

## COMPARISON OF JOINT STRENGTH BETWEEN VARIANTS 02 AND 04 OF MDMA CONTACTS 3401/078

**Object:** Evaluation of the compatibility of the variants "large bucket" in usage with single wire AWG 26 / AWG 28

**Tracability:** Crimp tool: M22520/2-01 Locator: MDMA-S

Cts Skt	340107802B & 340107804B with AWG 24	390100257B	Selector position: 2
Cts Skt	340107802B & 340107804B with AWG 25 Pigtail		Selector position: 2
Cts Skt	340107802B & 340107804B with AWG 26	390101302B	Selector position: 2
Cts Skt	340107802B & 340107804B with AWG 28	390101902B	Selector position: 2
Cts Skt	340107802B & 340107804B with 2*AWG 28	390101902B	Selector position: 2

### Description of tests:

- Joint strenght
- Cross section

### Applicable documents :

- Generic specification : ESCC 3401 - Issue 2 - October 2013
- Detail specification : ESCC 3401/078 - Issue 5 - June 2014
- Other documents: ECSS-Q-ST-70-26C 31 July 2008

### Conclusion :

**All measurements of joint strength are in accordance with specification's requirements  
-> It's possible to extend the usage of "large bucket" to any configurations of wires**

Laboratory Technician  
E. HAUSWIRTH

Chief inspector  
O. MASSON

TEST : JOINT STRENGTH Report N°924-14C

Test Group :

Spécifications : ESCC 3401 Generic Specification § 9.15.3

Requirements : ESCC 3401/078 tab 6 Appendix "A"

Test environment or special conditions :

Test equipment : MTS5

TEST PROCEDURE :

Crimp contacts :  
The crimped contact-wire assemblies shall be placed in a tensile testing device and an axial load shall be applied.  
The connection shall be loaded until failure occurs. The value at failure shall be recorded, together with the information as to whether the failure was 'pull-out', 'broke in crimp' or break in wire.

TEST REQUIREMENTS :

wire size	axial strength (N) minimum value
AWG 24	30
AWG 26	22
AWG 28	13
2*AWG 28	20
AWG 25	22

TEST SAMPLES : ref. Cts Skt 340107802B & 340107804B with AWG 24 Red ESA 390100257B

- a : pull-out
- b : broke in crimp
- c : broke in wire

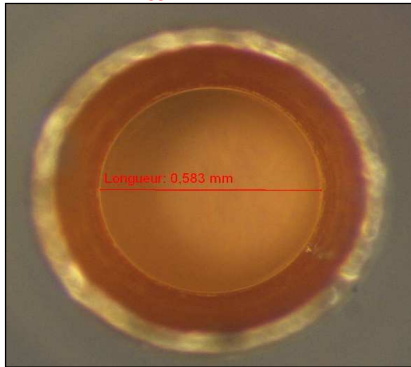
340107802B

340107804B

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts02B  Crimp type	AWG 24	1				√
		2				√
		3				√
		4				√
		5	TEST NOT POSSIBLE			√
		6				√
		7				√
		8				√
		9				√
		10				√
Mini			0,00			
Maxi			0,00			
Average			#DIV/0!			

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts04B  Crimp type	AWG 24	1	68,90	b	√	
		2	74,20	b	√	
		3	68,40	b	√	
		4	80,70	b	√	
		5	71,70	b	√	
		6	68,20	b	√	
		7	72,50	b	√	
		8	71,00	b	√	
		9	70,50	b	√	
		10	71,70	b	√	
Mini			68,20			
Maxi			80,70			
Average			71,78			

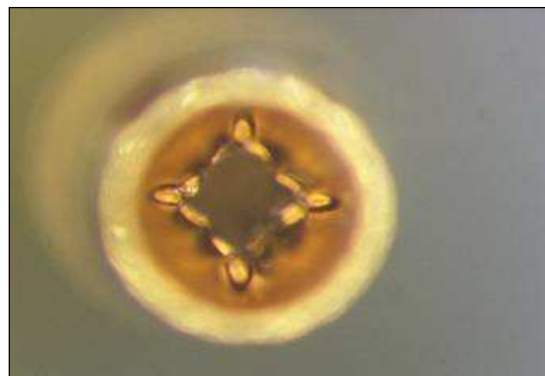
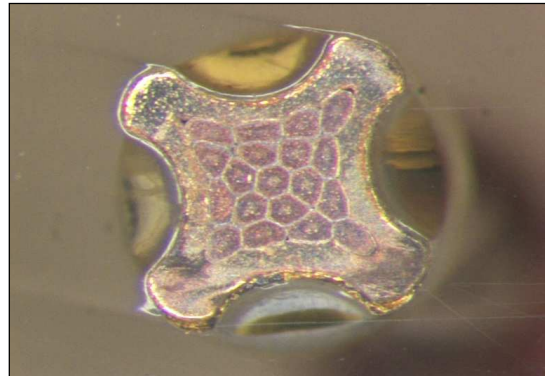
Bucket too small to use AWG 24  
(Ø of the wire bigger than the bucket)



Bucket inner diameter : 0,58 mm



Wire conductor diameter : 0,61 mm



TEST : JOINT STRENGTH Report N°924-14C

Test Group :

Spécifications : ESCC 3401 Generic Specification § 9.15.3

Requirements : ESCC 3401/078 tab 6 Appendix "A"

Test environment or special conditions :

Test equipment : MTS5

TEST PROCEDURE :

Crimp contacts :

The crimped contact-wire assemblies shall be placed in a tensile testing device and an axial load shall be applied.

The connection shall be loaded until failure occurs. The value at failure shall be recorded, together with the information as to whether the failure was 'pull-out', 'broke in crimp' or break in wire.

TEST REQUIREMENTS :

wire size	axial strength (N) minimum value
AWG 24	30
AWG 26	22
AWG 28	13
2*AWG 28	20
AWG 25	22

TEST SAMPLES : ref. Cts Skt 340107802B & 340107804B with AWG 25 Pigtail

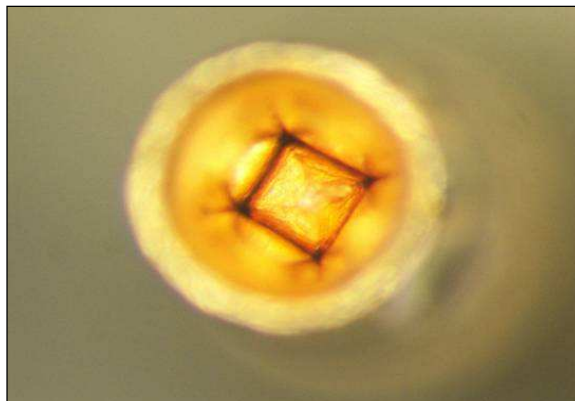
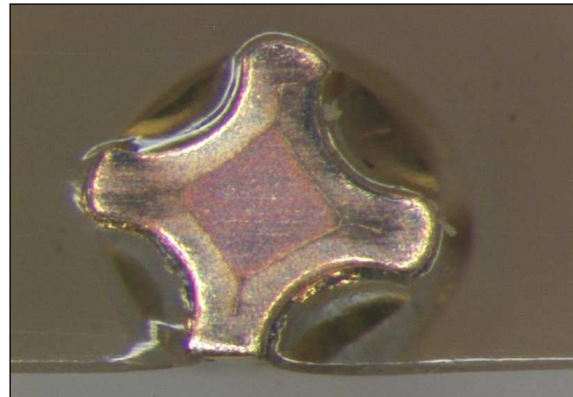
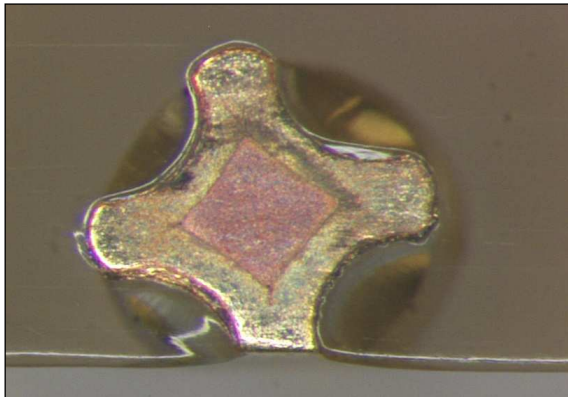
- a : pull-out
- b : broke in crimp
- c : broke in wire

340107802B

340107804B

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts02B  Crimp type	AWG 25	1	41,50	b	√	
		2	41,70	b	√	
		3	39,20	b	√	
		4	42,40	b	√	
		5	40,20	b	√	
		6	41,70	b	√	
		7	39,40	b	√	
		8	38,50	b	√	
		9	39,60	b	√	
		10	40,80	b	√	
Mini			38,50			
Maxi			42,40			
Average			40,50			

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts04B  Crimp type	AWG 25	1	45,30	b	√	
		2	44,40	b	√	
		3	42,60	b	√	
		4	44,70	b	√	
		5	50,20	b	√	
		6	41,20	b	√	
		7	44,60	b	√	
		8	43,00	b	√	
		9	43,00	b	√	
		10	42,50	b	√	
Mini			41,20			
Maxi			50,20			
Average			44,15			



TEST : **JOINT STRENGTH** Report N°924-14C

Test Group :

Spécifications : **ESCC 3401 Generic Specification § 9.15.3**

Requirements : **ESCC 3401/078 tab 6 Appendix "A"**

Test environment or special conditions :

Test equipment : **MTS5**

TEST PROCEDURE :

Crimp contacts :

The crimped contact-wire assemblies shall be placed in a tensile testing device and an axial load shall be applied.

The connection shall be loaded until failure occurs. The value at failure shall be recorded, together with the information as to whether the failure was 'pull-out', 'broke in crimp' or break in wire.

TEST REQUIREMENTS :

wire size	axial strength (N) minimum value
AWG 24	30
AWG 26	22
AWG 28	13
2*AWG 28	20
AWG 25	22

TEST SAMPLES : ref. Cts Skt 340107802B & 340107804B with AWG 26 ESA 390101302B

a : pull-out

b : broke in crimp

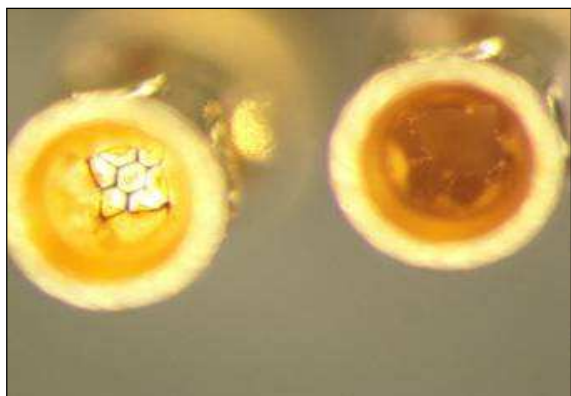
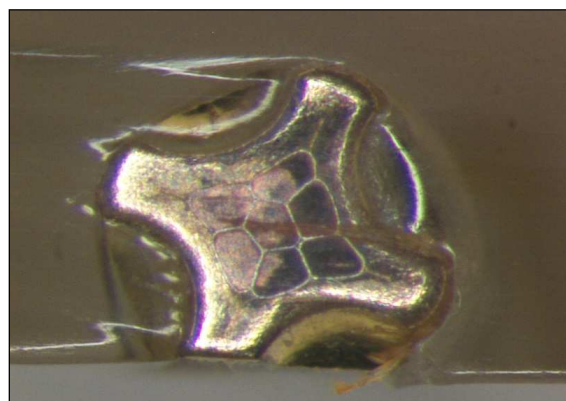
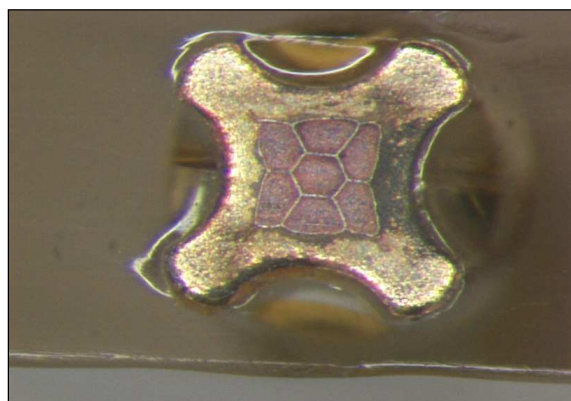
c : broke in wire

**340107802B**

**340107804B**

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts02B  Crimp type	AWG 26	1	55,00	b	√	
		2	55,00	b	√	
		3	40,10	a	√	
		4	34,40	b	√	
		5	50,80	b	√	
		6	30,30	b	√	
		7	55,20	b	√	
		8	47,20	b	√	
		9	54,60	b	√	
		10	51,40	b	√	
Mini			<b>30,30</b>			
Maxi			<b>55,20</b>			
Average			<b>47,40</b>			

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts04B  Crimp type	AWG 26	1	58,70	b	√	
		2	59,10	b	√	
		3	57,30	b	√	
		4	45,00	b	√	
		5	63,50	b	√	
		6	59,30	b	√	
		7	61,50	b	√	
		8	34,60	b	√	
		9	65,90	b	√	
		10	66,60	b	√	
Mini			<b>34,60</b>			
Maxi			<b>66,60</b>			
Average			<b>57,15</b>			



TEST : JOINT STRENGTH Report N°924-14C

Test Group :

Spécifications : ESCC 3401 Generic Specification § 9.15.3

Requirements : ESCC 3401/078 tab 6 Appendix "A"

Test environment or special conditions :

Test equipment : MTS5

TEST PROCEDURE :

Crimp contacts :

The crimped contact-wire assemblies shall be placed in a tensile testing device and an axial load shall be applied.

The connection shall be loaded until failure occurs. The value at failure shall be recorded, together with the information as to whether the failure was 'pull-out', 'broke in crimp' or break in wire.

TEST REQUIREMENTS :

wire size	axial strength (N) minimum value
AWG 24	30
AWG 26	22
AWG 28	13
2*AWG 28	20
AWG 25	22

TEST SAMPLES : ref. Cts Skt 340107802B & 340107804B with AWG 28 390101902B

a : pull-out

b : broke in crimp

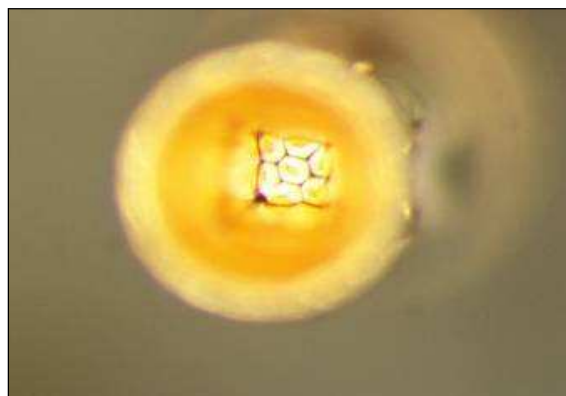
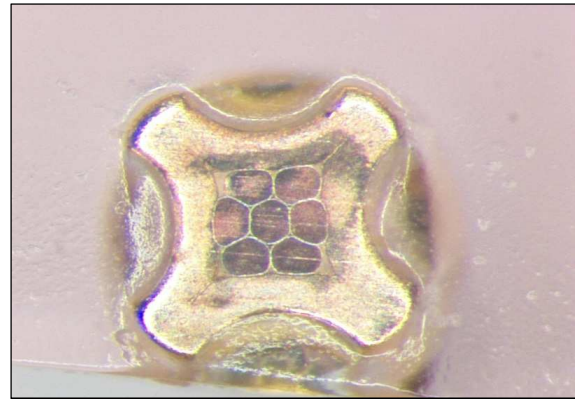
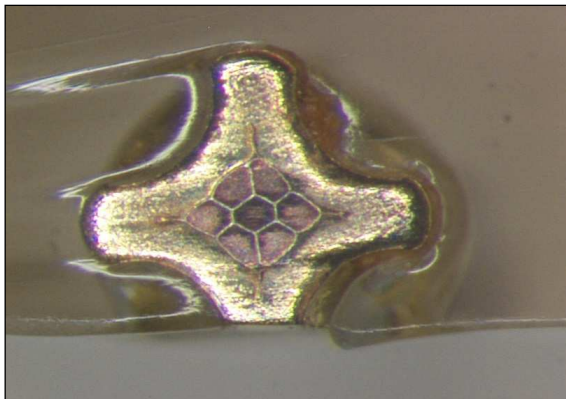
c : broke in wire

340107802B

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts02B  Crimp type	AWG 28	1	32,50	b	√	
		2	36,10	b	√	
		3	30,00	b	√	
		4	29,30	b	√	
		5	28,90	b	√	
		6	32,00	b	√	
		7	29,90	b	√	
		8	34,80	b	√	
		9	29,30	b	√	
		10	30,40	b	√	
Mini			28,90			
Maxi			36,10			
Average			31,32			

340107804B

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts04B  Crimp type	AWG 28	1	32,40	c	√	
		2	37,50	c	√	
		3	28,40	a	√	
		4	36,50	b	√	
		5	38,40	c	√	
		6	34,30	c	√	
		7	36,20	c	√	
		8	38,60	c	√	
		9	35,30	c	√	
		10	38,10	c	√	
Mini			28,40			
Maxi			38,60			
Average			35,57			



TEST : JOINT STRENGTH Report N°924-14C

Test Group :

Spécifications : ESCC 3401 Generic Specification § 9.15.3

Requirements : ESCC 3401/078 tab 6 Appendix "A"

Test environment or special conditions :

Test equipment : MTSS

TEST PROCEDURE :

**Crimp contacts :**  
The crimped contact-wire assemblies shall be placed in a tensile testing device and an axial load shall be applied.  
The connection shall be loaded until failure occurs. The value at failure shall be recorded , together with the information as to whether the failure was 'pull-out', 'broke in crimp' or break in wire.

TEST REQUIREMENTS :

wire size	axial strength (N) minimum value
AWG 24	30
AWG 26	22
AWG 28	13
2*AWG 28	20
AWG 25	22

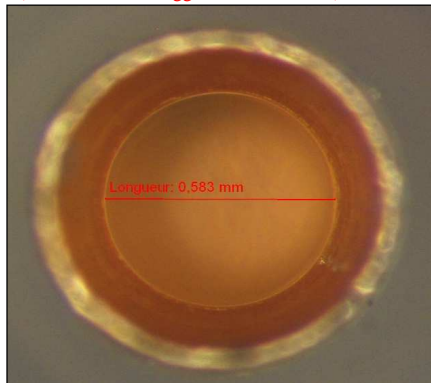
TEST SAMPLES : ref. Cts Skt 340107802B & 340107804B with 2\*AWG 28 390101902B

- a : pull-out
- b : broke in crimp
- c : broke in wire

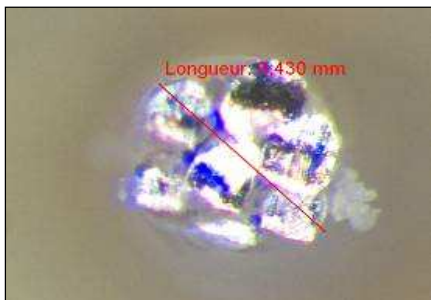
ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts02B  Crimp type	2*AWG 28	1				√
		2				√
		3				√
		4		TEST NOT POSSIBLE		√
		5				√
		6				√
		7				√
		8				√
		9				√
		10				√
Mini			0,00			
Maxi			0,00			
Average			#DIV/0!			

ct type	wiring	ct N°	Axial Strength	separation mode *	result	
					pass	fail
SKT cts04B  Crimp type	2*AWG 28	1	65,40	b		√
		2	69,40	b		√
		3	53,60	b		√
		4	68,00	b		√
		5	46,50	b		√
		6	68,80	b		√
		7	64,00	b		√
		8	70,60	b		√
		9	60,80	b		√
		10	64,60	b		√
Mini			46,50			
Maxi			70,60			
Average			63,17			

Bucket too small to use with 2x AWG 28 (Ø of the 2 wires bigger than the bucket)



Bucket inner diameter : 0,58 mm



Wire conductor diameter : 0,43 mm  
Impossible to put 2 wires even twisted inside the bucket

