



Tire Track Imprint Evidence

Test No. 22-5351/5 Summary Report

Each sample pack contained either digitally produced photographs (22-5351) or directly downloadable digital images (22-5355) of five questioned tire track imprints, photographs of a suspect tire, and test imprints made with that tire. All participants also received an additional set of inked exemplars as a digital supplemental image set. Participants were requested to compare the imprints from the crime scene with the suspect tire and report their findings. Data was returned by 78 participants: 28 for 22-5351 and 50 for 22-5355 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 either photographs or digital images of a suspect tire, inked exemplars of a suspect tire, and questioned tire track imprints. Participants also received a second set of inked exemplars as a digital download supplemental on the CTS portal (K1_Sup-K8_Sup). The suspect tire was photographed in segments (K1-K8), with the start and end of each segment indicated by a red line. The inked exemplars were segmented and captured in the same manner (K1_Ink-K8_Ink). Two photographs contained images of five questioned tire track imprints (Q1-Q5). Participants were requested to compare the imprints from the crime scene with the suspect tire and report their findings.

SAMPLE PREPARATION:

The previously driven tires used in production of the test were gently cleaned to remove any loose debris from the surface prior to inking.

KNOWN EXEMPLARS: (K1_Sup-K8_Sup; K1_Ink-K8_Ink) Inked exemplar imprints were created by pushing a vehicle equipped with the suspect tire across an inked surface and then white containerboard. (K1-K8) The suspect tire was removed from the vehicle and photographed in segments after known exemplars and questioned imprints were collected.

QUESTIONED IMPRINTS: (Q1-Q5) Questioned imprints were created by pushing a vehicle equipped with the suspect or elimination tire across an inked surface and then the substrate. All production materials were repositioned and the process repeated as necessary to capture all tire track imprints in question.

VERIFICATION:

Laboratories that conducted the predistribution examination of the images associated questioned imprints Q1, Q3, and Q4 with the suspect tire and eliminated it as the source of imprints Q2 and Q5. All predistribution labs reported tire segments that included the area of the tire within questioned tire imprints.

SAMPLE PACK ASSEMBLY:

Once sample preparation, verification, and final image production were complete, each photo set was placed into a pre-labeled sample pack envelope, sealed with evidence tape, and initialed with "CTS." Digital download media were provided in a zipped file uploaded to the CTS portal.

Imprint	Substrate	Tire Brand	Tire Spec (DOT Info)	Segment(s) Associated
Q1	Large Piece of Raw Wood	Yokohama	P225/60 F17 98H M&S (DOT FDFC PE22418)	K1
Q2	Large Piece of Raw Wood	Yokohama	P225/60 F17 98H M&S (DOT FDFC PE22418)	Elimination
Q3	Large Piece of Raw Wood	Yokohama	P225/60 F17 98H M&S (DOT FDFC PE22418)	K7
Q4	Large White Yard Sale Poster	Yokohama	P225/60 F17 98H M&S (DOT FDFC PE22418)	K4
Q5	Large White Yard Sale Poster	Yokohama	P225/60 F17 98H M&S (DOT FDFC PE22418)	Elimination

Summary Comments

This test was designed to allow participants to assess their proficiency with tire track imprint examination. Test material consisted of two photographs containing five questioned tire track imprints (Q1-Q5), photographs of the suspect (known) tire, divided into segments (K1-K8), and photographs of inked exemplar imprints made with the tire (K1_Ink-K8_Ink). They also received a second set of inked exemplars as a digital supplemental image set. Participants were requested to determine if any of the questioned imprints were made by the known tire, using a seven-point conclusion scale. Three of these imprints (Q1, Q3, Q4) were made by the known tire. Two additional imprints (Q2 and Q5) were made by a different tire (Refer to the Manufacturer's Information for preparation details).

For the following statistical tabulations, all responses of association (A-D) with the expected tire segments were tallied together, and all responses of non-association (F-G) were tallied together.

A total of 66 participants (86%) reported the expected three associations and two non-associations.

For Items Q1 and Q3, 76 participants (97%) reported some level of association between the known tire and the questioned imprints.

For Items Q2 and Q5, 73 participants (94%) reported some level of non-association between the known tire and the questioned imprints.

For Item Q4, 69 participants (88%) reported some level of association between the known tire and the questioned imprints. Nine participants (12%) reported an exclusion (conclusion G) between the known tire and questioned imprints. Several of these participants stated that there were differences in wear pattern or individual characteristics.

****Update February 2023****

After receiving questions regarding imprint Q4 from a few laboratories following the publication of this Summary Report, CTS extensively investigated the questioned imprint and its production process. The concern raised was that a sizing issue was found when comparing imprint Q4 with the Known Suspect tire resulting in an exclusion. From this investigation, it was found that the cause for what has been referred to as a size discrepancy with Q4 was due to the foam core posterboard substrate bending slightly into a concave shape during the production process. This appears to have created the referred to size discrepancy when photographed from above. This artifact of production is being shared to better assist laboratories with their evaluation of the results.

Examination Results

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

TABLE 1a (large piece of raw wood)

Questioned Imprints							
WebCode- Test	Q1		Q2		Q3		
	Conclusion	Segment(s)	Conclusion	Segment(s)	Conclusion	Segment(s)	
3N9VM7- 5355	A	K1	F		A	K7-K8	
3PEL6L- 5351	A	K1	G		A	K7-K8	
4AE6UD- 5355	G		G		G		
6BBTWA- 5355	A	K8-K1	F		A	K7-K8	
6VG7T3- 5351	A	K8-K1	G		A	K7-K8	
6XHB43- 5355	A	K1	G	K1-K8	A	K7-K8	
72UKNJ- 5351	A	K1	G		A	K7	
72YXD2- 5355	A	K1	G		A	K7-K8	
77DTX6- 5355	A	K1	G	K1-K8	A	K7-K8	
7UJC94- 5351	A	K8-K1	G		A	K8-K7	
82H4CQ- 5355	C	ALL	B	K5-K6	B	K3-K4	
8EKR3Z- 5355	A	K1	G		A	K7	
8ZKTGN- 5351	A	K8-K1	G		A	K7-K8	
92M92Y- 5355	A	K1	G	K1-K8	A	K7-K8	
9D2D7A- 5355	A	K-1	F		A	K-7	
9LVKK9- 5351	A	K1	G		A	K7-K8	
APTCHX- 5351	A	K8-K1	G		A	K7-K8	

TABLE 1a (large piece of raw wood)

Questioned Imprints							
WebCode- Test	Q1		Q2		Q3		
	Conclusion	Segment(s)	Conclusion	Segment(s)	Conclusion	Segment(s)	
AZCNWV- 5351	A	K1	G		A	K7-K8	
C3CJNX- 5351	A	K1	F		A	K7-K8	
C4MKBW- 5355	A	K1	G		A	K7-K8	
C6EMT6- 5351	A	K8-K1	G		A	K7-K8	
C6JYXP- 5351	A	K1	G		A	K7-K8	
CCXMWW- 5355	A	K1	G		A	K7	
CDANC4- 5355	A	K1	G		A	K7	
CNRY7P- 5355	A	K1	G		A	K7-K8	
CPLMPK- 5355	A	K1	G		A	K7	
CQVZND- 5355	A	K1	G		D		
DMDU9R- 5351	A	K1	G		A	K7	
E7PZ2Y- 5355	A	K1	G	K1-K8	A	K7-K8	
ENJTLW- 5351	A	K1	G		A	K7-K8	
EQDG6T- 5351	A	K8-K1	F		A	K7-K8	
EZEYP4- 5355	B	K1	F		C	K7-K8	
F9MYNW- 5355	A	K1	G		A	K7-K8	
FLDT2Q- 5351	A	K1/K8	G		A	K7/K8	
FQLZFA- 5355	A	K8-K1	G		A	K7-K8	

TABLE 1a (large piece of raw wood)

Questioned Imprints							
WebCode- Test	Q1		Q2		Q3		
	Conclusion	Segment(s)	Conclusion	Segment(s)	Conclusion	Segment(s)	
FRFNY6-5351	A	K8-K1	G	N/A	A	K7-K8	
FVYYTN-5351	A	K8-K2	G		A	K6-K8	
GEUREL-5355	A	K1	G		A	K7-K8	
GJ46WK-5355	A	K1	G		A	K7-K8	
GKCETN-5351	A	K1	G		A	K7-K8	
GKXTEF-5355	A	K1	F		A	K7-K8	
GM4FRK-5355	A	K1	G		A	K7-K8	
GTNDHT-5355	A	K1	G	K1-K8	A	K7-K8	
HRCYPR-5355	A	K1	G	K1-K8	A	K7-K8	
JJAH7X-5355	A	K1	G	K2-K3	A	K7	
JY8FHU-5351	A	K8-K1	G	K5-K6	A	K7-K8	
KLZPGM-5351	A	K1	G		A	K7-K8	
L4VKMH-5351	A	K1	G		A	K7	
LBBNAB-5355	A	K1	C	K5	A	K7-K8	
LQKAVL-5355	A	K1	G	K1-K8	A	K7-K8	
MAGZQF-5355	A	K8-K1	G		G		
MUHX62-5355	A	K1	G		A	K7-K8	
MYYFBP-5355	A	K1	G		A	K7-K8	

TABLE 1a (large piece of raw wood)

Questioned Imprints							
WebCode- Test	Q1		Q2		Q3		
	Conclusion	Segment(s)	Conclusion	Segment(s)	Conclusion	Segment(s)	
NBL6JU-5351	A	K8-K1	G		A	K7-K8	
NCFT2P-5351	A	K1	G		A	K7-K8	
NCHH7M-5355	A	K1	G	K1-K8	A	K7-K8	
QLVDAR-5355	A	K1	G		A	K7	
T9ZX3U-5355	A	K1	G		A	K7-K8	
TAULKP-5355	A	K1-K8	F		A	K7-K8	
TB6N8N-5355	A	K1	G		A	K7-K8	
TC3Y3Q-5351	A	K1	G		A	K7-K8	
TKFQTN-5355	A	K8-K2	D		B	K6-K8	
TPRN74-5355	A	K1	G		A	K7-K8	
TZB4A7-5355	A	K8-K1	G		B	K7-K8	
UUCFMV-5355	A	K1	E		B	K7-K8	
V7JMXL-5355	A	K1	G		A	K7-K8	
VG7J4T-5355	A	K1	G		A	K7-K8	
VUW6UH-5355	A	K1	G	K1-K8	A	K7-K8	
X24RBM-5355	A	K8-K1	G		A	K7-K8	
X2KQNK-5351	A	K1	F		A	K7-K8	
XZ7GEK-5351	A	K1	D	K1-K8	A	K7	

TABLE 1a (large piece of raw wood)

Questioned Imprints							
WebCode- Test	Q1		Q2		Q3		
	Conclusion	Segment(s)	Conclusion	Segment(s)	Conclusion	Segment(s)	
Y23AU4-5351	A	K1	F		A	K8	
YMJKY9-5351	A	K1	G	K1-8	A	K7-8	
YNCMHG-5355	A	K8-K1	G		A	K7-K8	
ZKCPTA-5355	A	K1	G	K2-K3	A	K7-K8	
ZQXH6A-5355	G		G		A	K7-K8	
ZTR7M6-5355	A	K1	G		A	K7-K8	
ZUJ7M2-5355	A	K1	G		A	K7	

Response Summary						Participants: 78
	Q1		Q2		Q3	
	Conclusion	Segment(s), by frequency	Conclusion	Segment(s), by frequency	Conclusion	Segment(s), by frequency
Identification (A)	74 (94.9%)	K1 55 (70.5%)	(A) 0 (0.0%)	N/A for non-assoc.	(A) 70 (89.7%)	K7-K8 56 (71.8%)
High Degree of Ass'n. (B)	1 (1.3%)	K8-K1 15 (19.2%)	(B) 1 (1.3%)		(B) 4 (5.1%)	K7 11 (14.1%)
Association (C)	1 (1.3%)		(C) 1 (1.3%)		(C) 1 (1.3%)	
Limited Ass'n. (D)	0 (0.0%)		(D) 2 (2.6%)		(D) 1 (1.3%)	
Inconclusive (E)	0 (0.0%)		(E) 1 (1.3%)		(E) 0 (0.0%)	
Non-Ass'n. (F)	0 (0.0%)		(F) 10 (12.8%)		(F) 0 (0.0%)	
Exclusion (G)	2 (2.6%)		(G) 63 (80.8%)		(G) 2 (2.6%)	

Please Note: Only segment(s) reported at a frequency of 5% or greater are tallied in the summary totals.

Examination Results

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

TABLE 1b (large white yard sale poster)

Questioned Imprints						
WebCode-Test	Conclusion	Q4 Segment(s)	Conclusion	Q5 Segment(s)		
3N9VM7-5355	A	K4	F			
3PEL6L-5351	A	K4	G			
4AE6UD-5355	G		G			
6BBTWA-5355	A	K3-K5	F			
6VG7T3-5351	A	K3-K5	G			
6XHB43-5355	A	K4	G		K1-K8	
72UKNJ-5351	A	K4	G			
72YXD2-5355	A	K4	G			
77DTX6-5355	A	K4	G		K1-K8	
7UJC94-5351	G		G			
82H4CQ-5355	C	ALL	C		ALL	
8EKR3Z-5355	A	K4	G			
8ZKTGN-5351	A	K4	G			
92M92Y-5355	A	K4	G		K1-K8	
9D2D7A-5355	A	K-4	F			
9LVKK9-5351	A	K4	G			
APTCHX-5351	A	K4	G			

TABLE 1b (large white yard sale poster)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q4</u> Segment(s)	Conclusion	<u>Q5</u> Segment(s)		
AZCNWV- 5351	A	K4-K5	G			
C3CJNX- 5351	A	K4-K5	F			
C4MKBW- 5355	A	K4	G			
C6EMT6- 5351	G		G			
C6JYXP- 5351	A	K4	G			
CCXMWW- 5355	A	K4	G			
CDANC4- 5355	A	K4	G			
CNRY7P- 5355	A	K4	G			
CPLMPK- 5355	A	K4	G			
CQVZND- 5355	A	K4	G			
DMDU9R- 5351	A	K4	G			
E7PZ2Y- 5355	A	K4	G	K1-K8		
ENJTLW- 5351	G		G			
EQDG6T- 5351	A	K4-K5	F			
EZEYP4- 5355	G		G			
F9MYNW- 5355	A	K4	G			
FLDT2Q- 5351	A	K4	G			
FQLZFA- 5355	G		G			

TABLE 1b (large white yard sale poster)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q4</u> Segment(s)	Conclusion	<u>Q5</u> Segment(s)		
FRFNY6- 5351	A	K3-K4	G	N/A		
FVYYTN- 5351	A	K3-K5	G			
GEUREL- 5355	A	K4	G			
GJ46WK- 5355	A	K4	G			
GKCETN- 5351	A	K4	G			
GKXTEF- 5355	A	K4	F			
GM4FRK- 5355	A	K4	G			
GTNDHT- 5355	A	K4	G	K1-K8		
HRCYPR- 5355	A	K4	G	K1-K8		
JJAH7X- 5355	A	K4	C	K6-K7		
JY8FHU- 5351	A	K3-K5	G	K6-K7		
KLZPGM- 5351	B	K4	G			
L4VKMH- 5351	A	K4	G			
LBBNAB- 5355	A	K4	D	K7		
LQKAVL- 5355	A	K4	G	K1-K8		
MAGZQF- 5355	A	K3-K5	G			
MUHX62- 5355	A	K4	G			
MYYFBP- 5355	A	K4	G			

TABLE 1b (large white yard sale poster)

Questioned Imprints						
WebCode- Test	Conclusion	Q4 Segment(s)	Conclusion	Q5 Segment(s)		
NBL6JU- 5351	A	K3-K5	G			
NCFT2P- 5351	A	K4	G			
NCHH7M- 5355	A	K4	G	K1-K8		
QLVDAR- 5355	A	K4	G			
T9ZX3U- 5355	A	K4	G			
TAULKP- 5355	A	K3-K5	F			
TB6N8N- 5355	B	K4	G			
TC3Y3Q- 5351	A	K4	G			
TKFQTN- 5355	C	K4-K6	D			
TPRN74- 5355	A	K3-K5	G			
TZB4A7- 5355	B	K4	G			
UUCFMV- 5355	B	K4	E			
V7JMXL- 5355	A	K4	G			
VG7J4T- 5355	A	K4	G			
VUW6UH- 5355	A	K4	G	K1-K8		
X24RBM- 5355	A	K3-K4	G	K6-K7		
X2KQNK- 5351	A	K4	F			
XZ7GEK- 5351	G		G			

TABLE 1b (large white yard sale poster)

Questioned Imprints						
WebCode-Test	Conclusion	Q4 Segment(s)	Conclusion	Q5 Segment(s)		
Y23AU4-5351	A	K4	G			
YMJKY9-5351	G	K1-8	G	K1-8		
YNMCHG-5355	A	K3-K5	G			
ZKCPTA-5355	A	K4	G	K1-K2		
ZQXH6A-5355	G		G			
ZTR7M6-5355	A	K4	G			
ZUJ7M2-5355	A	K4	G			

Response Summary				Participants: 78			
Q4 Conclusion		Segment(s), by frequency		Q5 Conclusion		Segment(s), by frequency	
Identification (A)	63 (80.8%)	K4	52 (66.7%)	Identification (A)	0 (0.0%)	N/A for non-assoc.	
High Degree of Ass'n. (B)	4 (5.1%)	K3-K5	9 (11.5%)	High Degree of Ass'n. (B)	0 (0.0%)		
Association (C)	2 (2.6%)			Association (C)	2 (2.6%)		
Limited Ass'n. (D)	0 (0.0%)			Limited Ass'n. (D)	2 (2.6%)		
Inconclusive (E)	0 (0.0%)			Inconclusive (E)	1 (1.3%)		
Non-Ass'n. (F)	0 (0.0%)			Non-Ass'n. (F)	8 (10.3%)		
Exclusion (G)	9 (11.5%)			Exclusion (G)	65 (83.3%)		

Please Note: Only segment(s) reported at a frequency of 5% or greater are tallied in the summary totals.

Examination Results

TABLE 1c - Complete Results

Response Summary					Participants: 78
Q1		Q2		Q3	
Conclusion	Segment(s), by frequency	Conclusion	Segment(s), by frequency	Conclusion	Segment(s), by frequency
A	74 (94.9%)	K1	55 (70.5%)	A	70 (89.7%)
B	1 (1.3%)	K8-K1	15 (19.2%)	B	4 (5.1%)
C	1 (1.3%)			C	1 (1.3%)
D	0 (0.0%)			D	1 (1.3%)
E	0 (0.0%)			E	0 (0.0%)
F	0 (0.0%)			F	0 (0.0%)
G	2 (2.6%)			G	2 (2.6%)
Q4			Q5		
Conclusion	Segment(s), by frequency	Conclusion	Segment(s), by frequency		
A	63 (80.8%)	K4	52 (66.7%)		
B	4 (5.1%)	K3-K5	9 (11.5%)		
C	2 (2.6%)				
D	0 (0.0%)				
E	0 (0.0%)				
F	0 (0.0%)				
G	9 (11.5%)				
				Conclusion	Segment(s), by frequency
				A	0 (0.0%)
				B	0 (0.0%)
				C	2 (2.6%)
				D	2 (2.6%)
				E	1 (1.3%)
				F	8 (10.3%)
				G	65 (83.3%)

Identification (A), High Degree of Association (B), Association (C), Limited Association (D), Inconclusive (E), Non-Association (F), Exclusion (G)

Please Note: Only segment(s) reported at a frequency of 5% or greater are tallied in the summary totals.

Conclusions

TABLE 2

WebCode-Test	Conclusions
3N9VM7-5355	<p>This report refers to exhibits by Lab Number. The following results only apply to the items tested. Examination of Exhibit 1 revealed five (5) tiretrack impressions suitable for source identification, marked Q1 through Q5. Comparisons of Exhibit 1 (Q1 through Q5) with Exhibit 2 (K1 through K8) resulted in the following determinations: Q1, Q3, and Q4 were source identifications to Exhibit 2. Exhibits Q2, and Q5 demonstrated support for exclusion to Exhibit 2. These conclusions conform with the relevant Department of Justice policy on Uniform Language for Testimony and Reports available at www.justice.gov.</p>
3PEL6L-5351	<p>1- Upon analysis Q1, Q3, Q4, tire track impression were found to possess sufficient quality and quantity for further examination A comparison were then made to K1,(k7-k8) ,k4 . 2- The tire impression characteristics corresponds in physical size, design, orientation, wear and numerous accidental characteristics with following segments:- Q1 =segment K1. Q3 = segment (k7-k8) . Q4= segment k4</p>
4AE6UD-5355	<p>The known tire imprints K1-K7 are excluded as the possible source of the questioned impressions Q1-Q5. The tread design pattern of the questioned imprints exhibited similar class characteristics of shape and spatial relationship of the tread design pattern of the known tire imprints. However, differences in size and wear pattern were significant enough to eliminate the questioned imprints from that of the imprints made by the known tire.</p>
6BBTWA-5355	<p>[No Conclusions Reported.]</p>
6VG7T3-5351	<p>Evaluation of the Item Q1-Q3 photo revealed the presence of three partial overlapping tire impressions on a wood/woodgrain substrate. Evaluation of the Item Q4-Q5 photo revealed the presence of two partial overlapping tire impressions on a light colored semi-smooth substrate. Comparative analysis between the K1 tire (and associated known tire impressions) versus the Q1, Q3, and Q4 questioned tire impressions revealed correspondence of class characteristics (tread pattern, physical size and general condition of wear) and multiple randomly acquired characteristics. Questioned impression Q1 was found to correspond with portions of segments K8 and K1 on the K1 tire. Questioned impression Q3 was found to correspond with portions of segments K7 and K8 on the K1 tire. Questioned impression Q4 was found to correspond with portions of segments K3, K4, and K5 on the K1 tire. It was concluded that the K1 tire was the source of, and made, the Item Q1, Q3 and Q4 questioned impressions. Another tire being the source of the impression is considered a practical impossibility. Comparative analysis revealed significant differences (wear features and randomly acquired characteristics) between the K1 tire (and associated known tire impressions) versus the Q2 and Q5 questioned tire impressions. It was concluded that the Item K1 tire did not make the Item Q2 or Q5 questioned impressions.</p>
6XHB43-5355	<p>No report required per policy.</p>
72UKNJ-5351	<p>Q1, Q3 and Q4 were identified as having been made by the suspected tire. Q2 and Q5 were not made by the suspected tires.</p>
72YXD2-5355	<p>No report required per policy.</p>
77DTX6-5355	<p>Impression Q1 was made by the K1 segment of the known tire. Impression Q2 was eliminated from the known tire. Impression Q3 was made by the K7-K8 segment of the known tire. Impression Q4 was made by the K4 segment of the known tire. Impression Q5 was eliminated from the known tire.</p>

TABLE 2

WebCode-Test	Conclusions
7UJC94-5351	<p>Five questioned tire track impressions (Q1 through Q5) were visually compared to the submitted photographs of a known Yokohama tire and its test impressions. Questioned impression Q1 corresponded in tread design, physical size, pitch sequence, and wear characteristics to a portion of the known tire (adjacent segments labeled K1 and K8). Multiple void areas in questioned impression Q1 corresponded in approximate size, shape, position, and orientation to randomly acquired characteristics on the known tire. In the opinion of the examiner, the known Yokohama tire made questioned impression Q1 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other tires. Although questioned impressions Q2 and Q5 corresponded in tread design, physical size, and pitch sequence to portions of the known tire, differences in wear and randomly acquired characteristics were observed. In the opinion of the examiner, the known Yokohama tire did not make questioned impressions Q2 and Q5 (Exclusion). Questioned impression Q3 corresponded in tread design, physical size, pitch sequence, and wear characteristics to a portion of the known tire (segments labeled K8 and K7). Multiple void areas in questioned impression Q3 corresponded in approximate size, shape, position, and orientation to randomly acquired characteristics on the known tire. In the opinion of the examiner, the known Yokohama tire made questioned impression Q3 (Identification). While this opinion cannot specifically exclude all other sources, the quality and extent of corresponding features would not be expected in other tires. Questioned impression Q4 shared general tread design features with the known tire; however, it differed in pitch sequence. In the opinion of the examiner, the known Yokohama tire did not make questioned impression Q4 (Exclusion). If additional known tires are obtained, they may be submitted for comparison to the questioned impressions.</p>
82H4CQ-5355	<p>Q1. A comparison was conducted between the scene impression (Q1) and the test impression (K1 to K8) using side by side method and digital overlays. There were similarities of location, shape and dimensions of all the visible pattern elements over the full length of the scene impression (Q1) and test impressions K1 to K8. There was insufficient information to definitely exclude the known item from having made the impression. Q2. A comparison was conducted between the scene impression (Q2) and the test impression (K1 to K8) using side by side method and digital overlays. There was correspondence of location, shape and dimensions of all of the visible pattern elements over the full length of the scene impression Q2 and test impressions K5 and K6. The area of wear previously identified on the scene impression generally coincided to a general area of wear in that part of the tyre. A total of one (1) randomly acquired characteristic were replicated in location, shape and dimensions. There were no explained differences identified. Q3. A comparison was conducted between the scene impression (Q3) and the test impression (K1 to K8) using side by side method and digital overlays. There was correspondence of location, shape and dimensions of all of the visible pattern elements over the full length of the scene impression Q3 and test impression K3 and K4. The area of wear previously identified on the scene impression generally coincided to a general area of wear in that part of the tyre. A total of one (1) randomly acquired characteristic were replicated in location, shape and dimensions. There were no explained differences identified. Q4. A comparison was conducted between the scene impression (Q4) and the test impression (K1 to K8) using side by side method and digital overlays. There were similarities of location, shape and dimensions of all the visible pattern elements over the full length of the scene impression (Q4) and test impressions K1 to K8. There was insufficient information to definitely exclude the known item from having made the impression. Q5. A comparison was conducted between the scene impression (Q5) and the test impression (K1 to K8) using side by side method and digital overlays. There were similarities of location, shape and dimensions of all the visible pattern elements over the full length of the scene impression (Q1) and test impressions K1 to K8. There was insufficient information to definitely exclude the known item from having made the impression.</p>
8EKR3Z-5355	No report required per policy
8ZKTGN-5351	SUMMARY: Three of the submitted tire imprints, Items 001-Q1, 001-Q3, and 001-Q4, were produced by the recovered tire that is represented in Items 001-K1 through 001-K8. Two of the submitted tire

TABLE 2

WebCode- Test	Conclusions
	<p>imprints, Items 001-Q2 and 001-Q5, were not produced by the recovered tire that is represented in Items 001-K1 through 001-K8. EXAMINATION, RESULTS and CONCLUSIONS: I was requested to compare five questioned tire imprints (Items 001-Q1 through 001-Q5) that are depicted in two photographs to the photographs of the recovered tire (Items 001-K1 through 001-K8) and imprints made from the recovered known tire (Items 001-K1_INK through 001-K8_INK). Additional known tire imprints (K1_Sup through K8_Sup) were downloaded from the submitting agency (CTS) for this examination. The questioned and known tire imprints have all been produced with a black substance. The examination of the evidence in this request began on August 24, 2022. For documentation purposes and to facilitate the examination process, I scanned all the submitted photographs to create a digital copy and produced transparent overlays of all of the known tire imprints. I then compared the photographs of the questioned tire imprints, Items 001-Q1 through 001-Q5, to the photographs and transparency overlays of the known imprints and to the photographs of the recovered known tire. Item 001-Q1: Item 001-Q1 is a questioned tire imprint that is on a piece of wood and is overlapped by another tire imprint, Item 001-Q2. When I compared this questioned tire imprint to the known recovered tire, I determined that it had the same tread design and aligned with segments K8 to K1 of the known tire. I also observed similar wear patterns between the questioned and known tire imprints, and numerous corresponding randomly acquired characteristics in the tread elements that were sufficient for an identification. Item 001-Q1 was produced by the known recovered tire. Item 001-Q2: Item 001-Q2 is a questioned tire imprint that is on a piece of wood and is overlapped by two other tire imprints, Items 001-Q1 and 001-Q3. When I compared this questioned tire imprint to the known recovered tire, I determined that it had the same tread design and aligned with three regions of the known tire. There were significant differences in these regions in the wear pattern and the randomly acquired characteristics of the tread elements. Item 001-Q2 was not produced by the known recovered tire. Item 001-Q3: Item 001-Q3 is a questioned tire imprint that is on a piece of wood and is overlapped by another tire imprint, Item 001-Q2. When I compared this questioned tire imprint to the known recovered tire, I determined that it had the same tread design and aligned with segments K7 to K8 of the known tire. I also observed similar wear patterns between the questioned and known tire imprints, and numerous corresponding randomly acquired characteristics in the tread elements that were sufficient for an identification. Item 001-Q3 was produced by the known recovered tire. Item 001-Q4: Item 001-Q4 is a questioned tire imprint that is on a white yard sale poster and is overlapped by another tire imprint, Item 001-Q5, along its length. When I compared this questioned tire imprint to the known recovered tire, I determined that it had the same tread design and aligned with segment K4 of the known tire. I also observed similar wear patterns between the questioned and known tire imprints, and numerous corresponding randomly acquired characteristics in the tread elements that were sufficient for an identification. Item 001-Q4 was produced by the known recovered tire. Item 001-Q5: Item 001-Q5 is a questioned tire imprint that is on a white yard sale poster and is overlapped by another tire imprint, Item 001-Q4, along its length. When I compared this questioned tire imprint to the known recovered tire, I determined that it had the same tread design and aligned with three regions of the known tire. There were significant differences in these regions in the wear pattern and the randomly acquired characteristics of the tread elements. Item 001-Q5 was not produced by the known recovered tire.</p>
92M92Y- 5355	[No Conclusions Reported.]
9D2D7A- 5355	The tire impression identified Q-1 has similarities in pattern, design size and general and individual characteristics, when compared to the impression identified K-1. The tire impression identified Q-3 similarity in pattern, design, size and individual characteristics, when compared to the impression identified K-7. The tire impression identified Q-4 has similarity in pattern, design, size and general and individual characteristics, when compared to the impression identified K-4. Evidence items identified Q-2 y Q-5 were not produced by evidence items identified K1 through K8.
9LVKK9- 5351	The questioned partial tire impression Q1 (Item #4) shares class and numerous randomly acquired characteristics of sufficient quality and quantity with the known tire and test impressions (Items #1, #2,

TABLE 2

WebCode-Test	Conclusions
	<p>and #3) indicating the tire impression was made by the known tire. The questioned partial tire impression Q3 (Item #4) shares class and numerous randomly acquired characteristics of sufficient quality and quantity with the known tire and test impressions (Items #1, #2, and #3) indicating the tire impression was made by the known tire. The questioned partial tire impression Q4 (Item #5) shares class and numerous randomly acquired characteristics of sufficient quality and quantity with the known tire and test impressions (Items #1, #2, and #3) indicating the tire impression was made by the known tire. The questioned partial tire impressions Q2 (Item #4) and Q5 (Item #5) exhibit significant differences in the randomly acquired characters when compared to the known tire and test impressions (Items #1, #2, and #3) indicating that the impressions could not have been made by the known tire.</p>
APTCHX-5351	<p>ITEMS OF EVIDENCE: Item: 1 K1-K8: Photographs of the recovered tire (segments), lighted from above Item: 2 K1_Ink-K8_Ink: Images of known imprints made with the recovered tire (segments) Item: 2.1 (K1_Ink-K8_Ink): Transparencies reprinted from the Item 2 inked known standard segments Item: 2.2 (K1_Sup-K8_Sup): Supplemental digital photographs of the inked known standard segments Item: 3 Q1-Q3: Photograph of questioned imprints found on a large piece of raw wood Item: 3.1 Unknown tire impression represented as Q1 RESULTS: The Item 3.1 impression was made by the Item 1 tire. Item: 3.2 Unknown tire impression represented as Q2 RESULTS: The Item 3.2 impression was not made by the Item 1 tire. Item: 3.3 Unknown tire impression represented as Q3 RESULTS: The Item 3.3 impression was made by the Item 1 tire. Item: 4 Q4-Q5: Photograph of questioned imprints found on a large white yard sale poster Item: 4.1 Unknown tire impression represented as Q4 RESULTS: The Item 4.1 impression was made by the Item 1 tire. Item: 4.2 Unknown tire impression represented as Q5 RESULTS: The Item 4.2 impression was not made by the Item 1 tire. Impression evidence in this case was examined utilizing the ACE-V methodology.</p>
AZCNWV-5351	<p>The known tire is identified as the source for impressions Q1, Q3, and Q4. The known tire is excluded as a possible source for impressions Q2 and Q5.</p>
C3CJNX-5351	<p>Imprints Q1, Q3, and Q4 were identified as having been produced by the suspect tire (depicted in the photographs K1 – K8). Imprints Q2 and Q5 could neither be identified nor eliminated as having been produced by the suspect tire (depicted in the photographs K1 – K8). Although these questioned impressions display a similar tread design to the suspect tire, indications of non-association and apparent dissimilarities were observed.</p>
C4MKBW-5355	<p>Report not required for PT Tests per policy.</p>
C6EMT6-5351	<p>The tire from which the images (Items K1 thru K8) and the inked imprints (Item K1_Ink thru K8_Ink) were obtained is identified as having made the impressions depicted in Items Q1 and Q3 based on an agreement of class characteristics (tread design and size), wear, and randomly acquired characteristics of sufficient quality and quantity. This tire was the source of the questioned impressions. Another tire being the source of these impressions is considered a practical impossibility. The tire from which the images (Items K1 thru K8) and the inked imprints (Item K1_Ink thru K8_Ink) were obtained is excluded as having made the impressions depicted in Items Q2, Q4, and Q5 based on differences in class characteristics (tread design and/or size), therefore these impressions could not have been made by this tire.</p>
C6JYXP-5351	<p>Q1 was identified as having been produced using the known tire, segment 1. Q2 was not produced using the known tire. Q3 was identified as having been produced using the known tire, segments 7 and 8. Q4 was identified as having been produced using the known tire, segment 4. Q5 was not produced using the known tire.</p>
CCXMWW-5355	<p>No report required per policy</p>

TABLE 2

WebCode- Test	Conclusions
CDANC4- 5355	[No Conclusions Reported.]
CNRY7P- 5355	Q1, Q3 and Q4 were identified to the submitted tire. Q2 and Q5 were eliminated to the submitted tire.
CPLMPK- 5355	Item #1 (segment K1) has been identified as the source of impression Q1. Item #1 (segment K7) has been identified as the source of impression Q3. Item #1 (segment K4) has been identified as the source of impression Q4. Item #1 (segments K1-K8) was excluded as the source of impressions Q2 and Q5.
CQVZND- 5355	Questioned imprints Q1 & Q4 were produced by recovered tyre. Questioned imprints Q2 & Q5 have similar class characteristics, but found sufficient discrepancies in acquired characteristics and general wear to exclude recovered tyre. Questioned imprint Q3 has similar class characteristics but discrepancies in acquired characteristics and general wear. They are not enough to completely exclude it to be produced by recovered tyre.
DMDU9R- 5351	Exhibits 4.1, 4.3 and 5.1 (unknown tire impressions Q1, Q3 and Q4) were made by the same tire that made exhibit 2, the submitted known tire impressions. Exhibits 4.2 and 5.2 (unknown tire impressions Q2 and Q5) were not made by the same tire that made exhibit 2, based on differences in wear. Exhibits 4.2 and 5.2 could have been made by the same tire based on similarities in the tread design; however, insufficient detail precludes a more conclusive finding. Suspect tires for exhibits 4.2 and 5.2 include tires with a similar tread design as the known tire. The suspect tire shares similar class characteristics as the known tire.
E7PZ2Y- 5355	The impression in Q1 was made using the segment K1 of the tire in Item 2. The impression in Q2 was not made using the tire in Item 2. The impression in Q3 was made using the segments K7-K8 of the tire in Item 2. The impression in Q4 was made using the segment K4 of the tire in Item 2. The impression in Q5 was not made using the tire in Item 2.
ENJTLW- 5351	K1-K8 tire impressions were compared to Q1-Q5 questioned impressions. It is my opinion that K1-K8 did not make questioned impressions Q2, Q4 and Q5. Therefore, K1-K8 are excluded from having made Q2, Q4 and Q5. Q2 was found to have been made by section K1. There were randomly acquired characteristics found in both Q2 and K1 to conclude that K1 made Q2. Q3 was found to have been made by sections K7-K8. There were randomly acquired characteristics found in both Q3 and K7-K8 to conclude that K7-K8 made Q3.
EQDG6T- 5351	The submitted photograph of the large piece of raw wood contained three questioned tire impressions labeled in part as Q1 to Q3. Q1 and Q3 are similar in tread design and wear to the known test impressions from the tire from the suspect vehicle. These impressions also share randomly acquired characteristics (RACs) with the known test impressions. It is my opinion that Q1 and Q3 were made by the tire of the suspect vehicle. Q2 is similar in tread design to the known test impressions, but has possible differences in wear present and no shared RACs. These characteristics indicate a non-association, but were not sufficient to exclude the known tire. The submitted photograph of the large white yard sale poster contained two questioned tire impressions labeled in part as Q4 and Q5. Q4 is similar in tread design and wear to the known test impressions from the tire from the suspect vehicle. This impression also shares randomly acquired characteristics (RACs) with the known test impressions. It is my opinion that Q4 was made by the tire of the suspect vehicle. Q5 is similar in tread design to the known test impressions, but has possible differences in wear present and no shared RACs. These characteristics indicate a non-association, but were not sufficient to exclude the known tire.
EZEYP4- 5355	First of all, the imprints are in 2D, measurement of the depth of the sculptures is impossible, excluding identification to the highest degree of association. ITEM Q1 This tire print corresponds to the K1 segment, both in terms of class and acquired characteristics. ITEM Q2 This tire print has the same tread

TABLE 2

WebCode- Test	Conclusions
	design as this tire YOKOHAMA. However, we did not establish any compatibility in the pitch sequences. ITEM Q3 This tire print corresponds to the K7-K8 segments (tread design compatibility, pitch sequences), and in terms of their class and acquired characteristics. ITEM Q4 This tire print has a same tread design but not the same width. So the tire could not make this tire print. ITEM Q5 Like item Q4, this tire print have same tread design but not the same width. So the tire could not make this tire print.
F9MYNW- 5355	Impression Compared To Result 1C-1 1B, unknown tire Identification 1C-2 1B, unknown tire Elimination 1C-3 1B, unknown tire Identification 1C-4 1B, unknown tire Identification 1C-5 1B, unknown tire Elimination
FLDT2Q- 5351	Photograph of questioned imprints found on a large piece of raw wood (Item Q1-Q3): This photograph depicts questioned imprints labeled Q1 through Q3, further determined to be tire impressions. Tire impressions Q1 and Q3 are similar in class characteristics (tread design and size), wear, and share randomly acquired characteristics to the photographs of the known tire (K1-K8). It is our opinion that tire impressions Q1 and Q3 were made by the known tire. Tire impression Q2 is dissimilar to the photographs of the known tire (K1-K8). It is our opinion that tire impression Q2 was not made by the known tire. Photograph of questioned imprints found on a large white yard sale poster (Item Q4-Q5): This photograph depicts questioned imprints labeled Q4 and Q5, further determined to be tire impressions. Tire impression Q4 is similar in class characteristics (tread design and size), wear, and share randomly acquired characteristics to the photographs of the known tire (Item K1-K8). It is our opinion that tire impression Q4 was made by the known tire. Tire impression Q5 is dissimilar to the photographs of the known tire (Item K1-K8). It is our opinion that tire impression Q5 was not made by the known tire. Photographs of known tire and imprints of known tire (Item K1-K8 and K1_Ink-K8_Ink): This item was used for comparison purposes.
FQLZFA- 5355	The recovered tire (Item K) is the source of two of the questioned tire impressions (Items Q1 and Q3). The recovered tire (Item K) is not the source of the remaining three tire impressions (Items 2, 4, and 5).
FRFNY6- 5351	1. Since the patterns of Q1, Q3, and Q4 match not only the shape but also the wear characteristics when compared to any part of the recovered tire, I concluded Q1, Q3, and Q4 as A. 2. Compared to all parts of the recovered tire, the patterns of Q2 and Q5 have the same shape as the thick patterns, but there is no match between the thin patterns and wear characteristics, so Q2 and Q5 are concluded as G.
FVYYTN- 5351	Exhibits 4.1, 4.3 and 5.1 (unknown tire impressions Q1, Q3 and Q4) were made by the same tire that made exhibit 2, the submitted known tire impressions. Exhibits 4.2 and 5.2 (unknown tire impressions Q2 and Q5) were not made by the same tire that made exhibit 2, based on differences in wear. Exhibits 4.2 and 5.2 could have been made by the same tire based on similarities in tread design; however, insufficient detail precludes a more conclusive finding. Suspect tires for exhibits 4.2 and 5.2 include tires with a similar tread design as the known tire. The suspect tire shares similar class characteristics as the submitted tire.
GEUREL- 5355	Visual examination of the images (Item 1 and 2) reveals five questioned tire impressions suitable for comparison. The questioned impressions Q1 and Q3 (Item 1) and Q4 (Item 2) were visually compared to the known tire (Item 3); the tire was identified as the source of these questioned impressions. The questioned impressions Q2 (Item 1) and Q5 (Item 2) were visually compared to the known tire (Item 3); the tire was excluded as the source of these questioned impressions. 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.
GJ46WK- 5355	Items Q1-Q3 and Q4-Q5 were examined for the presence of tire impressions. Five tire impressions, Items Q1, Q2, Q3, Q4, and Q5, were observed on the two items. The tire impressions found (Items Q1,

TABLE 2

WebCode-Test	Conclusions
	<p>Q2, Q3, Q4, and Q5) were compared to the photographs of the known tire in Item K1-K8 and to the tire exemplars Items 22-5355_K1_Ink - 22-5355_K8_Ink and 22-5351.5_K1_Sup - 22-5351.5_K8_Sup, created from the tire in Item 22-5355_K1 - 22-5355_K8. Items Q1-Q3, Q4-Q5, 22-5355_K1_Ink - 22-5355_K8_Ink, 22-5351.5_K1_Sup - 22-5351.5_K8_Sup, and 22-5355_K1 - 22-5355_K8 were examined visually and all comparisons were performed using ACE-V methodology. Tire Impression Results: Item Q1:, Item Q3:, Item Q4: The impressions listed above are similar in size, shape, tread design, and individualizing characteristics to the tire in Items 22-5355_K1 - 22-5355_K8 and the exemplars created from the tire, Items 22-5355_K1_Ink - 22-5355_K8_Ink and 22-5351.5_K1_Sup - 22-5351.5_K8_Sup. Comparison results: The impressions are identified as being created by the tire in Items 22-5355_K1 - 22-5355_K8. Item Q2:, Item Q5: The impressions listed above are not similar in size, shape, tread design, and individualizing characteristics to the tire in Items 22-5355_K1 - 22-5355_K8 and the exemplars created from the tire, Items 22-5355_K1_Ink - 22-5355_K8_Ink and 22-5351.5_K1_Sup - 22-5351.5_K8_Sup. Comparison results: The impressions are excluded as being created by the tire in Items 22-5355_K1 - 22-5355_K8.</p>
GKCETN-5351	<p>The Items Q1, Q3, and Q4 questioned tire impressions were made by the submitted known tire. These identifications are based on sufficient agreement of the combination of individual characteristics and all discernible class characteristics. The Items Q2 and Q5 questioned tire impressions were not made by the submitted known tire, K1 through K8 known segments. These eliminations are based on differences in class characteristics of general condition/wear and individual characteristics. The Item Q2 questioned tire impression and the Item Q5 questioned tire impression share the association of similar class characteristics including design, dimension, and general condition/wear to the respective areas present. However, Items Q2 and Q5 could not be identified or eliminated as having been made by the same unknown tire. This inconclusive result is due to lack of agreement in observed individual characteristics within the impression areas (noise treatment patterns) present in both Items Q2 and Q5. Other tires with the same class characteristics observed in the impressions cannot be eliminated as possible sources.</p>
GKXTEF-5355	<p>All of the impressions, Q1 through Q5, had the same general design. Q1 through Q3 were questioned impressions reportedly found on a large piece of raw wood. Q4 and Q5 were questioned impressions reportedly found on a large white yard sale poster. Q1, Q3, and Q4 were identified as having been made by the recovered tire based on the agreement of design, wear, and randomly acquired characteristics. There were indications of non-association of the Q2 and Q5 impressions to the recovered tire segments due to apparent differences in wear and randomly acquired characteristics. A more definitive conclusion may be offered after examination of the remaining tire exemplars from the suspect's vehicle.</p>
GM4FRK-5355	<p>The tire in Item #1 made the tire track impressions labeled #2-Q1, #2-Q3 and #3-Q4. The tire in Item #1 did not make the tire track impressions labeled #2-Q2 and #2-Q5.</p>
GTNDHT-5355	<p>[No Conclusions Reported.]</p>
HRCYPR-5355	<p>Q1 Identified to K1. These impressions have the highest degree of association. The questioned and known impressions share numerous similarities and areas of agreement of class, size, wear and RACs, (Randomly Acquired Characteristics). Q2 is excluded to K1-K8 for the purposes of noticeable size differences of all exemplars. Q3 is identified to K7-K8. There are numerous similarities from the questioned impressions to these segments of the known exemplars including size, wear, tread pattern and randomly acquired characteristics. Q4 is identified to K4 segment. There are numerous similarities from the questioned impressions to these segments of the known exemplars including size, wear, tread pattern and randomly acquired characteristics. Q5 is excluded to K1-K8 for the purposes of randomly acquired characteristics in the questioned impression that is not found in any of the known segments.</p>

TABLE 2

WebCode-Test	Conclusions
JJA7X-5355	Q1, Q3 and Q4 were made by the tire in Item 1. Q2 was not made by the tire in Item 1. Q5 is consistent with size and pattern of the tire in Item 1, however, no identification or elimination could be made.
JY8FHU-5351	Impressions Q1, Q3, and Q4 are similar in tread design, dimension (including pitch sequence), wear and randomly acquired characteristics to the known tire. Therefore, the known tire made impressions Q1, Q3, and Q4. Impressions Q2 and Q5 are similar in tread design, dimension (including pitch sequence), to the known tire. However, the wear is significantly different between impressions Q2 and Q5 and the known tire. Therefore, the known tire did not make the impressions. Tire impression analysis is based on the comparison of class and randomly acquired characteristics. Corresponding class and randomly acquired characteristics support the conclusion that the tire was the source of, and made, the questioned impression. Currently, the possibility that other tires having the same class and randomly acquired characteristics cannot be statistically calculated.
KLZPGM-5351	01-03: x1 photograph of questioned imprints found on large piece of raw wood. This item depicts three questioned partial tire impressions further labeled Q1 through Q3. Questioned partial tire impressions Q1 and Q3 are similar in size, shape, tread design, and share at least one randomly acquired characteristics to the known tire (01-01 and 01-02). It is my opinion these partial tire impressions were made by the known tire [Category 1]. Questioned partial tire impression Q2 is similar in size, shape, and tread design but differs in wear or manufacturing marks to the known tire (01-01 and 01-02). It is my opinion this partial tire impression was not made by the known tire [Category 5]. No further analysis was done. 01-04: x1 photograph of questioned imprints found on large white yard sale poster This item depicts two questioned partial tire impressions further labeled Q4 through Q5. Questioned partial tire impressions Q4 is similar in shape, tread design, and share at least three randomly acquired characteristics to the known tire (01-01 and 01-02). However, there are noticeable differences in size which cannot be explained. It is my opinion this partial tire impressions shares a high degree of association with the known tire and could have been made by the known tire or any other tire with similar characteristics [Category 2A]. Questioned partial tire impression Q5 is similar in size, shape, and tread design but differs in wear or manufacturing marks to the known tire (01-01 and 01-02). It is my opinion this partial tire impression was not made by the known tire [Category 5]. No further analysis was done.
L4VKMH-5351	Exhibits 4.1, 4.3, and 5.1 (unknown tire impressions Q1, Q3, and Q4) were made by the same tire that made exhibit 2, the submitted known tire impressions. Exhibits 4.2 and 5.2 (unknown tire impressions Q2 and Q5) were not made by the same tire that made exhibit 2 based on differences in wear. Exhibits 4.2 and 5.2 could have been made by the same tire based on tread design; however, insufficient detail precludes a more conclusive finding. Suspect tires for exhibits 4.2 and 5.2 include tires with a similar tread design as the known tire.
LBBNAB-5355	Questioned samples 1 - 5 were compared with the suspect tyre being a Yokohama P225/60R17 98H radial tubeless (M+S G91F H1982L). The suspect tyre was in good condition with even wear over the entire tread length. After comparison between the question samples and the suspect tyre, the following results were obtained - Q1, Q3 and Q4 were identified due to the highest degree of association in that both the questioned prints and the suspect tyre showed both similar class characteristics in size and tread pattern design and also had several randomly acquired characteristics of sufficient quality. It was identified that these marks were made by the suspect tyre. Q2 was a possible source of the questioned impression in that it had association of class characteristics and therefore could have produced the impression. Other tyres with the same class characteristics (size of tread and pattern) are included as possible sources. Q5 had indications of non-association and exhibited dissimilarities (tread size) when compared to the known tyre however, certain details / features were not sufficiently clear to permit an exclusion of this tyre.
LQKAVL-5355	[No Conclusions Reported.]

TABLE 2

WebCode-Test	Conclusions
MAGZQF-5355	<p>The Q1 and Q4 imprints correspond with portions of the known tire in physical size and design, general condition of wear, specific location of wear, and a number of randomly acquired characteristics. Therefore, the known tire is identified as the source of the Q1 and Q4 imprints. Portions of the known tire are similar in physical size and design with the Q2, Q3, and Q5 imprints. However, the Q2, Q3, and Q5 imprints differ in specific wear features with the known tire. Therefore the known tire is excluded as the source of the of the Q2, Q3, and Q5 imprints.</p>
MUHX62-5355	<p>- Questioned Item (Q1) and known item (K1) are share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Q1 and K1 have highest degree of association. -Questioned Item (Q3) and known items (K7 and K8) are share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Q3 and K7-K8 have highest degree of association. -Questioned Item (Q4) and known item (K4) are share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Q4 and K4 have highest degree of association. -Questioned items (Q2 and Q5) and known items (K1-K2-K3-K4-K5-K6-K7-K8) exhibit sufficient differences of randomly acquired characteristics. Questioned items (Q2 and Q5) and known items (K1-K2-K3-K4-K5-K6-K7-K8) have highest degree of non-association.</p>
MYYFBP-5355	<p>Impressions Q1, Q3, and Q4 were identified as having been made by the submitted tire. Impressions Q2 and Q5 were eliminated as having been made by the submitted tire.</p>
NBL6JU-5351	<p>Lucia Forensic 8.10 software and a superimposition of a transparent foil, with comparison materials on the photograph, with evidence materials were used in this test. Photographs of a tire (items K1-K8) and their imprints (items K1_ink-K8_ink) were compared with photographs of questioned imprints (items Q1-Q5). It was observed that on the surface of the tire, being the comparative material, there were present some individual identifying characteristics. Similar individual characteristics were also found in the evidence material marked Q1 (segments K8-K1), Q3 (segments K7-K8) and Q4 (segments K3-K5), and therefore it was assigned a grade A to them. Items Q2 and Q5 are different from the comparative materials.</p>
NCFT2P-5351	<p>COMPARISONS: The partial, questioned tire track impressions, Q1 through Q5, have been compared to the known tire, test impressions and transparencies in S-001-K. RESULTS: The partial, questioned tire track impression, Q1, was made by the known tire segment K1. The partial, questioned tire track impression, Q2, corresponds in tread design, physical size and general condition of wear, but lack the randomly acquired characteristics (RACs) and was not made by the known tire in Submission 001K. The partial, questioned tire track impression, Q3, was made by the known tire segments K7 and K8. *The partial, questioned tire track impression, Q4, was made by the known tire segment K4. The partial, questioned tire track impression, Q5, corresponds in tread design, physical size and general condition of wear, but lack the randomly acquired characteristics (RACs) and was not made by the known tire in Submission 001K.</p>
NCHH7M-5355	<p>The impression in Q1 was made by segment K1 of the known tire. The impression in Q2 was not made by the known tire. The impression in Q3 was made by segments K7-K8 of the known tire. The impression in Q4 was made by segment K4 of the known tire. The impression in Q5 was not made by the known tire.</p>
QLVDAR-5355	<p>Impressions 1-Q1, 1-Q3 and 1-Q4 were made by the tire in Item 1. Impressions 1-Q2 and 1-Q5 were not made by the tire in Item 1.</p>
T9ZX3U-5355	<p>In the comparison of the photographs of the tire marks of Q1, Q2, Q3, Q4 and Q5 which are stated to have been obtained from the crime scene, and the photographs of K1, K2, K3, K4, K5, K6, K7 and K8 which are stated to have been obtained from the tire has been concluded as below; *Q1 and K1, Q3 and K7-K8, Q4 and K4 are correlated, however Q2 and Q5 are uncorrelated.</p>

TABLE 2

WebCode-Test	Conclusions
TAULKP-5355	My evaluation is based on the findings and on my experience as a forensic scientist, during which time I have performed several examinations of this nature. In my opinion, the findings provide conclusive support for the proposition that the recovered tyre has made three of the questioned tyre imprints, labelled Q1 and Q3 (on the large piece of wood) and Q4 (on the large white yard sale poster) found close to the house where the robbery under consideration took place. In my opinion, the findings provide strong support for the proposition that the recovered tyre has not made two of the questioned tyre imprints, labelled Q2 (on the large piece of wood) and Q5 (on the large white yard sale poster) found close to the house where the robbery under consideration took place. In expressing the evidential significance of my findings, I have used the following verbal scale of support: No support for either proposition (inconclusive), no evaluation possible, limited, moderate, moderately strong, strong, very strong, extremely strong, conclusive. The above scale can be used to express both levels of association and elimination.
TB6N8N-5355	The questioned imprints Q1 and Q3 were left by the known tire. The questioned imprint Q4 were most probably left by the known tire. The questioned imprints Q2 and Q5 were not left by the known tire.
TC3Y3Q-5351	In our opinion, the seized tyre is responsible for marks Q1, Q3 and Q4. The seized tyre is not responsible for marks Q2 and Q5.
TKFQTN-5355	The findings provide "IDENTIFICATION" for the view that "Q1" could have originated from the recovered tire "K". The findings provide "LIMITED ASSOCIATION OF CLASS CHARACTERISTICS" for the view that "Q2" could have originated from the recovered tire "K". The findings provide "HIGH DEGREE OF ASSOCIATION" for the view that "Q3" could have originated from the recovered tire "K". The findings provide "ASSOCIATION OF CLASS CHARACTERISTICS" for the view that "Q4" could have originated from the recovered tire "K". The findings provide "LIMITED ASSOCIATION OF CLASS CHARACTERISTICS" for the view that "Q5" could have originated from the recovered tire "K".
TPRN74-5355	Manufactured pattern impressions suitable for comparison were noted in Exhibit Q1 through Q5. One (1) manufactured pattern impression noted in Exhibit Q1 was made by the tire depicted in Exhibits K1, K1-ink and K1-sup based on design, physical size, noise treatment, 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 Q3 was made by the tire depicted in Exhibits K7-K8, K7-ink-K8-ink and K7-sup-K8-sup based on design, physical size, noise treatment, 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 was made by the tire depicted in Exhibits K3-K5, K3-ink-K5-ink and K3-sup-K5-sup based on design, physical size, noise treatment, 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. Two (2) manufactured pattern impressions noted in Exhibits Q2 and Q5 were not made by the tire depicted in Exhibits K1-K8, K1-ink-K8-ink and K1-sup-K8-sup based on differences in 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.
TZB4A7-5355	The questioned imprint Q1 was made by the recovered tire. The questioned imprints Q3 and Q4 were likely made by the recovered tire. The questioned imprints Q2 and Q5 were not made by the recovered tire.
UUCFMV-5355	The queried tire tracks Q1, Q3, and Q4 correspond respectively to segments (K1), (K7-K8), and (K4) of the tire footprint in question with respect to design, physical size, and condition. general wear, unusual

TABLE 2

WebCode-Test	Conclusions
	wear, and the existence of multiple numbers of randomly acquired characteristics. However, there are indications of non-association between the Q2 and Q5 tracks and the footprint of the tire in question due to the dissimilarity in the notches and the difference in the physical size as well as the absence of characteristics acquired at random and unusual signs of wear.
V7JMXL-5355	The questioned impressions marked "Q1", "Q3" and "Q4" were examined and found to have been made by the recovered tire. The questioned impressions marked "Q2" and "Q5" were examined and found not to have been made by the recovered tire.
VG7J4T-5355	As a conclusion of the investigation, the connection has been confirmed between Q1-K1, Q3;K7-K8 and Q4-K4. On the other hand, the disconnection has been confirmed Q2 and Q5.
VUW6UH-5355	The impressions labeled as Q1, Q3, and Q4 were made by the tire. The impressions labeled as Q2 and Q5 were eliminated as having been made by the tire.
X24RBM-5355	Impressions Q1, Q3 and Q4 were made by the submitted known tire. Impressions Q2 and Q5 were not made by the submitted known tire.
X2KQNK-5351	The photographs of questioned imprints (Q1-Q5) were visually examined and compared to the known tire (K1-K8 and K1_Ink – K8_Ink). Q1 - IDENTIFICATION – The impression and the known tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Q1 was determined to have been made by the known tire. Q2 – INDICATIONS OF NON-ASSOCIATION – The impression is largely obscured by other impressions but general class characteristics correspond to the known tire, including design and size. There appear to be different wear patterns on this tire and the known, but the lack of enough clearly visible tread pattern limits the conclusion and precludes an exclusion conclusion. Q3 - IDENTIFICATION – The impression and the known tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Q3 was determined to have been made by the known tire. Q4 - IDENTIFICATION – The impression and the known tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity. Q4 was determined to have been made by the known tire. Q5 – INDICATIONS OF NON-ASSOCIATION – The impression is largely obscured by other impressions but general class characteristics correspond to the known tire, including design and size. There appear to be different wear patterns on this tire and the known, but the lack of enough clearly visible tread pattern limits the conclusion and precludes an exclusion conclusion.
XZ7GEK-5351	Items Submitted: Items K1 – K8: Photographs of the recovered tire (segments), lighted from above. Items K1 Ink – K8 Ink: Photographs of known imprints made with the recovered tire (segments). Items K1 Sup – K8 Sup: Supplemental images of known imprints made with the recovered tire (segments). Item Q1: Photograph of questioned imprint found on a large piece of raw wood. Item Q2: Photograph of questioned imprint found on a large piece of raw wood. Item Q3: Photograph of questioned imprint found on a large piece of raw wood. Item Q4: Photograph of questioned imprint found on a large white yard sale poster. Item Q5: Photograph of questioned imprint found on a large white yard sale poster. Examination: The questioned imprint labeled Q1 and the known tire K1, share agreement of class and randomly acquired characteristics of sufficient quality and quantity. It is the opinion of this examiner, that Q1 was made by K1. The questioned imprint labeled Q2 shares some general class characteristics as the known tire K1. The noise treatment corresponds as does the wear pattern. The randomly acquire characteristics seen in on Q2 were not present on the K1 exemplars. It is the opinion of this examiner, that the known tire K1, and the other segments of the submitted tire, were eliminated as having made the questioned imprint labeled Q2 The questioned imprint labeled Q3 and the known tire K7, share agreement of class and randomly acquired characteristics of sufficient quality and quantity. It is the opinion of this examiner, that Q3 was made by K7. The questioned imprint labeled Q4 shares some general class characteristics as the submitted tire. There were no corresponding random identifying characteristics seen, the noise treatment did not correspond in areas for more than a few inches in either

TABLE 2

WebCode-Test	Conclusions
Y23AU4-5351	<p>direction and there was visible differences in the wear pattern. It is the opinion of this examiner, that Q4 was not made by the submitted tire. The questioned imprint labeled Q5 shares some general class characteristics as the submitted tire. There were no corresponding random identifying characteristics seen, the noise treatment did not correspond in areas for more than a few inches in either direction and there was visible differences in the wear pattern. It is the opinion of this examiner, that Q5 was not made by the submitted tire.</p> <p>RESULTS OF IMPRESSION EXAMINATIONS BY: [NAME] Item 4: There were three (3) tire impressions, marked Q1, Q2, and Q3, observed in the photograph submitted in Item 4. Item 5: There were two (2) tire impressions, marked Q4 and Q5, observed in the photograph submitted in Item 5. Items 1, 2, & 3 Vs Items 4 & 5: The photographs of segments of a tire, marked in part "K1" through "K8," submitted in Item 1, and the inked exemplars made of those segments, submitted in Items 2 and 3, were compared with tire impressions Q1 through Q5. The results appear below: Impression: Q1 Result: Identification The questioned impression and known tire (segment "K1") share several randomly acquired characteristics and correspond in physical size, wear, and tread design. The tire is the source of, and made, the impression. Impression: Q2 Result: Indications of non-association The questioned impression exhibits dissimilarities when compared to the known tire; however, the features were not sufficiently clear to permit an exclusion. Impression: Q3 Result: Identification The questioned impression and known tire (segment "K8") share several randomly acquired characteristics and correspond in physical size, wear, and tread design. The tire is the source of, and made, the impression. Impression: Q4 Result: Identification The questioned impression and known tire (segment "K4") share several randomly acquired characteristics and correspond in physical size, wear, and tread design. The tire is the source of, and made, the impression. Impression: Q5 Result: Exclusion Randomly acquired characteristics are visible in the impression that are not present in the known tire, and vice versa. Differences in wear were also noted. The tire is not the source of, and did not make, the impression. This examiner is aware that other tires exist that are capable of having made the unidentified impressions listed above. METHODS OF ANALYSIS: Latent print examinations are performed by conducting side by side visual comparisons. A determination that an unknown tire impression was made by a specific tire means that there exists agreement of sufficient discernible randomly acquired and class characteristics to reach a conclusion that it was the source of, and made, the impression. DISPOSITION OF EVIDENCE: Photographs will be retained by the Laboratory. The evidence will be retained in the Impressions Section of the Laboratory. This report contains opinions, conclusions, or interpretations of the examiner whose signature appears below. [Signature]</p>
YMJKY9-5351	<p>The Item Q1, Q2, Q3, Q4 and Q5 questioned tire impressions were analyzed, compared, and evaluated with the Item K1 through K8 known tire sections. The Item Q1 questioned tire impression corresponds in tread design, physical size, specific wear, and six (6) randomly acquired characteristics with the Item K1 tire section. The Item Q2 questioned tire impression is similar in tread design, but does not correspond in physical size and specific wear with the Item K1 through K8 tire sections. The Item Q3 questioned tire impression corresponds in tread design, physical size, specific wear, and five (5) randomly acquired characteristics with the Item K7-K8 tire sections. The Item Q4 questioned tire impression is similar in tread design, but does not correspond in physical size with the Item K1 through K8 tire sections. The Item Q5 questioned tire impression is similar in tread design, but does not correspond in physical size and specific wear with the Item K1 through K8 tire sections. Based upon the above factors, it is the opinion of this examiner that: The Item Q1 questioned tire impression was made by the Item K1 known tire section. Another tire being the source of the impression is considered a practical impossibility. The Item Q2 questioned tire impression was not made by the Item K1 through K8 known tire sections. The Item K1 through K8 known tire sections were excluded. The Item Q3 questioned tire impression was made by the Item K7-K8 known tire sections. Another tire being the source of the impression is considered a practical impossibility. The Item Q4 questioned tire impression was not made by the Item K1 through K8 known tire sections. The Item K1 through K8 known tire sections were excluded. The Item Q5 questioned tire impression was not made by the Item K1 through K8 known tire sections. The Item K1 through K8 known tire sections were excluded.</p>

TABLE 2

WebCode- Test	Conclusions
YNCMHG- [No Conclusions Reported.] 5355	
ZKCPTA- 5355	The questioned imprints Q1, Q3 and Q4 shares agreement of class characteristics and randomly acquired characteristics of sufficient quality and quantity with the recovered tire (Yokohama, P225/60R17 98H) and the known imprint (segment K1 to Q1, segments K7-K8 to Q3 and segment K4 to Q4), which were made with the tire. The recovered tire was the source of and made the questioned imprint Q1, Q3 and Q4. Another item of tire being the source of the imprints is considered a practical impossibility. Sufficient differences were noted in the comparison of class characteristics between the questioned imprints Q2 and Q5 and the known imprints of the tire. The recovered tire was not the source of, and did not make the questioned imprints Q2 and Q5.
ZQXH6A- 5355	Visual Examination of the submitted material, photographs, disclosed the presence of five (5) questioned tire track impressions, designated as Q1 through Q5, a known "Yokohama" tire and known "Yokohama" inked test impressions in 8 segments, designated as K1 through K8. Visual Examination and comparison (superimposition/overlay and side by side) of the submitted material yielded the following results and conclusions: Q1 through Q5 share the same tread design to one another. Q1, Q4 and the known "Yokohama" tire are consistent with respect to tread design, however, dissimilar with respect to noise treatment patterns and individualizing characteristics. Therefore, Q1 and Q4 were NOT made by the known "Yokohama" tire. Q2, Q5 and the known "Yokohama" tire are consistent with respect to tread design and noise treatment pattern, however, dissimilar with respect to general wear, specific wear and individualizing characteristics. Therefore, Q2 and Q5 were NOT made by the known "Yokohama" tire. Q3 and the known "Yokohama" tire, segments K7-K8, are consistent with respect to tread design, noise treatment pattern, general wear, specific wear and individualizing characteristics. Therefore, Q3 WAS made by the known "Yokohama" tire, segments K7-K8.
ZTR7M6- 5355	The Q1TT1 impression was made by the Item K1 known tire segment based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in Q1TT1 and those present in the Items K2-K8 known tire segments to conclude that the impression was not made by Items K2-K8. The Q3TT1 impression was made by the Items K7 and K8 known tire segments based on sufficient agreement in observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in Q3TT1 and those present in the Items K1-K6 known tire segments to conclude that the impression was not made by K1-K6. The Q4TT1 impression was made by the Item K4 known tire segment based on sufficient agreement in observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in Q4TT1 and those present in the Items K1-K3 and K5-K8 known tire segments to conclude that the impression was not made by K1-K3 or K5-K8. Sufficient differences were noted between the characteristics present in the Q2TT1 and Q5TT1 impressions and those present in the K1-K8 known tire segments to conclude that the impressions were not made by K1-K8.
ZUJ7M2- 5355	Impressions #Q1, #Q3, and #Q4 were made by the known tire. Impressions #Q2 and #Q5 were not made by the known tire.

Additional Comments

TABLE 3

WebCode-Test	Additional Comments
3PEL6L-5351	Q2 ,Q5 Exclusion
72YXD2-5355	Since the whole known tire is K1, it would have made more sense for the segments to be labeled A, B, C etc.
7UJC94-5351	An Association Scale would be included in my report.
8EKR3Z-5355	As the tire is labeled K1, it would have been better to name the segments A,B,C ect.
APTCHX-5351	During normal casework, the known tire would be required in order to confirm any random identifying characteristics in the unknown impressions.
C4MKBW-5355	Naming the segments K1-K8 was not consistent with my training. Usually K# indicates a single source tire. Segments are marked alphabetically, A, B, C, etc.
EZEYP4-5355	The investigators put the measurement indicators on the tire prints for items Q1-Q3. As a consequence, they can hide some significant details for identification.
FLDT2Q-5351	The instructions state that the inked imprints were created pushing the vehicle across inking material and a continuous piece of white containerboard. However, it appears as though some of the know test impressions were pieced together (showing a line through the test impression rather than being continuous). This line was not present on the photographs of the known tire. Furthermore, a similar situation appeared in Q4, unsure if this was intentional or not.
GEUREL-5355	Item 1 - Q1-Q3: Photograph of questioned imprints found on a large piece of raw wood. Item 2 - Q4-Q5: Photograph of questioned imprints found on a large white yard sale poster. Item 3 - Photographs of known tire and test impressions.
GKXTEF-5355	Additional photographs of the tire segments with various lighting conditions may be helpful in identifying damaged areas on the tire.
JJA7X-5355	Scales in provided images should not be covering areas of the questioned impressions. Note regarding inconclusive finding of Q5: Some differences were observed in potential wear and randomly acquired characteristics between the test impression provided and the Q5; however, without the ability to physically see the tire and possible make more test impressions, a more conclusive result could not be reached at this time.
KLZPGM-5351	The photographs of the actual tire are dark in places and some of the randomly acquired characteristics was very hard to do. More photos of the known tire at different lighting would have been helpful. The overall difficulty of the proficiency is too high. There was too much overlapping of the Q impressions resulting in very limited detail that was hard to verify. Additionally, Q4 impression is an identification due to randomly acquired characteristics but the overlay does not line up on size despite both the photographs being 1:1. This requires the analyst to make assumptions regarding the substrate or to cautiously back off the identification. Both determinations can be supported and could occur in casework. But in a proficiency, where the goal is to see if an analyst can come to the expected opinion if all information is present, this does the opposite of that. It invites a range of determinations which does not serve the purpose of evaluating an analysts ability to make a determination.
NCFT2P-5351	*There is an area in the partial, questioned tire track impression, Q4, that doesn't seem to line up with the known tire Segment K4 where the questioned impression gets darker. Each end of the impression can be lined up and corresponding RACs can be marked. Over forty (40) RACs were marked between the partial, questioned tire track impression Q4 and the known tire segment K4.

TABLE 3

WebCode- Test	Additional Comments
TAULKP- 5355	The following points have been noted whilst conducting this proficiency trial: The extent and clarity of detail recorded in the imprints on the two objects are not in keeping with actual crime scene tyre marks submitted in casework. In this case example, having the same class characteristics in all five crime scene tyre marks, I would make a request for the actual tyre to be submitted, rather than images. The problem that was found with this trial, was that some of the finer features that were seen in both sets of test impressions made with the tyre could not be clearly identified on the tyre, possibly due to the lighting, which was often unevenly lit, used during its photograph. This introduces an element of uncertainty when trying to evaluate the presence/absence of features, and therefore risk.
UUCFMV- 5355	The Q2, Q5 tyre marks found at the scene share a class agreement with the footprint of the tyre in question but some dissimilarities were noted in the notches as well as a difference in physical size was noted. Which would indicate that these marks were probably not made by the tyre in question.
YNCMHG- 5355	Size difference between Q4 and test impressions, but it appears to be due to poorly recorded or incorrectly sized test impressions, or incorrectly sized Q4, as RAC's correspond. Ruler appears to be digitally overlayed, and photoshop guidelines were present on the downloaded images. This may be the source of the issue in sizing.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 22-5351: Tire Track Imprint Evidence

DATA MUST BE SUBMITTED BY **Sept. 19, 2022, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234C

WebCode: DUTU6F

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

Scenario:

Police are investigating a robbery at a residence. Tire track imprints were recovered on objects close to the house where the reported robbery took place. The imprints are believed to have been left by the suspect vehicle. A day after this incident, approximately one mile from the site, a vehicle was identified as belonging to an individual attempting to sell items similar to those reported stolen. Investigators were able to recover one tire directly from the vehicle. You are asked to compare the imprints recovered at the scene with photographs of the tire and known imprints made with the tire. The recovered tire contains the following information on the sidewall: Yokohama, P225/ 60R17 98H, Radial Tubeless M + S G91F, H1982L.

Known, inked imprints (K1_Ink through K8_Ink) have been labeled with an arrow to indicate directionality of movement. These inked imprints were made by placing the vehicle in neutral, and then pushing it across inking material and a continuous piece of white containerboard.

CTS provides a digital download supplemental for the Tire Track Imprint Evidence test series. This supplemental contains an additional set of known inked exemplars (K1_Sup-K8_Sup), accessible through a link on the CTS Portal data entry form (see below). While the photo packet contains all materials necessary to complete the test as presented, the supplemental is intended to bolster participant confidence in their conclusions.

For the supplemental images, you are not limited to conducting only on-screen comparisons and may employ any other method you wish. However, because of differences in printing technology, CTS cannot guarantee the quality of images you print from the digital media.

Items Submitted (Sample Pack TIEP - Photographs):

K1-K8: Photographs of the recovered tire (segments), lighted from above.

K1_Ink-K8_Ink: Images of known imprints made with the recovered tire (segments).

K1_Sup-K8_Sup: Digital supplemental images of known imprints made with the recovered tire (segments).

Q1-Q3: Photograph of questioned imprints found on a large piece of raw wood.

Q4-Q5: Photograph of questioned imprints found on a large white yard sale poster.

To verify a complete and accurate download, the hash value for the downloaded .ZIP file is as follows:

22-5351.5_Tire Track - Supplemental.zip MD5 hash value: d9aaa68c5d8435877e0df595e8d7ee11

22-5351.5_Tire Track - Supplemental.zip SHA1 hash value: e7f02aa8c21c4a1125e1c8b60b7f5084c40cf71d

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 tire 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 to which segment(s) of the tire the association has been made. Report a single segment or multiple segments like the example shown below.

Example:

<u>Imprint</u>	<u>Segment(s)</u>
Q1:	B K1

<u>Imprint</u>	<u>Segment(s)</u>
Q2:	A K1-K2

Wood Piece	
<u>Imprint</u>	<u>Segment(s)</u>
Q1:	<input style="width: 50px; height: 20px;" type="text"/>
Q2:	<input style="width: 50px; height: 20px;" type="text"/>
Q3:	<input style="width: 50px; height: 20px;" type="text"/>

Yard Sale Poster	
<u>Imprint</u>	<u>Segment(s)</u>
Q4:	<input style="width: 50px; height: 20px;" type="text"/>
Q5:	<input style="width: 50px; height: 20px;" type="text"/>

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

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

3.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

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

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

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

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

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

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

A2LA Certificate No.

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

Authorized Contact Person and Title

Laboratory Name

Location (City/State)