



TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 1 of 10

GT-25-109

Glenair GS22759 Low Fluoride, Normal-weight Qualification Test Report

Revision	Description of Changes	Date	Author
1	Initial Release	11/7/25	CJG

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TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 2 of 10

1.0 Scope

This report summarizes the test results of Glenair's GS22759-53 and GS22759-54 commercial equivalent wire to AS22759/53 and AS22759/54. All tests were performed according to AS22759 and QTP-1543.

2.0 Reference Documents

AS22759 Revision E	Wire, Electrical, Fluoropolymer-Insulated, Copper or Copper Alloy
AS4373 Revision F	Test Methods for Insulated Electric Wire
ASTM D3032 Revision 21A	Standard Test Methods for Hookup Wire Insulation
AS29606 Revision B	General Specification for Wire, Electrical, Stranded, Uninsulated Copper, Copper Alloy, or Aluminum, or Thermocouple Extension
AS5768 Revision C	General Specification for Tool, Stripper, Electrical Insulation
AS22759/53	Glenair AS22759/53 Wire, Electrical, Fluoropolymer-Insulated, Cross-linked Modified ETFE, Low Fluoride, Normal Weight, Silver-Coated High Strength Copper Alloy, 200°C, 600-Volt, RoHS
AS22759/54	Glenair AS22759/54 Wire, Electrical, Fluoropolymer-Insulated, Cross-linked Modified ETFE, Low Fluoride, Normal Weight, Silver-Coated Copper, 200°C, 600-Volt, RoHS



TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 3 of 10

3.0 Test Specimens

The part number and description of the wire tested are listed in Table I.

Table I

Part Number	Description
GS22759-53-XX-9	Glenair AS22759/53 XX AWG Wire, Silver-Coated High Strength Copper Alloy Conductor, Cross-Linked Modified ETFE Insulated, Low Fluoride, Normal Weight
GS22759-54-XX-9	Glenair AS22759/54 XX AWG Wire, Silver-Coated Copper Conductor, Cross-Linked Modified ETFE Insulated, Low Fluoride, Normal Weight

GS22759-53

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	PRELIMINARY	07/23/25	MAJ

PART NUMBER	WIRE SIZE	STRANDING (NUMBER OF STRANDS X SIZE GAGE OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (INCHES)		RESISTANCE AT 20°C (68°F) (OHMS/1000 FEET) (MAX)	DIAMETER (INCHES) (MAX)	WEIGHT (LB/1000 FEET) (MAX)
			(MIN)	(MAX)			
GS22759-53-30-A	30	7 X 38	.0105	.0124	117.4	.032 ± .002	1.0
GS22759-53-28-A	28	7 X 36	.0135	.0154	74.4	.035 ± .002	1.3
GS22759-53-26-A	26	19 X 38	.0175	.0204	44.8	.040 ± .002	1.7
GS22759-53-24-A	24	19 X 36	.0225	.0244	28.4	.045 ± .002	2.3
GS22759-53-22-A	22	19 X 34	.0285	.0314	17.5	.050 ± .002	3.3
GS22759-53-20-A	20	19 X 32	.0365	.0395	10.7	.058 ± .002	4.8

PART NUMBER DEVELOPMENT:

EXAMPLE: GS22759-53 - 24 - 9 0 1 2

BASIC NO. _____

WIRE SIZE _____

JACKET COLOR CODE _____

FIRST STRIPE COLOR CODE
(OMIT FOR NONE) _____

SECOND STRIPE COLOR CODE
(OMIT FOR NONE) _____

THIRD STRIPE COLOR CODE
(OMIT FOR NONE) _____

COLOR CODE	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE

NOTES: UNLESS OTHERWISE SPECIFIED

- WIRE IS MANUFACTURED TO MEET THE APPLICABLE REQUIREMENTS OF SAE-AS22759/53.
- MATERIALS:
 - CONDUCTOR: SILVER COATED HIGH STRENGTH COPPER ALLOY PER SAE-AS29606
 - INSULATION: CROSSLINKED MODIFIED ETFE (ETHYLENE-TETRAFLUOROETHYLENE), LOW FLUORIDE
- PERFORMANCE:
 - VOLTAGE RATING: 600 VRMS AT SEA LEVEL
 - TEMPERATURE RATING: 200°C (392°F) MAX CONTINUOUS
- COLOR CODE IN ACCORDANCE WITH MIL-STD-681.
- CONSULT FACTORY FOR CUSTOM STRIPE COLOR OPTIONS.
- CONSULT FACTORY FOR COMPLIANCE AND QUALIFICATION RESULTS.

UNLESS OTHERWISE SPECIFIED:		DRAWN: MAJ	07/23/25	GLENAIR, INC.		QID 199
DIMENSIONS ARE IN INCHES		CHECKED: JCV	07/23/25	1211 4TH WAY - GLENDALE - CALIFORNIA 91201		
TOLERANCES:		ENG'G: MAJ	07/23/25	MIL-STAR, AS22759/53 TYPE WIRE, SILVER COATED HIGH STRENGTH COPPER CONDUCTOR, CROSSLINKED MODIFIED ETFE INSULATED, LOW FLUORIDE, NORMAL WEIGHT, 600-VOLT, 200°C		
FRACTIONS	2 1/16	D. Brown		DATE: 07/23/25	SIZE: C	REV: 1
DECIMALS	.XX 2.030	D. Brown		06324	GS22759-53	
ANGLES	2 1/2°			SCALE: N/A	WEIGHT: N/A	SHEET: 1 OF 1
TO NEW SIZE: THIS DRAWING:		NEW REVISION: COMMERCIAL ITEM				

Figure 1 – Glenair AS22759/53 Wire Drawing GS22759-53

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TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 4 of 10

GS22759-54

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	PRELIMINARY	07/23/25	MMJ

PART NUMBER	WIRE SIZE	STRANDING (NUMBER OF STRANDS X SIZE GAGE OF STRANDS)	DIAMETER OF STRANDED CONDUCTOR (INCHES)		RESISTANCE AT 20°C (68°F) (OHMS/1000 FEET) (MAX)	DIAMETER (INCHES)		WEIGHT (LB/1000 FEET) (MAX)
			(MIN)	(MAX)		(MIN)	(MAX)	
GS22759-54-30-A	30	7 X 38	.0105	.0124	100.7	.032 ± .002		1.0
GS22759-54-28-A	28	7 X 36	.0135	.0154	74.4	.035 ± .002		1.3
GS22759-54-26-A	26	19 X 38	.0175	.0194	38.4	.040 ± .002		1.7
GS22759-54-24-A	24	19 X 36	.0225	.0244	24.3	.045 ± .002		2.3
GS22759-54-22-A	22	19 X 34	.0285	.0304	15.1	.050 ± .002		3.3
GS22759-54-20-A	20	19 X 32	.0365	.0384	9.19	.058 ± .002		4.7
GS22759-54-18-A	18	19 X 30	.0455	.0484	5.79	.070 ± .003		7.2
GS22759-54-16-A	16	19 X 29	.0515	.0544	4.52	.077 ± .003		9.0
GS22759-54-14-A	14	19 X 27	.0645	.0684	2.88	.094 ± .003		13.8
GS22759-54-12-A	12	37 X 28	.0835	.0874	1.90	.111 ± .003		20.5
GS22759-54-10-A	10	37 X 26	.106	.112	1.15	.134 ± .004		32.4

PART NUMBER DEVELOPMENT:

EXAMPLE: GS22759-54 - 24 - 9 0 1 2

BASIC NO. _____

WIRE SIZE _____

JACKET COLOR CODE _____

FIRST STRIPE COLOR CODE
(OMIT FOR NONE) _____

SECOND STRIPE COLOR CODE
(OMIT FOR NONE) _____

THIRD STRIPE COLOR CODE
(OMIT FOR NONE) _____

COLOR CODE	COLOR
0	BLACK
1	BROWN
2	RED
3	ORANGE
4	YELLOW
5	GREEN
6	BLUE
7	VIOLET
8	GRAY
9	WHITE

NOTES: UNLESS OTHERWISE SPECIFIED

1. WIRE IS MANUFACTURED TO MEET THE APPLICABLE REQUIREMENTS OF SAE-AS22759/54.
2. MATERIALS:
 - CONDUCTOR: SILVER COATED ANNEALED COPPER PER SAE-AS29606
 - INSULATION: CROSSLINKED MODIFIED ETFE (ETHYLENE-TETRAFLUOROETHYLENE), LOW FLUORIDE
3. PERFORMANCE:
 - VOLTAGE RATING: 600 VRMS AT SEA LEVEL
 - TEMPERATURE RATING: 200°C (392°F) MAX CONTINUOUS
4. COLOR CODE IN ACCORDANCE WITH MIL-STD-681.
5. CONSULT FACTORY FOR CUSTOM STRIPE COLOR OPTIONS.
6. CONSULT FACTORY FOR COMPLIANCE AND QUALIFICATION RESULTS.

UNLESS OTHERWISE SPECIFIED		DRAWN	MMJ	07/23/25	GLENAIR, INC. (3D 199) 1211 AIR WAY - GLENDALE - CALIFORNIA 91201			
DIMENSIONS ARE IN INCHES		CHECKED	JCV	07/23/25				
TOLERANCES:		FINISH	MMJ	07/23/25				
FRACTIONS	1/16			MIL-STAR, AS22759/54 TYPE WIRE, SILVER COATED COPPER CONDUCTOR, CROSSLINKED MODIFIED ETFE INSULATED, LOW FLUORIDE, NORMAL WEIGHT, 600-VOLT, 200°C				
DECIMALS	.XX							
ANGLES	1°							
DO NOT SCALE THIS DRAWING		DESIGN DATE	07/23/25	DATE TYPED	07/23/25	REV.		
R/P 25068/97	P/C N/A	NEW MATERIALS COMMERCIAL ITEM	SCALE	N/A	WEIGHT	N/A		
		06324		C	GS22759-54	1		
		SHEET		1 OF 1				

Figure 2 - Glenair AS22759/54 Wire Drawing GS22759-54



TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 5 of 10

4.0 Summary of Results

The test results are summarized in Table II.

Table II – Test List

Test	Specification	Test Requirement	Results	Pass
Materials	Section 5.1	Cross-linked Modified ETFE	Pass	X
Conductor Construction Prior to Insulation	Section 5.2.1	19 strands	Pass	X
Insulated Conductor Geometric Characteristics	AS4373 Method 401	20 AWG: 0.0365-0.0395" 16 AWG: 0.0515-0.0544"	20 AWG: 0.0371" 16 AWG: 0.0527"	X
Insulated Conductor Elongation	AS4373 Method 402	High Strength Elongation 6%, min.	20 AWG: 13.2%, 16 AWG: 16.1%	X
Insulation Construction and Mechanical Properties	AS22759 5.3.1.1	No cracks, splits, irregularities, or embedded foreign material at 2X magnification	Pass	X
Insulation Tensile and Elongation	AS4373 Method 705	Tensile strength: 5,000 psi Elongation: 75%	20 AWG: 8,321 psi / 168% 16 AWG: 6,696 psi / 223%	X
Fluoride Off-gassing	AS4373 Method 608	Maximum 20 PPM	20 AWG: 9.46 ppm, 16 AWG: 13.73 ppm,	X



TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 6 of 10

Insulation Proof Test	AS4373 Method 811	7 hours at 300°C ± 3°C DWV 2500 VDC, 60 seconds	Pass	X
Insulation Blocking	AS4373 Method 808	24 hours at 230°C ± 3°C	Pass	
Insulation Shrinkage	AS4373 Method 104	6 hours at 230°C ± 3°C 0.125" max. shrinkage	20 AWG: 0.0030" 16 AWG: 0.0050"	X
Insulation Layer Wicking	AS4373 Method 607	Wicking between the insulation layers shall not travel beyond dye length, 2.25" max	Pass	X
Wire Conductor Electrical Resistance	AS4373 Method 403	20 AWG: 10.7 Ω/1000 ft., max. 16 AWG: N/A	20 AWG: 8.8 Ω/1000 ft 16 AWG: 4.3 Ω/1000 ft	X
Wire Electrical Insulation Resistance	AS4373 Method 504	5000 MΩ-1000 ft., min.	20 AWG: 28,500 MΩ- 1000 ft 16 AWG: 50,000 MΩ- 1000 ft	X
Wire Electrical Surface Resistance	AS4373 Method 506	500 MΩ-inches, min. at 500 VDC	20 AWG: 2470 MΩ, min 16 AWG: 3340 MΩ, min	X
Electrical Dielectric Resistance - Wet Dielectric Voltage	AS4373 Method 510	2500 V (rms) at 60Hz, min.	Pass	X



TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 7 of 10

Wire Diameter	AS4373 Method 901	20 AWG: 0.058 ± 0.002" 16 AWG: 0.077 ± 0.003"	20 AWG: 0.0493" 16 AWG: 0.0663"	X
Wire Weight	AS4373 Method 902	20 AWG: 4.8 lbs./1000 ft, Max 16 AWG: 9.0 lbs./1000 ft, Max	20 AWG: 4.30 lbs/1000 ft 16 AWG: 4.80 lbs/1000 ft	X
Wire Insulation Stripping	AS5768/1 or AS5768/2, Examined per AS5768	Insulation readily removable without damage to the conductor	Pass	X
Workmanship	AS22759 5.5.6	No cracks, splits, irregularities, or embedded foreign material	Pass	X
Wire Identification Printed Marking and Location	AS22759 5.6.1	Marking intervals of 6 to 60 inches	Pass	X
Wire Color Designators and Munsell Limits	UV Munsell Color Limit Cards, MIL- STD-104	Visual inspection against Munsell color chart	Pass	X
Wire Identification Mark, Stripe, or Band Durability	AS4373 Method 710	125 cycles (250 strokes) with a 500-gram weight	6.000" Pass	X
UV Laser Marking	AS4373 Method 1001	70% minimum average	20 AWG: 80% 16 AWG: 77%	X



TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 8 of 10

Wrap Back Bend Mechanical Resistance for Extruded Insulation	AS4373 Method 708	2 hours at 313°C ± 3°C No cracking or splitting	Pass	X
Insulation Low Temperature Mechanical Resistance/ Cold Bend	AS4373 Method 702	4 hours at -65°C ± 3°C DWV 2500 V (rms) at 60 Hz	Pass	X
Insulation Thermal Shock Mechanical Resistance	AS4373 Method 805	-55°C ± 3°C to 200°C ± 3°C 0.060" max. shrinkage	20 AWG: 0.0040" 16 AWG: 0.0205"	X
Thermal Mechanical Resistance - Life Cycle	AS4373 Method 807	500 hours at 230°C ± 3°C DWV 2500 V (rms) at 60 Hz	Pass	X
Ambient Mechanical Resistance – Mandrel Bend Test	AS4373 Method 712	No observed cracks and no wet dielectric breakdown	Pass	X
Fluid Resistance - Immersion	AS4373 Method 601	Diameter increase 5% max. DWV 2500 V (rms) at 60 Hz	Pass	X
Humidity Resistance	AS4373 Method 603	5000 MΩ-1000 ft., min.	20 AWG: 995,948 MΩ-1000 ft 16 AWG: 102,000 MΩ-1000 ft Pass	X
Smoke Resistance	AS4373 Method 513	250°C ± 2°C No visible smoke	No Smoke	X
Flammability	AS4373 Method 801	Self-extinguishing flame within 3 seconds max. Flame travel 3" min.	20 AWG: <1 second, 1.720"	X

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TEST REPORT

November 7, 2025

GT-25-109

Revision 2

Page 9 of 10

			16 AWG: <1 second, 1.497"	
Abrasion Resistance – Needle	AS4373 Method 301	Samples size 8 readings 1,000 min cycles, 23 °C ± 2°C 500 min cycles, 70 °C ± 2°C 50 min cycles, 150°C ± 2°C	Pass	X
UV Laser Contrast Marking Resistance after Thermal Imaging	AS4373 Method 815	75% minimum average	20 AWG: 61% 16 AWG: 57%	X
Wet Arc Propagation Resistance	AS4373 Method 509	Minimum 70 wires pass wet dielectric test; 2 or less wires fail in one bundle; damage length: 1.0 inch or less	Pass	X
Dry Arc Propagation Resistance	AS4373 Method 508	Minimum 70 wires pass wet dielectric test; 2 or less wires fail in one bundle; damage length: 1.0 inch or less	Pass	X
Dynamic Cut-through Resistance	AS4373 Method 703	20 AWG: 25 lbs, 23 °C; 15 lbs, 70 °C; 5 lbs, 150 °C; 2 lbs, 200 °C 16 AWG: 35 lbs, 23 °C; 20 lbs, 70 °C; 6 lbs, 150 °C; 2 lbs, 200 °C	Pass	X



TEST REPORT

November 7, 2025
GT-25-109
Revision 2
Page 10 of 10

5.0 Conclusion

Glenair's GS22759-53-16 wire meets all performance requirements of AS22759/53 in 14-18 AWG range. Glenair's GS22759-54-20 wire meet all performance requirements of AS22759/53 and 54 in 20-26 AWG range. In some instances, the oven calibration was performed in accordance with ISO instead of ASTM Type II.

6.0 Appendix A