



Tire Track Imprint Evidence Test No. 21-5351/5 Summary Report

Each sample pack contained either digitally produced photographs (21-5351) or directly downloadable digital images (21-5355) of four 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 were returned by 67 participants: 35 for 21-5351 and 32 for 21-5355 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_3-K8_3). The suspect tire was photographed in segments (K1-K8), with the start and end of each segment indicated by a red line and assigned a letter (A-H). The inked exemplars were segmented and captured in the same manner (K1_2-K8_2). Two photographs contained images of four questioned tire track imprints (Q1-Q4). Participants were asked to compare the suspect tire and inked exemplars with the questioned imprints to determine if any associations or identifications could be established.

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-K8, K1_2-K8_2, K1_3-K8_3): Inked exemplar imprints were created by pushing a vehicle containing the suspect tire across an inked surface and then white containerboard. The suspect tire was removed from the vehicle and photographed in segments after known exemplars and questioned imprints were collected.

QUESTIONED IMPRINTS (Q1-Q4): Questioned imprints were created by pushing a vehicle containing 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 imprint Q2. All predistribution labs also associated each questioned imprint with the expected tire segments.

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	Tire Brand	Tire Specs	DOT Info	Segment(s)
Q1	Firestone	P205/65 R16 94H M&S	DOT 8X84 FTO 3516	C-F
Q2	Firestone	P205/65 R16 94H M&S	DOT 8X84 FTO 3516	N/A - Elimination
Q3	Firestone	P205/65 R16 94H M&S	DOT 8X84 FTO 3516	E-G
Q4	Firestone	P205/65 R16 94H M&S	DOT 8X84 FTO 3516	A-C

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 four questioned tire track imprints (Q1-Q4), photographs of the suspect (known) tire, divided into segments (K1-K8), and photographs of inked exemplar imprints made with the tire (K1_2-K8_2). 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. One additional imprint (Q2) was 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. For Items Q1, Q3, and Q4, all 67 participants (100%) reported some level of association between the known tire and the questioned imprints. Participants reported very strong associations between the known and questioned items, indicating either a high degree of association (conclusion B) or a full identification (conclusion A) for each of the three conclusions.

All 67 of the participants (100%) who reported an association between Q1 and the known tire identified one or more of the expected tire segments (C-D, D-E, D-F). All 67 of the participants (100%) who reported an association between Q3 and the known tire also reported one or both of the expected tire segments (E-F, F-G). Finally, 66 out of 67 participants (99%) reported one or both of the expected tire segments for Q4 (A-B, B-C); the remaining one participant reported segments beyond this range and was marked as an outlier.

For Item Q2, no group consensus was reached, as fewer than 75% of participants reported consistent findings. Forty-eight of 67 participants (72%) reported an elimination or indications of non-association (conclusion F-G) for this item, which correlates to the expected results of the Manufacturer's Information. Seventeen participants reported some level of association (conclusion B-D) or identified (conclusion A) the known tire as the source of the questioned imprint. Association was commonly attributed to segments B-C and C-D of the known tire. Two participants were inconclusive (conclusion E). Because no consensus was established for this item, no outliers are indicated regarding the conclusions.

Examination Results

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

TABLE 1a (Wood Piece)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q1</u> Segment(s)	WebCode- Test	Conclusion	<u>Q2</u> Segment(s)	
28QJMV- 5355	A	D-E	28QJMV- 5355	G		
2BN3PU- 5351	A	D-E	2BN3PU- 5351	F		
2VYXJL- 5355	A	D-E	2VYXJL- 5355	C	B-C	
3QKJER- 5351	A	D-E	3QKJER- 5351	G		
3ZPQUR- 5351	A	D-E	3ZPQUR- 5351	G		
4HKGPL- 5355	A	D-E	4HKGPL- 5355	G		
4LJTLL- 5355	A	D-E	4LJTLL- 5355	G		
6FCN9R- 5355	A	D-F	6FCN9R- 5355	D	C-D	
6WJNGV- 5351	A	D-E	6WJNGV- 5351	G		
7FQEUH- 5355	A	D-F	7FQEUH- 5355	G		
7TWNEK- 5351	A	D-E	7TWNEK- 5351	G		
82P3YH- 5351	A	D-E	82P3YH- 5351	G		
89QDAG- 5355	A	D-E	89QDAG- 5355	G		
8EEZ2G- 5351	A	D-E	8EEZ2G- 5351	G	B-D	
8V2DGU- 5355	A	D-E	8V2DGU- 5355	G		

TABLE 1a (Wood Piece)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q1</u> Segment(s)	WebCode- Test	Conclusion	<u>Q2</u> Segment(s)	
9HL6TR- 5351	A	D-E	9HL6TR- 5351	D		
A9FK7Q- 5355	B	D-E	A9FK7Q- 5355	C	B-D	
BA8X7N- 5355	A	C-F	BA8X7N- 5355	G		
BC92VP- 5351	A	D-F	BC92VP- 5351	G		
BZFHGJ- 5351	A	D-E	BZFHGJ- 5351	C	B-D	
CX8P3B- 5355	A	D-E	CX8P3B- 5355	G		
DHVD7C- 5351	A	D-E	DHVD7C- 5351	G		
DJ88QH- 5351	A	D-E	DJ88QH- 5351	G		
DZTT9N- 5351	A	D-E	DZTT9N- 5351	G	B-D	
EF32NH- 5351	A	D-E	EF32NH- 5351	G		
END4AH- 5355	A	D-E	END4AH- 5355	G		
ETQ47A- 5355	A	D-E	ETQ47A- 5355	G		
F43THK- 5351	A	D-E	F43THK- 5351	C	B-D	
FTJBPD- 5355	A	D-E	FTJBPD- 5355	G		
GCF2L8- 5355	A	C-E	GCF2L8- 5355	G		
GQBJB6- 5355	A	D-E	GQBJB6- 5355	D	B-D	

TABLE 1a (Wood Piece)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q1</u> Segment(s)	WebCode- Test	Conclusion	<u>Q2</u> Segment(s)	
GV8AGG- 5355	A	D-F	GV8AGG- 5355	G		
HAH928- 5355	A	D-E	HAH928- 5355	D	B-D	
HKM2U9- 5351	A	D-E	HKM2U9- 5351	G		
HPY779- 5351	A	D-E	HPY779- 5351	G		
J9QAMA- 5351	A	C-F	J9QAMA- 5351	G		
JPT9B4- 5355	A	D-E	JPT9B4- 5355	C	B-C	
KACDV8- 5355	A	D-E	KACDV8- 5355	D	B-D	
KATQXA- 5351	A	D-E	KATQXA- 5351	G		
KGDU27- 5355	A	C-F	KGDU27- 5355	G		
M38FZZ- 5355	A	D-E	M38FZZ- 5355	D	B-D	
NPEH8Z- 5351	A	D-E	NPEH8Z- 5351	F		
NX9LE4- 5355	A	C-F	NX9LE4- 5355	G		
PUJEQZ- 5351	A	D-E	PUJEQZ- 5351	G		
Q6KJX8- 5351	A	D-E	Q6KJX8- 5351	G		
QPRNM2- 5351	A	D-E	QPRNM2- 5351	G	G-	
QTQZJ2- 5351	A	C-E	QTQZJ2- 5351	G		

TABLE 1a (Wood Piece)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q1</u> Segment(s)	WebCode- Test	Conclusion	<u>Q2</u> Segment(s)	
QZNUGZ- 5355	A	D-E	QZNUGZ- 5355	C	B-C	
R9XLFW- 5351	A	D-F	R9XLFW- 5351	G		
RYV2GB- 5351	A	D-E	RYV2GB- 5351	G		
TVQTTQ6- 5355	A	D-E	TVQTTQ6- 5355	F		
TXUNCU- 5355	A	D-E	TXUNCU- 5355	D	B-D	
UAJ6DZ- 5351	A	D-E	UAJ6DZ- 5351	G		
UDGKQU- 5351	A	D-E	UDGKQU- 5351	G		
UEXHG9- 5351	A	D-E	UEXHG9- 5351	A	B-C	
V938LZ- 5351	A	C-E	V938LZ- 5351	C	B-C	
VWY2W- 5355	A	D-E	VWY2W- 5355	G		
WADA8Y- 5351	A	D-E	WADA8Y- 5351	G		
WFZ2FR- 5355	A	C-F	WFZ2FR- 5355	E		
X2E94Q- 5351	A	C-F	X2E94Q- 5351	F		
X8MPFZ- 5355	A	D-E	X8MPFZ- 5355	E	B-D	
XFCDB3- 5355	A	D-E	XFCDB3- 5355	G		
Y6C67Q- 5355	A	D-E	Y6C67Q- 5355	F		

TABLE 1a (Wood Piece)

Questioned Imprints						
WebCode-Test	Conclusion	Q1 Segment(s)	WebCode-Test	Conclusion	Q2 Segment(s)	
YA6BKR-5351	A	D-E	YA6BKR-5351	G		
YD4MGR-5351	A	D-E	YD4MGR-5351	D	B-D	
YN7NGR-5351	A	D-E	YN7NGR-5351	C	B-D	
Z8TT2M-5355	A	D-E	Z8TT2M-5355	G		

Response Summary				Participants: 67			
Q1 Conclusion		Segment(s), by frequency		Q2 Conclusion		Segment(s), by frequency	
Identification (A)	66 (98.5%)	D-E	53 (79.1%)	Identification (A)	1 (1.5%)	N/A for non-assoc.	
High Degree of Ass'n. (B)	1 (1.5%)	C-F	6 (9.0%)	High Degree of Ass'n. (B)	0 (0.0%)		
Association (C)	0 (0.0%)	D-F	5 (7.5%)	Association (C)	8 (11.9%)		
Limited Ass'n. (D)	0 (0.0%)	C-E	3 (4.5%)	Limited Ass'n. (D)	8 (11.9%)		
Inconclusive (E)	0 (0.0%)			Inconclusive (E)	2 (3.0%)		
Non-Ass'n. (F)	0 (0.0%)			Non-Ass'n. (F)	5 (7.5%)		
Exclusion (G)	0 (0.0%)			Exclusion (G)	43 (64.2%)		

Examination Results

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

TABLE 1b ("Lost Dog" Poster)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q3</u> Segment(s)	WebCode- Test	Conclusion	<u>Q4</u> Segment(s)	
28QJMV- 5355	A	E-G	28QJMV- 5355	A	B-C	
2BN3PU- 5351	A	E-G	2BN3PU- 5351	A	A-C	
2VYXJL- 5355	A	F-G	2VYXJL- 5355	A	B-C	
3QKJER- 5351	A	E-G	3QKJER- 5351	A	B-C	
3ZPQUR- 5351	A	E-F	3ZPQUR- 5351	A	A-B	
4HKGPL- 5355	A	E-G	4HKGPL- 5355	A	B-C	
4LJTLL- 5355	A	E-G	4LJTLL- 5355	A	A-C	
6FCN9R- 5355	A	F-G	6FCN9R- 5355	A	B-C	
6WJNGV- 5351	A	E-G	6WJNGV- 5351	A	A-C	
7FQEUH- 5355	A	E-G	7FQEUH- 5355	A	A-C	
7TWNEK- 5351	A	E-F	7TWNEK- 5351	A	B-C	
82P3YH- 5351	A	E-G	82P3YH- 5351	A	A-C	
89QDAG- 5355	A	E-G	89QDAG- 5355	A	A-C	
8EEZ2G- 5351	A	E-G	8EEZ2G- 5351	A	A-C	
8V2DGU- 5355	A	E-G	8V2DGU- 5355	A	A-C	

TABLE 1b ("Lost Dog" Poster)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q3</u> Segment(s)	WebCode- Test	Conclusion	<u>Q4</u> Segment(s)	
9HL6TR- 5351	A	F-G	9HL6TR- 5351	A	B-C	
A9FK7Q- 5355	B	E-G	A9FK7Q- 5355	B	B-C	
BA8X7N- 5355	A	E-G	BA8X7N- 5355	A	A-C	
BC92VP- 5351	A	E-G	BC92VP- 5351	A	A-C	
BZFHGJ- 5351	A	E-G	BZFHGJ- 5351	A	A-C	
CX8P3B- 5355	A	E-G	CX8P3B- 5355	A	A-C	
DHVD7C- 5351	A	E-G	DHVD7C- 5351	A	A-C	
DJ88QH- 5351	A	E-G	DJ88QH- 5351	A	A-C	
DZTT9N- 5351	A	E-G	DZTT9N- 5351	A	A-C	
EF32NH- 5351	A	E-G	EF32NH- 5351	A	A-C	
END4AH- 5355	A	E-G	END4AH- 5355	A	A-C	
ETQ47A- 5355	A	E-G	ETQ47A- 5355	A	A-C	
F43THK- 5351	A	E-G	F43THK- 5351	A	A-C	
FTJBPD- 5355	A	E-G	FTJBPD- 5355	A	B-C	
GCF2L8- 5355	A	E-G	GCF2L8- 5355	A	A-C	
GQBJB6- 5355	A	E-G	GQBJB6- 5355	A	A-C	

TABLE 1b ("Lost Dog" Poster)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q3</u> Segment(s)	WebCode- Test	Conclusion	<u>Q4</u> Segment(s)	
GV8AGG- 5355	A	E-G	GV8AGG- 5355	A	A-C	
HAH928- 5355	A	E-G	HAH928- 5355	A	A-C	
HKM2U9- 5351	A	E-F	HKM2U9- 5351	A	B-C	
HPY779- 5351	A	E-G	HPY779- 5351	A	A-C	
J9QAMA- 5351	A	E-G	J9QAMA- 5351	A	A-C	
JPT9B4- 5355	A	F-G	JPT9B4- 5355	A	B-C	
KACDV8- 5355	A	E-G	KACDV8- 5355	A	A-C	
KATQXA- 5351	A	E-G	KATQXA- 5351	A	A-C	
KGDU27- 5355	A	E-G	KGDU27- 5355	A	A-C	
M38FZZ- 5355	A	F-G	M38FZZ- 5355	A	B-C	
NPEH8Z- 5351	A	E-G	NPEH8Z- 5351	A	A-C	
NX9LE4- 5355	A	E-G	NX9LE4- 5355	A	A-C	
PUJEQZ- 5351	A	E-G	PUJEQZ- 5351	A	A-C	
Q6KJX8- 5351	A	F-G	Q6KJX8- 5351	A	B-C	
QPRNM2- 5351	A	E-G	QPRNM2- 5351	A	A-C	
QTQZJ2- 5351	A	E-G	QTQZJ2- 5351	A	A-C	

TABLE 1b ("Lost Dog" Poster)

Questioned Imprints						
WebCode- Test	Conclusion	<u>Q3</u> Segment(s)	WebCode- Test	Conclusion	<u>Q4</u> Segment(s)	
QZNUGZ- 5355	A	F-G	QZNUGZ- 5355	A	B-C	
R9XLFW- 5351	A	E-G	R9XLFW- 5351	A	A-C	
RYV2GB- 5351	A	E-G	RYV2GB- 5351	A	A-C	
TVQQTQ6- 5355	A	E-G	TVQQTQ6- 5355	A	B-C	
TXUNCU- 5355	A	F-G	TXUNCU- 5355	A	B-C	
UAJ6DZ- 5351	A	E-G	UAJ6DZ- 5351	A	A-C	
UDGKQU- 5351	A	E-G	UDGKQU- 5351	A	A-C	
UEXHG9- 5351	A	F-G	UEXHG9- 5351	A	B-C	
V938LZ- 5351	A	E-F	V938LZ- 5351	A	A-B	
VWY2W- 5355	A	E-G	VWY2W- 5355	A	A-C	
WADA8Y- 5351	A	E-G	WADA8Y- 5351	A	A-C	
WFZ2FR- 5355	A	E-G	WFZ2FR- 5355	A	A-C	
X2E94Q- 5351	A	E-G	X2E94Q- 5351	A	A-C	
X8MPFZ- 5355	A	E-G	X8MPFZ- 5355	A	B-D	
XFCDB3- 5355	A	E-G	XFCDB3- 5355	A	B-C	
Y6C67Q- 5355	A	E-G	Y6C67Q- 5355	A	A-C	

TABLE 1b ("Lost Dog" Poster)

Questioned Imprints						
WebCode-Test	Conclusion	Q3 Segment(s)	WebCode-Test	Conclusion	Q4 Segment(s)	
YA6BKR-5351	A	E-F	YA6BKR-5351	A	B-C	
YD4MGR-5351	B	E-G	YD4MGR-5351	A	A-C	
YN7NGR-5351	A	E-G	YN7NGR-5351	A	A-C	
Z8TT2M-5355	A	E-G	Z8TT2M-5355	A	A-C	

Response Summary				Participants: 67			
Q3 Conclusion		Segment(s), by frequency		Q4 Conclusion		Segment(s), by frequency	
Identification (A)	65 (97.0%)	E-G	53 (79.1%)	Identification (A)	66 (98.5%)	A-C	45 (67.2%)
High Degree of Ass'n. (B)	2 (3.0%)	F-G	9 (13.4%)	High Degree of Ass'n. (B)	1 (1.5%)	B-C	19 (28.4%)
Association (C)	0 (0.0%)	E-F	5 (7.5%)	Association (C)	0 (0.0%)	A-B	2 (3.0%)
Limited Ass'n. (D)	0 (0.0%)			Limited Ass'n. (D)	0 (0.0%)	B-D	1 (1.5%)
Inconclusive (E)	0 (0.0%)			Inconclusive (E)	0 (0.0%)		
Non-Ass'n. (F)	0 (0.0%)			Non-Ass'n. (F)	0 (0.0%)		
Exclusion (G)	0 (0.0%)			Exclusion (G)	0 (0.0%)		

Examination Results

TABLE 1c - Complete Results

Response Summary				Participants: 67			
Q1 Conclusion		Segment(s), by frequency		Q2 Conclusion		Segment(s), by frequency	
Identification (A)	66 (98.5%)	D-E	53 (79.1%)	Identification (A)	1 (1.5%)	N/A for non-assoc.	
High Degree of Ass'n. (B)	1 (1.5%)	C-F	6 (9.0%)	High Degree of Ass'n. (B)	0 (0.0%)		
Association (C)	0 (0.0%)	D-F	5 (7.5%)	Association (C)	8 (11.9%)		
Limited Ass'n. (D)	0 (0.0%)	C-E	3 (4.5%)	Limited Ass'n. (D)	8 (11.9%)		
Inconclusive (E)	0 (0.0%)			Inconclusive (E)	2 (3.0%)		
Non-Ass'n. (F)	0 (0.0%)			Non-Ass'n. (F)	5 (7.5%)		
Exclusion (G)	0 (0.0%)			Exclusion (G)	43 (64.2%)		
Q3 Conclusion		Segment(s), by frequency		Q4 Conclusion		Segment(s), by frequency	
Identification (A)	65 (97.0%)	E-G	53 (79.1%)	Identification (A)	66 (98.5%)	A-C	45 (67.2%)
High Degree of Ass'n. (B)	2 (3.0%)	F-G	9 (13.4%)	High Degree of Ass'n. (B)	1 (1.5%)	B-C	19 (28.4%)
Association (C)	0 (0.0%)	E-F	5 (7.5%)	Association (C)	0 (0.0%)	A-B	2 (3.0%)
Limited Ass'n. (D)	0 (0.0%)			Limited Ass'n. (D)	0 (0.0%)	B-D	1 (1.5%)
Inconclusive (E)	0 (0.0%)			Inconclusive (E)	0 (0.0%)		
Non-Ass'n. (F)	0 (0.0%)			Non-Ass'n. (F)	0 (0.0%)		
Exclusion (G)	0 (0.0%)			Exclusion (G)	0 (0.0%)		

Conclusions

TABLE 2

(WebCode)- Test	Conclusions
28QJMV- 5355	[No Conclusions Reported.]
2BN3PU- 5351	<p>The Item Q1 questioned impression was made by the submitted known tire (Segment K4). This identification is based on sufficient agreement of the combination of randomly acquired characteristics (individual characteristics) and all discernible class characteristics. The Item Q3 questioned impression was made by the submitted known tire (Segments K5 and K6). This identification is based on sufficient agreement of the combination of randomly acquired characteristics (individual characteristics) and all discernible class characteristics. The Item Q4 questioned impression was made by the submitted known tire (Segments K1 and K2). This identification is based on sufficient agreement of the combination of randomly acquired characteristics (individual characteristics) and all discernible class characteristics. The Item Q2 questioned impression exhibits dissimilarities (in wear and individual characteristics) in comparison to the known tire but could not be eliminated. This inconclusive result is due to not having the known tire to examine.</p>
2VYXL- 5355	<p>Upon analysis, tire track impression Q1 (Item 1-1) was found to possess sufficient quality and quantity for further examination. A comparison was then made to K1 (Item 1-5). The tire impression characteristics corresponds in physical size, design, orientation, wear and numerous accidental characteristics with segment D-E of K1. Based on this analysis, Segment D-E of K1 was identified as the source of Q1 (Item 1-1).</p>
3QKJER- 5351	<p>Item 1: This photograph depicts a total of two questioned tire impressions. One of the questioned impressions (Q1) is a partial tire impression and is similar in size, shape, and tread design to the suspect tire (01-03). In addition, there are at least three randomly acquired characteristics visible in the questioned impression and on the tread of the tire. It is my opinion that this questioned impression was made by the suspect tire (Category 1). The other questioned impression (Q2) is a partial tire impression and is similar in tread design, but exhibits differences in wear pattern from the suspect tire (01-03). It is my opinion that this questioned impression was not made by the suspect tire (Category 5). Item 2: This photograph depicts a total of two questioned tire impressions. The questioned impressions (Q3 and Q4) are a partial tire impression and a complete tire impression, respectively. The questioned impressions are similar in size, shape, and tread design to the suspect tire (01-03). In addition, there are at least three randomly acquired characteristics visible in each of the questioned impressions and on the tread of the tire. It is my opinion that these questioned impressions were made by the suspect tire (Category 1). Item 3: This item was used for comparison purposes.</p>
3ZPQR- 5351	<p>The Items Q1, Q2, Q3 and Q4 questioned tire impressions were analyzed, compared and evaluated with the Items K1 through K8 known tire, Segments A - B through H - A. The Item Q1 questioned tire impression corresponds in tread design, physical size, general wear and twelve (12) randomly acquired characteristics with the Item K4 known tire, Segments D - E. The Item Q2 questioned tire impression is similar in tread design and physical size with the Items K1 through K8 known tire, Segments A - B through H - A. However, sufficient differences were noted in the randomly acquired characteristics between the Item Q2 questioned tire impression and the Items K1 through K8 known tire, Segments A - B through H - A. The Item Q3 questioned tire impression corresponds in tread design, physical size, general wear and five (5) randomly acquired characteristics with the Items K5 and K6 known tire, Segments E - F and F - G. The Item Q4 questioned tire impression corresponds in tread design, physical size, general wear and eleven (11) randomly acquired characteristics with the Items K1 and K2 known tire, Segments A - B and B - C. Based upon the above factors, it is the opinion of this examiner that: The Item K4 known tire, Segment D - E was the source of, and made, the Item Q1 questioned tire impression</p>

TABLE 2

(WebCode)- Test	Conclusions
	<p>resulting in an identification. Another tire being the source of the impression is considered a practical impossibility. The Items K1 through K8 known tire, Segments A - B through H - A were excluded as being the source of, and did not make the Item Q2 questioned tire impression. The Items K5 and K6 known tire, Segments E - F and F - G was the source of and made, the Item Q3 questioned tire impression resulting in an identification. Another tire being the source of the impression is considered a practical impossibility. The Items K1 and K2 known tire, Segments A - B and B - C were the source of and made, the Item Q4 questioned tire impression resulting in an identification. Another tire being the source of the impression is considered a practical impossibility. All conclusions listed herein have been verified by a second qualified latent print examiner.</p>
4HKGPL- 5355	<p>1. Analysis of Exhibit 1 revealed four latent tire impressions on Exhibit 1 (images of impressions Q1-Q4) suitable for comparison. 2. Three of the latent tire impressions Q1, Q3, and Q4 on Exhibit 1 and the known tire correspond in physical size, design, wear, and randomly acquired characteristics. The probability of observing these amounts of correspondence when two impressions are made by different sources is considered extremely low. 3. The latent tire impression Q2 on Exhibit 1 was excluded as having originated from known tire.</p>
4LJTLL- 5355	<p>Visual analysis of the digital images, item 1, revealed two digital images of four tire impressions suitable for comparison as well as images of tire test impressions and known tires. For comparison purposes, digital images, items 1A and 1B, were prepared for the questioned impressions. Visual examination and comparison reveals the following: Three of the questioned impressions from the digital images, items 1A and 1B (Q1, Q3 and Q4), were made by the known tire, item 1C. The remaining questioned impression from the digital image, item 1A (Q2), was not made by the known tire, item 1C. Note: An identification decision/conclusion is reached when the questioned impression and the known impression have corresponding detail, and the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source.</p>
6FCN9R- 5355	<p>Q1, Q3, and Q4 have been identified to tire K. Q2 has limited association to tire K. Q2 exhibits some similar design features, but there are limiting factors present in the impression.</p>
6WJNGV- 5351	<p>It was determined that the imprints, Q-1, Q-3 and Q-4 were made by the submitted tire, K-1. It was determined that the impression, Q-2, was not made by the submitted tire, K-1.</p>
7FQEUH- 5355	<p>Three (3) manufactured pattern impressions noted in Exhibits Q1, Q3 and Q4 were made by the tire represented in Exhibits K1 through K8 and K1_2 through K8_2 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 Q2 was not made by the tire represented in Exhibits K1 through K8 and K1_2 through K8_2 based on differences in wear and randomly acquired characteristics. 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.</p>
7TWNEK- 5351	<p>RESULTS OF IMPRESSION EXAMINATIONS BY: [Examiner]. 4 v 1 & 2 : There were two (2) tire impressions marked Q1 and Q2 by the submitting agency. The tire impression Q1 shares agreement of class and randomly acquired characteristics with the known tire impressions submitted in Items 1 & 2. The tire impression Q1 was made by the same source as the impressions submitted in Items 1 & 2. The tire impression Q2 could not have been made by the same source as the tire impressions submitted in Items 1 & 2. Although they are the same in class characteristics there are differences in randomly acquired characteristics which preclude</p>

TABLE 2

(WebCode)- Test	Conclusions
82P3YH- 5351	<p>them being made by the same source. 5 v 1 & 2: There were two (2) tire impressions marked Q3 and Q4 by the submitting agency. The tire impressions Q3 and Q4 share agreement of class and randomly acquired characteristics with the known tire impressions submitted in Items 1 and 2. The tire impressions Q3 and Q4 were made by the same source as the impressions submitted in Items 1 and 2. 3 : The digital supplemental images submitted in Item 3 were not utilized in this examination. Tire examinations are performed by conducting side by side and overlay visual comparisons. A determination that a tire impression was made by a particular tire means that there exists agreement of sufficient discernable class and individualizing characteristics to reach a conclusion of identity. DISPOSITION OF EVIDENCE: The evidence will be retained by the Laboratory. This report contains opinions, conclusions, or interpretations of the examiner whose signature appears below.</p>
82P3YH- 5351	<p>Q1, Q3, and Q4: Identification. I compared Items Q1, Q3, and Q4 to each of the photographs of the known imprints made with the recovered tire (Items K1_2 through K8_2) and the photographs of the tire itself (Items K1-K8). The questioned impressions and the submitted tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity for identification. The submitted tire was the source of, and made, the questioned impressions Q1, Q3, and Q4. Another tire being the source of the impression is considered a practical impossibility. The following segments of the tire were identified: Q1 – K4 (Segment D-E), Q3 – K5 and K6 (Segments E-G), Q4 – K1 and K2 (Segments A-C). Q2: Exclusion. I compared Item Q2 to each of the photographs of the known imprints made with the recovered tire (Items K1_2 through K8_2). There were a few segments where the tread design pattern exhibited the same class characteristics of the size, shape and spatial relationship of the tread design pattern, however; it appears that there are differences in the wear patterns and randomly acquire characteristics exhibited in Q2 compared to the test imprints. These differences are significant enough to eliminate the tire from being responsible for making the imprint in Q2.</p>
89QDAG- 5355	<p>The tire impression Q1 was IDENTIFIED to the known tire depicted in the photographs and test impressions in item # 1. Q1 corresponded in physical size, tread design, wear, and several accidental characteristics with the known tire segment D-E in item #1. Q1 was made by the known tire in item #1. The tire impression Q2 was EXCLUDED from the known tire depicted in the photographs and test impressions submitted in item #1. Q2 was consistent in tread design, but inconsistent in wear and accidental characteristics with the known tire in item # 1; therefore, Q2 could not have been made by the known tires submitted in item #1. The tire impression Q3 was IDENTIFIED to the known tire depicted in the photographs and test impressions in item # 1. Q3 corresponded in physical size, tread design, wear, and several accidental characteristics with the known tire segments E-G in item #1. Q3 was made by the known tire in item #1. The tire impression Q4 was IDENTIFIED to the known tire depicted in the photographs and test impressions in item # 1. Q4 corresponded in physical size, tread design, wear, and several accidental characteristics with the known tire segment A-C in item #1. Q4 was made by the known tire in item #1.</p>
8EEZ2G- 5351	<p>Q1, Q3, Q4, and the recovered tire exhibit the same class characteristics and have sufficient corresponding randomly acquired characteristics to identify the recovered tire as the source of the imprints. Q2 and the recovered tire have an area of corresponding class characteristics but do not exhibit the same randomly acquired characteristics or wear characteristics. The recovered tire is excluded as the source of the imprint.</p>
8V2DGU- 5355	<p>Based on the correspondence of class characteristics and randomly acquired characteristics of sufficient quality and quantity, the questioned impressions marked "Q1", "Q3" and "Q4" were made by the recovered tyre. Based on sufficient differences in randomly acquired characteristics, the questioned impression marked "Q2" was not made by the recovered tyre.</p>

TABLE 2

(WebCode)- Test	Conclusions
9HL6TR- 5351	Q1 has a high degree of association as being made by the known tire track segment D-E. Q2 has a limited association of class characteristics and may have been made by the known tire (K1 thru K8) or any other tire with a similar tread pattern design. Q3 has a high degree of association as being made by the known tire track segment F-G. Q4 has a high degree of association as being made by the known tire track segment B-C.
A9FK7Q- 5355	At first, the imprints are in 2D, measurement of the depth of the sculptures isn't possible, limiting the identification to high degree of association. ITEM Q1 This tire print corresponds to the D-E segment, both in terms of their class and acquired characteristics. ITEM Q2 The examination established tread design compatibility, pitch sequences with the B-C and C-D segments. The number of visible acquired characteristics limit us to the association of class characteristics. ITEM Q3 Despite a incomplete width, this tire print corresponds to the E-F and F-G segments (tread design compatibility, pitch sequences),and in terms of their class characteristics and acquired characteristics. ITEM Q4 This tire print corresponds to the B-C segment, both in terms of their class and acquired characteristics.
BA8X7N- 5355	The recovered tire was identified as the source of Impression Q1 based on correspondence of tread design, size of the elements and spacing, noise treatment, wear, and numerous areas of significant correspondence of randomly acquired characteristics (RACs). The recovered tire was identified as the source of Impression Q3 based on correspondence of tread design, size of the elements and spacing, noise treatment, and numerous areas of significant correspondence of RACs. The recovered tire was identified as the source of Impression Q4 based on correspondence of tread design, tread width, noise treatment, wear, and numerous areas of significant correspondence of RACs. Impression Q2 shared a similar tread design with the recovered tire. However, the noise treatment of Impression Q2 did not correspond to any portion of the recovered tire's tread pattern. Therefore, the recovered tire is excluded as the source of this impression (Item Q2).
BC92VP- 5351	ITEMS: 1 a sealed manila envelope identified as "2021 CTS Forensic Testing Program Test No. 21-5351: TIRE TRACK IMPRINT EVIDENCE Sample Pack: TIEP" containing: 1-1 photographs of known tire segments identified as "K1-K8"; 1-2 photographs of known tire segments (rolled) identified as "K1_2- K8_2"; 1-3 photographs of questioned impressions identified as "Q1-Q2"; 1-3-1 questioned impression Q1; 1-3-2 questioned impression Q2; 1-4 photographs of questioned impressions identified as "Q3-Q4"; 1-4-1 questioned impression Q3; 1-4-2 questioned impression Q4. RESULTS: The design characteristics, physical size, and randomly acquired characteristics of the questioned impression Q1, item #1-3-1, were found to correspond to the known tire impression, item #1-2, segments D-F. While the questioned impression Q2, item #1-3-2, and the known tire impression, item #1-2, corresponded in design characteristics, dissimilarities in tread block alignment were observed, and no randomly acquired characteristics were found. Further analysis could be completed if additional known tires are submitted for comparison. The design characteristics, physical size, and randomly acquired characteristics of the questioned impression Q3, item #1-4-1, were found to correspond to the known tire impression, item #1-2, segments E-G. The design characteristics, physical size, and randomly acquired characteristics of the questioned impression Q4, item #1-4-2, were found to correspond to the known tire impression, item #1-2, segments A-C. OPINION: These associations are significant enough to determine that the known tire, item #1-2, was the source of the Q1 impression, item #1-3-1. This is an Identification. Please see Association Key below. The known tire, item #1-2, was not the source of the Q2 impression, item #1-3-2. This is an Exclusion. Please see Association Key below. These associations are significant enough to determine that the known tire, item #1-2, was the source of the Q3 impression, item #1-4-1. This is an Identification. Please see Association Key below. These associations are significant enough to determine that the known tire, item #1-2, was the source of the Q4 impression, item #1-4-2. This is an Identification. Please see Association Key below.

TABLE 2

(WebCode)- Test	Conclusions
BZFHGJ- 5351	<p>Comparative analysis between the Item Q1 questioned tire tread impression and the known K1-K8 tire/tire tread impressions revealed correspondence of class characteristics (tread pattern, physical size, and general condition of wear). In addition, correspondence of multiple randomly acquired characteristics was observed between Item Q1 and segment D-E of the known tire/tire tread impressions. It was concluded that the Firestone FT140 tire depicted in Items K1-K8 was the source of, and made, the Item Q1 impression. Another tire being the source of the impression is considered a practical impossibility. Comparative analysis between the Item Q2 questioned tire tread impression and the known K1-K8 tire/tire tread impressions (segments B-C/C-D) revealed correspondence of class characteristics (pattern, physical size, and general condition of wear). The Firestone FT140 tire depicted in K1-K8 is a possible source of the Item Q2 impression, and therefore could have produced the Item Q2 impression. Other tires with the same class characteristics observed in the Item Q2 impression are included in the population of possible sources. Comparative analysis between the Item Q3 questioned tire tread impression and the known K1-K8 tire/tire tread impressions revealed correspondence of class characteristics (tread pattern, physical size, and general condition of wear). In addition, correspondence of multiple randomly acquired characteristics was observed between Item Q3 and segments E-F/F-G of the known tire/tire tread impressions. It was concluded that the Firestone FT140 tire depicted in Items K1-K8 was the source of, and made, the Item Q3 impression. Another tire being the source of the impression is considered a practical impossibility. Comparative analysis between the Item Q4 questioned tire tread impression and the known K1-K8 tire/tire tread impressions revealed correspondence of class characteristics (tread pattern, physical size, and general condition of wear). In addition, correspondence of multiple randomly acquired characteristics was observed between Item Q4 and segments A-B/B-C of the known tire/tire tread impressions. It was concluded that the Firestone FT140 tire depicted in Items K1-K8 was the source of, and made, the Item Q4 impression. Another tire being the source of the impression is considered a practical impossibility.</p>
CX8P3B- 5355	<p>The questioned tire track impression "Q1" was identified as being made by the known tire. "Q1" corresponded in physical size, tread design, general wear, pitch sequence, and randomly acquired characteristics with the known tire. The questioned tire track impression "Q2" was excluded as being made by the known tire. "Q2" corresponded in physical size and tread design, however, did not correspond in general wear, pitch sequence and randomly acquired characteristics with the known tire. The questioned tire track impression "Q3" was identified as being made by the known tire. "Q3" corresponded in physical size, tread design, general wear, pitch sequence, and randomly acquired characteristics with the known tire. The questioned tire track impression "Q4" was identified as being made by the known tire. "Q4" corresponded in physical size, tread design, general wear, pitch sequence, and randomly acquired characteristics with the known tire.</p>
DHVD7C- 5351	<p>Laboratory examinations were conducted and the findings of this examiner are as follows: 1. Impressions Q1, Q3 and Q4 were identified as having been made by the same tire that made the known submitted impressions. 2. Impression Q2 was not made by the same tire that made the submitted known impressions, based on differences in wear patterns. The suspect tire shares similar class characteristics as the submitted known tire impressions.</p>
DJ88QH- 5351	<p>The Q1 impression and tire segment D-E share agreement of class and randomly acquired characteristics. The K tire was identified as making this impression. The Q2 impression and the tire segments exhibit dissimilarities. The K tire was excluded as making this impression. The Q3 impression and tire segments E-F and F-G share agreement of class and randomly acquired characteristics. The K tire was identified as making this impression. The Q4 impression and tire segments A-B and B-C share agreement of class and randomly acquired characteristics. The K tire was identified as making this impression.</p>

TABLE 2

(WebCode)- Test	Conclusions
DZTT9N- 5351	In our opinion, the seized tyre is responsible for marks 'Q1', 'Q3' and 'Q4'. The seized tyre is not responsible for mark 'Q2'.
EF32NH- 5351	The known tire is identified as the source of impressions Q1, Q3 and Q4. These three impressions correspond in design and dimensions to the submitted known tire exemplars, and several randomly acquired characteristics visible on the images of the tire and exemplars are also visible in these impressions. The known tire is excluded as the source of impression Q2.
END4AH- 5355	The Q1TT1 impression was made by Item K4 (segment D-E) based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q1TT1 tire impression and those present on Items K1-K3 and K5-K8 to conclude that the impression was not made by Items K1-K3 and K5-K8. Sufficient differences were noted between the characteristics present in the Q2TT1 tire impression and those present on Items K1 - K8 to conclude that the impression was not made by Items K1 -K8. The Q3TT1 impression was made by Items K5 and K6 (segments E-F and F-G) based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q3TT1 tire impression and those present on Items K1-K4 and K7-K8 to conclude that the impression was not made by Items K1-K4 and K7-K8. The Q4TT1 impression was made by Items K1 and K2 (segments A-B and B-C) based on sufficient agreement of observable class and randomly acquired characteristics. Sufficient differences were noted between the characteristics present in the Q4TT1 tire impression and those present on Items K3 - K8 to conclude that the impression was not made by Items K3 - K8.
ETQ47A- 5355	The impressions Q1, Q3, and Q4 were consistent in tread design, size, wear, and several accidental characteristics with the known tire submitted in item 1. The impressions marked Q1, Q2, and Q3 were identified to, and made by, the known tire submitted in item 1. The impression Q2 was consistent in tread design and size, but was inconsistent in wear and individual characteristics with the known tire in item 1; therefore, Q2 could not have been made by the known tire in item 1.
F43THK- 5351	The partial impression visible on the photograph in Q1 was identified as having been made by the tread of the tire in K1 (Segments D-E). The partial impression visible on the photograph in Q2 corresponds in design, physical size and general wear with the tread of the tire in K1 (Segments B-D) and could have been made by the tread of the tire in K1 or by another tire with similar class characteristics. The partial impression visible on the photograph in Q3 was identified as having been made by the tread of the tire in K1 (Segments E-G). The partial impression visible on the photograph in Q4 was identified as having been made by the tread of the tire in K1 (Segments A-C).
FTJBPD- 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 (Firestone FT140, P205/65R16) and the known imprint (segment D - E to Q1, segment E-G to Q3 and segment B-C 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 the known imprints of the tire. The recovered tire was not the source of, and did not make the questioned imprint Q2.
GCF2L8- 5355	Images of four unknown tire impressions, Q1-Q4, from Item 1 were compared to images of a known tire and/or known tire impressions (also from Item 1). A complete evaluation of an unknown impression and a known tire includes looking at correspondence in tread design,

TABLE 2

**(WebCode)-
Test****Conclusions**

physical size and shape of design present, wear characteristics and any distinctive characteristics randomly acquired on the tread of the tire that are represented in the unknown impression. The Q1, Q3 and Q4 unknown tire impressions corresponded in physical shape, tread design, size of tread, noise treatment, wear and randomly acquired characteristics to the known tire. Therefore, the known tire is the source of the unknown tire impressions (Type I Association/Identification). The tread pattern in the Q2 unknown tire impression was different than the known tire in wear and randomly acquired characteristics. Therefore, the Q2 unknown tire impression was not made by the known tire (Exclusion). Item 2 was created by the scientist and will be retained at the [Laboratory]. Interpretation: The following descriptions are meant to provide context to the opinions reached in this report. Not every type of conclusion may be applicable in every case or for every material type. Type I Association: Identification. Source identification is reached when the discernible class and individual characteristics have corresponding detail and the examiner would not expect to see the same arrangement of details repeated in another source. This includes when two items fit or realign together in a manner that is not expected to be replicated. Type II Association: Association with distinct characteristics. Items correspond in all measured physical properties, chemical composition and/or microscopic characteristics and share distinctive characteristic(s). Although the examiner would not expect to see these distinctive characteristic(s) repeated in another source, it lacked sufficient characteristics for a source identification. Type III Association: Association with conventional characteristics. Items correspond in all measured physical properties, chemical composition and/or microscopic characteristics. However, it is possible for another sample to be indistinguishable from the submitted evidence; therefore, an individual source cannot be determined. Type IV Association: Association with limitations. An association of decreased evidential value in which items correspond in all measured physical properties, chemical composition and/or microscopic characteristics, but there is a limitation to the exam. Limitations could include items commonly encountered in the relevant population, the inability to perform a complete analysis, or limited information. Inconclusive. No conclusion could be reached regarding an association or an exclusion between the items. Exclusion with Limitations. The item exhibits differences to the comparison sample that suggests that it did not originate from the same source. However, there are limiting factors, such as possible natural or manufactured source variations. Exclusion. The items exhibit differences in physical properties and/or chemical composition to the comparison sample that demonstrate they did not originate from the same source.

GQBJB6-
5355

Q1. The questioned impression and known source (Firestone FT140 P205/65R16 94H M+S) share agreement of class and randomly acquired characteristics resulting in an individualization. The impression was positively made by known source. Q2. 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 source (Firestone FT140 P205/65R16 94H M+S). The questioned impression could have been made by the known source or any other similar source with the same physical size and design. Q3. The questioned impression and known source (Firestone FT140 P205/65R16 94H M+S) share agreement of class and randomly acquired characteristics resulting in an individualization. The impression was positively made by known source. Q4. The questioned impression and known source (Firestone FT140 P205/65R16 94H M+S) share agreement of class and randomly acquired characteristics resulting in an individualization. The impression was positively made by known source.

GV8AGG-
5355

The questioned impressions, Q-1, Q-3 and Q-4, were consistent in tread design, approximate physical size, approximate degree of wear and multiple individual characteristics with the known tire in Exhibit # K1. The impressions, Q-1, Q-3 and Q-4, were identified as being made by the tire submitted in Exhibit # K1. The questioned impression, Q-2, was consistent in tread design and approximate physical size, but differs in wear and individual characteristics such that Q-2 could not have been made by the known tire submitted in Exhibit # K1.

TABLE 2

(WebCode)- Test	Conclusions
HAH928-5355	<p>Questioned Impression #1- this impression was compared to the known exemplar: a Firestone brand, FT140 P205/65R16 94H M+S and shared agreement of class, wear and randomly acquired characteristics resulting in an individualization. This impression was positively made by the known source. Questioned Impression #2- this impression had some similar class characteristics present. There were limiting factors in the questioned impression that could not permit a stronger association between the questioned impression and known exemplar (Firestone, FT140 P205/65R16 94H M+S). This questioned impression could have been made by the known exemplar or any other similar source with the same physical size and design. Questioned Impression #3- This impression and known exemplar (Firestone, FT140 P205/65R16 94H M+S) share class, wear and randomly acquired characteristics agreements resulting in an individualization. This impression was positively made by the known source. Questioned Impression #4- This impression and known exemplar (Firestone, FT140 P205/65R16 94H M+S) share class, wear and randomly acquired characteristics agreements resulting in an individualization. This impression was positively made by the known source.</p>
HKM2U9-5351	<p>Laboratory examinations were conducted, and the findings of this examiner are as follows: Impressions Q1, Q3, and Q4 were identified as having been made by the same tire that made the submitted known impressions. Impression Q2 was not made by the same tire that made the submitted known impressions, based on differences in wear patterns and individual characteristics. The suspect tire shares similar class characteristics as the submitted known tire impression.</p>
HPY779-5351	<p>Questioned impressions Q1, Q3, and Q4 were identified as having been made by the known tire of Item K1 based upon an agreement of tread pattern design, physical size, general wear, and discernable reproducible individual characteristics. Questioned impression Q2 was eliminated as having been made by the known tire of Item K1 based upon a difference in wear characteristics.</p>
J9QAMA-5351	<p>The questioned, partial tire impressions, Q1 through Q4, have been compared with the pictures of the known tire segments and known tire test impressions found in Submission 001. The questioned, partial tire impression, Q1, has been identified within segments C through F of the known tire test impressions and was made by this tire. The questioned, partial tire impression, Q2, although corresponding in physical size, shape and tread design as the known tires and test impressions depicted in Submission 001, was not made by that tire. The questioned impression and known tire exhibit sufficient differences in wear and individual randomly acquired characteristics. The questioned, partial tire impression, Q3, has been identified within segments E through G of the known tire test impressions and was made by this tire. The questioned, partial tire impression, Q4, has been identified within segments A through C of the known tire test impressions and was made by this tire.</p>
JPT9B4-5355	<p>[No Conclusions Reported.]</p>
KACDV8-5355	<p>Q1. The questioned impression and known source (Firestone FT140 P205/65R16 94H M&S) share agreement of class and randomly acquired characteristics resulting in an individualization. The impression was positively made by the known source. Q2. 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 source (Firestone FT140 P205/65R16 94H M&S). The questioned impression could have been made by the known source, or any other similar source with the same physical size and design. Q3. The questioned impression and known source (Firestone FT140 P205/65R16 94H M&S) share agreement of class and randomly acquired characteristics resulting in an individualization. The impression was positively made by the known source. Q4. The questioned impression and</p>

TABLE 2

(WebCode)- Test	Conclusions
KATQXA- 5351	<p>known source (Firestone FT140 P205/65R16 94H M&S) share agreement of class and randomly acquired characteristics resulting in an individualization. The impression was positively made by the known source.</p> <p>The photographs in exhibit TIEP were visually examined for questioned tire track impressions. Four (4) suitable questioned tire track impressions were documented and designated Q1 through Q4. Segment D-E of the known tire in exhibit TIEP was the source of, and made, the questioned impression designated Q1. This identification is based on correspondence of class and randomly acquired characteristics. Another tire being the source of the questioned impression is considered a practical impossibility. The known tire in exhibit TIEP was not the source of, and did not make, the questioned impression designated Q2. This exclusion is based on a difference in class characteristics. Segments E-F and F-G of the known tire in exhibit TIEP was the source of, and made, the questioned impression designated Q3. This identification is based on correspondence of class and randomly acquired characteristics. Another tire being the source of the questioned impression is considered a practical impossibility. Segments A-B and B-C of the known tire in exhibit TIEP was the source of, and made, the questioned impression designated Q4. This identification is based on correspondence of class and randomly acquired characteristics. Another tire being the source of the questioned impression is considered a practical impossibility. Images of the aforementioned developed impressions have been retained in our files in the event that additional/future examinations are requested. Criminalists other than the undersigned have performed one or more steps in the described analysis.</p>
KGDU27- 5355	<p>The results of the examination extremely strongly support that the imprints ITEM Q1, Q3, Q4 was made with the recovered tire ITEM K (Level +4). The results of the examination strongly support that the imprint ITEM Q2 was not made with the recovered tire ITEM K (Level -3)</p>
M38FZZ- 5355	<p>Q1- The tire tread impression shares class and numerous unique characteristics within the submitted tire. It is the opinion of the analyst that the impression was made by the known tire. Q2- The tire tread impression corresponds in class characteristics and physical size; however, there were significant limiting factors in the questioned impression that did not permit a stronger association between the questioned impression and the known source. It is the opinion of the analyst that the questioned impression could have been made by the source or any other similar source with the same physical size and design. Q3- The tire tread impression shares class and numerous unique characteristics within the submitted tire. It is the opinion of the analyst that the impression was made by the known tire. Q4- The tire tread impression shares class and numerous unique characteristics within the submitted tire. It is the opinion of the analyst that the impression was made by the known tire.</p>
NPEH8Z- 5351	<p>1) Impressions Q1, Q3 and Q4 were identified as having been made by the same tire that made the submitted known impressions. 2) Impression Q2 could have been made by the same tire that made the submitted known impressions, based on agreement in class characteristics, but some disagreement in individual characteristics; however, insufficient for an exclusion.</p>
NX9LE4- 5355	<p>Q1-Q4 are tire impressions which were compared to the known suspect tire K. The tread design, physical size and general wear of Q1, Q3 and Q4 correspond to K. In addition there are multiple corresponding randomly acquired characteristics. Therefore it was determined that impressions Q1, Q3 and Q4 were made by this tire, K. Although the tread design of Q2 is similar to K, there is a difference in specific design (pitch sequence). Therefore, Q2 was not made by K.</p>
PUJEQZ- 5351	<p>It is the opinion of the undersigned examiners that the Questioned tire track imprints labeled Q1 (in Item 001-1) and Q3 and Q4 (in Item 001-2) in Submission 001 correspond in physical size, tread design, wear characteristics, and randomly acquired characteristics with the Known tire in</p>

TABLE 2

(WebCode)- Test	Conclusions
	Items 001-3 through 001-18 in Submission 001. Tire track imprints Q1, Q3, and Q4 were made by the Known tire. It is the opinion of the undersigned examiners that the Questioned tire track imprint labeled Q2 (in Item 001-1) in Submission 001 is consistent in physical size and tread design with the Known tire in Items 001-3 through 001-18 in Submission 001. However, the tire track imprint labeled Q2 is not consistent in wear characteristics and randomly acquired characteristics with the Known tire in Items 001-3 through 001-18 in Submission 001. Tire track imprint Q2 was not made by the Known tire.
Q6KJX8-5351	1- Items Q1&Q3&Q4 identical with suspect's tire imprint. 2- Item Q2 not related to suspect's tire.
QPRNM2-5351	An examination was done on Q1-Q-4. K1-K8 were photographs of a recovered tire impression. Q1 was identified to segments D-E of K1-K8. Q3 was identified to segments E-G of K1-K8 and Q4 was identified to segments A-C of K1-K8. Q2 was eliminated from being made by K1-K8.
QTQZJ2-5351	There are similarities in tread design, tread block dimension and spacing, wear, and randomly acquired characteristics between impression Q1 and known tire segments C-E, impression Q3 and known tire segments E-G, and impression Q4 and known tire segments A-C; therefore the known tire made the questioned impressions. Impression Q2 has a similar tread design to the known tire; however, there are dissimilarities in the wear and randomly acquired characteristics seen in the questioned impression. Therefore, the known tire did not make impression Q2.
QZNUGZ-5355	[No Conclusions Reported.]
R9XLFW-5351	Laboratory examinations were conducted and the findings of this examiner are as follows: 1. Impressions Q1, Q3 and Q4 were identified as having been made by the same tire that made the submitted known impressions. 2. Impression Q2 was not made by the same tire that made the submitted known impressions, based on differences in wear patterns. The suspect tire shares similar class characteristics as the submitted known tire impressions.
RYV2GB-5351	The known tire was identified as having made the questioned impression depicted in Q1 based on a correspondence of observed class characteristics (specific tread design and size), general wear, and randomly acquired characteristics of sufficient quality and quantity. The correspondence was observed in segments D to E (K4_2) of the known tire. The known tire was the source, and made, the questioned impression depicted in Q1. Another item being the source is considered a practical impossibility. The known tire was excluded from making the questioned impression depicted in Q2 based on a lack of correspondence in tread design spacing, lug shape, and wear. The known tire, as submitted, is not the source of this impression. The known tire was identified as having made the questioned impression depicted in Q3 based on a correspondence of observed class characteristics (specific tread design and size), general wear, and randomly acquired characteristics of sufficient quality and quantity. The correspondence was observed in segments E to G (K5_2 to K6_2) of the known tire. The known tire was the source, and made, the questioned impression depicted in Q3. Another item being the source is considered a practical impossibility. The known tire was identified as having made the questioned impression depicted in Q4 based on a correspondence of observed class characteristics (specific tread design and size), general wear, and randomly acquired characteristics of sufficient quality and quantity. The correspondence was observed in segments A to C (K1_2 to K2_2) of the known tire. The known tire was the source, and made, the questioned impression depicted in Q4. Another item being the source is considered a practical impossibility.

TABLE 2

(WebCode)- Test	Conclusions
TVQTQ6- 5355	[No Conclusions Reported.]
TXUNCU- 5355	<p>Q1- The tire tread impression shares class and numerous unique characteristics within the submitted tire. It is the opinion of the analyst that the impression was made by the known source. Q2- The tire tread impression corresponds in class characteristics and physical size; however, there were significant limiting factors in the questioned impression that did not permit a stronger association between the questioned impression and the known source. It is the opinion of the analyst that the questioned impression could have been made by the source or any other similar source with the same physical size and design. Q3- The tire tread impression shares class and numerous unique characteristics within the submitted tire. It is the opinion of the analyst that the impression was made by the known source. Q4- The tire tread impression shares class and numerous unique characteristics within the submitted tire. It is the opinion of the analyst that the impression was made by the known source.</p>
UAJ6DZ- 5351	<p>A questioned impression from the large piece of wood (Q1) and a questioned impression from a lost dog poster (Q3) were determined to be partial tire impressions. An additional questioned impression from the lost dog poster (Q4) was determined to be a tire impression. These partial tire impressions and tire impression are similar in class characteristics (tread design, size, wear) and also share randomly acquired characteristics with the recovered tire (K1, K2, K4, K5, K6). It is our opinion that these partial tire impressions and tire impression were made by the recovered tire. An additional impression from the large piece of wood (Q2) was determined to be a partial tire impression that is similar in class characteristics (tread design, size) however, is dissimilar in wear and randomly acquired characteristics. It is our opinion that this partial tire impression was not made by the recovered tire. Please note that this impression could have been made by a tire with similar make and model to the recovered tire. If additional impression analysis is necessary, please resubmit the above evidence along with any additional tires for comparison.</p>
UDGKQU- 5351	<p>Size, tread design, tread pattern, tire element physical dimensions and corresponding individual characteristics were noted between the partial tire tracks depicted in Q1, Q3 and Q4 and the submitted tire test impressions. The tires making the tire test impressions is identified as a source of these partial tire tracks. Wear pattern and wear condition differences were noted between the partial tire track depicted in Q2 and the submitted tire test impressions. The tire making the tire test impressions is excluded as the source of the partial tire track depicted in Q2.</p>
UEXHG9- 5351	<p>1. The tire track imprint of Q1 is the same as item K4_2 (segment D-E). 2. The tire track imprint of Q2 is the same as item K2_2 (segment B-C). 3. The tire track imprint of Q3 is the same as item K6_2 (segment F-G). 4. The tire track imprint of Q4 is the same as item K2_2 (segment B-C).</p>
V938LZ- 5351	<p>COMPARISONS: Compared the partial, questioned tire track impressions of value, Q-1 through Q-4, with the photographs of the known tire segments, test impressions, and transparencies, respectively submitted in Submissions 001 and 001A. RESULTS: The partial, questioned tire track impressions of value, labeled Q-1, Q-3, and Q-4, were each identified as being made from the known tire in Submission 001. The partial, questioned tire track impression of value, labeled Q-2, corresponds with the physical size, tread elements, and general condition of wear with the known tire in Submission 001, specifically corresponding to the area of segments labeled as B and C. Due to the texture of the substrate and the lack of observable identifying characteristics a closer association could not be made between the partial, questioned tire track impression of value, Q-2, and the known tire in S-1. While there is an association of class characteristics, this impression could have been made by another tire with the same characteristics.</p>

TABLE 2

(WebCode)- Test	Conclusions
VWY2W- 5355	The questioned imprints Q1, Q3 and Q4 were made by the recovered tire. The questioned imprint Q2 was not made by the recovered tire.
WADA8Y- 5351	The evidence impressions Q1 through Q4 were compared to the known tire, as represented by the exhibit 2 images, with the following results: Q1: The tread design, physical size, wear, and multiple randomly acquired characteristics correspond between Q1 and the K tire section D-E. In my opinion, the K tire section D-E was the source of, and made, the Q1 impression. Another tire being the source of the impression is considered a practical impossibility. Identification. Q2: The tread design, physical size, some general wear features, and two small and indistinct randomly acquired characteristics generally corresponded between Q2 and the K tire section B-C-D; however, numerous differences were also observed. These differences were attributed to the specific spacing and shape of individual tread elements, general wear features, randomly acquired characteristics appearing on the tire but not in Q2, and features observed in Q2 that were not accounted for by the K tire section B-C-D. No other locations on the tire corresponded in tread design and pitch sequence of the noise treatment (i.e. physical size). Sufficient differences were noted in the comparison, and they were not explainable by the short amount of additional usage in time and mileage between the Q2 deposit and K tire seizure. In my opinion, the K tire was not the source of, and did not make, the Q2 impression. Exclusion. Q3: The tread design, physical size, wear, and multiple randomly acquired characteristics correspond between Q3 and the K tire section E-G. In my opinion, the K tire section E-G was the source of, and made, the Q3 impression. Another tire being the source of the impression is considered a practical impossibility. Identification. Q4: The tread design, physical size, wear, and multiple randomly acquired characteristics correspond between Q4 and the K tire section A-C. In my opinion, the K tire section A-C was the source of, and made, the Q4 impression. Another tire being the source of the impression is considered a practical impossibility. Identification.
WFZ2FR- 5355	Known tire #K1-K8 (segments C-F) has been identified as the source of tire impression Q1. Known tire #K1-K8 (segments E-G) has been identified as the source of tire impression Q3. Known tire #K1-K8 (segments A-C) has been identified as the source of tire impression Q4. Impression Q2 lacks sufficient detail for a meaningful conclusion when compared to known tire item #K1-K8.
X2E94Q- 5351	The questioned impressions in Q1, Q3, and Q4 are similar in class characteristics with a sufficient number of randomly acquired characteristics to the submitted known tire. The randomly acquired characteristics are significant that identification of the known tire is possible. The questioned impressions Q1, Q3, and Q4 were made by the submitted/recovered tire. The questioned impression in Q2 is similar in number of ribs and grooves, tread design, and tread sizing/noise control. Differences in randomly acquired characteristics are apparent, but are not significant enough to show sufficient differences for an exclusion. Therefore, indications of non-association are between the questioned impression Q2 and the submitted/recovered tire.
X8MPFZ- 5355	For questioned marks Q1, Q3 and Q4, the extent of agreement, including the fine detail and damage features, is such that there is a conclusive association between the recovered tyre and the questioned tyre marks. For questioned mark Q2, there is agreement in terms of the gross pattern between sections E to G of the recovered tyre and the questioned mark such that we are satisfied that the recovered tyre had the correct class characteristics to have produced the questioned mark. However, there are some suggestions that the recovered tyre may not have been worn enough to have produced the questioned mark and there is an absence of corresponding fine detail linking the tyre and the mark. The significance of these differences would normally have been explored by making further test marks, but in the absence of such test marks we were split between options C and F which we could not resolve. In these circumstances we feel compelled to report our findings as inconclusive (option E).

TABLE 2

(WebCode)- Test	Conclusions
XFCDB3- 5355	It was determined utilizing visual and side by side comparison, that the questioned partial tiretrack impressions Q1, Q3 and Q4 were positively made by the known tire. It was determined utilizing visual and side by side comparison that the questioned partial tiretrack impression Q2 was not made by known tire.
Y6C67Q- 5355	The Q1, Q3, and Q4 questioned tire tracks correspond to the respective portions of the known tire in regards to physical size and design, general condition of wear, specific wear, and a number of randomly acquired characteristics. Therefore, known tire is the source of the Q1, Q3, and Q4 questioned tire tracks. The Q2 questioned tire track corresponds to a portion of the known tire in regards to physical size and design. However, there are indications of non-association between the Q2 questioned tire track and the known tire due to differences in specific wear features and a lack of correspondence in randomly acquired characteristics.
YA6BKR- 5351	The known tyre Exhibit ##### was the source of, and made, the questioned impression Q1. The chance of another tyre being the source of the impression is considered negligible. The known tyre Exhibit ##### was the source of, and made, the questioned impression Q3. The chance of another tyre being the source of the impression is considered negligible. The known tyre Exhibit ##### was the source of, and made, the questioned impression Q4. The chance of another tyre being the source of the impression is considered negligible. Due to differences observed (no shared randomly acquired characteristics were noted, although pattern elements were similar size and design) the known tyre Exhibit ##### was not the source of and did not make the questioned impression Q2.
YD4MGR- 5351	From the comparison examination on the photographs of the scene impressions (Q1-Q4), test impressions and photographs of tyres (K1-K8) I was able to determine the following. It is my opinion that: The known tyre FEN***** did make the scene impression Q1 and Q4 and no other tyre. The scene impressions Q1 and Q4 shared agreement of class and randomly acquired characteristics of sufficient quality and quantity. It is my opinion that this tyre and no other tyre made these two scene impressions (Q1 and Q4). The known tyre FEN***** could have made the scene impression Q3. The partial scene impression Q3 shared a correspondence of class characteristics, in addition to unusual wear and/or one or more randomly acquired characteristics between the Q3 partial impressions and the known tyre. It is my opinion that this tyre could have made this impression (Q3). Due to the fact that the scene impression Q3 was partial in nature prevented me from making a more conclusive determination as the quantity of randomly occurring characteristics in the partial impression was insufficient for a identification conclusion. The known tyre FEN***** shared some similar class characteristics with the scene impression Q2, however there was a discrepancy with the physical size of the scene impression Q2 and the known tyre. The known tyre and the scene impression Q2 had some significant limiting factors including notable differences in the overall size and the lack of a shared general wear or any similar randomly occurring accidental damage points.
YN7NGR- 5351	I examined the 4 questioned prints and compared each print to the test prints made using the tyre. An excellent correspondence of pattern and randomly acquired characteristics was found between three of the questioned prints (Q1, Q3 and Q4) and the test prints made using the tyre. In my opinion, this correspondence means that the tyre made these three questioned prints (Q1, Q3 and Q4). An excellent correspondence of pattern and some areas of wear was found between the questioned print Q2 and the test prints made using the tyre. Therefore, the tyre could have made the questioned print Q2, or it could have been made by another tyre with the same tread pattern and similar wear features. In my opinion, this correspondence means that there is an association of class characteristics between the tyre and the questioned print Q2.
Z8TT2M- 5355	I was requested to compare photographs of (1) known tire and exemplars to photographs of four (4) tire tracks to determine if the tire tracks were the source of the known tire. QUESTIONED

TABLE 2

(WebCode)- Test	Conclusions
	<p>IMPRESSION(s) (Q): Q-1 was a photograph of a partial tire track impression on a large piece of raw wood. The impression was a partial overlapping impression with three grooves and four ribs visible. The outer rib consisted of slanted rectangle elements with square elements that slanted in the opposite direction toward the groove. The inner ribs consisted of thick curved elements that slanted toward each other in a unidirectional travel. Q-2 was a photograph of a partial tire track impression on a large piece of raw wood. The impression was a partial overlapping impression with four grooves and four ribs with part of the fifth rib visible. The outer rib consisted of slanted rectangle elements with square elements that slanted in the opposite direction toward the groove. The inner ribs consisted of thick curved elements that slanted in opposite directions. Q-3 was a photograph of a partial tire track impression on a lost dog poster. The impression was a partial impression with one groove and two ribs visible. The ribs consisted of slanted bars, curved slanted bars and squares that slant in the opposite direction than the outer slanted bar. Q-4 was a photograph of a partial tire track impression on a lost dog poster. The impression was a partial impression with five ribs and four grooves. The outer ribs consisted of slanted rectangle elements with square elements that slanted in the opposite direction toward the groove. The inner ribs consisted of thick curved elements that slanted in opposite directions of each other with a repeating pattern. KNOWN TIRE (K): Photographs (segments A-H) and photographs of exemplars (segments A-H) of a Firestone FT140, P205/65R16 94H M&S DOT 8X84 FTO 3516 tire. The tire displayed five ribs, four grooves, with the outer ribs consisting of slanted rectangle elements with square elements that slanted in the opposite direction toward the groove. The inner ribs consisted of thick curved elements that slanted in opposite directions of each other with a repeating pattern. Results and Interpretations: The Q-1 questioned tire impression and known tire segment D-E, share agreement of class and randomly acquired characteristics of sufficient quality and quantity for an identification. The known tire was the source of, and made, the questioned impression. Another tire being the source of the impression is considered a practical impossibility. The Q-3 questioned tire impression and the known tire segment E-F and segment F-G, share agreement of class and randomly acquired characteristics of sufficient quality and quantity for an identification. The known tire was the source of, and made, the questioned impression. Another tire being the source of the impression is considered a practical impossibility. The Q-4 questioned tire impression and the known tire segment A-B and segment B-C, share agreement of class and randomly acquired characteristics of sufficient quality and quantity for an identification. The known tire was the source of, and made, the questioned impression. Another tire being the source of the impression is considered a practical impossibility. The known tire was excluded from being the source of the Q-2 questioned impression. Although the known tire was the same general design as the questioned impression, sufficient differences were noted in the comparison of class characteristics of design, wear and randomly acquired characteristics between the questioned impression and the known tire. The known tire was not the source of, and did not make the Q-2 questioned impression. The actual known tire would be needed to verify the results with the randomly acquired characteristics. Disposition: The notes, photographs and exemplars for this comparison will be kept in the[Laboratory] impression evidence proficiency test files. Method: ACE-V</p>

Additional Comments

TABLE 3

(WebCode)- Test	Additional Comments
6FCN9R- 5355	Q2 has an area that differs in B-C segment of K
89QDAG- 5355	<p>A conclusion of "Identification" is established through the agreement of corresponding class and accidental characteristics between the questioned impression and the known tire of sufficient quality and quantity to conclude that the known tire was the source of the questioned impression. A conclusion of "High Degree of Association" is established when a questioned impression and a known tire exhibit strong association in class and accidental characteristics; however, the quality and/or quantity of the associating characteristics was insufficient for identification. A conclusion of "Association of Class Characteristics" is established when there is some agreement in class characteristics between the questioned impression and the known tire. The known tire or other tires with the same class characteristics could have been the source of the questioned impression. A conclusion of "Limited Association of Class Characteristics" is established when there are similar class characteristics between the questioned impression and the known tire; however, there are factors present that limit the comparison. The known tire or other tires with the same class characteristics could have been the source of the questioned impression. A conclusion of "Indications of Non-Association" is established when the questioned impression exhibits dissimilarities from the known tire; however, the impression lacks sufficient quality or clarity or there is some other limiting factor that precludes exclusion. A conclusion of "Exclusion" is established when there are sufficient features in disagreement between a questioned tire impression and a known tire to conclude that the tire could not be the source of the impression.</p>
BA8X7N- 5355	<p>When I indicated which segments of the tire I made the positive associations to, I had to include a larger area than the questioned impressions actually spanned because of where the demarcation lines between segments ended up falling. For example: I identified Item Q1 based on a comparison of class and individual characteristics that primarily fell within segment D-E of the test impression. However, since the area that Q1 corresponded to spanned just a little bit past the lines labeled D and E, I had to report the corresponding segment as C-F. As a side note - I found the way that the tire segments were labeled to be a little confusing for reporting purposes. In my own casework, I would normally label the section between lines with a letter rather than labeling the lines themselves and then calling the segments A-B, C-D, etc. If the sections themselves were labeled instead of the lines, I believe it would be easier to indicate the area to which the positive association is made more specifically.</p>
BC92VP- 5351	<p>NOTE: Class characteristics can include outsole design, physical size, areas of wear, and/or texturing. Associative Key for Footwear or Tire Impressions: Identification: This is the highest degree of association. The questioned impression and the known footwear or tire share agreement of class and randomly acquired characteristics of sufficient quality and quantity. The particular known footwear or tire was the source of, and made, the questioned impression and another tire or item of footwear being the source of this impression is considered a practical impossibility. High Degree of Association: The characteristics observed exhibit strong associations between the questioned impression and the known footwear or tire; however, the quality and/or quantity were insufficient for an identification. Other footwear or tires with the same characteristics are included as possible sources only if they display the same class characteristics and/or randomly acquired characteristics observed in the questioned impression. Association of Class Characteristics: The known footwear or tire is a possible source of the questioned impression and therefore could have produced the questioned impression. Other footwear or tires with the same class characteristics are included as possible sources of the questioned impression. Limited Association of Class Characteristics: Certain factors have limited the conclusion to a general association of class characteristics. Other footwear or tires with the same class characteristics are included as possible sources of the questioned impression. Indications of Non-Association: Dissimilarities between the questioned impression and the</p>

TABLE 3

(WebCode)- Test	Additional Comments
	known footwear or tire indicated non- association; however, the details or features were not sufficient to permit an exclusion. Exclusion: The particular known footwear or tire did not make the questioned impression.
KATQXA- 5351	I think it would be beneficial to have each segment (as in between the lines of the test impressions) be a segment. Instead of identifying to segments AB, BC and CD it would be an identification to segments A and B. This seems to make it confusing to many people and makes the evaluation of results difficult as well.
PUJEQZ- 5351	The size of the photograph for Q1 and Q2 appears to be slightly smaller than that of the test impression. The randomly acquired characteristics in Q1 still corresponded with the known tire, but the overall size fell off. I am not sure if something happened during the taking of the photograph to cause this size difference because the scale appears to be accurate in both photos. This also made comparison of Q2 more difficult.
QTQZJ2- 5351	K1_2 through K8_2 were heavily inked, subsequently obscuring some randomly acquired characteristics of the known tire in the impressions. Had this been real casework, additional tire impressions would have been made using less ink in order to see finer details in the known tire.
R9XLFW- 5351	Q2: Size and shape (noise pattern of elements) are similar, however lacking individual characteristics. Possibly different tire from the same set/vehicle
WFZ2FR- 5355	Known tire item K1-K8 could be neither identified nor excluded as the source of tire impression Q2. General design, dimension, and noise treatment appear to correspond; however, the appearance of possible randomly acquired characteristics do not appear to correspond between tire item K1-K8 and impression Q2. Due to the limitations of this comparison (only one test impression provided, the physical tire was not provided) and based on both the correspondences and non-correspondences observed, no meaningful conclusions may be rendered. If additional test impressions and/or the physical tire was provided for comparison, additional comparative analysis of tire impression Q2 may be performed.
X8MPFZ- 5355	The opportunity to make further test marks in order to address questioned mark Q2 would have been welcome but it is recognised that it is not possible in a Proficiency Trial of this type.

-End of Report-
(Appendix may follow)

Test No. 21-5351: Tire Track Imprint Evidence

DATA MUST BE SUBMITTED BY **Sept. 20, 2021, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: YWH2YM

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 theft of materials from a construction site. Tire track imprints were recovered on items proximal to the site where tools and building materials were discovered to be missing. The imprints are believed to have been left by the suspect vehicle. A day after this incident, approximately three miles from the site, a vehicle was identified as belonging to an individual attempting to sell materials 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: Firestone FT140, P205/65R16 94H M&S DOT 8X84 FTO 3516.

Known, inked imprints (K1_2 through K8_2 and K1_3 through K8_3) 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_3-K8_3), accessible through a link on the CTS customer 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_2-K8_2: Photographs of known imprints made with the recovered tire (segments).

K1_3-K8_3: Digital supplemental images of known imprints made with the recovered tire (segments).

Q1-Q2: Photograph of questioned imprints found on a large piece of raw wood.

Q3-Q4: Photograph of questioned imprints found on a lost dog poster.

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

21-5351.5_Tire Track - Supplemental.zip MD5 hash value: af1c81982c10d201d48d48683662d926

21-5351.5_Tire Track - Supplemental.zip SHA1 hash value: 15fa29d46661f6eeac1bf8ac61c5509cc0071d71

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 (indicate the letters at the beginning and end of the corresponding segments).

Example:

<u>Imprint</u>	<u>Segment(s)</u>
Q1:	<input type="text" value="B"/> <input type="text" value="C-E"/>

<u>Imprint</u>	<u>Segment(s)</u>
Q2:	<input type="text" value="A"/> <input type="text" value="G-H"/>

Wood		Lost Dog Poster	
<u>Imprint</u>	<u>Segment(s)</u>	<u>Imprint</u>	<u>Segment(s)</u>
Q1:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Q2:	<input type="text"/>	<input type="text"/>	<input 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)