

Panasonic Avionics Corporation

Bothell Document Control Release

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**USB General Hook-up Cable
Source Control Drawing**

Document No: MA-WI0021

- NOTICE -

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REVISION HISTORY

Rev	Date	Reason For Revision	Prepared By	Checked By	Approved By	QA
NEW	2/11/08	Original Release	L. Keleher	B. Thorp	D. Shults	N/A
A	3/31/08	Revised Section 3: Bend Radius and Overall Diameter Table 7-1: Added Approved Suppliers	B. Collins	<i>B. Collins</i> 3/31/08	<i>D. SHULTS</i> 4/1/08	N/A

1 SCOPE

This specification establishes the manufacturing requirements for a USB general hook-up cable for use in a commercial avionics application. It shall be used when specified on engineering drawings or other engineering authorities.

Items described in this drawing shall meet or exceed requirements approved for use in the application(s) specified herein. A substitute item shall not be used without prior approval by the qualifying activity.

2 APPLICABLE DOCUMENTS

EN3042	Aerospace Series – Quality Assurance EN Aerospace- Qualification Procedure.
EN3475	Aerospace Series – Cable, Electrical, for Digital Data Transmission.
ABD0031	Fireworthiness Requirements - Pressurized Section of Fuselage
MIL-STD-1916	DOD preferred methods for Acceptance of Product
CFR 14 part 25	Airworthiness Standards: Transport Category Airplanes

Panasonic Avionics Corporation
BL-QOP-13-01 Operating Procedure, Control of Non-conforming Product

NOTE: This document shall take precedence if/when there is a conflict between it and any of the above referenced documents.

3 GENERAL REQUIREMENTS

The composite cable shall be made from the following components:

COMPONENT #1 (Data):

One (1) 26AWG pair, 19 strand, silver coated copper alloy, with PTFE insulation.

Shield: None.

Conductor Color(s): White, Green (White wire with colored stripe is acceptable)

Electrical Characteristics:

Differential Impedance: 90±15 ohms

Capacitance (nom): 18 pF/ft.

Cable Time Delay (max): 26ns/5m

Attenuation (max) at 25°C:

2.0 dB/5m @ 100MHz

3.2 dB/5m @ 200MHz

5.8 dB/5m @ 400MHz

COMPONENT #2 (Power):

Two (2) Individual 22AWG, 19 strand, silver coated copper, with PTFE insulation.

Shield: None.

Conductor Colors: Black, Red (White wires with colored stripes are acceptable)

Overall Conductor with Insulation O.D. (Max): .040"

Voltage Rating (Min): 100VRMS

Dielectric Withstanding Voltage (Min): 1.0kV RMS

OVERALL CABLE:

Finished Cable Filler(s) and/or Binder(s): as required (finished cable must be round).

Overall Shield: Round, 38AWG, tin coated copper braid, 85% minimum coverage
(Lowest Possible Braid Angle, for ease of folding back braid)

Overall Jacket: See table 6. Must meet requirements of ABD0031 and FAR 25.853.

Jacket O.D.: .155" (max)

Jacket Color: Black

Jacket Material: Extruded Fluorinated Ethylene Propylene (FEP)

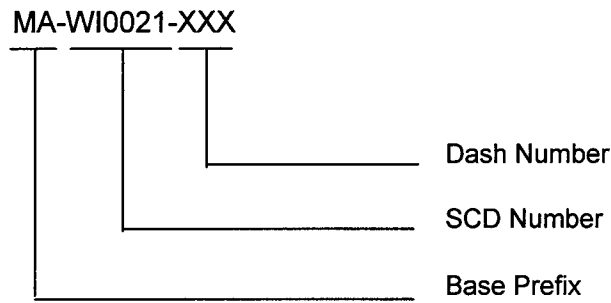
Bend Radius: .93" (Min)

Weight: 21.0lbs/1000ft (max)

- 3.1 All cable produced shall be free of visual defects; non conforming products shall be handled per Panasonic Avionics Corporation BL-QOP-13-01.

4 PART NUMBER EXPLANATION

- 4.1 The following is an explanation of the part numbering structure. All approved parts shall be identified per the following part numbering convention:



5 PART MARKING REQUIREMENTS

- 5.1 The cable shall be identified with Panasonic Avionics Corporation's part number and cage code. . . Additionally, the cable shall be identified with Manufacturers' name, part number and cage code clearly and permanently marked on an internal marker tape. Markings shall be placed at sufficient intervals to view information; at least every 1' of cable and with a distinguishing space between Panasonic Avionics Corporation's and Manufacturers' data.

Example:

Panasonic Avionics Corporation Part#

Panasonic Avionics Corporation Cage Code (0FF57)

Mfg Name

Mfg Part #

Mfg Cage Code

6 TEST REQUIREMENTS

Testing shall be conducted per procedures indicated in Table 6.

TABLE 6
TEST PROCEDURES

TEST	REQUIREMENTS FOR DATA COMPONENTS	REQUIREMENTS FOR CABLE JACKET	EN3475 (Airbus)
Operating Temp	-55°C to +125°C	-30°C to +105°C	N/A
Voltage Proof	DC: 1kV (1min) or 2.5kV (2s) AC: 700V (1min) or 1.7kV (2s)	N/A	302
Scrape Abrasion	N/A	F=1daN T=23°C	503
Cable-to-Cable Abrasion	N/A	N/A	511
Dry Arc Tracking			604
Wet Short Circuit			605
Flammability	Burn Length <76mm After Flame Time < 30s AFT of drips < 3s	Burn Length <76mm After Flame Time < 30s AFT of drips < 3s	AITM Test 2.0005
Smoke Density	T=4min Dm ≤ 200	T=4min Dm ≤ 200	AITM Test 2.0008B
Toxicity	T=4min	T=4min	AITM Test 3.0005

- 6.1 **All products supplied under this specification shall be tested and pass all the requirements specified herein. Following approval, the properties and methods of manufacturing shall not be changed without written approval from Panasonic Avionics Corporation.**
- 6.2 The supplier is responsible for the performance of all testing and inspection requirements as specified herein. Panasonic Avionics Corporation reserves the right to perform tests or inspections to verify that the product complies with the requirements of this specification.
- 6.3 For sampling purposes, a lot shall consist of a quantity of the product, defined within this specification, of each size and type produced in one manufacturing cycle, under substantially identical conditions.
- 6.4 The product(s) shall be sampled in accordance with MIL-STD-1916.
- 6.5 Qualification Tests are those tests required by Panasonic Avionics Corporation to validate that the product meets or exceeds all requirements stated by this specification and is acceptable for addition to the Approved Sources of Supply.
- 6.6 Production Tests are those tests that shall be conducted by the manufacturer to assure conformity to the requirements of this specification and enable the manufacturer to certify the quality of its product and present to Panasonic Avionics Corporation.
- 6.7 The supplier shall submit Production and Qualification Test Procedures for Panasonic Avionics Corporation approval prior to any acceptance or qualification testing. Procedures shall include drawings or photographs of test setups, a list of equipment used and data sheets that include certifications for test equipment calibration.
- 6.8 Supplier shall submit test reports with quantitative results of production tests and inspections performed for each shipment. The test report shall identify the lot tested and the corresponding purchase order. Test records shall be retained for a minimum of one year and shall be made available to Panasonic Avionics Corporation upon request.
- 6.9 Panasonic Avionics Corporation may require the supplier to furnish flammability, smoke density, and toxicity tests. Tests shall be witnessed by an FAA Certified Flammability DER. Panasonic Avionics Corporation will recommend a Certified DER if required. A report of flammability, smoke density, and toxicity test results shall be provided for approval by Panasonic Avionics Corporation.

7 PROCUREMENT

- 7.1 Procurement of this product shall be per the current revision of this document and the approved sources of supply as indicated below in Table 7-1.
- 7.2 Identification of the approved source(s) of supply herein is not to be construed as a guarantee of present or continued availability of a source of supply for the item described on the drawing.

Table 7-1

Dash Number	Vendor	Cage Code	Vendor Part Number	Item Identification
-001	Tensolite	92607	NF26/22USB	MA-WI0021-001
	Thermax	12814	MX90Q-26/22-27A	