged assault scene. By comparing the sole pattern of a shoe to a shoeprint impression, it is often possible to determine whether or not that particular shoe made that impression. This comparison process examines the shoe and the shoe impression to investigate any correspondence or difference in sole pattern and dimensions, the presence of any wear, and the location, size and shape of any randomly acquired characteristics. The statement of opinion as to the scientific significance of any correspondences is selected from the following scale: is neutral, provides slight support, provides moderate support, provides strong support, provides very strong support, and provides extremely strong support. The scene images consisted of one image containing three partial footwear impressions labelled Q1 to Q3 on raw piece of wood, a second image containing four partial footwear impressions labelled Q4 to Q7 on a textured ceramic tile and a third image containing three partial footwear impressions labelled Q8 to Q10 on a textured vinyl tile. The scene impression Q2 consisted of near complete impression of a right shoe. There was correspondence in the sole pattern elements between the submitted right shoe and the scene impression. There were also areas of wear and randomly acquired characteristics visible in the impressions that were also present on the submitted shoe. Therefore, this shoe or another shoe with the same observed features of correspondence could have produced these shoe impressions. I have considered the probability of finding the shoe impression evidence if the right 'Adidas' shoe made this impression. Conversely, I have also considered the probability of finding the shoe impression evidence if another shoe made this impression. In my opinion, this evidence provides extremely strong support for the proposition that the right 'Adidas' shoe made the scene impression Q2. The remaining scene impressions Q1, Q3 to Q10 were partial impressions of both left and right shoes, which corresponded to the sole patterns of the submitted 'Adidas' shoes. However, there appeared to be a size difference between these scene impressions and the submitted shoes. There appeared to be more wear present on the impressions compared with the submitted shoes. Also, randomly acquired characteristics in the impressions were different than those on the submitted shoes. Therefore, the right and left 'Adidas' shoes could not have made the scene impressions Q1, Q3 to Q10.
8B4DNV-5331	It is the opinion of this examiner, Laboratory Item #001.A (K1a), right Adidas recovered shoe sole was not the source of, and did not make Laboratory Item #001.H (Q1), partial right shoe impression on a raw piece of wood. It is the opinion of the examiner that the track depicted in Laboratory Item #001.I (Q2), partial right shoe impression on a raw piece of wood was made by Laboratory Item #001.A (K1a), recovered right Adidas shoe sole. It is the opinion of this examiner, Laboratory Item #001.A (K1a), left Adidas recovered shoe sole was not the source of, and did not make Laboratory Item #001.J (Q3), partial left shoe impression on a raw piece of wood. It is the opinion of this examiner, Laboratory Item #001.A (K1a), left Adidas recovered shoe sole was not the source of, and did not make Laboratory Item #001.K (Q4), partial left shoe heel impression on a textured ceramic tile. It is the opinion of this examiner, Laboratory Item #001.A (K1a), right Adidas recovered shoe sole was not the source of, and did not make Laboratory Item #001.L (Q5), partial right shoe impression on a textured ceramic tile. It is the opinion of this examiner, Laboratory Item #001.A (K1a), right Adidas recovered

TABLE 2

WebCode-Test	Conclusions
	shoe sole was not the source of, and did not make Laboratory Item #001.M (Q6), partial right shoe impression on a textured ceramic tile. It is the opinion of this examiner, dissimilarities between Laboratory item #001.N (Q7), partial left shoe impression on a textured ceramic tile and Laboratory Item #001.A (K1a), left Adidas recovered shoe sole indicated non-association; however, the details or features were not sufficient to permit an exclusion. It is the opinion of this examiner, dissimilarities between Laboratory item #001.O (Q8), partial right shoe impression on a textured vinyl tile and Laboratory Item #001.A (K1a), right Adidas recovered shoe sole indicated non-association; however, the details or features were not sufficient to permit an exclusion. It is the opinion of this examiner, dissimilarities between Laboratory item #001.P (Q9), partial left shoe impression on a textured vinyl tile and Laboratory Item #001.A (K1a), left Adidas recovered shoe sole indicated non-association; however, the details or features were not sufficient to permit an exclusion. It is the opinion of this examiner, the impression lacked sufficient detail for a meaningful conclusion regarding Laboratory item #001.Q (Q10), photograph of a partial right shoe impression on a textured vinyl tile.
8D4LUQ-5331	Q1. Eliminated, Q2. Conclusive evidence, Q3. Eliminated, Q4. Eliminated, Q5. Eliminated, Q6. Eliminated, Q7. Eliminated, Q8. Eliminated, Q9. Eliminated, Q10. Eliminated
8EX8LW-5331	Exhibit 4.2 (Q2) was identified as having been made by the known right shoe, K1R. Exhibits 4.1 (Q1), 5.2 (Q5), 5.3 (Q6), 6.1 (Q8), and 6.3 (Q10) were identified as having been made by one right shoe of similar outsole design as K1R. Theses impressions were not made by the known right shoe, K1R, based on differences in size, wear, and individual characteristics. Exhibits 4.3 (Q3), 5.1 (Q4), 5.4 (Q7), and 6.2 (Q9) were identified as having been made by one left shoe of similar outsole design as K1L. These impressions were not made by the known left shoe, K1L, based on differences in wear.
8EY6VR-5331	Interpretation Mark Q2: This Adidas pattern is not on the NFRC. However, given that Adidas is a popular fashion brand which releases new trainers regularly this could be a new pattern recently released. A size 8 is one of the more commonly encountered sizes seen in [Laboratory's] Forensic Footwear Unit. Over the mark, I would expect to be able to exclude size 7, and size 9 from making the mark. No reference collection is available for comparison. Caution has been given to half sizes. I would expect to be able to exclude a less and more worn shoe from making this mark. Three features in the mark correspond to randomly acquired damage present on the right shoe. Conclusive Support. In my opinion one other pair of Adidas trainers of the same pattern as the submitted shoes has made the marks on Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10. Smaller in size and containing different wear to the submitted shoes. When comparing these marks to each other (using acetate overlays) they all correspond in size and configuration, general and specific wear and they have features present in the same place of the same size, shape, location and orientation. The submitted shoes could not have made any of these marks. This would support the view of a second offender being present at the scene. Eliminated submitted shoes. Conclusion: In my opinion, the observed correspondence between the footwear seized from the suspect and the footwear mark Q2 recovered from the scene is of the utmost significance. Given the corresponding damage features, I consider that the likelihood of obtaining the observed degree of correspondence by coincidence, had the mark not been made by this shoe, is so remote that it can be totally discounted. In my opinion one other pair of Adidas trainers of the same pattern as the submitted shoes has made the marks on Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10.
8MVXBD-5331	By comparing the sole pattern of a shoe to a shoeprint impression it is often possible to determine whether or not that particular shoe made that impression. I have compared the reference impressions from the shoes, K1, to the scene impressions, Q1 to Q10. This comparison process examines the photographs and impressions from the shoes, and the scene impressions, to investigate any correspondence or difference in sole pattern and dimensions, the presence of any wear, and the location, dimensions and shape of any randomly acquired damage. In subjectively assessing the strength of this correspondence I have considered: the probability of finding the shoe impression evidence if the shoe made the impression, and the probability of finding the shoe impression evidence if another shoe made the impression. The statement of opinion as to the scientific significance of the correspondence between the shoe and the shoe impression is selected from the following scale: exclusion, is neutral, provides slight support, provides moderate support, provides strong support,

TABLE 2

WebCode-Test	Conclusions
	provides very strong support, and provides extremely strong support. For scene impressions Q1, Q3, Q5 and Q6, the scene shoe sole pattern was of different dimensions than reference impressions K1, contained wear and damage features not present in the reference impressions, and lacked damage features that were present in the reference impressions; therefore, the suspect shoes are excluded from having made these scene impressions. For scene impressions Q7 to Q10, the scene shoe sole pattern was of different dimensions than reference impressions K1, contained wear features not present in the reference impressions, and lacked damage features that were present in the reference impressions; therefore, the suspect shoes are excluded from having made these scene impressions. For scene impression Q4, the shoe sole pattern was of different dimensions than reference impressions K1, and contained wear and damage features not present in the reference impressions; therefore, the suspect shoes are excluded from having made this scene impression. For impression Q2, there was a correspondence of the sole pattern, dimensions, wear features, and areas of randomly acquired damage with reference impressions K1; therefore, the submitted right shoe or another right shoe with the same sole pattern, dimensions, wear and areas of damage could have left the shoeprint at the scene. In my opinion, this combination of sole pattern, dimensions, wear and damage is rare and therefore this correspondence provides extremely strong support for the proposition that the submitted shoe made the impression (high degree of association).
8UD8F2-5335	Q1- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size RACs, Wear). Q2- The questioned impression and the known source share agreement in Class and Randomly Acquired Characteristics (RACs). In the opinion of the analyst that the impression was made by the known source. Q3- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q4- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q5- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q6- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q7- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q8- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q9- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear). Q10- Sufficient differences were noted between the questioned and known impressions to conclude they originated from two different sources (Size, RACs, Wear).
8ZGEV6-5335	Wording of the conclusions: 1. In item Q1 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q1. 2. Imprint Q2 is an imprint of a right shoe that correspond in class characteristics (shape, design and wear) and also share some randomly acquired characteristics (RACs) with the right shoe (K1). It is my opinion that there is a full association between the right shoe (K1) and the imprint Q2 ("Identification"). 3. In item Q3 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q3. 4. In item Q4 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q4. 5. In item Q5 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q5. 6. In item Q6 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is a sufficient differences of class and randomly acquired characteristics between the shoes (K1) and the imprint Q6 ("Exclusion"). 7. In item Q7 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q7. 8. In item Q8 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q8. 9. In item Q9 there is an imprint that

TABLE 2

WebCode-Test	Conclusions
	differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is an "Indications of non-association" between the shoes (K1) and the imprint Q9. 10. In item Q10 there is an imprint that differ in size and wear from the shoes that received in the laboratory. It is my opinion that there is a sufficient differences of class and randomly acquired characteristics between the shoes (K1) and the imprint Q10 ("Exclusion").
973NKT-5335	[No Conclusions Reported.]
9A2ZHE-5331	1) In my opinion, the findings demonstrate conclusively that the right shoe responsible for making the submitted test impressions HAS made the recorded footwear impression Q2. 2) In my opinion, the findings demonstrate conclusively that the left and right shoes responsible for making the submitted test impressions HAVE NOT made the remaining recorded footwear impressions.
9UA3FJ-5331	Questioned imprint found on a raw piece of wood - Item Q2, was made with the "right" shoe, of the recovered shoes. Questioned imprints found on a raw piece of wood - Items Q1 and Q3, questioned imprints found on a textured ceramic tile - Items Q4, Q5, Q6 and Q7, and questioned imprints found on a textured vinyl tile - Items Q8, Q9 and Q10, weren't made with the recovered shoes.
9WEV9W-5331	The photographs in exhibit FIEP were visually examined for questioned footwear impressions. Ten (10) suitable questioned footwear impressions, previously marked Q1 through Q10, were documented. The known right footwear, K1, in exhibit FIEP was the source of, and made, the questioned impression marked Q2 in exhibit FIEP. This identification is based on correspondence of class and randomly acquired characteristics. Another item of footwear being the source of the questioned impression is considered a practical impossibility. The known footwear, K1, in exhibit FIEP was not the source of, and did not make, the questioned impressions marked Q1 and Q3 through Q10 in exhibit FIEP. These exclusions are based on differences in class characteristics. Images of the suitable questioned footwear impressions have been retained in our files. Criminalists other than the undersigned have performed one or more steps in the described analysis.
9XN3BP-5331	As a result of my examination I determined the following: 6.1 The shoe print impressions displayed in photograph 9 labeled as “Q1” was made by the sole of a right shoe. 6.2 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the right shoe as capture in photographs 1 to 7 described in paragraph 3 and the shoe print impressions displayed in photograph 9 labeled as “Q1”. Therefore it could be excluded as a possible source of the shoe print impression. 6.3 The shoe print impressions displayed in photograph 9 labeled as “Q2” was made by the sole of a right shoe. 6.4 The class characteristics of the sole of the right shoe as capture in photographs 2 to 8 described in paragraph 3 are consistent with the class characteristics of the shoe print impressions displayed in photograph 9 labeled as “Q2”. Therefore the right shoe is included as a source that made the shoe print impression. 6.5 The shoe print impressions displayed in photograph 9 labeled as “Q3” was made by the sole of a left shoe. 6.6 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the right shoe as capture in photographs 2 to 8 described in paragraph 3 and the shoe print impressions displayed in photograph 9 labeled as “Q3”. Therefore it could be excluded as a possible source of the shoe print impression 6.7 The shoe print impressions displayed in photograph 10 labeled as “Q4” was made by the sole of a left shoe. 6.8 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the left shoe as capture in photographs 2 to 8 described in paragraph 3 and the shoe print impressions displayed in photograph 10 labeled as “Q4”. Therefore it could be excluded as a possible source of the shoe print impression. 6.9 The shoe print impressions displayed in photograph 10 labeled as “Q5” was made by the sole of a right shoe. 6.10 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the right shoe as capture in photographs 2 to 8 described in paragraph 3 and the shoe print impressions displayed in photograph 10 labeled as “Q5”. Therefore it could be excluded as a possible source of the shoe print impression. 6.11 The shoe print impressions displayed in photograph 10 labeled as “Q6” was made by the sole of a right shoe. 6.12 Sufficient differences were noted in the

TABLE 2

WebCode-Test	Conclusions
	comparison of class and/or randomly acquired characteristics between sole of the right shoe as capture in photographs 2 to 8 described in paragraph 3 and the shoe print impressions displayed in photograph 10 labeled as "Q6". Therefore it could be excluded as a possible source of the shoe print impression. 6.13 The shoe print impressions displayed in photograph 10 labeled as "Q7" was made by the sole of a left shoe. 6.14 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the left shoe as capture in photographs 2 to 7 described in paragraph 3 and the shoe print impressions displayed in photograph 10 labeled as "Q7". Therefore it could be excluded as a possible source of the shoe print impression. 6.15 The shoe print impressions displayed in photograph 11 labeled as "Q8" was made by the sole of a right shoe. 6.16 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the right shoe as capture in photographs 2 to 7 described in paragraph 3 and the shoe print impressions displayed in photograph 11 labeled as "Q8". Therefore it could be excluded as a possible source of the shoe print impression. 6.17 The shoe print impressions displayed in photograph 11 labeled as "Q9" was made by the sole of a left shoe. 6.18 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the left shoe as capture in photographs 2 to 7 described in paragraph 3 and the shoe print impressions displayed in photograph 11 labeled as "Q9". Therefore it could be excluded as a possible source of the shoe print impression. 6.19 The shoe print impressions displayed in photograph 11 labeled as "Q10" was made by the sole of a right shoe. 6.20 Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between sole of the right shoe as capture in photographs 2 to 7 described in paragraph 3 and the shoe print impressions displayed in photograph 11 labeled as "Q10". Therefore it could be excluded as a possible source of the shoe print impression.
A26MVJ-5335	The questioned footwear marks, Q1 to Q10, have been compared in detail to the submitted footwear impressions, K1a to K1g. All the marks correspond in pattern design with the submitted footwear. Q2 also corresponds in element spacing and alignment. Further correspondence can be observed in the degree and distribution of wear and in the textured pattern detail. Furthermore, features visible in the mark correspond in position, size, and shape with randomly acquired characteristics present on the outsole of the right shoe and reproduced in the test impressions. Marks Q1 and Q3 to Q10 appear to have been made by smaller shoes. The marks also exhibit slightly greater wear and non-matching features with the submitted shoes. When addressing the issue of whether the questioned marks could have been made by the submitted footwear, given my findings, in my opinion, there is conclusive support for the view that the questioned mark no.2 was made by the submitted right shoe. The submitted shoes can be excluded from making any of the other marks.
A8U6BF-5335	In my opinion, the footwear evidence provides conclusive support for the proposition that mark Q2 was made by the submitted right shoe. In my opinion the remaining footwear marks (Q1, Q3-10) were not made by either of then submitted shoes (conclusive elimination).
A9NTUC-5335	Mark Q2 corresponded in pattern and pattern arrangement to the right shoe in item K1. There was also an excellent correspondence in characteristic wear between the shoe and the mark. In addition, several damage features on the shoe appeared to be reproduced in the mark. In my opinion, these findings show a conclusive link between the shoe and the mark. The remaining marks corresponded in pattern to the shoes K1 but showed differences in pattern arrangement and wear. As such, these marks can be excluded from having been made by the shoes K1.
AQLBJ7-5335	Comparison of the right partial shoe imprint labeled Q1, found on a raw piece of wood, to the recovered right shoe revealed an elimination. Comparison of the right shoe imprint labeled Q2, found on a raw piece of wood, to the recovered right shoe revealed an identification. Comparison of the left partial shoe imprint labeled Q3, found on a raw piece of wood, to the recovered left shoe revealed an elimination. Comparison of the left partial shoe impression labeled Q4, found on a textured ceramic tile, to the recovered left shoe revealed an elimination. Comparison of the right partial shoe imprint labeled Q5, found on a textured ceramic tile, to the recovered right shoe revealed an elimination. Comparison of the right partial shoe imprint labeled Q6, found on a textured ceramic tile, to the recovered right shoe revealed an elimination. Comparison of the left partial shoe imprint labeled Q7,

TABLE 2

WebCode-Test	Conclusions
	found on a textured ceramic tile, to the recovered left shoe revealed an elimination. Comparison of the right shoe imprint labeled Q8, found on a textured vinyl tile, to the recovered right shoe revealed an elimination. Comparison of the left shoe imprint labeled Q9, found on a textured vinyl tile, to the recovered left shoe revealed an elimination. Comparison of the right shoe imprint labeled Q10, found on a textured vinyl tile, to the recovered right shoe revealed an elimination.
BFZ9YQ-5335	[No Conclusions Reported.]
BM2KT3-5331	Items Q1-Q3: One of the questioned impressions (Q2) is a nearly complete right footwear impression and is similar in size, shape, and tread design to the suspect;s right shoe. In addition, there are at least two randomly acquired characteristics visible in the questioned impression and on the outsole of this shoe. It is my opinion that the questioned impression was made by the suspect's right shoe (Category 1). The other two questioned impressions (Q1 and Q3) are a nearly complete right footwear impression and nearly complete left footwear impression, respectively. The questioned impressions are different in size from the suspect's shoes. It is my opinion that these questioned impressions were not made by either of the suspect's shoes (Category 5). Items Q4-Q7: The four questioned impressions (Q4 to Q7) are a partial left footwear impression, a nearly complete right footwear impression, a partial right footwear impression, and a partial left footwear impression, respectively. The questioned impressions are similar in tread design, but different in size and/or wear characteristics, from the suspect's shoes. It is my opinion that these questioned impressions were not made by either of the suspect's shoes (Category 5). Items Q8-Q10: The three questioned impressions (Q8 to Q10) are a nearly complete right footwear impression, a nearly complete left footwear impression, and a nearly complete right footwear impression, respectively. The questioned impressions are similar in tread design, but different in size, from the suspect's shoes. It is my opinion that these questioned impressions were not made by either of the suspect's shoes (Category 5). Items K1a-K1g: This item was used for comparison purposes.
BMXXFU-5331	Examination of one of three printed photographs revealed three questioned footwear impressions located on a piece of raw wood. The three impressions displayed pattern features suitable for further comparative analysis and were sub-itemized Q1-Q3. Examination of two of three printed photographs revealed four questioned footwear impressions located on a textured ceramic tile. The four impressions displayed pattern features suitable for further comparative analysis and were sub-itemized Q4-Q7. Examination of three of three printed photographs revealed three questioned footwear impressions located on a textured vinyl tile. The three impressions displayed pattern features suitable for further comparative analysis and were sub-itemized Q8-Q10. Comparative analysis between the Item Q2 right questioned footwear impression and the known Item K1a-K1g right shoe/inked shoe outsole impressions revealed correspondence of class characteristics (pattern, physical size, and general condition of wear), and multiple randomly acquired damage characteristics. It was concluded that the Item K1a-K1g right shoe is the source of, and made, the Item Q2 right questioned impression. Another shoe being the source of the impression is considered a practical impossibility. Comparative analysis revealed tread pattern similarity between the Item Q1, Q5, Q6, Q8, and Q10 right questioned footwear impressions and the Item K1a-K1g right shoe. However, significant differences were observed (physical size, general condition of wear, and randomly acquired damage characteristics) between the Item Q1, Q5, Q6, Q8, and Q10 questioned impressions and the known Item K1a-K1g right shoe/inked shoe outsole impressions. It was concluded that the Item K1a-K1g right shoe did not make the Item Q1, Q5, Q6, Q8, and Q10 impressions. Comparative analysis revealed significant differences (right vs. left orientation) between the Item Q1, Q2, Q5, Q6, Q8, and Q10 right questioned footwear impressions and the Item K1a-K1g left shoe. It was concluded that the Item K1a-K1g left shoe did not make the Item Q1, Q2, Q5, Q6, Q8, and Q10 right questioned footwear impressions. The Item Q1, Q5, Q6, Q8, and Q10 right questioned footwear impressions were inter-compared with the following results: Items Q1, Q5, Q8, and Q10 displayed correspondence of class characteristics (pattern, physical size, and general condition of wear), and multiple randomly acquired damage characteristics. It was concluded that Items Q1, Q5, Q8, and Q10 were all made by the same right shoe (shoe not submitted). Another shoe being the source of the impressions is considered a practical impossibility. Comparative analysis between the Item Q6 impression and Items

TABLE 2

WebCode-Test	Conclusions
	Q1, Q5, Q8, and Q10 revealed a strong similarity due to a combination of shared class characteristics (pattern and physical size), and one or more randomly acquired damage characteristics. However, the quality and/or quantity of these characteristics were insufficient for an identification. Other footwear (not submitted) with the same class characteristics are included in the population of possible sources only if they display the same wear and/or randomly acquired characteristics observed in the Item Q6 impression. Comparative analysis revealed tread pattern similarity between the Item Q3, Q4, Q7, and Q9 left questioned footwear impressions and the Item K1a-K1g left shoe. However, significant differences were observed (physical size, general condition of wear, and randomly acquired damage characteristics) between the Item Q3, Q4, Q7, and Q9 questioned impressions and the known Item K1a-K1g left shoe/inked shoe outsole impressions. It was concluded that the Item K1a-K1g left shoe did not make the Item Q3, Q4, Q7, and Q9 impressions. Comparative analysis revealed significant differences (right vs. left orientation) between the Item Q3, Q4, Q7, and Q9 left questioned footwear impressions and the Item K1a-K1g right shoe. It was concluded that the Item K1a-K1g right shoe did not make the Item Q3, Q4, Q7, and Q9 left questioned footwear impressions. The Item Q3, Q4, Q7, and Q9 left questioned footwear impressions were inter-compared revealing correspondence of class characteristics (pattern, physical size, and general condition of wear), and multiple randomly acquired damage characteristics. It was concluded that Items Q3, Q4, Q7, and Q9 were all made by the same left shoe (shoe not submitted). Another shoe being the source of the impressions is considered a practical impossibility
BPRMYQ-5335	[No Conclusions Reported.]
BQXACU-5331	Photographs of the shoe prints submitted as Q1 through Q10 were examined and compared to the photographs of known soles and test shoe prints submitted as K1. The shoe print submitted as Q2 was made by the K1 right shoe. The shoe prints submitted as Q1 and Q3 through Q10 were not made by either of the K1 shoes.
BU3TGH-5331	Q's 1, 3, 5, 6, 7, 8, 9 and 10: There were sufficient differences noted, namely size discrepancies, in the comparison between characteristics in the questioned impression and the known shoes. EXCLUSION. Q2: The questioned impression and the right known shoe share agreement of class and randomly acquired characteristics of sufficient quality and quantity. IDENTIFICATION. Q4: There were sufficient differences noted, namely wear and RAC characteristics discrepancies, in the comparison between the questions impression and the known shoes. EXCLUSION
BUKNZ6-5335	The questioned prints Q1 and Q3 to Q10 show differences in size, details and wear. They could not have been made by the suspects shoes K1. There is sufficient correspondence in pattern, size, wear and randomly acquired characteristics between the questioned print Q2 and the right suspects shoe K1.
C44HUD-5335	Items K1a, K1b, K1c, K1d, K1e, K1f, and K1g, the digital images of the soles of the known shoes and test impressions, were visually examined and compared to the three digital images depicting questioned impressions Q1 through Q10 using a transparent overlay and printed copies of the digital images. Questioned impressions Q3, Q4, Q7, and Q9 were determined to be impressions of left shoes. Questioned impressions Q1, Q5, Q6, Q8, and Q10 were determined to be impressions of right shoes. Based on significant differences in class and/or randomly acquired characteristics, questioned impressions Q1 and Q3 through Q10 were excluded as having originated from the known shoes. Based on the correspondence of physical size, design, wear characteristics, and randomly acquired characteristics of the known shoes and the questioned impressions, it was determined that questioned impression Q2 originated from the known right shoe.
CB2CPP-5335	The test impressions and photographs of the suspect shoes were compared to the photographs of the questioned impressions using the side by side and overlay comparison methods. The impression marked Q2 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.

TABLE 2

WebCode-Test	Conclusions
	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 impression. The impressions marked Q1, and Q3 through Q10 correspond in general design, however, significant differences are noted in size, wear and accidental damage characteristics, therefore it can be stated that the Suspect's shoes were not the source of the impressions.
CLQY2F-5331	Among the items received for examination were photographs of 10 scene impressions, labelled Q1-Q10, respectively. I was also provided with three photographs of the soles of a pair of size UK8, "adidas"-brand shoes, items K1a-K1c, and photographs of inked impressions of the soles of this pair of shoes, items K1d- K1g. I was asked to compare the scene impressions with the photographs and inked impressions of the adidas shoes to determine whether or not the shoes could have made any of the scene impressions. By comparing the sole pattern of a shoe to a shoeprint impression it is often possible to determine whether or not that particular shoe made that impression. This comparison process examines the shoe and the shoe impression to investigate any correspondences or differences in sole pattern and dimensions, the presence of any wear, and the location, dimensions and shape of any randomly-acquired characteristics such as nicks and cuts. Because of the random nature of this damage occurring, it is likely to be unique. In subjectively assessing the strength of any correspondences, I have considered the probability of finding the shoe impression evidence if the shoe made the impression, and the probability of finding the evidence if another shoe made the impression. The statement of evidence as to the the scientific significance of a correspondence between the shoe and the shoe impression is selected from the following scale: is neutral, provides slight support, provides moderate support, provides strong support, provides very strong support, and provides extremely strong support. Q1-Q3 - raw wood surface Q1 was a partial impression of a right shoe, with the inner aspect missing. Q2 was a complete impression of a right shoe, though overstepped slightly on the outer aspect by Q1. Q3 was a partial impression of a left shoe, with the inner aspect missing. All three impressions corresponded with the sole pattern of the adidas shoes. However, the dimensions of Q1 and Q3 were smaller than the corresponding dimensions of the right and left adidas shoe impressions, respectively. Differences were also observed in the wear patterns and damage features between these shoes and impressions Q1 and Q3. I have therefore concluded that the adidas shoes are excluded from making either of the scene impressions Q1 or Q3. The dimensions and wear features of Q2 closely corresponded with the dimensions and wear features present in the impressions of the right adidas shoe. Furthermore there were several damage features that were observed in Q2 and on the impressions prepared from the right adidas shoe. In my opinion this evidence provides extremely strong support for the proposition that the right adidas shoe made the scene impression Q2, however any other right shoe with the same pattern, dimensions, wear features and randomly-acquired characteristics could also have made this impression. Q4-Q7 - textured ceramic tile surface Q4 was a partial impression of a left shoe, comprising the heel and part of the instep area of the shoe. Q5 was a partial impression of a right shoe, with the inner aspect missing. Q6 was a partial impression of a right shoe, comprising the heel and the outer aspect of the mid-foot area. Q7 was a partial impression of a left shoe, with the heel area missing. All four impressions corresponded with the sole pattern of the adidas shoes. Q4 also corresponded in dimensions with the left adidas shoe. The appearance of greater wear features in Q4 than are seen in the left adidas shoe, and quite subtle damage features present in the impressions of the left adidas but were not apparent in Q4, could possibly be explained by the heaviness of the scene print and the rough ceramic tile surface that it was on. Some marks present in Q4 and not in the impressions of the adidas shoe could also possibly be due to surface irregularities. In my opinion, the evidence provides slight support for the proposition that the left adidas shoe did not make the scene impression Q4. The dimensions of Q5, Q6 and Q7 were all smaller than the corresponding dimensions of the right, right, and left adidas shoe impressions, respectively. Differences were also observed in the wear patterns and damage features between these shoes and impressions Q5, Q6 and Q7. I have therefore concluded that the adidas shoes are excluded from making any of the scene impressions Q5, Q6 or Q7. Q8-Q10 - textured vinyl tile Scene impressions Q8 to Q10 were all near complete impressions, of a right, a left and a right shoe, respectively. However, Q10 overlapped both Q8 and Q9, obscuring parts of all three impressions. Furthermore the very textured surface of the vinyl tile greatly affected the clarity of these impressions. All three impressions corresponded with the sole pattern of the adidas

TABLE 2

WebCode-Test	Conclusions
	shoes. However, the dimensions of all three impressions were smaller than the corresponding dimensions of the right, left and right adidas shoe impressions, respectively. I have therefore concluded that the adidas shoes are excluded from making any of these three scene impressions, Q8, Q9 or Q10.
CMVTEQ-5331	1.Exhibit 4.1 (Q2) was identified as having been made by the recovered right shoe K1. 2.Exhibits 4.3 (Q1), 5.2 (Q5), 5.3 (Q6), 6.1 (Q8), and 6.3 (Q10) were identified as having been made by a second right shoe of similar outsole design as the known right shoe, K1. These impressions were not made by the known right shoe, K1, based on differences in individual characteristics. 3.Exhibits 4.2 (Q3), 5.1 (Q4), 5.4 (Q7), and 6.2 (Q9) were identified as having been made by a second left shoe of similar outsole design as the known left shoe, K1. These impressions were not made by the known right shoe, K1, based on differences in individual characteristics.
CZXNM2-5335	As a result of the comparison of the traces obtained from the crime scene (between Q1 and Q10) and the traces that were taken from the shoes obtained from the suspect; It has been determined to be compatible. It has been considered to be compatible with class and individual characteristics, with the Q2 print obtained from the circumstance and the shoe prints obtained from the suspect.
D37TNM-5331	1) Impression Q2 (Ex. 4.2) was identified as having been made by the submitted right Adidas athletic shoe. 2) Impressions Q1 (Ex. 4.1), Q5 (Ex. 5.2), Q6 (Ex. 5.3), Q8 (Ex. 6.1) and Q10 (Ex. 6.3) were identified as having been made by a second right shoe of similar outsole design. 3) Impressions Q3 (Ex. 4.3), Q4 (Ex. 5.1), Q7 (Ex. 5.4) and Q9 (Ex. 6.2) were identified as having been made by a second left shoe of similar outsole design.
D6AJV2-5335	[No Conclusions Reported.]
DJPP2U-5335	[No Conclusions Reported.]
DLJBVL-5331	The impression(s) recorded on the exhibit Q/2 shows pattern elements that are of a generally similar pattern and pattern configuration to that present on the footwear exhibit K1f. A more detailed comparison of these items could potentially yield at least 'very strong' support for the findings as described above. A more detailed comparison can be carried out, if required, by submitting the above items to a forensic service provider. These results would supersede this report.
DMPX9Q-5331	It is the opinion of the undersigned examiners that the Questioned footwear imprints labeled Q2 (in Item 001-1) in Submission 001 corresponds in physical size, outsole design, wear characteristics, and randomly acquired characteristics with the Known right shoe in Items 001-4 through 001-10 in Submission 001. This opinion is the highest degree of association that can be expressed in this type of comparison. It is the opinion of the undersigned examiners that the Questioned footwear imprints labeled Q1 and Q3 (in Item 001-1), Q4 through Q7 (in Item 001-2), and Q8 through Q10 (in Item 001-3) do not correspond in physical size and randomly acquired characteristics with the Known pair of shoes in Items 001-4 through 001-10 in Submission 001. The Questioned footwear imprints labeled Q1 and Q3 (in Item 001-1), Q4 through Q7 (in Item 001-2), and Q8 through Q10 (in Item 001-3) were not made by the Known pair of shoes in Items 001-4 through 001-10 in Submission 001.
DZXJU4-5331	On examination, I found: i. The individual characteristic marks on the questioned imprint Q2 to be similar to the individual characteristic marks on the right suspect shoe. ii. The individual characteristic marks on the questioned imprints Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 to be different to the individual characteristic marks on the left and right suspect shoe. Therefore, I am of the opinion that: i. The questioned imprint Q2 was made by the right suspect shoe. ii. The questioned imprints Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 were not made by the left or right suspect shoe.
EVYMJ4-5335	Questioned impressions (Q1 - Q10) were visually compared to the images of the suspect's shoes and to the images of the test impressions made from those shoes. Q2 corresponded in tread design, size of tread, wear, and randomly acquired characteristics with the suspect's right Adidas shoe. In the opinion

TABLE 2

WebCode-Test	Conclusions
	of this examiner, the right Adidas shoe made impression Q2 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 were excluded as having been produced by the suspect's Adidas shoes due to differences observed in size of tread and/or wear pattern. In the opinion of this examiner, the Adidas shoes did not produce these impressions (Exclusion).
F4DQB3-5335	The Q2 right impression appears similar in physical size and design, and wear and randomly acquired characteristics to the right shoe in K1. In the opinion of the examiner, the particular known footwear was the source of, and made, the questioned impression. Another item of footwear being the source of the impression is considered a practical impossibility. Refer to "IDENTIFICATION" in Appendix C. The Q1, Q5, Q6, Q8 and Q10 right impressions were dissimilar in physical size and wear to the right shoe in K1. In the opinion of the examiner, the particular known footwear was not the source of, and did not make, the impressions. Refer to "EXCLUSION" in Appendix C. The Q3, Q4, Q7 and Q9 left impressions were dissimilar in physical size and wear to the left shoe in K1. In the opinion of the examiner, the particular known footwear was not the source of, and did not make, the impressions. Refer to "EXCLUSION" in Appendix C. [Appendix C not provided.]
F8AGET-5335	Results of Laboratory Examination: Item 1 contained three images of ten unknown footwear impressions, Q1-Q10, said to be from the scene. These impressions were compared to images and known impressions (also on Item 1) from a pair of shoes. 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 tread of the shoe that are represented in the unknown impression. The known right shoe corresponded in physical size, tread design, size of tread and randomly acquired characteristics to the Q2 unknown impression. Therefore, the known right shoe is the source of the unknown impression from the scene (Type I Association/Identification). The tread pattern in the Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 unknown impressions was different from the known shoes in size and/or wear. Therefore, the unknown impressions were not made by the Item 1 shoes (Exclusion). Further comparisons can be done upon the submission of additional known shoes. Item 2 was created by the scientist and will be retained at the [Laboratory]. Interpretation: The following descriptions are meant to provide context to the opinions reached in this report. Not every type of conclusion may be applicable in every case or for every material type. Type I Association: Identification: Source identification is reached when the discernible class and individual characteristics have corresponding detail and the examiner would not expect to see the same arrangement of details repeated in another source. This includes when two Items fit or realign together in a manner that is not expected to be replicated. Type II Association: Association with distinct characteristics: Items correspond in all measured physical properties, chemical composition and/or microscopic characteristics and share distinctive characteristic(s). Although the examiner would not expect to see these distinctive characteristic(s) repeated in another source, it lacked sufficient characteristics for a source identification. Type III Association: Association with conventional characteristics: Items correspond in all measured physical properties, chemical composition and/or microscopic characteristics. However, it is possible for another sample to be indistinguishable from the submitted evidence; therefore, an individual source cannot be determined. Type IV Association: Association with limitations: An association of decreased evidential value in which items correspond in all measured physical properties, chemical composition and/or microscopic characteristics, but there is a limitation to the exam. Limitations could include items commonly encountered in the relevant population, the inability to perform a complete analysis, or limited information. Inconclusive: No conclusion could be reached regarding an association or an exclusion between the items. Exclusion with Limitations: The item exhibits differences to the comparison sample that suggests that it did not originate from the same source. However, there are limiting factors, such as possible natural or manufactured source variations. Exclusion: The items exhibit differences in physical properties and/or chemical composition to the comparison sample that demonstrate they did not originate from the same source.
FAFYEA-5331	Footprint Q2 has been produced by the sole of the shoe of the right foot K1 - R

TABLE 2

WebCode-Test	Conclusions
FC7W8A-5331	The unknown imprint Q2 exhibits corresponding randomly acquired characteristics and has the same size and wear pattern to the known right shoe. This shoe is identified as the source of imprint Q2. Unknown imprints Q1, Q3, and Q5-Q10 exhibit non-corresponding randomly acquired characteristics and different size and wear patterns to the known shoes. Q4 exhibits non-corresponding randomly acquired characteristics and a different wear pattern. The known shoes are excluded as the source of these unknown imprints.
FC7XT9-5335	The following questioned footwear are iqual: Q3=Q4=Q9. Q1=Q5=Q8.
FE627W-5335	Class characteristics between suspect shoes and shoe prints similar to crime scene prints Q1,Q2...Q10. firstly we searched for common individual characteristics. Individual characteristics on the sole of the shoe and comparasion tracks have common with Q2 right single shoe print. Other shoe prints Q1,Q3,Q4,Q5,Q6,Q7,Q8,Q9 and Q10 have different individual characteristic with suspect shoes.
FQ3FH7-5335	In my opinion the impressions Q1 and 3 to 10 can be excluded as having been made by the shoes k1 a-g. In my opinion the finding provide extremely strong support for the view that impression Q2 was made by the right training shoe from K1 a-g.
FQNU96-5335	Q1, Q3-Q10: Can exclude K1. Q2: Identified to K1
FWCGZ4-5331	Q1 (right shoe)- The submitted photographs of the soles of the recovered shoes were examined and compared to the impression visible in Q1. Q1 and the photographs correspond in tread pattern but not in tread wear or tread size. Q1 has two individual characteristics that are not present on the tread in the photographs including a gouge in the upper toe region and in the heel region. Thus, Q1 could not have been made by the photographs of the soles of the recovered shoes. Q2 (right shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q2. The questioned impression corresponds to the known footwear in tread pattern, tread size, tread wear and individual characteristics including a gouge in the tread of the upper toe region. Thus, Q2 was made by the recovered shoes. Q3 (left shoe)- The submitted photographs of the soles of the recovered shoes were examined and compared to the impression visible in Q3. Q3 and the photographs correspond in tread pattern but not in tread wear or tread size. Q3 has an individual characteristic, gouge present in the heel region, that is not present on the tread in the photographs of the recovered shoes. Thus, Q3 could not have been made by the recovered shoes. Q4 (Left shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q4. Q4 and the photographs correspond in tread pattern but not in tread wear or tread size. Q4 does not have the same individual characteristics as the recovered shoes, including a gouge in the heel region. Thus, Q4 was not made by the recovered shoes. Q5 (right shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q5. Q5 and the photographs correspond in tread pattern but not in tread wear or tread size. Q5 has individual characteristics including a gouge in the toe region, that is not present on the recovered shoes. Thus, Q5 was not made by the recovered shoes. Q6 (right shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q6. Q6 and the photographs correspond in tread pattern but not in tread wear or tread size. Q6 has an individual characteristic including a gouge in the toe region, that is not present in the recovered shoes. Thus, Q6 was not made by the recovered shoes. Q7 (left shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q7. Q7 and the photographs correspond in tread pattern but not in tread wear or tread size. Q7 does not have the same individual characteristics, including a gash in the upper toe region, that are present on the recovered shoes Thus, Q7 was not made by the recovered shoes. Q8 (right shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q6. Q8 and the photographs correspond in tread pattern but not in tread wear or tread size. Q8 has an individual characteristic including a gouge in the heel region, that is not present in the recovered

TABLE 2

WebCode-Test	Conclusions
	shoes. Thus, Q8 was not made by the recovered shoes. Q9 (Left shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q9. Q9 and the photographs correspond in tread pattern but not in tread wear or tread size. Q9 does not have the same individual characteristics as the recovered shoes, including a gash in the toe region. Thus, Q9 was not made by the recovered shoes. Q10 (right shoe)-The submitted photograph of the soles of the recovered shoes were examined and compared to the impression visible in Q10. Q10 and the photographs correspond in tread pattern but not in tread wear or tread size. Q10 lacks any individual characteristics present in the recovered shoes. Thus, Q10 was not made by the recovered shoes.
G22D2Z-5331	The right shoe from Item K1 is identified as having made the questioned impression Q2 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 right shoe from Item K1 was the source of the questioned impression Q2. Another item being the source is considered a practical impossibility. The shoes from Item K1 are excluded as having made the questioned impressions Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, and Q10 based on observed differences in class characteristics (size and tread design element spacing). The shoes from Item K1 are not the source of these impressions.
G48V42-5331	It is the opinion of the undersigned that questioned footwear impression Q2 was made by the known right sneaker K1R, submitted as laboratory item #1, 2, and 3. It is the opinion of the undersigned that questioned footwear impressions Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, and Q10 could not have been made by the known left or right sneakers, K1L/K1R, submitted as laboratory items #1, 2, and 3.
GJK69C-5331	The shoe impressions labelled Q 1, 3, 5, 6, 7, 8, 9 and 10 were excluded by being caused by the known shoe due to differences namely size discrepancies. The shoe impression labelled Q 4 was excluded by being caused by the known shoe due to random acquired characteristics and wear shown on the known shoe and not being present on the impression. The shoe impression labelled Q 2 was an identified as being caused by the known right shoe due to the same class, size, wear and random acquired characteristics.
GT9Z4L-5331	In the opinion of this examiner, Item 001.A (K1a) recovered right Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.B.01 (Q1) right questioned full shoe impression found on a raw piece of wood. In the opinion of this examiner, Item 001.A (K1a) recovered right Adidas brand shoe (US size 9.5) was the source of, and made, Item 001.B.02 (Q2) right questioned full shoe impression found on a raw piece of wood. In the opinion of this examiner, Item 001.A (K1a) recovered left Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.B.03 (Q3) left questioned full shoe impression found on a raw piece of wood. In the opinion of this examiner, Item 001.A (K1a) recovered left Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.C.01 (Q4) left questioned partial shoe impression found on a textured ceramic tile. In the opinion of this examiner, Item 001.A (K1a) recovered right Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.C.02 (Q5) right questioned full shoe impression found on a textured ceramic tile. In the opinion of this examiner, Item 001.A (K1a) recovered right Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.C.03 (Q6) right questioned partial shoe impression found on a textured ceramic tile. In the opinion of this examiner, Item 001.A (K1a) recovered left Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.C.04 (Q7) left questioned partial shoe impression found on a textured ceramic tile. In the opinion of this examiner, Item 001.A (K1a) recovered right Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.D.01 (Q8) right questioned full shoe impression found on a textured vinyl tile. In the opinion of this examiner, Item 001.A (K1a) recovered left Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.D.02 (Q9) left questioned full shoe impression found on a textured vinyl tile. In the opinion of this examiner, Item 001.A (K1a) recovered right Adidas brand shoe (US size 9.5) was not the source of, and did not make, Item 001.D.03 (Q10) right questioned full shoe impression found on a textured vinyl tile.
GU2QE7-5331	The report below reflects the professional opinion reached by this examiner, based on the information available at the time of analysis. The following items were received from Collaborative Testing Services,

TABLE 2

WebCode-Test	Conclusions
	and were used for this footwear examination: Evidence: K1A-C: Photographs of the soles of the recovered shoes lighted from different angels, K1D-G: Photographs of known imprints made with the recovered shoes, K1: Adidas athletic shoes, US size 9.5, Item #Q1: One partial footwear imprint found on a raw piece of wood, Item #Q2: One partial footwear imprint found on a raw piece of wood, Item #Q3: One partial footwear imprint found on a raw piece of wood, Item #Q4: One partial footwear imprint found on a textured ceramic tile, Item #Q5: One partial footwear imprint found on a textured ceramic tile, Item #Q6: One partial footwear imprint found on a textured ceramic tile, Item #Q7: One partial footwear imprint found on a textured vinyl tile, Item #Q8: One partial footwear imprint found on a textured vinyl tile, Item #Q9: One partial footwear imprint found on a textured vinyl tile, Item #Q10: One partial footwear imprint found on a textured vinyl tile. Comparison: The footwear imprints labeled Item's Q1, Q3, and Q5 – Q10 were eliminated as having been made by the submitted K1 shoes. The questioned imprints corresponded in design, however, were of a different size and wear. The footwear imprint labeled #Q2 corresponds in design, physical size, and wear, and shares individual random characteristics or defects with the right known shoe labeled K1. It was determined that the K1 right known shoe made the questioned imprint labeled Q2. The footwear imprint labeled #Q4 corresponds in design, physical size, and wear as the known right shoe labeled K1. In the opinion of this examiner, the characteristics observed exhibit a strong association between the questioned impression and the known footwear; however, there were no visible individual random characteristics or defects visible. Other footwear with the same class characteristics are included in the population of possible sources of the imprints.
GUJY32-5335	[No Conclusions Reported.]
GYTZKX-5335	The right shoe, Item K1R, is determined to be the source of Q2-IMP1. This opinion is based on the correspondence of outsole design, the physical size and shape of the outsole design elements, and general wear on Item K1R when compared with those respective features present in Q2-IMP1, as well as the correspondence of randomly acquired characteristics. In the opinion of the examiner, the known footwear, Items K1L and K1R, are not the source of, and did not make, the impressions Q1-IMP1, Q3-IMP1, Q4-IMP1, Q5-IMP1, Q6-IMP1, Q7-IMP1, Q8-IMP1, Q9-IMP1, or Q10-IMP1.
HB48GA-5331	The impression labelled Q2 was consistent in size, shae, and design with the right shoe (K1). Identified randomly acquired characteristics (RAC)and wear were also consistent. Q2 is an 'identification' as per the scale of conclusions. All other impressions were similiar in shape and design but due to size and / or RAC/wear differences were 'exclusion' as per the scale of conclusions.
HBPL89-5331	The Item K1 right shoe is identified as the source of the Q2 right shoe impression based on class characteristics, including size, design, and wear, as well as randomly acquired characteristics. There is a limited association between the Item K1 left heel and the Q4 heel impression based on class characteristics including size and design. The comparison was limited due to a lack of a reliable scale in the photo provided. There are indications of non-association between the Item K1 left shoe and the Q7 left shoe impression. The comparison was limited due to a lack of a reliable scale in the photo provided. The Item K1 right shoe is excluded as the source of the Q1, Q5, Q6, Q8, and Q10 right shoe impressions due to differences in class characteristics such as size and wear. The Item K1 left shoe is excluded as the source of the Q3 and Q9 left shoe impressions due to differences in class characteristics such as size and wear.
HL2VRR-5331	Item 1 was examined for footwear impressions. Questioned impressions Q1 to Q10 were observed and compared to the known shoes from K1, K1 Left Shoe and K1 Right Shoe, with the following results: Q1 to K1 Left Shoe: Due to a difference in shape, the left shoe of K1 was excluded as a possible source of impression Q1. Q1 to K1 Right Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the right shoe of K1 was excluded as a possible source of impression Q1 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q2 to K1 Left Shoe: Due to a difference in shape, the left shoe of K1 was excluded as a possible source of impression Q2. Q2 to K1 Right Shoe: In the opinion of the examiner, there is agreement in

TABLE 2

WebCode-Test	Conclusions
	class characteristics of outsole design, physical shape, physical size, wear, and randomly acquired characteristics of sufficient quality and quantity to determine that the right shoe of K1 was the source of, and made, impression Q2. The examiner would not expect to find the same combination of features repeated in another source. This opinion acknowledges that an identification to the exclusion of all others can never be empirically proven. Q3 to K1 Left Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the left shoe of K1 was excluded as a possible source of impression Q3 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q3 to K1 Right Shoe: Due to a difference in shape, the right shoe of K1 was excluded as a possible source of impression Q3. Q4 to K1 Left Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the left shoe of K1 was excluded as a possible source of impression Q4 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q4 to K1 Right Shoe: Due to differences observed in outsole design, the right shoe of K1 was excluded as a possible source of impression Q4. Q5 to K1 Left Shoe: Due to a difference in shape, the left shoe of K1 was excluded as a possible source of impression Q5. Q5 to K1 Right Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the right shoe of K1 was excluded as a possible source of impression Q5 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q6 to K1 Left Shoe: Due to differences observed in outsole design, the left shoe of K1 was excluded as a possible source of impression Q6. Q6 to K1 Right Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the right shoe of K1 was excluded as a possible source of impression Q6 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q7 to K1 Left Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the left shoe of K1 was excluded as a possible source of impression Q7 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q7 to K1 Right Shoe: Due to a difference in shape, the right shoe of K1 was excluded as a possible source of impression Q7. Q8 to K1 Left Shoe: Due to a difference in shape, the left shoe of K1 was excluded as a possible source of impression Q8. Q8 to K1 Right Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the right shoe of K1 was excluded as a possible source of impression Q8 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q9 to K1 Left Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the left shoe of K1 was excluded as a possible source of impression Q9 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. Q9 to K1 Right Shoe: Due to a difference in shape, the right shoe of K1 was excluded as a possible source of impression Q9. Q10 to K1 Left Shoe: Due to differences observed in the class characteristics of outsole design and physical shape, the left shoe of K1 was excluded as a possible source of impression Q10. Q10 to K1 Right Shoe: Due to differences observed in the amount of wear and randomly acquired characteristics, the right shoe of K1 was excluded as a possible source of impression Q10 despite observed similarities in the class characteristics of outsole design, physical shape, and physical size. The evidence will be returned.
HL79D3-5335	The imprint Q2 was left by the right suspect shoe. The imprints Q1, Q3 to Q10 were not left by the suspect shoes.
HMCXDQ-5335	Impression Q2 was identified as being made by the right known footwear of K1. The questioned impression corresponded in physical shape, physical size, outsole tread design, wear characteristics, and randomly acquired characteristics with the right known footwear of K1. The left known footwear of K1 was excluded due to physical shape. The questioned impressions Q1, Q5, Q6, Q8, and Q10 corresponded in physical shape, outsole tread design, and similar physical size with the right known footwear of K1, however, they did not correspond in wear characteristics or randomly acquired characteristics and were therefore excluded as being made by the right known footwear of K1. The left known footwear of K1 was excluded due to physical shape. The questioned impressions Q3, Q4, Q7, and Q9 corresponded in physical shape, outsole tread design, and similar physical size with the left known footwear of K1, however, they did not correspond in wear characteristics or randomly acquired characteristics and were therefore excluded as being made by the left known footwear of K1. The right known footwear of K1 was excluded due to physical shape.

TABLE 2

WebCode-Test	Conclusions
HT7M3B-5331	Having conducted a shoe mark comparison between the 10 unknown impressions Q1-Q10 and the pair of shoes marked K1 I have formed the following opinion: The right shoe marked K1, was the source of, and made, the impression Q2, based on sufficient quantity and quality of randomly acquired characteristics. The chance of another shoe being the source of the impression is considered negligible. Due to differences, in pattern and size, the left and right shoes were not the source of and did not make the impressions Q1, Q3-Q10.
J2EJL8-5331	Q2, a right shoe imprint, was made by the corresponding K1 right shoe. This identification is based on agreement of class and random accidental characteristics that are visible in both the questioned imprint and the known shoe. Q4, a left heel imprint, exhibits a limited association of class characteristics with the K1 left shoe. There is correspondence of class characteristics with regards to design and size in the area visible, but significant limiting factors such as the textured substrate, a partial outsole imprint, and lack of detail prohibit a stronger association. Q1, a right shoe imprint; Q3, a left shoe imprint; Q5, a right shoe imprint; Q6, a right shoe imprint; Q7, a left shoe imprint; Q8, a right shoe imprint; Q9, a left shoe imprint; and Q10, a right shoe imprint could not have been made by the corresponding K1 left and right shoes due to differences of class and/or randomly acquired characteristics. The K1 shoes were eliminated as the source of Q1, Q3, Q5, Q6, Q7, Q8, Q9, and Q10.
J2EL87-5335	[No Conclusions Reported.]
JA8Y3Y-5335	Container 1 was a digital download that contained ten files designated as Items 1 - 10. Items 1- 3 were images depicting the soles of the known shoes, with different lighting directions, recovered by the submitting agency. Items 4 - 7 were images of known test impressions of the shoes in Items 1 - 3. Items 8 - 10 represented questioned footwear impressions Q1 - Q10, labeled by the submitting agency. Q2 corresponded in tread design, physical size, wear characteristics and at least three randomly acquired characteristics (RACs) to the right shoe of Items 1 – 7. In the opinion of the examiner, the right known shoe in Items 1 – 7 made the questioned impression Q2 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Q1, Q5, Q6, Q8 and Q10 corresponded in general tread design to the known right shoe in Items 1 – 7; however, they were dissimilar in physical size and/or wear patterns to the known right shoe in Items 1 – 7. In the opinion of the examiner, the known right shoe in Items 1 – 7 did not make questioned impressions Q1, Q5, Q6, Q8 and Q10 (Exclusion). Q3, Q4, Q7 and Q9 corresponded in general tread design to the known left shoe in Items 1 – 7; however, they were dissimilar in physical size and/or wear patterns to the known left shoe in Items 1 – 7. In the opinion of the examiner, the known left shoe in Items 1 – 7 did not make questioned impressions Q3, Q4, Q7 and Q9 (Exclusion).
JD7AYY-5335	The submitted digital images of questioned impressions depicted ten dark-colored questioned footwear impressions. The questioned footwear impressions were reportedly found on a raw piece of wood (Q1 through Q3), textured ceramic tile (Q4 through Q7), and textured vinyl tile (Q8 through Q10). The questioned footwear impressions were visually compared to photographs of the outsoles of the known shoes and test impressions of the shoes. All digital images were burned to a CD. Although impressions Q1, Q3, and Q5 through Q10 corresponded in tread design to portions of the known shoes, the physical size of these impressions did not correspond to the outsole of the known shoes. In the opinion of the examiner, the known shoes did not make impressions Q1, Q3, and Q5 through Q10 (Exclusion). Impression Q4 corresponded in tread design and physical size to the heel of the left known shoe; however, general wear characteristics and voids observed in impression Q4 did not correspond. In the opinion of the examiner, the known shoes did not make impression Q4 (Exclusion). Impression Q2 corresponded in tread design, physical size, and wear characteristics to the outsole of the known right shoe. Voids in the tread design of impression Q2 corresponded in position, orientation, shape, and size to RACs present on the known right shoe. In the opinion of the examiner, the known right shoe made impression Q2 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Additional

TABLE 2

WebCode-Test	Conclusions
	shoes may be submitted for comparison to impressions Q1, and Q3 through Q10.
JE3JDA-5331	The Suspect impression in Q2 and the right known shoe share agreement of class, size and randomly acquired characteristics of sufficient quality and quantity. Highest degree of association. The left known shoe was excluded. = IDENTIFICATION OF RIGHT SHOE. All of the other suspect impressions Q1, Q3 - Q10 when compared with the left and right pair of known shoes were excluded, as they exhibited sufficient differences of class and/or randomly acquired characteristics. Highest degree of non-association. Q1, Q3, Q5 - Q10 were excluded due to a notable size difference. =EXCLUSION of L/R SHOE Q4 was excluded on wear as there was notable difference in wear and there were RAC discrepencies that could not be accounted for. = EXCLUSION of L/R SHOE.
JUCGD2-5331	Q2 was made by K1 right. Q2 could not have been made by K1 left. Q1, Q3-Q10 could not have been made by K1 left or K1 right.
JV3X9U-5331	Impression Q1 was not made by the Right or Left shoe of K1. Impression Q2 was made by the Right shoe of K1. Impression Q3 was not made by the Right or Left shoe of K1. Impression Q4 was not made by the Right or Left shoe of K1. Impression Q5 was not made by the Right or Left shoe of K1. Impression Q6 was not made by the Right or Left shoe of K1. Impression Q7 was not made by the Right or Left shoe of K1. Impression Q8 was not made by the Right or Left shoe of K1. Impression Q9 was not made by the Right or Left shoe of K1. Impression Q10 was not made by the Right or Left shoe of K1.
JYLVXK-5335	The images were evaluated visually, with the aid of Adobe Photoshop 2022, and with the aid of transparencies. The right shoe represented in the submitted known images, K1a-g, is identified as the source of the impression identified as Q2 in the submitted images based on similarities in sole pattern, size, wear, and the presence of sufficient randomly acquired characteristics. The shoes represented in the submitted known images, K1a-g, are eliminated as possible sources of the remaining questioned impressions, Q1 and Q3-10, based on differences in size or wear.
K6UB79-5335	At least two different pair of shoes where involved, both same brand and model as the suspect shoes, but one of them different size. We could clearly identify one of the unknown shoeprints (Q2) as produced by the right suspect shoe. All the rest where produced, at least, by another shoes. We also could relate five of the unknown shoeprints, (Q1, Q5, Q6, Q8 & Q10) as produced by the same right shoe. The rest four unknown shoeprints, (Q3, Q4, Q7 & Q9) were produced by the same left shoe.
K8A9AP-5331	Ten (10) questioned, partial footwear impressions, previously marked Q1 through Q10, were found on the three (3) photographs in Submission 001. The questioned, partial footwear impressions, Q1 through Q10, have been compared with the pictures of the known Adidas shoes and known shoe test impressions found in Submission 001. The questioned, partial footwear impressions, Q1 and Q3 through Q10, were not made by the known Adidas shoes in Submission 001. The questioned, partial footwear impression, Q2, has been identified as being made by the known right Adidas shoe.
KDZHL9-5331	In my opinion, the findings provide conclusive evidence that one of the footwear marks on the raw piece of wood at 'Private Residence', was made by the right 'Adidas' training shoe attributed to SUSPECT (from item K1). The remaining footwear marks on the raw piece of wood, together with the footwear marks on the textured ceramic tile and textured vinyl tile, although of the same outsole pattern as the shoes (item K1), displayed differences in alignment. Therefore, these particular marks could not have been made by the shoes (item K1).
KPG376-5335	We use a 9-level scale of conclution, with an additional grade outside the scale. A - We don't use the phrase "identification", the highest degree of assosiation in our scale is "The results extremely strongly support that … (main hypothesis)". B - "The results strongly support that … (main hypothesis)". C - "The results support that … (main hypothesis)". D - "The results support to some extent that … (main hypothesis)". E - "The results equally support that … (main hypothesis) and that … (alt. hypothesis)". F - We have several steps between "inconclusive" and "exclusion". These are the mirror opposites of the positive conclutions. That is, they state how much the results support the alt. hypothesis (that another shoe left the mark). "The results support to some extent that … (alt. hypothesis)", "The results support that

TABLE 2

WebCode-Test	Conclusions
	… (alt. hypothesis)" and "The results strongly support that … (alt. hypothesis)". G - This grade would include two of our grades, "The results extremely strongly support that …(alt. hypothesis)" since we argue that this isn't just "an indication of non-assosiation", it is more or less a fact, but with some reservations. The next grade would be "the shoe didn't leave the mark", which tecnichally isn't included in our scale, it goes beyond/outside of the scale.
KVHGR7-5335	Q1 through Q10 were compared with K1: Q1 is excluded from K1. This is the highest degree on non-association where sufficient differences were noted in the comparison between the questioned and known impressions. This indicates the known was not the source of the questioned impression. Q2 was identified to the right shoe. Q3 was excluded from K1. Q4 has indications of non-association to K1. The questioned impression exhibits dissimilarities when compared to the known; however, certain details or features are not sufficiently clear to permit an exclusion. Q5 was excluded from K1. Q6 was excluded from K1. Q7 is inconclusive due to the wear being greater than in K1. Q8 was excluded from K1. Q9 was excluded from K1. Q10 was excluded from K1.
L23WV4-5331	[No Conclusions Reported.]
L3WKDY-5331	Q2 come from right shoe K1. Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 do not come from shoes K1.
LAVCHM-5331	Size, outsole design, outsole pattern, physical dimensions and randomly acquired characteristics correspondences were noted between the shoe print labeled Q2 and the test impressions of the right Adidas athletic shoe, size 9.5. The right Adidas athletic shoe, size 9.5 is identified as a source of the shoe print labeled Q2. Physical dimensions and wear condition discrepancies were noted between the shoe prints labeled Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 and the test impressions of the Adidas athletic shoes, size 9.5. The Adidas athletic shoes, size 9.5 are excluded as a source of the shoe prints labeled Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10.
M2HFF2-5335	1- (A) the finding provide identification for the view that Q2 could have originated from K1b right side. 2- (G) the findings provide exclusive for the view that Q1, Q3, Q4, Q5, Q8 could have originated from item K1b. 3- (E) the finding provide inconclusive for the view that Q7, Q9, Q10 could have could have originated from item K1b. 4- (F) the finding provide indication of non-association for the view Q6 could have originated from item K1b.
M4QP8Y-5331	[No Conclusions Reported.]
MB79PC-5331	It is the opinion of the examiner that the Right Adidas brand shoe of Item K can be identified as having made the questioned footwear impression Item Q2 based on similarity of tread pattern design, size, wear characteristics, and individual characteristics. It is the opinion of the examiner that the left and right Adidas brand shoes of Item K can be eliminated as having made the questioned footwear impressions of items Q1 and Q3 through Q10 based on dissimilar wear characteristics.
MF26CH-5331	Q1: The outsole design was dissimilar to the left K outsole. The outsole design was similar to the right K outsole; however, there were dissimilarities in physical size, wear, and randomly acquired characteristics between Q1 and the right K outsole. Sufficient differences were noted in the comparison of class characteristics between Q1 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q1. Exclusion. Q2: The outsole design, physical size, wear, and manufacture texture correspond between Q2 and the right K outsole. Additionally, four randomly acquired characteristics also corresponded between Q2 and the right K outsole. In my opinion, the right K outsole was the source of, and made, the questioned impression. Another item of footwear being the source of the impression is considered a practical impossibility. Identification. The outsole design of the left K outsole was dissimilar to Q2. In my opinion, the left K outsole was not the source of, and did not make, Q2. Exclusion. Q3: The outsole design was dissimilar to the right K outsole. The outsole design was similar to the left K outsole; however, there were dissimilarities in physical size, wear, and randomly acquired

TABLE 2

WebCode-Test	Conclusions
	characteristics between Q3 and the left K outsole. Sufficient differences were noted in the comparison of class characteristics between Q3 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q3. Exclusion. Q4: The outsole design was dissimilar to the right K outsole. The outsole design was similar to the left K outsole; however, there was a small dissimilarity in physical size and dissimilarities in both possible and confirmed characteristics of use (e.g., wear and randomly acquired characteristics) between Q4 and the left K outsole. These combined sufficient differences were noted in the comparison between Q4 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q4. Exclusion. Q5: The outsole design was dissimilar to the left K outsole. The outsole design was similar to the right K outsole; however, the physical size of Q5 exhibited dissimilarities to the right K outsole. There also appeared to be wear and randomly acquired characteristic differences between Q5 and the right K outsole. Sufficient differences were noted in the comparison of class characteristics between Q5 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q5. Exclusion. Q6: The outsole design was dissimilar to the left K outsole. The outsole design was similar to the right K outsole; however, there were differences in physical size, possible wear, and randomly acquired characteristics between Q6 and the right K outsole. These combined sufficient differences were noted in the comparison between Q6 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q6. Exclusion. Q7: The outsole design was dissimilar to the right K outsole. The outsole design was similar to the left K outsole; however, there were dissimilarities in physical size, wear, and randomly acquired characteristics between Q7 and the left K outsole. Sufficient differences were noted in the comparison between Q7 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q7. Exclusion. Q8: The outsole design was dissimilar to the left K outsole. The outsole design was similar to the right K outsole; however, there were dissimilarities in physical size, possible wear, and randomly acquired characteristics between Q8 and the right K outsole. Sufficient differences were noted in the comparison between Q8 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q8. Exclusion. Q9: The outsole design was dissimilar to the right K outsole. The outsole design was similar to the left K outsole; however, there were dissimilarities in physical size, wear, and randomly acquired characteristics between Q9 and the left K outsole. There was one randomly acquired feature on the left K that was similar to a mark on Q9; however, the correspondence may be accidental due to substrate interference. Sufficient differences were noted in the comparison between Q9 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q9. Exclusion. Q10: The outsole design was dissimilar to the left K outsole. The outsole design was similar to the right K outsole; however, there were dissimilarities in physical size, wear, and randomly acquired characteristics between Q10 and the right K outsole. Sufficient differences were noted in the comparison between Q10 and both K outsoles. In my opinion, the K footwear was not the source of, and did not make, Q10. Exclusion.
MF4TTW-5335	Item 10 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial right shoe imprint labeled found on a raw piece of wood, Q1. Comparison of the partial right shoe imprint labeled found on a raw piece of wood, Q1, (item 10), to the recovered right "Adidas" shoe revealed an elimination. Item 11 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a right shoe imprint labeled found on a raw piece of wood, Q2. Comparison of the right shoe imprint labeled found on a raw piece of wood, Q2, (item 11), to the recovered right "Adidas" shoe revealed an identification. Item 12 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial left shoe imprint labeled found on a raw piece of wood, Q3. Comparison of the partial left shoe imprint labeled found on a raw piece of wood, Q3, (item 12), to the recovered left "Adidas" shoe revealed an elimination. Item 13 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial left shoe imprint labeled found on a textured ceramic tile, Q4. Comparison of the partial left shoe imprint labeled found on a textured ceramic tile, Q4, (item 13), to the recovered left "Adidas" shoe revealed an elimination. Item 14 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial right shoe imprint labeled found on a textured ceramic tile, Q5. Comparison of the partial right shoe imprint labeled found on a textured ceramic tile, Q5, (item 14), to the recovered right "Adidas"

TABLE 2

WebCode-Test	Conclusions
	shoe revealed an elimination. Item 15 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial right shoe imprint labeled found on a textured ceramic tile, Q6. Comparison of the partial right shoe imprint labeled found on a textured ceramic tile, Q6, (item 15), to the recovered right "Adidas" shoe revealed an elimination. Item 16 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial left shoe imprint labeled found on a textured ceramic tile, Q7. Comparison of the partial left shoe imprint labeled found on a textured ceramic tile, Q7, (item 16), to the recovered left "Adidas" shoe revealed an elimination. Item 17 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial right shoe imprint labeled found on a textured vinyl tile, Q8. Comparison of the partial right shoe imprint labeled found on a textured vinyl tile, Q8, (item 17), to the recovered right "Adidas" shoe revealed an elimination. Item 18 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial left shoe imprint labeled found on a textured vinyl tile, Q9. Comparison of the partial left shoe imprint labeled found on a textured vinyl tile, Q9, (item 18), to the recovered left "Adidas" shoe revealed an elimination. Item 19 Examined visually, with low power magnification, and with 1 to 1 transparency overlays. One 1 to 1 photograph of a partial right shoe imprint labeled found on a textured vinyl tile, Q10. Comparison of the partial right shoe imprint labeled found on a textured vinyl tile, Q10, (item 19), to the recovered right "Adidas" shoe revealed an elimination.
MH8MBE-5335	[No Conclusions Reported.]
MT4U7X-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 imprits of suspect's shoes K1f and K1g on transparent films and superimposed them over the photographs of questioned impressions Q1 to Q10, and the result as below : 1.Questioned impression labelled Q2 was found to be consistent in shape, physical size and individual characteristics with the suspect's right shoe. 2.Questioned impressions labelled Q1, Q3 to Q10 were found to have similar shape with the suspect's shoes, however they were dissimilar in physical size and individual characteristics from the suspect's shoes. Therefore, questioned impressions labelled Q1, Q3 to Q10 can be eliminated.
MT8DRF-5335	All of the impressions, Q1 through Q10, had similar general outsole design that was made up of various four-sided geometric shapes, some of which had approximately circular shapes within. Image 22-5335_Q1-Q3 was an image of questioned imprints found on a raw piece of wood. Q1 Impression: This impression was a full-length footwear impression made by a right shoe. The medial edge of the impression was obscured by the scale. Q2 Impression: This impression was a nearly full-length footwear impression made by a right shoe. A portion of the lateral edge of the impression was obscured by the Q1 impression. Q3 Impression: This impression was a full-length footwear impression made by a left shoe. The medial edge of the impression was cut-off in the photograph. Image 22-5335_Q4-Q7 was an image of questioned imprints found on a textured ceramic tile. Q4 Impression: This impression was a partial footwear impression that appeared to be made by a left heel. Q5 Impression: This impression was a partial footwear impression made by a right shoe. The medial edge and the toe area of the impression were cut-off in the photograph. Q6 Impression: This impression was a partial footwear impression made by a right shoe and consisted of the heel and arch area. Q7 Impression: This impression was a partial footwear impression made by a left shoe. The medial edge and the heel area were cut-off in the photograph. Image 22-5335_Q8-Q10 was an image of questioned imprints found on a textured vinyl tile. Q8 Impression: This impression was a nearly full-length footwear impression made by a right shoe. The toe/ball area of the impression was obscured by the Q10 impression. Q9 Impression: This impression was a nearly full-length footwear impression made by a left shoe. the arch area of the impression was obscured by the Q10 impression. Q10 Impression: This impression was a nearly full-length footwear impression made by a right shoe. This impression was obscured by both the Q8 and Q9 impressions. The submitted right shoe was identified as having made the Q2 impression based on the agreement of outsole design, wear, and randomly acquired characteristics. The submitted shoes were excluded as having made the Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, and Q10 impressions due to differences in size, wear, and/or randomly acquired characteristics. If another shoe is recovered

TABLE 2

WebCode-Test	Conclusions
	in the future, please submit a service request for comparison to these impressions.
MWMDYP-5335	It was observed that the shoe print named Q2 found at the crime scene was compatible with the right one of the shoes obtained from the suspect in terms of class and individual traces. As a result, it was concluded that the shoe mark named Q2 at the crime scene was created with the right one of the shoe obtained from the suspect.
N6Z2KU-5331	Q1 and Q3-Q10 could not have been made by the known shoes. Q2 was made by the known right shoe.
N9XFA6-5335	Identification - Questioned and known items share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Highest degree of association. Q2 was made by the right shoe of K1. Exclusion - Questioned and known items exhibit sufficient differences of class and/or randomly acquired characteristics. Highest degree of non-association. Q1, and Q3 through Q10 were not made by K1.
NBZG7V-5335	The questioned imprints Q2 is associated with the sole of the right shoe. It shares agreement of class characteristics and randomly acquired characteristics of sufficient quality and quantity with the recovered right shoesole and the known imprint, which is made with the right shoesole. The recovered right shoe was the source of, and made, the questioned imprint Q2. Another item of footwear beeing the source of the imprint is considered a practical impossibility. Sufficient differences were noted in the comparison of class characteristics between the questioned imprints Q1 and Q3 till Q10 and the known imprints of the recovered shoes. The recovered shoes were not the source of, an did not make the questioned imprints Q1 and Q3 till Q10. .
NGZKMM-5335	1. Q1,Q5,Q6,Q8,Q10 are the same Right footprints but different to the recovered shoes. 2. Q3,Q4,Q7,Q9 are the sam Left footprints but different to the recovered shoes. 3. Above footprints may come from another suspect.
NJTQGQ-5335	Q-IMP1, Q-IMP5, Q-IMP10: Item K, the right shoe, is excluded as the source of the impression based on differences in wear, size, and randomly acquired characteristics. / Item K, the left shoe, is excluded as the source of the impression based on differences in pattern (left vs. right). Q-IMP2: Item K, the right shoe, is identified as the source of the impression based on correspondence in pattern, wear, size and randomly acquired characteristics. Another item of footwear being the source of this impression is considered a practical impossibility. Q-IMP3, Q-IMP4, Q-IMP9: Item K, the left shoe, is excluded as the source of the impression based on differences in wear and randomly acquired characteristics. / Item K, the right shoe, is excluded as the source of the impression based on differences in pattern (left vs. right). Q-IMP7: Item K, the left shoe, is excluded as the source of the impression based on differences in wear, size, and randomly acquired characteristics. / Item K, the right shoe, is excluded as the source of the impression based on differences in pattern (left vs. right). Q-IMP6 & Q-IMP8: Item K, the right shoe, is excluded as the source of the impression based on differences in wear and randomly acquired characteristics. / Item K, the left shoe, is excluded as the source of the impression based on differences in pattern (left vs. right).
NQU74D-5335	[No Conclusions Reported.]
NRNWAR-5331	ITEMS: 1 a sealed manila envelope identified as "2022 CTS Forensic Testing Program Test No. 22-5331: FOOTWEAR IMPRINT EVIDENCE" containing: 1-1 photographs K1a - K1g of known shoes "Adidas US 9.5" and their rolled and stepped impressions, 1-2 three (3) photographs depicting ten (10) impressions labeled "Q1 - 10"RESULTS: The photographs of the known shoes in item #1-1 were examined visually. The photographs of the questioned impressions Q1-Q10 were examined visually. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the partial impression Q1, item #1-2, but the size and randomly acquired characteristics were different. The design characteristics, physical size, and areas of wear of the full impression Q2 in item #1-2 were found to correspond to the right shoe in item #1-1. Randomly acquired characteristics were

TABLE 2

WebCode-Test	Conclusions
	found to correspond in position and orientation between the impression Q2 in item #1-2 and the outsole of the right shoe in item #1-1. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the partial impression Q3, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the partial impression Q4, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the partial impression Q5, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the partial impression Q6, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the partial impression Q7, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the full impression Q8, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the full impression Q9, item #1-2, but the size and randomly acquired characteristics were different. The design of the outsole in the known shoes, item #1-1, was found to be similar to the pattern present in the full impression Q10, item #1-2, but the size and randomly acquired characteristics were different. It should be noted that the impressions Q1, Q5, Q6, Q8, and Q10 in item #1-2 appear to have similar randomly acquired characteristics. It should be noted that the impressions Q3, Q4, Q7, and Q9 in item #1-2 appear to have similar randomly acquired characteristics. OPINION: The shoes, item #1-1, were not the source of the impression Q1 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. These associations are significant enough to determine that the right shoe in item #1-1 was the source of the impression Q2 in item #1-2. This is an Identification. Please see Association Key below. The shoes, item #1-1, were not the source of the impression Q3 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q4 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q5 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q6 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q7 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q8 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q9 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. The shoes, item #1-1, were not the source of the impression Q10 in item #1-2. This is an Exclusion. Please see Association Key below. Further analysis could be performed if additional known shoes are submitted for comparison. Impressions Q1, Q5, Q6, Q8, and Q10 in item #1-2 could have been made by the same right shoe. Further analysis could be performed if additional known shoes are submitted for comparison. Impressions Q3, Q4, Q7, and Q9 in item #1-2 could have been made by the same left shoe. Further analysis could be performed if additional known shoes are submitted for comparison. [Association Key not included.]
NUGKTM-5331	Q1 and Q3 were created by footwear other than the known footwear. The left and right shoe that created these impression contained more wear than of the known. Additionally, the randomly acquired characteristics present in the questioned impressions were not visible on the known outsole. Q2 contained two RACs located in the fore foot that were also present on the known outsole of the right shoe.

TABLE 2

WebCode-Test	Conclusions
NVRMEL-5331	On the item Q2 there is a shoeprint which corresponds in pattern, wear, and several individual characteristics with the right shoe of the item K1. The shoeprint of the item Q2 is left by the right shoe of item K1. On the items Q1, Q3, Q5, Q8, Q9 and Q10, there are shoeprints which do not correspond in size with the shoes of the item K1. On the items Q4, Q6 and Q7, there are shoeprints which do not correpond in pattern size with the shoes of the item K1. In addition, the shoeprints of the items Q1, Q3, Q5, Q6, and Q7 do not correspond in the degree of wear with shoes of the item K1. The shoeprints of the items Q1 and Q3-Q10 are not left by the shoes of the item K1.
PANYV3-5335	Q1 - In my opinion, the known footwear was not the source of and did not make the impression. Q2 - In my opinion, the right shoe of the known footwear was the source of, and made, the questioned impression and the chance of another item of footwear being the source of the impression is considered negligible. Q3 - In my opinion, the known footwear was not the source of and did not make the impression. Q4 - In my opinion, the questioned left impression exhibits dissimilarities when compared to the known footwear; however, certain details or features were not sufficiently clear to permit exclusion. Q5 - In my opinion, the known footwear was not the source of and did not make the impression. Q6 - In my opinion, the known footwear was not the source of and did not make the impression. Q7 - In my opinion, the known footwear was not the source of and did not make the impression. Q8 - In my opinion, the known footwear was not the source of and did not make the impression. Q9 - In my opinion, the known footwear was not the source of and did not make the impression. Q10 - In my opinion, the known footwear was not the source of and did not make the impression.
PFT3EA-5335	1-Q2 identical with suspect's imprint shoe. 2-Q3,Q4 and Q9 have same feature and size (identical with each other), and make by same shoe but not the suspect shoe. 3-Q1,Q5,Q6,Q8 and Q10 have same feature and size (identical with each other), and make by same shoe but not the suspect shoe.
PKMYZU-5331	Visual Examination of the submitted material disclosed the presence of ten (10) questioned footwear impressions, designated as Q1 through Q10, and a pair of 'Adidas' shoes Visual Examination and Comparison (Superimposition/Overlay & Side by Side) of the submitted material yielded the following results and conclusions: Q1, Q5, Q6, Q8, Q10 & the right, known 'Adidas' shoe, are similar with respect to tread design, however, dissimilar with respect to size, wear & individualizing characteristics. Therefore, Q1, Q5, Q6, Q8 & Q10 were NOT made by the submitted right, known 'Adidas' shoe. Q2 & the right, known 'Adidas' shoe, are similar with respect to tread design, size, wear & individualizing characteristics. Therefore, Q2 WAS made by the submitted right, known 'Adidas' shoe. Q3, Q7, Q9 & the left, known 'Adidas' shoe, are similar with respect to tread design, however, dissimilar with respect to size, wear & individualizing characteristics. Therefore, Q3, Q7 & Q9 were NOT made by the submitted left, known 'Adidas' shoe. Q4 & the left, known 'Adidas' shoe, are similar with respect to tread design and size, however, dissimilar with respect to wear & individualizing characteristics. Therefore, Q4 was NOT made by the submitted left, known 'Adidas' shoe.
PW2RX2-5331	Questioned impression Q2 is similar in design pattern, sizing, shape, and overall wear pattern with multiple corresponding randomly acquired characteristics to the submitted known right shoe. The known right shoe made questioned impression Q2. SWGTREAD conclusion: identification. Questioned impression Q4 is similar in design pattern, sizing, and shape to the submitted known left shoe. This shoe or any shoe with similar class characteristics could have made questioned impression Q4. SWGTREAD conclusion: association of class characteristics. Questioned impressions Q1, Q3, and Q5 through Q10 are similar in design pattern to the submitted known shoes. Differences in sizing/placement of elements or lack of correspondence of randomly acquired characteristics are also observed. Without the submitted shoes for further analysis, both similarities and dissimilarities indicates non-association. SWGTREAD conclusion: indications of non-association.
Q3HPVM-5335	In the opinion of the examiner, the right known footwear was the source of, and made, the questioned impression at Q2-IMP1. Another item of footwear being the source of the impression is considered a practical impossibility. In the opinion of the examiner, the right and left known footwear was not the source, and did not make, the questioned impressions at Q1-IMP1 and Q3-IMP1 through Q10-IMP1.

TABLE 2

WebCode-Test	Conclusions
Q7JVBT-5331	The submitted images and known impressions of the suspect shoes (K1a-K1g) were examined and compared to the questioned impressions visible in Q1-Q10. Q2 corresponds to the known right shoe in tread pattern, tread size, tread wear, and individual characteristics including scratches, nicks, and gouges in the tread surface. Thus Q2 was made by the known right shoe. Q1, Q5, Q6, Q8, and Q10 correspond to the known right shoe in tread pattern, however, Q1, Q5, Q6, Q8, and Q10 are different than the known right shoe in tread size, tread wear, and individual characteristics. Thus, Q1, Q5, Q6, Q8, and Q10 could not have been made by the known right shoe. Q3, Q4, Q7, and Q9 correspond to the known left shoe in tread pattern, however, Q3, Q4, Q7, and Q9 are different than the known left shoe in tread size, tread wear, and individual characteristics. Thus, Q3, Q4, Q7, and Q9 could not have been made by the known left shoe.
QHE7KL-5331	The known right shoe and the questioned impression (Q2) exhibit similarities in tread design, size, wear, and accidental characteristics. In the opinion of the examiner the right shoe made the Q2 impression. The known left and right shoes and the questioned impressions (Q1, and Q3 through Q10) exhibit differences in one or more of the following characteristics: size, wear, accidental characteristics. These questioned impressions were not made by the known left or right shoes.
R2KX3E-5331	Items Q1-Q10: Three photographs were submitted which consist of five right shoe impressions, three left shoe impressions, and two partial shoe impressions from the crime scene. One of the right shoe impressions (Q2) is similar in class characteristics (tread design and size), wear, and randomly acquired characteristics to the right shoe from the suspect. It is our opinion that the impression was made by the right shoe from the suspect. The remaining right shoe impressions (Q1, Q5, Q8, and Q10) are dissimilar in class characteristic (size), wear, and randomly acquired characteristics to the right shoe from the suspect. It is our opinion that these impressions did not come from the right shoe from the suspect. The left shoe impressions (Q3, Q7, and Q9) are dissimilar in class characteristic (size), wear, and randomly acquired characteristics to the left shoe from the suspect. It is our opinion that these impressions did not come from the left shoe from the suspect. The partial shoe impressions (Q4 and Q6) are dissimilar in class characteristics (size and/or orientation), wear, and/or randomly acquired characteristics to the shoes from the suspect. It is our opinion that these impressions did not come from the shoes from the suspect. Items K1a-K1g: These items were used for comparison purposes.
RG2W8E-5331	The Items Q1 through Q10 questioned footwear impressions were analyzed, compared and evaluated with the Items K1a through K1g known right and left Adidas, US 9.5 shoes. The Item Q1 questioned footwear impression is similar in tread design, however the Item Q1 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q2 questioned footwear impression corresponds in tread design, physical size, general wear and three (3) randomly acquired characteristics with the K1a through K1g known right Adidas shoe. The Item Q3 questioned footwear impression is similar in tread design, however the Item Q3 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q4 questioned footwear impression is similar in tread design and physical size, however there is sufficient differences of randomly acquired characteristics between the Item Q4 questioned footwear impression and the K1a through K1g known right and left Adidas shoes. The Item Q5 questioned footwear impression is similar in tread design, however the Item Q5 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q6 questioned footwear impression is similar in tread design, however the Item Q6 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q7 questioned footwear impression is similar in tread design, however the Item Q7 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q8 questioned footwear impression is similar in tread design, however the Item Q8 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q9 questioned footwear impression is similar in tread design, however the Item Q9 questioned footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. The Item Q10 questioned footwear impression is similar in tread design, however the Item Q10 questioned

TABLE 2

WebCode-Test	Conclusions
	footwear impression does not correspond in physical size with the K1a through K1g known right and left Adidas shoes. Based upon the above factors, it is the opinion of this examiner that: The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q1 questioned footwear impression. The Item K1a through K1g known right Adidas shoe, was the source of, and made, the Item Q2 questioned footwear impression resulting in an identification. Another item of footwear being the source of the impression is considered a practical impossibility. The Items K1a through K1g known left Adidas shoe, was excluded as being the source of, and did not make the Item Q2 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q3 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q4 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q5 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q6 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q7 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q8 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q9 questioned footwear impression. The Items K1a through K1g known right and left Adidas shoes, were excluded as being the source of, and did not make the Item Q10 questioned footwear impression. All conclusions listed herein have been verified by a second qualified latent print examiner.
RHUMHZ-5335	The recovered shoes (soles and test impressions depicted in K1a through K1g) were compared to the impressions from the scene (depicted in Q1 through Q10) with the following conclusions: Impressions on wood: Impression Q1 was not made by the recovered shoes. EXCLUSION. Impression Q2 corresponds with the right shoe in class characteristics, wear, and randomly acquired characteristics (RACs). IDENTIFICATION. The recovered right shoe is the source of Impression Q2. The left shoe did not make Impression Q2. EXCLUSION. Impression Q3 was not made by the recovered shoes. EXCLUSION. Impressions on ceramic tile: Impression Q4 was not made by the recovered shoes. EXCLUSION. Impression Q5 was not made by the recovered shoes. EXCLUSION. Impression Q6 was not made by the recovered shoes. EXCLUSION. Impression Q7 was not made by the recovered shoes. EXCLUSION. Impressions on vinyl tile: Impression Q8 was not made by the recovered shoes. EXCLUSION. Impression Q9 was not made by the recovered shoes. EXCLUSION. Impression Q10 was not made by the recovered shoes. EXCLUSION.
T2E4WD-5331	ITEMS OF EVIDENCE: Item: 1 - Item K1a: Photograph of the soles of the recovered shoes, lighted from above. Item: 2: Items K1b-K1c: Two oblique lighted images of the soles of the recovered shoes, light direction indicated by arrows. Item: 3: Items K1d-K1g: Known imprints made with the recovered shoes. Item: 3.1 - Transparencies reprinted from the Item 3 known imprint photographs of K1d-1g. Item: 4: Items Q1-Q3: Questioned imprints found on a raw piece of wood. Item: 4.1 - Unknown footwear impression represented as Q1. RESULTS: The Item 4.1 impression was not made by the Item 1 shoes. Item: 4.2 - Unknown footwear impression represented as Q2. RESULTS: The Item 4.2 impression was made by the Item 1 right shoe. Item: 4.3 - Unknown footwear impression represented as Q3. RESULTS: The Item 4.3 impression was not made by the Item 1 shoes. Item: 5: Items Q4-Q7: Questioned imprints found on a textured ceramic tile. Item: 5.1 - Unknown footwear impression represented as Q4 RESULTS: The Item 5.1 impression was not made by the Item 1 shoes. Item: 5.2 Unknown footwear impression represented as Q5 RESULTS: The Item 5.2 impression was not made by the Item 1 shoes. Item: 5.3 - Unknown footwear impression represented as Q6. RESULTS: The Item 5.3 impression was not made by the Item 1 shoes. Item: 5.4 - Unknown footwear impression represented as Q7. RESULTS: The Item 5.4 impression was not made by the Item 1 shoes. Item: 6: Items Q8-Q10: Questioned imprints found on a textured vinyl tile. Item: 6.1 - Unknown footwear impression represented as Q8. RESULTS: The Item 6.1 impression was not made by the Item 1 shoes. Item: 6.2 - Unknown footwear impression represented as Q9. RESULTS: The Item 6.2 impression was not made by the Item 1 shoes. Item: 6.3 - Unknown footwear impression represented as Q10. RESULTS: The Item 6.3 impression was

TABLE 2

WebCode-Test	Conclusions
	not made by the Item 1 shoes. Impression evidence in this case was examined utilizing the ACE-V methodology.
TBQZ6Q-5331	It is the opinion of the footwear analyst that questioned footwear impression Q2 was made by the known right shoe K1R; Q1, Q3 through Q10 could not have been made by the known shoes K1L and K1R.
TEMMWT-5335	The results of the examination extremly strongly support that the Questioned imprint item Q2 was made with the right shoe item K1 (Level +4). The results of the examination extremly strongly support that the Questioned imprints item Q1, Q3, Q5-Q10 was not made with the shoes item K1 (Level -4). The results of the examination strongly support that the Questioned imprint item Q4 was not made with the shoes item K1 (Level -3).
TFWWKJ-5335	The Q2FW1 impression was made by the Items K1a-K1g right shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the footwear impression Q2FW1 and those present on the Items K1a-K1g left shoe to conclude that the impression was not made by the Items K1a-K1g left shoe. Sufficient differences were noted between the characteristics present in the footwear impressions Q1FW1, Q3FW1, Q4FW1, Q5FW1, Q6FW1, Q7FW1, Q8FW1, Q9FW1 and Q10FW1 and those present on the Items K1a-K1g footwear to conclude that the impressions were not made by the Items K1a-K1g footwear.
TMY2HV-5335	Known shoe K1 (right shoe) has been identified as the source of shoe impression Q2. Known shoe K1 (right shoe) has been excluded as the source of shoe impressions Q1, Q5, Q6, Q8, and Q10. Known shoe K1 (left shoe) has been excluded as the source of shoe impressions Q3, Q4, Q7, and Q9.
TUELJL-5335	It was determined utilizing side by side and overlay techniques of comparison that the questioned impression Q2 was positively made by the known right shoe. It was determined utilizing side by side and overlay techniques of comparison that the questioned impressions Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10 exhibit dissimilar wear characteristics with the known right and left shoes. Therefore the known items of footwear can be eliminated as being the source of those questioned impressions.
U37EDX-5331	[No Conclusions Reported.]
U4JU28-5335	[No Conclusions Reported.]
U8LUYJ-5331	The right known shoe is identified as the source of impression Q2. This impression was made with this particular shoe. Both known shoes are excluded as the source of impressions Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9 and Q10. These impressions were not made with either of the known shoes.
UBK4AK-5331	Item/Impression Q1 - Was not made by the item K-1a-g right/left shoe. Item/Impression Q2 - Was made by the K-1a-g right shoe. Item/Impression Q3 - Was not made by the item K1a-g left/right shoe. Item/Impression Q4 - Was not made by the item K1a-g left/right shoe. Item/Impression Q5 - Was not made by the item K1a-g left/right shoe. Item/Impression Q6 - Was not made by the item K1a-g left/right shoe. Item/Impression Q7 - Was not made by the item K1a-g left/right shoe. Item/Impression Q8 - Was not made by the item K1a-g left/right shoe. Item/Impression Q9 - Was not made by the item K1a-g left/right shoe. Item/Impression Q10 - Was not made by the item K1a-g left/right shoe.
UT4YMT-5335	Impression Q2 was made by right shoe from recovered pair of the shoes Adidas tag: US 9.5, UK 8, FR 42, JP 265, CHN 260; HWI 28Y001 09/20; ART FY8219; #126621325; Impression Q1, Q5, Q6, Q8, Q10 were not made by right shoe from recovered pair of the shoes (Adidas tag: US 9.5, UK 8, FR 42, JP 265, CHN 260; HWI 28Y001 09/20; ART FY8219; #126621325;). There were made by right shoe or shoes with sole design similar to recoverd pair but different size and different wear features. Impressions Q3, Q4, Q7, Q9 were not made by recovered pair of the shoes (Adidas tag: US 9.5, UK

TABLE 2

WebCode-Test	Conclusions
	8, FR 42, JP 265, CHN 260; HWI 28Y001 09/20; ART FY8219; #126621325;). There were made by left shoe or shoes with sole design similar to recoverd pair but different size and different wear features.
UV9RDL-5331	The ten imprints (Q1-Q10) in the photographs were visually compared to the photographs (K1a - K1c) and the corresponding test impressions (K1d - K1g) of the Adidas size 9.5 athletic shoes. The imprint (Q2) and the RIGHT Adidas shoe correspond in tread design, physical shape and size, and wear. Additionally, the imprint (Q2) and the RIGHT Adidas shoe are consistent in the location, position, and orientation of randomly acquired individual characteristics. Therefore, the RIGHT Adidas shoe was IDENTIFIED as having made the imprint (Q2). The imprints (Q1, Q5, Q6, Q8, and Q10) and the RIGHT Adidas shoe correspond in tread design. Upon closer examination, differences in wear and randomly acquired individual characteristics were observed between the imprints (Q1, Q5, Q6, Q8, and Q10) and the RIGHT Adidas shoe. Due to these differences, the RIGHT Adidas shoe was ELIMINATED as having made the imprints (Q1, Q5, Q6, Q8, and Q10). The imprints (Q3, Q4, Q7, and Q9) and the LEFT Adidas shoe correspond in tread design. Upon closer examination, differences in wear and randomly acquired individual characteristics were observed between the imprints (Q3, Q4, Q7, and Q9) and the LEFT Adidas shoe. Due to these differences, the LEFT Adidas shoe was ELIMINATED as having made the imprints (Q3, Q4, Q7, and Q9). The RIGHT imprints (Q1, Q5, Q6, Q8, and Q10) are consistent in tread design, physical shape and size, wear, and several randomly acquired individual characteristics. The RIGHT imprints (Q1, Q5, Q6, Q8, and Q10) were likely made by the same unknown RIGHT shoe. The LEFT imprints (Q3, Q4, Q7, and Q9) are consistent in tread design, physical shape and size, wear, and several randomly acquired individual characteristics. The LEFT imprints (Q3, Q4, Q7, and Q9) were likely made by the same unknown LEFT shoe.
UW3FVG-5331	EXAMINATIONS: Determine whether any footwear marks present in Exhibits Q1 through Q10 can be associated with the known pair of outsoles. FINDINGS AND OPINIONS: The questioned footwear mark, Exhibit Q2 was 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. Questioned footwear marks, Q1 and Q3 through Q10 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.
V6RK7T-5335	Based upon my experience of undertaking and interpreting the results of footwear comparisons, and the level of correspondence noted in pattern, pattern size, specific degree of wear and damage features, in my opinion, the findings show CONCLUSIVELY that the right training shoe K1(R) has made the footwear mark Q2.
V9BHW6-5331	Comparison examinations were conducted between the unknown impressions and the submitted known impressions of K1. Exhibit 4.2 (Q2) was identified as having been made by the recovered right shoe, K1. Exhibits 4.1 (Q1), 5.2 (Q5), 5.3 (Q6), 6.1 (Q8) and 6.3 (Q10) were identified as having been made by a second right shoe of similar outsole design as the known right shoe, K1. These impressions were not made by the known right shoe, K1, based on differences in individual characteristics. Exhibits 4.3 (Q3), 5.1 (Q4), 5.4 (Q7) and 6.2 (Q9) were identified as having been made by a second left shoe of similar outsole design as the known left shoe, K1. These impressions were not made by the known left shoe, K1, based on differences in individual characteristics.
VB498P-5331	There is conclusive evidence that the mark Q2 has been made by the submitted right shoe. Marks Q1 and Q3-Q10 can be eliminated as having been made by the submitted footwear.
VBYWLE-5331	Impression Q2 and the K1 known right shoe share agreement of class characteristics and randomly acquired characteristics of sufficient quality and quantity. Therefore, impression Q2 was made by the K1 known right shoe. There are sufficient differences of class and randomly acquired characteristics between impressions Q1 and Q3 - Q10 and the K1 known shoes. Consequently, impressions Q1 and Q3 - Q10 were not made with the known shoes. Footwear impression analysis is based on the comparison of class and randomly acquired characteristics. Corresponding class and randomly

TABLE 2

WebCode-Test	Conclusions
	acquired characteristics support the conclusion that the footwear was the source of, and made, the questioned impression. Currently, the possibility that other footwear having the same class and randomly acquired characteristics cannot be statistically calculated.
VK44ZE-5331	COMPARISONS: Compared the partial, questioned footwear impressions of value, Q-1 through Q-10, with the photographs of the known shoes, test impressions, and transparencies, respectively submitted in Submissions 001 and 001A. RESULTS: The partial, questioned footwear impressions of value, Q-1 and Q-3 through Q-10, were not made by the known shoes in Submission 001. (Elimination). The partial, questioned footwear of value, Q-2, was made by the known right shoe in Submission 001. (Identification). REMARKS: Reproductions of the the unidentified partial, questioned footwear impressions of value, Q-1 and Q-3 through Q-10, have been retained in this laboratory should future examinations be requested.
VQUA3V-5331	It is my opinion that the known shoes were not the source of and did not make the questioned impressions Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10. Sufficient differences were noted in the comparison between characteristics in the questioned impressions and the known shoes. It is my opinion that the right shoe of the known shoes was the source of and made the questioned impression Q2 and the likelihood of another item being the source of the impression is considered negligible. The questioned impression and the right known shoe share agreement of class and randomly acquired characteristics of sufficient quality and quantity.
VQW4GV-5335	The right Adidas shoe (Item K1) is identified as the source of Impression Q2. The Adidas shoes (Item K1) are excluded as the source of Impressions Q1 and Q3 – Q10.
VVP99E-5331	Each of Exhibits 1 (Q1) through 10 (Q10) were analyzed and determined to be of value for comparison. Exhibits 1 through 10 were compared with Exhibit 11 (K1) with the following results: Exhibit 1 corresponded in outsole design with the known right shoe in Exhibit 11. Due to dissimilarities in class characteristics and randomly acquired characteristics, the comparison of Exhibit 1 with the shoes and impressions in Exhibit 11 resulted in a conclusion of source exclusion. Source exclusion is an examiner's conclusion that the known footwear item did not make the questioned impression. The comparison of Exhibit 2 with the known right shoe in Exhibit 11 resulted in a conclusion of source identification. The conclusion of source identification is an examiner's opinion that the known footwear item and the questioned impression have corresponding class characteristics (i.e. outsole design, physical size, and wear) and one or more randomly acquired characteristics with no meaningful differences, and the observed corresponding characteristics are sufficient such that an examiner would not expect to see the same combination of characteristics repeated in a different footwear item. Exhibit 3 corresponded in outsole design with the known left shoe in Exhibit 11. Due to dissimilarities in class characteristics and randomly acquired characteristics, the comparison of Exhibit 3 with the shoes and impressions in Exhibit 11 resulted in a conclusion of source exclusion. Exhibit 4 corresponded in outsole design with the known left shoe in Exhibit 11. The comparison of Exhibit 4 with the shoes and impressions in Exhibit 11 resulted in a conclusion of support for exclusion. Support for exclusion is an examiner's conclusion that the known footwear item probably did not make the questioned impression. This conclusion is an examiner's opinion that the known footwear item and the questioned impression have different class characteristics and/or randomly acquired characteristics; however, there are limitations associated with the evidence (quality and quantity of the impression in Exhibit 4) that prevent an examiner from reaching a 'source exclusion' conclusion. Exhibit 5 corresponded in outsole design with the known right shoe in Exhibit 11. Due to dissimilarities in class characteristics and randomly acquired characteristics, the comparison of Exhibit 5 with the shoes and impressions in Exhibit 11 resulted in a conclusion of source exclusion. Exhibit 6 corresponded in outsole design with the known right shoe in Exhibit 11. Due to dissimilarities in class characteristics and/or randomly acquired characteristics, and limitations in the quality and quantity of the impression in Exhibit 6, the comparison of Exhibit 6 with the shoes and impressions in Exhibit 11 resulted in a conclusion of support for exclusion. Exhibit 7 corresponded in outsole design with the known left shoe in Exhibit 11. Due to dissimilarities in class characteristics and randomly acquired characteristics, the comparison of Exhibit 7 with the shoes and impressions in Exhibit 11 resulted in a conclusion of source exclusion. Exhibit 8 corresponded in outsole design with the

TABLE 2

WebCode-Test	Conclusions
	known right shoe in Exhibit 11. Due to dissimilarities in class characteristics and/or randomly acquired characteristics, and limitations in the quality and quantity of the impression in Exhibit 8, the comparison of Exhibit 8 with the shoes and impressions in Exhibit 11 resulted in a conclusion of support for exclusion. Exhibit 9 corresponded in outsole design with the known left shoe in Exhibit 11. Due to dissimilarities in class characteristics and randomly acquired characteristics, the comparison of Exhibit 9 with the shoes and impressions in Exhibit 11 resulted in a conclusion of source exclusion. Exhibit 10 corresponded in outsole design with the known right shoe in Exhibit 11. Due to dissimilarities in class characteristics and/or randomly acquired characteristics, and limitations in the quality and quantity of the impression in Exhibit 10, the comparison of Exhibit 10 with the shoes and impressions in Exhibit 11 resulted in a conclusion of support for exclusion.
W9RW3T-5331	Q1, Q3, Q5, Q6, Q7, Q8, Q9, Q10: Exclusion. Q2: Positive screen based on correspondence of pattern, size, wear and one or more random features. Q4: Positive screen based on correspondence of pattern, size and wear.
WEGG4N-5331	The submitted footwear images were examined and compared to the footwear impressions visible in Q1-Q10. Q2 corresponds to the known right shoe in tread design, tread size, tread wear and individual characteristics to include gouges in the surface and open edges of the voids. Thus Q2 was made by the known right shoe as represented by the submitted images. Q1, Q5, Q6, Q8 and Q10 correspond in tread design to the known right shoe; however they are different in tread size, tread wear and individual characteristics to include gouges in the surface. Thus, Q1, Q5, Q6, Q8 and Q10 could not have been made by the known right shoe as represented by the submitted images. Q3, Q4, Q7, and Q9 correspond in tread design to the known left shoe; however they are different in tread size, tread wear and individual characteristics to include gouges in the surface. Thus, Q3, Q4, Q7, and Q9 could not have been made by the known left shoe as represented by the submitted images.
XMJD3B-5331	The questioned impressions in Exhibits 1 - 10 were compared to images of the known shoes (Exhibit 11) and images of known impressions (Exhibit 12) said to be from the recovered shoes. A complete evaluation of a questioned 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 sole of the known shoe that are represented in the questioned impression. The questioned impression in Exhibit 2 (Q2) corresponded in physical shape, tread design, wear and randomly acquired characteristics to the known right shoe represented in Exhibits 11 - 12 (K1a - K1g). Therefore, the known right shoe represented in Exhibits 11 - 12 is the source of the questioned shoe impressions in Exhibit 2 (Q2) (Source Identification). The basis for a Source Identification conclusion is an examiner's opinion that the observed corresponding characteristics provide extremely strong support for the proposition that the known footwear item made the questioned impression and extremely weak support for the proposition that a different footwear item made the questioned impression. The questioned impressions in Exhibits 1, 3 - 10 (Q1, Q3 - Q10), although similar in general tread pattern, differed in spacing, wear, and/or randomly acquired characteristics to the known shoes represented in Exhibits 11 - 12. Therefore, the questioned impressions in Exhibits 1, 3 - 10 were not made by the known shoes represented in Exhibits 11 - 12 (Exclusion). The basis for Exclusion conclusion is an examiner's opinion that the observed characteristics provide extremely strong support for the proposition that a different footwear item made the questioned impression and extremely weak or no support for the proposition that the known footwear item made the questioned impression.
XVXJUH-5335	It is observed that the right(R) shoe print was compatible wiht the shoes sent at the crime scene(Q2)
YB7D7H-5331	I have considered the proposition that the submitted shoes made footwear outsole detail recovered as Marks Q1, Q3, Q5, Q6, Q7, Q8, Q9 and Q10; the results of the examination show that the submitted footwear was not the source of the recovered detail. I have considered the proposition that the submitted shoes made footwear outsole detail recovered as Mark Q2; the results of the examination provide conclusive support that the right shoe made the recovered detail. I have considered the proposition that the submitted shoes made footwear outsole detail recovered as Mark Q4; the results of

TABLE 2

WebCode-Test	Conclusions
	the examination indicated that, based on differences noted, the submitted shoes were not the source of the detail.
YBAV9M-5331	[No Conclusions Reported.]
YBCKGQ-5335	Upon comparison, the questioned imprint Q2 found on a raw piece of wood was found to agree in sole pattern design, size, individual and wear characteristics with the known imprints made by the recovered right shoe. This result indicates that the imprint Q2 was made by the recovered right shoe, but not the recovered left shoe. The questioned imprint Q4 found on a textured ceramic tile was found to be comparable in size and sole pattern design but disagree in wear characteristics with the known imprints made by the recovered left shoe. The questioned imprint Q4 was not made by the recovered right shoe. The questioned imprints Q1, Q3, Q5-Q10, were not made by the recovered shoes.
YE9BGB-5331	The questioned impressions, Exhibits 1 through 10, were visually examined and compared to the outsole tread design elements, physical size, and randomly acquired characteristics present on Exhibits 11 and 12, the recovered shoes. Exhibit 2 has been identified as coming from the same source as the recovered right shoe in Exhibits 10 and 11. A source identification conclusion is an opinion that the known footwear item and questioned impression have corresponding outsole design, physical size, and wear with one or more randomly acquired characteristics with no meaningful differences, and the observed corresponding characteristics are sufficient such that the same combination of characteristics is not expected to be repeated in a different footwear item. Exhibits 11 and 12 can be excluded as the source of questioned impressions Exhibits 1 and 3 through 10. This is based on the differences in physical size, randomly acquired characteristics, and wear. However, the tread design elements in Exhibits 1 and 3 through 10 are similar to the recovered shoes.
YGB9PH-5335	Imprints Q1 to Q10 are so-called positive traces. They result from the affixing of soles contaminated by a black substance. We can therefore expect absences of information on the imprints if the contaminating substance is not evenly distributed on the soles of the shoes or if it is present in large quantities (overload). Imprints Q1 to Q3 are placed on relatively smooth ground. It is expected that this type of support will not generate artifacts. On the other hand, the imprints Q4 to Q7 and especially Q8 to Q10 are affixed to tiles whose surface is irregular, which can generate artifacts or absences of information. Some traces are superimposed, which can create artifacts or missing information. In view of their silhouette, imprints Q3, Q4, Q7 and Q9 come from a left sole while Q1, Q2, Q5, Q6, Q8 and Q10 come from a right sole. All the traces show similar group characteristics suggesting that they come from the same pair of shoes or from distinct pairs whose soles have the same type of pattern. We observe similarities in terms of dimensions, group characteristics and several individual characteristics between the imprint Q2 and the inking of the right sole. The quantity and quality of these concordant analytical characteristics and the absence of discrepancy make it possible to say that the imprint Q2 is identified with the right sole of the seized shoes. On the other hand, in view of the differences in dimensions and the major group discrepancies observed, it is impossible that the seized shoes could be the source of the other imprints. The comparison of the imprints Q1, and Q3 to Q10 between them shows concordances of dimensions and individual characteristics suggesting that: - Q1, Q5, Q6, Q8 and Q10 come from the same shoe. - Q3, Q4, Q7 and Q9 come from the same shoe.
YPTFTG-5331	In the opinion of the scientist, comparison of the ten questioned footwear impressions from Lab Items #4 - #6 resulted in the following conclusions: The shoes of Lab Items #1-#3 were not the source of the impressions labeled as Q1, Q3, Q4, Q5, Q6, Q7, Q8, Q9, and Q10. The right shoe of Lab Items #1-#3 was the source of the impression labeled Q2. The left shoe of Lab Items #1-#3 was not the source of the impression labeled Q2.
YTTQNG-5335	A footwear comparison was conducted with the following results: Q1 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q1. Q2 was compared and identified as being produced by the right known shoe. Q3 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q3. Q4 was

TABLE 2

WebCode-Test	Conclusions
	compared and both the right and left known shoes were excluded and did not produce the questioned impression Q4. Q5 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q5. Q6 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q6. Q7 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q7. Q8 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q8. Q9 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q9. Q10 was compared and both the right and left known shoes were excluded and did not produce the questioned impression Q10.
ZL3XMZ-5335	ITEM K1 WAS NOT THE SOURCE OF QUESTIONED IMPRESSION Q1.
ZNQCCB-5335	The recovered footwear, K1, outsole design consists of squares with rounded edges arranged in wavy rows and "adidas" lettering in the arch area; with a moderate degree of wear. K1 and test impressions of K1 were compared to each of the impressions Q1-Q10. Q2 corresponds in specific outsole design, physical size, general wear, and some randomly acquired characteristics to the recovered K1 right shoe. Therefore, it was determined that this impression was made by the K1 right shoe. Q1 and Q3-Q10 are similar in general outsole design to the recovered shoes, K1, but have differences in degree of wear and/or physical size. Therefore, it was determined that these impressions could not have been made by K1.
ZVEQJQ-5335	Manufactured pattern impressions suitable for comparison were noted in Exhibits Q1 through Q10. One manufactured pattern impression noted in Exhibit Q2 was made by the right shoe depicted in Exhibits K1a through K1g. The remaining manufactured pattern impressions noted in Exhibits Q1, Q3 through Q10 were not made by the shoes depicted in Exhibits K1a through K1g.
ZVPR7P-5335	The results of the examination extremely strongly support that the imprint Q1, Q3, Q5, Q6, Q7, Q8, Q9 and Q10 was not made with the shoes K1 (Level -4). The results of the examination extremely strongly support that the imprint Q2 was made with the right shoe K1 (Level +4). The results of the examination strongly support that the imprint Q4 was not made with the shoes K1 (Level -3).
ZVPUQM-5331	[No Conclusions Reported.]
ZYRR2F-5335	It was determined that the impression represented by the Q-2 imprint was made by the K1 suspect's right shoe. Nine (9) questioned imprints (Q-1, Q-3 to Q-10) were made by a second pair of unknown shoes.

Additional Comments

TABLE 3

WebCode-Test	Additional Comments
4F2TK7-5331	In our laboratory the highest level of support is "extremely strong support" rather than "identification". For this reason we selected "B" rather than "A" for the impression Q2. Impression Q2 matches the toe, mid-sole and heel area of the right runner in pattern size wear and additional features. All other impressions (Q1, Q3-Q10) do not match the suspects runners.
66ZPYA-5331	If this had been received as casework with physical shoes then we would have fully examined the soles for damage in the relevant areas. We would have noted that marks Q3, Q4, Q7 and Q9 all appeared to have the same fine detail present which was not present on the 'suspect' shoe in the trial. This would have allowed us to draw the conclusion that it is probable all of these marks were made by the same left shoe (not the submitted suspect shoe). As a result the following conclusion would be drawn for Q4: Q4 could not be excluded on the fine detail alone however given the case information and our opinion that Q4 was made by same shoe as Q3, Q7 and Q9, we would fully exclude (G) this mark from having been made by the suspect left shoe.
6FFGJD-5335	The test impressions created during this examination will be retained on file within an archived case jacket (Container FW Case Jacket).
8B4DNV-5331	The texture of the tile and the overlapping impressions may have distorted the patterns in the impression. It was also difficult, due to the overlapping impressions, to properly determine the class characteristics.
8D4LUQ-5331	Q1. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement. Q2. Partial solidification to central ball elements & 'etching'/texturing consistent; 8 x damage features in agreement. Q3. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple GROSS damage features in disagreement. Q4. Scene mark = smaller in size; displays more extensive wear- solidification; multiple GROSS damage features in disagreement- Repeated features of Q3. Q5. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement- Repeated features of Q1. Q6. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement- Repeated features of Q1. Q7. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement- Repeated features of Q3. Q8. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement- Repeated features of Q1. Q9. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement- Repeated features of Q3. Q10. Scene mark = substantially smaller in size; displays more extensive wear- solidification; multiple damage features in disagreement- Repeated features of Q1
9A2ZHE-5331	Of the excluded footwear impressions (Q1,3,4,5,6,7,8,9 and 10). In my opinion the same right shoe has made the impressions Q1,5,6,8 and 10. In my opinion the same left shoe has made the impressions Q3,4,7 and 9.
9UA3FJ-5331	Questioned imprint found on a raw piece of wood - Item Q1, questioned imprints found on a textured ceramic tile - Items Q5 and Q6, and questioned imprints found on a textured vinyl tile - Items Q8 and Q10, were made with the same "right" shoe. Questioned imprint found on a raw piece of wood - Item Q3, questioned imprints found on a textured ceramic tile - Items Q4 and Q7, and Questioned imprint found on a textured vinyl tile - Items Q9, were made with the same "left" shoe.
A26MVJ-5335	In accordance with standard operating procedures, a detailed footwear marks examination requires the submission of the actual items of footwear so that any correspondence or differences observed, particularly in relation to randomly acquired characteristics, can be directly related to the items of footwear.

TABLE 3

WebCode-Test	Additional Comments
A9NTUC-5335	The stepped test marks were of poor quality and did not show the full sole. Ideally, we would require the actual shoes for the footwear comparison to examine the features which are present to confirm as random damage.
CLQY2F-5331	ESR uses a slightly different evaluation scale, and has also recently stopped using identifications, with the highest level of conclusion being "extremely strong support".
CZXNM2-5335	The shoe print obtained from the suspect is considered to be incompatoble with other prints (Q1,Q3,Q4,Q5,Q6,Q7,Q8,Q9,Q10) obtained from the site.
D37TNM-5331	I think 10 unknown is too many for a proficiency test. It takes too long to work. There should be much less in the future.
FAFYEA-5331	Prints Q1, Q5, Q6, Q8 and Q10, have been produced by the same footwear on the right foot, being different from Q2/k1-R. Footprints Q3, Q4, Q7 and Q9, have been produced by the same footwear on the left foot, being different from footwear K1-L. All these footprints have the same size, smaller than Q2.
HBPL89-5331	Photo containing Q4-Q7 has distortion on L-scale long arm between 130-160mm, prohibiting a more conclusive finding.
JUCGD2-5331	In our laboratory, no conclusions would be made without physically having the suspected shoes. The rulers in some of the prints were slightly off. This had to be taken into account when generating overlays and during comparisons.
K6UB79-5335	Using the ENFSI best practice method results in Log (s) = 18.6 for unknown shoeprint Q2
M2HFF2-5335	No further comments
MB79PC-5331	The remaining unidentified questioned impressions of Items Q1 and Q3 through Q10 were compared one to the other. Based on these comparisons it is the opinion of the examiner that two different unknown shoes could have made the questioned impressions as follows: Unknown shoe #1: Items Q1, Q5, Q6, Q8, and Q10 due to similarity of tread pattern design, size and general wear characteristics. Unknown shoe #2: Items Q3, Q4, Q7, and Q9 due to similarity of tread pattern design, size, and general wear characteristics. Should standard footwear be submitted for comparison to the remaining unidentified questioned impressions, a more definitive conclusion may the made.
MF26CH-5331	Too many questioned items. This became repetitive and time consuming for no reason. There was no need for so many.
MT4U7X-5331	1.Questioned impressions labelled Q1, Q5, Q6, Q8, Q10 were found to be consistent in shape, physical size and individual characteristics, all impressions were left with the same right shoe. 2.Questioned impressions labelled Q3, Q4, Q7, Q9 were found to be consistent in shape, physical size and individual characteristics, all impressions were left with the same left shoe.
PFT3EA-5335	1-Q2 make by suspect's shoe. 2- Remain Question imprint were done by another shoes.
PW2RX2-5331	The test impressions for the known shoes differed in sizing, for the stepped impression vs putting together the rolled toe and heel sections together (using the photo of the shoe as a guide for lining them up). With difference in sizing between KNOWN impressions, it undermines confidence for potential elimination. Did a different shoe actually print the questioned impression or was the application of the questioned impression just a bit off? I would dismiss any answers submitted that eliminate the known shoe, solely based on minor size differences. Indicating that the suspect's shoes were washed opens up the opportunity for randomly acquired characteristics to occur between the

TABLE 3

WebCode-Test	Additional Comments
	application of the questioned impression and creating test impressions. Were they just wiped? Were they put through the washer/dryer? Instead of saying the shoes were washed prior to collecting test impressions, could it be said that the shoes were cleaned after getting them from the suspect but before collecting test impressions? My assumption is that you are giving to put a "reason" why the shoes look so clean for photographing them. Without the shoes and the ability to make multiple test impressions of the shoe, there's no way I could give a confident answer for an elimination, even with the indications of non-association.
QHE7KL-5331	The SWGTREAD range of conclusions would be added to the report.
T2E4WD-5331	During normal casework, the known shoes would be required in order to confirm any random identifying characteristics observed in the unknown impressions.
VK44ZE-5331	The partial, questioned footwear impressions of value, Q-1 and Q-5, have three (3) randomly acquired characteristics (RACs) in common, the partial, questioned footwear impression of value, Q-6, has two (2) of those RACs in common. The partial, questioned footwear impressions of value, Q-1 and Q-8, have three (3) RACs in common, the partial, questioned footwear impression of value, Q-10, has two (2) of those RACs in common. The partial, questioned footwear impressions of value, Q-3 and Q-9, have three (3) RACs in common, the partial, questioned footwear impression of value, Q-4, has two (2) of those RACs in common, and the partial, questioned footwear impression of value, Q-7, has two (2) of those RACs in common.
WEGG4N-5331	The conclusions reported are based on [Laboratory] policy.
YB7D7H-5331	The shoes were not available for physical examination, which limited any comments beyond class characteristics of this footwear. For this exercise it was assumed that apparent areas of damage on the outsoles would be confirmed as damage through examination of the footwear. The shoes were not available to make further test impressions. Had they been available Q4 may have moved to a stronger level of support for elimination.
ZVPR7P-5335	The appearance of the shoe soles K1 was specific and highly detailed. Though the submitted pictures of 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.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 22-5331: Footwear Imprint Evidence

DATA MUST BE SUBMITTED BY **June 6, 2022, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: EPFCGZ

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Scenario:

Police are investigating an assault and theft at a private residence. While working in his garage, a male victim was approached by two women and assaulted. The assailants then stole a toolbox and the victim's wallet. A pair of shoes were recovered from a suspect one day after the incident; they 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 Adidas, and the shoe tag reads: US 9.5, UK 8, FR 42, JP 265, CHN 260; HWI 28Y001 09/20; ART FY8219; #126621325; x99XZGLt00086.

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 step down onto paper placed on top of a semi-soft surface (per ASB best practices).

Items Submitted (Sample Pack FIEP - Photographs):

Item K1a: Photograph of the soles of the recovered shoes, lighted from above.
Items K1b-K1c: Two oblique lighted images of the soles of the recovered shoes, light direction indicated by arrows.
Items K1d-K1g: Known imprints made with the recovered shoes.
Items Q1-Q3: Questioned imprints found on a raw piece of wood.
Items Q4-Q7: Questioned imprints found on a textured ceramic tile.
Items Q8-Q10: Questioned imprints found on a textured vinyl tile.

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** - Questioned and known items share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Highest degree of association.

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** - Questioned and known items exhibit sufficient differences of class and/or randomly acquired characteristics. Highest degree of non-association.

***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.

Raw Wood

Imprint		L/R
Q1:		
Q2:		
Q3:		

Ceramic Tile

Imprint		L/R
Q4:		
Q5:		
Q6:		
Q7:		

Vinyl Tile

Imprint		L/R
Q8:		
Q9:		
Q10:		

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

Please note: *Any additional formatting applied in the free form spaces below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

3.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

○ This participant's data is intended for submission to ASCLD/LAB, ANAB, and/or A2LA. (Accreditation Release section below must be completed.)
○ This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

Have the laboratory's designated individual complete the following steps
only if your laboratory is accredited in this testing/calibration discipline
by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ANAB Certificate No.
(Include ASCLD/LAB Certificate here)

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)