Collaborative Testing Services, Inc

Forensic Testing Program

Toolmarks Examination
Test No. 15-529 Summary Report

This test was sent to 256 participants. Each sample set contained a diagonal cutter (Item 1) and two pieces of aluminum wire containing questioned toolmarks (Items 2 and 3). Participants were requested to examine these items and report their findings. Data were returned from 193 participants (75% response rate) and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample set contained a diagonal cutter (Item 1), two .125" aluminum wire pieces containing questioned toolmarks (Items 2 and 3) and a 5" piece of aluminum wire for test cut purposes. Participants were requested to determine which, if any, of the questioned toolmarks were made by the submitted tool. The Item 2 and Item 3 aluminum wire pieces were both cut by the Item 1 diagonal cutter.

SAMPLE PREPARATION: The diagonal cutters provided as Item 1 and used to cut Items 2 and 3 are Stanley® 6" Diagonal Cutting Pliers, Item # 84-027. Items 2 and 3 were .125" bare aluminum wire. Each diagonal cutter was opened and inspected for defects. The diagonal cutters were used to cut spare aluminum wire to remove manufacturing defects and residue. This process was done to break in the tools. The Item 2 aluminum wire was painted with blue paint on the end not to be examined. The Item 3 aluminum wire was painted with red paint on the end not to be examined.

ITEMS 1, 2 and 3 (IDENTIFICATION MARKS): The Item 2 aluminum wire (with blue painted end) was cut and packaged into a pre-labeled Item 2 envelope. The Item 3 aluminum wire (with red painted end) was cut and packaged into a pre-labeled Item 3 envelope. The corresponding diagonal cutter was labelled with an Item 1 label and packaged in bubble wrap. Items 1, 2 and 3 were then immediately assembled into the sample pack box as described below. The above process was repeated until all identification toolmarks had been prepared.

SAMPLE SET ASSEMBLY: The corresponding Item 1 diagonal cutter and the Item 2 and Item 3 aluminum wire were packaged into a pre-labeled sample pack box along with a 5" piece of aluminum wire for testing purposes. This process was repeated until the required number of sample sets were produced. Once verification was completed, the sample sets were sealed with evidence tape and initialed "CTS".

VERIFICATION: In addition to the sample sets examined and confirmed by predistribution laboratories, 10 randomly selected sample sets were examined by a qualified toolmark examiner who also confirmed the expected identification between Items 1, 2 and 3.

Summary Comments

This test was designed to allow participants to assess their proficiency at a toolmark examination involving striated type toolmarks caused by a tool utilizing a pinching action. Each sample set consisted of one diagonal cutter (Item 1) and two pieces of aluminum wire (Items 2 and 3) containing the questioned toolmarks. Participants were requested to determine if the recovered diagonal cutter had cut either of the questioned pieces of wire. The Item 2 and Item 3 pieces of aluminum wire were cut by the Item 1 diagonal cutter. [Refer to Manufacturer's Information for preparation details.]

Of the 193 responding participants, 172 (89%) identified the Item 1 diagonal cutter as having cut both the Item 2 and Item 3 aluminum wires. Nine participants identified Item 2 and either eliminated or were inconclusive as to the Item 3 having been cut by the Item 1 diagonal cutter. Eight participants either eliminated or were inconclusive for both Items 2 and 3 as having been cut by the Item 1 diagonal cutter. The remaining four participants either eliminated or were inconclusive for Item 2 and identified Item 3 as having been cut by the Item 1 diagonal cutter.

Examination Results

Did the suspect's diagonal cutting pliers (Item 1) produce the questioned toolmarks on either of the submitted pieces of wire (Items 2 or 3)?

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
24YXHY	Yes	Yes	4HAKJR	Yes	Yes
2DL2MD	Yes	Yes	4M2PBB	Yes	Yes
2FBVDA	Yes	Yes	4T8LUB	Yes	Yes
2HKDLX	Yes	Yes	4XL2K3	Yes	Yes
2KXE23	Yes	Yes	4YWXVY	Yes	Yes
2PDCMQ	Yes	Yes	6FZUR3	Yes	Yes
2PXNC4	Yes	Yes	6MYP2H	Yes	Yes
2UCYP9	Yes	Yes	6P2HJZ	Yes	Yes
2XCAK9	Yes	Yes	6QHCMV	Yes	Yes
2ZYJLF	Yes	Yes	6UCZRN	Yes	Yes
33F2G7	Yes	Yes	6YR4PX	Yes	Yes
38BVE8	Yes	Yes	6Z8URA	Inc	Yes
3AFM7K	Yes	Yes	74H6HJ	Yes	Yes
3AZW7T	Yes	Yes	7BKKEY	Yes	Yes
3C9UV4	Yes	Yes	7JB6HC	Yes	Yes
3J79CJ	Yes	Yes	7P6283	Yes	Yes
3VJPFN	Yes	Yes	7Z33J8	Yes	Yes
3VYZ82	Yes	Yes	84WJA7	Yes	Yes
49H33Y	Inc	Inc	86TYL3	Yes	Yes
4AATZJ	Yes	Yes	8AJ9V2	Yes	Yes
4AXT6B	Yes	Yes	8BEP9X	Yes	Yes

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
8GLH3U	Yes	Yes	E2AHK7	Yes	Yes
8PVC7H	Yes	Yes	E2Q7UR	Yes	Yes
93J9WY	Yes	Yes	E69W8W	Yes	Yes
968DFD	Yes	Yes	EBA94T	Yes	Yes
9AJTWA	Yes	Yes	EC4YA8	Yes	Yes
9HUVHA	Yes	Yes	EDJP9W	Yes	Yes
9QQPHU	Yes	Yes	EF8UTB	Yes	Yes
ACYF9T	Yes	Yes	EJPJ4T	Yes	Yes
AF4FK8	Yes	Yes	EQNDC8	Yes	Yes
AFYQ4T	Yes	Yes	ERKWE9	Yes	Yes
AP67YM	Yes	Yes	F3C3MW	Yes	Yes
B436B4	Inc	Yes	F6KP6N	Inc	Inc
B88Z99	No	No	F7VLEY	Yes	Yes
BMXH7V	Yes	Yes	FBTBBU	No	Yes
C2DV4M	Yes	No	FDX438	Yes	Yes
CB2GX8	Yes	Yes	FHTXZ9	Yes	Yes
CFXB8M	Yes	Yes	FRUQHT	Yes	Yes
CGACQZ	Yes	Yes	FYGG6M	Yes	Yes
CZFCQ8	Yes	Yes	G6Z4DX	Yes	Yes
DAN7KZ	Yes	Yes	G9E2HZ	Yes	Yes
DC8QEN	Yes	Yes	GFFKWC	No	No
DM9LNZ	Yes	Yes	GH4R6R	Yes	Yes
DMTVLM	Yes	Yes	GH4WX3	Yes	Yes
DYMBBN	Yes	Yes	GMEAE2	Yes	No

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
GRUAJZ	Yes	Yes	M3ALPZ	Yes	Yes
GUFMBX	Yes	No	M6JQ3N	Yes	Yes
H42H2H	Yes	Yes	MBT8V4	Yes	Yes
HEHU43	Yes	Yes	MEQ6AW	Yes	Yes
HFEAFY	Inc	Inc	MFXKF3	Yes	Yes
JHZCXR	Yes	Yes	MGBMBU	Yes	Yes
JJAT4V	Yes	Yes	MQJQD7	Yes	Yes
JPUGRT	Yes	Yes	MZ7P7W	Yes	Yes
JQ9Q3E	Yes	Yes	N77NUR	Yes	Yes
JX794P	Yes	Yes	NA83QB	Yes	Yes
K29BPK	Yes	Yes	NE2YDF	Yes	Yes
K4B4MP	Yes	Yes	NNRHRP	Yes	Yes
KAGXHK	Yes	Yes	NT3VAM	Yes	Yes
KBDDUH	Yes	No	NTHMCZ	Yes	Yes
KF9F8D	Yes	Yes	NZZVZW	Yes	Yes
L2GXHJ	Yes	No	P32F3M	Yes	Yes
LDE7EM	No	Yes	P3JYUR	Yes	Yes
LFNQCG	Yes	Yes	PD2JEN	Yes	Yes
LNCAGW	Yes	No	PEFD8Q	Yes	Yes
LNTXQG	Yes	Yes	PEW2FP	Yes	Yes
LP9PTT	Yes	Yes	PF82CK	Yes	Yes
LPARRQ	Yes	Yes	PFBVAR	Yes	Yes
LPUZR2	Yes	Yes	PN44UH	Yes	Yes
LT6DAZ	Yes	Yes	PPH3XK	Yes	Yes

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
PV7QVC	Yes	Yes	UG767P	Yes	Yes
Q3F2CN	Yes	Yes	UGMUGA	Yes	Yes
Q4AK3A	Yes	Yes	UR9QN3	Yes	Yes
Q4U7TE	Yes	Yes	V34QA6	Yes	Yes
Q7JWVR	Yes	No	V3JHCH	Yes	Yes
QFMMLL	Inc	Inc	V698TV	Yes	Yes
QUQDGL	Yes	Yes	VLX6A4	Yes	Yes
QVZVMP	Yes	Yes	VMRHJW	Inc	Inc
R633VG	Yes	Yes	VQBCLP	Yes	Yes
R8CKZK	Yes	Yes	WGKD9P	Yes	Yes
RHPTPY	Yes	Yes	WJ8HR2	Yes	Yes
RJ2H3J	Yes	Inc	WJMCJH	Yes	Yes
RL9ZZE	Inc	Inc	WK2BMJ	Yes	Yes
RWAU86	Yes	Yes	WRX4VD	Yes	Yes
RWPGV8	Yes	Yes	WU9FQG	Yes	Yes
T6Y796	Yes	Yes	WVG399	Yes	Yes
T7B8TJ	Yes	Yes	X23BBD	Yes	Yes
TAAJNJ	Yes	Yes	X3H64F	Yes	Yes
TB62QK	Yes	Yes	X4AT9A	Yes	Yes
TBNDHK	Yes	Yes	XKXBFC	Yes	Yes
TCKVJL	Yes	Yes	XP9NXB	Yes	Yes
TCWRPQ	Yes	No	XQ48YC	Yes	Yes
TW4XEL	Yes	Yes	Y3TVGA	Yes	Yes
U2TW7L	Yes	Yes	YGQ8PD	Yes	Yes

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
YGT6DB	Yes	Yes			
YJ3MJE	Yes	Yes			
YMGHYC	Yes	Yes			
Z6UGJZ	Yes	Yes			
Z79QW8	Yes	Yes			
Z849Y9	Yes	Yes			
Z9UZXE	Yes	Yes			

Response Summary

Total Participants: 193

Did the suspect's diagonal cutting pliers (Item 1) produce the questioned toolmarks on either of the submitted pieces of wire (Items 2 or 3)?

		ITEM 2	ITEM 3
Responses	Yes	**181** *(93.8%)*	**176** *(91.2%)*
	No	**4** *(2.1%)*	**10** *(5.2%)*
	Inc	**8** *(4.1%)*	**7** *(3.6%)*

Conclusions

TABLE 2

WebCode	Conclusions
24YXHY	The cut on the Laboratory Item 001.B (Item 2) piece of wire is identified as being made by Laboratory Item 001.A (Item 1) Stanley brand diagonal cutting pliers recovered from the suspect. The items are identified as to sharing a common source because there is agreement of all discernible class characteristics and sufficient agreement of a combination of individual characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool. The cut on the Laboratory Item 001.C (Item 3) piece of wire is identified as being made by Laboratory Item 001.A (Item 1) Stanley brand diagonal cutting pliers recovered from the suspect. The items are identified as to sharing a common source because there is agreement of all discernible class characteristics and sufficient agreement of a combination of individual characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool.
2DL2MD	Items 2 and 3 were compared microscopically with test cuts made using Item 1. These comparison results are "Identifications" based on their sufficient quantity and quality of matching individual characteristics in the striations of their cuts. Thus, it is the opinion of this Examiner that Items 2 and 3 were cut by Item 1.
2FBVDA	3. On 2015-11-19 during the performance of my official duties I received a sealed evidence bag with number PA4001492071 from Case Administration of the Ballistics Section, containing a sealed white box with the following contents: 3.1 One (1) diagonal cutting pliers marked "262896/15 1". 3.2 One (1) cut piece of wire (painted blue) marked "262896/15 2". 3.3 One (1) cut piece of wire (painted red) marked "262896/15 3". 3.4 A piece of aluminium wire not marked. 4. The intention and scope of this forensic examination comprise of the following: 4.1 Examination of a tool and tool mark related materials. 4.2 Microscopic individualization of tool marks. 5. I examined the pieces of wire mentioned in paragraphs 3.2 and 3.3 and made replications for test purposes by cutting the unmarked piece of aluminium wire mentioned in paragraph 3.4 with the diagonal cutting pliers mentioned in paragraph 3.1, marked by me 896T1 to 896T5. 6. I compared the individual and class characteristic markings on the pieces of wire as mentioned in paragraphs 3.2 and 3.3 and the tests mentioned in paragraph 5 using a comparison microscope and found: 6.1 The marks on the pieces of wire marked "262896/15" and also "2" and "3" respectively, were produced by the diagonal cutting pliers mentioned in paragraph 3.1.
2HKDLX	The results of the examination strongly support that the toolmarks in Item 2 and Item 3 were made by Item 1 (Level +3).
2KXE23	Item #2: The tool mark on the wire was compared to the test exemplars obtained from the diagonal cutting pliers, Item #1. Sufficient corresponding individual tool mark signatures were observed to conclude that the tool mark on the wire was made by the diagonal cutting pliers. Item #3: The tool mark on the wire was compared to the test exemplars obtained from the diagonal cutting pliers, Item #1. Sufficient corresponding individual tool mark signatures were observed to conclude that the tool mark on the wire was made by the diagonal cutting pliers.
2PDCMQ	During first stage of the examination the presented testing piece of aluminum wire have been cut by the diagonal cutting pliers (with cutting blade) in different sections. The toolmarks produced during the experiment have been compared to the suspect toolmarks, produced on the submitted items 2 and 3 using Comparison Microscope “LEICA DFC 495”. The comparison analyses showed that the details of the toolmarks matched one to another, namely in size, shape, mark's inter-location and micro relief. This enables us to conclude that the suspect toolmarks on submitted aluminum wire items 2 and 3 were produced by the questioned diagonal cutter pliers (with cutting blade).
2PXNC4	Item 1 was identified as having been the tool to cut Items 2 and 3 based on agreement of individual and class characteristics.
2UCYP9	The item 2 and Item 3 silver wire strands were cut with the Item 1 diagonal pliers.

TABLE 2

WebCode	Conclusions
2XCAK9	The submitted diagonal cutting pliers, item 1, cut the pieces of wire, items 2 and 3.
2ZYJLF	I compared the class and individual markings on the plier and aluminum wires using a comparison microscope and found the marks on the aluminum wires were produced by the plier.
33F2G7	Test marks with Item 1 (Diagonal cutting pliers) were created on a lead plate and on aluminium wire. When comparing the test marks of Item 1 with the toolmarks on Item 2 and Item 3, matching individual characteristics have been observed. Therfore[sic] Item 1 can be identified as the source of the questioned marks on Item 2 and 3.
38BVE8	Item 1 is a pair of diagonal cutting pliers marketed by Stanley. The Item 2 and 3 wires were identified as having been cut by the Item 1 pliers.
3AFM7K	Test-cuts were made using the submitted cutting pliers (Item #1) and compared microscopically against the striations & impressed marks which appear on the submitted cut wires (Items #2 and #3). The examination indicates that both wires (Items #2 & #3) were cut by the submitted cutting pliers (Item #1).
3AZW7T	During my comparisons I observed agreement of all discernible class characteristics and sufficient agreement of individual characteristics to conclude the pliers, Item 001-01, produced the tool marks present on Item 001- 02 and Item 001-03.
3C9UV4	Items 2 and 3 were cut by Item 1.
3J79CJ	The evidence in items 1, 2, and 3 was analyzed by physical and microscopic examination. The toolmarks present on the two (2) cut pieces of wire in items 2 and 3 were determined to have been made by the diagonal cutting pliers in item 1.
3VJPFN	Using a comparison microscope I examined casts created from Items 2 & 3 with casts from the exemplar material cut with Item 1 (cutting pliers). I made a positive identification of both exhibit Items 2 & 3 when compared with test Item 1. There was significant agreement of a combination of individual characteristics and all discernable class characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool. In my opinion, the tool (Item 1) cut through Items 2 & 3.
3VYZ82	The cut sections of wire in items #2 and #3 were microscopically compared to test cuts made using the cutters submitted as item #1. The following conclusion was reached: The wires of items #2 and #3 were microscopically identified as having been cut by the cutters of item #1.
49H33Y	Item 1 is a pair of Stanley diagonal cutters that uses a pinching-type action. Item 2 and Item 3 are two pieces of aluminum wire that were cut by a tool using a pinching-type action such as the Item 1 diagonal cutters. However, due to lack of sufficient agreement in the individual microscopic marks of value, it could not be determined if the Item 2 or Item 3 wires were cut by the same tool or by the Item 1 diagonal cutters.
4AATZJ	A MICROSCOPIC COMPARISON EXAMINATION OF EVIDENCE CUT WIRES Q1 AND Q2 (ITEMS 2 AND 3) AGAINST TEST CUT WIRES CUT WITH K1 CUTTING PLIERS (ITEM 1) HAS REVEALED THAT Q1 AND Q2 (ITEMS 2 AND 3) WERE CUT WITH K1 CUTTING PLIERS (ITEM 1).
4AXT6B	3. On 2015-11-18 during the performance of my official duties I received a sealed evidence bag with number PA4001492069 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 One (1) black and yellow Stanley diagonal cutting pliers marked by me "Item 1". 3.2 One (1) piece of aluminium wire marked by me "Item 2". 3.3 One (1) piece of aluminium wire marked by me "Item 3". 4. The intention and scope of this forensic examination comprise of the following: 4.1 Examination of tools and toolmark related materials. 5. I examined the Stanley pliers mentioned in paragraph 3.1 and made replications for test purposes marked by me "Test 1" and "Test 2" respectively. 6. I compared the individual and class characteristic markings of the tests marked "Test 1" and "Test 2" respectively mentioned in paragraph 5.1 with the aluminium wires marked "Item 2" and "Item 3" respectively mentioned in paragraphs 3.2 and 3.3 using a comparison microscope and found: 5.1 The marks on the aluminium wires marked "Item 2" and "Item 3" respectively mentioned in

TABLE 2

WebCode	Conclusions
	paragraphs 3.2 and 3.3 were produced by the Stanley pliers mentioned in paragraph 3.1.
4HAKJR	Items 2 and 3 were cut by the submitted Stanley cutting pliers (Item 1).
4M2PBB	The tests cut with Exhibit 1 designated 1T1 A, B, C and D and 1T2 A, B, C and D were compared with Exhibit 2 and 3 using a comparison microscope with the following results: The toolmarks on Exhibit 2 and Exhibit 3 were identified as having been produced by Exhibit 1 the Stanley diagonal cutting pliers.
4T8LUB	Toolmarks on cut metal wire ends in Item 2 and Item 3 were found upon microscopic comparison to have been caused by the blade of the diagonal cutting pliers in Item 1.
4XL2K3	Items 2 and 3 were identified as having been cut using Item 1.
4YWXVY	There is no doubt that the pliers item 1 cut the wire in items 2 and 3.
6FZUR3	Toolmarks observed on the submitted cut pieces of wire (Item #'s 2 and 3) are identified as having been produced by the submitted diagonal cutting pliers (Item #1).
6MYP2H	The cuts to the Items 2 and 3 wire samples were identified, within the limits of practical certainty, as having been made by the Item 1 tool.
6P2HJZ	Microscopic comparison was conducted with the following results: W1 (Item #2 and W2 (Item #3) were cut by T1 (Item #1).
6QHCMV	The diagonal cutting pliers, Item 1, was determined to have produced the cuts in both pieces of wire, Items 2 and 3.
6UCZRN	The cutting edges of the two wires, item 2 and item 3, were examined and compared to the diagonal cutting pliers, item 1. Both wires were cut with the same type of tool, which resembled the diagonal cutter pliers. By using microscope, molds from item 2 and item 3 were compared with a mold from a cut with item 1. The microscopic examination revealed several details fond in the molds from item 2 and item 3 that matched details fond in the mold from the cut with item 1. The conclusion is therefor that both the wires, item 2 and item 3 have been cut the diagonal cutting pliers. [sic]
6YR4PX	Items 1.1, 2 and 3. The Item 2 and 3, pieces of cut wire and test toolmarks from the Item 1.1 tool were examined and microscopically compared to each other with the following result: Toolmarks on Items 2 and 3 were identified as having been made by the Item 1.1 tool.
6Z8URA	Standards were made using the specimen marked #1 (Stanley Control Grip 84-027 Six Inch Bi-Material Diagonal Pliers) and microscopically compared with the striations appearing upon the specimen marked #3 (cut piece of wire/painted red). The result of the microscopic comparison showed that the wire marked #3 (cut piece of wire/painted red) was cut with the submitted Stanley pliers marked #1. Compared the standards from item #1 (Stanley Control Grip 84-027 Six Inch Bi-Material Diagonal Pliers) against the specimen marked item #2 (cut piece of wire/painted blue). The result of the microscopic comparison of the standards from item #1 (Stanley Control Grip 84-027 Six Inch Bi-Material Diagonal Pliers) against item #2 (cut piece of wire/painted blue) was inconclusive.
74H6HJ	The cutting pliers (Item 1) were identified whithin the limits of certainity as having left the cutting traces on the two pieces of wire (Item 2 and Item 3).[sic]
7BKKEY	Microscopic comparison was conducted with the following results: (Item #2 and Item #3 were cut by Item #1.
7JB6HC	Exhibit 1 consists of one (1) pair of Stanley brand diagonal cutting pliers that employs a pinching action and bears marks of value for comparison. Test cuts were obtained from Exhibit 1 and designated 1-T1 and 1-T2. Microscopic examination determined that Exhibits 2 and 3 each have a cut end that was produced by a pinching tool and contain marks of value for comparison. Test cuts from Exhibit 1 were microscopically compared to Exhibits 2 and 3. It was determined that there is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify Exhibit 1 as having produced the cuts on Exhibits 2 and 3.
7P6283	The Stanley pliers were submitted for comparison reasons. The wire (1-02-AA) was identified as having

TABLE 2

WebCode	Conclusions
	been cut by the submitted Stanley pliers (1-01-AA) due to consistent and repeatable marks. The wire (1-03-AA) was identified as having been cut by the submitted Stanley pliers (1-01-AA) due to consistent and repeatable marks. The length of wire (1-04-AA) was submitted to be used as test material.
7Z33J8	Test toolmarks from Item #1 were microscopically examined in conjunction with the toolmarks present on Item #2 and Item #3. Based on these comparative examinations it was determined that the toolmarks on Item #2 and Item #3 had been produced by Item #1.
84WJA7	Test cuts made from Item 1 were microscopically compared to Item 2 and Item 3. Item 1 was identified as having cut Item 2 and Item 3 due to sufficient correspondence of individual characteristics observed in the striations.
86TYL3	The two pieces of wire (2, 3) were cut by the diagonal pliers (1).
8AJ9V2	The diagonal cutting pliers (item 1) cut both pieces of aluminum wire (items 2 and 3).
8BEP9X	Microscopic comparison was conducted with the following results: Defect toolmarks noted on (Item #2 & 3) cut pieces of aluminum wire were produced by submitted diagonal cutting pliers (Item #1).
8GLH3U	Both cut pieces of wire, items 2 and 3, have been cutted[sic] by the cutting pliers, item 1.
8PVC7H	THE TOOLMARKS FOUND IN THE ITEMS 2 AND 3 HAVE BEEN CAUSED BY THE ITEM 1.
93J9WY	The cut ends of the submitted wires, Items #2 & #3, were compared microscopically with tests made w/ Item #1. There is agreement in all discernable class characteristics and sufficient agreement in individual characteristics for ID. Items #2 & #3 were cut by Item #1.
968DFD	Test toolmarks produced with the Stanley brand wire cutting pliers (Item 1) on the supplied test wire (Item 4) were compared microscopically with the questioned toolmarks on the submitted evidence wires (Items 2 and 3) with positive results. It is the conclusion of this examiner that the toolmarks on the submitted evidence wires (Items 2 and 3) were produced using the Stanley brand wire cutting pliers (Item 1).
9AJTWA	Exhibit 1 is a pair of Stanley diagonal cutters, which are designed to cut with a pinching action. Laboratory test toolmarks were produced and designated as 1-T1 and 1-T2. Exhibits 2 and 3 are two (2) pieces of cut wire, which were examined for the presence of toolmarks. Toolmarks of value were found on the cut ends of both wires are consistent with being cut by a pinching action. Exhibits 2 and 3 were microscopically compared to the Exhibit 1 test toolmarks and identified as having been produced by the Exhibit 1 diagonal cutters.
9HUVHA	The Exhibit 2 and Exhibit 3 cut wires were microscopically compared to the test cuts produced by the Exhibit 1 diagonal cutter pliers. There is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to determine that the Exhibit 1 diagonal cutter pliers cut the Exhibits 2 and 3 wires.
9QQPHU	The results of the toolmark examinations are included in this report. Item 1 is a pair of diagonal cutting pliers bearing a symbol associated with the trade name Stanley. The Item 1 diagonal cutting pliers was identified as having created the toolmarks present on the Item 2 and Item 3 wires.
ACYF9T	The Item 2 and 3 wires and test toolmarks from the Item 1 diagonal cutter were examined and microscopically compared to each other with the following result: Toolmarks on Items 2 and 3 were identified as having been made by the Item 1 diagonal cutter. Test marks (Item 1.1) from Item 1 have been retained in a packet labeled Packet TLM1. This packet is being returned to the submitting agency.
AF4FK8	The cutters submitted as item 1 cut both pieces of wire submitted as items #2 and #3
AFYQ4T	As a result of the macroscopic and microscopic comparison it is certain that the toolmarks present on both pieces of submitted aluminum wire (marked "Item 2" and "Item 3") have been produced by the cutting pliers marked "Item 1".

TABLE 2

WebCode	Conclusions
AP67YM	The Item 2 and 3 cut wires were identified as having been cut by the Item 1 wire cutters.
B436B4	Item 1 - Bi-Material Diagonal Pliers model #84-027 by Stanley. Item 2 - one (1) piece of cut wire with blue paint. Item 3 - one (1) piece of cut wire with red paint. The submitted specimens marked as Items 2 and 3 were microscopically compared to test samples from Item 1. As a result of microscopic examination it was concluded that Item 3 was identified as having been cut by the Item 1 tool. Item 2 could not be identified or eliminated as having been cut by the Item 1 tool. Item 2 has similar characteristics as Item 1 sample but lacks sufficient individual matching marks to identify or eliminate.
B88Z99	Item 2 and 3 are not cut by the cutting pliers (item 1).
BMXH7V	Exhibit #1 is a Stanley brand diagonal cutting tool that employs a pinching action. Test toolmarks, designated as 1T1, from the tool were produced for microscopic comparisons. Exhibit #2 is a piece of aluminum wire that contains a pinching action toolmark on one end. Exhibit #3 is a piece of aluminum wire that contains a pinching action toolmark on one end. Microscopic comparisons between the Exhibit #1 test toolmarks and the toolmarks on the Exhibits #2 and #3 evidence wires revealed the following: Based on sufficient agreement of individual characteristics, it was concluded that the toolmarks on Exhibits #2 and #3 were produced by the Exhibit #1 tool.
C2DV4M	A comparative microscopic examination between the cuts on the first cut piece of wire (painted blue) and the test cuts of the exhibit diagonal cutters revealed that the wire (painted blue) was cut by the exhibit diagonal cutters. A comparative microscopic examination between the cuts on the first cut piece of wire (painted red) and the test cuts of the exhibit diagonal cutters revealed that the wire (painted red) was not cut by the exhibit diagonal cutters.
CB2GX8	The questioned toolmarks on the piece of wire (Item 2) were produced by the diagonal cutting pliers (item 1). The questioned toolmarks on the piece of wire (Item 3) were produced by the diagonal cutting pliers (item 1).
CFXB8M	Test marks were made with Item 1, the Stanley pliers, using submitted testing media. Item 1A, the test marks, were sealed in a manila envelope & will be retained in the laboratory for possible future analysis. The toolmark on Items 2 and 3, the pieces of wire, were made with Item 1, the Stanley pliers, based upon corresponding class & individual microscopic characteristics.
CGACQZ	Microscopic examination and comparison of test toolmarks from Item 1 and the pieces of wire in Items 2 and 3 revealed that the toolmarks present on the pieces of wire in Items 2 and 3 had been produced by the diagonal cutting pliers in Item 1.
CZFCQ8	Upon comparison, I found that the characteristic toolmarks on Item 2 and Item 3 to match with those on the test cut marks made by Item 1 (pliers). Therefore, I am of the opinion that the toolmarks on Item 2 and Item 3 was made by Item 1.
DAN7KZ	2.1) I examined the diagonal cutting pliers marked Item 1 and made replications for test purposes and marked the tests 934T1 and 934T2. 2.2) I compared the individual and class characteristic markings on the exhibits (Item 2 & Item 3) and tests (934T1 & 934T2) using a comparison microscope and found: 2.2.1) The marks on the cut aluminium wires marked Item 2 & 3 were produced by the diagonal cutting pliers marke[sic] Item 1.
DC8QEN	Item 1 is identified with practical certainty as having created the toolmarks on items 2 and 3.
DM9LNZ	I examined the wires marked 283385/15 (2 and 3) and replicents[sic] for test purposes made, marked T1, and T2. The marks on the wires 283385/15 2 and 3 were produced by the diagonal cutting pliers.
DMTVLM	Toolmarks present on Item 2 and Item 3 were made by Item 1
DYMBBN	Results of Examination: Item 1 is a Stanley diagonal pliers, that uses a pinching action. Toolmarks present on the Item 2 and Item 3 wires were identified as having been produced by the Item 1 pliers.
E2AHK7	The shape and striation marks in the section of the test wire produced by the cutting pliers (Item 1) are the same as these on the section of the wires (Item 2 and 3).

TABLE 2

WebCode	Conclusions
E2Q7UR	Item #2 and Item #3 exhibit tool marks from the submitted pliers when compared to each other and Item #1 (pliers).
E69W8W	3. On 2015-11-24 during the performance of my official duties I received a sealed evidence bag with number PA4001492067 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 One (1) black and yellow Stanley manufactured diagonal cutting plier marked by me "262907/15 Item-1". 3.2 One (1) piece of aluminium-wire marked by me 262907/15 item-2". (Painted blue). 3.3 One (1) piece of aluminium-wire marked by me "262907/15 item-3". (painted red). 4. The intention and scope of this forensic examination comprise the following: 4.1 The examination of tools and toolmark related material. 4.2 Microscopic individualization of toolmarks. 5. I examined the diagonal cutting plier mentioned in paragraph 3.1 and made replication for test purposes and marked it "262907/15 FT1". 6. I compared the individual and class characteristic markings on the aluminium-wires and test replication mentioned in paragraphs 3.2, 3.3 and 5 using a comparison microscope and found: 6.1 The marks on the aluminium-wires mentioned in paragraphs 3.2 and 3.3 were produced by the tool mentioned in paragraph 3.1.
EBA94T	Item #1 is a pair of diagonal cutting pliers, “Stanley” brand. Item #1 was microscopically examined and test toolmarks were prepared for comparison purposes. Item #2 is a piece of aluminum wire displaying toolmarks, which were identified as having been made by the Item #1 pliers. Item #3 is a piece of aluminum wire displaying toolmarks, which were identified as having been made by the Item #1 pliers.
EC4YA8	(1) Comparing trace is scratched on the cutting face of the wire. : The sample wire (that is cut by the suspected cutter)’s trace scratched by Item1 (suspected cutting pliers) is matched with Item2 (Blue)’s trace & Item3 (Red)’s trace. In conclusion, Item2 (Blue) & Item3 (Red) are cut by the Item1(suspected cutting pliers).
EDJP9W	Examinations showed that the Item 1 diagonal cutters were used to cut the Item 2 and Item 3 wires.
EF8UTB	Based on the agreement of discernible class characteristics and sufficient matching individual detail, the tool marks exhibited on the wires, Items 2 and 3, were identified as having been created by the use of the diagonal cutting pliers, Item 1.
EJPJ4T	Tool marks observed on the two submitted cut pieces of metal wire (Items #2 and #3) are identified as having been produced by the submitted Stanley brand diagonal cutting pliers (Item #1).
EQNDC8	The evidence in items 1, 2, and 3 was analyzed by physical and microscopic examination. The toolmarks present on the two (2) pieces of wire in items 2 and 3 were determined to have been made by the diagonal cutting pliers in item 1.
ERKWE9	Striations on wire using item 1 are same as striations of item 2 and item 3.
F3C3MW	Suspect used the same Stanley plier to cut the fence and gain access. I compared the individual and class characteristics markings on the cut piece of wire mention in 3.2 and 3.3 and found - The marks on the cut pieces of wire mention 3.2 and 3.3 were produced by the tool mention in 3.1.
F6KP6N	Due to insufficient markings, Items 2 and 3 could neither be identified nor eliminated as having been cut by Item 1.
F7VLEY	Items: 1.1 - A pair of diagonal cutting pliers. 1.2 - A cut wire. 1.3 - A cut wire. Analysis Result: Agreement of a combination of sufficient individual characteristics and all discernible class characteristics confirmed the 1.2 and 1.3 wires were both cut by the 1.1 pair of pliers.
FBTBBU	Item #3 microscopic marking were produced by the Item #1 cutters. The marking on Item #2 were not produced by the Item #1 cutters. Item #2 and #3 were produced by different cutters.
FDX438	The toolmarks by Item 1 which is produced by the cutting pliers are the same as Item 2 and 3.
FHTXZ9	CONCLUSIONS: THE FIRST CUT PIECE OF WIRE, PAINTED BLUE (ITEM 2), MARKED Q1, AND THE SECOND CUT PIECE OF WIRE, PAINTED RED (ITEM 3), MARKED Q2, WERE EACH CUT WITH THE SUBMITTED DIAGONAL CUTTING PLIERS (ITEM 1), MARKED K1.

TABLE 2

WebCode	Conclusions
FRUQHT	Tool marks exhibited on Items 2 and 3 (sections of wire) are identified as having been produced by Item 1 (diagonal cutters).
FYGG6M	Results of Examinations: Item 2 and Item 3 are pieces of wire that contain pinching type toolmarks. Item 1 is a Stanley diagonal cutting plier that uses a pinching action. The toolmarks present on the Item 2 and Item 3 wires were identified as having been produced by the Item 1 pliers.
G6Z4DX	Items 2 and 3 were cut by Item 1. These identifications were made by having sufficient surface contours in agreement.
G9E2HZ	Exhibit 1 is a pair of Stanley cutting pliers with an overall length of approximately six inches, with the top and bottom jaws being approximately ¾ of an inch in length. Exhibit 2 is approximately 2 ½ inches in length of cut wire that has been marked with blue paint at one end. Exhibit 3 is approximately 2 ½ inches in length of cut wire that has been marked with red paint at one end. Exhibits 2 and 3 were microscopically compared to each other. Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibits 2 and 3 were cut by the same tool. Multiple test cuts were made in soft lead and the wire provided using Exhibit 1. The test cuts were labeled Exhibit 1.T1 and were retained with the evidence. The test cuts (Exhibit 1.T1) were microscopically compared to each other and to Exhibit 2. Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibits 2 and 3 were cut by the Exhibit 1 tool.
GFFKWC	Item #1 consist of a Stanley Wire cutter, model control grip, serial number unknown. Toolmarks present on the Item #2 aluminum wire (blue tip) were not produced by the Item #1 wire cutter. Toolmarks present on the Item #3 aluminum wire (red tip) were not produced by the Item #1 wire cutter. Toolmarks present on the Item #2 and Item #3 wires were produced by the same tool.
GH4R6R	Item #1 (Stanley wire cutter), Item #2 (first cut piece of wire painted blue) and Item #3 (second cut piece of wire painted red) were microscopically examined and compared on October 26, 2015. The questioned toolmarks on Items #2 and #3 (two cut wire sections) were positively identified as having been produced by Item #1 (Stanley wire cutter).
GH4WX3	Item 1 produced the questioned toolmarks on both items 2 nd[sic] 3.
GMEAE2	On examination, I found that : a) The characteristics marks on Item 2 were similar to the marking made by Item 1, the pliers recovered from the suspect; b) The characteristics marks on Item 3 were dissimilar to the marking made by Item 1, the pliers recovered from the suspect.
GRUAJZ	Exhibit 1 is a pair of diagonal cutting pliers, Stanley brand, that utilizes a pinching action. Test toolmarks were produced using the Exhibit 1 pliers, which were designated 1-T1 through 1-T4. The Exhibit 2 and 3 wires were microscopically examined for the presence of comparable toolmarks. Each wire has a cut end with toolmarks consistent with a pinching action. Microscopic comparisons were conducted between the toolmarks observed on the cut ends of Exhibits 2 and 3 and the test toolmarks produced using the Exhibit 1 pliers. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, the Exhibit 1 diagonal cutting pliers were identified as having produced the toolmarks on the Exhibit 2 and Exhibit 3 wires.
GUFMBX	Piece of wire - item 2 was cut with suspects cutting pliers. Piece of wire item 3 was not cut with this pliers.
H42H2H	On comparison between the test striation marks made by the diagonal pliers marked “Item 1” and the questioned striation marks on the wires marked “Item 2” and “Item 3”. It was found that the wires marked “Item 2” and “Item 3” were cut by the diagonal pliers marked “Item 1”.
HEHU43	The item 1 diagonal cutting pliers was used to cut the item 2 and item 3 wire.
HFEAFY	Examination of Items 2 and 3 revealed damage consistent with that produced by an opposing jaw tool. Using Item 1 as the tool, test marks were made using laboratory stock and microscopically compared with the questioned areas of items 2 and 3. Item 1 can neither be identified nor eliminated as having been used to cut the submitted Item 2 or Item 3 wire. The inability to effect an identification is not sufficient grounds to eliminate the Item 1 tool as having produced the toolmarks present. There

TABLE 2

WebCode	Conclusions
	are sufficient individual markings present to identify Item 2 and 3 as having been cut by the same tool. All conclusions were reached using microscopic and/or macroscopic examination. This report reflects the test results, conclusions, interpretations and/or findings of the analyst.
JHZCXR	Tools, like the submitted cutting pliers have individual surface-features, due to their manufacturing process and use. These surface-features can be transferred onto objects that are worked with the tool. If toolmarks shows sufficient details that were caused by the corresponding individual structures of the tool, the tool can be identified to have caused the toolmarks. Due to the individual features in the submitted toolmarks, it is proven that: The toolmarks on Item 2 and Item 3 were caused by cutting pliers Item 1.
JJAT4V	Item 1.1 is a Stanley brand diagonal cutter. Test cuts were made using the provided material. Items 1.2 and 1.3 are two sections of cut wire. The areas of damage were microscopically compared to the tests from Item 1.1. Items 1.2 and 1.3 were identified as having been cut by Item 1.1.
JPUGRT	1. I examined the pieces of wire "Item 2 and 3" using a comparison microscope and found microscopic comparable marks which can be used / utilized for individualization. 2. I examined the pliers "Item 1" and cut tests with it for comparison purposes. 3. I compared the class and individual characteristic markings on the wires "Item 2 and 3" and the tests cut with the pliers "Item 1" using a comparison microscope and found the marks on the wires "Item 2 and 3" were produced by the pliers "Item 1".
JQ9Q3E	The microscopic examination of the effective area of the tool showed individual characteristics. Therefore the tool is suitable for an examination with the goal of identification. The examination of the toolmarks on the wire ends (items 2 and 3) showed that these evidence marks are suitable for further examination with the goal of identivication[sic] or exclusion of the tool having caused the toolmarks. Test marks were prepared using the tool. These were compared with the evidence marks on the wire ends (items 2 and 3). The evidence marks on items 2 and 3 are identified as having being made by the tool (item 1). The comparative examination revealed agreement both in the general evidence characteristics like form and size as well as microscopic individual patterns to an extent that is only possible for toolmarks that have been produced by the same tool. Based on the results of the examination it is concluded that the tool (item 1) produced the evidence marks on both wire ends (items 2 and 3).
JX794P	The item 1 pliers cut the item 2 and item 3 pieces of wire.
K29BPK	1. Exhibit 1 (tool) is a Stanley brand diagonal wire cutter. Exhibit 1.1 (test standards) was created for comparison purposes and is being returned with Exhibit 1. 2. Exhibits 2 and 3 (two cut wires) were visually examined and microscopically compared to test standards from Exhibit 1. Microscopic comparison disclosed that Exhibits 2 and 3 were both cut by Exhibit 1.
K4B4MP	Based on agreement of all discernable class characteristics and sufficient agreement of individual characteristics, the cut wires Item 2 and Item 3 were cut by the cutting pliers Item 1.
KAGXHK	Known test standards from Item 1 (cutter) were microscopically compared to Items 2 and 3 (questioned items). It was determined that both Items 2 and 3 were cut using Item 1 due to sufficient agreement of class and individual characteristics.
KBDDUH	I. Upon comparison, I found that the characteristic fine marks on item 2 to match with those on the test cut marks made by the diagonal cutting pliers (item 1). II. Upon comparison, I found that the characteristic fine marks on item 3 did not match with those on the test cut marks made by the diagonal cutting pliers. (Item 1). * Therefore, I am of the opinion that item 2 was cut by the cutting pliers item 1. Item 3 was not cut by the cutting pliers Item 1.
KF9F8D	The diagonal cutting plier (item 1) did produce the questioned tool marks on both pieces of wire (item 2 & item 3)
L2GXHJ	Item #2 (blue tip wire) was cut by Item #1 (diagonal cutters). Items #3 (red tip wire) was not cut by Item #1 (diagonal cutters).
LDE7EM	Microscopic comparison of item 2 to test marks made utilizing Item 1 disclosed significant

TABLE 2

WebCode	Conclusions
	disagreement of discernable class and/or individual characteristics. Microscopic comparison of item 3 to test marks made utilizing Item 1 disclosed agreement of a combination of individual and class characteristics where the extent of agreement exceeds that which could occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool.
LFNQCG	Item 1 is a pair of Stanley diagonal cutters, Model 84-027. Items 2 and 3 are two pieces of wire. Toolmarks present on the Items 2 and 3 pieces of wire were identified as having been produced by the Item 1 diagonal cutters.
LNCAGW	On examination, I found that the item 1 (the suspect's diagonal cutting pliers was produced questioned toolmarks same as on item 2 (first cut piece of wire)(painted blue).
LNTXQG	Results of Examinations: Item 2 and Item 3 are pieces of wire that contain pinching type toolmarks. Item 1 is a Stanley diagonal cutting plier that uses a pinching action. The toolmarks present on the Item 2 and Item 3 wires were identified as having been produced by the Item 1 pliers.
LP9PTT	There is sufficient agreement of class characteristics and an agreement of individual characteristic marks, therefore pieces of wires marked item 2 and item 3 mentioned in paragraph 1 were produced by the plier marked item 1.
LPARRQ	The two pieces of aluminum wire (Items 2 & 3) were identified as having been cut by the submitted Stanley diagonal cutter (Item 1).
LPUZR2	This lab cut test wire by Item 1. It's a test toolmakk[sic]. Test toolmark is the same with Item 2 and Item 3. So, Item 2 and Item 3 were cut by Item 1.
LT6DAZ	The Item 2 and 3 wires were cut by the Item 1 diagonal cutting pliers.
M3ALPZ	We observed an excellent correspondence of toolmarks between the cut surfaces of the submitted two pieces of wire (Item 2, Item 3) and the cut surface of the piece of wire using the suspect's diagonal cutting pliers (Item 1). In our opinion, this correspondence means that the diagonal cutting pliers recovered from the suspect (Item 1) was used to cut the first and second cut piece of wire (Item 2, Item 3).
M6JQ3N	The fragments of fence indexed as "item 2" and "item 3" have been cut by pliers (Item 1). In both fragments of fence (Item A and Item B) cut marks are observed, these have been done by one of the pliers edge.
MBT8V4	I conducted a comparative microscopic examination between the cut surfaces present on each side of the cut in the two pieces of wire (Items 2 and 3) and test cuts I made in lead sheet using the wire cutters (Item 1). The degree of matching microscopic correspondence I observed on both sides of each cut was extensive and I considered that the chance of observing this correspondence on another piece of wire if the submitted wire cutters were not responsible, to be so remote as to be a practical impossibility. In my opinion, both pieces of wire (Items 2 and 3) had been cut using the wire cutters (Item 1), at a point approximately half way along the blades.
MEQ6AW	There was sufficient agreement of class characteristic and individual characteristic markings to determine that the cutting pliers, item 1, had produced the marks on the wires, items 2 and item 3.
MFXKF3	[No conclusions reported.]
MGBMBU	Exhibit 1 is a pair of Stanley 84-027 diagonal cutting pliers. This tool utilizes a pinching action. Exhibit 2 is piece of 8 AWG wire, approximately 2½" in length, one end has blue colored material on it and the opposite end has a pinching toolmark. Exhibit 3 is piece of 8 AWG wire, approximately 2½" in length, one end has a red colored material on it and the opposite end has a pinching toolmark. Test toolmarks were made using the submitted diagonal cutting pliers (Exhibit 1), laboratory supply lead wire and the exemplar aluminum wire. The tests were retained with the evidence as Exhibit 1.T1. Test toolmarks from Exhibit 1.T1 were microscopically compared to Exhibits 2 and 3. Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibits 2 and 3 were cut with Exhibit 1.

TABLE 2

WebCode	Conclusions
MQJQD7	Diagonal cutting pliers received ("Item 1") has been the tool used to cut wire fragments studied ("Item 2 and Item 3")(S°Ref 15-529 Toolmark Examination)
MZ7P7W	The questioned toolmarks on Item 2 and item 3 were created by the diagonal cutting pliers, Item 1.
N77NUR	The questioned toolmarks on the piece of wire (Item 2) were produced by the diagonal cutting pliers (item 1). The questioned toolmarks on the piece of wire (Item 3) were produced by the diagonal cutting pliers (item 1).
NA83QB	Tool Marks Analysis: Methodology - Comparison Microscopy. The tool mark on Item 2, piece of wire, was made with Item 1, the diagonal cutting pliers, based upon corresponding class and individual microscopic characteristics. The tool mark on Item 3, piece of wire, was made with Item 1, the diagonal pliers, based upon corresponding class and individual microscopic characteristics.
NE2YDF	A microscopic examination and comparison of test cut pieces of wire produced by item #1, to items #2 and #3, displayed a sufficient agreement of individual characteristics to conclude that both submitted pieces of cut wire had been cut by item #1, the cutting pliers.
NNRHRP	Examination of Items #2 and #3 revealed the presence of toolmarks that had been produced by a double bladed cutting tool. Test toolmarks from Item #1 were microscopically examined in conjunction with the wire fragments in Items #2 and #3. Based on these comparative examinations and observed class and individual characteristics, it was determined that the toolmarks present on Items #2 and #3 had been produced by the tool in Item #1.
NT3VAM	Examinations showed Item 2 and Item 3 were cut by Item 1.
NTHMCZ	Test toolmarks were made from the item 1 pliers for comparison purposes. Toolmarks were observed on one end of the item 2 wire and on one end of the item 3 wire. Sufficient agreements of class and individual characteristics confirmed the toolmarks on the item 2 wire and on the item 3 wire were made by the item 1 pliers.
NZZVZW	On examination and comparison, I found that the characteristic markings on Item 2 and Item 3 to be similar with the markings made by Item 1.
P32F3M	Item 2 was was[sic] cut off by diagonal cutting pliers (Item 1). Item 3 was was[sic] cut off by diagonal cutting pliers (Item 1).
P3JYUR	Exhibit 1 was a Stanley brand (#84-027) diagonal cutting pliers. Exhibits 2 and 3 were pieces of wire cut on one end. Test toolmarks were made using the Exhibit 1 pliers and were designated 1AT1 through 1DT1 and 1AT2 through 1DT2. The toolmarks on the Exhibits 2 and 3 wires were microscopically compared with the test toolmarks. The Exhibits 2 and 3 wires were identified as having been cut by the Exhibit 1 diagonal cutting pliers.
PD2JEN	[Name] - Firearms Section, Crime Lab. At the request of QA/QC Officer of the Crime Lab Unit, I took custody of the following items for examination from her on 10/27/15: CCN 15-529 PI 15-529 T2 (Lines 1 - 3). Item 1: One yellow/black handled "Stanley" diagonal cutting pliers. Item 2: One silver wire; marked with blue paint. Item 3: One silver wire; marked with red paint. Results of examination: Test toolmarks were obtained from Item 1 using lead and also with aluminum wire similar to that of Items 2 and 3. Comparison of test toolmarks from Item 1 to Items 2 and 3 revealed the presence of matching features. This indicates that toolmarks present on Items 2 and 3 are consistent with having been made by Item 1. These results were verified by [name]. The above items will be retained in the Crime Lab Unit. I hereby certify that this is a report of the conclusions of examinations performed by me.
PEFD8Q	In my opinion my findings provide conclusive evidence that the pliers recovered from the suspect cut the piece of wire Item 2 and the piece of wire Item 3
PEW2FP	Item 1 was examined and determined to function as designed. Item 2 was microscopically compared with test cut specimens from Item 1, finding class and individual characteristic correspondence. It was concluded that Item 2 was cut by the Item 1 tool. Item 3 was microscopically compared with test cut specimens from Item 1, finding class and individual characteristic correspondence. It was concluded

TABLE 2

WebCode	Conclusions
	that Item 3 was cut by the Item 1 tool.
PF82CK	Further examination of Items 2 & 3 with test toolmarks created by Item 1 revealed Items 2 & 3 were cut by the submitted diagonal cutting pliers (Item 1).
PFBVAR	Marks on the exhibits wires marked item 2 & 3 were produced by the Diagonal cutting plier marked Item 1.
PN44UH	The Stanley cutting pliers, specimen / item #1, was examined and utilized using material from the laboratory collection and was found to be operable & in good working order. The reference aluminum wire cut by specimen #1 was microscopically examined and compared to the submitted aluminum wire, specimen / items #2 & 3. It was determined that items #2 & #3 were cut by item #1.
PPH3XK	The Items 2 and 3 tool marks were examined, compared microscopically, and identified as having been produced by the Item 1 pair of pliers.
PV7QVC	Toolmarks present on items 2 and 3 were identified as having been produced by item 1 based on the sufficient agreement of class and individual characteristics.
Q3F2CN	2.1. I compared the individual and class characteristic markings on the exhibits mentioned in 3.2 and 3.3 as well as the tests mentioned in 5 using a comparison microscopic and found: 2.1.1. The marks on the pieces of aluminum mentioned in 3.2 and 3.3 were produced by the diagonal cutting pliers mentioned in 3.1
Q4AK3A	The diagonal cutting pliers (Item 1) were used to make test cuts in lead sheets and in lead solder wire. The toolmarks in the lead wire test cuts were then microscopically compared with the toolmarks in the cuts on the pieces of wire of Item 2 and Item 3. Item 2 and Item 3. The wires, Item 2 and Item 3, were both cut by the diagonal cutting pliers, Item 1.
Q4U7TE	The Items 2 and 3 cut wire were identified as having been cut by the Item 1 pliers, based on microscopic comparison and the correspondence of individual characteristics.
Q7JWVR	On examination, I found Item 2 has been cut using Item 1. However, I found Item 3 has not been cut using Item 1.
QFMMLL	Test toolmarks from Item 1 were microscopically examined with Items 2 and 3 with the following results: A) Items 2 and 3 were cut by the same pinching type tool. B) Results of examining the test cuts from Item 1 with Items 2 and 3 were inconclusive. There is agreement of class characteristics and some individual characteristics, but insufficient agreement for identification.
QUQDGL	Item (1) is been use to cut Item (2) and Item (3).
QVZVMP	Test marks (1-2) obtained from item #1 (KT-1) were microscopically compared to the tool mark impressions on item #2 (QT-1) and item #3 (QT-2). Item #1 (KT-1) was identified as having damaged item #2 (QT-1) and item #3 (QT- 2) based upon a significant agreement of individual characteristics.
R633VG	[No conclusion reported.]
R8CKZK	Test tool marks were made in lead wire using Item 1. These toolmarks were microscopically examined in conjunction with the toolmarks on the aluminum wire segments in Items 2 and 3. Based on these comparative examinations, it was determined that the pliers in Item 1 made the toolmarks on Items 1[sic] and 2.
RHPTPY	Item 1 was identified within the limits of practical certainty as having been used to cut the exhibit wires items 2 and item 3.
RJ2H3J	The questioned toolmark on the submitted aluminum wire (Item 2) was identified as having been made by the submitted pliers (Item 1). Due to insufficient corresponding individual characteristics the submitted aluminum wire (Item 3) was neither identified nor eliminated as having been made by the submitted pliers (Item 1).
RL9ZZE	Any definite conclusion can't be made concerning the question if the diagonal cutting pliers of the item

TABLE 2

WebCode	Conclusions
	1 have caused the marks in the pieces of wire, items 2 and 3.
RWAU86	The toolmarks present on Items 2 and 3 were microscopically examined in conjunction with test toolmarks produced by Item 1 cutting pliers. Based on these comparative examinations, it was determined that the cutting pliers in Item 1 had produced the toolmarks present on Items 2 and 3.
RWPGV8	Test marks were made with Item 1, the Stanley pliers, using submitted testing media. Item 1A, the test cuts, was sealed in a manila envelope and will be retained in the laboratory for possible future analysis. Methodology - Comparison Microscopy. The tool mark on Item 2, the piece of wire, was made with Item 1, the Stanley pliers, based upon corresponding class and individual microscopic characteristics. The tool mark on item 3, the piece of wire, was made with Item 1, the Stanley pliers, based upon corresponding class and individual microscopic characteristics.
T6Y796	Item 2 and Item 3 were cut by the Item 1 Stanley diagonal cutting pliers.
T7B8TJ	Test tool marks made with Submission #1 were microscopically compared to the tool marks on Submissions #2 and #3 and were found to have sufficient characteristics to conclude an identification. Therefore, the diagonal cutters in Submission #1 cut the wires in Submissions #2 and #3. The evidence is available for pickup.
TAAJNJ	The toolmarks located on the two wires (Items 2 and 3) were examined and microscopically compared to test toolmarks made by the diagonal cutting pliers (Item 1). Based on these microscopic exams, the toolmarks on both of the wires were identified as having been made by the submitted pliers.
TB62QK	The toolmarks present on Items 2 and 3 were microscopically examined in conjunction with test toolmarks produced by Item 1 cutting pliers. Based on these comparative examinations, it was determined that the cutting pliers in Item 1 had produced the toolmarks present on Items 2 and 3.
TBNDHK	I compared the individual and class characteristic markings on the wires (painted blue) and (red) and found that they were produced by the pliers marked Item 1.
TCKVJL	2.1 I compared the individual and class characteristics markings on the cut piece of wire mentioned in 3.2 using a comparison microscopic and found: 2.2 The marks on the cut pieces of wire mentioned in 3.2 were produced by the tool mentioned in 3.1.
TCWRPQ	On the examination, I found that the marks on piece of cut wire which marked as Item 2 was similar to the marks produced by the diagonal cutting pliers recovered from the suspect (Item 1). While, the marks on second piece of cut wire, Item 3 was found to be dissimilar with the marks made by diagonal cutting pliers, Item 1.
TW4XEL	3. On 2015-11-18 during the performance of my official duties I received a sealed evidence bag with number PA4001492068 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 One (1) black and yellow diagonal cutting plier marked by me "262886/15 Item 1". 3.2 Two (2) strands of aluminium-wire marked by me "262886/15" each and "item 2" and "item 3" respectively. 4. The intention and scope of this forensic examination comprise the following: 4.1 The examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the diagonal cutting plier mentioned in paragraph 3.1 and made replications for tests purposes and marked them "T1" to "T4" respectively. 6. I compared the individual and class characteristic markings on the copper-wire and test replications mentioned in paragraphs 3.2 and 5 using a comparison microscope and found: 6.1 The marks on the aluminium-wires mentioned in paragraph 3.2 were produced by the tool mentioned in paragraph 3.1.
U2TW7L	1) In my opinion, the submitted pliers (Item 1) HAVE been used to cut the submitted wire (Item 2). 1) In my opinion, the submitted pliers (Item 1) HAVE been used to cut the submitted wire (Item 3).
UG767P	Methodology: Tool Examination, Tool Marks Examination, Microscopic Examination and Microscopic Comparison Examination. Results: 1. The tool mark found in the cut aluminum wire (blue), described in item 2, was produced by the diagonal cutting pliers, described in item 1. 2. The tool mark found in the cut aluminum wire (red), described in item 3, was produced by the diagonal cutting pliers, described in item 1.
UGMUGA	Item 1 is a pair of Stanley brand diagonal cutting pliers with yellow and black grips. They have an

TABLE 2

WebCode	Conclusions
	overall length of approximately 6 3/16" and a blade length of apprximately[sic] 7/8 of an inch. Test toolmarks were made using the supplied aluminum wire and laboratory supplied sheet lead. Items 2 and 3 are pieces of aluminum wire that have been cut. Based upon the agreement of class characteristics, these cuts were compared to test exemplars made with the Item 1 diagonal cutting pliers. Item 2 and Item 3 were identified as having been cut by the Item 1 diagonal cutting pliers based upon the agreement of individual characteristics.
UR9QN3	Exhibits listing: 1-(1) Diagonal cutting pliers recovered from suspect. 2-(2) First cut piece of wire. (painted blue). 3-(3) Second cut piece of wire. (painted red). Findings: Comparison microscope examinations were conducted on the evidence listed above. The findings of this examiner are the following: 1. Exhibits 2 and 3 were cut by the submitted diagonal cutting pliers (Exhibit 1). Only those items discussed in the results above were examined for this report. This report represents the opinions and interpretations of the undersigned analyst.
V34QA6	It was determined utilizing stereomicroscopic and comparison microscopic examination that the questioned partial toolmark impressions observed in item 2 and item 3 were positively made by the item 1 tool.
V3JHCH	The marks on the aluminum wires marked 276937/15 Items 2 & 3 were produced by the diagonal cutting plier marked 276937/15 Item 1.
V698TV	An examination showed both exhibit lengths of wire contained in Items 2 and 3 had been cut by the exhibit tool Item 1.
VLX6A4	The recovered toolmark in items 2 and 3 were made by the pair of pliers in item 1.
VMRHJW	K1 - Submitted wire cutters. Q1 - Cut wire with blue tip. Q2 - Cut wire with red tip. Several test cuts were made with the submitted metal wire using K1 wire cutter. While K1 could have been used to cut Q1 and Q2, There is an insufficient amount of microscopic detail remaining on them to positively identify that they were made by K1: Inconclusive.
VQBCLP	The suspect's diagonal cutting pliers, Item 1 produced the questioned toolmarks on Item 2 and Item 3.
WGKD9P	There are sufficient individual markings present to identify item 1 (diagonal cutters) as the tool used to damage items 2 and 3 (cut wires).
WJ8HR2	Comparison microscope examinations were conducted and it is the finding of this examiner that the questioned toolmarks on Item 2 and Item 3 were made by the submitted pliers, Item 1.
WJMCJH	Appendix 1: 3. On 2015-11-17 during the performance of my official duties I received a sealed evidence bag with number PA4001492070 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 One (1) diagonal cutting pliers/side cutter with black and yellow grips, marked by me "262859/15 1". 3.2 Two (2) strands of wire marked by me "262859/15" each and "2" and "3" respectively. 4. The intention and scope of this forensic examination comprise the following: 4.1 Microscopic individualization of toolmarks. 4.2 Examination of tools and toolmark related materials. 5. I examined the diagonal cutting pliers/side cutter with black and yellow grips mentioned in paragraph 3.1 and made replications for test purposes and marked Item "1T1 (1&2)" and "1T1 (3&4)" to"1T3 (1&2)" and "1T3 (3&4)" respectively. 6. I compared the individual and class characteristic markings on the wire strands mentioned in paragraph 3.2 with the tests mentioned in paragraph 5 using a comparison microscope and found: 6.1 The marks on the wires mentioned in paragraph 3.2 were produced by the tool mentioned in paragraph 3.1.
WK2BMJ	Exhibits 2 and 3 each contains an end cut by a tool employing a pinching action, such as Exhibit 1, that left toolmarks of value for comparison. The cut ends of Exhibits 2 and 3 were microscopically compared to test cuts taken of Exhibit 1 that were designated as 1-T1 and 1-T2. These microscopic comparisons identified Exhibit 1 as having cut the ends of Exhibits 2 and 3.
WRX4VD	The two pieces of wire (Items 2 and 3) were cut by the Stanley brand diagonal cutting pliers (Item 1).
WU9FQG	The questioned toolmarks produced by wires marked 283361/15 Item 2 and Item 3 were made by the cutting pliers marked 283361/15 Item 1.

TABLE 2

WebCode	Conclusions
WVG399	1. Exhibit 1 (Stanley brand diagonal cutting pliers) is designed to be used as an opposed blade cutting tool. Exhibit 1.1 (Laboratory generated test marks) was created for comparison and is being returned with Exhibit 1. 2. Exhibits 2 (Piece of wire) and 3 (Piece of wire) were visually examined and microscopically compared to test toolmarks from Exhibit 1. a. The Exhibit 1 diagonal cutting pliers caused the damage on the Exhibits 2 and 3 wires.
X23BBD	Examinations showed that Item 2 and Item 3 were cut by Item 1.
X3H64F	The marks on the pieces marked item 2 & 3 were produced by the pair of cutting pliers recovered from the suspect.
X4AT9A	Tool marks observed on the submitted cut pieces of wire (Items 2 and 3) are identified as having been produced by the submitted diagonal cutting pliers (Item 1).
XKXBFC	The jaws of the Item 1 diagonal cutting pliers were labeled and test cuts were made with the pliers in lead. The test cuts from Item 1 were microscopically compared with the item 2 wire and it was determined that the item 2 wire was cut using the item 1 pliers. The test cuts from Item 1 were microscopically compared with the item 3 wire and it was determined that the item 3 wire was cut using the item 1 pliers.
XP9NXB	The following results are opinions and interpretations formed using accepted scientific and professional practices. 1. Examination of Exhibit 1 (Diagonal cutting pliers recovered from the suspect) revealed it to be a pair of "Stanley" brand, diagonal cutting pliers. Tests were made in aluminum wire using Exhibit 1 and repackaged with Exhibit 1. 2. Examination of Exhibit 2 (First cut piece of wire) revealed toolmarks consistent with those made by an opposed-jaw cutting tool. Microscopic comparison indicated that Exhibit 1 (Diagonal cutting pliers) made the questioned toolmarks on Exhibit 2. 3. Examination of Exhibit 3 (Second cut piece of wire) revealed toolmarks consistent with those made by an opposed-jaw cutting tool. Microscopic comparison indicated that Exhibit 1 (Diagonal cutting pliers) made the questioned toolmarks on Exhibit 3.
XQ48YC	[No conclusions reported.]
Y3TVGA	The two submitted aluminum wires (Items 2 & 3) were cut by the submitted diagonal cutting pliers (Item 1).
YGQ8PD	Examinations showed Item 2 and Item 3 were cut by Item 1.
YGT6DB	The questioned toolmarks on both of the submitted pieces of wire (item 2 and 3) were produced with the diagonal cutting pliers (item1).
YJ3MJE	Examinations showed that the tool marks on Item 2 were made by Item 1. Examinations showed that the tool marks on Item 3 were made by Item 1.
YMGHYC	1. Examinations showed that Item 2 was cut by Item 1. 2. Examinations showed that Item 3 was cut by Item 1.
Z6UGJZ	Test toolmarks made with the Item 1 pliers were microscopically compared to the unmarked cut ends of the Item 2 and 3 wires with the following conclusions: the Item 1 pliers were identified as cutting the unmarked ends of the Item 2 and 3 wires.
Z79QW8	The wires in Submissions 2 and 3 were cut by the pliers in Submission 1.
Z849Y9	Toolmarks observed on the submitted cut wires (Items 2 and 3) are identified as having been produced by the submitted wire cutter (Item 1).
Z9UZXE	The marks on the alluminium[sic] wire marked Item 2 and Item 3 mentioned in 3.2 were produced by the diagonal cutting plier.

Additional Comments

TABLE 3

WebCode	Additional Comments
49H33Y	[Participant included an association scale that could not be replicated within the report.]
4YWXVY	This trial was too easy.
6MYP2H	Practical Certainty: Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications. Firearms/Toolmark Identification is an empirical science that relies on objective observations and a subjective interpretation of microscopic marks of value. Some samples may have been altered or consumed during testing or may deteriorate with time. To obtain information about sample availability for re- testing or additional testing please contact the writer of this report.
6P2HJZ	W1 = Wire section 1, Item 2. W2 = Wire section 2, Item 3. T1 = Cutting tool, Item 1
6YR4PX	Stanley diagonal cutters Model 04-027 with yellow and black plastic handles. All four cutting surface of the jaws show four (4) metal transfer marks, one overlapping the one next to it and all four combined being located near center of the cutting surfaces. It visibly appears that the diameter of the transfer marks are approximately the same diameter as the Item 2 and 3 wires.
6Z8URA	Insufficient agreement of striations/individual characteristics on item #2 (cut piece of wire/painted blue) to make either a positive or negative conclusion to item #1 (Stanley Control Grip 84-027 Six Inch Bi-Material Diagonal Pliers). Agreement of all discernible class characteristics.
9QQPHU	[Participant included an association scale that could not be replicated within the report.]
AFYQ4T	Toolmarks of the cutting pliers marked "Item 1" have been produced using the test material provided. The toolmarks produced with the cutting pliers ("Item 1") and the questioned toolmarks on aluminum wire piecs[sic] ("Item 2" and "Item 3") have been moulded using "AccuTrans" moulding material. The comparison has been performed with a comparative macroscope.
B436B4	Inconclusive: Item 2 has similar characteristics as Item 1 sample but lacks sufficient individual matching marks to identify or eliminate.
DYMBBN	[Participant included an association scale that could not be replicated within the report.]
F6KP6N	I observed no eliminating characteristics on the markings observed on Items 2 and 3. All of my standards in lead could be identified on the entire working surfaces. Multiple test cuts using the aluminum wire in the same exact location could be indexed nor identified. It appears that the aluminum wire smears when cut by this particular tool.
FYGG6M	[Participant included an association scale that could not be replicated within the report.]
H42H2H	The wires marked “Item 2” and “Item 3” were cut at the same side and the same region of the jaws of the diagonal pliers marked “item 1”.

TABLE 3

WebCode	Additional Comments
HFEAFY	The Item 1 tool has the ability to produce similar class characteristics, however the individual characteristics present lack sufficiency and or reproducibility to render an identification. The inability to effect an identification is not sufficient grounds to eliminate the Item 1 tool as having produce the tool marks present on Items 2 and 3.
LFNQCG	[Participant included an association scale that could not be replicated within the report.]
LNTXQG	[Participant included an association scale that could not be replicated within the report.]
MEQ6AW	There was an overlap of marks between items 2 and 3.
NA83QB	Test marks were made with Item 1 using submitted testing media. Item 1A, the test marks, were sealed in a manila envelope and will be retained in the laboratory for possible future analysis.
RL9ZZE	In our laboratory we don't normally give definite report of this type of an impression toolmark which doesn't have comparison quality "bottom" of a tool used, only the side striations are clearly seen. We have anyway compared this time the side striations of the items 2 and 3 and compared them with the side striations of an impression toolmark made by the item 1. Our conclusion would be more likely a negative conclusion (elimination of the diagonal cutting pliers, item 1) than a positive conclusion (identification of item 1).
UG767P	The tool marks found in the cut aluminum wires, described in items 2 and 3, are combination (impression and striated) tool marks type.

Appendix: Data Sheet

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Collaborative Testing Services ~ Forensic Testing Program

Test No. 15-529: Toolmarks Examination

DATA MUST BE RECEIVED BY ***December 21, 2015*** TO BE INCLUDED IN THE REPORT

Participant Code: WebCode:

Accreditation Release Section

CTS submits external proficiency test data directly to ASCLD/LAB and ANAB. 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 and/or ANAB.
(Accreditation Release section on the last page must be completed and submitted.)

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

Scenario:

Police are investigating a theft at a salvage yard in which multiple vehicle parts were stolen. Investigators believe the perpetrator(s) cut the fence to gain access. A suspect was apprehended later that day and police seized a pair of diagonal cutting pliers from his possession. Investigators are requesting that you examine the toolmarks on the submitted wire and determine if either could have been cut using the diagonal cutting pliers recovered from the suspect.

Please note the following:
-A piece of aluminum wire has been included for possible test mark purposes.
-To assist in distinguishing the end of wire NOT to be examined, the end of the Item 2 wire has been marked with blue paint and the end of the Item 3 wire has been marked with red paint.

Items Submitted (Sample Pack T2):

Item 1: Diagonal cutting pliers recovered from the suspect.

Item 2: First cut piece of wire. (painted blue)

Item 3: Second cut piece of wire. (painted red)

1.) Did the suspect's diagonal cutting pliers (Item 1) produce the questioned toolmarks on either of the submitted pieces of wire (Items 2 or 3)?

Item 2	Yes	☐	No	☐	Inconclusive*	☐
Item 3	Yes	☐	No	☐	Inconclusive*	☐

*Should an item(s) be marked "Inconclusive", please document the reason in the Additional Comments section of this data sheet.

Please return all pages of this data sheet.

Participant Code:
WebCode:

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

3.) Additional Comments

Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by ***December 21, 2015*** to be included in the report. Emailed data sheets are not accepted.

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

Participant Code:

ONLINE DATA ENTRY: www.cts-portal.com

FAX: +1-571-434-1937

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

Please return all pages of this data sheet.

Participant Code:
WebCode:

Collaborative Testing Services ~ Forensic Testing Program

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code: WebCode:

for Test No. **15-529: Toolmarks Examination**

This release page must be completed and received by ***December 21, 2015*** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB RELEASE

If your lab has been accredited by ASCLD/LAB and you are submitting this data as part of their external proficiency test requirements, have the laboratory's designated individual complete the following.
The information below must be completed in its entirety for the results to be submitted to ASCLD/LAB.

ASCLD/LAB Legacy Certificate No. _____ ASCLD/LAB International Certificate No. _____

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

ANAB RELEASE

If your laboratory maintains its accreditation through ANAB, please complete the following form in its entirety to have your results forwarded.

ANAB Certificate No. _____

Signature and Title _____ Date _____

Laboratory Name _____

Location (City/State) _____

Accreditation Release

Return Instructions

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

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

Please return all pages of this data sheet.