



## **Footwear Imprint Evidence**

### **Test No. 25-5331/5 Summary Report**

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Each participant received a sample pack containing either printed photographs (5331) or digital images (5335) of nine questioned imprints and photographs of two recovered shoe soles and test imprints made with those shoes, where they were asked to compare these items and report their findings. Data were returned from 152 participants: 70 for 25-5331 and 82 for 25-5335 and are compiled into the following tables:

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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 contained photos in either a physically printed format or as a digitally downloadable file. Images consisted of a suspect shoe, inked exemplars of a suspect shoe, and questioned footwear imprints. Participants were asked to compare the suspect shoe soles and their known imprints with the questioned imprints and report their findings.

### **SAMPLE PREPARATION**

The shoes used in this test had been worn frequently over the course of more than two months. At the time of sample preparation, the soles of the shoes were cleaned of any debris.

**KNOWN EXEMPLARS:** Item K1a is a photograph of the soles of the recovered shoes lit from above. Items K1b and K1c are photographs of the suspect soles lit with oblique lighting. Items K1d-K1g are photographs of the known imprints made with the recovered shoes. Known imprints (K1d-K1g) 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 by hand. 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 shoes and walk across a stack of paper.

**QUESTIONED IMPRINTS:** Questioned imprints were created by coating the sole of each shoe with ink and having the wearer walk across the substrates.

**VERIFICATION:** Predistribution results were consistent with each other and the manufacturer's preparation information.

**SAMPLE PACK ASSEMBLY:** Once verification was complete, each photo set was placed into a pre-labeled sample pack envelope, sealed, and initialed. A zipped file containing the digitally downloadable media was uploaded to the CTS Portal.

<b>Imprint</b>	<b>Substrate</b>	<b>Shoe Type</b>	<b>Manufacturer - Size (U.S.)</b>	<b>Left/Right</b>
Q1	Wood Board	Sneakers	Skechers - 8.5	Left (K1)
Q2	Wood Board	Sneakers	Skechers - 8	Right
Q3	Wood Board	Sneakers	Skechers - 8	Right
Q4	Ceramic Tiles	Sneakers	Skechers - 8.5	Left (K1)
Q5	Ceramic Tiles	Sneakers	Skechers - 8.5	Left (K1)
Q6	Ceramic Tiles	Sneakers	Skechers - 8	Right
Q7	Ceramic Tiles	Sneakers	Skechers - 8.5	Right (K1)
Q8	Flyer	Sneakers	Skechers - 8.5	Left (K1)
Q9	Flyer	Sneakers	Skechers - 8	Right

## **Summary Comments**

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This test was designed to allow participants to assess their proficiency with footwear imprint examination and comparison. Test materials consisted of physical photographs, or digital images. Four of the questioned imprints were made by the suspect's left shoe (Q1, Q4, Q5, Q8). One questioned imprint (Q7) was made by the suspect's right shoe. Four questioned imprints (Q2, Q3, Q6, and Q9) were made by shoes for which photographs were not provided. Refer to the Manufacturer's Information for preparation details.

Participants were asked to report using a seven-point conclusion scale adapted from the SWGTREAD Range of Conclusion standard. For those imprints that were associated with the suspect shoes (K1), all responses of association (A-D) were tallied together to determine the consensus. For those imprints that were not associated with the suspect shoes (K1), all responses of non-association (F-G) were tallied together to determine the consensus.

Of the 152 responding participants, 142 (93%) reported all associations/exclusions and left/right orientations consistent with the manufacturer's preparation information and consensus results. Ten participants were outliers in print association; no participants provided an inconsistent left/right orientation where one was reported. Overall, most participants were confident to report an Identification (A) for all associated questioned items and an Exclusion (G) for all non-associated questioned items.

Ten participants were outliers in their conclusions of association. Six participants reported some level of association (A-D) between the suspect shoes and one or more of the imprints for which an exclusion was the consensus (Q2, Q3, Q6, and Q9). Two participants reported an exclusion for one or more of the questioned imprints for which an association was the consensus (Q1, Q4, Q5, Q7, Q8). Four participants reported inconclusive (E) for one or more of the questioned imprints.

# Examination Results

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

TABLE 1a (Wood Board)

WebCode- Test	Questioned Imprints					
	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>	
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R
24T43X-5331	A	L	G		G	
26L3B4-5335	A	L	G		G	
2BAH73-5331	A	L	G		G	
2GBT84-5335	A	L	G		G	
2T9K2L-5335	A	L	G		G	
2U3HWY-5335	A	L	G		G	
3BP2PZ-5335	A	L	G		G	
3JJ7J2-5331	A	L	G		G	
3VFCCZ-5335	A	L	G		G	
46WK7L-5335	A	L	G	R	G	R
4HKK3F-5335	B	L	G		G	
6AN6T2-5335	A	L	G		G	
6CP7VJ-5335	A	L	G		G	
6FVF4G-5335	A	L	G		G	
6JQA2H-5331	A	L	G		G	
6NK4YJ-5335	A	L	G		G	
6PZLZ4-5335	A	L	G		G	
6QCH8U-5335	A	L	G	R	G	R

TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
6QTET2-5335	A	L	G	R	G	R	
772RLJ-5331	A	L	G	R	G	R	
7A24GJ-5331	A	L	G		G		
7EWQGY-5331	A	L	G		G		
7MAN6H-5335	A	L	G	R	G	R	
7PDH23-5335	A	L	G		G		
7QNEAD-5335	B	L	G		G		
7TEH2Y-5331	A	L	A	R	A	R	
7Y7NZV-5335	A	L	G		G		
7ZYL92-5335	A	L	G		G		
83CX7U-5335	A	L	G		G		
8633Y2-5331	A	L	G	R	G	R	
8DTPPX-5331	A	L	F		G		
8PUTDF-5335	A	L	G		G		
8U67UE-5335	A	L	G		G		
92ZJCT-5335	A	L	G		G		
A2F6LV-5331	A	L	G		G		
A477PX-5335	A	L	G		G		
ALLGBW-5331	A	L	G	R	G	R	
ATJ8YT-5331	A	L	G		G		

TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		L/R
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
AVB67Y-5335	C	L	C	R	C	R	
B99W8U-5335	A	L	G		G		
BAM26R-5335	A	L	G		G		
BKMRNE-5331	A	L	G	R	G	R	
BNKBNR-5331	A	L	G		G		
C6LJYC-5335	A	L	G		G		
CEC66A-5331	A	L	G		G		
CFMZTM-5335	A	L	G		G		
CFQM7U-5335	A	L	G		G		
DDV9DA-5335	A	L	G	R	G	R	
DEAPEU-5335	C	L	G	R	G	R	
DGCQER-5331	A	L	G		G		
DLRY6C-5331	A	L	G	R	G	R	
DPPMER-5331	A	L	G		G		
DZRZFT-5331	A	L	G		G		
E48R7L-5335	B	L	C	R	C	R	
EX23K8-5335	A	L	G		G		
F2VJA7-5335	A	L	G		G		
FAPN38-5331	G	L	G	R	G	R	
FBK3WR-5335	A	L	G		G		

TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
FDB2BP-5335	A	L	G		G		
FJDD7M-5335	A	L	G		G		
GA7V9P-5335	A	L	G		G		
GBJMYK-5331	A	L	G		G		
GEJXVK-5331	A	L	G		G		
GJA96J-5331	A	L	G		G		
GK37DP-5331	A	L	G		G		
GR76RL-5331	A	L	G		G		
GWVM2Q-5335	A	L	G		G		
H2M8P8-5335	A	L	G	R	G	R	
H9NBV6-5335	A	L	G	R	G	R	
J9NL9M-5331	A	L	G		G		
JYZUNF-5331	B	L	G		G		
K7TMAE-5331	A	L	G		G		
K8KKGL-5331	A	L	G	R	G	R	
KCKURN-5331	A	L	G		G		
KEMR3F-5335	A	L	G	R	G	R	
KFFPBM-5331	A	L	G	R	G	R	
KM2G2N-5335	A	L	G		G		
KNUAUL-5335	A	L	G		G		

TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
KNXUNG-5331	A	L	G		G		
KPQRWN-5335	A	L	G		G		
KW6TXH-5331	A	L	G		G		
KWJBNJ-5335	A	L	G	R	G	R	
L37CR2-5331	A	L	G		G		
L9XAMJ-5331	A	L	G		G		
LDQFYZ-5335	B	L	G		G		
LQHZLJ-5331	A	L	G		G		
LXGMF4-5331	A	L	G		G		
M36U9W-5335	A	L	G		G		
MD3RXG-5331	A	L	G		G		
MDLEVE-5335	A	L	G		G		
MGNC4L-5331	A	L	G		G		
MR72WY-5335	A	L	G		G		
MURK23-5335	A	L	G	R	G	R	
MWX2GL-5331	A	L	G		G		
NNKQ4D-5331	A	L	G		G		
NU9EYH-5335	A	L	G		G		
P23LDH-5335	A	L	G		G		
P494FJ-5331	A	L	G		G		



TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
P63WAH-5335	A	L	G	R	G	R	
P66H3C-5335	A	L	G		G		
P94ZWX-5331	A	L	G		G		
PAV2ZZ-5331	A	L	G	R	G	R	
PAYEQH-5335	A	L	G		G		
PHW9NG-5331	B	L	G		G		
PLTVEJ-5331	A	L	G		G		
PMP93C-5331	A	L	D	R	C	R	
PNH7AH-5331	A	L	G		G		
PRZLJB-5331	A	L	G		G		
PZATKK-5335	A	L	G		G		
Q6FWGE-5335	B	L	G		G		
QHPJYA-5335	B	L	D	R	F	R	
QXFLED-5331	A	L	G		G		
RDRG8E-5331	A	L	G		G		
REGT3E-5335	A	L	G	R	G	R	
REMZAF-5331	A	L	G		G		
RPLXWF-5331	A	L	G		G		
T4GJUV-5335	A	L	E		G		
T6CXNF-5331	A	L	G		G		

TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		L/R
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
T77QGD-5335	A	L	G		G		
TBW3EV-5335	A	L	F	R	F	R	
TCRLFW-5331	A	L	G	R	G	R	
TG6KUB-5331	A	L	G		G		
TMAH3E-5331	A	L	G		G		
TWDF6W-5331	A	L	G		G		
TYPBTA-5331	A	L	G		G		
UKJGYC-5335	A	L	G	R	G	R	
UKNYXB-5335	A	L	G		G		
UKXZJA-5331	A	L	G		G		
UPVMBC-5335	A	L	G		G		
UTT7DB-5335	A	L	G		G		
VL9369-5331	A	L	G		G		
VQJFM8-5335	A	L	G		G		
WBJZUQ-5335	A	L	E	R	E	R	
WH9D27-5335	A	L	G		G		
WQZUQB-5331	A	L	G		G		
WUY6MA-5335	A	L	G		G		
WWNGGA-5331	A	L	G		G		
WWR2B4-5331	A	L	G	R	G	R	

TABLE 1a (Wood Board)

Questioned Imprints							
WebCode- Test	<u>Q1</u>		<u>Q2</u>		<u>Q3</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
X9FMU6-5335	A	L	G		G		
XYAFE6-5331	A	L	G		G		
Y2TYT8-5335	A	L	G		G		
Y4C9JK-5331	A	L	G		G		
Y73CB7-5331	A	L	G		G		
Y7MQ6B-5335	A	L	G		G		
YFF2F7-5331	A	L	G		G		
YFNH7N-5335	A	L	G	R	G	R	
YWX8HP-5335	A	L	F		F		
Z3JMMM-5335	A	L	G		G		
Z6N8C8-5335	D	L	F		F		
ZMAQBZ-5331	A	L	G		G		
ZMRMX9-5335	A	L	G	R	G	R	
ZPBU22-5335	A	L	G		G		

**Response Summary - Table 1a (Wood Board)****Participants: 152**

	Q1 Conc.	L/R		Q2 Conc.	L/R		Q3 Conc.	L/R
Identification (A)	<b>140</b> (92.1%)	L <b>152</b> (100.0%)	(A)	<b>1</b> (0.7%)	N/A for non-assoc.	(A)	<b>1</b> (0.7%)	N/A for non-assoc.
High Degree of Assoc. (B)	<b>8</b> (5.3%)	R <b>0</b> (0.0%)	(B)	<b>0</b> (0.0%)		(B)	<b>0</b> (0.0%)	
Association (C)	<b>2</b> (1.3%)		(C)	<b>2</b> (1.3%)		(C)	<b>3</b> (2.0%)	
Limited Assoc. (D)	<b>1</b> (0.7%)		(D)	<b>2</b> (1.3%)		(D)	<b>0</b> (0.0%)	
Inconclusive (E)	<b>0</b> (0.0%)		(E)	<b>2</b> (1.3%)		(E)	<b>1</b> (0.7%)	
Non-Assoc. (F)	<b>0</b> (0.0%)		(F)	<b>4</b> (2.6%)		(F)	<b>4</b> (2.6%)	
Exclusion (G)	<b>1</b> (0.7%)		(G)	<b>141</b> (92.8%)		(G)	<b>143</b> (94.1%)	

# Examination Results

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

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
24T43X-5331	A	L	B	L	G		B	R	
26L3B4-5335	A	L	A	L	G		A	R	
2BAH73-5331	A	L	A	L	G		A	R	
2GBT84-5335	A	L	A	L	G		A	R	
2T9K2L-5335	A	L	A	L	G		A	R	
2U3HWY-5335	A	L	A	L	G		A	R	
3BP2PZ-5335	A	L	A	L	G		A	R	
3JJ7J2-5331	A	L	A	L	G		A	R	
3VFCCZ-5335	A	L	A	L	G		A	R	
46WK7L-5335	A	L	A	L	G	R	A	R	
4HKK3F-5335	C	L	F		F		F		
6AN6T2-5335	A	L	A	L	G		A	R	
6CP7VJ-5335	A	L	A	L	G		A	R	
6FVF4G-5335	A	L	A	L	G		A	R	
6JQA2H-5331	A	L	A	L	G		A	R	
6NK4YJ-5335	A	L	A	L	G		A	R	
6PZLZ4-5335	A	L	A	L	G		A	R	
6QCH8U-5335	A	L	A	L	G	R	A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
6QTET2-5335	A	L	A	L	G	R	A	R	
772RLJ-5331	A	L	A	L	G	R	A	R	
7A24GJ-5331	A	L	A	L	G		A	R	
7EWQGY-5331	A	L	A	L	G		A	R	
7MAN6H-5335	A	L	A	L	G	R	A	R	
7PDH23-5335	A	L	A	L	G		A	R	
7QNEAD-5335	A	L	B	L	G		A	R	
7TEH2Y-5331	A	L	A	L	A	R	A	R	
7Y7NZV-5335	A	L	A	L	G		A	R	
7ZYL92-5335	A	L	A	L	G		A	R	
83CX7U-5335	A	L	A	L	G		A	R	
8633Y2-5331	A	L	A	L	G	R	A	R	
8DTPPX-5331	A	L	A	L	G		A	R	
8PUTDF-5335	A	L	A	L	G		A	R	
8U67UE-5335	A	L	A	L	G		A	R	
92ZJCT-5335	A	L	A	L	G		A	R	
A2F6LV-5331	A	L	A	L	G		A	R	
A477PX-5335	A	L	A	L	G		A	R	
ALLGBW-5331	A	L	A	L	G	R	A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
ATJ8YT-5331	A	L	A	L	G		A	R	
AVB67Y-5335	C	L	C	L	C	R	B	R	
B99W8U-5335	A	L	A	L	G		A	R	
BAM26R-5335	A	L	A	L	G		A	R	
BKMRNE-5331	A	L	A	L	G	R	A	R	
BNKBNR-5331	A	L	A	L	G		A	R	
C6LJYC-5335	A	L	A	L	G		A	R	
CEC66A-5331	A	L	A	L	G		A	R	
CFMZTM-5335	A	L	A	L	G		A	R	
CFQM7U-5335	A	L	A	L	G		A	R	
DDV9DA-5335	A	L	A	L	G	R	A	R	
DEAPEU-5335	B	L	B	L	G	R	C	R	
DGCQER-5331	A	L	A	L	G		A	R	
DLRY6C-5331	B	L	B	L	G	R	B	R	
DPPMER-5331	A	L	A	L	G		A	R	
DZRZFT-5331	A	L	A	L	G		A	R	
E48R7L-5335	A	L	A	L	C	L	C	R	
EX23K8-5335	A	L	A	L	G		A	R	
F2VJA7-5335	A	L	A	L	G		A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	Q4		Q5		Q6		Q7		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
FAPN38-5331	G	L	G	L	G	R	G	R	
FBK3WR-5335	A	L	A	L	G		A	R	
FDB2BP-5335	A	L	A	L	G		A	R	
FJDD7M-5335	A	L	A	L	G		A	R	
GA7V9P-5335	A	L	A	L	G		A	R	
GBJMYK-5331	A	L	A	L	G		A	R	
GEJXVK-5331	A	L	A	L	G		A	R	
GJA96J-5331	A	L	A	L	G		A	R	
GK37DP-5331	A	L	A	L	G		A	R	
GR76RL-5331	A	L	A	L	G		A	R	
GWVM2Q-5335	A	L	A	L	G		A	R	
H2M8P8-5335	A	L	A	L	G	R	A	R	
H9NBV6-5335	A	L	A	L	G	R	A	R	
J9NL9M-5331	A	L	A	L	G		A	R	
JYZUNF-5331	A	L	B	L	G		A	R	
K7TMAE-5331	A	L	A	L	G		C	R	
K8KKGL-5331	A	L	A	L	G	R	A	R	
KCKURN-5331	A	L	A	L	G		A	R	
KEMR3F-5335	A	L	A	L	G	R	A	R	



TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
KFFPBM-5331	A	L	A	L	G	R	A	R	
KM2G2N-5335	A	L	A	L	G		A	R	
KNUAUL-5335	A	L	A	L	G		A	R	
KNXUNG-5331	A	L	A	L	G		A	R	
KPQRWN-5335	A	L	A	L	G		A	R	
KW6TXH-5331	A	L	A	L	G		A	R	
KWJBNJ-5335	A	L	A	L	G	R	A	R	
L37CR2-5331	A	L	A	L	G		A	R	
L9XAMJ-5331	A	L	A	L	G		C	R	
LDQFYZ-5335	A	L	B	L	G		B	R	
LQHZLJ-5331	A	L	A	L	G		A	R	
LXGMF4-5331	A	L	A	L	G		A	R	
M36U9W-5335	A	L	A	L	G		A	R	
MD3RXG-5331	A	L	A	L	G		A	R	
MDLEVE-5335	A	L	A	L	G		A	R	
MGNC4L-5331	A	L	A	L	G		A	R	
MR72WY-5335	A	L	A	L	G		A	R	
MURK23-5335	A	L	A	L	G	R	A	R	
MWX2GL-5331	A	L	A	L	G		A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	Q4		Q5		Q6		Q7		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
NNKQ4D-5331	A	L	A	L	G		A	R	
NU9EYH-5335	A	L	A	L	G		A	R	
P23LDH-5335	A	L	A	L	G		A	R	
P494FJ-5331	A	L	A	L	G		A	R	
P63WAH-5335	A	L	A	L	G	R	A	R	
P66H3C-5335	A	L	A	L	G		A	R	
P94ZWX-5331	A	L	A	L	G		A	R	
PAV2ZZ-5331	A	L	A	L	G	R	A	R	
PAYEQH-5335	A	L	A	L	G		A	R	
PHW9NG-5331	B	L	B	L	G		B	R	
PLTVEJ-5331	A	L	A	L	G		A	R	
PMP93C-5331	A	L	A	L	F		A	R	
PNH7AH-5331	A	L	A	L	G		A	R	
PRZLJB-5331	A	L	A	L	G		B	R	
PZATKK-5335	A	L	A	L	G		A	R	
Q6FWGE-5335	A	L	A	L	G		B	R	
QHPJYA-5335	B	L	B	L	D	R	C	R	
QXFLED-5331	A	L	A	L	G		A	R	
RDRG8E-5331	A	L	A	L	G		A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
REGT3E-5335	A	L	A	L	G	R	A	R	
REMZAF-5331	A	L	A	L	G		A	R	
RPLXWF-5331	A	L	A	L	G		A	R	
T4GJUV-5335	A	L	A	L	E		A	R	
T6CXNF-5331	A	L	A	L	G		A	R	
T77QGD-5335	A	L	A	L	A	R	A	R	
TBW3EV-5335	A	L	B	L	F	R	A	R	
TCRLFW-5331	A	L	A	L	G	R	A	R	
TG6KUB-5331	A	L	A	L	G		A	R	
TMAH3E-5331	A	L	A	L	G		A	R	
TWDF6W-5331	A	L	A	L	G		A	R	
TYPBTA-5331	A	L	A	L	G		A	R	
UKJGYC-5335	A	L	A	L	G	R	A	R	
UKNYXB-5335	A	L	A	L	G		A	R	
UKXZJA-5331	A	L	A	L	G		A	R	
UPVMBC-5335	A	L	A	L	G		A	R	
UTT7DB-5335	A	L	A	L	G		A	R	
VL9369-5331	A	L	A	L	G		A	R	
VQJFM8-5335	A	L	A	L	G		A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
WBJZUQ-5335	A	L	A	L	E	R	A	R	
WH9D27-5335	A	L	A	L	G		A	R	
WQZUQB-5331	A	L	A	L	G		A	R	
WUY6MA-5335	A	L	A	L	G		A	R	
WWNGGA-5331	A	L	A	L	G		A	R	
WWR2B4-5331	A	L	A	L	G	R	A	R	
X9FMU6-5335	A	L	A	L	G		A	R	
XYAFE6-5331	A	L	A	L	G		A	R	
Y2TYT8-5335	A	L	A	L	G		A	R	
Y4C9JK-5331	A	L	A	L	G		A	R	
Y73CB7-5331	A	L	A	L	G		A	R	
Y7MQ6B-5335	A	L	A	L	G		A	R	
YFF2F7-5331	A	L	A	L	G		A	R	
YFNH7N-5335	A	L	A	L	G	R	B	R	
YWX8HP-5335	A	L	A	L	F		A	R	
Z3JMMM-5335	A	L	A	L	G		A	R	
Z6N8C8-5335	C	L	C	L	F		D	R	
ZMAQBZ-5331	A	L	A	L	G		A	R	
ZMRMX9-5335	A	L	A	L	G	R	A	R	

TABLE 1b (Ceramic Tiles)

Questioned Imprints									
WebCode- Test	<u>Q4</u>		<u>Q5</u>		<u>Q6</u>		<u>Q7</u>		
	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	Conclusion	L/R	
ZPBU22-5335	A	L	A	L	G		A	R	
Response Summary - Table 1b (Ceramic Tiles)									Participants: 152
	Q4 Conc.	L/R	Q5 Conc.	L/R	Q6 Conc.	L/R	Q7 Conc.	L/R	
Identification (A)	<b>144</b> (94.7%)	L <b>152</b> (100.0%)	<b>139</b> (91.4%)	L <b>151</b> (99.3%)	<b>2</b> (1.3%)	N/A for non-assoc.	<b>136</b> (89.5%)	L <b>0</b> (0.0%)	
High Degree of Assoc. (B)	<b>4</b> (2.6%)	R <b>0</b> (0.0%)	<b>9</b> (5.9%)	R <b>0</b> (0.0%)	<b>0</b> (0.0%)		<b>8</b> (5.3%)	R <b>151</b> (99.3%)	
Association (C)	<b>3</b> (2.0%)		<b>2</b> (1.3%)		<b>2</b> (1.3%)		<b>5</b> (3.3%)		
Limited Assoc. (D)	<b>0</b> (0.0%)		<b>0</b> (0.0%)		<b>1</b> (0.7%)		<b>1</b> (0.7%)		
Inconclusive (E)	<b>0</b> (0.0%)		<b>0</b> (0.0%)		<b>2</b> (1.3%)		<b>0</b> (0.0%)		
Non-Assoc. (F)	<b>0</b> (0.0%)		<b>1</b> (0.7%)		<b>5</b> (3.3%)		<b>1</b> (0.7%)		
Exclusion (G)	<b>1</b> (0.7%)		<b>1</b> (0.7%)		<b>140</b> (92.1%)		<b>1</b> (0.7%)		

# Examination Results

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

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	<u>Q8</u>		<u>Q9</u>		
	Conclusion	L/R	Conclusion	L/R	
24T43X-5331	A	L	G		
26L3B4-5335	A	L	G		
2BAH73-5331	A	L	G		
2GBT84-5335	A	L	G		
2T9K2L-5335	A	L	G		
2U3HWY-5335	A	L	G		
3BP2PZ-5335	A	L	G		
3JJ7J2-5331	A	L	G		
3VFCCZ-5335	A	L	G		
46WK7L-5335	A	L	G	R	
4HKK3F-5335	E		E		
6AN6T2-5335	A	L	G		
6CP7VJ-5335	A	L	G		
6FVF4G-5335	A	L	G		
6JQA2H-5331	A	L	G		
6NK4YJ-5335	A	L	G		
6PZLZ4-5335	A	L	G		
6QCH8U-5335	A	L	G	R	

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	<u>Q8</u>		<u>Q9</u>		
	Conclusion	L/R	Conclusion	L/R	
6QTET2-5335	A	L	G	R	
772RLJ-5331	A	L	G	R	
7A24GJ-5331	A	L	G		
7EWQGY-5331	A	L	G		
7MAN6H-5335	A	L	G	R	
7PDH23-5335	A	L	G		
7QNEAD-5335	B	L	G		
7TEH2Y-5331	A	L	E	R	
7Y7NZV-5335	A	L	G		
7ZYL92-5335	A	L	G		
83CX7U-5335	A	L	G		
8633Y2-5331	A	L	G	R	
8DTPPX-5331	A	L	G		
8PUTDF-5335	A	L	G		
8U67UE-5335	A	L	G		
92ZJCT-5335	A	L	G		
A2F6LV-5331	A	L	G		
A477PX-5335	A	L	G		
ALLGBW-5331	A	L	G	R	
ATJ8YT-5331	A	L	G		

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	<u>Q8</u>		<u>Q9</u>		
	Conclusion	L/R	Conclusion	L/R	
AVB67Y-5335	C	L	C	R	
B99W8U-5335	A	L	G		
BAM26R-5335	A	L	G		
BKMRNE-5331	A	L	G	R	
BNKBNR-5331	A	L	G		
C6LJYC-5335	A	L	G		
CEC66A-5331	A	L	G		
CFMZTM-5335	A	L	G		
CFQM7U-5335	A	L	G		
DDV9DA-5335	A	L	G	R	
DEAPEU-5335	A	L	G	R	
DGCQER-5331	A	L	G		
DLRY6C-5331	A	L	G	R	
DPPMER-5331	A	L	G		
DZRZFT-5331	A	L	G		
E48R7L-5335	A	L	C	R	
EX23K8-5335	A	L	G		
F2VJA7-5335	A	L	G		
FAPN38-5331	G	L	G	R	



TABLE 1c (*Flyer*)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q8</u> L/R	Conclusion	<u>Q9</u> L/R		
FBK3WR-5335	A	L	G			
FDB2BP-5335	A	L	G			
FJDD7M-5335	A	L	G			
GA7V9P-5335	A	L	G			
GBJMYK-5331	A	L	G			
GEJXVK-5331	A	L	G			
GJA96J-5331	A	L	G			
GK37DP-5331	A	L	G			
GR76RL-5331	A	L	G			
GWVM2Q-5335	A	L	G			
H2M8P8-5335	A	L	G		R	
H9NBV6-5335	A	L	G		R	
J9NL9M-5331	A	L	G			
JYZUNF-5331	A	L	G			
K7TMAE-5331	A	L	G			
K8KKGL-5331	A	L	G		R	
KCKURN-5331	A	L	G			
KEMR3F-5335	A	L	G		R	
KFFPBM-5331	A	L	G		R	
KM2G2N-5335	A	L	G			

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	<u>Q8</u>		<u>Q9</u>		
	Conclusion	L/R	Conclusion	L/R	
KNUAUL-5335	A	L	G		
KNXUNG-5331	A	L	G		
KPQRWN-5335	A	L	G		
KW6TXH-5331	A	L	G		
KWJBNJ-5335	A	L	G	R	
L37CR2-5331	A	L	G		
L9XAMJ-5331	A	L	G		
LDQFYZ-5335	A	L	G		
LQHZLJ-5331	A	L	G		
LXGMF4-5331	A	L	G		
M36U9W-5335	A	L	G		
MD3RXG-5331	A	L	G		
MDLEVE-5335	A	L	G		
MGNC4L-5331	A	L	G		
MR72WY-5335	A	L	G		
MURK23-5335	A	L	G	R	
MWX2GL-5331	A	L	G		
NNKQ4D-5331	A	L	G		
NU9EYH-5335	A	L	G		

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	Conclusion	<u>Q8</u> L/R	Conclusion	<u>Q9</u> L/R	
P23LDH-5335	A	L	G		
P494FJ-5331	A	L	G		
P63WAH-5335	A	L	G		R
P66H3C-5335	A	L	G		
P94ZWX-5331	A	L	G		
PAV2ZZ-5331	A	L	G		R
PAYEQH-5335	A	L	G		
PHW9NG-5331	B	L	G		
PLTVEJ-5331	A	L	G		
PMP93C-5331	A	L	F		
PNH7AH-5331	A	L	G		
PRZLJB-5331	A	L	G		
PZATKK-5335	A	L	G		
Q6FWGE-5335	A	L	G		
QHPJYA-5335	A	L	D		R
QXFLED-5331	A	L	G		
RDRG8E-5331	A	L	G		
REGT3E-5335	A	L	G		R
REMZAF-5331	A	L	G		
RPLXWF-5331	A	L	G		

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	<u>Q8</u>		<u>Q9</u>		
	Conclusion	L/R	Conclusion	L/R	
T4GJUV-5335	A	L	G		
T6CXNF-5331	A	L	G		
T77QGD-5335	A	L	G		
TBW3EV-5335	A	L	F	R	
TCRLFW-5331	A	L	G	R	
TG6KUB-5331	A	L	G		
TMAH3E-5331	A	L	G		
TWDF6W-5331	A	L	G		
TYPBTA-5331	A	L	G		
UKJGYC-5335	A	L	G	R	
UKNYXB-5335	A	L	G		
UKXZJA-5331	A	L	G		
UPVMBC-5335	A	L	G		
UTT7DB-5335	A	L	G		
VL9369-5331	A	L	G		
VQJFM8-5335	A	L	G		
WBJZUQ-5335	A	L	E	R	
WH9D27-5335	A	L	G		
WQZUQB-5331	A	L	G		

TABLE 1c (Flyer)

Questioned Imprints					
WebCode- Test	<u>Q8</u>		<u>Q9</u>		
	Conclusion	L/R	Conclusion	L/R	
WUY6MA-5335	A	L	G		
WWNGGA-5331	A	L	G		
WWR2B4-5331	A	L	G		R
X9FMU6-5335	A	L	G		
XYAFE6-5331	A	L	G		
Y2TYT8-5335	A	L	G		
Y4C9JK-5331	A	L	G		
Y73CB7-5331	A	L	G		
Y7MQ6B-5335	A	L	G		
YFF2F7-5331	A	L	G		
YFNH7N-5335	A	L	G		R
YWX8HP-5335	A	L	F		
Z3JMMM-5335	A	L	G		
Z6N8C8-5335	A	L	F		
ZMAQBZ-5331	A	L	G		
ZMRMX9-5335	A	L	G		R
ZPBU22-5335	A	L	G		

Response Summary -Table 1c (Flyer)				Participants: <b>152</b>	
	Q8 Conc.	L/R		Q9 Conc.	L/R
Identification (A)	<b>147</b> (96.7%)	L <b>151</b> (99.3%)		(A) <b>0</b> (0.0%)	N/A for non-assoc.
High Degree of Assoc. (B)	<b>2</b> (1.3%)	R <b>0</b> (0.0%)		(B) <b>0</b> (0.0%)	
Association (C)	<b>1</b> (0.7%)			(C) <b>2</b> (1.3%)	
Limited Assoc. (D)	<b>0</b> (0.0%)			(D) <b>1</b> (0.7%)	
Inconclusive (E)	<b>1</b> (0.7%)			(E) <b>3</b> (2.0%)	
Non-Assoc. (F)	<b>0</b> (0.0%)			(F) <b>4</b> (2.6%)	
Exclusion (G)	<b>1</b> (0.7%)			(G) <b>142</b> (93.4%)	

# Conclusions

TABLE 2

WebCode- Test	Conclusions
24T43X- 5331	<p>In subjectively interpreting shoeprint evidence, consideration is given to the probability of observing an amount of correspondence given a particular shoe made an impression, as opposed to observing this amount of correspondence given another shoe made the impression. I found an excellent correspondence of pattern, dimension, wear and randomly acquired characteristics between the test prints made using the left shoe and the scene prints, Q1, Q4 and Q8. Therefore, in my opinion, the left shoe could have made these scene prints, however other shoes with the same sole design and size and with the same approximate amount of wear and with the same randomly acquired characteristics could have made these scene prints. However, it is my opinion, that given the large variation in shoe sole designs as well as the exceptionally large variation in randomly acquired characteristics on the surface of soles, that I would expect to see differences in some or all of these features if the scene prints had been made by other shoes. Therefore, in my opinion, the subjective assessment of these comparison findings provide extremely strong support to the suggestion that the left shoe had made the scene prints Q1, Q4 and Q8. I also found an excellent correspondence of pattern, dimension and wear between the test prints made using the left shoe and scene print Q5 and the right shoe and scene print Q7. I also observed a correspondence of a small number of randomly acquired characteristics between these, however a lack of correspondence for other randomly acquired characteristics. Therefore, in my opinion, the left shoe could have made the scene print Q5 and the right shoe could have made the scene print Q7, however other shoes with the same sole design and size and with the same approximate amount of wear and with the same randomly acquired characteristics could have made these scene prints. However, it is my opinion, that given the large variation in shoe sole designs as well as the exceptionally large variation in randomly acquired characteristics on the surface of soles, that I would expect to see differences in some or all of these features if the scene prints had been made by other shoes. Therefore, in my opinion, the subjective assessment of these comparison findings provide very strong support to the suggestion that the left shoe had made the scene print Q5 and the right shoe had made the scene print Q7. I have chosen the terms used in this statement from the following range of conclusions: neutral, slight support, moderate support, strong support, very strong support, and extremely strong support. This scale can be used to indicate the level of support for either proposition. The scene prints Q2, Q3, Q6 and Q9 were different to the test prints made using the pair of shoes. Therefore, in my opinion, the pair of submitted shoes did not make these scene prints.</p>
26L3B4- 5335	<p>Identification (Questioned and known items share agreement of class and randomly acquired characteristics of sufficient quality and quantity. This is the highest degree of association.) - Item Q1 was identified as having been made by Item K1 (Left Shoe). - Item Q4 was identified as having been made by Item K1 (Left Shoe). - Item Q5 was identified as having been made by Item K1 (Left Shoe). - Item Q7 was identified as having been made by Item K1 (Right Shoe). - Item Q8 was identified as having been made by Item K1 (Left Shoe). Exclusion (Questioned and known items exhibit sufficient differences of class and/or randomly acquired characteristics. This is the highest degree of non-association.) - Item Q2 was compared to Item K1 and was excluded as the source of the impression. - Item Q3 was compared to Item K1 and was excluded as the source of the impression. - Item Q6 was compared to Item K1 and was excluded as the source of the impression. - Item Q9 was compared to Item K1 and was excluded as the source of the impression.</p>
2BAH73- 5331	<p>IDENTIFICATION: 1A-1: Item 1A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted as Item 10 (10-1). Additionally, the questioned footwear impression exhibits unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression noted in Item 1A-1 was identified as having been made by the known left shoe submitted in Item 10 (10-1). Item 1A-1 is of a left shoe; therefore, it was excluded as having been made by the known right shoe submitted as Item 10 (10-1). EXCLUSION: 2A-1: Item 2A-1 corresponds in physical size with the known right shoe submitted as Item 10 (10-1). However, Item 2A-1 does not correspond in outsole design elements (specifically texture/pattern) and general wear with the known right shoe; therefore, the questioned impression was excluded as having been made by the known right shoe submitted as Item 10 (10-1). Item 2A-1 is of a right shoe; therefore, it was excluded as having been made by the known left shoe submitted as Item 10 (10-1).</p>

TABLE 2

WebCode-Test	Conclusions
2GBT84-5335	[No Conclusions Reported.]
2T9K2L-5335	<p>Three footwear impressions suitable for comparison labeled Q1, Q2 and Q3. Four footwear impressions suitable for comparison labeled Q4, Q5, Q6 and Q7 Two footwear impressions suitable for comparison labeled Q8 and Q9. Methods used include optical, digital imaging and ACE-V. The left known shoe was the source of impressions labeled Q1, Q4, Q5 and Q8 based on shared agreement in class, wear and randomly acquired characteristics. The right known shoe was excluded as the source of impressions labeled Q1, Q4, Q5 and Q8 based on different design characteristics. The right known shoe was the source of the impression labeled Q7 based on shared agreement in class, wear and randomly acquired characteristics. The left known shoe was excluded as the source of the impression labeled Q7 based on different design characteristics. The left and right known shoes are excluded as the source of impressions labeled Q2, Q3, Q6 and Q9 based on different wear and probable mold differences. The conclusions within this report are the scientist's opinion based on the data provided at the time of the examination. The conclusions within this report are the scientist's opinion based on the data provided at the time of the examination.</p>
2U3HWY-5335	<p>Item 1 Item 1 consists of digital images of recovered shoes, test impressions, and nine impressions from a crime scene. Comparison All the photographs of the impressions, Q1-Q9, had similar general outsole design. Images Q1-Q3 was an image of three questioned imprints found on wood flooring. Q1 Impression: The impression was a partial footwear impression made by a left shoe. In my opinion, the recovered left shoe was identified as having made the Q1 impression based on the agreement of class, wear, and randomly acquired characteristics. Q2 Impression: The impression was a partial footwear impression made by a right shoe. In my opinion, the recovered right shoe was eliminated as having made the Q2 impression due to sufficient differences in wear and randomly acquired characteristics. Q3 Impression: The impression was a full-length footwear impression made by a right shoe. In my opinion, the recovered right shoe was eliminated from having made the Q3 impression due to sufficient differences in wear and randomly acquired characteristics. Image Q4-Q7 was an image of four questioned imprints found on tile flooring. Q4 Impression: The impression was a near full length footwear impression made by a left shoe. In my opinion, the recovered left shoe was identified as having made the Q4 impression based on the agreement of class, wear, and randomly acquired characteristics. Q5 Impression: The impression was a full-length footwear impression made by a left shoe. In my opinion, the recovered left shoe was identified as having made the Q5 impression based on the agreement of class, wear, and randomly acquired characteristics. Q6 Impression: The impression was a partial footwear impression made by a right shoe. In my opinion, the recovered right shoe was excluded as having made the Q6 impression. The questioned impression exhibited sufficient differences in wear and randomly acquired characteristics when compared to the known footwear. Q7 Impression: The impression was a partial footwear impression made by a right shoe. In my opinion, the recovered right shoe was identified as having made the Q7 impression based on the agreement of class, wear, and randomly acquired characteristics. Image Q8-Q9 was an image of two questioned imprints found on a piece of paper. Q8 Impression: The impression was a full-length impression made by a left shoe. In my opinion, the recovered left shoe was identified as having made the Q8 impression based on the agreement of class, wear, and randomly acquired characteristics. Q9 Impression: The impression was a partial footwear impression made by a right shoe. In my opinion, the recovered right shoe was eliminated as having made the Q9 impression due to sufficient difference in class and randomly acquired characteristics.</p>
3BP2PZ-5335	<p>The shoes and exemplars depicted in Items 1, 2, and 3 were compared with footwear impressions Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, and Q9 with the following results: IMPRESSION / RESULT / SOURCE Q1, Q4, Q5 &amp; Q8 / Identification / LEFT SHOE Q7 / Identification / RIGHT SHOE Q2, Q3, Q6 &amp; Q9 / Exclusion</p>
3JJ7J2-5331	<p>The methodologies utilized in this examination include: visual examination and ACE-V. Item 1: One (1) questioned footwear impression was noted on Item 1A (designated Item 1A-1). Item 1A-1 was compared to Item 10 (Item 10-1) with the following results: Item 1A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, Item 1A-1 exhibits unique</p>



TABLE 2

WebCode-Test	Conclusions
	<p>identifying characteristics that are also present in the known left shoe; therefore, it was determined that Item 1A-1 was made by the known left shoe submitted in Item 10. Item 1A-1 differs in outsole design from the right shoe; therefore, it was not made by the right shoe submitted in Item 10. Item 2: One (1) questioned footwear impression was noted on Item 2A (designated Item 2A-1). Item 2A-1 was compared to Item 10 (Item 10-1) with the following results: Item 2A-1 is of a right shoe; therefore, it was not made by the left shoe submitted in Item 10. Item 2A-1 is similar in outsole design to the known right shoe submitted in Item 10. However, Item 2A-1 does not correspond in the arrangement of the elements, general wear, and individual characteristics with the known right shoe; therefore, Item 2A-1 was not made by the known right shoe submitted in Item 10. Item 3: One (1) questioned footwear impression was noted on Item 3A (designated Item 3A-1). Item 3A-1 was compared to Item 10 (Item 10-1) with the following results: Item 3A-1 is of a right shoe; therefore, it was not made by the left shoe submitted in Item 10. Item 3A-1 is similar in outsole design to the known right shoe submitted in Item 10. However, Item 3A-1 does not correspond in the arrangement of the elements, general wear, and individual characteristics with the known right shoe; therefore, Item 3A-1 was not made by the known right shoe submitted in Item 10. Item 4: One (1) questioned footwear impression was noted on Item 4A (designated Item 4A-1). Item 4A-1 was compared to Item 10 (Item 10-1) with the following results: Item 4A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, Item 4A-1 exhibits unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that Item 4A-1 was made by the known left shoe submitted in Item 10. Item 4A-1 is of a left shoe; therefore, it was not made by the right shoe submitted in Item 10. Item 5: One (1) questioned footwear impression was noted on Item 5A (designated Item 5A-1). Item 5A-1 was compared to Item 10 (Item 10-1) with the following results: Item 5A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, Item 5A-1 exhibits unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that Item 5A-1 was made by the known left shoe submitted in Item 10. Item 5A-1 is of a left shoe; therefore, it was not made by the right shoe submitted in Item 10. Item 6: One (1) questioned footwear impression was noted on Item 6A (designated Item 6A-1). Item 6A-1 was compared to Item 10 (Item 10-1) with the following results: Item 6A-1 is of a right shoe; therefore, it was not made by the left shoe submitted in Item 10. Item 6A-1 does not correspond in general wear, and individual characteristics with the known right shoe; therefore, Item 6A-1 was not made by the known right shoe submitted in Item 10. Item 7: One (1) questioned footwear impression was noted on Item 7A (designated Item 7A-1). Item 7A-1 was compared to Item 10 (Item 10-1) with the following results: Item 7A-1 is of a right shoe; therefore, it was not made by the left shoe submitted in Item 10. Item 7A-1 corresponds in outsole design, physical size, and general wear with the known right shoe submitted in Item 10. Additionally, Item 7A-1 exhibits unique identifying characteristics that are also present in the known right shoe; therefore, it was determined that Item 7A-1 was made by the known right shoe submitted in Item 10. Item 8: One (1) questioned footwear impression was noted on Item 8A (designated Item 8A-1). Item 8A-1 was compared to Item 10 (Item 10-1) with the following results: Item 8A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, Item 8A-1 exhibits unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that Item 8A-1 was made by the known left shoe submitted in Item 10. Item 8A-1 is of a left shoe; therefore, it was not made by the right shoe submitted in Item 10. Item 9: One (1) questioned footwear impression was noted on Item 9A (designated Item 9A-1). Item 9A-1 was compared to Item 10 (Item 10-1) with the following results: Item 9A-1 is of a right shoe; therefore, it was not made by the left shoe submitted in Item 10. Item 9A-1 is similar in outsole design to the known right shoe submitted in Item 10. However, Item 9A-1 does not correspond in general wear and individual characteristics with the known right shoe; therefore, Item 9A-1 was not made by the known right shoe submitted in Item 10.</p>
3VFCCZ-5335	<p>Impressions Q1, Q4, Q5 and Q8 were made by the left shoe in Item #K1. Impression Q7 was made by the right shoe in Item #K1. Impressions Q2, Q3, Q6 and Q9 were not made by either of the shoes in Item #K1.</p>
46WK7L-5335	<p>* Shoe prints Q6 and Q9 have different designs than the known imprints. * The Q2 and Q3 have different sizes and no individualizing points are observed. * In the rest of the footprints there are enough points for their identification.</p>

TABLE 2

WebCode-Test	Conclusions
4HKK3F-5335	<p>Q1 - There was a correspondence of the sole pattern, dimensions and a small area of wear (see green arrows) between the shoeprint and the submitted shoe. Therefore, the submitted shoe or another left shoe with the same sole pattern, dimensions and area of wear that could have left the shoeprint at the scene is low. In my opinion, this combination of shoeprint pattern, dimensions and area provides very strong support for the proposition that the submitted shoe made the impression. Q2 - While there seems to be correspondence in areas of wear on Q2 and K1/S1, there is one distinctive RAC that cut across two pattern elements on Q2, which is absent in K1 and S1. As the shoe was recovered 1 day post incident, and the RAC on scene impression cannot be observed on the actual shoe and the test impression, we can conclude exclusion. Q3 - In my opinion, as the RACs were observed in scene impression but not found on the shoe or the test impression made by the shoe, we can exclude the shoe from making the scene impression. Q4 - There was a correspondence of the sole pattern, dimensions and a small area of wear (see green arrows) between the shoeprint and the submitted shoe. Therefore, the submitted shoe or another left shoe with the same sole pattern, dimensions and area of wear that could have left the shoeprint at the scene is medium low. In my opinion, this combination of shoeprint pattern, dimensions and area provides strong support for the proposition that the submitted shoe made the impression. Q5 - There was a correspondence of the sole pattern, dimensions and a small area of wear (see green arrows) between the shoeprint and the submitted shoe. Therefore, the submitted shoe or another left shoe with the same sole pattern, dimensions and area of wear that could have left the shoeprint at the scene is medium low. In my opinion, this combination of shoeprint pattern, dimensions and area provides neutral support for the proposition that the submitted shoe made the impression. Q8 - There was a correspondence of the sole pattern, dimensions and some areas of wear (see green arrows) between the shoeprint and the submitted shoe except for a small area (red oval shape). Therefore, the submitted shoe or another left shoe with the same sole pattern, dimensions and area of wear that could have left the shoeprint at the scene is medium. In my opinion, this combination of shoeprint pattern, dimensions and area provides slight support for the proposition that the submitted shoe made the impression.</p>
6AN6T2-5335	<p>1. Imprint Q1 is an imprint of a left shoe that correspond in class characteristics (shape, design and wear) and also share some randomly acquired characteristics (RACs) with the left shoe (K1). It is my opinion that there is a full association between the left shoe (K1) and the imprint Q1 ("Identification"). 2. Imprint Q2 is an imprint of a right shoe that correspond in shape and design, but differs in size and wear and some RACs from the right shoe (K1). It is my opinion that there are sufficient differences between the right shoe (K1) and the imprint Q2 ("Exclusion"). 3. Imprint Q3 is an imprint of a right shoe that correspond in shape and design, but differs in size and wear and some RACs from the right shoe (K1). It is my opinion that there are sufficient differences between the right shoe (K1) and the imprint Q3 ("Exclusion"). 4. Imprint Q4 is an imprint of a left 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 left shoe (K1) and the imprint Q4 ("Identification"). 5. Imprint Q5 is an imprint of a left 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 left shoe (K1) and the imprint Q5 ("Identification"). 6. Imprint Q6 is an imprint of a right shoe that correspond in shape and design, but differs in size and wear and some RACs from the right shoe (K1). It is my opinion that there are sufficient differences between the right shoe (K1) and the imprint Q6 ("Exclusion"). 7. Imprint Q7 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 Q7 ("Identification"). 8. Imprint Q8 is an imprint of a left 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 left shoe (K1) and the imprint Q8 ("Identification"). 9. Imprint Q9 is an imprint of a right shoe that correspond in shape and design, but differs in size and wear and some RACs from the right shoe (K1). It is my opinion that there are sufficient differences between the right shoe (K1) and the imprint Q9 ("Exclusion").</p>
6CP7VJ-5335	<p>The footprint fragments originate from a pair of footwear of the same brand, size, and type, but with different manufacturing and wear characteristics.</p>

TABLE 2

WebCode-Test	Conclusions
6FVF4G-5335	Impressions 1-1, 1-4, 1-5 and 1-8 were made by the left shoe in Item 1. Impression 1-7 was made by the right shoe in Item 1. Impressions 1-2, 1-3, 1-6 and 1-9 were not made by either the right or left shoe in Item 1.
6JQA2H-5331	<p>Results of examination/analysis: 1. Comparison a. Footwear impressions (Q1-Q9) were compared to the known left / right shoes (K1L / K1R), as well as test impressions generated by K1L / K1R with the following results: i. The following are consistent and exhibit no exclusionary difference with respect to class characteristics (size, shape, tread design, wear pattern): a. Q1 and K1L. In addition, Q1 and K1L exhibit four (4) corresponding individual characteristics. b. Q4 and K1L. In addition, Q4 and K1L exhibit seven (7) corresponding individual characteristics. c. Q5 and K1L. In addition, Q5 and K1L exhibit four (4) corresponding individual characteristics. d. Q7 and K1R. In addition, Q7 and K1R exhibit four (4) corresponding individual characteristics. e. Q8 and K1L. In addition, Q8 and K1L exhibit seven (7) corresponding individual characteristics. ii. The following are different with respect to one or more class characteristics (size, shape, wear pattern): a. Q1 and K1R b. Q2 and K1L / K1R c. Q3 and K1L / K1R d. Q4 and K1R e. Q5 and K1R f. Q6 and K1L / K1R g. Q7 and K1L h. Q8 and K1R i. Q9 and K1L / K1R</p> <p>Interpretation of Results: 1. The following is the opinion of the undersigned: a. The questioned footwear impression was made by the known shoe (K1), as follows: i. Q1 and the left shoe. ii. Q4 and the left shoe. iii. Q5 and the left shoe. iv. Q7 and the right shoe. v. Q8 and the left shoe. b. The questioned footwear impression could not have been made by the known shoe (K1), as follows: i. Q1 and the right shoe. ii. Q2 and left / right shoes. iii. Q3 and left / right shoes. iv. Q4 and the right shoe. v. Q5 and the right shoe. vi. Q6 and the left / right shoes. vii. Q7 and the left shoe. viii. Q8 and the right shoe. ix. Q9 and the left / right shoes.</p>
6NK4YJ-5335	The footwear imprints (Q1, Q4, Q5 and Q8) were made by Item K1 left shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the footwear imprints (Q2, Q3, Q6 and Q9) and those present on K1 right shoe to conclude that the imprint was not made by K1. The footwear imprint (Q7) was made by Item K1 right shoe based on sufficient agreement of observable class and randomly acquired characteristics.
6PZLZ4-5335	The imprints Item Q1, Q4, Q5, Q7 and Q8 originate from the shoes found and seized. The individual features are present in sufficient quantity and quality. The imprints Q2, Q3, Q6 and Q9 come from another pair of shoes with almost the same basic pattern.
6QCH8U-5335	A total of 9 questioned impressions (Q1 to Q9) from the crime scene were analysed and compared against the recovered "Sketchers" shoes. All of the impressions were of high clarity and quality with minimal distortion (i.e., only very slight signs of movement or smudges). This positively contributed to the analysis and comparison efforts. Upon general analysis of the impressions, they were all found to share the same class characteristics (i.e., outsole pattern) as that of the recovered shoes. This alone increased the degree of association of each questioned impression to (C) Association of class characteristics, of the SWGTREAD Conclusion Standard. However, upon comparison of fine details (i.e., RACs), it was found that corresponding and reproducible RACs were only present between the recovered shoes and Q1, Q4, Q5, Q7 and Q8. The level of association for these questioned impressions were then increased to (A) Identification. On the other hand, there were several dissimilarities (i.e., in the degree of wear and lack of corresponding, reproducible RACs) between the recovered shoes and Q2, Q3, Q6 and Q9. The most obvious sign occurring in all 4 impressions that directly eliminated association was that the questioned impressions have a greater degree of wear as compared to the test impressions which were made later, after the shoes were recovered one day after. In addition, several parts of the outsole design in the questioned impressions were found to be misaligned in comparison to the recovered shoes despite there being minimal distortion. The level of association for these questioned impressions were then established to be (G) Exclusion.
6QTET2-5335	In my opinion there is conclusive support for the proposition that five of the footwear impressions recovered from the scene were made by the submitted shoes. In my opinion the remaining footwear impressions recovered from the scene could not have been made by the submitted shoes.

TABLE 2

WebCode-Test	Conclusions
772RLJ-5331	[No Conclusions Reported.]
7A24GJ-5331	Questioned imprints of Q1-Q9 were compared with known imprint made with the recovered shoes. Questioned imprints of Q1, Q4, Q5, Q8 were found to be consistent in shape, physical size, and individual characteristics with the imprint of the recovered left shoe. Questioned imprints of Q7 were found to be consistent in shape, physical size, and individual characteristics with the imprint of the recovered right shoe. Questioned imprints of Q2, Q3, Q6, Q9 were eliminated as having been made by the recovered shoe.
7EWQGY-5331	The left known shoe is identified as the source of impressions Q1, Q4, Q5 and Q8. The right shoe is identified as the source of impression Q7. In the opinion of the examiner, the particular known footwear or tire was the source of, and made, the questioned impressions. Another item of footwear or tire being the source of the impressions is considered a practical impossibility. Both known shoes are excluded as the source of impressions Q2, Q3, Q6 and Q9. In the opinion of the examiner, the particular known footwear or tire was not the source of, and did not make, the impressions.
7MAN6H-5335	In my opinion, the findings provide: - conclusive evidence that some of the marks were made by the shoes. - conclusive evidence that some of the marks were NOT made by the shoes.
7PDH23-5335	The results of the examination extremely strongly support that the imprint Q1 was made with the left shoe K1. The results of the examination extremely strongly support that the imprint Q2 was not made with the shoes K1. The results of the examination extremely strongly support that the imprint Q3 was not made with the shoes K1. The results of the examination extremely strongly support that the imprint Q4 was made with the left shoe K1. The results of the examination extremely strongly support that the imprint Q5 was made with the left shoe K1. The results of the examination extremely strongly support that the imprint Q6 was not made with the shoes K1. The results of the examination extremely strongly support that the imprint Q7 was made with the right shoe K1. The results of the examination extremely strongly support that the imprint Q8 was made with the left shoe K1. The results of the examination extremely strongly support that the imprint Q9 was not made with the shoes K1.
7QNEAD-5335	Soles of the footwear which created the scene impressions (Q1 to Q9) had distinct features which could be observed for the degrees of wear and for Randomly Acquired Characteristics (RACs). Q1 to Q9 were generally clear, especially on areas with no overlap (with each other / with the background). There is extremely strong support that Q4 and Q7 were created by the suspect's left shoe and right shoe respectively. The conclusion was based on: (a) similar sole patterns between the scene and test impressions (incl. the arrangement of diamond-shaped patterns within the blocks - same mould used), (b) similar dimensions between the scene and test impressions (prints were overlayed), (c) similar degrees of wear (d) presence and coincidence (incl. positions, orientations) of manufacturing and accidental RACs, and (e) the scene impressions do not have RACs which are not present on the test impression and vice versa. There is strong support that Q1, Q5, and Q8 were created by the suspect's left shoe. The conclusion was based on: (a) similar sole patterns between the scene and test impressions (incl. the arrangement of diamond-shaped patterns within the blocks - same mould used), (b) similar dimensions between the scene and test impressions (prints were overlayed), (c) similar degrees of wear, but with visible differences - unable to exclude based on time difference and/or manner the sole contacted the substrate (d) presence and coincidence (incl. positions, orientations) of manufacturing and accidental RACs, and (e) presence of RACs on scene impressions which are not present on the test impression and vice versa - unable to exclude footwear as it could be the manner the sole contacted the substrate While similar in the patterns of the sole, the suspect's footwear was excluded from creating Q2, Q3, Q6, and Q9 as there were differences in dimensions, arrangement of class characteristics (likely created by different manufacturing mould), and obvious dissimilarities in the wear pattern which cannot be accounted by the time difference. There were also no coincidence in RACs.
7TEH2Y-5331	The questioned left shoe made the marks labeled Q1, Q4, Q5 and Q8. The questioned right shoe made the marks labeled Q2, Q3, Q6 and Q7.

TABLE 2

WebCode-Test	Conclusions
7Y7NZV-5335	Item K1 (left shoe) has been identified as the source of impressions Q1, Q4, Q5 and Q8. Item K1 (right shoe) has been identified as the source of impression Q7. Item K1 (right shoe) has been excluded as the source of impressions Q2, Q3, Q6 and Q9.
7ZYL92-5335	Q1 and the left shoe of K1 share agreement of class and randomly acquired characteristics of sufficient quality and quantity to identify the shoe as the source of the impression (Identification). The left shoe of K1 is the source of Impression Q1. Neither the left nor right shoe of K1 made Impression Q2, Q3. Q4 and the left shoe of K1 share agreement of class and randomly acquired characteristics of sufficient quality and quantity to identify the shoe as the source of the impression (Identification). The left shoe of K1 is the source of Impression Q4. Q5 and the left shoe of K1 share agreement of class and randomly acquired characteristics of sufficient quality and quantity to identify the shoe as the source of the impression (Identification). The left shoe of K1 is the source of Impression Q5. Neither the left nor right shoe of K1 made Impression Q6. Q7 and the right shoe of K1 share agreement of class and randomly acquired characteristics of sufficient quality and quantity to identify the shoe as the source of the impression (Identification). The right shoe of K1 is the source of Impression Q7. Q8 and the left shoe of K1 share agreement of class and randomly acquired characteristics of sufficient quality and quantity to identify the shoe as the source of the impression (Identification). The left shoe of K1 is the source of Impression Q8. Neither the left nor right shoe of K1 made Impression Q9.
83CX7U-5335	Impression Compared To Result 3-1Q1 2, Left Shoe Identification 3-2Q2 2, Both Shoes Elimination 3-3Q3 2, Both Shoes Elimination 4-1Q4 2, Left Shoe Identification 4-2Q5 2, Left Shoe Identification 4-3Q6 2, Both Shoes Elimination 4-4Q7 2, Right Shoe Identification 5-1Q8 2, Left Shoe Identification 5-2Q9 2, Both Shoes Elimination
8633Y2-5331	TrasoScan system, Lucia Forensic 8.10 software and additionally a transparent foil were used in this test. The comparisons of the enclosed footwear impressions (Q1-Q9 and K1a-K1g) concerned the physical size and shape of a shoe soles, a sole design, and random individual identifying characteristics. There were present some individual identifying characteristics on the surface of shoe soles, being the comparative material. Similar individual characteristics were found in evidence materials marked Q1, Q4, Q5, Q7 and Q8. Thus, it was concluded that an items Q2, Q3, Q6 and Q9 are different from the comparative material.
8DTPPX-5331	(1) The recovered left shoe made the questioned imprints in Items Q1, Q4, Q5 and Q8. While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear (Identification). (2) The recovered right shoe made the questioned imprint in Item Q7. While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear (Identification). (3) The questioned imprint in Item Q2 was indicated as a right footwear imprint. There are dissimilarities between the questioned imprint in Item Q2 and the known footwear imprints in Items K1d, K1e, K1f and K1g, indicating non-association; however, the details or features were not sufficient to permit an exclusion (Indications of non-association). (4) The questioned imprints in Items Q3, Q6 and Q9 were indicated as a right footwear imprint. Sufficient differences were noted in the comparison of class and randomly acquired characteristics between the questioned imprints in Items Q3, Q6 and Q9. The recovered shoe was not the source of, and did not make the impression in questioned imprints in Item Q3, Q6 and Q9. (Exclusion)
8PUTDF-5335	Impressions Q1, Q4, Q5 and Q8 were made by the left shoe of item K1. Impression Q7 was made by the right shoe of item K1. Impressions Q2, Q3, Q6 and Q9 were not made by item K1.
8U67UE-5335	Impressions Q1, Q4, Q5 and Q8 were made by the submitted left shoe. Impression Q7 was made by the submitted right shoe. Impressions Q2, Q3, Q6 and Q9 were not made by either submitted shoe.
92ZJCT-5335	The footwear impressions, Q1, Q4, Q5 and Q8 were made by the left known shoe in K1. The footwear impression Q7 was made by the right known shoe in K1. The footwear impressions, Q2, Q3, Q6 and Q9 were not made by the known shoes in K1.

TABLE 2

WebCode-Test	Conclusions
A2F6LV-5331	<p>The known photos and test impressions (Item K1a-K1g) were used for comparison purposes. The questioned impressions found on the wood board were marked (and will be referenced) as Q1-Q3. The questioned impression Q1 is similar in size, shape, tread design, wear, and shares at least two randomly acquired characteristics with the known left shoe. It is my opinion that the questioned impression Q1 was made by the known left shoe. The questioned impression Q2 is similar in tread design, but dissimilar in wear to the known right shoe. The questioned impression Q3 is similar in tread design, but dissimilar in wear and possibly size to the known right shoe. It is my opinion that impressions Q2 and Q3 were not made by the known shoes. The questioned impressions found on the ceramic tiles were marked (and will be referenced) as Q4-Q7. The questioned impression Q4 is similar in size, shape, tread design, wear, and shares at least two randomly acquired characteristics with the known left shoe. The questioned impression Q5 is similar in size, shape, tread design, wear, and shares at least two randomly acquired characteristics with the known left shoe. It is my opinion that questioned impressions Q4 and Q5 were made by the known left shoe. The questioned impression Q6 is similar in tread design, but dissimilar in wear to the known right shoe. It is my opinion that impression Q6 was not made by the known shoes. The questioned impression Q7 is similar in size, shape, tread design, wear, and shares at least two randomly acquired characteristics with the known right shoe. It is my opinion that questioned impression Q7 was made by the known right shoe. The questioned impression Q8 is similar in size, shape, tread design, wear, and shares at least two randomly acquired characteristics with the known left shoe. It is my opinion that questioned impression Q8 was made by the known left shoe. The questioned impression Q9 is similar in tread design, but dissimilar in wear and possibly size to the known right shoe. It is my opinion that impression Q9 was not made by the known shoes.</p>
A477PX-5335	<p>Impressions Q1, Q4, Q5, Q8 were made using the left shoe represented in the photographs. Impression Q7 was made using the right shoe represented in the photographs. Impressions Q2, Q3, Q6 and Q9 were not made by either shoe represented in the photograph.</p>
ALLGBW-5331	<p>In my opinion, the findings provide conclusive evidence that certain of the footwear marks recovered from SCENE (labelled Q1, Q4, Q5, Q7 and Q8), were made by the left and right 'Skechers' training shoes attributed to SUSPECT (item K1). The remaining footwear marks (labelled Q2, Q3, Q6 and Q9), although of the same pattern type as the submitted 'Skechers' training shoes (item K1), displayed significant detailed alignment differences. Therefore, these particular marks could not have been made by the submitted shoes (item K1).</p>
ATJ8YT-5331	<p>Exhibits 4.1, 5.1, 5.2, and 6.1 (Impressions Q1, Q4, Q5, and Q8) were identified as having been made by the shoe that made K1f Left. Exhibit 5.4 (Impression Q7) was identified as having been made by the shoe that made K1f Right. Exhibits 4.2, 4.3, 5.3, and 6.2 (Impressions Q2, Q3, Q6, and Q9) were made by a second right shoe. Suspect shoes include Skechers shoes with a similar outsole design to the suspect shoe (K1).</p>
AVB67Y-5335	<p>Correspondence of class characteristics including design, physical size and brand patten between the questioned and known item, with indication of minor tread Depth Reduction/Erosion inconsistency</p>
B99W8U-5335	<p>In the opinion of this examiner, the known Left footwear, is the source of, and made, the questioned impressions Q1, Q4, Q5, and Q8. Another item of footwear being the source of these impressions is considered a practical impossibility. In the opinion of this examiner, the known Right footwear, is the source of, and made, the questioned impression Q7. Another item of footwear being the source of this impression is considered a practical impossibility. In the opinion of this examiner, the known Right and Left footwear, are not the source of, and did not make the questioned impressions Q2, Q3, Q6, and Q9.</p>
BAM26R-5335	<p>The digital images from item 1.A were visually analyzed, and nine questioned footwear impressions were determined to be suitable for comparison. Five questioned impressions (Q2, Q3, Q6, Q7, and Q9) were determined to have been made by a right shoe. Four questioned impressions (Q1, Q4, Q5, and Q8) were determined to have been made by a left shoe. One questioned impression from item 1.A (Q7) was visually compared to item 1.B.01; the known footwear was identified as the source of the questioned impression. Four questioned impressions from item 1.A (Q2, Q3, Q6, and Q9) were visually compared to item 1.B.01; the known footwear was excluded as the source of the impression. Four questioned</p>



TABLE 2

WebCode-Test	Conclusions
	<p>impressions from item 1.A (Q1, Q4, Q5, and Q8) were visually compared to item 1.B.02; the known footwear was identified as the source of the questioned impressions. Note: An identification decision is reached when the questioned impression and the known impression have corresponding detail, such that the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source.</p>
BKMRNE-5331	<p>Item #4 is a printed photograph containing three (3) questioned footwear impressions from the scene; Q1, Q2, and Q3. Item #5 is a printed photograph containing four (4) questioned footwear impressions from the scene; Q4, Q5, Q6, and Q7. Item #6 is a printed photograph containing two (2) questioned footwear impressions from the scene; Q8 and Q9. The questioned left footwear impressions (Item #4 Q1, Item #5 Q4, Item #5 Q5, and Item #6 Q8) share class characteristics (including outsole design, approximate sizing, mold characteristics, and general condition or wear) and randomly acquired characteristic of sufficient quality and quantity with the photographs of the known left sneaker and test impressions (Item #1, Item #2, and Item #3) indicating that the footwear impressions were made by the known left sneaker. (Identification) The questioned right footwear impression (Item #5 Q7) shares class characteristics (including outsole design, approximate sizing, mold characteristics, and general wear) and randomly acquired characteristics of sufficient quality and quantity with the photographs of the known right sneaker and test impressions (Item #1, Item #2, and Item #3) indicating that the footwear impression was made by the known right sneaker. (Identification) The questioned right footwear impressions (Item #4 Q2, Item #4 Q3, Item #5 Q6, and Item #9 Q9) share the same general outsole design and approximate sizing as the known right sneaker and test impressions (Item #1, Item #2, and Item #3) however, there are differences in the mold characteristics and general condition or wear, indicating that the impressions could not have been made by the known right sneaker. (Exclusion)</p>
BNKBNR-5331	<p>The methodology utilized during this examination includes: visual examination, digital retention, and ACE-V. One (1) questioned footwear impression was noted on Item 1A (Item 1), designated as Item 1A-1. One (1) questioned footwear impression was noted on Item 2A (Item 2), designated as Item 2A-1. One (1) questioned footwear impression was noted on Item 3A (Item 3), designated as Item 3A-1. One (1) questioned footwear impression was noted on Item 4A (Item 4), designated as Item 4A-1. One (1) questioned footwear impression was noted on Item 5A (Item 5), designated as Item 5A-1. One (1) questioned footwear impression was noted on Item 6A (Item 6), designated as Item 6A-1. One (1) questioned footwear impression was noted on Item 7A (Item 7), designated as Item 7A-1. One (1) questioned footwear impression was noted on Item 8A (Item 8), designated as Item 8A-1. One (1) questioned footwear impression was noted on Item 9A (Item 9), designated as Item 9A-1. Items 1A-1, 2A-1, 3A-1, 4A-1, 5A-1, 6A-1, 7A-1, 8A-1, and 9A-1 were compared to Item 10-1 (Item 10) with the following results: Items 2A-1, 3A-1, 6A-1 and 9A-1 did not correspond in physical size and general wear in some areas with the known right shoe submitted in Item 10 (Item 10-1). Additionally, the questioned footwear impressions exhibit unique identifying characteristics that are not present in the known right shoe; therefore, it was determined that the questioned footwear impressions were not made by the known right shoe submitted in Item 10 (Item 10-1). These questioned footwear impressions were those of a right shoe; therefore the questioned impressions were not made by the known left shoe in Item 10 (Item 10-1). Items 1A-1, 4A-1, 5A-1, and 8A-1 correspond in outsole design, physical size, and general wear with the known left shoe submitted in Item 10 (Item 10-1). Additionally, the questioned footwear impressions exhibit unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impressions were made by the known left shoe submitted in Item 10. These questioned footwear impressions were those of a left shoe; therefore the questioned impressions were not made by the known right shoe in Item 10 (Item 10-1). Item 7A-1 corresponds in outsole design, physical size, and general wear with the known right shoe submitted in Item 10 (Item 10-1). Additionally, the questioned footwear impression exhibits unique identifying characteristics that are also present in the known right shoe; therefore, it was determined that the questioned footwear impression was made by the known right shoe submitted in Item 10. This questioned footwear impression was of a left shoe; therefore the questioned impression was not made by the known left shoe in Item 10 (Item 10-1).</p>
C6LJYC-5335	<p>[No Conclusions Reported.]</p>

TABLE 2

WebCode-Test	Conclusions
CEC66A-5331	<p>Questioned impressions Q1 through Q9 were compared to the known right and left sneakers (K1L, K1R) as well as test impressions generated by K1L and K1R with the following results: i. Q1 and K1L are consistent and exhibit no exclusionary differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q1 and K1L exhibit 5 corresponding individual characteristics. ii. Q2 and K1L, K1R are different with respect to their class characteristics: size, shape, tread design, and wear pattern. iii. Q3 and K1L, K1R are different with respect to their class characteristics: size, shape, tread design, and wear pattern. iv. Q4 and K1L are consistent and exhibit no exclusionary differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q4 and K1L exhibit 5 corresponding individual characteristics. v. Q5 and K1L are consistent and exhibit no exclusionary differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q5 and K1L exhibit 6 corresponding individual characteristics. vi. Q6 and K1L, K1R are different with respect to their class characteristics: size, shape, tread design, and wear pattern. vii. Q7 and K1R are consistent and exhibit no exclusionary differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q7 and K1R exhibit 6 corresponding individual characteristics. viii. Q8 and K1L are consistent and exhibit no exclusionary differences with respect to class characteristics: size, shape, tread design, and wear pattern. In addition, Q8 and K1L exhibit 11 corresponding individual characteristics. ix. Q9 and K1L, K1R are different with respect to their class characteristics: size, shape, tread design, and wear pattern. 1. It is the opinion of the undersigned that questioned footwear impressions Q1, Q4, Q5 and Q8 were made by the known sneaker K1L. 2. It is the opinion of the undersigned that the questioned footwear impression Q7 was made by the known sneaker K1R. 3. It is the opinion of the undersigned that questioned footwear impressions Q2, Q3, Q6 and Q9 could not have been made by the known sneakers K1L and K1R.</p>
CFMZTM-5335	<p>In the opinion of the examiner, the known shoes submitted as K1 were the source of, and made, the questioned mark labelled Q1, Q4, Q5, Q7 and Q8. The chance of another shoe/tyre being the source of the mark is considered negligible (Identification). In the opinion of the examiner, due to differences observed (namely size and characteristics) the known shoes submitted as K1 were not the source of and did not make the questioned marks labelled Q2, Q3, Q6 and Q9 (Exclusion).</p>
CFQM7U-5335	<p>The footwear impression in Q1 was made by the left shoe in Item #1. The footwear impression in Q2 was not made by either shoe in Item #1. The footwear impression in Q3 was not made by either shoe in Item #1. The footwear impression in Q4 was made by the left shoe in Item #1. The footwear impression in Q5 was made by the left shoe in Item #1. The footwear impression in Q6 was not made by either shoe in Item #1. The footwear impression in Q7 was made by the right shoe in Item #1. The footwear impression in Q8 was made by the left shoe in Item #1. The footwear impression in Q9 was not made by either shoe in Item #1.</p>
DDV9DA-5335	<p>[No Conclusions Reported.]</p>
DEAPEU-5335	<p>The questioned imprint Q8 is associated with the sole of the left shoe. They share agreement of class characteristics and randomly acquired characteristics of sufficient quality and quantity with the recovered left shoesole and the known imprints, which were made with the left shoesole. The recovered left shoe was the source of, and made, the questioned imprints Q8. Another item of footwear being the source of the imprints is considered a practical impossibility. The questioned imprints Q4 and Q5 are associated with the sole of the left shoe. They correspond in class characteristics of design, physical size, and general wear and randomly acquired characteristics to the recovered left shoe and the known imprints, which were made with the left shoesole. The quantity of the observed randomly acquired characteristics was sufficient for an identification. Other footwear with the same class characteristics observed in the imprints are included in the population of possible sources only if they display the same wear and randomly acquired characteristics observed in the questioned imprints Q4 and Q5. The questioned imprints Q1 are associated with the sole of the left shoe. They correspond in class characteristics of design, physical size, and general wear. The questioned imprints Q7 are associated with the sole of the right shoe. They correspond in class characteristics of design, physical size, and general wear. Sufficient differences were noted in the comparison of class characteristics between the questioned imprints Q2,</p>



TABLE 2

WebCode- Test	Conclusions
	<p>Q3, Q6 and Q9 and the known imprints of the recovered shoes. The recovered shoes were not the source of, and did not make the questioned imprints Q2, Q3, Q6 and Q9.</p>
DGCQER- 5331	<p>The Items 1.3.1 (Q1), 1.3.4 (Q4), 1.3.5 (Q5), and 1.3.8 (Q8) questioned impressions were made by the K1 left shoe (Items 1.1 and 1.2). These identifications are based on sufficient agreement of the combination of randomly acquired characteristics and all discernible class characteristics. The Item 1.3.7 (Q7) questioned impression was made by the K1 right shoe (Items 1.1 and 1.2). This identification is based on sufficient agreement of the combination of randomly acquired characteristics and all discernible class characteristics. The Items 1.3.2 (Q2), 1.3.3 (Q3), 1.3.6 (Q6), and 1.3.9 (Q9) questioned impressions were all consistent with right shoe impressions that were not made by the K1 left shoe or the K1 right shoe (Items 1.1 and 1.2). These eliminations are based on differences in class characteristics of tread design. The Items 1.3.2 (Q2), 1.3.3 (Q3), and 1.3.9 (Q9) questioned impressions were made by the same unknown right shoe. These identifications are based on sufficient agreement of the combination of randomly acquired characteristics and all discernible class characteristics. The Item 1.3.6 (Q6) questioned impression could not be identified or eliminated as being made by the same unknown shoe that made the Item 1.3.3 (Q3) questioned impression. This inconclusive result is based on a limited association of class characteristics. Both Item 1.3.3 (Q3) and Item 1.3.6 (Q6) are consistent with being right shoe impressions, and the overall design of the tread elements are similar. However, when the center block elements in the arch/ball area are lined up, there are slight differences in the spacing of the tread elements in the heel, but this is not significant enough for elimination due to Item 1.3.6 (Q6) being a partial questioned impression so the entire outsole is not visible for complete physical size/shape evaluation. There are also insufficient similar individual/randomly acquired characteristics to identify and insufficient differences to eliminate. The Item 1.3.6 (Q6) partial questioned impression could not be identified or eliminated as being made by the same unknown shoe that made the Item 1.3.2 (Q2) partial questioned impression. This inconclusive result is based on a limited association of class characteristics. Both Q2 and Q6 are consistent with being right shoe impressions, and the overall design of the tread elements are similar with similar physical size/shape in respective areas and similar general condition/wear. However, based on both being partial impressions with Q2 being from the toe/ball area while Q6 is mostly heel and arch area with only a partial ball area, there are insufficient similar individual/randomly acquired characteristics to identify and insufficient differences to eliminate. The Item 1.3.6 (Q6) partial questioned impression could not be identified as being made by the same unknown shoe that made the Item 1.3.9 (Q9) partial questioned impression. This high degree of association is based on both Q9 and Q6 sharing similar class characteristics of being right shoe impressions with tread design that is similar in respective areas, similar physical size and shape in respective areas, and similar general condition/wear. There is also agreement in specific wear in locations and a possible individual defect/randomly acquired characteristic (RAC) along the front edge of one of the tread blocks. However, due to both Q9 and Q6 being partial impressions with Q9 being from the toe/ball area while Q6 is mostly heel and arch area with only a partial ball area, there are insufficient individual defects/randomly acquired characteristics to make an identification.</p>
DLRY6C- 5331	<p>Q1 and Q8 - Conclusive support - This is assuming the corresponding features/schallamaching would be confirmed in the actual shoe. Q4, Q5 and Q7 - Strong support Q2, Q3, Q6 and Q9 - Exclude I have considered the proposition that the left shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q1. In my opinion the result of this examination provides conclusive support for this proposition. I have considered the proposition that the right shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q2. In my opinion items K1a to K1g can be excluded as being the source of the recovered detail. I have considered the proposition that the right shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q3. In my opinion items K1a to K1g can be excluded as being the source of the recovered detail. I have considered the proposition that the left shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q4. In my opinion the result of this examination provides strong support for this proposition. I have considered the proposition that the left shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q5. In my opinion the result of this examination provides conclusive support for this proposition. I have considered the proposition that the right shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q6. In my opinion items K1a to K1g can be excluded as being the source of the recovered detail. I have</p>

## TABLE 2

WebCode-Test	Conclusions
	considered the proposition that the right shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q7. In my opinion the result of this examination provides strong support for this proposition. I have considered the proposition that the left shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q8. In my opinion the result of this examination provides conclusive support for this proposition. I have considered the proposition that the right shoe submitted made the detail noted in item 1 (CPE 1) as represented in the photograph in Q9. In my opinion items K1a to K1g can be excluded as being the source of the recovered detail. The scale I have used in the assessing the strength of evidence is as follows: No support – Weak Support – Support – Strong Support – Conclusive Support
DPPMER-5331	Q1, Q4, Q5 and Q8 comes from left shoe K1. Q7 come from right shoe K1. Q2, Q3, Q6 and Q9 do not comes from shoes K1.
DZRZFT-5331	Footwear impression analysis is based on the comparison of class and randomly acquired characteristics. Corresponding class and randomly 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. Impressions Q1, Q4, Q5, and Q8 and the known left shoe are similar in general design, specific design, physical size and shape, wear, and randomly acquired characteristics. Consequently, impressions Q1, Q4, Q5, and Q8 were made by the known left shoe. Impressions Q2, Q3, Q6, and Q9 and the known right shoe are similar in general design; however, the impressions have a different specific design. Consequently, impressions Q2, Q3, Q6, and Q9 were not made by the known right shoe. Impression Q7 and the known right shoe are similar in general design, specific design, physical size and shape, wear, and randomly acquired characteristics. Consequently, impression Q7 was made by the known right shoe.
E48R7L-5335	[No Conclusions Reported.]
EX23K8-5335	Impressions 1-1, 1-4, 1-5, and 1-8 were made by the left shoe in Item 1. Impression 1-7 was made by the right shoe in Item 1. Impressions 1-2, 1-3, 1-6, and 1-9 were not by either shoe in Item 1.
F2VJA7-5335	Items 8 through 16 were examined visually, with low power magnification, and with 1 to 1 transparency overlays. Item 8: Comparison of the partial left shoe impression labeled found on wood board, Q1, (item 8) to the recovered left "Sketchers" shoe revealed an identification. Item 9: Comparison of the partial right shoe impression labeled found on wood board, Q2, (item 9) to the recovered right "Sketchers" shoe revealed an elimination. Item 10: Comparison of the right shoe impression labeled found on wood board, Q3, (item 10) to the recovered right "Sketchers" shoe revealed an elimination. Item 11: Comparison of the partial left shoe impression labeled found on ceramic tile, Q4, (item 11) to the recovered left "Sketchers" shoe revealed an identification. Item 12: Comparison of the left shoe impression labeled found on ceramic tile, Q5, (item 12) to the recovered left "Sketchers" shoe revealed an identification. Item 13: Comparison of the partial right shoe impression labeled found on ceramic tile, Q6, (item 13) to the recovered right "Sketchers" shoe revealed an elimination. Item 14: Comparison of the partial right shoe impression labeled found on ceramic tile, Q7, (item 14) to the recovered right "Sketchers" shoe revealed an identification. Item 15: Comparison of the left shoe impression labeled found on flyer, Q8, (item 15) to the recovered left "Sketchers" shoe revealed an identification. Item 16: Comparison of the partial right shoe impression labeled found on flyer, Q9, (item 16) to the recovered right "Sketchers" shoe revealed an elimination.
FAPN38-5331	The questioned impressions (Q1 to Q9) exhibited differences in size and wear pattern in comparison with the known shoe impressions. The shoes are excluded as having made these impressions.
FBK3WR-5335	Q1, Q4, Q5 and Q8 impressions correspond in physical size, outsole design, wear pattern, and multiple randomly acquired characteristics to the known left sneaker shoe and therefore, were made by that sneaker. Q7 impression correspond in physical size, outsole design, wear pattern, and multiple randomly acquired characteristics to the known right sneaker and therefore, was made by that sneaker. Q2, Q3, Q6 and Q9 impressions are similar in general design to the known sneakers; however there are differences in wear and specific design. Therefore these impressions were not made by the known

TABLE 2

WebCode-Test	Conclusions
	sneaker.
FDB2BP-5335	<p>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: 4 Items Q1-Q3: Questioned imprints found on wood board (25-5335_Q1-Q3) Item: 4.1 Unknown footwear impression represented as Q1 RESULTS: The Item 4.1 impression was made by the Item 1 left shoe. Item: 4.2 Unknown footwear impression represented as Q2 RESULTS: The Item 4.2 impression was not made by the Item 1 shoes. 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 ceramic tiles (25-5335_Q4-Q7) Item: 5.1 Unknown footwear impression represented as Q4 RESULTS: The Item 5.1 impression was made by the Item 1 left shoe. Item: 5.2 Unknown footwear impression represented as Q5 RESULTS: The Item 5.2 impression was made by the Item 1 left shoe. 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 made by the Item 1 right shoe. Item: 6 Items Q8-Q9: Questioned imprints found on flyer (25-5335_Q8-Q9) Item: 6.1 Unknown footwear impression represented as Q8 RESULTS: The Item 6.1 impression was made by the Item 1 left shoe. Item: 6.2 Unknown footwear impression represented as Q9 RESULTS: The Item 6.2 impression was not made by the Item 1 shoes. Impression evidence in this case was examined utilizing the ACE-V methodology.</p>
FJDD7M-5335	<p>Three photographs were examined for the presence of footwear impressions and were preserved through digital imaging. The three photographs contain nine footwear impressions (Impressions Q1 through Q9) and were compared to the shoe photographs (Items K1a, K1b, and K1c) and to the footwear exemplars made from the shoes (Items K1d through K1g). The footwear impressions, the photos of the shoes, and the exemplars were examined visually and all comparisons were performed using ACE-V methodology. - Impressions Q1, Q4, Q5, and Q8 Q impressions listed above are similar in size, shape, and tread design to the Left shoe from Item K1a-K1g and possess identifying characteristics that correlate between the Q impressions and the Left shoe. Comparison results: Impressions Q1, Q4, Q5, and Q8 were made by the Left shoe from Item K1a-K1g. - Impression Q7 Q impression listed above is similar in size, shape, and tread design to the Right shoe from K1a-K1g and possess identifying characteristics that correlate between the Q impression and the Right shoe. Comparison results: Impression Q7 was made by the Right shoe from Item K1a-K1g. - Impressions Q2, Q3, Q6, and Q9 Q impressions listed above are similar in size, shape, and tread design to the Right shoe from Item K1a-K1g but the small elements in the tread do not show proper orientation/alignment that is observed in the Right shoe from Item K1a-K1g. Comparison results: Impressions Q2, Q3, Q6, and Q9 are excluded as having been made by the Right shoe from Item K1a-K1g due to different tread pattern alignment of the elements and is excluded as having been made by the Left shoe from Item K1a-K1g due to opposite tread design.</p>
GA7V9P-5335	<p>In the opinion of this examiner, the known left footwear, is the source of, and made, the questioned impressions Q1, Q4, Q5, and Q8. Another item of footwear being the source of these impressions is considered a practical impossibility. In the opinion of this examiner, the known right footwear, is the source of, and made, the questioned impression Q7. Another item of footwear being the source of this impression is considered a practical impossibility. In the opinion of this examiner, the known footwear, are not the source of, and did not make the questioned impressions Q2, Q3, Q6, and Q9.</p>
GBJMYK-5331	<p>Exhibits 4.1 (Q1), 5.1 (Q4), 5.2 (Q5) and 6.1 (Q8) were identified as having been made by the known left shoe, K1g. Exhibit 5.4 (Q7) was identified as having been made by the known right shoe, K1g. Exhibits 4.2 (Q2), 4.3 (Q3), 5.3 (Q6) and 6.2 (Q9) were identified as having been made by the same right shoe. These impressions were not made by the known right shoe, K1g, based on differences in class and some individual characteristics. Suspect footwear include Sketchers right shoes of similar outsole design; however, any suspect footwear should be submitted for examination.</p>
GEJXVK-5331	<p>Exhibits 4.1 (Q1), 5.1 (Q4), 5.2 (Q5) and 6.1 (Q8) were identified as having been made by the submitted K1 left shoe (K1f-Left) Exhibit 5.4 (Q7) was identified as having been made by the submitted K1 right shoe (K1f-Right). Exhibits 4.2 (Q2), 4.3 (Q3), 5.3 (Q6) and 6.2 (Q9) were not made by the</p>

TABLE 2

WebCode-Test	Conclusions
	submitted K1 right shoe (K1f-Right) based on differences in class characteristics. Exhibits 4.2 (Q2), 4.3 (Q3), 5.3 (Q6), 6.2 (Q9) were made by a second right shoe. Suspect footwear includes Skechers right shoes with similar outsole design; however, any suspect shoe should be submitted for examination.
GJA96J-5331	Q2, 3, 6 and 9: In the opinion of the examiner, due to differences observed namely differing levels of wear and the absence of RAC's in the scene impressions, the known shoes were not the source of and did not make the impressions identified as Q2, 3, 6 and 9. Impressions identified as Q2, 3, 6 and 9. These are elimination results. Q1, 4, 5 and 8: In the opinion of the examiner, the known left shoe was the source of and made the questioned impression Q1, Q4, Q5 and Q8. The chance of another shoe being the source of the impression is considered negligible. Negligible. This is an identification result. Q7: In the opinion of the examiner, the known right shoe was the source of and made the questioned impression Q7. The chance of another shoe being the source of the impression is considered negligible. This is an identification result.
GK37DP-5331	[No Conclusions Reported.]
GR76RL-5331	[No Conclusions Reported.]
GWVM2Q-5335	[No Conclusions Reported.]
H2M8P8-5335	THE QUESTIONED IMPRINTS Q1, Q4, Q5, AND Q8 HAS BEEN GIVEN BY THE SOLE OF THE LEFT RECOVERED SHOE. THE QUESTIONED IMPRINT Q7 HAVE BEEN GIVEN BY THE SOLE OF THE RIGHT RECOVERED SHOE. THE QUESTIONED IMPRINTS Q2, Q3, Q6, AND Q9 AREN'T RELATED TO THE SUSPECTED FOOTWEAR.
H9NBV6-5335	The right impression Q7 (Item 1) appears similar in physical size and design, and wear and/or randomly acquired characteristics to the right shoe in Item K1. In the opinion of the examiner, the particular known footwear K1 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 left impressions Q1, Q4, Q5 and Q8 (Item 1) appear similar in physical size and design, and wear and/or randomly acquired characteristics to the left shoe in Item K1. In the opinion of the examiner, the particular known footwear K1 was the source of, and made, the questioned impressions. Another item of footwear being the source of the impressions is considered a practical impossibility. Refer to "IDENTIFICATION" in Appendix C. The right impressions Q2, Q3, Q6 and Q9 (Item 1) were dissimilar in physical size and mold and wear characteristics to the right shoe in Item K1. In the opinion of the examiner, the particular known footwear K1 was not the source of, and did not make, the impressions. Refer to "EXCLUSION" in Appendix C. [Appendix was not provided by this participant.]
J9NL9M-5331	The partial, questioned footwear impressions, Q1, Q4, Q5 and Q8, were made by the known left shoe in S-001. The partial, questioned footwear impression, Q7, was made by the known right shoe in S-001. The partial, questioned footwear impression, Q2, was not made by the known shoes in S-001. (More wear on the questioned impression than on the known shoe.) The partial, questioned footwear impression, Q3, was not made by the known shoes in S-001. (More wear on the heel of the known shoe than on Q3.) The partial, questioned footwear impression, Q6, was not made by the known shoes in S-001. (Physical size difference.) The partial, questioned footwear impression, Q9, was not made by the known shoes in S-001. (More wear on the known shoe than Q9.)
JYZUNF-5331	The results and conclusions provided in this statement form my expert opinion, which is based on my scientific knowledge, experience and training. The results apply to the items as received and relate only to the items tested. There were three images from the scene which contained footwear impressions labelled Q1 through to 9. There was a second series of images labelled K1 which were described as coming from a pair of Skechers shoes and test impressions made with these shoes. I was asked to compare the images of the shoes to the images to determine whether or not the shoes from K1 could have made any of the footwear impressions Q1 through 9. By comparing the sole pattern of a shoe to a shoeprint impression it

TABLE 2

WebCode-Test	Conclusions
	<p>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. In determining 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: is neutral, provides slight support, provides moderate support, provides strong support, provides very strong support, and provides extremely strong support. There was a correspondence of sole pattern, dimensions, general wear features and some areas of randomly acquired characteristics between the left shoe, item K1, and the shoeprint impressions Q1 and Q5. Therefore, in my opinion, this combination of shoeprint pattern, dimensions and randomly acquired characteristics provides very strong support for the proposition that the left submitted shoe made the impressions. However, any other shoe with the same sole pattern, dimensions with corresponding wear and randomly acquired characteristics could also have produced these impressions. There was a correspondence of sole pattern, dimensions, general wear features and multiple areas of randomly acquired characteristics between the left shoe, item K1, and the shoeprint impressions Q4 and Q8. Therefore, in my opinion, this combination of shoeprint pattern, dimensions, wear and randomly acquired characteristics provides extremely strong support for the proposition that the left submitted shoe, K1, made these impressions. However, any other shoe with the same sole pattern, dimensions with corresponding wear and randomly acquired characteristics could also have produced these impressions. There was a correspondence of sole pattern, dimensions, general wear features and multiple areas of randomly acquired characteristics between the right shoe, item K1, and the shoeprint impression Q7. Therefore, in my opinion, this combination of shoeprint pattern, dimensions, wear and randomly acquired characteristics provides extremely strong support for the proposition that the right submitted shoe, K1, made this impression. However, any other shoe with the same sole pattern, dimensions with corresponding wear and randomly acquired characteristics could also have produced this impression. The shoeprint impressions Q2, Q3, Q6 and Q9 were of a right shoe which had a general correspondence of sole pattern to the shoes K1. However, this shoeprint impression also displayed differences in sole pattern, dimensions and/or randomly acquired characteristics. Therefore, in my opinion, the shoes, item K1, can be excluded as having made these impressions.</p>
K7TMAE-5331	<p>The Left shoe shares agreement of class and randomly acquired characteristics of sufficient quality and quantity with questioned impressions Q1, Q4, Q5 and Q8. It is my opinion that the left shoe was the source of, and made, questioned impressions Q1, Q4, Q5 and Q8 and the likelihood of other items being the source of the impression is considered negligible. There are significant differences observed in the class and randomly acquired characteristics between the both the right and left shoes and questioned impressions Q2, Q3, Q6 and Q9. It is my opinion that both the right and left shoes can be excluded from being the source of, and did not make, questioned impressions Q2, Q3, Q6 and Q9. The right shoe shares correspondence of design and physical size and general wear with questioned impression Q7. It is my opinion that the right shoe is a possible source of questioned impression Q7 and therefore could have produced the impression. Other items with the same class characteristics are included as possible sources.</p>
K8KKGL-5331	<p>Footprints Q1, Q4, Q5 and Q8 were produced by the sole of a shoe of left foot K1a-L. Footprints Q7 were produced by the sole of a shoe of right foot K1a-R. Footprints Q2, Q3, Q6 and Q9 were produced by the sole of a shoe of right foot being different to K1a-R (because the rows of rhombuses contained within each of the polygons have a different degree of inclination.)</p>
KCKURN-5331	<p>Q1 - Q9 were visually compared to the Skechers shoes depicted in photographs K1a - K1g. Q1, Q4, and Q8 corresponded in tread design, physical size, wear patterns and at least two randomly acquired characteristics to the left Skechers shoe. In the opinion of the examiner, the left Skechers shoe made the questioned impressions Q1, Q4, and Q8 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Q5 corresponded in tread design, physical size, wear pattern (including Schallamach patterns) and at least one randomly acquired characteristic to the left Skechers shoe. In the opinion of the</p>



TABLE 2

WebCode- Test	Conclusions
	<p>examiner, the left Skechers shoe made questioned impression Q5 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Q7 corresponded in tread design, physical size, wear pattern (including Schallamach patterns) and at least one randomly acquired characteristic to the right Skechers shoe. In the opinion of the examiner, the right Skechers shoe made questioned impression Q7 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Q2, Q3, Q6, and Q9 corresponded in tread design; however, there were differences observed in physical size and/ or wear patterns to the right Skechers shoe. In the opinion of the examiner, the right Skechers shoe did not make the questioned impression (Exclusion). Association Scale for Footwear and Tire Impressions The following descriptions are meant to provide context to the levels of opinions reached in footwear and tire impression comparisons. Each level may not include every variable in every case. Lacks sufficient detail – No comparison was conducted: the examiner determined there were no discernible questioned footwear/tire impressions or features present. Or – A comparison was conducted: the examiner determined that there was insufficient detail in the questioned impression for a meaningful conclusion. This opinion only applies to the known footwear or tire that was examined and does not necessarily preclude future examinations with other known footwear or tires. Exclusion – This is the highest degree of non-association expressed in footwear and tire impression examinations. Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between the questioned impression and the known footwear or tire. Indications of non-association – The questioned impression exhibits dissimilarities when compared to the known footwear or tire; however, the details or features were not sufficiently clear to permit an exclusion. Limited association of class characteristics – Some similar class characteristics were present; however, there were significant limiting factors in the questioned impression that did not permit a stronger association between the questioned impression and the known footwear or tire. These factors may include but were not limited to: insufficient detail, lack of scale, improper position of scale, improper photographic techniques, distortion or significant lengths of time between the date of the occurrence and when the footwear or tires were recovered that could account for a different degree of general wear. No confirmable differences were observed that could exclude the footwear or tire. Association of class characteristics – The class characteristics of both design and physical size must correspond between the questioned impression and the known footwear or tire. Correspondence of general wear may also be present. High degree of association – The questioned impression and known footwear or tire must correspond in the class characteristics of design, physical size, and general wear. For this degree of association there must also exist: (1) wear that, by virtue of its specific location, degree and orientation make it unusual and/or (2) one or more randomly acquired characteristics. Identification – This is the highest degree of association expressed by a footwear and tire impression examiner. The questioned impression and the known footwear or tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity.</p>
KEMR3F- 5335	<p>The impressions marked Q1, Q4, Q5 and Q8 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. feathering/damage etc., similar in size, shape, orientation and location resulting from random events), therefore it can be stated that the known left shoe was the source of the impressions. The impression marked Q7 correspond in class characteristics, namely design (arrangement of footwear design elements and pattern/s), wear (extent of erosion to the outsole) and physical size (length, width and relative positions of various design elements in the outsole) and in individual characteristics (random characteristics i.e. feathering/damage etc., similar in size, shape, orientation and location resulting from random events), therefore it can be stated that the known right shoe was the source of the impressions. The impressions marked Q2, Q3, Q6 and Q9 correspond in general design, however, significant differences are noted in design arrangement (how design components connect to each other) and wear characteristics, therefore it can be stated that the known shoes were not the source of the impressions.</p>
KFFPBM- 5331	<p>Conclusion In my opinion, the observed correspondence between the submitted footwear and the marks in Q1, Q4, Q5, Q7 and Q8 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</p>

TABLE 2

WebCode-Test	Conclusions
	correspondence by coincidence, had the mark not been made by this pair of shoes, is so remote that it can be totally discounted. In my opinion, the submitted footwear has not made the marks in Q2, Q3, Q6 and Q9 recovered from the scene
KM2G2N-5335	The questioned impressions marked "Q1", "Q4", "Q5", and "Q8" were examined and found to have been made by the left recovered shoe (the right recovered shoe was excluded). The questioned impression marked "Q7" was examined and found to have been made by the right recovered shoe (the left recovered shoe was excluded). The questioned impressions marked "Q2", "Q3", "Q6" and "Q9" were examined and the known (left and right) shoes were excluded as a source of the impressions.
KNUAUL-5335	Five shoe prints collected during the crime scene investigation were left with pairs of shoes marked "Sketcher, US 8.5, UK 5.5, EUR 38.5, CM 25.5, BRA 38, SN 104680 COLOR: BKW" which were presented for examination, four of which (Q1, Q4, Q5, Q8) were left with the left shoe and one (Q7) with the right shoe. Four shoe prints (Q2, Q3, Q6, Q9) collected during the same crime scene investigation were not left with the pair of shoes marked "Sketcher, US 8.5, UK 5.5, EUR 38.5, CM 25.5, BRA 38, SN 104680 COLOR: BKW" that were presented for examination, but were left with another pair of similar shoes but in a smaller size (probably EUR 38).
KNXUNG-5331	In the opinion of this examiner, the left shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was the source of, and made, Laboratory Item 001.H.01 (Q1) questioned impression found on a wood board. In the opinion of this examiner, the right shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was not the source of, and did not make, Laboratory Item 001.H.02 (Q2) questioned impression found on a wood board. In the opinion of this examiner, the right shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was not the source of, and did not make, Laboratory Item 001.H.03 (Q3) questioned impression found on a wood board. In the opinion of this examiner, the left shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was the source of, and made, Laboratory Item 001.I.01 (Q4) questioned impression found on ceramic tiles. In the opinion of this examiner, the left shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was the source of, and made, Laboratory Item 001.I.02 (Q5) questioned impression found on ceramic tiles. In the opinion of this examiner, the right shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was not the source of, and did not make, Laboratory Item 001.I.03 (Q6) questioned impression found on ceramic tiles. In the opinion of this examiner, the right shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was the source of, and made, Laboratory Item 001.I.04 (Q7) questioned impression found on ceramic tiles. In the opinion of this examiner, the left shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was the source of, and made, Laboratory Item 001.J.01 (Q8) questioned impression found on a flyer. In the opinion of this examiner, the right shoe depicted in Laboratory Item 001.A (K1a) photograph of the soles of the recovered shoes was not the source of, and did not make, Laboratory Item 001.J.02 (Q9) questioned impression on a flyer.
KPQRWN-5335	The questioned prints Q1, Q4, Q5 and Q8 (left prints), Q7 (right prints) show sufficient correspondence in pattern, size and randomly acquired characteristics with the suspects shoes. Q2 ,Q3, Q6 and Q9 are different with the suspects shoes.
KW6TXH-5331	The methodology utilized includes: visual examination, digital retention, and ACE-V. Nine (9) questioned footwear impressions were noted on Item 1A, 2A, 3A, 4A, 5A, 6A, 7A, 8A, and 9A, designated as 1A-1, 2A-1, 3A-1, 4A-1, 5A-1, 6A-1, 7A-1, 8A-1, and 9A-1. The nine (9) questioned footwear impressions were compared to the known shoes submitted as Item 10 (Item 10-1). The questioned footwear impressions 1A-1, 4A-1, 5A-1, and 8A-1 correspond in outsole design and physical size with the known left shoe submitted as Item 10 (Item 10-1). Additionally, the questioned footwear impressions exhibit unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impressions were made by the known left shoe submitted in Item 10 (Item 10-1). The questioned footwear impressions were of a left shoe and therefore the known right shoe is excluded as having made the questioned impressions. The questioned footwear impression 7A-1 correspond in outsole design and physical size with the known right shoe submitted as Item 10 (Item

TABLE 2

WebCode-Test	Conclusions
	<p>10-1). Additionally, the questioned footwear impression exhibits unique identifying characteristics that are also present in the known right shoe; therefore, it was determined that the questioned footwear impression was made by the known right shoe submitted in Item 10 (Item 10-1). The questioned footwear impressions were of a right shoe and therefore the known left shoe is excluded as having made the questioned impressions. The questioned footwear impressions noted on Item 2A-1, 3A-1, 6A-1, and 9A-1 were compared to the known shoes submitted as Item 10 (Item 10-1). The questioned footwear impression is of a similar outsole design, however, does not correspond in physical size and/or individual characteristics with the known shoes; therefore, the questioned impressions were not made by the known shoes submitted as Item 10 (Item 10-1).</p>
KWJBNJ-5335	<p>A. Based on the highest degree of association in wear size, pattern, and randomly acquired characteristics, the Q1, Q4, Q5, Q8 questioned footprints are all the same from the recovered left shoe. B. Due to the highest degree of association in wear size, pattern, and randomly acquired characteristics, the Q7 questioned footprints are all the same from the recovered right shoe. C. Even though there is the highest degree of association in wear size and pattern between the questioned Q2, Q3, Q6, Q9 footprints and the recovered right shoe, the difference of randomly acquired characteristics between them shows the Highest degree of non-association from each other.</p>
L37CR2-5331	<p>Q1 was made by the left shoe of Item K1. Q2 was not made by the right or left shoe of Item K1. Q3 was not made by the right or left shoe of Item K1. Q4 was made by the left shoe of Item K1. Q5 was made by the left shoe of Item K1. Q6 was not made by the right or left shoe of Item K1. Q7 was made by the right shoe of Item K1. Q8 was made by the left shoe of Item K1. Q9 was not made by the right or left shoe of Item K1.</p>
L9XAMJ-5331	<p>Questioned imprints found on wood board (Items Q1 – Q3): This photograph depicts questioned imprints labeled Q1 through Q3. Q1 was determined to be a partial shoe impression which is similar in class characteristics (tread design and size), wear, and share randomly acquired characteristics to the left known shoe (Items K1a-K1g). It is our opinion that Q1 was made by the left known shoe. Q2 and Q3 were determined to be a partial right shoe impression and right shoe impression, respectively, which are dissimilar in class characteristic (tread design) and wear to the right known shoe (Items K1a-K1g). It is our opinion that Q2 and Q3 were not made by the right known shoe. Questioned imprints found on ceramic tiles (Items Q4 – Q7): This photograph depicts questioned imprints labeled Q4 through Q7. Q4 and Q5 were determined to be a partial left shoe impression and left shoe impression, respectively, which are similar in class characteristics (tread design and size), wear, and share randomly acquired characteristics to the left known shoe (Items K1a-K1g). It is our opinion that Q4 and Q5 were made by the left known shoe. Q7 was determined to be a partial right shoe impression which is similar in class characteristics (tread design and size) and wear to the right known shoe (Items K1a-K1g). It is our opinion that Q7 could have been made by the right known shoe or any other shoe with similar characteristics. Q6 was determined to be a partial right shoe impression which is dissimilar in class characteristic (tread design) and wear to the right known shoe (Items K1a-K1g). It is our opinion that Q6 was not made by the right known shoe. Questioned imprints found on flyer (Items Q8 and Q9): This photograph depicts questioned imprints labeled Q8 and Q9. Q8 was determined to be a left shoe impression which is similar in class characteristics (tread design and size), wear, and share randomly acquired characteristics to the left known shoe (Items K1a-K1g). It is our opinion that Q8 was made by the left known shoe. Q9 was determined to be a partial right shoe impression which is dissimilar in class characteristic (tread design) and wear to the right known shoe (Items K1a-K1g). It is our opinion that Q9 was not made by the right known shoe. Photographs and imprints of known shoes (Items K1a – K1g): This item was used for comparison purposes.</p>
LDQFYZ-5335	<p>Comparison of the left partial shoe imprint labeled Q1 to the recovered left shoe revealed a high degree of association. Comparison of the right partial shoe imprint labeled Q2 to the recovered right shoe revealed an elimination. Comparison of the right shoe imprint labeled Q3 to the recovered right shoe revealed an elimination. Comparison of the left partial shoe imprint labeled Q4 to the recovered left shoe revealed an identification. Comparison of the left shoe imprint labeled Q5 to the recovered left shoe revealed a high degree of association. Comparison of the right partial shoe imprint labeled Q6 to the recovered right shoe revealed an elimination. Comparison of the right partial shoe imprint labeled</p>



TABLE 2

WebCode-Test	Conclusions
	<p>Q7 to the recovered right shoe revealed a high degree of association. Comparison of the left shoe imprint labeled Q8 to the recovered left shoe revealed an identification. Comparison of the right partial shoe imprint labeled Q9 to the recovered right shoe revealed an elimination.</p>
LQHZLJ-5331	<p>Comparative analysis between the Q1, Q4, Q5 and Q8 left shoe questioned impressions and the left shoe exemplar depicted in Items K1a - K1g revealed correspondence of class characteristics (pattern, physical size and general condition of wear) and multiple randomly acquired characteristics. It was concluded that the left shoe depicted in K1a-K1g was the source of, and made, the Q1, Q4, Q5 and Q8 left shoe questioned impressions. Another shoe being the source of the impression is considered a practical impossibility. Comparative analysis between the Q7 right shoe questioned impression and the right shoe exemplar depicted in Items K1a - K1g revealed correspondence of class characteristics (pattern, physical size and general condition of wear) and multiple randomly acquired characteristics. It was concluded that the right shoe depicted in Items K1a - K1g was the source of, and made, the Q7 impression. Another shoe being the source of the impression is considered a practical impossibility. Comparative analysis revealed significant differences (general condition of wear, randomly acquired characteristics, mold features and some physical size dissimilarity) between the Q2, Q3, Q6 and Q9 right shoe questioned impressions and the corresponding exemplar depicted in Items K1a-K1g. It was concluded that the right shoe depicted in Items K1a-K1g did not make the the Q2, Q3, Q6 and Q9 right shoe questioned impressions. It was concluded that the left shoe depicted in K1a-K1g could not be the source of the listed impressions to due orientation differences.</p>
LXGMF4-5331	<p>The left shoe from which the images (Items K1a-K1c) and the impressions (Items K1d-K1g) were obtained is identified as having made the impressions depicted in Items Q1, Q4, Q5, and Q8 based on an agreement of class characteristics (tread design and size), wear, and randomly acquired characteristics of sufficient quality and quantity. This shoe was the source of the questioned impressions. Another shoe being the source of these impressions is considered a practical impossibility. The right shoe from which the images (Items K1a-K1c) and the impressions (Items K1d-K1g) were obtained is identified as having made the impression depicted in Item Q7 based on an agreement of class characteristics (tread design and size), wear, and randomly acquired characteristics of sufficient quality and quantity. This shoe was the source of the questioned impression. Another shoe being the source of this impression is considered a practical impossibility. The shoes from which the images (Items K1a-K1c) and the impressions (Items K1d-K1g) were obtained are excluded as having made the impressions depicted in Items Q2, Q3, Q6, and Q9 based on differences in class characteristics (tread design and/or size) therefore these impressions could not have been made by these shoes.</p>
M36U9W-5335	<p>The known right shoe is identified as the source of questioned impression Q7. The known right shoe corresponds with the general wear and class characteristics of the questioned impression Q7. There are numerous indentations and unique wear within Q7 that are in the same relative position and relationship order as those in the known right shoe. These are randomly acquired characteristics which resulted from wear. Since the known right shoe and questioned impression Q7 share agreement of class and randomly acquired characteristics of sufficient quality and quantity, the questioned impression could not have been made by any other shoe. The known left shoe is identified as the source of questioned impressions Q1, Q4, Q5 and Q8. The known left shoe corresponds with the general wear and class characteristics of the questioned impressions Q1, Q4, Q5 and Q8. There are numerous indentations and unique wear within Q1, Q4, Q5 and Q8 that are in the same relative position and relationship order as those in the known left shoe. These are random acquired characteristics which resulted from wear. Since the known left shoe and questioned impressions Q1, Q4, Q5 and Q8 share agreement of class and randomly acquired characteristics of sufficient quality and quantity, the questioned impressions could not have been made by any other shoe. The known shoes, right and left, are excluded as the source of questioned impressions Q2, Q3, Q6 and Q9. I hereby certify that this is a report of the conclusions of examinations performed by me, [Analyst].</p>
MD3RXG-5331	<p>The left shoe is identified as the source for Q1, Q4, Q5, and Q8. The right shoe is identified as the source for Q7. Both the left and right shoe are excluded as a possible source for Q2, Q3, Q6, and Q9.</p>

TABLE 2

WebCode-Test	Conclusions
MDLEVE-5335	The questioned shoeprints Q1, Q4, Q5 and Q8 were made by the left shoe of the pair of recovered shoes. The questioned shoeprint Q7 was made by the right shoe of the pair of recovered shoes. The questioned shoeprints Q2, Q3, Q6 and Q9 were not made by any of the recovered shoes.
MGNC4L-5331	Similarities in class characteristics (design/spacing/sizing/wear) were observed between Q1, Q4, Q5, and Q8 and the known left shoe. There are corresponding randomly acquired characteristics (RACs) observed. In the opinion of the analyst, the RAC(s) are of high quality and discriminability. Therefore, there is strong support that Q1, Q4, Q5, and Q8 were made by the known left shoe based on the correspondence of class characteristics and high quality and discriminability of the RACs. Similarities in class characteristics (design/spacing/sizing/wear) were observed between Q7 and the known right shoe. There are corresponding randomly acquired characteristics (RACs) observed. In the opinion of the analyst, the RAC(s) are of high quality and discriminability. Therefore, there is strong support that Q7 was made by the known right shoe based on the correspondence of class characteristics and high quality and discriminability of the RACs. Differences in class characteristics (design/spacing/sizing/wear) were observed between Q2, Q3, Q6, and Q9 and the known left and right shoes. Q2, Q3, Q6, or Q9 could not have been made by the known shoes. Differences in class characteristics (design) were observed between Q1, Q4, Q5, and Q8 and the known right shoe. Q1, Q4, Q5, or Q8 could not have been made by the known right shoe. Differences in class characteristics (design) were observed between Q7 and the known left shoe. Q7 could not have been made by the known left shoe.
MR72WY-5335	Item 8: Examined visually and with 1 to 1 transparency overlays. Comparison of the partial left shoe impression labeled found on wood board, Q1, (item 8), to the recovered left shoe revealed an identification. Item 9: Examined visually and with 1 to 1 transparency overlays. Comparison of the partial right shoe impression labeled found on wood board, Q2, (item 9), to the recovered right shoe revealed an elimination. Item 10: Examined visually and with 1 to 1 transparency overlays. Comparison of the right shoe impression labeled found on wood board, Q3, (item 10), to the recovered right shoe revealed an elimination. Item 11: Examined visually and with 1 to 1 transparency overlays. Comparison of the partial left shoe impression labeled found on ceramic tiles, Q4, (item 11), to the recovered left shoe revealed an identification. Item 12: Examined visually and with 1 to 1 transparency overlays. Comparison of the left shoe impression labeled found on ceramic tiles, Q5, (item 12), to the recovered left shoe revealed an identification. Item 13: Examined visually and with 1 to 1 transparency overlays. Comparison of the partial right shoe impression labeled found on ceramic tiles, Q6, (item 13), to the recovered right shoe revealed an elimination. Item 14: Examined visually and with 1 to 1 transparency overlays. Comparison of the partial right shoe impression labeled found on ceramic tiles, Q7, (item 14), to the recovered right shoe revealed an identification. Item 15: Examined visually and with 1 to 1 transparency overlays. Comparison of the left shoe impression labeled found on flyer, Q8, (item 15), to the recovered left shoe revealed an identification. Item 16: Examined visually and with 1 to 1 transparency overlays. Comparison of the partial right shoe impression labeled found on flyer, Q9, (item 16), to the recovered right shoe revealed an elimination.
MURK23-5335	The results strongly support that the shoeprint was left by the shoe. (Grad +4).
MWX2GL-5331	Questioned impressions Q1 - Q9 were visually compared to the photographs of the soles and the photographs of the test impressions made by the Skechers shoes represented by K1a - K1g. Questioned impressions Q1, Q4, Q5 and Q8 corresponded in tread design, tread size, wear pattern, manufacturing features and randomly acquired characteristics with the left Skechers shoe. In the opinion of the examiner, this shoe made the questioned impressions (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Questioned impression Q7 corresponded in tread design, tread size, wear pattern, manufacturing features and randomly acquired characteristics with the right Skechers shoe. In the opinion of the examiner, this shoe made the questioned impression (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Questioned impressions Q2, Q3, and Q9 exhibited differences in wear pattern from the right Skechers shoes. Questioned impression Q6 exhibited differences in the alignment of the diamond pattern and tread size from the left Skecher shoe. In the opinion of the examiner, the

TABLE 2

WebCode- Test	Conclusions
	shoes did not make the questioned impressions (Exclusion).
NNKQ4D- 5331	The footwear impressions depicted in the submitted photographs (Items 001-Q1 through 001-Q9) were each compared to the photographs of the recovered shoes and photographs of the known impressions made with the recovered shoes. One-to-one transparency overlays were created using Items 001-K1d through 001-K1g to facilitate examination and comparison with the questioned impressions. 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 Items 001-Q1, 001-Q4, 001-Q5 and 001-Q8 were made by the submitted left shoe. 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-Q7 was made by the submitted right shoe. With respect to Items 001-Q2, 001-Q3, 001-Q6 and 001-Q9, I observed similar sole design features and general dimensions, but there are significant differences in the wear patterns 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 the recovered shoes.
NU9EYH- 5335	Impressions Q1, Q4, Q5, and Q8 were identified as having been made by the left shoe. Impression Q7 was identified as having been made by the right shoe. Impressions Q2, Q3, Q6, and Q9 were excluded as having been made by both shoes.
P23LDH- 5335	Q1 through Q9 were compared to K1. There is strong support that Q1, Q4, Q5 and Q8 came from the left shoe of K1. The questioned impression and the known footwear correspond in design and size class characteristics and specific characteristics of wear/use, including several randomly acquired characteristics of high quality and/or discriminability. Dissimilarities may also be observed. The observed characteristics provide overwhelmingly more support for the proposition that the questioned impression came from the known footwear than for the proposition that the questioned impression came from a different source. Q2, Q3, Q6, and Q9 were excluded from K1 based on sizing, differing wear patterns, and diamond texture differences. Sufficient exclusionary differences were noted in the comparison of class characteristics and characteristics of use between the questioned impression and the known footwear to state that the prospect of finding the observed characteristics, if the two items came from the same source, is negligible. There is strong support that Q7 came from the right shoe of K1. The questioned impression and the known footwear correspond in design and size class characteristics and specific characteristics of wear/use, including several randomly acquired characteristics of high quality and/or discriminability. Dissimilarities may also be observed and overlapping impressions limited a full impression comparison. The observed characteristics provide overwhelmingly more support for the proposition that the questioned impression came from the known footwear than for the proposition that the questioned impression came from a different source.
P494FJ- 5331	Images of the nine questioned impressions (Q1 - Q9) were visually compared to the known Skechers shoes (K1a-K1c) and the submitted impressions made of the known shoes (K1d - K1g). All questioned impressions exhibit the same overall outsole design, which is consistent with the outsole design of the known shoes. Q1 is a partial impression of a left shoe outsole. The known impression from the outsole of the left shoe (K1) is consistent in physical shape, size, and location and degree of wear. There are several areas of randomly acquired characteristics on Q1 also seen reproducing in the known impression. Q1 is IDENTIFIED as having been made by the left outsole of the known shoes (K1). Q2 is a partial impression of a right shoe outsole. The known impression from the outsole of the right shoe (K1) is the same overall pattern. Additionally, there is different wear in areas of Q2 than the known impression. Q2 is EXCLUDED as having been made by the right outsole of the known shoes (K1). Q3 is a nearly complete impression of a right shoe outsole. The known impression from the outsole of the right shoe (K1) is the same overall pattern, but the Q3 impression is slightly smaller. Additionally, there is different wear in areas of Q3 than the known impression. Q3 is EXCLUDED as having been made by the right outsole of the known shoes (K1). Q4 is a partial impression of a left shoe outsole. The known impression from the outsole of the left shoe (K1) is consistent in physical shape, size, and location and degree of wear. There are several areas of randomly acquired characteristics on Q4 also seen reproducing in the known impression. Q4 is IDENTIFIED as having been made by the left outsole of the known shoes (K1). Q5 is a partial impression

TABLE 2

WebCode-Test	Conclusions
	<p>of a left shoe outsole. The known impression from the outsole of the left shoe (K1) is consistent in physical shape, size, and location and degree of wear. There are several areas of randomly acquired characteristics on Q5 also seen reproducing in the known impression. Q5 is IDENTIFIED as having been made by the left outsole of the known shoes (K1). Q6 is a partial impression of a right shoe outsole. The known impression from the outsole of the right shoe (K1) is the same overall pattern. Additionally, there is different wear in areas of Q6 than the known impression. Q6 is EXCLUDED as having been made by the right outsole of the known shoes (K1). Q7 is a partial impression of a right shoe outsole. The known impression from the outsole of the right shoe (K1) is consistent in physical shape, size, and location and degree of wear. There are several areas of randomly acquired characteristics on Q7 also seen reproducing in the known impression. Q7 is IDENTIFIED as having been made by the right outsole of the known shoes (K1). Q8 is a nearly complete impression of a left shoe outsole. The known impression from the outsole of the left shoe (K1) is consistent in physical shape, size, and location and degree of wear. There are several areas of randomly acquired characteristics on Q8 also seen reproducing in the known impression. Q8 is IDENTIFIED as having been made by the left outsole of the known shoes (K1). Q9 is a partial impression of a right shoe outsole. The known impression from the outsole of the right shoe (K1) is the same overall pattern, but the Q9 impression is slightly smaller. Additionally, there is different wear in areas of Q9 than the known impression. Q9 is EXCLUDED as having been made by the right outsole of the known shoes (K1).</p>
P63WAH-5335	Based upon my experience of undertaking and interpreting the results of footwear comparisons, and the level of correspondence noted in pattern, pattern size (UK 5.5), specific position and degree of wear and multiple wear and damage features, in my opinion, the findings show conclusively that the training shoes K1 (left and right) have made the footwear marks Q1,4,5,7,8 recorded in the photographs.
P66H3C-5335	Nine (9) manufactured pattern impressions, that appear to be of footwear origin, suitable for comparative examination were noted in Exhibits Q1-Q3, Q4-Q7, and Q8-Q9. Four (4) manufactured pattern impressions noted in Exhibit Q1-Q3 (Q1), Exhibit Q4-Q7 (Q4 and Q5) and Exhibit Q8-Q9 (Q8) were made by the left shoe depicted in Exhibits K1a through K1g based on design, physical size, shape, wear, and randomly acquired characteristics. This opinion means that the observed class characteristics and randomly acquired characteristics correspond and the examiner would not expect to see the same agreement of features repeated in an impression that came from a different source. One (1) manufactured pattern impression noted in Exhibit Q4-Q7 (Q7) was made by the right shoe depicted in Exhibits K1a through K1g based on design, physical size, shape, wear, and randomly acquired characteristics. This opinion means that the observed class characteristics and randomly acquired characteristics correspond and the examiner would not expect to see the same agreement of features repeated in an impression that came from a different source. The remaining manufactured pattern impressions noted in Exhibits Q1-Q3, Q4-Q7, and Q8-Q9 were not made by the shoes depicted in Exhibit K1a through K1g based on differences in physical size and wear. This opinion means that there are sufficient features in disagreement such that the examiner would not expect to see the same disagreement repeated in an impression that came from the same source.
P94ZWX-5331	Q1, Q4, Q5 and Q8 were found to show agreement in pattern, size, wear and fine detail to the sole of the left shoe. In our opinion the left shoe is responsible for these marks. Q7 was found to show agreement in pattern, size, wear and fine detail to the sole of the right shoe. In our opinion the right shoe is responsible for the mark. Q2,Q3,Q6 and Q9 were found to show agreement in pattern and size to the sole of the right shoe. However differences were noted such that, in our opinion, the right shoe did not make these marks.
PAV2ZZ-5331	[No Conclusions Reported.]
PAYEQH-5335	The left shoe in K1 was identified as having made the impressions labeled Q1, Q4, Q5 and Q8. The right shoe in K1 was identified as having made the impression labeled Q7. Impressions Q2, Q3, Q6 and Q9 were eliminated as being made by the shoes in K1.
PHW9NG-5331	My findings provide extremely strong support for the view that the footwear K1 made the scene impressions Q1, Q4, Q5, Q7 and Q8, rather than some other footwear did. My findings also show that

TABLE 2

WebCode-Test	Conclusions
	the footwear K1 did not make the scene impressions Q2, Q3, Q6 and Q9. I have chosen the above phrase from the following scale: weak support, moderate support, moderately strong support, strong support, very strong support, extremely strong support. I selected the scientific examinations on the basis of the case circumstances. If any of the above information is incorrect or incomplete then I will need to reassess my approach.
PLTVEJ-5331	Q1- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q1. Q1 and the known left shoe correspond in tread pattern, tread wear and tread size as well as two randomly acquired characteristics such as a gouges in the lower tread region. Thus, Q1 was made by the known left shoe. Q2- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q2. Q2 and the known right shoe correspond in tread pattern. Q2 does not correspond in tread size, tread wear or individual characteristics. Thus, Q2 could not have been made by the known right shoe. Q3- The submitted images and known impressions of the suspect's shoes (K1a-K1g) were examined and compared to the impression visible in Q3. Q3 and the known right shoe correspond in tread pattern. Q3 does not correspond in tread size, tread wear or individual characteristics. Thus, Q3 could not have been made by the known right shoe. Q4- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q4. Q4 and the known left shoe correspond in tread pattern, tread wear and tread size. Q4 also has individual characteristics including a gouge in the tread of the edge of the lower foot region. Thus, Q4 was made by the known left shoe. Q5- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q5. Q5 and the known left shoe correspond in tread pattern, tread wear and tread size. Q5 also has individual characteristics including a gouge in the tread of the edge of the lower foot region. Thus, Q5 was made by the known left shoe. Q6- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q6. Q6 and the known right shoe correspond in tread pattern. Q6 does not correspond in tread size or individual characteristics. Thus, Q6 could not have been made by the known right shoe. Q7- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q7. Q7 and the known right shoe correspond in tread pattern, tread wear and tread size. Q7 also has individual characteristics including a gouge in the tread of the upper toe region. Thus, Q7 was made by the known right shoe. Q8- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q8. Q8 and the known left shoe correspond in tread pattern, tread wear and tread size. Q8 also has individual characteristics including a gouge in the tread of the edge of the upper toe region. Thus, Q8 was made by the known left shoe. Q9-- The submitted images and known impressions of the suspects shoes (K1a-K1g) were examined and compared to the impression visible in Q9. Q9 and the known right shoe correspond in tread pattern. Q9 does not correspond in tread size, tread wear or individual characteristics. Thus, Q9 could not have been made by the known right shoe.
PMP93C-5331	The questioned impressions in Q1, Q4, Q5, Q7, and Q8 are similar in design pattern, shape, size, one or more randomly acquired characteristics, overall wear, and/or Schallamach pattern to the known submitted shoes in K1. These shoes made the questioned impressions. SWGTread Conclusion: Identification. The questioned impressions in Q2 and Q3 are similar in design pattern, shape, size, and/or overall wear pattern to the known submitted shoes in K1. These shoes, or any other shoes with these characteristics, could have made the questioned impressions. SWGTread Conclusion: Q2 Limited association of class characteristics/Q3 Association of class characteristics. The questioned impression in Q6 and Q9 are different in sizing and design pattern to the submitted known shoes in K1. Without the physical evidence for direct comparison, no exclusion can be made. Therefore, the comparison is inconclusive. SWGTread Conclusion: Indications of non-association.
PNH7AH-5331	Results indicate that Q1, Q4, Q5, Q7, Q8 are consistent with the submitted footwear. Q2, Q3, Q6, Q9-Do not correspond with the submitted footwear.
PRZLJB-5331	I have compared the photographs and test impressions from K1 to the questioned impressions Q1 to Q9. This comparison process investigates any differences or correspondences in sole pattern and dimensions, the presence of any wear features and the location size and shape of any randomly acquired



TABLE 2

WebCode- Test	Conclusions
	<p>damage features. In subjectively assessing the strength of any correspondences, I have considered: the probability of finding the shoe impression evidence if one of the shoes made the impression, and the probability of finding the shoe impression evidence if the shoes did not make the impression, and another shoe has made the impression. Examination and Results Q1- Q3 were located on a textured wood board. Q1 was missing the toe area, Q2 was just the toe area and Q3 was a mostly full impression. Q4-Q7 were located on a ceramic tiled surface. Q4 and Q7 were left and right parallelly aligned impressions of the toe and mid area. Both toe areas were obscured by an overlaid impression, Q5. Q6 was missing the toe area and partly overlapped Q5 and Q7 also. Q8 and Q9 were located on a printed piece of paper. Q8 was a mostly full impression, and Q9 was a partial impression of the toe area. Q1, Q4, Q5, and Q8 were all left shoe impressions. All of these scene impressions displayed a correspondence with the sole pattern and dimensions with the left shoe of K1, as well as a correspondence in the patterning of wear throughout the sole of the shoe. Furthermore, several areas of randomly acquired damage that were observed in the left sole of K1 were also present in these scene impressions. Therefore, the left shoe of K1 or any other left shoe with the same sole pattern features, dimensions, wear, and areas of damage could have made the scene impressions Q1, Q4, Q5, and Q8. In my opinion, this combination of features (sole pattern, dimensions, wear and areas of randomly acquired damage) is very rare and therefore this correspondence provides extremely strong support for the proposition that the left shoe of K1 made these four impressions as opposed to another shoe. Q7 was a right shoe impression parallel to Q4 on the ceramic tiled surface. This impression displayed a correspondence with the sole pattern and dimensions with the right shoe of K1, as well as a correspondence in the patterning of wear throughout the sole of the shoe. No areas of randomly acquired damage were present in either the impression or the corresponding area on the sole of the right shoe of K1. Therefore, the right shoe of K1 or any other right shoe with the same sole pattern features, dimensions, and wear pattern could have made the scene impression Q7. In my opinion, this combination of features (sole pattern, dimensions, wear and lack of areas of damage) is rare and therefore this correspondence provides strong support for the proposition that the right shoe of K1 made impression Q7 as opposed to another shoe. The remaining four impressions were all right shoe impressions (Q2, Q3, Q6 and Q9). Although these impressions displayed the same sole pattern and size as K1 a difference in wear patterning and damage features was observed. I have therefore concluded that K1 could not have made these impressions.</p>
PZATKK-5335	<p>The questioned prints Q1, Q4, Q5, Q8 (left prints) and Q7 (right print) show sufficient correspondence in pattern, size and randomly acquired characteristics with the suspects shoes K1. K1 was used to make these prints. Q2, Q3, Q6 and Q9 (right prints) differ in pattern details. They could not have been made by the suspects shoe K1.</p>
Q6FWGE-5335	<p>The conclusions written in the report are reflective of the SWGTREAD Range of Conclusions standard definitions.</p>
QHPJYA-5335	<p>In my opinion: The left known shoe K1 was the source of, and made, the question impressions Q8. The chance of another left shoe being the source of Q8 is considered negligible. The left known shoe K1 is a possible source of the questioned impressions Q1, Q4 and Q5 and could have produced the impression. Other shoes with the same class characteristics are included as possible sources only if they display the same wear and/or randomly acquired characteristics observed in the questioned impressions. The right known shoe K1 is a possible source of the questioned impression Q7 and therefore could have produced the impression. Other shoes with the same class characteristics (tread pattern and size) are included as possible sources. The visible amount of the questioned (partial) impressions Q2, Q6 and Q9 have limited the conclusion to a general association of some class characteristics to the right known shoe K1. Other shoes with the same class characteristics (tread pattern) are included in the population of possible sources of the impression. The questioned impression Q3 exhibits dissimilarities when compared to the right known shoe K1; however, certain details or features were not sufficiently clear to permit an exclusion.</p>
QXFLED-5331	<p>Photographs of shoeprints Q1-Q9 were examined and visually compared to photographs of the soles of the K1 shoes and shoeprints made by the K1 shoes. Q1, Q4, Q5, and Q8 were made by the K1 left shoe. Q7 was made by the K1 right shoe. Q2, Q3, Q6, and Q9 were not made by either of the K1</p>

TABLE 2

WebCode-Test	Conclusions
	shoes. The above analysis began on 05/05/2025.
RDRG8E-5331	Questioned Impressions Q1-Q9 were compared with known impressions K1, a left and right Sketchers shoe. Due to the lack of corresponding wear and identifying characteristics, K1, both left and right, were eliminated from having produced Q2, Q3, Q5 and Q9. The physical size, outsole design, and general wear in Q4 and Q8 were consistent with having originated from K1, left shoe. Additionally, randomly acquired characteristics were observed on the lugs of Q1, Q4, Q5, and Q8 that were identified to K1, left shoe. The physical size, outsole design, and general wear in Q7 was consistent with having originated from K1, right shoe. Additionally, randomly acquired characteristics were observed on the lugs of Q7 that were identified to K1, right shoe.
REGT3E-5335	When addressing the issue of whether the questioned impressions could have been made by the known footwear, given my findings, in my opinion, there is conclusive support for the view that the questioned impressions Q1, Q4, Q5, Q7 & Q8 were made by the known shoes. The known shoes can be excluded from making impressions Q2, Q3, Q6 & Q9.
REMZAF-5331	The submitted images and known impressions of the suspect shoes (K1a-K1g) were examined and compared to the questioned impressions visible in Q1-Q9. Q1, Q4, Q5, and Q8 correspond to the known left shoe in tread pattern, tread size, tread wear, and individual characteristics including scratches, nicks, and gouges in the tread surface. Thus, Q1, Q4, Q5, and Q8 were made by the known left shoe. Q7 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, Q7 was made by the known right shoe. Q2, Q3, Q6, and Q9 correspond to the known right shoe in tread pattern and tread size, however, Q2, Q3, Q6, and Q9 are different than the known right shoe in tread wear and individual characteristics. Thus, Q2, Q3, Q6, and Q9 could not have been made by the known right shoe.
RPLXWF-5331	The submitted photographs depicting questioned footwear impressions reportedly on wood board (impressions Q1 through Q3), ceramic tiles (impressions Q4 through Q7), and a flyer (impressions Q8 and Q9) were visually compared to photographs of the outsoles of the known shoes and test impressions of the shoes (Item 1b). Impressions Q1, Q4, Q5, and Q8 corresponded in tread design, physical size, mold characteristics, and wear characteristics to the outsole of the known left shoe. At least four voids in these impressions corresponded in position, orientation, and shape to randomly acquired characteristics present on the known left shoe. In the opinion of the examiner, the known left shoe made impressions Q1, Q4, Q5, and Q8 (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. Impression Q7 corresponded in tread design, physical size, mold characteristics, and wear characteristics to the outsole of the known right shoe. At least four voids in this impression corresponded in position, orientation, and shape to randomly acquired characteristics present on the known right shoe. In the opinion of the examiner, the known right shoe made impression Q7 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Impressions Q2, Q3, Q6, and Q9 corresponded in general tread design to the outsole of the known shoes; however, these impressions differed in diamond grid placement and wear characteristics from the known shoes. In the opinion of the examiner, the submitted known shoes did not make these impressions (Exclusion).
T4GJUV-5335	[No Conclusions Reported.]
T6CXNF-5331	The submitted footwear images were examined and compared to the footwear impressions visible in Q1-Q9. Q1 corresponds to the known left shoe in tread design, tread size, tread wear and randomly acquired characteristics to include scratches and nicks in the tread. Thus, Q1 was made by the known left shoe as represented by the submitted images. Q2 corresponds to the known right shoe in tread design and tread size; however, they are different in tread wear. Thus, Q2 was not made by the known right shoe as represented by the submitted images. Q3 corresponds to the known right shoe in tread design; however, they are different in tread size and tread wear. Thus, Q3 was not made by the known right shoe as represented by the submitted images. Q4 corresponds to the known left shoe in tread design, tread size, tread wear and randomly acquired characteristics to include scratches and nicks in the tread. Thus,

TABLE 2

WebCode-Test	Conclusions
	<p>Q4 was made by the known left shoe as represented by the submitted images. Q5 corresponds to the known left shoe in tread design, tread size, tread wear and randomly acquired characteristics to include scratches and nicks in the tread. Thus, Q5 was made by the known left shoe as represented by the submitted images. Q6 corresponds to the known right shoe in tread design and tread size; however, they are different in tread wear. Thus, Q6 was not made by the known right shoe as represented by the submitted images. Q7 corresponds to the known right shoe in tread design, tread size, tread wear and randomly acquired characteristics to include scratches in the tread. Thus, Q7 was made by the known right shoe as represented by the submitted images. Q8 corresponds to the known left shoe in tread design, tread size, tread wear and randomly acquired characteristics to include scratches and nicks in the tread. Thus, Q8 was made by the known left shoe as represented by the submitted images. Q9 corresponds to the known right shoe in tread design and tread size; however, they are different in tread wear. Thus, Q9 was not made by the known right shoe as represented by the submitted images.</p>
T77QGD-5335	<p>The examination of the nine (09) questioned imprints (Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, and Q9) shows: - Very clear similarities in class characteristics and acquired traces (Q1, Q4, Q5, and Q8) compared to the known imprints of the left sole - Very clear similarities in class characteristics and acquired traces (Q6 and Q7) compared to the known imprints of the right sole - Noticeable differences in class characteristics of the traces (Q2, Q3, and Q9) compared to the known imprints.</p>
TBW3EV-5335	[No Conclusions Reported.]
TCRLFW-5331	[No Conclusions Reported.]
TG6KUB-5331	<p>The questioned footwear impressions noted in Items Q1, Q4, Q5, and Q8 correspond in outsole design, physical size, and general wear with the known left shoe K1-Left. Additionally, the questioned footwear impressions correspond in RAC presence and placement with the known left shoe. Therefore, it was determined that the four (4) questioned footwear impressions were made by the known left shoe K1-L. The questioned footwear impression in Item Q7 corresponds in outsole design, physical size, and general wear with the known right shoe K1-Right. Additionally, the questioned footwear impressions correspond in RAC presence and placement with the known right shoe. Therefore, it was determined that the questioned footwear impression was made by the known right shoe K1-R. The remaining four (4) questioned footwear impressions noted in Q2, Q3, Q6, and Q9 corresponded in outsole design with the known right shoe submitted as K1-R, however, they do not correspond in general wear or RACs. Therefore, it was determined that the four (4) questioned impressions were eliminated as having been made by the known right shoe K1-Right. The four (4) questioned footwear impressions were made by a right shoe; therefore, they were not made by the known left shoe in K1-L.</p>
TMAH3E-5331	<p>The submitted photographs (Items Q1-Q3, Q4-Q7, Q8-Q9) were examined for questioned footwear impressions. Nine questioned footwear impressions (designated as impressions Q1-Q9 by the agency) were observed. The questioned footwear impressions Q1-Q9 were visually compared to the submitted test impressions of the recovered Skechers shoes (Items K1d-K1g) and the submitted photographs of the sole of the shoes (Items K1a-K1c). Impressions Q1, Q4, Q5, and Q8 corresponded with tread design, physical size, and general wear to the left Skechers shoe. In addition, several voids in the questioned impressions corresponded in approximate size, shape, position, and orientation to randomly acquired characteristics in the left Skechers shoe. In the opinion of the examiner, the left Skechers shoe made impressions Q1, Q4, Q5, and Q8 (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. Impression Q7 corresponded with tread design, physical size, and general wear to the right Skechers shoe. In addition, several voids in the questioned impressions corresponded in approximate size, shape, position, and orientation to randomly acquired characteristics in the right Skechers shoe. In the opinion of the examiner, the right Skechers shoe made impression Q7 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other footwear. Impressions Q2, Q3, Q6, and Q9 displayed similarity in tread design and physical size to the right Skechers shoe. However, the questioned</p>



TABLE 2

WebCode-Test	Conclusions
	<p>impressions displayed differences in the diamond texture pattern and general wear to the right Skechers shoe. In the opinion of the examiner, the right Skechers shoe did not make these questioned impressions (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. 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.</p>
TWDF6W-5331	<p>The photographs of the suspect's shoes and questioned impressions were visually examined and processed by superimposed comparison. We copied the photographs of known imprints of the suspect's shoes K1f and K1g on transparent films and superimposed them over the photographs of questioned impressions Q1 to Q9, and the results as below: 1. Questioned impression labelled Q1, Q4, Q5, and Q8 were found to be consistent in shape, physical size and individual characteristics with the suspect's left shoes; Questioned impression labelled Q7 were found to be consistent in shape, physical size and individual characteristics with the suspect's right shoes. 2. Questioned impression labelled Q2, Q3, Q6, and Q9 were found to have similar shape to the suspect's shoes, however it was dissimilar in physical size and individual characteristics from the suspect's shoes. Therefore, questioned impressions labelled Q2, Q3, Q6, and Q9 can be eliminated.</p>
TYPBTA-5331	<p>The methodology utilized includes: visual examination, digital retention, and ACE-V. Nine (9) questioned footwear impressions were noted on Items 1 through 9 (designated as 1A-1 through 9A-1) and were compared to the known shoes submitted as Item 10 (10-1). Four (4) of the questioned footwear impressions (1A-1, 4A-1, 5A-1, 8A-1) correspond in outsole design, physical size, and general wear with the known left shoe submitted as Item 10 (10-1). Additionally, the questioned footwear impressions exhibit unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression was made by the known left shoe submitted in Item 10 (10-1). The questioned impressions and the known standard share the same class characteristics, to include outsole design, physical size, general wear, and correspond in the presence and location of 4 or more Randomly Acquired Characteristics (RACs) of sufficient quality and quantity. The right shoe submitted as Item 10 (10-1) was eliminated/excluded as having been made these questioned impressions. One (1) of the questioned footwear impression (7A-1) corresponds in outsole design, physical size, and general wear with the known right shoe submitted as Item 10 (10-1). Additionally, the questioned footwear impressions exhibit unique identifying characteristics that are also present in the</p>

TABLE 2

WebCode-Test	Conclusions
	<p>known right shoe; therefore, it was determined that the questioned footwear impression was made by the known right shoe submitted in Item 10 (10-1). The questioned impressions and the known standard share the same class characteristics, to include outsole design, physical size, general wear, and correspond in the presence and location of 4 or more Randomly Acquired Characteristics (RACs) of sufficient quality and quantity. The left shoe submitted as Item 10 (10-1) was eliminated/excluded as having been made these questioned impressions. The four (4) remaining questioned footwear impression (2A-1, 3A-1, 6A-1, 9A-1) were compared to the known shoes submitted as Item 10 (10-1). The questioned footwear impressions do correspond in outsole design; however, the impressions do not correspond in physical size and wear with the known shoes submitted; therefore, the questioned impression was not made by the known shoes submitted in Item 10 (10-1).</p>
UKJGYC-5335	<p>On the items Q1, Q4, Q5, Q7 and Q8 there are shoeprints which correspond in pattern with the shoes of item K1. On the items Q1, Q4, Q5 and Q8 there are schallamach pattern which correspond with the left shoe of item K1. Additionally on the items Q1, Q4, Q5, Q7 and Q8 there are several individual characteristic with the shoes of item K1. On the items Q2, Q3, Q6 and Q9 there are rectangle net inside of the rectangle shape which don't correspond with the spot of the right shoe of the item K1. In addition on the items Q2, Q3, Q6 and Q9 there are shoeprints which don't correspond in wear with the right shoe of the item K1.</p>
UKNYXB-5335	<p>The Q1FW1 impression was made by the Item K1 left shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q1FW1 footwear impression and those present on the Item K1 right shoe to conclude that the impression was not made by the Item K1 right shoe. Sufficient differences were noted between the characteristics present in the Q2FW1 footwear impression and those present on Item K1 to conclude that the impression was not made by Item K1. Sufficient differences were noted between the characteristics present in the Q3FW1 footwear impression and those present on Item K1 to conclude that the impression was not made by Item K1. The Q4FW1 impression was made by the Item K1 left shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q4FW1 footwear impression and those present on the Item K1 right shoe to conclude that the impression was not made by the Item K1 right shoe. The Q5FW1 impression was made by the Item K1 left shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q5FW1 footwear impression and those present on the Item K1 right shoe to conclude that the impression was not made by the Item K1 right shoe. Sufficient differences were noted between the characteristics present in the Q6FW1 footwear impression and those present on Item K1 to conclude that the impression was not made by Item K1. The Q7FW1 impression was made by the Item K1 right shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q7FW1 footwear impression and those present on the Item K1 left shoe to conclude that the impression was not made by the Item K1 left shoe. The Q8FW1 impression was made by the Item K1 left shoe based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q8FW1 footwear impression and those present on the Item K1 right shoe to conclude that the impression was not made by the Item K1 right shoe. Sufficient differences were noted between the characteristics present in the Q9FW1 footwear impression and those present on Item K1 to conclude that the impression was not made by Item K1.</p>
UKXZJA-5331	[No Conclusions Reported.]
UPVMBC-5335	<p>Impression Compared To Result 1-1 1, Left Shoe Identification 1-2 1, Both Shoes Elimination 1-3 1, Both Shoes Elimination 1-4 1, Left Shoe Identification 1-5 1, Left Shoe Identification 1-6 1, Both Shoes Elimination 1-7 1, Right Shoe Identification 1-8 1, Left Shoe Identification 1-9 1, Both Shoes Elimination</p>
UTT7DB-5335	<p>In the opinion of this examiner, the known Left footwear, is the source of, and made, the questioned impressions Q1, Q4, Q5, and Q8. Another item of footwear being the source of these impressions is considered a practical impossibility. In the opinion of this examiner, the known Right footwear, is the</p>

TABLE 2

WebCode- Test	Conclusions
VL9369- 5331	<p>source of, and made, the questioned impression Q7. Another item of footwear being the source of this impression is considered a practical impossibility. In the opinion of this examiner, the known Right and Left footwear, is not the source of, and did not make the questioned impressions Q2, Q3, Q6, and Q9.</p> <p>The methodologies utilized in this examination include: visual examination and ACE-V. One (1) questioned footwear impression, designated 1A-1, was noted on Item 1A. One (1) questioned footwear impression, designated 2A-1, was noted on Item 2A. One (1) questioned footwear impression, designated 3A-1, was noted on Item 3A. One (1) questioned footwear impression, designated 4A-1, was noted on Item 4A. One (1) questioned footwear impression, designated 5A-1, was noted on Item 5A. One (1) questioned footwear impression, designated 6A-1, was noted on Item 6A. One (1) questioned footwear impression, designated 7A-1, was noted on Item 7A. One (1) questioned footwear impression, designated 8A-1, was noted on Item 8A. One (1) questioned footwear impression, designated 9A-1, was noted on Item 9A. Questioned footwear impressions 1A-1, 2A-1, 3A-1, 4A-1, 5A-1, 6A-1, 7A-1, 8A-1 and 9A-1 were compared to the known standards submitted in Item 10 (Item 10-1) with the following results: Questioned footwear impression 1A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, the questioned footwear impression exhibits four (4) unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression was made by the known left shoe submitted in Item 10. Questioned footwear impression 1A-1 is of a left shoe; therefore, it was not made by the known right shoe submitted in Item 10. Questioned footwear impression 2A-1 is of similar outsole design to the known right shoe submitted in Item 10; however, the questioned footwear impression does not correspond in physical size, general wear, or in the presence of individual characteristics with the known right shoe; therefore, the questioned footwear impression was not made by the known right shoe submitted in Item 10. Questioned footwear impression 2A-1 is of a right shoe; therefore, it was not made by the known left shoe submitted in Item 10. Questioned footwear impression 3A-1 is of similar outsole design to the known right shoe submitted in Item 10; however, the questioned footwear impression does not correspond in physical size, general wear, or in the presence of individual characteristics with the known right shoe; therefore, the questioned footwear impression was not made by the known right shoe submitted in Item 10. Questioned footwear impression 3A-1 is of a right shoe; therefore, it was not made by the known left shoe submitted in Item 10. Questioned footwear impression 4A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, the questioned footwear impression exhibits five (5) unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression was made by the known left shoe submitted in Item 10. Questioned footwear impression 4A-1 is of a left shoe; therefore, it was not made by the known right shoe submitted in Item 10. Questioned footwear impression 5A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, the questioned footwear impression exhibits five (5) unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression was made by the known left shoe submitted in Item 10. Questioned footwear impression 5A-1 is of a left shoe; therefore, it was not made by the known right shoe submitted in Item 10. Questioned footwear impression 6A-1 is of similar outsole design to the known right shoe submitted in Item 10; however, the questioned footwear impression does not correspond in physical size, general wear, or in the presence of individual characteristics with the known right shoe; therefore, the questioned footwear impression was not made by the known right shoe submitted in Item 10. Questioned footwear impression 6A-1 is of a right shoe; therefore, it was not made by the known left shoe submitted in Item 10. Questioned footwear impression 7A-1 corresponds in outsole design, physical size, and general wear with the known right shoe submitted in Item 10. Additionally, the questioned footwear impression exhibits four (4) unique identifying characteristics that are also present in the known right shoe; therefore, it was determined that the questioned footwear impression was made by the known right shoe submitted in Item 10. Questioned footwear impression 7A-1 is of a right shoe; therefore, it was not made by the known left shoe submitted in Item 10. Questioned footwear impression 8A-1 corresponds in outsole design, physical size, and general wear with the known left shoe submitted in Item 10. Additionally, the questioned footwear impression exhibits four (4) unique identifying characteristics that are also present in the known left shoe; therefore, it was determined that the questioned footwear impression was made by the known left shoe submitted in Item 10. Questioned footwear impression 8A-1</p>

TABLE 2

WebCode- Test	Conclusions
	<p>is of a left shoe; therefore, it was not made by the known right shoe submitted in Item 10. Questioned footwear impression 9A-1 is of similar outsole design to the known right shoe submitted in Item 10; however, the questioned footwear impression does not correspond in physical size, general wear, or in the presence of individual characteristics with the known right shoe; therefore, the questioned footwear impression was not made by the known right shoe submitted in Item 10. Questioned footwear impression 9A-1 is of a right shoe; therefore, it was not made by the known left shoe submitted in Item 10.</p>
VQJFM8- 5335	<p>Nine questioned impressions, designated as Q-1 through Q-9, from Items 4 through 6 were compared to known footwear from Items 1 through 3 (images and test impressions of one pair of known shoes). A complete evaluation of a questioned impression and known footwear includes looking at correspondence in tread design, physical size and shape of the design present, wear characteristics, and any distinctive characteristics randomly acquired on the tread of the known footwear represented in the questioned impression. Item 4 Q-1, Item 5 Q-4 and Q-5, and Item 6 Q-8 and the known left shoe correspond in overall tread design, tread shape, physical size, randomly acquired characteristics and specific wear. Therefore, the known left shoe is the source of the Item 4 Q-1, Item 5 Q-4 and Q-5, and Item 6 Q-8 impressions (Type I Association). Item 4 Q-1, Item 5 Q-4 and Q-5, and Item 6 Q-8 and the known right shoe correspond in tread design but differ in tread shape (left versus right). Therefore, the known right shoe is excluded as the source of the Item 4 Q-1, Item 5 Q-4 and Q-5, and Item 6 Q-8 impressions (Exclusion). Item 4 Q-2 and Q-3, Item 5 Q-6, and Item 6 Q-9 impressions and the known left shoe correspond in tread design but differ in tread shape (left versus right). Therefore, the known left shoe is excluded as the source of the Item 4 Q-2 and Q-3, Item 5 Q-6, and Item 6 Q-9 impressions (Exclusion). Item 4 Q-2 and Q-3, Item 5 Q-6, and Item 6 Q-9 impressions and the known right shoe correspond in tread design, tread shape and approximate physical size but differ in the alignment of elements and specific wear. Therefore, the known right shoe is excluded as the source of the Item 4 Q-2 and Q-3, Item 5 Q-6, and Item 6 Q-9 impressions (Exclusion). Item 5 Q-7 and the known right shoe correspond in overall tread design, tread shape, physical size, randomly acquired characteristics and specific wear. Therefore, the known right shoe is the source of the Item 5 Q-7 impression (Type I Association). Item 5 Q-7 and the known left shoe correspond in tread design but differ in tread shape (left versus right). Therefore, the known left shoe is excluded as the source of the Item 5 Q-7 impression (Exclusion). 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.</p>
WBJZUQ- 5335	<p>Impressions no. Q1, Q4, Q5, Q7, Q8 were left by recovered shoes. Impressions no. Q2, Q3, Q6, Q9 were not left by recovered shoes.</p>

TABLE 2

WebCode-Test	Conclusions
WH9D27-5335	<p>Impressions Q1, Q4, Q5, and Q8 were identified as being made by K1 left shoe. The questioned impressions correspond in physical shape, physical size, outsole tread design, wear characteristics, and randomly acquired characteristics with the left shoe of K1. Impression Q7 is identified as being made by K1 right shoe. The questioned impression corresponds in physical shape, physical size, outsole tread design, wear characteristics, and randomly acquired characteristics with the right shoe of K1. Impressions Q2, Q3, Q6, and Q9 are excluded as being made by K1 (right or left shoe). The questioned impressions correspond in physical shape, physical size, and outsole tread design with the right shoe of K1, but do not correspond in wear characteristics or randomly acquired characteristics. The left shoe of K1 is excluded as being the source due to physical shape.</p>
WQZUQB-5331	<p>EXAMINATIONS: Determine whether any footwear marks present in Exhibits Q1 through Q9 can be associated with the known pair of outsoles. FINDINGS AND OPINIONS: The questioned footwear marks, Q1, Q4, Q5 and Q8 were made by the known left shoe. This opinion is the highest degree of association expressed by a footwear examiner. The questioned mark and the known footwear must share sufficient agreement of observable class and individual characteristics. In the opinion of the examiner the known footwear was the source of and made the questioned mark. The questioned footwear mark, Q7 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 Q2, Q3, Q6 and Q9 were not made by the known pair of shoes.</p>
WUY6MA-5335	<p>The impressions Q1, Q4, Q5, and Q8 were identified as having been made by the left shoe represented in the photographs. The impression labeled as Q7 was identified as having been made by the right shoe represented in the photographs. The impressions labeled as Q2, Q3, Q6, and Q9 could not have been made by the shoes represented in the photographs.</p>
WWNGGA-5331	[No Conclusions Reported.]
WWR2B4-5331	<p>Identification: The questioned impression and the known footwear shared class and randomly acquired characteristics of sufficient quality and quantity. The particular known footwear was the source of and made the questioned impression. Exclusion: Sufficient differences were noted in the comparison of class and randomly acquired characteristics between the questioned impression and the known footwear. The particular known footwear was not the source of and did not make the impression.</p>
X9FMU6-5335	<p>The digital images items 1A, 1B, and 1C were visually analyzed and nine questioned footwear impressions were determined to be suitable for comparison. Five questioned impressions were determined to have been made by a right shoe. Four questioned impressions were determined to have been made by a left shoe. Four questioned impressions from items 1A, 1B, 1C were visually compared to item 1D.02; the known footwear was identified as the source of the questioned impressions. One questioned impression from item 1B was visually compared to item 1D.01; the known footwear was identified as the source of the questioned impression. Four questioned impressions from items 1A, 1B, 1C were visually compared to items 1D.02; the known footwear was excluded as the source of the questioned impressions. Note: An identification decision is reached when the questioned impression and the known impression have corresponding detail, such that the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source.</p>
XYAFE6-5331	<p>Exhibits 4.1 (Q1), 5.1 (Q4), 5.2 (Q5) and 6.1 (Q8) were identified as having been made by the known left shoe (K1f) Exhibit 5.4 (Q7) was identified as having been made by the known right shoe (K1f) Exhibits 4.2 (Q2), 4.3 (Q3), 5.3 (Q6) and 6.2 (Q9) were identified as having been made by the same right shoe. These impressions were not made by the known right shoe (K1f), based on differences in individual characteristics. Suspect footwear includes Sketchers right shoes of similar outsole design; however, any suspect footwear should be submitted for examination.</p>
Y2TYT8-5335	<p>Coincidences of class characteristics have been observed between the questioned imprints Q1, Q4, Q5, Q7 &amp; Q8 and the footprints of the recovered shoes. The existence of individualizing characteristics has</p>



TABLE 2

WebCode-Test	Conclusions
	<p>been verified, which indicates that the probability that the questioned imprints were produced by the proposed shoes is extremely higher than that they were produced by other shoes with similar class characteristics. Unexplained divergences in class or individual characteristics have been observed between the questioned imprints Q2, Q3, Q6 &amp; Q9 and the footprints of the recovered shoes, which rules out that the proposed shoes produced the questioned imprints.</p>
Y4C9JK-5331	<p>The known left shoe that was recovered is identified as the source of questioned impressions Q1, Q4, Q5 and Q8. The wear pattern and class characteristics of the known left shoe correspond to the wear pattern and class characteristics of the questioned impressions Q1, Q4, Q5 and Q8. The degree of wear observed in respective areas of the questioned impressions closely correspond to the degree of wear observed on the known left shoe. Randomly acquired characteristics such as indentations observed on the questioned impressions were in the same relative position and sequence and in agreement with those in the known left shoe. Since the questioned impressions Q1, Q4, Q5 and Q8 and the known left shoe share agreement of class and randomly acquired characteristics of sufficient quality and quantity, the said questioned impressions were made by the known left shoe. The known right shoe that was recovered is identified as the source of questioned impression Q7. The wear pattern and class characteristics of the known right shoe correspond to the wear pattern and class characteristics of the questioned impression Q7. The degree of wear observed in the questioned impression matches the degree of wear observed on the known right shoe. Randomly acquired characteristics such as indentations observed on the questioned impression Q7 were in the same relative position and sequence and in agreement with those in the known right shoe. Since the questioned impression Q7 and the known right shoe share agreement of class and randomly acquired characteristics of sufficient quality and quantity, the questioned impression Q7 were made by the known left shoe. The known shoes, both left and right, are excluded as the source of questioned impressions Q2, Q3, Q6 and Q9.</p>
Y73CB7-5331	[No Conclusions Reported.]
Y7MQ6B-5335	<p>A comparison of the sole marks found at the crime scene and the shoes recovered revealed similarities in size, pattern and randomly acquired characteristics of sufficient quality and quantity, leading to the following identifications : - The sole marks Q1, Q4, Q5 and Q8 with the left shoe - The sole mark Q7 with the right shoe The comparisons also revealed major discrepancies in terms of dimensions and randomly acquired characteristics, leading to the exclusion of sole marks Q2, Q3, Q6 and Q9.</p>
YFF2F7-5331	<p>The items Q1 through Q9 questioned footwear impressions were analyzed, compared, and evaluated with the items K1 known left and right Sketchers, US size 8.5, shoes. The item Q1 questioned footwear impression is a left impression and corresponds in tread design, physical size, general wear, specific wear, and three (3) randomly acquired characteristics with the K1 known left shoe. The item Q2 questioned footwear impression is a right impression and is similar in tread design and physical size, however, does not correspond in general wear and specific wear with the item K1 known right shoe. The item Q3 questioned footwear impression is a right impression and is similar in tread design, however, does not correspond in physical size and specific wear with the item K1 known right shoe. The item Q4 questioned footwear impression is a left impression and corresponds in tread design, physical size, general wear, specific wear, and four (4) randomly acquired characteristics with the K1 known left shoe. The item Q5 questioned footwear impression is a left impression and corresponds in tread design, physical size, general wear, specific wear, and two (2) randomly acquired characteristics with the K1 known left shoe. The item Q6 questioned footwear impression is a right impression and is similar in tread design and physical size, however, does not correspond in general wear and specific wear with the item K1 known right shoe. The item Q7 questioned footwear impression is a right impression and corresponds in tread design, physical size, general wear, specific wear, and two (2) randomly acquired characteristics with the K1 known right shoe. The item Q8 questioned footwear impression is a left impression and corresponds in tread design, physical size, general wear, specific wear, and four (4) randomly acquired characteristics with the K1 known left shoe. The item Q9 questioned footwear impression is a right impression and is similar in tread design and physical size, however, does not correspond in general wear with the item K1 known right shoe. Based upon the above factors, it is the opinion of this examiner that: The item K1 known left Sketcher shoe, was the source of, and made, the items Q1, Q4, Q5, and</p>

TABLE 2

WebCode-Test	Conclusions
	<p>Q8 questioned footwear impressions resulting in an identification. Another item of footwear being the source of the impression is considered a practical impossibility. The item K1 known right Sketcher shoe, was the source of, and made, the item Q7 questioned footwear impression resulting in an identification. Another item of footwear being the source of the impression is considered a practical impossibility. The K1 known left and right Sketcher shoes were excluded as being the source of, and did not make the items Q2, Q3, Q6, and Q9 questioned footwear impressions. All conclusions listed herein have been verified by a second qualified latent print examiner.</p>
YFNH7N-5335	<p>In my opinion, the findings provide conclusive support for the view that some of the impressions at the scene were made by the shoes in questions. This conclusion is based on agreement in pattern, pattern configuration, pattern element spacing, characteristic wear and randomly acquired damage features. Note: There were footwear impressions at the scene of a similar pattern type that could not have been made by these shoes. This conclusion is based on differences seen in pattern configuration.</p>
YWX8HP-5335	<p>The evidence item identified as Q1 corresponds in design, pattern, and general and individual characteristics when compared to the evidence item identified as K1f. It was produced by the left-side footwear. The evidence item identified as Q2 corresponds in design and pattern; however, it doesn't share general and individual characteristics when compared to the evidence item identified as K1d. The evidence item identified as Q3 corresponds in design and pattern; however, it doesn't share general and individual characteristics when compared to the evidence item identified as K1f. The evidence item identified as Q4 corresponds in design, pattern, and general and individual characteristics when compared to the evidence item identified as K1f. It was produced by the left-side footwear. The evidence item identified as Q5 corresponds in design, pattern, and general and individual characteristics when compared to the evidence item identified as K1f. It was produced by the left-side footwear. The evidence item identified as Q6 corresponds in design and pattern; however, it doesn't share general and individual characteristics when compared to the evidence item identified as K1f. The evidence item identified as Q7 corresponds in design, pattern, and general and individual characteristics when compared to the evidence item identified as K1f. It was produced by the right-side footwear. The evidence item identified as Q8 corresponds in design, pattern, and general and individual characteristics when compared to the evidence item identified as K1f. It was produced by the left-side footwear. The evidence item identified as Q9 corresponds in design and pattern; however, it doesn't share general and individual characteristics when compared to the evidence item identified as K1f.</p>
Z3JMMM-5335	<p>A footwear comparison was conducted with the following results: - Impressions Q1, Q4, Q5, and Q8 were compared and identified to the left shoe of item #K1, Sketchers athletic shoe. - Impressions Q7 was compared and identified to the right shoe of item #K1, Sketchers athletic shoe. - Impressions Q2, Q3, Q6, and Q9 were compared and excluded to both the right and left shoe of item #K1, Sketchers athletic shoe.</p>
Z6N8C8-5335	<p>Q1 (found on woodboard) and Q7 (found on ceramic tiles) matches with the left and right of the known imprints respectively, they match with similar class characteristics with significant limited factors. Q2 and Q3 (found on woodboard), Q6 (found on ceramic tiles) and Q9 (found on flyer) all these questioned items indicate dissimilarities in comparison to the known items. Q4 and Q5 (found on ceramic tiles) both matches the left known imprint with association of class characteristics. The questioned item Q8 found on flyer matches the left known item with the highest degree of association.</p>
ZMAQBZ-5331	<p>Q1-There is correspondence of design, physical size of design, degree and location of wear, and at least two randomly acquired characteristics (Schallamach patterns) between the left known shoe and the questioned impression. This is an identification on the SWGTREAD scale. Q2-The design in the questioned impression is different from the design in the known right shoe. This is an exclusion on the SWGTREAD scale. The left shoe is also excluded based on obvious differences in design. The known shoes were not the source of, and did not make, the questioned impression. Q3-The design and degree and location of wear in the questioned impression is different from the design and wear in the known right shoe. This is an exclusion on the SWGTREAD scale. The left shoe is also excluded based on obvious differences in design. The known shoes were not the source of, and did not make, the questioned impression. Q4-There is correspondence of design, physical size of design, degree and location of wear,</p>

TABLE 2

WebCode-Test	Conclusions
	<p>and at least two randomly acquired characteristics (Schallamach patterns) between the left known shoe and the questioned impression. This is an identification on the SWGTREAD scale. Q5-There is correspondence of design, physical size of design, degree and location of wear, and at least three randomly acquired characteristics (Schallamach patterns) between the left known shoe and the questioned impression. This is an identification on the SWGTREAD scale. Q6-The design in the questioned impression is different from the design in the known right shoe. This is an exclusion on the SWGTREAD scale. The left shoe is also excluded based on obvious differences in design. The known shoes were not the source of, and did not make, the questioned impression. Q7-There is correspondence of design, physical size of design, degree and location of wear, and at least two randomly acquired characteristics (Schallamach patterns) between the right known shoe and the questioned impression. This is an identification on the SWGTREAD scale. Q8-There is correspondence of design, physical size of design, degree and location of wear, and at least four randomly acquired characteristics (Schallamach patterns) between the left known shoe and the questioned impression. This is an identification on the SWGTREAD scale. Q9-The design and degree and location of wear in the questioned impression is different from the design and wear in the known right shoe. This is an exclusion on the SWGTREAD scale. The left shoe is also excluded based on obvious differences in design. The known shoes were not the source of, and did not make, the questioned impression.</p>
ZMRMX9-5335	<p>The results extremely strongly support that the shoeprints Q1,Q4,Q5 and Q8 has been deposited with the left shoe (Grade +4) The results extremely strongly support that the shoeprints Q7 has been deposited with the right shoe (Grade +4) The results extremely strongly support that the shoeprints Q2,Q3,Q6 and Q9 has not been deposited with the right shoe (Grade -4)</p>
ZPBU22-5335	<p>The digital images from item 1A were visually analyzed and nine questioned footwear impressions were determined to be suitable for comparison. Five questioned footwear impressions from item 1A were determined to be from a right shoe. Three questioned footwear impressions from item 1A were determined to be from a left shoe. One questioned impression from item 1A was visually compared to item 1.B.01. Item 1.B.01 was excluded as the source of the questioned impression. The questioned impression from item 1A was also visually compared to item 1.B.02. Item 1.B.02 was identified as the source of the questioned impression. Five questioned impressions from item 1A were visually compared to item 1.B.01. Item 1.B.01 was excluded as the source of four questioned impressions. Item 1B.01 was identified as the source of one questioned impression. Three questioned impressions from item 1A were visually compared to item 1.B.02. Item 1.B.02 was identified as the source of the three questioned impressions. NOTE: An identification decision is reached when the questioned impression and the known impression have corresponding detail, such that the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source.</p>



# Additional Comments

TABLE 3

WebCode-Test	Additional Comments
2T9K2L-5335	The photographs of the shoes were not the best and did make it more challenging to see RACs in the shoes.
3BP2PZ-5335	CONCLUSION DEFINITIONS Identification: The highest degree of association in footwear examinations. The questioned impression and the known footwear/footwear exemplar(s) share agreement of class characteristics and agreement of a sufficient quality and quantity of discernible randomly acquired characteristics to reach a conclusion of common source. Exclusion: The highest degree of non-association expressed in footwear examinations. Sufficient differences were noted in the comparison of class and/or randomly acquired characteristics between the impression and known footwear/footwear exemplar(s) to reach the conclusion that the footwear was not the source of, and did not make the impression.
6QTET2-5335	There were several features within the impressions of the submitted shoes that I have assumed to be damage features although I cannot see them clearly on the photographs of the shoes. The five impressions that corresponded to the submitted shoes all had fine detail in them that corresponded to feathering on the soles of the shoes. Three were enlarged for comparison, the other two were examined under a magnifier.
7PDH23-5335	It would be valuable if the proficiency test did not include known imprints, so that the test also includes making known imprints with the actual shoes. The proficiency test would then test all parts of the footwear comparison.
DEAPEU-5335	The images of the shoe soles are not suitable for conducting a comparative examination. It cannot be determined whether the supposed damage to the sole is an individual characteristic or if it is a manufacturing defect.
DLRY6C-5331	Physical shoe would be required to confirm conclusive results.
FBK3WR-5335	Methods of Analysis: Items analyzed using a combination of visual examination, test impression preparation, side-by-side and digital overlay comparisons.
FDB2BP-5335	During normal casework, the known shoes would be preferred in order to confirm any random identifying characteristics observed in the unknown impressions.
GK37DP-5331	This test was completed by Footwear Screening Officers who are not Footwear Experts as the [Laboratory] no longer has any Footwear Experts. It has been completed in line with our internal SOPS.
H2M8P8-5335	THE QUESTIONED IMPRINTS Q2, Q3, Q6, AND Q9 HAVE DIFERENT DESIGN THAN THE SOLE OF RECOVERED FOOTWEAR.
K7TMAE-5331	Comparison of the right shoe and Q7 There is a correspondence of class characteristics and general wear. The only possible difference in observable general wear between the questioned impression and the test impression is in the two rectangular shaped lugs on the ball of the outsole which in the questioned impression are lacking the fine diamond shaped details. This could be explained by reasons such as too much ink/deposited material which has filled in the fine detail during the creation of the impressions or another possible reason such as the weight or gait of the wearer who created the questioned impression and test impressions. There is no other observable clear differences between the wear on the outsole and the test impression. There are no clear and obvious observable RACs on either the outsole, questioned impression or the test impressions. There are some possible similarities along the lateral edge of the arch of the foot on the questioned impression and test impression. These features are submillimeter to approximately 1 mm in size, they are fine lines which could be either manufacturing

TABLE 3

WebCode- Test	Additional Comments
	features or RACs, and these are not clearly visible in the photograph of the outsole. Also present are possible similarities within the individual diamonds observed in the medial side of the arch on the questioned impression and test impression. These features are submillimetre in size which could also be either manufacturing features or RACs, and again these are not clearly visible in the photograph of the outsole. As these features are not clearly observable on the photographs provided of the outsole to determine if they are manufacturing features or RACs, I would therefore require the physical shoe to examine to make a determination. The clarity of the detail in Q7 is limited in the ball/toe area of the impression due to the overlapping impressions of Q6 and Q5. This places a limitation on the amount of well defined questioned impression to be able to assess clear similarities or differences.
KNUAUL-5335	Five categories of conclusions are applied in our laboratory: Positive, probably positive, impossibility, probably negative, negative
L9XAMJ-5331	Randomly acquired characteristics were difficult to verify due to the quality of the photographs of the shoes.
MGNC4L-5331	A RAC is a feature resulting from interaction with an object including but not limited to: cuts, scratches, tears, holes, stone holds, abrasions and the acquisition of debris. The position, orientation, size and shape of these characteristics differentiate the item from other items with similar class characteristics.
MR72WY-5335	The following descriptions provide context to the range of conclusions for impression evidence as indicated within this Trace Evidence Unit Final Report. Identification: Questioned and known items share agreement of class characteristics and randomly acquired, (individualizing), characteristics of sufficient quality and quantity to indicate that a specific item created the impression. High degree of association: Questioned and known items share a correspondence of class characteristics, in addition to unusual wear and/or one or more randomly acquired, (individualizing), characteristics. Association of class characteristics: Questioned and known items share a correspondence of design, physical size, and general wear but there is not sufficient randomly acquired, (individualizing), characteristics present for an identification. Limited association of class characteristics: Questioned and known items share similar class characteristics, but insufficient detail or other limiting factors are present that will not allow for a more specific association. Inconclusive: Questioned item lacks sufficient detail for a meaningful conclusion in comparison to the known item. Indications of non-association: Questioned item displays dissimilarities in comparison to the known item, however, insufficient detail or other limiting factors are present that will not allow for a more specific non-association. Elimination: Questioned and known items display sufficient differences in class characteristics and randomly acquired, (individualizing), characteristics to indicated that a specific item did not create the impression.
MWX2GL-5331	The photographs of the tread design of the shoes were poor quality. It was nearly impossible to see the RACs on the black tread areas.
NNKQ4D-5331	The photographs of the recovered shoes were very underexposed in the dark colored areas of the tread design elements. This made it difficult to impossible to evaluate the potential for Randomly Acquired Characteristics and wear patterns in these areas of the known shoes.
P494FJ-5331	The three photographs of the shoe outsole (K1a – K1c) do not show much detail in the cross-hatching area of the elements that are black due to poor lighting. Had this been actual evidence, I would have made better photos of these areas to show some detail.
P63WAH-5335	The marks Q2,3,6 and 9 correspond in pattern with various parts of the tread of the training shoes in question; however, there are clear and consistent differences apparent in the overall pattern size and the position and degree of wear. In my opinion, these differences are such that the marks have not been made by the training shoes K1.
P94ZWX-5331	Although the submitted materials were of great quality and this was a good trial, it would be preferable to have the physical shoes to examine for damage etc.

TABLE 3

WebCode- Test	Additional Comments
PHW9NG- 5331	Note: Extremely strong support is the highest point on our scale. We do not use identification.
PMP93C- 5331	Our lab does not use "indications of non-association" as a conclusion. We use inconclusive (where there are similarities and differences noted, or not enough information is available through the questioned impression), so the responses in the report wording and the answers to this test are different. In addition, to exclude an item as a source, we have a policy in place stating if the only difference is wear, the physical items are required to make the exclusion. In this test, minor differences were noted and without shoes for further examination, it makes it difficult to exclude. Without the shoes, my report answer continues to be dictated by lab policy vs the SWGTread Range of Conclusions. // The black soles of the shoes in addition to the poor highlighting of the elements in the photos of the soles made it extremely difficult to make note of any identifying features/marks or further conclusions on several of the questioned impressions. I couldn't tell if there were any similarities or differences between the questioned and the known because I couldn't be positive what I was viewing on the known sole. Suggestion to either include additional photos highlighting/magnified viewing of the shoe or refrain from using a black sole shoe in the future. // In the given test impressions, they printed slightly inconsistently (maybe include a walking?), so there were difficulties in the comparison work.
QHPJYA- 5335	The questioned impression Q8 share agreement of class and RACs of sufficient quality and quantity. The characteristics observed exhibit strong associations between the questioned impressions Q1, Q4 and Q5 and the left known shoe K1; however, the quantity was insufficient for an identification (partial dimension/visibility of the impressions prevented a higher level of association). For Q7: the quantity of identifiable RACS were not sufficient for a higher association. For Q2, Q6, and Q9: the dimension of the visible impression prevented further accounting/discounting. For Q3: there were some indicators suggesting discrepancy between Q3 and the known right shoe K1, which included difference in some areas of wear and possible randomly acquired characteristics. However, factors such as the differences in the means of deposition / distortion cannot be unaccounted for.
QXFLED- 5331	The quality and resolution of the photos of the soles (K1a-K1c) were poor for observing the defects, wear patterns, and individual details. A significant size difference was observed between the overall known impressions (K1f and K1g) and the known rolled heel impressions (K1d and K1e). In the Scenario section of the CTS document, the brand name Skechers was misspelled.
REGT3E- 5335	In accordance with Force 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 correlated to and verified with the items of footwear.
RPLXWF- 5331	The association scale for footwear impressions would be included in the report.
T6CXNF- 5331	The conclusions reported are based on [Laboratory] laboratory protocols.
T77QGD- 5335	the questioned imprints (Q2, Q3, and Q9) have been identified as right traces.
TBW3EV- 5335	We use a different conclusion scale. Quickly translated: A equals +4 B equals +3 C equals +2 D equals +1 E equals 0 F equals -1 to -3 G equals -4
TCRLFW- 5331	[Participant reported Imprint Conclusions and Left/Right orientation results in locations opposite to those described in the instructions. This was updated by CTS.]

TABLE 3

WebCode- Test	Additional Comments
X9FMU6- 5335	Does CTS plan to use the new range of conclusions that the Footwear/Tire OSAC are implementing?
Y2TYT8- 5335	Questioned imprints Q1, Q4, Q5 & Q8 were produced by left recovered shoe. Questioned imprint Q7 was produced by right recovered shoe. The questioned imprints Q2, Q3, Q6 and Q9 were produced by the same right shoe, which is not the recovered shoe but does present similar class characteristics (coincidence of sole pattern).
YFNH7N- 5335	It was very difficult to see and assess detail on the dark areas of the undersole.
ZMAQBZ- 5331	The black outsole material did not photograph well making it very difficult to visualize the diamond design elements contained in the black outsole areas, and impossible to confirm and RAC's in those areas. Shoe outsoles in colors which do not photograph well should not be chosen as exemplars to use in a proficiency test in which photographs have to be used to make a conclusion.

-End of Report-  
(Appendix may follow)

## Test No. 25-5331: Footwear Imprint Evidence

DATA MUST BE SUBMITTED BY **June 09, 2025, 11:59 p.m. EDT** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: JFN69X

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:

Investigators are asking you to compare the imprints recovered at a crime scene with photographs of recently cleaned shoe soles recovered one day after the incident and known imprints made with these shoes. The recovered shoes are manufactured by Sketchers, and the shoe tag reads: US 8.5, UK 5.5, EUR 38.5, CM 25.5, BRA 38, SN 104680 COLOR: BKW, TEXTILE UPPER, MADE IN VIETNAM/ HECHO EN VIETNAM, F 224-22, M Y 06-24.

*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 shoes 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 wood board.

Items Q4-Q7: Questioned imprints found on ceramic tiles.

Items Q8-Q9: Questioned imprints found on flyer.

**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.

Wood board		
<u>Imprint</u>		<u>L/R</u>
Q1:	<input type="text"/>	<input type="text"/>
Q2:	<input type="text"/>	<input type="text"/>
Q3:	<input type="text"/>	<input type="text"/>

Ceramic tiles		
<u>Imprint</u>		<u>L/R</u>
Q4:	<input type="text"/>	<input type="text"/>
Q5:	<input type="text"/>	<input type="text"/>
Q6:	<input type="text"/>	<input type="text"/>
Q7:	<input type="text"/>	<input type="text"/>

Flyer		
<u>Imprint</u>		<u>L/R</u>
Q8:	<input type="text"/>	<input type="text"/>
Q9:	<input type="text"/>	<input type="text"/>

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

**Note:** Please use appropriate punctuation to indicate the end of sentences, sections, and statements in the free-form space below. Extra spacing and returns used for separation within your text will not transfer and may cause your information to be illegible in the Summary Report. The use of lists and tabular formats to deliver information is also cautioned against, as these do not transfer.

## 3.) Additional Comments

**Note:** Please use appropriate punctuation to indicate the end of sentences, sections, and statements in the free-form space below. Extra spacing and returns used for separation within your text will not transfer and may cause your information to be illegible in the Summary Report. The use of lists and tabular formats to deliver information is also cautioned against, as these do not transfer.

## 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 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 ANAB and/or A2LA. (Accreditation Release section below must be completed.)
- ☐ This participant's data is **not** intended for submission to 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.

A2LA Certificate No.

**Step 2: Complete the Laboratory Identifying Information in its entirety.**

Authorized Contact Person and Title

Laboratory Name

Location (City/State)