molex® TEST SUMMARY

VALUSEAL SEALED CONNECTOR SYSTEM

1.0 SCOPE

This Product Specification covers 4.0 mm centerline pitch wire to wire sealed connector system terminated with 16 to 18 AWG wire using Crimp technology with Tin plating

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

PLUG HSG WITH INTEGRATED SEAL	172877
RECEPTACLE HSG WITH INTEGRATED SEAL	172878
VOID PLUG	173061
MALE CRIMP TERMINAL	173041
FEMALE CRIMP TERMINAL	173042

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

As per Sales Drawing: SD-172877-0001, SD-172878-0001, SD-173061-0001, SD-173041-0001 & SD-173042-0001

2.3 SAFETY AGENCY APPROVALS

UL FILE NUMBER: E29179

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Product Specification: 1728770001-PS
Sales Drawing: SD-172877-0001, SD-172878-0001, SD-173061-0001, SD-173041-0001 & SD-173042-0001

4.0 QUALIFICATION

Laboratory conditions and sample selection are in accordance with **EIA-364**.

5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.1.1	**Contact Resistance(Low level) TR 52455**	Mate connectors and apply maximum voltage of 20mV and a maximum current of 100 mA per EIA-364-23C.(Wire and terminal resistance shall be removed from the measured value)	**10** milliohms Maximum [Initial]	**2.07 mΩ**	**1.88 mΩ**	**2.52 mΩ**
5.1.2	**Insulation Resistance TR 52455**	Mate connectors, Apply a voltage of 500V DC between adjacent terminals or ground per EIA-364-21C	**1000** Mega ohms Minimum	**50.0GΩ**		
5.1.3	**Dielectric Withstanding Voltage TR 52455**	1000 VAC plus twice rated voltage Per UL 1977 (1.5KVAC)	No breakdown	**Meets Requirement**		
			Current Leakage; 5 milliamps MAXIMUM	**0.025**	**0.024mA**	**0.028 mA**

5.1.4 CURRENT RATING AND APPLICABLE WIRES*

Wire to Wire Current Rating (Amp Max.) (Tested with **TIN** plated terminals)		
Connector fully loaded with all circuits powered		
AWG Wire Size	**Circuit Size (Single Row)**	**Circuit Size (Dual Row)**
	2	**4**
16	**11.5*** **	**11.0****
18	**10.0*** **	**9.5****

*For maximum cable outside diameter details refer applicable sales drawing.

**Ratings represent *maximum* current carrying capacity, based on 30°C maximum temperature rise (t-rise) above ambient. Current rating is application dependent and should be evaluated for each specific application.

*** Estimated values

5.1.5 18-DAY CURRENT CYCLING

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.1.5	**18- Day current Cycling TR 52455**	Measure the temperature rise Per EIA-364-55 Test condition A	+30°C MAXIMUM RISE	11.0 A @ 30.88° C		

5.2 MECHANICAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.2.1	Connector mate and unmate	Mating (Max)	**50 N MAX**	**32.90 N**	**26.20 N**	**42.40 N**
		Unmating with Lock engaged (Min)	**90 N MIN**	**142.00N**	**138.00 N**	**146.00 N**
		Unmating with Lock disengaged (Min)	**14 N Min**	**26.50 N**	**18.30 N**	**33.00 N**
5.2.2	Crimp Terminal Insertion Force(into Housing)	Initial	**45 N MAXIMUM**	**14.50 N**	**9.30 N**	**33.20 N**
5.2.3	Crimp Terminal Retention Force(from Housing)	Initial	**35 N MINIMUM**	**44.40 N**	**35.20 N**	**68.50 N**
5.2.4	Thumb latch operational force at 1.8mm deflection **TR 52455**	First Cycle	**53 N MAXIMUM**	**31.44 N**	**28.79 N**	**37.49 N**
5.2.5	Thumb Latch Yield Strength **TR 52455**		**89 N MINIMUM**	**145.33 N**	**143.60 N**	**146.80 N**

5.2 MECHANICAL PERFORMANCE RESULTS (continued)

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.2.6	Wire crimp Pullout Force (Axial) **TR 52455**	16 AWG	133 N MINIMUM	**149.90N**	**134.44 N**	**172.82 N**
		18 AWG	89 N MINIMUM	**127.27N**	**93.23N**	**191.16 N**
5.2.7	Durability **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 7A	DWV-1500 V AC	**Meets requirement**		
			IR-1000 Megaohms Min	**Meets requirement**		
5.2.8	Durability **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 7B	**10** milli ohms Maximum (Change from Initial)	**0.12mΩ**	**0.05 mΩ**	**0.22 mΩ**
5.2.9	Mechanical shock & Vibrations **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000, Test Group 3	**10** milliohms Maximum (change from initial)	**0.07mΩ**	**0.03 mΩ**	**0.14 mΩ**
			Discontinuity < **1** microsecond	**Meets requirement**		

5.3 ENVIRONMENTAL PERFORMANCE RESULTS

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	MEAN	MINIMUM	MAXIMUM
5.3.1.1	Temperature Life **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 1 X (without reseating step)	**10** milliohms Maximum(change from initial)	**0.11mΩ**	**0.09 mΩ**	**0.21 mΩ**
			Visual: No Damage	**Meets requirement**		
5.3.1.2	Temperature Life **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 1 Y (with reseating step)	**15** milliohms Maximum(change from initial)	**2.54 mΩ**	**0.61 mΩ**	**13.83mΩ**
			Visual: No Damage	**Meets requirement**		
5.3.2	Thermal shock & Humidity **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 2	**10** milliohms Maximum(change from initial)	**0.02mΩ**	**-0.12 mΩ**	**0.22 mΩ**
			Visual: No Damage	**Meets requirement**		
5.3.3	Thermal cycling **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 5	**10** milliohms Maximum(change from initial)	**1.30mΩ**	**0.51 mΩ**	**5.28 mΩ**
			Visual: No Damage	**Meets requirement**		
5.3.4	Cold Resistance **TR 52455**	See Section 6.0 for Test Sequence EIA-364-1000 Test Group 1A	**10** milliohms Maximum(change from initial)	**0.07mΩ**	**-0.01 mΩ**	**0.11 mΩ**

5.3 ENVIRONMENTAL PERFORMANCE RESULTS (continued)

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	16 AWG 1061	18 AWG 1007	18 AWG 1095
5.3.6	Dust Test IP 6X - Fully populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP6X Per IEC 60529 (Category 2)	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of dust inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.7	Dust Test IP 6X - Void plug populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP6X Per IEC 60529 (Category 2)	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of dust inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.8	Dust Test IP 6X - Fully populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP6X Per IEC 60529 (samples to be subjected for 85° C for 24 hours and subject it for IP6X) (Category 2)	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of dust inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.9	Spray Test IP X4 - Fully populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP X4 Per IEC 60529	Dielectric Withstanding Voltage: No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of water drops inside the connector post test	**PASS**	**PASS**	**PASS**

ITEM	DESCRIPTION	TREATMENT	REQUIREMENT	16 AWG 1061	18 AWG 1007	18 AWG 1095
5.3.10	Spray Test IP X4 - Void plug populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP X4 Per IEC 60529	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of water drops inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.11	Spray Test IP X4 - Fully populated **(Report No:4787633465-S1 and 4788124881-S1)**	IPX4 Per IEC 60529 (samples to be subjected for 85° C for 24 hours and subject it for IP X4)	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of water drops inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.12	Water jet Test IP X5 - Fully populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP X5 Per IEC 60529	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of water drops inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.13	Water jet Test IP X5 - Void plug Populated **(Report No:4787633465-S1 and 4788124881-S1)**	IP X5 Per IEC 60529	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of water drops inside the connector post test	**PASS**	**PASS**	**PASS**
5.3.14	Water jet Test IP X5 - Fully populated **(Report No:4787633465-S1 and 4788124881-S1)**	IPX5 Per IEC 60529 (samples to be subjected for 85° C for 24 hours and subject it for IPX5)	Dielectric Withstanding Voltage:No Breakdown at 1500 VAC	**PASS**	**PASS**	**PASS**
			No trace of water drops inside the connector post test	**PASS**	**PASS**	**PASS**

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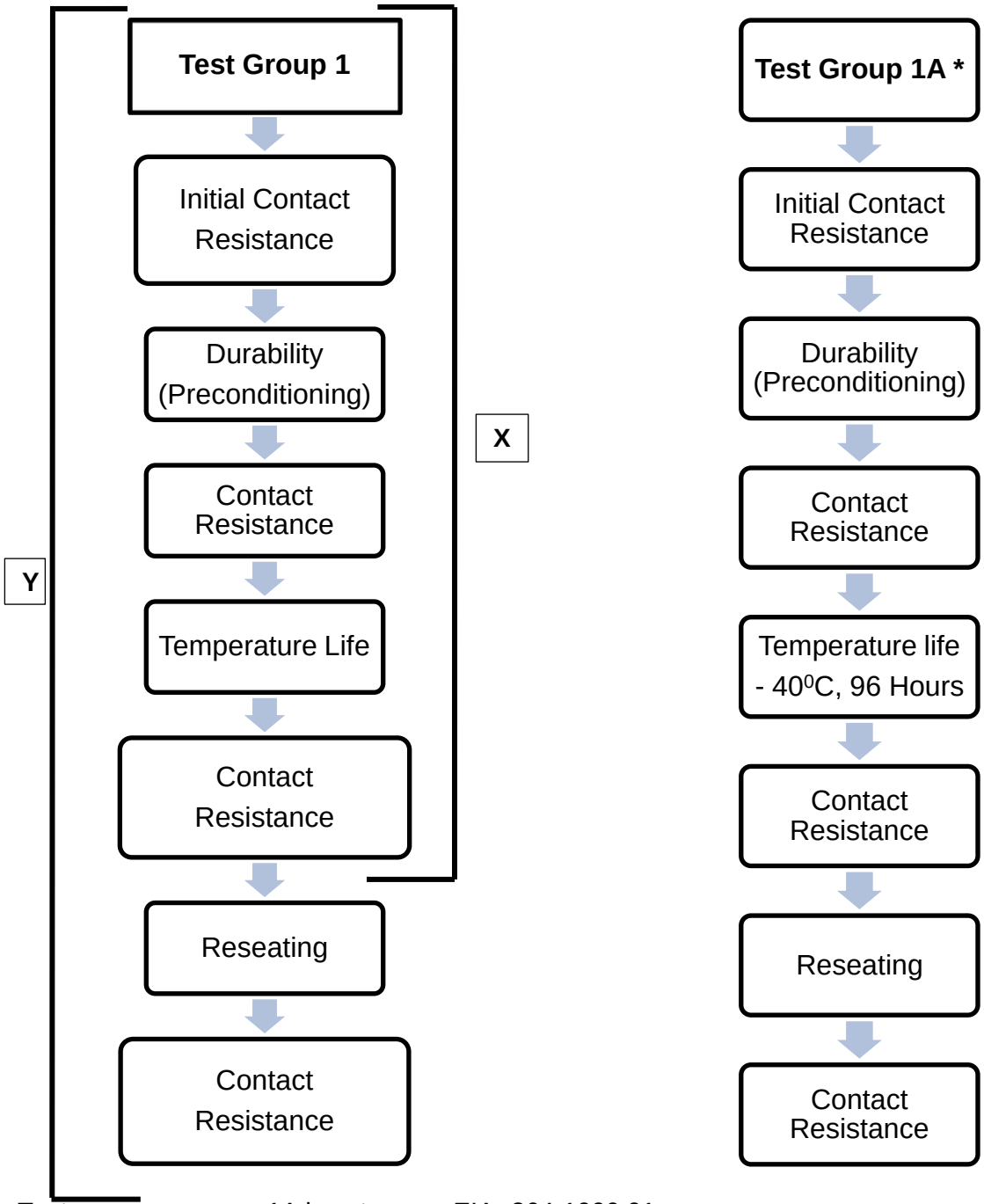
6.0 TESTS SEQUENCE GROUPS

Reliability Test Sequences Per 364-1000.01



*- Test sequence group 1A is not as per EIA -364-1000.01

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
C1	EC No: **167947** DATE: **10/11/2017**	**Test summary for Valuseal sealed connector system**	**8** of **10**

DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
1728770001-TS	**Muttanna B**	**Muttanna B**	**Ishwar G**

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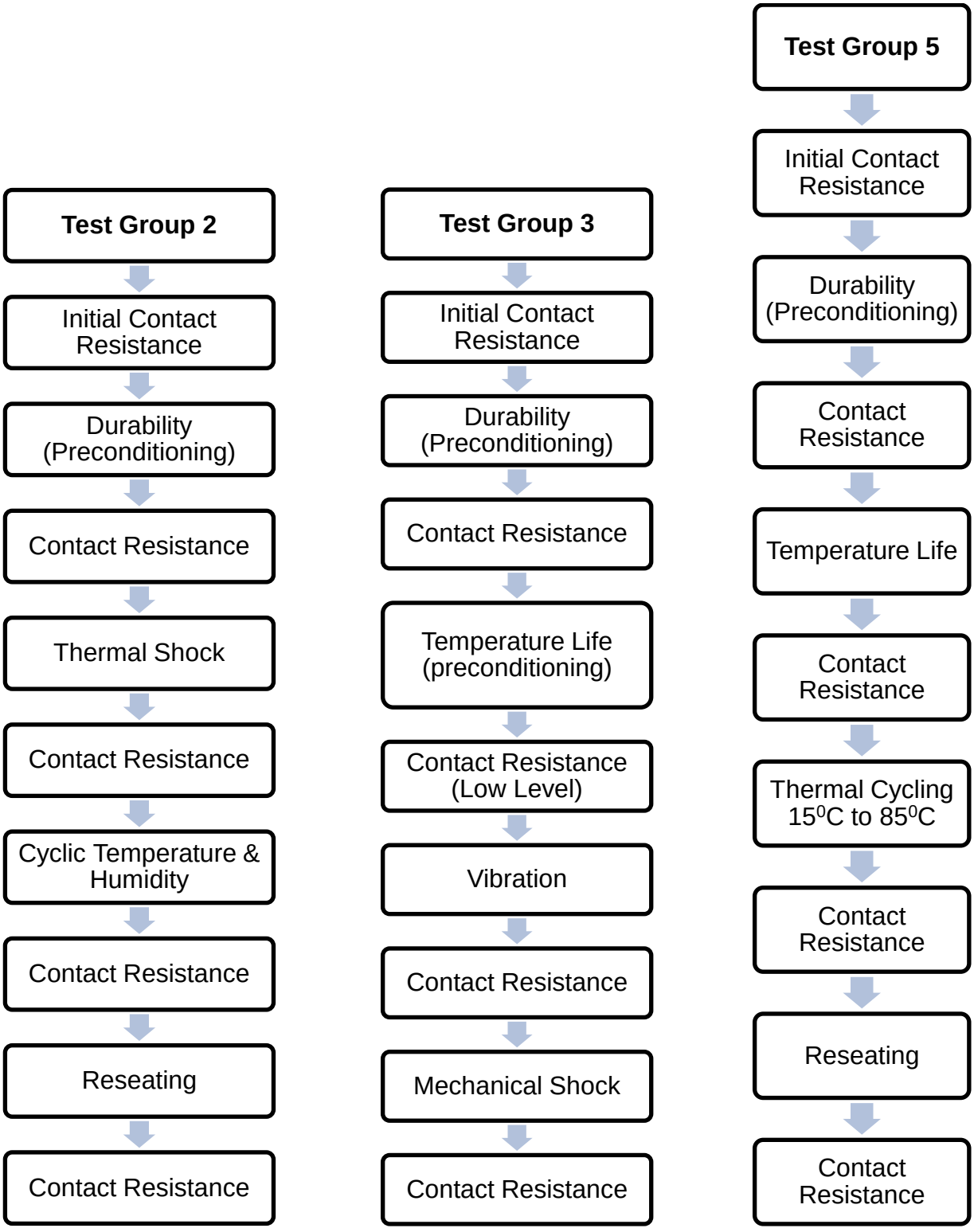
TEST SUMMARY



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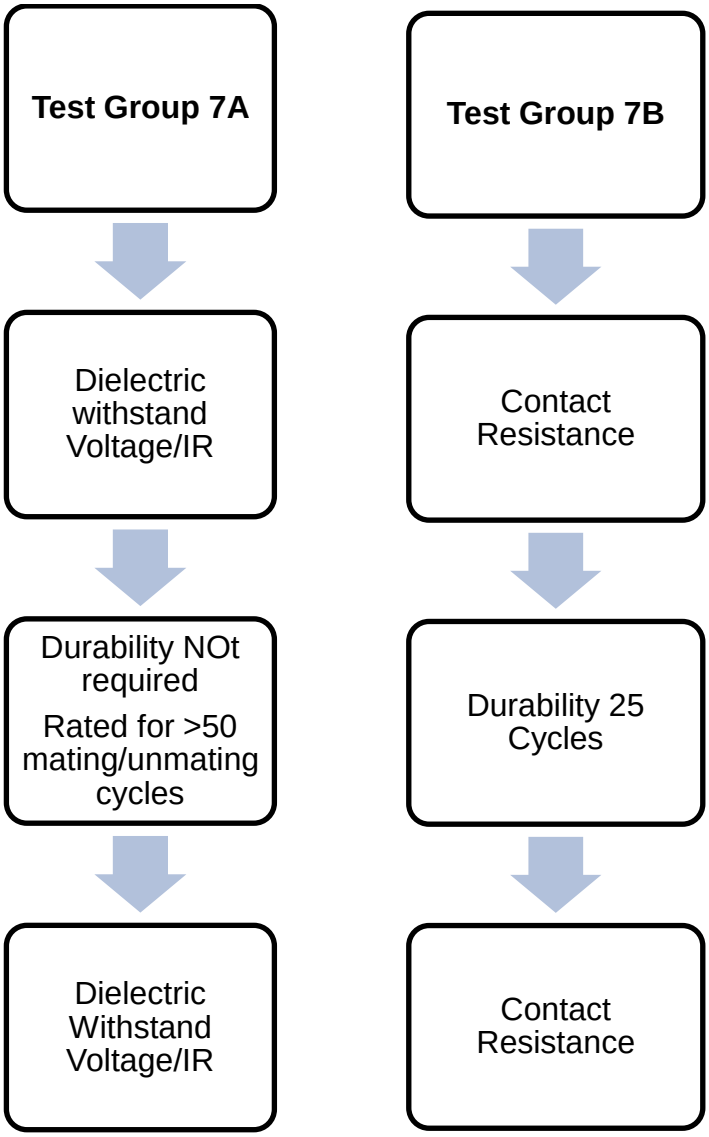

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