

## Mini50 Unseal Gen II series Connector Testing

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Note: Marked \* test items were tested in environment test



### **Test Plan Header**

Test Plan Number: 4255 Test Plan Level: PV - Production Validation/PTV

Objective: Mini50 unseal Gen II RCPT Connector System

Product Description: Mini50 unseal Gen II RCPT Connector System

Customer: General Market Product (Vehicle(s)): N/A Year of Introduction (Model Year(s)): N/A

Customer Approval: General Market Engineering Manager Approval: Deng Jun Reliability Engineering Lab Manager: Wang DingQiang

DVP&R Prepared By: Wu Shanks

DVP&R Date (Original): 31-Jul-2019

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## **UUT Table**

Unit Under Test Type	Test Sample Description	Manufacturer	Part Number	Part Rev.	Customer Part #
Units Under Test	Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	Molex	2065230121	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 12CKT Pol A(With CPA,HB)	Molex	2065232121	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 12CKT Pol B(HB)	Molex	2065230122	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 12CKT Pol C(HB)	Molex	2065230123	NA	NA
Units Under Test	Mini50 12 ckt R/A Header Assembly - Pol A	Molex	348260120	NA	NA
Units Under Test	Mini50 12 ckt R/A Header Assembly - Pol B	Molex	348260121	NA	NA
Units Under Test	Mini50 12 ckt R/A Header Assembly - Pol C	Molex	348260122	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 16CKT Pol A(HB)	Molex	2065230161	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 16CKT Pol A(With CPA,HB)	Molex	2065232161	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 16CKT Pol B(HB)	Molex	2065230162	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 16CKT Pol C(HB)	Molex	2065230163	NA	NA
Units Under Test	Mini50 16 ckt R/A Header Assembly - Pol A	Molex	348260160	NA	NA
Units Under Test	Mini50 16 ckt R/A Header Assembly - Pol B	Molex	348260161	NA	NA
Units Under Test	Mini50 16 ckt R/A Header Assembly - Pol C	Molex	348260162	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 20CKT Pol A(HB)	Molex	2065230201	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 20CKT Pol A (With CPA,HB)	Molex	2065232202	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 20CKT Pol B(HB)	Molex	2065230202	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 20CKT Pol C(HB)	Molex	2065230203	NA	NA
Units Under Test	Mini50 20 ckt R/A Header Assembly - Pol A	Molex	348260200	NA	NA
Units Under Test	Mini50 20 ckt R/A Header Assembly - Pol B	Molex	348260201	NA	NA
Units Under Test	Mini50 20 ckt R/A Header Assembly - Pol C	Molex	348260202	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	Molex	2065230241	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 24CKT Pol A(With CPA,HB)	Molex	2065232241	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 24CKT Pol B(HB)	Molex	2065230242	NA	NA
Units Under Test	Mini50 Gen II RCPT CONN 24CKT Pol C(HB)	Molex	2065230243	NA	NA
Units Under Test	Mini50 24 ckt R/A Header Assembly - Pol A	Molex	348260240	NA	NA



Unit Under Test Type	Test Sample Description	Manufacturer	Part Number	Part Rev.	Customer Part #
Jnits Under Test	Mini50 24 ckt R/A Header Assembly - Pol B	Molex	348260241	NA	NA
Inits Under Test	Mini50 24 ckt R/A Header Assembly - Pol C	Molex	348260242	NA	NA
Jnits Under Test	CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	Molex	5600230448	NA	NA
nits Under Test	CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² smallest wire	Molex	5600230448	NA	NA
surrogate	All Part Number for Minil50 Unsealed Header Connector Series Listed On SD-34825-001 & SD-34826-001 & SD-34792-001 & SD-34793-001 & SD-34912-001 & SD-34897-002 & SD-34897-003	Molex	34825-XXXX / 34826-XXXX / 34792- XXXX / 34793-XXXX / 34912-XXXX / 34897-XXXX	NA	NA
urrogate	All Part Number for Minil50 Unsealed RCPT Connector Series Listed On 2065230000	Molex	205623XXXX	NA	NA



Test Plan and Report

Note: Performance results meet uscar-2 Rev6 requirements unless otherwise specified

Test Description Tes	st Item Tes	Test Sequence	Test Requirement	¶	Test	Test Sample	Quantity	Quantity		1	Test F	Results	Met/Not met	Results Notes
Iten	m Description Typ	e	rest requirement		Remarks	Description	Samples	Results	Min	Max	Avg	Acceptance Criteria	Wicortot mict	Nesults Notes
neral Notes		General Notes	Following topics are in the Source Standard General Notes:	5.1										
CAR-2 REV6,			5.1.1 Performance Requirements: Meet all test requirements for											
ruary 2013 +			appropriate Class listed in Section 5.1.4.											
nge Letters			5.1.2 Dimensional Characteristics: Part construction must conform to											
neral Notes			the dimensions, shape, and detail attributes specified in the latest											
			revision of the applicable part drawing(s).											
			5.1.3 Material Characteristics: Parts are intended to be in "as furnished											
			for vehicle assembly" condition when testing begins.											
			5.1.4 Classifications:											
			5.1.4.1 Temperature Classification, refer to Table 5.1.4.1.											
			5.4.4.2 Sealing Classification, refer to Table 5.1.4.2.											
			5.1.4.3 Vibration Classification, Refer to Table 5.1.4.3.											
			5.1.4.4 Ergonomic Classification; Components to be tested must be											
			assigned an Ergonomic class from the requirements in SAE/USCAR											
			25. This Class designation shall be documented in the test plan and											
			listed on the component drawing.											
			5.1.5 Testing Headers & Direct Connect Components: Modifications for											
			testing are allowed, but must be documented in the test report.											
			Frequently only one half of a connector, usually the female half, is											
			available and mates directly to a Header or to a receptacle in an											
			electrical component or device. This presents special problems for											
			testing. In order to completely test the electrical connection, access											
			must be gained to the terminals in the device or header. Great care											
			must be taken in these cases so as not to introduce leak paths that are											
			not present in the vehicle application. Where this risk is unacceptable,											
			or if making the necessary electrical connections is not feasible, the											
			tests normally required to verify connection integrity must be modified.											
			When attaching millivolt leads, make certain the applied heat does not											
			damage plating or cause stress relaxation in any connection											
			component. Application of an appropriate heat sink may be advisable,											
			see Figure 5.1.5.											
			NOTE: Placement of the T1 lead in Figure 5.1.5 may be modified as											
			necessary to fit the application. When using a dimension other than the											
			75 +/- 3 mm, it is important to measure the resistance of a sample with											
			an equal length of the same wire type and use that result as the deduct											
			value.											
			5.1.6 Terminal Sample Preparation: Terminals used for testing must be											
			crimped to requirements as defined in SAE/USCAR 21.											
			Performance Specification for Cable to Terminal Electrical Crimps.											
			Crimp dimension physical characteristics and mechanical pull strength											
			must be within tolerances, as applies to the respective terminal and											



Test Description Tes		Test	Test Sequence	Test Requirement	Я	Test	Test Sample	Quantity	Quantity of			Test	Results	Met/Not r	met	Results Notes
Item	Description	Туре	rest ocquence	rest requirement	"	Remarks	Description	Samples		Min	Max	Avg	Acceptance Criteria	Wicortott	not	results rects
				wire gage.												
				When testing Header-type connectors with mating connectors, only												
				prepare samples for the mating Female Connector.												
				Test results must be reported in a detailed format, with one summar	у											
				per test sequence.												
eneral Notes		Vis	ual Inspection - Pre-Te	Inspect for defects or non-functionality. Visually examine each test	5.1.8								he device under test must			
SCAR-2 REV6,				specimen prior to testing and/or conditioning, noting in detail any									ot show, any evidence of lefects, deterioration, cracks,			
ebruary 2013 +				obvious manufacturing or material defects such as cracks, tarnishin	g,							d	leformities, etc. that could			
nange Letters Visual				flash, etc. When specified in the test request/order, take photograph	s								affect their functionality.  Additional procedure specific			
spection - Pre-Test				and/or video recordings of representative samples to be tested and								С	riteria may be listed under			
'				keep a properly labeled control sample.								e	each test.			
				The device under test must not show, any evidence of defects,												
				deterioration, cracks, deformities, etc. that could affect their												
				functionality. Additional procedure specific criteria may be listed unc	er											
				each test.	Oi											
eneral Notes		\/:~	ual Inspection - Doct T	est After testing and/or conditioning, re-examine each test sample and	5.1.8							Т	The device under test must			
SCAR-2 REV6,		VIS	dai ilispection - Fost 1		lote							n	ot show, any evidence of			
•				in detail any observable changes, such as swelling, corrosion,									leterioration, cracks, leformities, etc. that could			
ebruary 2013 +				discoloration, contact plating wear, physical distortions, cracks, loss	OT							а	iffect their functionality.			
nange Letters Visual				mechanical function evident, etc. Compare the tested and/or									Additional procedure specific riteria may be listed under			
spection - Post Test				conditioned samples to the control samples, the videos, and/or the									each test.			
				photographs, recording any differences in the test report.												
				For CUTs subjected to Test Sequence Q, see Section 5.9.7, swelling	-											
				cable and seals is permissible within the limits of that specific mater	al											
				specification.												
				The device under test must not show, any evidence of deterioration												
				cracks, deformities, etc. that could affect their functionality. Addition	al											
				procedure specific criteria may be listed under each test.												
onnector Mechanical CM1	Connector	PV Ge	neral Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol	9 9	)				Refer to the General Notes or Pre-Test Information.	NA		
SCAR-2 REV6,	Mechanical						A(HB)					ľ	or recreat information.			
bruary 2013							Mini50 Gen II RCPT	9 9	)							
9.5AE / Terminal/							CONN 16CKT Pol A(HB)									
avity Polarization							Mini50 Gen II RCPT	9 9	)							
							CONN 20CKT Pol A(HB)									
							Mini50 Gen II RCPT	9 9	9							
							CONN 24CKT Pol									
							A(HB)	300 3	300							
							CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire		300							
		Vis	ual Inspection - Pre-Te	est Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8							fe	Refer to the General Notes or Pre-Test Visual haspections.	MET		
		Ter	rminal / Cavity Polariza	tion Insert terminal at a 90° orientation and apply force equaling 1.5 time	s 5.4.10		Mini50 Gen II RCPT	0 3	3			1	2ckt(HB): 15N (whichever	MET	Refer to F	OVPR 3659 CM1a
		- 90		maximum force recorded in Step 5.4.1.3-7; or 15N; whichever is			CONN 12CKT Pol					is	s greater) in any incorrect			2 1. 0000 OM 14
		- 90	•	maximali force recorded in otep 3.4.1.3-7, or 1314, whichever is			A(HB)						rientation shall not fit or lock nto a connector cavity			



Test Description Test Item	Test Test Sequence	Test Requirement ¶	Test	Test Sample	Quantity Quantit	у		Test Results	Met/Not me	t Results Notes
Item Description	Type Test Sequence	Test Requirement ¶	Remarks	Description	Samples Results	Min	Max	Avg Acceptance Criteria	IVIEL/NOT THE	Results Notes
		greater. Inserting terminal into cavity until the determined force is						beyond the insulation wing (grips)	js .	
		reached.  Terminals inserted at a force 1.5 times the normal insertion force or 15N (whichever is greater) in any incorrect orientation shall not fit or lock into a connector cavity beyond the insulation wings (grips) or cable						16ckt(HB): 15N (whichever is greater) in any incorrect orientation shall not fit or I into a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3846 CM1a
		seal (see Figure 5.4.10.5).						20ckt(HB): 15N (whiche is greater) in any incorrect orientation shall not fit or I into a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3847 CM1a
		tion Insert terminal at a 180° orientation and apply force equaling 1.5 times 5.4.10						24ckt(HB): 15N (whichever is greater) in any incorrect orientation shall not fit or linto a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3661 CM1a
	Terminal / Cavity Polarization - 180°	Insert terminal at a 180° orientation and apply force equaling 1.5 times  maximum force recorded in Step 5.4.1.3-7; or 15N; whichever is greater. Inserting terminal into cavity until the determined force is reached.			0 3			12ckt(HB): 15N (whiche is greater) in any incorrect orientation shall not fit or linto a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3659 CM1a
		Terminals inserted at a force 1.5 times the normal insertion force or 15N (whichever is greater) in any incorrect orientation shall not fit or lock into a connector cavity beyond the insulation wings (grips) or cable seal (see Figure 5.4.10.5).						16ckt(HB): 15N (whichever is greater) in any incorrect orientation shall not fit or linto a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3846 CM1a
								20ckt(HB): 15N (whiche is greater) in any incorrect orientation shall not fit or linto a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3847 CM1a
								24ckt(HB): 15N (whichever is greater) in any incorrect orientation shall not fit or linto a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3661 CM1a
	- 270°	Insert terminal at a 270° orientation and apply force equaling 1.5 times maximum force recorded in Step 5.4.1.3-7; or 15N; whichever is greater. Inserting terminal into cavity until the determined force is reached.			0 3			12ckt(HB): 15N (whiche is greater) in any incorrect orientation shall not fit or I into a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3659 CM1a
		reached.  Terminals inserted at a force 1.5 times the normal insertion force or 15N (whichever is greater) in any incorrect orientation shall not fit or lock into a connector cavity beyond the insulation wings (grips) or cable seal (see Figure 5.4.10.5).						16ckt(HB): 15N (whichever is greater) in any incorrect orientation shall not fit or I into a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3846 CM1a
								20ckt(HB): 15N (whiche is greater) in any incorrect orientation shall not fit or I into a connector cavity beyond the insulation wing (grips)	ock	Refer to DVPR 3847 CM1a
								24ckt(HB): 15N (whichevis greater) in any incorrect		Refer to DVPR 3661 CM1a



Test Description Test	Item	Test	Test Sequence	Test Requirement	¶	Test	Test Sample	Quantity Quantity of of			Те	st Results	Met/Not me	et Results Notes
Item	Description	Туре	rest ecquence	restricquirent	"	Remarks	Description	Samples Results	Min	Max	Avg	Acceptance Criteria orientation shall not fit or lock into a connector cavity beyond the insulation wings (grips)		Tesulo Notes
		١	/isual Inspection - Post Te	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8							Refer to the General Notes for Post-Test Visual Inspections.	MET	
nector Mechanical CM2a	Connector Mechanical	PV (	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	8				Refer to the General Notes for Pre-Test Information.	NA	
uary 2013 5.9.5D / ninal - Connector							Mini50 Gen II RCPT CONN 16CKT Pol A(HB)	8						
tion / Retention - onditioning							Mini50 Gen II RCPT CONN 20CKT Pol A(HB)	8						
							Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	8						
							CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	216						
							CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² smallest wire	72						
		V	/isual Inspection - Pre-Tes	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8							Refer to the General Notes for Pre-Test Visual Inspections.	MET	
			erm to Conn Insertion For Large Wire	ce Adjust the force tester to insert the terminal straight into the connecto at a uniform rate not to exceed 50 mm per minute. Insert terminal	r 5.4.1			0 2	1.04	1.35	1.17	•	MET	Refer to DVPR 3659 CM2a-1
				straight in connector to forward stop position					1.00	1.30	1.16	16ckt (HB): The maximum Insertion Force for a terminal is 5 N		Refer to DVPR 3846 CM2a-
									1.00	1.29	1.11	20ckt (HB): The maximum Insertion Force for a terminal is 5 N		Refer to DVPR 3847 CM2a-
									0.91	1.38	1.10	24ckt (HB): The maximum Insertion Force for a terminal is 5 N		Refer to DVPR 3661 CM2a-
			Force - Smallest Wire	Adjust the force tester to insert the terminal straight into the connecto at a uniform rate not to exceed 50 mm per minute. Insert terminal	5.4.1A			0 2	0.84	1.14	1.01	12ckt (HB): The maximum Insertion Force for a terminal is 5 N	MET	Refer to DVPR 3659 CM2a-
				straight in connector to forward stop position.					0.96	1.18	1.04	16ckt (HB): The maximum Insertion Force for a terminal is 5 N		Refer to DVPR 3846 CM2a-
									0.87	1.17		20ckt (HB): The maximum Insertion Force for a terminal is 5 N		Refer to DVPR 3847 CM2a-
									0.94	1.37	1.07	24ckt (HB): The maximum Insertion Force for a terminal is 5 N		Refer to DVPR 3661 CM2a-
			erm to Conn - Forward St	After inserting the terminal straight into connector to the forward stop position, continue applying force until the forward stop fails (plastic	5.4.1A			0 2	70.77	80.69	75.61	12ckt (HB): The forward stop push-through force must be > 60N		Refer to DVPR 3659 CM2a-
				failure or terminal damage).					65.63	75.10	70.61	16ckt (HB): The forward stop push-through force must be > 60N	>	Refer to DVPR 3846 CM2a-1



Test Description Test Item	Te	st Test Sequence	Test Requirement	¶	Test	Test Sample	Quantity	Quantity			Те	st Results	Met/Not met	t Results Notes
Item Description	Тур	De lest dequence	rest requirement	"	Remarks	Description		Results	Min	Max	Avg	Acceptance Criteria	IVIOUTION THE	i i results motes
									70.56	76.57		20ckt (HB): The forward stop push-through force must be > 60N	>	Refer to DVPR 3847 CM2a-1
									63.47	77.31		24ckt (HB): The forward stop push-through force must be > 60N	>	Refer to DVPR 3661 CM2a-1
		Term to Conn - Retention	For sample size and cavity requirement, refer to Table 5.4.1.3.1.  Increase the pull-out force until pull-out occurs. Perform the retention	5.4.1			0	2	14.29	19.12		12ckt(HB): 10N Min. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM2a-1
			test with the TPA, PLR, Wedge, etc. disengaged.						11.70	19.50		16ckt (HB): 10N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM2a-
									12.00	21.60		20ckt(HB): 10N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM2a-
									14.46	20.64		24ckt(HB): 10N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM2a-
		Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections. 5.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
canector Mechanical CM2b Connector Mechanical Mechanical	PV	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N	C	ni50 Gen II RCPT DNN 12CKT Pol HB)	2	2				Refer to the General Notes for Pre-Test Information.	NA	
ruary 2013 5.9.5D / minal - Connector					C	ni50 Gen II RCPT DNN 16CKT Pol HB)	2	2						
ertion / Retention - h Temp Exposure					C	ni50 Gen II RCPT DNN 20CKT Pol HB)	2	2						
ention					C	ni50 Gen II RCPT DNN 24CKT Pol HB)	2	2						
					Ur (C	TX50 Large Grip nsealed Tin rimped) _0.35mm² gest wire	72	72						
		Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		<u> </u>						Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		Term to Conn - Retention, High Temp Exposure Conditioning [1008 Hours]	For sample size and cavity requirement, refer to Table 5.4.1.3.1. At the maximum ambient temperature in Table 5.1.4.1, leave the samples in the chamber for 1008 hours.  Perform conditioning and retention test with TPA, PLR, Wedge, etc. engaged.	5.4.1- 5.6.3			0	2				None	NA	
		Term to Conn - Retention	For sample size and cavity requirement, refer to Table 5.4.1.3.1.	5.4.1					53.20	56.80	54.80	12ckt (HB): 50N Min.	MET	Refer to DVPR 3659 CM2b-
			Increase the pull-out force until pull-out occurs.						51.61	58.82	56.53	16ckt (HB): 50N Min.		Refer to DVPR 3846 CM2b-
									53.20	66.50	57.00	20ckt (HB): 50N Min.		Refer to DVPR 3847 CM2b-
									52.40	56.80	54.70	24ckt (HB): 50N Min.		Refer to DVPR 3661 CM2b-
		Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.  5.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
onnector Mechanical CM2c Connector	PV	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N	C	ni50 Gen II RCPT DNN 12CKT Pol HB)	2	2				Refer to the General Notes for Pre-Test Information.	NA	



Test Description	Test Sequence	Test Requirement	¶	Test	Test Sample	Quantity of	Quantity of		1	Test	Results	Met/Not met	Results Notes
Item Description	Гуре	. oot responsing	"	Remarks		Samples	Results	Min	Max	Avg	Acceptance Criteria	_	11000110110100
SCAR-2 REV6, Mechanical					Mini50 Gen II RCPT CONN 16CKT Pol	2	2						
ebruary 2013 5.9.5D /					A(HB)								
rerminal - Connector					Mini50 Gen II RCPT CONN 20CKT Pol	2	2						
Moisture Conditioning					A(HB)								
Retention					Mini50 Gen II RCPT CONN 24CKT Pol	2	2						
					A(HB)								
					CTX50 Large Grip Unsealed Tin	72	72						
					(Crimped) _0.35mm <sup>2</sup> largest wire								
	Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		largest wire					R	Refer to the General Notes	MET	
	Visual Inspection - 1 Te-1 es	ixerer to the General Notes for The-Test visual hispections.								fc	or Pre-Test Visual nspections.		
	Term to Conn - Retention,	For sample size and cavity requirement, refer to Table 5.4.1.3.1.	5.4.1			0	2				None	MET	
	Moisture Conditioning [6	Moisture condition parts in 95-98% relative humidity, at 40°C for 6											
	Hours]	hours, then 1 hour at room temperature and humidity. Perform											
		conditioning and retention test with TPA, PLR, Wedge, etc. engaged.											
	Term to Conn - Retention	For sample size and cavity requirement, refer to Table 5.4.1.3.1.	5.4.1					60.81	70.01	64.53 1	12ckt (HB): 50N Min.	MET	Refer to DVPR 3659 CM2c
		Increase the pull-out force until pull-out occurs.						61.20	72.50	66.50 1	16ckt (HB): 50N Min.		Refer to DVPR 3846 CM2c
								61.80	73.90	65.32 2	20ckt (HB): 50N Min.		Refer to DVPR 3847 CM2c
								60.20	74.30	65.80 2	24ckt (HB): 50N Min.		Refer to DVPR 3661 CM2c
	Visual Inspection - Post Tes	t Refer to the General Notes for Post-Test Visual Inspections.	5.1.8								Refer to the General Notes	MET	THE STATE OF THE S
	Visual Inspection - Fost Tes	Treated to the General Notes for 1 65t-165t Visual Inspections.								fc	or Post-Test Visual nspections.		
Connector Mechanical CM2dConnector F	V General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT	2	2			R	Refer to the General Notes	NA	
ISCAR-2 REV6, Mechanical	V Ocheral Notes	receive the obligativotes for the rest information.			CONN 12CKT Pol A(HB)					fo	or Pre-Test Information.		
ebruary 2013 5.9.5D /					Mini50 Gen II RCPT	2	2						
erminal - Connector					CONN 16CKT Pol A(HB)								
nsertion / Retention -					Mini50 Gen II RCPT	2	2						
emp/ Humidity Cycling					CONN 20CKT Pol A(HB)								
Retention					Mini50 Gen II RCPT	2	2						
					CONN 24CKT Pol A(HB)								
					CTX50 Large Grip	72	72						
					Unsealed Tin (Crimped) _0.35mm <sup>2</sup>								
			5.4.0		largest wire								
	Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8							fc	Refer to the General Notes or Pre-Test Visual	MET	
			511			0	2				nspections. None	NA	
	Term to Conn - Retention,	For sample size and cavity requirement, refer to Table 5.4.1.3.1. The	5.4.1- 5.6.2			U	2				vone	NA	
	Temp/ Humidity Cycling	cycle begins at -40°C with uncontrolled relative humidity. Completion of	ot										
	Conditioning [8 Hours X 40 Cycles]	schedule in Figure 5.6.2.3 is one cycle. Use Maximum Ambient Temperature for hours 5 through 7 per table 5.1.4.1. Cycle test 40											
	7,0,00]	times. Perform conditioning and retention test with TPA, PLR, Wedge,											
		etc. engaged.											
			5.4.1		1		1		1		12ckt (HB): 50N Min.	MET	



Test Description Test	Item	Test	Test Sequence	Test Requirement	¶	Test	Test Sample	Quantil	dy Quantity of			Te	est Results	Met/Not met	Results Notes
Item	Description	Туре	root coquerios	1 SSC P COQUITO III S	"	Remarks	Description		es Results	Min	Max	Avg	Acceptance Criteria	-	Tresume Tress
				Increase the pull-out force until pull-out occurs.						58.26	67.01	64.33	16ckt (HB): 50N Min.		Refer to DVPR 3846 CM2d-1
										59.39	68.56	63.66	20ckt (HB): 50N Min.		Refer to DVPR 3847 CM2d-1
										53.40	70.20	63.90	24ckt (HB): 50N Min.		Refer to DVPR 3661 CM2d-1
			/isual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
nnector Mechanical CM3a	Connector Mechanical	PV (	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	40	40				Refer to the General Notes for Pre-Test Information.	NA	
uary 2013 5.9.5E / . Comp. Engage /							Mini50 Gen II RCPT CONN 16CKT Pol A(HB)	40	40						
ngage - Pre- ed TPA/ PLR/ ISL							Mini50 Gen II RCPT CONN 20CKT Pol A(HB)	40	40						
RROW LEFT)							Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	40	40						
							CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	140	140						
		,	/isual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		, <u>g</u>						Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		ı	Misc. Comp Pre-Staged	Engage each component retaining mechanism(s) TPA/PLR/ISL,	5.4.5			0	10	5.13	6.11	5.59	12ckt (HB):40N Max.	MET	Refer to DVPR 3659 CM3a-1b
		-	ΓPA/PLR/ISL, Engage Pre-	moving from Pre-Stage to Locked, with terminals in all cavities.						11.34	13.71	12.22	16ckt (HB):40N Max.		Refer to DVPR 3846 CM3a-1
			Stage to Lock with Terminals							11.57	12.99	12.32	20ckt (HB):40N Max.		Refer to DVPR 3847 CM3a-1
		l	n all Cavities							15.53	20.47	17.35	24ckt (HB):40N Max.		Refer to DVPR 3661 CM3a-1a
			,	Engage each component retaining mechanism(s) TPA/PLR/ISL, moving from Pre-Stage to Locked, without terminals.	5.4.5			0	10	4.89	5.92	5.56	12ckt (HB):4N Min. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM3a-1b
			Stage to Lock without Ferminals							11.58	14.04	12.38	16ckt(HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM3a-1
										11.08	13.33	12.36	20ckt(HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM3a-1
										13.49	16.83	15.26	24ckt(HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM3a-1a
			Misc. Comp Pre-Staged	With the component TPA/PLR/ISL fully Locked, disengage in reverse	5.4.5			0	10	12.25	15.50	14.15	12ckt (HB):60N Max.	MET	Refer to DVPR 3659 CM3a-1a
				axis from Locked to Pre-Stage, with terminals in all cavities.						22.24	39.69	31.15	16ckt (HB):60N Max.		Refer to DVPR 3846 CM3a-1
			Lock to Pre-Stage with							28.27	37.76	33.19	20ckt (HB):60N Max.		Refer to DVPR 3847 CM3a-1
			Ferminals in all Cavities							33.51	37.91	35.87	24ckt (HB):60N Max.		Refer to DVPR 3661 CM3a-1
			,	With the component TPA/PLR/ISL fully Locked, after 2 cycles, disengage in reverse axis from Locked to Pre-Stage, without terminals.	5.4.5			0	10	23.50	38.87	29.29	16ckt(HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM3a-1a
			Lock to Pre-Stage after 2 Cycles, without Terminals							9.07	16.12	13.05	12ckt(HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM3a-1
										25.54	34.42	29.29	20ckt(HB): 8N Min.&60N Max. This criteria is defined		Refer to DVPR 3847 CM3a-1



Test Description	Item	Test	Test Sequence	Test Requirement	¶	Test	Test Sample	Quanti	ity Quantity of			Te	st Results	Met/Not me	et Results Notes
Item	Description	Туре	rest dequence	rest requirement	"	Remarks	Description		es Results	Min	Max	Avg	Acceptance Criteria	- Wicordot int	Tresuits rioles
										31.82	40.74	37.16	in 2065230000-PS 24ckt(HB): 8N Min.&60N		Refer to DVPR 3661 CM3a-1
													Max. This criteria is defined in 2065230000-PS		Refer to DVFR 3001 GM3a-1
		Visua	al Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
onnector Mechanical CM3b	Connector Mechanical	PV Gene	eral Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	40	40				Refer to the General Notes for Pre-Test Information.	NA	
bruary 2013 5.9.5E / sc. Comp. Engage /							Mini50 Gen II RCPT CONN 16CKT Pol	40	40						
sengage - Pre- aged TPA/ PLR/ ISL							A(HB) Mini50 Gen II RCPT CONN 20CKT Pol	40	40						
ARROW RIGHT)							A(HB) Mini50 Gen II RCPT CONN 24CKT Pol	40	40						
							A(HB) CTX50 Large Grip	140	140						
							Unsealed Tin (Crimped) _0.35mm² largest wire								
		Visua	al Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8								Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		Misc.	. Comp Pre-Staged	Engage each component retaining mechanism(s) TPA/PLR/ISL,	5.4.5			0	10	4.29	5.65	4.99	12ckt (HB):40N Max.	MET	Refer to DVPR 3659 CM3b-1b
		TPA/	/PLR/ISL, Engage Pre-	moving from Pre-Stage to Locked, with terminals in all cavities.						10.54	12.05	11.39	16ckt (HB):40N Max.		Refer to DVPR 3846 CM3b-1
			e to Lock with Terminals							14.18	15.08	14.62	20ckt (HB):40N Max.		Refer to DVPR 3847 CM3b-1
		in all	Cavities							18.09	19.84	18.88	24ckt (HB):40N Max.		Refer to DVPR 3661 CM3b-1a
				Engaging TPA/PLR/ISL Forces without terminals, from Pre-Stage to Locked, shall meet 15N minimum (see Table 5.4.5.2.4).	5.4.5			0	10	4.83	5.56		12ckt (HB):4N Min. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM3b-1b
			e to Lock without ninals							10.16	12.19		16ckt (HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM3b-1
										14.16	14.79		20ckt (HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM3b-1
										18.00	19.27		24ckt (HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM3b-1a
		Misc.	. Comp Pre-Staged	With the component TPA/PLR/ISL fully Locked, disengage in reverse	5.4.5			0	10	13.32	17.38		12ckt (HB):60N Max.	MET	Refer to DVPR 3659 CM3b-1a
				axis from Locked to Pre-Stage, with terminals in all cavities.						18.11	32.17	24.83	16ckt (HB):60N Max.		Refer to DVPR 3846 CM3b-1
			to Pre-Stage with							39.96	48.21	44.24	20ckt (HB):60N Max.		Refer to DVPR 3847 CM3b-1
		I erm	ninals in all Cavities							33.38	41.61	37.32	24ckt (HB):60N Max.		Refer to DVPR 3661 CM3b-1
				With the component TPA/PLR/ISL fully Locked, after 2 cycles, disengage in reverse axis from Locked to Pre-Stage, without terminals	5.4.5			0	10	14.86	17.49		12ckt (HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM3b-1a
			to Pre-Stage after 2 es, without Terminals							16.59	29.61		16ckt (HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM3b-1
										36.17	43.16		20ckt (HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM3b-1



Test Description Test	Item	Test	Test Sequence Test Requirement		¶	Test	Test Sample	Quantity	Quantity			Te	est Results	Met/Not m	net Results Notes
Item	Description	Туре			"	Remarks	Description		Results	Min			·	_	. 1550110 110105
										31.76	41.26	37.57	24ckt (HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM3b-
		V	isual Inspection - Post Test Refer to the General Notes for Post-Test Visual Inspections.	5.1	.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
ector Mechanical CM3c	Connector Mechanical	PV G	eneral Notes Refer to the General Notes for Pre-Test Information.	5.1	N		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	40	40				Refer to the General Notes for Pre-Test Information.	NA	
ary 2013 5.9.5E / Comp. Engage /							Mini50 Gen II RCPT CONN 16CKT Pol A(HB)	40	40						
age - Pre- I TPA/ PLR/ ISL							Mini50 Gen II RCPT CONN 20CKT Pol A(HB)	40	40						
							Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	40	40						
							CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	440	440						
		V	isual Inspection - Pre-Test Refer to the General Notes for Pre-Test Visual Inspections.	5.1	.8								Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		M	lisc. Comp Pre-Staged Engage each component retaining mechanism(s) TPA/PLR/ISL,	5.4	.5			10	10	32.46	34.48	33.60	12ckt (HB):40N Max.	MET	Refer to DVPR 3659 CM3c
		Т	PA/PLR/ISL, Engage Premoving from Pre-Stage to Locked, with terminals in all cavities.							24.94	26.48	25.89	16ckt (HB):40N Max.		Refer to DVPR 3846 CM3c
			tage to Lock with Terminals							18.96	20.33	19.62	20ckt (HB):40N Max.		Refer to DVPR 3847 CM3c
		in	all Cavities							20.00	23.48	21.65	24ckt (HB):40N Max.		Refer to DVPR 3661 CM3c
			isc. Comp Pre-Staged Engage each component retaining mechanism(s) TPA/PLR/ISL, PA/PLR/ISL, Engage Pre-moving from Pre-Stage to Locked, without terminals.	5.4	.5			10	10	32.16	34.53	33.51	12ckt (HB):4N Min. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM3c
			tage to Lock without erminals							25.29	27.45	26.16	16ckt (HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM3c
										19.69	20.17	19.98	20ckt (HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM3c
										20.48	23.41	21.78	24ckt (HB):4N Min. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM3c
		M	isc. Comp Pre-Staged With the component TPA/PLR/ISL fully Locked, disengage in revo	erse 5.4	.5			10	10	36.03	59.02	49.36	12ckt (HB):60N Max.	MET	Refer to DVPR 3659 CM3c
		Т	PA/PLR/ISL, Disengage axis from Locked to Pre-Stage, with terminals in all cavities.							27.99	42.12	34.84	16ckt (HB):60N Max.		Refer to DVPR 3846 CM3c
			ock to Pre-Stage with							27.19	40.02	32.67	20ckt (HB):60N Max.		Refer to DVPR 3847 CM3c
			erminals in all Cavities							21.02	29.50	23.84	24ckt (HB):60N Max.		Refer to DVPR 3661 CM3c
			lisc. Comp Pre-Staged With the component TPA/PLR/ISL fully Locked, after 2 cycles, PA/PLR/ISL, Disengage in reverse axis from Locked to Pre-Stage, without term	5.4 ninals.	.5			10	10	32.57	47.43	43.28	12ckt (HB): 8N Min.&60N Max. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM3c
			ock to Pre-Stage after 2 ycles, without Terminals							27.02	35.42	30.79	16ckt (HB):8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM3c
										23.80	34.64	28.99	20ckt (HB):8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM3c



Test Description Test	Item	Test   Test Sequence	Test Requirement	¶	Test	Test Sample	Quantity of	Quantity		Т	est Results	Met/Not m	et Results Notes
Item	Description	Type	restricequirement	"	Remarks	Description		Results	Min	Max Avg		Wiconsorm	Tresuits motes
									21.14	31.47 23.39	24ckt (HB):8N Min.&60N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM3c-1
		Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8							Refer to the General Notes for Post-Test Visual Inspections.	MET	
nector Mechanical CM4 AR-2 REV6,	Connector Mechanical	PV General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A (With CPA, HB)	40	40				NA	
uary 2013 5.9.5E / Comp. Engage /						Mini50 Gen II RCPT CONN 16CKT Pol A (With CPA, HB)	40	40					
gage - Pre- d CPA - DAM						Mini50 Gen II RCPT CONN 20CKT Pol A (With CPA, HB)	40	40					
						Mini50 Gen II RCPT CONN 24CKT Pol A (With CPA, HB)	40	40					
						Mini50 12 ckt R/A Header Assembly - Pol A	20	20					
						Mini50 16 ckt R/A Header Assembly - Po A	20	20					
					Mini50 20 ckt R/A Header Assembly - Pol A	20 I	20						
						Mini50 24 ckt R/A Header Assembly - Pol A	20	20					
		Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8							Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		Misc. Comp Pre-Staged	Engage each component, with its retaining mechanism(s) CPA moving	5.4.5			0	10	72.70	76.60 74.48	12ckt (HB):60N Min	MET	Refer to DVPR 3659 CM4a-
		CPA, Engage Pre-Stage to	from Pre-Stage to Locked using unmated connectors.						64.55	68.12 66.49	16ckt (HB):60N Min.		Refer to DVPR 3846 CM4a-
		Lock - Unmated Conn	Engaging CPA Forces from Pre-Stage to Locked, for unmated						62.41	64.96 63.49	20ckt (HB):60N Min.		Refer to DVPR 3847 CM4a-
			connectors, see Table 5.4.5.2.4.						79.45	83.41 81.27	24ckt (HB):60N Min.		Refer to DVPR 3661 CM4a-
		Misc. Comp Pre-Staged	Engage each component, with its retaining mechanism(s) CPA moving	5.4.5			0	10	10.78	11.75 11.39	12ckt (HB):22N Max.	MET	Refer to DVPR 3659 CM4a-
		CPA, Engage Pre-Stage to	from Pre-Stage to Locked using mated connectors.						10.58	12.90 11.21	16ckt (HB):22N Max.		Refer to DVPR 3846 CM4a-
		Lock - Mated Conn	Engaging CPA Forces from Pre-Stage to Locked, for mated						10.94	12.76 11.68	20ckt (HB):22N Max.		Refer to DVPR 3847 CM4a-
			connectors, see Table 5.4.5.2.4.						13.63	15.23 14.64	24ckt (HB):22N Max.		Refer to DVPR 3661 CM4a-
		Misc. Comp Pre-Staged	Disengaging CPA Forces from Locked to Pre-Stage, for mated	5.4.5			0	10	12.43	14.01 13.24		MET	Refer to DVPR 3659 CM4a-
		·	connectors, see Table 5.4.5.2.4.  With the component CPA fully locked, disengage in reverse axis the						11.91	13.21 12.33	Max. 16ckt (HB):10N Min.&30N Max.		Refer to DVPR 3846 CM4a-
			CPA from Locked to Pre-Stage using mated connectors.						14.22	16.41 15.23	20ckt (HB):10N Min.&30N Max.		Refer to DVPR 3847 CM4a-
											24ckt (HB):10N Min.&30N Max.		Refer to DVPR 3661 CM4a-
		Misc. Comp Pre-Staged	Discrigaging of 7th cross from the stage to raily from every for	5.4.5			0	10	65.23	68.22 66.65	12ckt (HB): 50N Min	MET	Refer to DVPR 3659 CM4a-
			unmated connectors, see Table 5.4.5.2.4.						69.81	71.41 70.58	16ckt (HB):50N Min.		Refer to DVPR 3846 CM4a-1
		to Removal - Unmated Conn	With the component CPA in pre-stage, disengage in reverse axis the						69.25	70.85 69.88	20ckt (HB):50N Min.		Refer to DVPR 3847 CM4a-1



Test Description	Item	Test	Test Sequence	Test Requirement	¶	Test	Test Sample Description	of	Quantity of				st Results	Met/Not met	Results Notes
' Item	Description	Туре				Remarks	Description	Samples	Results		Max	Avg	Acceptance Criteria	-	
				CPA from Pre-Stage to fully Removed using unmated connectors.						69.60	74.84	/1.53	24ckt (HB):50N Min.		Refer to DVPR 3661 CM4a-1
			Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
nnector Mechanical CM5 (CAR-2 REV6, bruary 2013 5.9.5F / dible Click-	Connector Mechanical	PV	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N	C A N	Mini50 Gen II RCPT CONN 12CKT Pol L(HB) Mini50 12 ckt R/A Header Assembly - Pol	16	16				Refer to the General Notes for Pre-Test Information.		
nnector			Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		•						Refer to the General Notes for Pre-Test Visual Inspections.	MET	
			Conn-to-Conn Audible Click - Unconditioned	Mate the connectors by hand and measure the dB (A) level of the sound generated as the lock engages.  The values measured in this test shall be documented in the test report. These values should be considered for information only and are used to compare connector designs or to assist in the connector selection/wire harness design process.	5.4.7			0	8				The values measured in this test shall be documented in the test report. These values should be considered for information only and are used to compare connector designs or to assist in the connector selection/wire harness design process.	MET	Refer to DVPR 3512 CM5a-1
			Conn-to-Conn Audible Click - Moisture Conditioned	After moisture conditioning the parts by exposure to 95-98% relative humidity, at 40°C for 6 hours minimum. Mate the connectors hand, measure dB (A) level of sound generated as the lock engages. Complete testing within 30 minutes of removing the samples from the conditioning chamber.  The values measured in this test shall be documented in the test report These values should be considered for information only and are used to compare connector designs or to assist in the connector selection/wire harness design process.	5.4.7			0	8				The values measured in this test shall be documented in the test report. These values should be considered for information only and are used to compare connector designs or to assist in the connector selection/wire harness design process.	MET	Refer to DVPR 3661 CM4a-1
nnector Mechanical CM6 (CAR-2 REV6, Inuary 2013 5.9.5G	Connector Mechanical	PV	General Notes		5.1 N	C <u>A</u> N	CONN 12CKT Pol ((HB) Mini50 Gen II RCPT	30	30				Refer to the General Notes for Pre-Test Information.	NA	
onnector to nnector Mating / mating - Non-Assist						<u> </u>	CONN 16CKT Pol L(HB) Mini50 Gen II RCPT CONN 20CKT Pol	30	30						
mating - Non-Assist						<u> </u>	(HB)	30	30						
						N	(HB) /lini50 12 ckt R/A leader Assembly - Pol	30	30						
						<u>Α</u> Ν	Mini50 16 ckt R/A Header Assembly - Pol	30	30						
							Mini50 20 ckt R/A Header Assembly - Pol	30	30						
						N H	Mini50 24 ckt R/A Jeader Assembly - Pol	30	30						
							CTX50 Large Grip Insealed Tin	1440	1440						



Test Description	Item Test	Test Sequence	Test Requirement	П	Test	Test Sample	Quantity	Quantity			Te	st Results	Met/Not met	Results Notes
Item Description	scription Type	rest Sequence	r est ræquirement	"	Remarks	Description (Crimped) _0.35mm²	Samples	Results	Min	Max	Avg	Acceptance Criteria		INCOURS INVICES
		Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		largest wire						Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		Conn to Conn (non-assist) -	The mating (engage) force of all tested samples shall meet the	5.4.2			0	15	25.14	28.37	26.90	12ckt (HB):75N Max.	MET	Refer to DVPR 3659 CM6a-1
		Mating Force	requirements of SAE/USCAR-25 for the connector in its intended						31.12	34.05	32.51	16ckt (HB):75N Max.		Refer to DVPR 3846 CM6a-1
			application. (The USCAR-25 value depends on connector push surface	!					37.48	42.24	40.35	20ckt (HB):75N Max.		Refer to DVPR 3847 CM6a-1
			area, grasp area, and the ergonomic conditions of the assembly operation involved). If tested values are reported in summary format, the highest reading shall be reported. Refer to Figure 5.4.2.3.						50.54	56.38	53.07	24ckt (HB):75N Max.		Refer to DVPR 3661 CM6a-1
			Completely assemble (but do not mate) all connector halves (both male and female) using all applicable components such as terminals, wedges, and seals. Increase the connector (Engaging) Mating Force at a uniform rate of 50+/- 10mm/min, until complete mating occurs.											
		Conn to Conn (non-assist) -	Retention Force must be ≥ 110 Newtons with primary connector lock	5.4.2			0	5	122.06	125.63	124.19	12ckt (HB): 110N Min	MET	Refer to DVPR 3659 CM6a-1
		Retention Force, w/o	fully engaged. A CPA device, if provided, must NOT be engaged.						133.58	138.48	136.15	16ckt (HB):110N Min.		Refer to DVPR 3846 CM6a-1
		Terminals	With primary connector lock enabled (CPA disabled), increase						130.72	135.50	133.25	20ckt (HB):110N Min.		Refer to DVPR 3847 CM6a-1
			Retention Force at a uniform rate not to exceed 50mm/min.until complete separation occurs. This test will be conducted without terminals or wires on the samples.						131.43	133.61	132.72	24ckt (HB):110N Min.		Refer to DVPR 3661 CM6a-1
		Conn to Conn (non-assist) -	Unmating Force must be ≤ 75 Newtons with the primary connector lock	5.4.2			0	5	17.03	18.69	18.02	12ckt (HB):75N Max.	MET	Refer to DVPR 3659 CM6a-1
		Unmating Force	completely disengaged/ disabled.						22.20	23.46	22.77	16ckt (HB):75N Max.		Refer to DVPR 3846 CM6a-1
			With primary connector lock disabled, increase (Disengage) Unmating						25.85	28.62	27.15	20ckt (HB):75N Max.		Refer to DVPR 3847 CM6a-1
			Force uniformly until complete separation of the connector halves occurs. This test will be conducted with terminals or wires on the 5 samples.						35.70	38.50	36.89	24ckt (HB):75N Max.		Refer to DVPR 3661 CM6a-1
		Conn to Conn (non-assist) - Lock Deflection Force	he force to completely disengage the primary connector lock must be ≤ 30N in its fully seated position (without the CPA engaged).	5.4.2			0	5	4.88	5.12	5.00	12ckt (HB):70N Max. This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM6a-1
			Gradually apply a force of up to .0N to the lock mechanism until the lock mechanism clears the lock feature on the mating part and attempt						5.35	5.81	5.62	16ckt (HB):70N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM6a-1
			to unmate the connection. This test will be conducted without terminals or wires on the 5 samples.*Deviation this item with USCAR-2 Rev 5						3.56	3.81	3.68	20ckt (HB):70N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM6a-1
			criteria*						6.12	6.27	6.19	24ckt (HB):70N Max. This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM6a-1
		Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
Connector Mechanical CM7 Conne USCAR-2 REV6, Mecha		General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	9	9				Refer to the General Notes for Pre-Test Information.	NA	
February 2013 5.9.5H / Polarization						, ,	9	9						
Effectiveness - Connector						•	9	9						
						•	9	9						



st Description Tes		Test Sequence	Test Requirement	¶ Test	Test Sample	Quantity of	Quantity of		1	Test I	Results	Met/Not met	Results Notes
Iter	m Description Type	Took coquentee	root rtoquii omont	" Remarks	Description CONN 16CKT Pol	Samples	Results	Min	Max	Avg	Acceptance Criteria		research reces
					A(HB)								
					Mini50 Gen II RCPT CONN 16CKT Pol	9	9						
					B(HB)								
					Mini50 Gen II RCPT CONN 16CKT Pol	9	9						
					C(HB)								
					Mini50 Gen II RCPT CONN 20CKT Pol	9	9						
					A(HB) Mini50 Gen II RCPT	9	9						
					CONN 20CKT Pol	9	9						
					B(HB) Mini50 Gen II RCPT	9	9						
					CONN 20CKT Pol C(HB)								
					Mini50 Gen II RCPT	9	9						
					CONN 24CKT Pol A(HB)								
						9	9						
					B(HB)								
					Mini50 Gen II RCPT CONN 24CKT Pol	9	9						
					C(HB)								
					Mini50 12 ckt R/A Header Assembly - Po	9	9						
					A Mini50 12 ckt R/A	9	9						
					Header Assembly - Po								
					Mini50 12 ckt R/A	9	9						
					Header Assembly - Po C	I							
					Mini50 16 ckt R/A	9	9						
					Header Assembly - Po A	1							
					Mini50 16 ckt R/A Header Assembly - Po	9	9						
					В								
					Mini50 16 ckt R/A Header Assembly - Po	9	9						
					С		0						
					Mini50 20 ckt R/A Header Assembly - Po	I g	9						
					A Mini50 20 ckt R/A	9	9						
					Header Assembly - Po								
					Mini50 20 ckt R/A	9	9						
					Header Assembly - Po C	I							
					Mini50 24 ckt R/A	9	9						
					Header Assembly - Po A	1							
					Mini50 24 ckt R/A Header Assembly - Po	9	9						
					В								
					Mini50 24 ckt R/A	9	9						



Took December 2	Test	Item	Test	Took Commence	Took Domisionsons	Test	Test Sample	Quanti	ity Quantity			Test I	Results	Met/Not met	Results Notes
Test Description	Item	Description	Туре	Test Sequence	Test Requirement ¶	Remarks		Sampl	es Results	Min	Max	Avg	Acceptance Criteria	Met/Not met	Results Notes
					Refer to the General Notes for Pre-Test Visual Inspections.  5.1.8		Header Assembly - Po	0				fo In	r Pre-Test Visual spections.	MET	
				Effectiveness - A Receptacle	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is			0	3			B) cr	2ckt (HB): ≥150N (for Pol A, ), ≥100N (for Pol C), This iteria is defined in 065230000-PS	WE I	Refer to DVPR 3659 CM7a-1
					achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.							A, Th	Sckt (HB): ≥150N (for Pol B), ≥100N (for Pol C), his criteria is defined in 065230000-PS		Refer to DVPR 3846 CM7a-1
												A, Th	Ockt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3847 CM7a-1
												A, Th	4ckt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3661 CM7a-1
				Effectiveness - B Receptacle	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is			0	3			B) cr	2ckt (HB): ≥150N (for Pol A, ), ≥100N (for Pol C), This iteria is defined in 065230000-PS	MET	Refer to DVPR 3659 CM7a-1
					achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.							A, Th	Sckt (HB): ≥150N (for Pol B), ≥100N (for Pol C), his criteria is defined in 065230000-PS		Refer to DVPR 3846 CM7a-1
												A, Th	Ockt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3847 CM7a-1
												A, Th	4ckt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3661 CM7a-1
				Effectiveness - C Receptacle	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is			0	3			B) cr	2ckt (HB): ≥150N (for Pol A, ), ≥100N (for Pol C), This iteria is defined in 065230000-PS n	MET	Refer to DVPR 3659 CM7a-1
					achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.							A, Th	Sckt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3846 CM7a-1
												A, Th	Ockt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3847 CM7a-1
												24 A, Th	1ckt (HB): ≥150N (for Pol , B), ≥100N (for Pol C), nis criteria is defined in 065230000-PS		Refer to DVPR 3661 CM7a-1
				Effectiveness - A Receptacle	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is			0	3			12 B) cr	2ckt (HB): ≥150N (for Pol A, ), ≥100N (for Pol C), This iteria is defined in 065230000-PS	MET	Refer to DVPR 3659 CM7a-1
												16	Sckt (HB): ≥150N (for Pol		Refer to DVPR 3846 CM7a-1



est Description	Test Iter	m Tes	Test Sequence	Test Requirement ¶	Test	Test Sample	Quantity	Quantity			Test Results	Met/Not me	et Results Notes
Description	Item Descrip	Typ	ne Test Sequence	achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.	Remarks	Description		s Results	Min	Max	Avg Acceptance Criteria  A, B), ≥100N (for Pol C), This criteria is defined in 2065230000-PS  20ckt (HB): ≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS  24ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in	WebNot me	Refer to DVPR 3847 CM7a-1 Refer to DVPR 3661 CM7a-1
				The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be			0	3			2065230000-PS 12ckt(HB): ≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM7a-1
			to C Blade, 0° Force Test	made between the male/female terminals. If sufficient mis-mating is achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.							16ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM7a-
											20ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM7a-
											24ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM7a-
			Polarization Feature Effectiveness - B Receptacle to A Blade, 0° Force Test	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is			0	3			12ckt(HB): ≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM7a-
				achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.							16ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM7a-
				considered to be madequate.							20ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM7a-
											24ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM7a-1
			Polarization Feature Effectiveness - B Receptacle to C Blade, 0° Force Test	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is			0	3			12ckt(HB): ≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM7a-1
				achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.							16ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM7a-1
				considered to be madequate.							20ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM7a-
											24ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM7a-1
			Polarization Feature	The connection system must withstand a mis-mating force as specified 5.4.4			0	3			12ckt(HB): ≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in	MET	Refer to DVPR 3659 CM7a-1



Test Description Test	Item Te	Test Sequence	Test Requirement	¶	Test	Test Sample	of	Quantity of			Test Results	Met/Not met	Results Notes
Item D	Description Ty	De .	,	- "	Remarks	Description	Samples	Results	Min	Max	Avg Acceptance Criteria 2065230000-PS		
		to A Blade, 0° Force Test	without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is								16ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM7a-1
			considered to be inadequate.								20ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM7a-1
											24ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM7a-1
		Polarization Feature Effectiveness - C Receptacle to B Blade, 0° Force Test	The connection system must withstand a mis-mating force as specified without damage to the connector; and no electrical contact shall be made between the male/female terminals. If sufficient mis-mating is	5.4.4			0	3			12ckt(HB): ≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS	MET	Refer to DVPR 3659 CM7a-1
			achieved to allow contact with any properly installed Male Terminal in any position in its connector housing, the polarizing feature(s) is considered to be inadequate.								16ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3846 CM7a-1
			considered to be madequate.								20ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3847 CM7a-1
											24ckt(HB):≥150N(for Pol A,B),≥100N(for Pol C), This criteria is defined in 2065230000-PS		Refer to DVPR 3661 CM7a-1
		Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8							Refer to the General Notes for Post-Test Visual Inspections.	MET	
nector Mechanical CM8 Co AR-2 REV6, Me	onnector PV echanical	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A(With CPA,HB)	18	18			Refer to the General Notes for Pre-Test Information.	NA	
ruary 2013 5.9.5l /						Mini50 Gen II RCPT CONN 16CKT Pol A(With CPA,HB)	18	18					
						Mini50 Gen II RCPT CONN 20CKT Pol A (With CPA,HB)	18	18					
						Mini50 Gen II RCPT CONN 24CKT Pol A(With CPA,HB)	18	18					
		Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8							Refer to the General Notes for Pre-Test Visual Inspections.	MET	
		Connector Drop Test - Axis X1	Components shall not be displaced from their intended shipping position.	5.4.8			3	3			12ckt(HB): Components sha not be displaced from their intended shipping position.	MET	Refer to DVPR 3659 CM8a-1
			Drop each sample (once) onto a horizontal concrete surface from 1 meter minimum height. Orienting samples to X1 connector "face" of the								16ckt(HB): Components sha not be displaced from their intended shipping position.	all	Refer to DVPR 3846 CM8a-1
			rectangular connector.								20ckt(HB): Components sha not be displaced from their intended shipping position.	all	Refer to DVPR 3847 CM8a-1
											24ckt(HB): Components sha not be displaced from their intended shipping position.	all	Refer to DVPR 3661 CM8a-1
		Connector Drop Test - Axis	Components shall not be displaced from their intended shipping	5.4.8			3	3			12ckt(HB): Components sha not be displaced from their	all MET	Refer to DVPR 3659 CM8a-1



Test Description	st Item	Test	Test Sequence	Test Requirement	Test	Test Sample	Quantity	Quantity			Test Results	Met/Not met	Results Notes
Iter	m Description	Туре		,	Remarks	Description	Samples	Results	Min	Max	Avg Acceptance Criteria intended shipping position.	Wicortot mice	results reces
			X2	position.  Drop each sample (once) onto a horizontal concrete surface from 1 meter minimum height. Orienting samples to X2 connector "face" of the							16ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3846 CM8a-1
				rectangular connector.							20ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3847 CM8a-1
											24ckt(HB): Components sha not be displaced from their intended shipping position.	11	Refer to DVPR 3661 CM8a-1
			Connector Drop Test - Axis Y1	Components shall not be displaced from their intended shipping 5.4.8 position.			3	3			12ckt(HB): Components sha not be displaced from their intended shipping position.	II MET	Refer to DVPR 3659 CM8a-1
				Drop each sample (once) onto a horizontal concrete surface from 1 meter minimum height. Orienting samples to Y1 connector "face" of the							16ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3846 CM8a-1
				rectangular connector.							20ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3847 CM8a-1
											24ckt(HB): Components sha not be displaced from their intended shipping position.	11	Refer to DVPR 3661 CM8a-1
			Connector Drop Test - Axis Y2	Components shall not be displaced from their intended shipping position. 5.4.8			3	3			12ckt(HB): Components sha not be displaced from their intended shipping position.	II MET	Refer to DVPR 3659 CM8a-1
				Drop each sample (once) onto a horizontal concrete surface from 1 meter minimum height. Orienting samples to Y2 connector "face" of the							16ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3846 CM8a-1
				rectangular connector.							20ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3847 CM8a-1
											24ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3661 CM8a-1
			Connector Drop Test - Axis Z1	Components shall not be displaced from their intended shipping position. 5.4.8			3	3			12ckt(HB): Components sha not be displaced from their intended shipping position.	II MET	Refer to DVPR 3659 CM8a-1
				Drop each sample (once) onto a horizontal concrete surface from 1 meter minimum height. Orienting samples to Z1 connector "face" of the							16ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3846 CM8a-1
				rectangular connector.							20ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3847 CM8a-1
											24ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3661 CM8a-1
			Connector Drop Test - Axis Z2	Components shall not be displaced from their intended shipping 5.4.8 position.			3	3			12ckt(HB): Components sha not be displaced from their intended shipping position.	II MET	Refer to DVPR 3659 CM8a-1
				Drop each sample (once) onto a horizontal concrete surface from 1-meter minimum height. Orienting samples to Z2 connector "face" of the							16ckt(HB): Components sha not be displaced from their intended shipping position.	Ш	Refer to DVPR 3846 CM8a-1
				rectangular connector.							20ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3847 CM8a-1
											24ckt(HB): Components sha not be displaced from their intended shipping position.	II	Refer to DVPR 3661 CM8a-1
			Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections. 5.1.8							Refer to the General Notes for Post-Test Visual	MET	



Test Description Test Item T	est Test Sequence	Test Requirement	¶	Test	Test Sample	Quantity	Quantity		ı	Test Re	esults	Met/Not met	Results Notes
Item Description Ty	уре	rost requirement	"	Remarks	Description	Samples	Results	Min	Max	-	Acceptance Criteria pections.	Wilder Not mot	Tresuits (Votes
nector Mechanical CM9 Connector P\CAR-2 REV6, Mechanical	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	14	14				er to the General Notes Pre-Test Information.	NA	
ruary 2013 5.9.5J / ity Damage					Mini50 Gen II RCPT CONN 16CKT Pol A(HB)	18	18						
					Mini50 Gen II RCPT CONN 20CKT Pol A(HB)	22	22						
					Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	26	26						
					CTX50 Large Grip Jnsealed Tin (Crimped) _0.35mm² argest wire	144	144						
	Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		_					for I	er to the General Notes Pre-Test Visual pections.	MET	
		Determine the force to be applied to the secondary lock by adding 60N to the maximum force required to seat the TPA/PLR device when all	5.4.9		Mini50 Gen II RCPT CONN 12CKT Pol A(HB)	0	12				kt(HB): apply 60N , TPA inserted	MET	Refer to DVPR 3659 CM9a-
		terminals are located properly (Sequence 5.9.5E, Element 5.4.5: Misc. Comp Pre-Staged TPA/PLR/ISL, Engage Pre-Stage to Lock with			Mini50 Gen II RCPT CONN 16CKT Pol A(HB)	0	16				kt(HB): apply 60N , TPA inserted		Refer to DVPR 3846 CM9a-
		Terminals in all Cavities). The minimum force is 80N for ≥1.5 nominal size terminals and 60N for <1.5 terminals. (Actual measured TPA			•	0	20				kt(HB): apply 60N , TPA inserted		Refer to DVPR 3847 CM9a-
		seating forces are to be used in the calculation, not the criteria from the Table.)  When the force is fully applied, the TPA must not seat into final position and terminal retention must meet the forces in table 5.4.1.4. Use the after moisture conditioning values in Table 5.4.1.4 ( <b>NO</b> moisture conditioning is required for this test).			Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	0	24				kt(HB): apply 60N , TPA inserted		Refer to DVPR 3661 CM9a-
		y Apply a 60N force to seat the ISL with one terminal improperly installed	5.4.9			0	2					MET	Refer to DVPR 3659 CM9a-
	<ul> <li>Terminal Retention force(Final lock)</li> </ul>	Then remove the force, insert terminal properly and close the ISL, measure the terminal retention force									kt(HB):40N Min.		Refer to DVPR 3846 CM9a-
	rorce(r mar lock)	ineasure the terminal retention force									kt(HB):40N Min.		Refer to DVPR 3847 CM9a-
								53.27	69.25		kt(HB):40N Min.		Refer to DVPR 3661 CM9a-
ector Electrical CE1 Connector P\ R-2 REV6, Electrical	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 24CKT Pol A(HB)	10	10				er to the General Notes Pre-Test Information.	NA	
ation and					Mini50 24 ckt R/A Header Assembly - Pol A		10						
anical Shock - V1					CTX50 Large Grip Jnsealed Tin (Crimped) _0.35mm² argest wire	240	240						
	Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8								er to the General Notes Pre-Test Visual	MET	
	- I could morpooned in the cook										pections.		



Test Description	Item T	Test Seguence	Toot Poquiroment	Test	Test Sample	Quantity	Quantity			Te	st Results	Met/Not met	Results Notes
Item	Description T	Test Sequence	Test Requirement ¶	Remarks	Description	Samples	Results	Min	Max	Avg	Acceptance Criteria	Met/Not met	Results Notes
		Dry Circuit Resistance	Carefully mate the test terminal pair to the appropriate depth. Choose 5.3.1					0.17	2.49	0.80	24ckt (HB):20mΩ Max.	MET	Refer to DVPR 3661 CE1a-1
			the preferred method of taking measurements (e.g. soldered sense										
			lead or probe) and document the method chosen. In either case, the										
			sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable.										
			For Header type connectors, T2 is attached to the Header terminal per										
			Section 5.1.5. Millivolt leads must be no larger than 0.22 mm². Secure										
			the TUT to maintain the correct insertion depth for the test.										
		Circuit Continuity Monitoring	Solder the conductors from each terminal in the CUT in series. For the 5.1.9								There must be no instance	MET	No discontinuities > $7\Omega$ and > 1 $\mu$
		One date Continuity Worldownig	test set-up see Figure 5.1.9.3A and B. Adjust the power supply to								where the resistance of any		were obeserved
			provide 100 mA to the circuit.								terminal pair exceeds 7.0 $\Omega$ for more than 1		were obeserved
			When continuity is monitored during conditioning, there must be no loss								microsecond. Figure 5.1.9.4		
			of electrical continuity (any instance of the resistor current dropping								illustrates the acceptance criteria graphically.		
			below 95 mA), for more than 1 microsecond. If one or more terminal										
			pairs are monitored, rather than the series resistor, there must be no										
			instance where the resistance of any terminal pair exceeds 7.0 $\Omega$ for										
			more than 1 microsecond. Figure 5.1.9.4 illustrates the acceptance										
			criteria graphically.										
			5.4.0								None	NA	
		Mechanical Shock - V1	oubject class virsamples to Mechanical enough testing per rubie								None	INA	
			5.4.6.3A, in three mutually perpendicular axis.										
		Vibration - V1 - Chassis	Subject class V1 samples to Vibration testing per schedules in Tables 5.4.6								None	NA	
		Random	5.4.6.3B, 5.4.6.3C and 5.4.6.3D.										
			3 August 2016 Change to USCAR-2, Rev 6 (Letter #9)										
			Subject the CUT to the appropriate vibration class schedule per Table										
			5.4.6.3B in each of the three mutually perpendicular axes. NOTE:										
			When identified, Thermal Cycling shall be performed during the										
			vibration schedules with temperatures per the schedule shown in Table										
			5.4.6.3B. Sine and random profiles shall be run separately (not										
			concurrently).										
		Dry Circuit Resistance_1	Carefully mate the test terminal pair to the appropriate depth. Choose 5.3.1					0.33	2.11	0.76	24ckt (HB): 20 mΩ Max.	MET	Refer to DVPR 3661 CE1a-1
			the preferred method of taking measurements (e.g. soldered sense										
			lead or probe) and document the method chosen. In either case, the										
			sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable.										
			For Header type connectors, T2 is attached to the Header terminal per										
			Section 5.1.5. Millivolt leads must be no larger than 0.22 mm². Secure										
			the TUT to maintain the correct insertion depth for the test.										
		Voltago Drop	Assemble the test circuit shown in Figure 5.3.2.3, Current Resistance 5.3.2					0.58	3.69	1.34	24ckt (HB): 20 mV/A Max.	MET	Refer to DVPR 3661 CE1a-1
		Voltage Drop	recombine the test should enterm in Figure 5.5.2.5, Surrent Resistance								( /		Relei to DVFR 3001 CE 1a-1
			Test Set-Up. Adjust power supply to provide required test current of 5A per square millimeter of conductor cross section for selected conductor.										
			Refer to ISO 6722-1, SAE J1127 or SAE J1128.										
			5400								Evamina terminals with the	MET	
		·	t Examine terminals with the aid of 10X magnification looking for any 5.1.8.3.	'							Examine terminals with the aid of 10X magnification	MET	
		Contact Surface	evidence of deterioration, cracks, deformities, excessive plating wear,								looking for any evidence of		
			etc. that could affect functionality. When visual inspection follows Dry								deterioration, cracks, deformities, excessive platir	g	
			Circuit resistance measurement, inspect to the following:								wear, etc. that could affect	-	



Test Description Test		Tes	Test Sequence	Test Requirement	¶	Test Remarks	Test Sample Description	Quantity Quantity of of Samples Results	Min	Max	Test Results  Avg Acceptance Criteria	Met/Not met Results Notes
	·			<ul> <li>Inspect all male terminals.</li> <li>Inspect all female terminals with resistance over 75% of resistance criteria.</li> <li>Inspect no fewer than 5 female terminals.</li> </ul>				Gumples Tresule		77657	functionality. When visual inspection follows Dry Circuit resistance measurement, inspect to the following:  Inspect all male terminals.  Inspect all female terminals with resistance over 75% of resistance criteria.  Inspect no fewer than 5	
			Visual Inspection - Post Test	t Refer to the General Notes for Post-Test Visual Inspections.	5.1.8						female terminals.  Refer to the General Notes for Post-Test Visual Inspections.	MET
	Connector Electrical	PV	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 24CKT Pol A(HB) Mini50 24 ckt R/A Header Assembly - Po A CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	10 10 10 10 10 240 240			•	MET
			Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8						Refer to the General Notes for Pre-Test Visual Inspections.	MET
			Connector and/or Terminal Cycling	Completely mate and un-mate each connector or terminal pair 10 times. Re-mate connectors or terminals one last time for testing.	5.1.7						None	NA
			Dry Circuit Resistance	Carefully mate the test terminal pair to the appropriate depth. Choose the preferred method of taking measurements (e.g. soldered sense lead or probe) and document the method chosen. In either case, the sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable. For Header type connectors, T2 is attached to the Header terminal per Section 5.1.5. Millivolt leads must be no larger than 0.22 mm². Secure the TUT to maintain the correct insertion depth for the test.	5.3.1				1.27	2.99 2	.06 24ckt (HB):20mΩ Max.	MET Refer to DVPR 3661 CE2a-1
			Circuit Continuity Monitoring	Solder the conductors from each terminal in the CUT in series. For the test set-up see Figure 5.1.9.3A and B. Adjust the power supply to provide 100 mA to the circuit. When continuity is monitored during conditioning, there must be no loss of electrical continuity (any instance of the resistor current dropping below 95 mA), for more than 1 microsecond. If one or more terminal pairs are monitored, rather than the series resistor, there must be no instance where the resistance of any terminal pair exceeds 7.0 $\Omega$ for more than 1 microsecond. Figure 5.1.9.4 illustrates the acceptance criteria graphically.							When continuity is monitored during conditioning, there must be no loss of electrical continuity (any instance of the resistor current dropping below 95 mA), for more than 1 microsecond. If one or more terminal pairs are monitored, rather than the series resistor, there must be no instance where the resistance of any terminal pair exceeds 7.0 $\Omega$ for more than 1 microsecond. Figure 5.1.9.4 illustrates the acceptance criteria graphically.	MET
			Thermal Shock	<ol> <li>Cold soak an extra 30 minutes for specified class, see Table 5.1.4.1.</li> <li>Into ambient temperature chamber in under 30 seconds and heat soak for 30 minutes.</li> <li>Transfer in under 30 seconds to cold chamber for 30 minutes.</li> <li>Repeat 99 times.</li> </ol>	5.6.1							NA



Test Description	est Item	Т	Test Sequence	Test Requirement	Ф	Test	Test Sample	Quantity	Quantity			Te	st Results	Met/Not m	et Results Notes
Test Description Ite	em Descripti	on T	ype Test Sequence	rest Requirement	11	Remarks	Description	Samples	s Results	Min	Max		Acceptance Criteria		et Results Notes
			Dry Circuit Resistance_1	Carefully mate the test terminal pair to the appropriate depth. Choose the preferred method of taking measurements (e.g. soldered sense lead or probe) and document the method chosen. In either case, the sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable. For Header type connectors, T2 is attached to the Header terminal per	5.3.1					2.09	8.12	3.97	24ckt (HB):20mΩ Max.	MET	Refer to DVPR 3661 CE2a-1
				Section 5.1.5. Millivolt leads must be no larger than 0.22 mm <sup>2</sup> . Secure the TUT to maintain the correct insertion depth for the test.											
			Voltage Drop	Assemble the test circuit shown in Figure 5.3.2.3, Current Resistance Test Set-Up. Adjust power supply to provide required test current of 5A per square millimeter of conductor cross section for selected conductor Refer to ISO 6722-1, SAE J1127 or SAE J1128.	5.3.2					2.28	7.80	4.39	24ckt (HB):20mV/A Max.	MET	Refer to DVPR 3661 CE2a-1
			Visual Inspection - Post Te	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8								Refer to the General Notes for Post-Test Visual Inspections.	MET	
JSCAR-2 REV6, February 2013 5.9.60 Temperature/Humidity	Ga Connector Electrical	P\	/ General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 24CKT Pol A(HB) Mini50 24 ckt R/A Header Assembly - Po A	10 10 ol	10				Refer to the General Notes for Pre-Test Information.	NA	
cling							CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	240	240						
			Visual Inspection - Pre-Tes	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8								Refer to the General Notes for Pre-Test Visual Inspections.	MET	
			Connector and/or Termina Cycling	Completely mate and un-mate each connector or terminal pair 10 times. Re-mate connectors or terminals one last time for testing.	5.1.7								None	NA	
			Dry Circuit Resistance	Carefully mate the test terminal pair to the appropriate depth. Choose the preferred method of taking measurements (e.g. soldered sense lead or probe) and document the method chosen. In either case, the sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable. For Header type connectors, T2 is attached to the Header terminal per Section 5.1.5. Millivolt leads must be no larger than 0.22 mm². Secure the TUT to maintain the correct insertion depth for the test.	5.3.1					1.32	3.00	2.19	24ckt (HB):20mΩ Max.	MET	Refer to DVPR 3661 CE3a-1
			Temperature / Humidity Cycling	The cycle begins at -40°C with uncontrolled relative humidity.  Completion of schedule in Figure 5.6.2.3 is one cycle. Use maximum ambient temperature for hours 5 through 7 per Table 5.1.4.1. Cycle test 40 times.	5.6.2								None	NA	
			Dry Circuit Resistance_1	Carefully mate the test terminal pair to the appropriate depth. Choose the preferred method of taking measurements (e.g. soldered sense lead or probe) and document the method chosen. In either case, the sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable. For Header type connectors, T2 is attached to the Header terminal per	5.3.1					2.15	9.93	5.85	24ckt (HB):20mΩ Max.	MET	Refer to DVPR 3661 CE3a-1
				Section 5.1.5. Millivolt leads must be no larger than 0.22 mm <sup>2</sup> . Secure the TUT to maintain the correct insertion depth for the test.											



Test Description Tes	Item	Test	Test Sequence	Tod Booking of	ď	Test	Test Sample	Quantity Quantity of of			Т	est Results	Met/Not m	net Results Notes
Item	Description	Туре	rest Sequence	Test Requirement	ll ll	Remarks	Description		s Results	Min	Max Avg	Acceptance Criteria	Met/Not II	Results Notes
			Voltage Drop  Visual Inspection - Post Test	Test Set-Up. Adjust power supply to provide required test current of 5A per square millimeter of conductor cross section for selected conductor. Refer to ISO 6722-1, SAE J1127 or SAE J1128.	5.3.2 5.1.8					2.68	15.69 6.86	24ckt (HB):20mV/A Max.  Refer to the General Notes for Post-Test Visual	MET NA	Refer to DVPR 3661 CE3a-1
Connector Electrical USCAR-2 REV6, February 2013 5.5.1 / Isolation Resistance / Post Temperature/Humidity Cycling	Connector Electrical	PV	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 24CKT Pol A(HB) Mini50 24 ckt R/A Header Assembly - Pol A CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	10 10 240	10 10 240			Inspections.  Refer to the General Notes for Pre-Test Information.	NA	
			Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8							Refer to the General Notes for Pre-Test Visual Inspections.	NA	
			Insulation Resistance	- For un-sealed connector pairs, the test samples shall rest in ambient environment for ≥3 hours prior to measuring insulation resistance after any prior environmental conditioning.  - Connect the Megohmeter, set to 500 VDC, to the bare conductor ends as illustrated in Figure 5.5.1.3, so adjacent cavities have opposite polarization.  - Test the mated connector assembly for those samples that have								<b>'</b>	MET	Refer to DVPR 3661 CE3b-1
				been subjected to prior stress testing. - Record the minimum resistance measured. The resistance between every combination of two adjacent terminals in the CUT must exceed 100 M $\Omega$ at 500 VDC. This includes terminals that may be separated by one or more vacant terminal cavities.										
			Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections.	5.1.8							Refer to the General Notes for Post-Test Visual Inspections.	NA	
Connector Electrical CE4 USCAR-2 REV6, February 2013 5.9.6P / High Temperature Exposure	Connector Electrical	PV	General Notes	Refer to the General Notes for Pre-Test Information.	5.1 N		Mini50 Gen II RCPT CONN 24CKT Pol A(HB) Mini50 24 ckt R/A Header Assembly - Pol A CTX50 Large Grip Unsealed Tin (Crimped) _0.35mm² largest wire	10 10 240	10 10 240			Refer to the General Notes for Pre-Test Information.	NA	
			Visual Inspection - Pre-Test	Refer to the General Notes for Pre-Test Visual Inspections.	5.1.8		largest wife					Refer to the General Notes for Pre-Test Visual Inspections.	MET	
			Connector and/or Terminal Cycling	Completely mate and un-mate each connector or terminal pair 10 times. Re-mate connectors or terminals one last time for testing.	5.1.7							None	NA	
			Dry Circuit Resistance	Carefully mate the test terminal pair to the appropriate depth. Choose the preferred method of taking measurements (e.g. soldered sense	5.3.1					1.29	2.96 2.08	24ckt (HB):20mΩ Max.	MET	Refer to DVPR 3661 CE4a-1



Test Description	Test	Test	Test Sequence	Test Requirement ¶	Test Remarks	Test Sample Description	Quantity of Samples Results	To			st Results	Met/Not met	Results Notes
Item	Item							Min	Max	Avg	Acceptance Criteria	Met/Not met	Results Notes
				lead or probe) and document the method chosen. In either case, the									
				sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable.									
				For Header type connectors, T2 is attached to the Header terminal per									
				Section 5.1.5. Millivolt leads must be no larger than 0.22 mm². Secure									
				the TUT to maintain the correct insertion depth for the test.									
			High Temperature Exposure	At the maximum ambient temperature in table 5.1.4.1, leave the 5.6.3							None	NA	
				samples in the chamber for 1008 hours.									
			Dry Circuit Resistance_1	Carefully mate the test terminal pair to the appropriate depth. Choose 5.3.1				1.62	8.99	3.74	24ckt (HB):20mΩ Max.	MET Re	efer to DVPR 3661 CE4a-1
			_	the preferred method of taking measurements (e.g. soldered sense									
				lead or probe) and document the method chosen. In either case, the									
				sense point T1 (Figure 5.3.1.3) must be soldered for all stranded cable.									
				For Header type connectors, T2 is attached to the Header terminal per									
				Section 5.1.5. Millivolt leads must be no larger than 0.22 mm². Secure									
				the TUT to maintain the correct insertion depth for the test.									
			Voltage Drop	Assemble the test circuit shown in Figure 5.3.2.3, Current Resistance 5.3.2				1.72	9.28	4.03	24ckt (HB):20mV/A Max.	MET Re	efer to DVPR 3661 CE4a-1
				Test Set-Up. Adjust power supply to provide required test current of 5A									
				per square millimeter of conductor cross section for selected conductor.									
				Refer to ISO 6722-1, SAE J1127 or SAE J1128.									
			Visual Inspection - Post Test	Refer to the General Notes for Post-Test Visual Inspections. 5.1.8							Refer to the General Notes for Post-Test Visual Inspections.	MET	

# **Test Plan Revision Log**

Test Plan Number: 4255

Revision Number	Change	Ву	Date
A	Initial Release	Wu Shanks	14-Aug-2019