

REV.
B

AS6070™/1

FEDERAL SUPPLY CLASS
6145

RATIONALE

REVISION REQUIRED TO CLARIFY CABLE PERFORMANCE AND EXAMINATION AND TEST REQUIREMENTS, AND UPDATE ATTENUATION FACTOR.

NOTICE

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

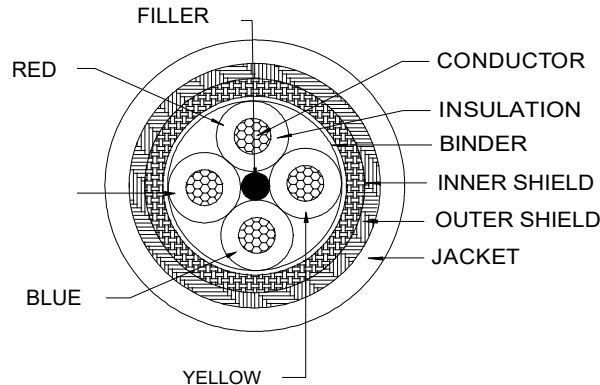


FIGURE 1 - QUAD CONFIGURATION. (DESIGN SHOWN IS NOTIONAL)

1.0 CONSTRUCTION DETAILS

TABLE 1- CONSTRUCTION DETAILS

COMPONENT	MATERIAL	REQUIREMENT
CONDUCTOR 1/	24 AWG-19X36 SILVER PLATED COPPER ALLOY	.572 MM (.0225 IN) MIN/.645 MM (.0254 IN) MAX
	26 AWG 19X38 SILVER PLATED COPPER ALLOY	.444 MM (.0175 IN) MIN/.518 MM (.0204 IN) MAX
INSULATION	FLUOROPOLYMER 24 AWG 26 AWG	1.17 MM ±.075 MM (.046 IN ± .003 IN) 1.041 MM MAX (.041 IN MAX)
INSULATED CONDUCTOR COLOR	PAIR 1: RED AND BLUE OR WHITE/RED AND WHITE/BLUE 2/ PAIR 2: YELLOW AND GREEN OR WHITE/YELLOW AND WHITE/GREEN 2/	
BINDER	PTFE TAPE	
INNER SHIELD	FLAT OR ROUND SILVER PLATED COPPER BRAID	92% MINIMUM COVERAGE
OUTER SHIELD	ROUND SILVER PLATED COPPER BRAID	85% MINIMUM COVERAGE
JACKET	FEP, OR PTFE 24 AWG 26 AWG	4.32 MM MAX (.170 IN MAX) 3.76 MM MAX (.148 IN MAX)
COLOR	SEE TABLE 3	
FILLER	FLUOROPOLYMER	
CABLE WEIGHT	24 AWG	38.7 KG/KM (26.0 LBS./1000 FT) MAX
	26 AWG	29.8 KG/KM (20.0 LBS./1000 FT) MAX

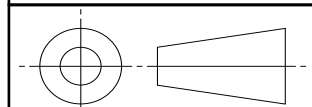
1/ SIZES 24 AND 26 CONDUCTOR SHALL BE IN ACCORDANCE WITH TYPE SCA OF AS29606 TABLE 4C OR 5C.

2/ PAIRS CONTAINING SOLID WHITE WIRE NOT FOR U.S. DEPARTMENT OF DEFENSE (NAVY) USE.

For more information on this standard, visit

<https://www.sae.org/standards/content/AS6070/1B/>

THIRD ANGLE PROJECTION



CUSTODIAN: AE-8/AE-8D

PROCUREMENT SPECIFICATION: AS6070



AEROSPACE STANDARD

(R) CABLE, HIGH SPEED DATA QUAD,
COPPER ALLOY, 100 OHM, 200 °C,
ETHERNET 10/100 BASE T

AS6070™/1
SHEET 1 OF 5

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

- 2.1 CONTINUOUS WORKING VOLTAGE: 60 VDC
- 2.2 OPERATING FREQUENCY: 1 TO 100 MHz
- 2.3 OPERATING TEMP RANGE: -55 TO +200 °C (-67 TO +392 °F)
- 2.4 CONDUCTOR DCR (PRIOR TO INSULATING) @ 20 °C: 24 AWG - 93.2 OHMS/KM (28.4 OHMS/1000 FEET) MAXIMUM
26 AWG - 147 OHMS/KM (44.8 OHMS/1000 FEET) MAXIMUM
- 2.5 CABLE MINIMUM BEND RADIUS: 24 AWG = 43.2 MM (1.70 INCHES) (10 TIMES CABLE DIAMETER)
26 AWG - 37.6 MM (1.48 INCHES) (10 TIMES CABLE DIAMETER)
- 2.6 MAXIMUM CABLE LENGTH RATING:
24 AWG - 73 M (240 FEET)
26 AWG - 61 M (200 FEET)

NOTE: THESE ARE THE RECOMMENDED MAXIMUM CABLE LENGTHS. CABLE LENGTHS THAT EXTEND BEYOND THESE LENGTHS RUN THE RISK OF DIMINISHED PERFORMANCE. TRANSMISSIONS ERRORS ALSO BECOME MORE LIKELY AS CABLE LENGTH EXTENDS BEYOND THE MAXIMUM. IF SYSTEM LENGTHS BEYOND THESE MAXIMUM LENGTHS ARE REQUIRED, CONSIDER ADDING REPEATER DEVICES.

3.0 PERFORMANCE REQUIREMENTS IN ACCORDANCE WITH TABLE 2 AND AS6070 UNLESS OTHERWISE SPECIFIED:

TABLE 2 - PERFORMANCE AND TESTING REQUIREMENTS

TEST	APPLICABLE	N/A	REQUIREMENT	ADDITIONAL TEST DETAILS
ATTENUATION <u>3/</u> <u>4/</u> <u>5/</u>	X		FREQUENCIES FROM 1 TO 100 MHz $1.967 \times \sqrt{f} + .023 \times f + 0.050 / \sqrt{f}$ (f in MHz) (MAXIMUM)	CONDUCT TEST PER SECTION 24 OF ASTM D4566, AND SCALE RESULTS TO THE MAX CABLE LENGTH RATING (SEE 2.6). VERIFY ATTENUATION AT 20 °C, 40 °C, AND 60 °C. TESTS AT 40 °C AND 60 °C ARE FOR INITIAL QUALIFICATION ONLY, AND RESULTS SHALL BE ADJUSTED USING A FACTOR OF 0.2% PER °C. ABOVE 20 °C
CHARACTERISTIC IMPEDANCE		X	—	—
DIFFERENTIAL IMPEDANCE	X		100 OHMS ± 15 OHMS	NONE
CAPACITANCE, MUTUAL		X	—	—
CAPACITANCE, UNBALANCE (PR-GROUND)		X	—	—
DCR UNBALANCE		X	—	—
NEXT <u>3/</u> <u>4/</u> <u>5/</u>	X		FREQUENCIES FROM 1 TO 100 MHz $35.3 - 15 \log(f / 100)$ dB (f in MHz) (MINIMUM)	CONDUCT TEST PER SECTION 25 OF ASTM D4566, AND SCALE RESULTS TO THE 100-M (328-FOOT) CABLE LENGTH.
NEXT ON MANDREL <u>3/</u> <u>4/</u> <u>5/</u>	X		FREQUENCIES FROM 1 TO 100 MHz $35.3 - 15 \log(f / 100)$ dB (f in MHz) (MIN)	CONDUCT TEST PER SECTION 25 OF ASTM D4566, AND SCALE RESULTS TO THE 100-M (328-FOOT) CABLE LENGTH. SEE AS6070 FOR CABLE WRAP DETAILS.
PS-NEXT		X	—	—
ACR-F		X	—	—
PSACR-F		X	—	—
RETURN LOSS (RL) <u>3/</u> <u>4/</u> <u>5/</u>	X		FREQ. (f) in MHz RL (dB) (MIN) $1 \leq f < 10$ $20 + 5 \log(f)$ $10 \leq f < 20$ 25 $20 \leq f < 100$ $25 - 8.6 \log(f / 20)$	CONDUCT TEST PER SECTION 50 OF ASTM D4566, AND SCALE RESULTS TO THE 100-M (328-FOOT) CABLE LENGTH.
PROPAGATION DELAY		X	—	—
PROPAGATION DELAY SKEW		X	—	—
VELOCITY OF PROPAGATION	X		75% AT 31.25 MHz (REF ONLY)	NONE
DIELECTRIC WITHSTAND-DRY	X		NO WIRE INSULATION DAMAGE	1000 V RMS FOR 1 MINUTE; TEST CONDUCTOR-CONDUCTOR AND CONDUCTOR-SHIELD

	AEROSPACE STANDARD	AS6070™/1 SHEET 2 OF 5	REV. B
	(R) CABLE, HIGH SPEED DATA QUAD COPPER ALLOY, 100 OHM, 200 °C, ETHERNET 10/100 BASE T		



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