FEDERAL SUPPLY CLASS

RATIONALE

REVISION IS REQUIRED TO CORRECT THE ATTENUATION REQUIREMENT; IT SHOULD BE dB/100FT RATHER THAN dB/100M.

NOTICE

THE COMPLETE REQUIREMENTS FOR PROCURING THE PRODUCT DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF AS6070.

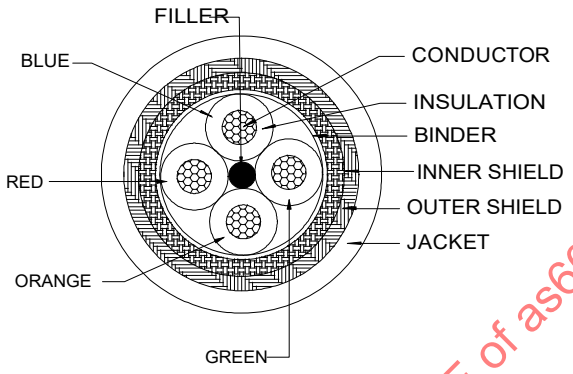


FIGURE 1 - QUAD CONFIGURATION (DESIGN SHOWN IS NOTATIONAL)

1.0 CONSTRUCTION DETAILS

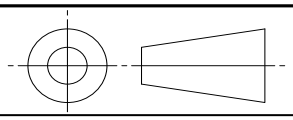
TABLE 1

COMPONENT	MATERIAL	REQUIREMENT
CONDUCTOR 1/	24 AWG -19X36 SILVER PLATED COPPER ALLOY	.0244 INCH MAXIMUM
INSULATION	FLUOROPOLYMER	.056 INCH ± .003 INCH
INSULATION COLOR	PAIR 1: RED AND GREEN OR WHITE/RED AND WHITE/GREEN	
	PAIR 2: BLUE AND ORANGE OR WHITE/BLUE AND WHITE/ORANGE	
BINDER	PTFE TAPE	
INNER SHIELD	FLAT SILVER PLATED COPPER	90% MINIMUM COVERAGE
OUTER SHIELD	ROUND SILVER PLATED COPPER	90% MINIMUM COVERAGE
JACKET	FEP	.200 INCH ± .005 INCH
COLOR	SEE TABLE 2	
FILLER	FLUOROPOLYMER	
CABLE WEIGHT	24 AWG	38.0 POUNDS/1000 FEET (MAXIMUM)

1/ CONDUCTOR SHALL BE IN ACCORDANCE WITH TYPE SCA OR SCA1 OF AS29606 TABLE 4C.

For more information on this standard, visit
https://www.sae.org/standards/content/AS6070/3B/

THIRD ANGLE PROJECTION



ISSUED 2015-01 REVISED 2022-06

CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: AS6070

SAE INTERNATIONAL

AEROSPACE STANDARD

CABLE, HIGH SPEED DATA QUAD,
24 AWG COPPER ALLOY,
110 OHM, 200 °C

AS6070™/3
SHEET 1 OF 4

REV. B

2.0 CABLE CONFIGURATION

CABLE CONSTRUCTION SHALL BE IN ACCORDANCE WITH TABLE 1. THE CABLE SHALL HAVE THE FOLLOWING OPERATING CHARACTERISTICS AND DESIGN REQUIREMENTS:

2.1	CONTINUOUS WORKING VOLTAGE:	60 V DC
2.2	OPERATING TEMPERATURE:	-55 °C MINIMUM TO +200 °C MAXIMUM
2.4	CONDUCTOR DCR (PRIOR TO INSULATING) @ 20 °C:	28.4 OHMS/1000 FEET MAXIMUM
2.5	CABLE MINIMUM BEND RADIUS:	2.0 INCHES

3.0 PERFORMANCE REQUIREMENTS PER AS6070 UNLESS OTHERWISE SPECIFIED

3.1 LIFE CYCLE

OVEN TEMPERATURE 200 °C: WIRE INSULATION SHALL NOT SHRINK MORE THAN .090 INCH AND JACKET INSULATION SHALL NOT SHRINK MORE THAN .150 INCH. NO MANDREL OR WEIGHTS ARE REQUIRED DURING THE LIFE CYCLE TEST. PERFORM THE BEND TEST AFTER OVEN AGING. JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS.

3.2 BEND

REQUIRED AFTER LIFE CYCLE AND FLUID IMMERSION. THE JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS. MANDREL SIZE: 10 TIMES THE CABLE DIAMETER (±10%) WEIGHTS: NONE. WRAP CABLE BY HAND AROUND MANDREL WITH SUFFICIENT TENSION TO HOLD CABLE FIRMLY AGAINST MANDREL.

3.3 BLOCKING

OVEN TEMPERATURE: 200 °C ± 5 °C; MANDREL SIZE: 10 TIMES CABLE DIAMETER (±10%). NO BLOCKING BETWEEN ADJACENT LAYERS ALLOWED. JACKET AND COMPONENT WIRES MEET DIELECTRIC WITHSTAND REQUIREMENTS.

3.4 COLD BEND

COLD CHAMBER TEMPERATURE: -55 °C ± 5 °C; MANDREL SIZE, 10 TIMES CABLE DIAMETER (±10%). NO CRACKING OF JACKET ALLOWED. JACKET AND COMPONENT WIRES MEET DIELECTRIC WITHSTAND REQUIREMENTS.

3.5 CONDUCTOR ELONGATION AND TENSILE BREAK STRENGTH PER AS29606, TABLE 4C

3.6 DRY DIELECTRIC WITHSTAND - COMPONENT WIRES

COMPONENT WIRES SHALL WITHSTAND 1000 V RMS FOR BOTH INITIAL QUALIFICATION AND QUALITY CONFORMANCE TESTING. THE WITHSTAND VOLTAGE SHALL BE APPLIED FOR 1 MINUTE WIRE TO WIRE AND WIRE TO SHIELD. NO SPECIAL PREPARATION OR CONDITIONS APPLY. THERE SHALL BE NO EVIDENCE OF DAMAGE TO WIRE PAIR INSULATION.

3.8 DIMENSIONAL

SEE TABLE 1.

3.9 FLAMMABILITY

MAXIMUM FLAME TRAVEL SHALL BE 3 INCHES, NO EVIDENCE OF FLAMING PARTICLES, AND FLAME EXTINGUISH TIME SHALL BE 5 SECONDS MAXIMUM.

3.10 FLUID IMMERSION

AFTER THE FLUID IMMERSION TEST, THE DIAMETER OF THE CABLE SHAL NOT CHANGE MORE THAN 5%. JACKET SHALL NOT CRACK. AFTER BEND TEST, THE JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS.

3.11 HUMIDITY RESISTANCE

FOLLOWING THE COMPLETION OF 15 CYCLES OF THE HUMIDITY TEST, THE CABLE SHALL MEET THE DRY DIELECTRIC REQUIREMENTS.

3.12 SPARK TEST ON PRIMARY WIRES

BEFORE SECONDARY PROCESSING, THE PRIMARY WIRES SHALL BE TESTED IN ACCORDANCE WITH AS4373, TEST METHOD 505, METHOD (1). THE SIGNAL AMPLITUDE AND FREQUENCY SHALL BE: 1500 V AND 3 KHz.

3.13 SPARK TEST ON FINISHED CABLE (SHIELD TO GROUND) (MANUFACTURING REQUIREMENT ONLY)

CABLE SHALL BE TESTED IN ACCORDANCE WITH AS4373, TEST METHOD 505. METHOD (1) THE INTERNAL AND OUTER SHIELDS SHALL BE ELECTRICALLY CONNECTED TOGETHER. THE SIGNAL AMPLITUDE AND FREQUENCY SHALL BE: 1500 V RMS AND 3 KHz.

3.14 SMOKE QUANTITY

MAXIMUM SPECIFIC OPTICAL DENSITY (DS) IS LESS THAN 50 AFTER 4.0 MINUTES.

3.15 THERMAL SHOCK RESISTANCE

OVEN TEMPERATURE: 200 °C ± 5 °C, THE PRIMARY WIRE ENDS SHALL NOT SHRINK OR EXPAND MORE THAN .25 INCHES AND THERE SHALL BE NO JACKET CRACKING. JACKET AND COMPONENT WIRES SHALL MEET DIELECTRIC WITHSTAND REQUIREMENTS.

3.16 WEIGHT

SEE TABLE 1.

3.17 WRINKLE

USING A MANDREL WITH THE RADIUS 10 TIMES THE CABLE DIAMETER (±10%), THE CABLE SHALL SHOW NO EVIDENCE OF CIRCUMFERENTIAL WRINKLES ON THE INNER RADIUS.

3.17 MUTUAL CAPACITANCE

CAPACITANCE SHALL BE 12.0 PICOFARAD/FOOT NOMINAL.

3.18 DIFFERENTIAL IMPEDANCE

IMPEDANCE SHALL BE 110 OHMS ± 15 OHMS.

3.19 ATTENUATION

FREQUENCY (MHz)	100	200	400	800
ATTENUATION (dB/100FT)	9.6	15.0	23.3	32.9

3.20 PROPAGATION DELAY

PROPAGATION DELAY SHALL BE ≤1.36 NANOSECONDS/FOOT.

3.21 PROPAGATION DELAY SKEW

PROPAGATION DELAY SKEW SHALL BE LESS THAN 200 PICOSECONDS/30 FEET.

3.22 VELOCITY OF PROPAGATION (SEE ASTM D4566, PHASE VELOCITY)

VELOCITY OF PROPAGATION SHALL NOT BE LESS THAN 75% (REFERENCE ONLY).

4.0 CABLE IDENTIFICATION

CABLE SHALL BE MARKED ON EITHER AN INTERNAL MARKER TAPE UNDER THE JACKET OR PRINTED ON THE JACKET SURFACE WITH A CONTRASTING INK COLOR. MINIMUM MARKINGS SHALL BE CABLE PART NUMBER, MANUFACTURER'S CAGE CODE, AND THE SYMBOLS "A - B" WITH THE MARKING ORIENTED SO THE A IS LOCATED TOWARDS THE END OF THE CABLE WHERE THE COLORS OF THE INNER CONDUCTORS IN A CLOCKWISE ROTATION ARE RED, ORANGE, GREEN, AND BLUE.

4.1 DURABILITY OF IDENTIFICATION

REQUIREMENT: THREE SPECIMENS SHALL BE TESTED IN ACCORDANCE WITH AND MEET THE REQUIREMENTS OF AS4373 METHOD 710, USING A WEIGHT .5 POUNDS AND 250 STROKES.