D-621 Series Connections for Coaxial, Triaxial and Twinaxial Cables

1.0 Introduction

1.2 Scope This specification covers the design, performance and qualification requirements for Raychem D-621 connectors suitable for use with coaxial, triaxial and twinaxial cable. This specification forms a part of Master Specification D-6029 for the Raychem Integrated Data Network System.

1.2 Description Raychem D-621 connectors covered by this specification are used to interconnect coaxial, triaxial and twinaxial cables. The connectors consist of plugs and jacks each designed to accommodate a variety of SolderTact* contacts. Coupling is accomplished either by bayonet or threaded coupling nuts.

1.3 Classification. Connectors covered by this specification are classified in accordance with 1.3.1.

1.3.1 Connectors

a. Series:
- B: Bayonet Coupled
- T: Threaded Coupling

b. Types:

Plugs:
- Cable mounting

Jacks
- Cable mounting
- Panel mounting (up to 0.125 inch thick)
- Bulkhead mounting (up to 0.5 inch thick)

c. Classes:
- Non-sealed
- Environment resistant
- Environment resistant, pressure maintaining

d. Plating:
- Electroless nickel (conductive)
- Tin Plated (for 500 hour salt spray resistance)

1.4 Temperature Range. Connectors covered by this specification are suitable for use over the temperature range -65° to 125°C. Operating temperature is the maximum temperature reached by any point of the connector as a result of electrical current flow and ambient temperature.

1.5 Units. SI units in parentheses are for information only.

*SolderTacts is a trademark of Raychem Corporation.

2. Applicable Documents

2.1 Issues of Documents. The following documents, of the issue in effect on date of order or request for proposal, form a part of this specification to the extent specified herein. However, this specification takes precedence over the referenced documents.

Specifications

Raychem

D-6029	General Requirements for Integrated Data Network Systems

NASA

SP-R-0022A	Vacuum Stability Requirements of Polymeric Material for Spacecraft Application

U.S. Federal

QQ-P-35	Passivation Treatments for Corrosion-Resisting Steel
QQ-C-530	Copper-Beryllium Alloy Bar, Rod, and Wire (Copper Alloy Numbers 172 and 173)
QQ-S-571	Solder, Tin Alloy: Tin-Lead Alloy; and Lead Alloy
QQ-B-613	Brass, Leaded and Nonleaded: Flat Products (Plate, Bar, Sheet, and Strip)
QQ-B-750	Bronze, Phosphor; Bar, Plate, Rod, Sheet, Strip, Flat Wire, and Structural and Special Shaped Sections
QQ-S-763	Steel Bars, Wire, Shapes, and Forgings, Corrosion-Resisting

U.S. Military

MIL-F-14256	Flux, Soldering, Liquid (Rosin Base)
MIL-F-18240	Fastener, Externally Threaded, 250°F, Self-Locking Element For
MIL-C-26074	Coatings, Electroless Nickel, Requirements For
MIL-C-49142	Connectors, Plugs and Receptacles, Electrical, Triaxial, Radio Frequency

U.S. Federal

FED-STD-H28	Screw-Thread Standards for Federal Services

U.S. Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-202	Test Methods for Electronic and Electrical Component Parts
MIL-STD-454	Standard General Requirements for Electronic Equipment
MIL-STD-8110	Environmental Test Methods
MIL-STD-1344	Test Methods for Electrical Connectors
MIL-STD-45662	Calibration Systems Requirements

American Society for Testing and Materials (ASTM)

A 484	General Requirements for Stainless and Heat-Resisting Wrought Steel Products (Except Wire)
A 582	Free-Machining Stainless and Heat-Resisting Steel Bars, Hot-Rolled or Cold Finished

3. Requirements

3.1 Specification Control Drawings (SCD). The requirements for connectors under this specification shall be as specified herein and in the applicable specification control drawing (SCD). In the event of conflict between the requirements of this specification and those of the specification control drawing, the latter shall govern.

3.2 Classification of Requirements. The requirements for the connectors are classified herein as follows:

Requirement	Paragraph
Qualification	3.3
Materials	3.4
Design and Construction	3.5
Performance	3.6
Identification	3.7
Workmanship	3.8

3.3 Qualification. Connectors furnished under this specification or listed on Qualified Products List D-6025-QPL shall be products which are qualified to this specification in accordance with the requirements of Specification D-6029.

3.4 Materials Requirements. All materials used in the manufacture of these connectors shall be of the quality and form best suited for the purpose intended.

3.4.1 Dissimilar Materials. When dissimilar metals are used in intimate contact with each other, protection against electrolytic corrosion shall be provided as specified in Requirement 16 of MIL-STD-454.

3.4.2 Fungus Resistance. Finishes and materials shall be fungus-inert in accordance with Requirement 4 of MIL-STD-454 and encompassing the fungus species listed in MIL-STD-810, Method 508.

3.4.3 Hydrolytic Stability. All nonmetallic materials shall be selected to meet the hydrolytic reversion resistance requirements specified in Requirement 47 of MIL-STD-454.

3.4.4 Vacuum Stability. Connector assemblies shall meet the vacuum stability requirements of NASA Specification SP-R-0022A.

3.4.5 Component Materials. Materials for specific components of the connector shall be as follows and as defined in the SCD.

3.4.5.2 Solder. Solder shall be Sn63 per QQ-S-571 and applicable SCD.

3.4.5.3 Connetor Body. Connector bodies, including coupling nuts, shall be beryllium copper per QQ-C-530 or QQ-C-533 or brass alloy per QQ-B-626. Finish shall be in accordance with 3.4.5.3.1 or 3.4.5.3.2.

3.4.5.3.1 Electroless Nickel. Electroless nickel (conductive) shell conductive finish shall be in accordance with MIL-C-26074.

3.4.5.3.2 Tin Plating. Tin Plating shell finish shall be in accordance with MIL-T-10727 over a suitable underplate to withstand the 500-hour salt spray test.

3.4.5.4 Mounting and Mating Hardware. Mounting and mating hardware shall be brass alloy per QQ-B-626, beryllium copper per QQ-C-533, or stainless steel per QQ-S-763, ASTM A484 or ASTM A582. Hardware shall be plated as defined on the SCD.

3.4.5.5 Elastomeric Seals. Elastomeric seals shall be resilient dielectric material per the applicable SCD.

3.4.5.6 Connector Inserts. Connector inserts shall be rigid thermoplastic dielectric material per the applicable specification control drawing.

3.4.5.7 Shield Terminators. Terminator bodies shall be brass alloy per QQ- B-626 or QQ-B-613. Terminator bodies shall be tin-lead plated per MIL-P-81728. Terminator insulation and cable support shall be polyvinylidene fluoride tubing.

3.5 Design and Construction Requirements. Connectors shall be designed and constructed to withstand handling during installation and maintenance. Complete connectors shall consist of a plug or jack body with removable pin or socket contacts and mounting/mating hardware.

3.5.1 Connector Bodies. Plug and jack bodies shall meet the following requirements:

3.5.1.1 Coupling. Coupling between mating connectors shall be accomplished by means of either bayonet or threaded coupling nuts. Bayonet coupling hardware shall be provided in four interface configurations.

3.5.1.2 Polarization. Connector body polarization shall prevent the mating of plug and receptacle shells if the connectors are not in the correct mating position.

3.5.1.3 Connector Keying. Bayonet keying shall prevent the mating of any plug and jack with dissimilar interfaces. Connector keying shall occur before engagement of contacts.

3.5.1.4 Mounting Hardware. Mounting hardware shall be provided with each connector jack. Mounting hardware screw threads shall conform to FED-STD-H28.

3.5.2 SolderTacts Contacts. SolderTacts contacts shall be designed to withstand termination and repeated mating and unmating of connectors. Mating surfaces shall be smooth and uniform and shall provide a wiping action during mating. Contacts shall meet the requirements of the applicable SCD and the performance requirements of this specification when installed in suitable connector bodies.

3.5.3 Interfacial Seal. The elastomeric interfacial seal shall be designed to eliminate leakage paths between contacts and the shell when the connector is fully mated. The interfacial seal shall be permanently bonded to the mating face of the plug body.

3.5.4 Interchangeability. All components having the same part number shall be completely interchangeable with each other in regard to installation and performance.

3.5.5 Intermateability. All plug and jack connectors of the same series and interface configuration and containing the appropriate contacts combinations shall mate with each other.

3.6 Performance Requirements. Connector components and assemblies shall conform to the requirements specified herein and on the applicable specification control drawings. Unless otherwise specified, room temperature shall be 25 ± 5°C. Values given as "after conditioning" values refer to requirements after any of the environmental exposures of Table III.

3.6.1 Coupling Forces

3.6.1.1 Coupling Torque. When tested as specified in 4.7.2.1, the torque necessary to complete couple or uncouple connectors shall not exceed 5.0 inch-pounds for bayonet coupled connectors and 10.0 inch pounds for threaded coupled connectors. After salt spray testing in accordance with 4.7.7.2, the coupling torque for bayonet series connectors shall not exceed 7.5 inch-pounds.

3.6.1.2 Coupling Force. The coupling force is the longitudinal force necessary to initiate the engaging or complete the disengaging cycle. When tested in accordance with 4.7.2.2 the coupling force shall not exceed 10.0 pounds.

3.6.2 Mating Characteristics. When connectors are tested as specified in 4.7.3, the mating dimensions shall be gaged and the dimensions shall remain within the tolerance specified on the applicable SCD.

3.6.3 Permeability of Nonmagnetic Materials. When connectors are tested as specified in 4.7.4, the relative permeability (mu) shall be less than 2.0.

3.6.4 Insulation Resistance. When connectors are tested as specified in 4.7.5, the insulation resistance shall not be less than 5000 megohms.

3.6.5 Contact Retention. When tested per 4.7.6, the SolderTacts contact shall withstand the specified retention force. Axial movement of contact under load shall be within the mating distance tolerance specified in the detail SCD.

3.6.6 Salt Spray. Terminated, mated connectors shall be tested as specified in 4.7.7.1 for nickel plated connectors and 4.7.7.2 for tin plated connectors. Following the test, there shall be no evidence of damage detrimental to performance.

3.6.7 Dielectric Withstanding Voltage. When connectors are tested as specified in 4.7.8, there shall be no evidence of dielectric breakdown.

3.6.8 Vibration. When cabled connectors are tested in accordance with 4.7.9 there shall be no electrical discontinuities longer than one microsecond. There shall be no evidence of mechanical damage or loosening of parts during or after the vibration exposures.

3.6.9 Shock (Specified Pulse). When the cabled connectors are tested as specified in 4.7.10, there shall be no electrical discontinuities longer than one microsecond. There shall be no evidence of mechanical damage or loosening of parts during or after the test.

3.6.10 Thermal Shock. When connectors are tested as specified in 4.7.11 there shall be no evidence of mechanical damage to the connector.

3.6.11 Humidity. Mated connectors shall be tested as specified in 4.7.12 and there shall be no evidence of damage. Insulation resistance measured in high humidity shall be not less than 100 megohms, after two hours drying not less than 1000 megohms and after twenty-four hours drying not less than 5000 megohms.

3.6.12 Contact Resistance. When connectors are tested as specified in 4.7.13, the contact resistance of mated connector bodies of the connector shell shall not exceed 8 milliohms. The contact resistance of SolderTacts contacts shall not exceed the values specified on the applicable SCD.

3.6.13 Cable Retention Force. Connectors shall withstand a minimum of 25 pounds tensile load when tested as specified in 4.7.14 and there shall be no evidence of mechanical failure or loosening of parts.

3.6.14 Coupling Mechanism Retention Force. When tested as specified in 4.7.15, the coupling mechanism shall not become dislodged from the connector.

3.6.15 Connector Durability. When connectors are tested as specified in 4.7.16, they shall show no evidence of mechanical damage and the coupling de- vice shall remain functional.

3.6.16 Contact Engagement and Separation Force. When tested as specified in 4.7.18, the contact engagement and separation force shall not exceed the values specified on the SCD.

3.6.17 Altitude Immersion. When tested in accordance with 4.7.17, the mated connectors shall meet the requirements of insulation resistance and dielectric withstanding voltage as specified in 3.6.4 and 3.6.7 while still immersed.

3.6.18 Air Leakage. When tested in accordance with 4.7.19, mated, cabled connectors shall have a leakage rate of 0.5 atm cm^3 /s, maximum.

3.6.19 Coupling Overtorque. When connector assemblies are tested in accordance with 4.7.20, there shall be no evidence of mechanical damage detrimental to performance.

3.6.20 Ruggedness Proof Test. When connector assemblies are tested in accordance with 4.7.20, there shall be no evidence of mechanical damage detrimental to performance.

3.7 Marking. Connector and associated fittings shall be permanently and legibly marked in accordance with the general marking requirements of MIL-STD-1285 as specified on the SCD.

3.8 Workmanship. Connectors and associated fittings shall be processed in such a manner as to be uniform in quality and shall be free from sharp edges, burrs and other defects that will affect life, serviceability or appearance.

4 Quality Assurance Provision

4.1 Responsibility for Inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. The supplier may use its own or any other suitable testing facilities. Inspection records of the tests shall be kept complete and available to the buyer as specified in the contract or order.

4.1.1 Test Equipment and Inspection Facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-STD-45662.

4.2 Classification of Inspections. The inspections specified herein are classified as follows:

a. Materials inspection (see 4.4)
b. Qualification inspection (see 4.5)
c. Quality conformance inspection (see 4.6)
d. Qualification verification inspection (see 4.6.1.2)

4.3 Inspection Conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the general test conditions specified in MIL-STD-1344.

4.4 Materials Inspection. The supplier shall maintain materials inspection and control consisting of certification supported by verifying data and analysis that the materials used in fabricating the connectors and accessories, are in accordance with applicable specifications or requirements prior to use of materials for fabrication.

4.5 Qualification Inspection. Qualification inspection shall be performed in accordance with Table II in the order shown.

4.5.1 Qualification Test Samples. Qualification test samples shall be representative of parts produced under production methods and equipment. Qualification test samples shall be assigned to the test groups detailed in Table 1 as follows:

Table I: Qualification Test Samples
Test Group 1 - 24 Mating Pairs
Test Group 2 - 8 Mating Pairs
Test Group 3 - 4 Mating Pairs
Test Group 4 - 4 Mating Pairs
Test Group 5 - 4 Mating Pairs
Test Group 6 - 4 Mating Pairs

Test Group 1 tests shall be conducted with connectors unterminated. Connectors shall be terminated for Test Groups 2 to 6.

4.5.2 Qualification Report. Qualification shall be documented in a report, which shall be available to the buyer.

Table II: Qualification Inspection

Inspection or Test	Requirement Para.	Method Para
Test Group 1		
Visual and Dimensional	3.5	4.7.1
Marking	3.7	4.7.1
Workmanship	3.8	4.7.1
Test Group 2		
Coupling Forces	3.6.1	4.7.2
Contact Engagement & Separation Force	3.6.16	4.7.18
Mating Characteristics	3.6.2	4.7.3
Permeability	3.6.3	4.7.4
Insulation Resistance	3.6.4	4.7.5
Dielectric Withstanding Voltage	3.6.7	4.7.8
Air Leakage[1]	3.6.18	4.7.19
Contact Resistance	3.6.12	4.7.13
Coupling Overtorque	3.6.19	4.7.20
Test Group 3		
Contact Retention	3.6.5	4.7.6
Insulation Resistance	3.6.4	4.7.5
Dielectric Withstanding Voltage	3.6.7	4.7.8
Salt Spray	3.6.6	4.7.7
Coupling Forces	3.6.1	4.7.2
Contact Engagement & Separation Force	3.6.16	4.7.17
Test Group 4		
Insulation Resistance Vibration	3.6.4	4.7.5
Vibration	3.6.8	4.7.9
Mechanical Shock	3.6.9	4.7.10
Thermal Shock	3.6.10	4.7.11
Humidity[2]	3.6.11	4.7.12
Contact Resistance	3.6.12	4.7.13
Coupling Forces	3.6.1	4.7.2
Contact Engagement & Separation Force	3.6.16	4.7.17
Ruggedness Proof Test	3.6.20	4.7.21
Test Group 5		
Cable Retention Force	3.6.13	4.7.14
Coupling Mechanism Retention Forces	3.6.14	4.7.15
Coupling Torque	3.6.1	4.7.2
Contact Engagement & Separation Force	3.6.16	4.7.17
Test Group 6		
Connector Durability	3.6.15	4.7.16
Coupling Forces	3.6.1	4.7.2
Contact Engagement & Separation Force	3.6.16	4.7.17
Mating Characteristics	3.6.2	4.7.3
Altitude Immersion	3.6.17	4.7.17
Insulation Resistance	3.6.4	4.7.5
Dielectric Withstanding Voltage	3.6.7	4.7.8
Contact Resistance	3.6.12	4.7.13

1. Pressure bulkhead class only
2. Environment resistant classes only.

4.6 Quality Conformance Inspection. Quality conformance inspection shall be as shown in Table III. In-process inspection may be used for quality conformance inspections.

4.6.1 Inspection Lot. An inspection lot shall consist of all the connectors and associated fittings composed of identical piece parts, produced under essentially the same conditions and offered for inspection at one time.

Table III: Quality Conformance Inspections

Inspection or Test	Requirement Para.	Method Para.	Inspection Level	AQL
Materials	3.4	4.7.1	II	1.0
Design & Construction	3.5	4.7.1	II	1.0
Contact Engagement and Separation Force	3.6.16	4.7.17	S-4	1.0
Insulation Resistance	3.6.4	4.7.5	S-4	1.0

4.6.2 Inspection Data. Inspection data for quality conformance inspections shall be kept on record.

4.6.3 Rejected Lots. If an inspection lot is rejected, the defective units may be reworked or screened out, and the lot resubmitted for inspection. Resubmitted lots shall be inspected using tightened inspection in accordance with MIL-STD-105.

4.6.4 Disposition of Sample Units. Sample units which have passed all quality conformance inspections may be delivered against orders. Any connector part deformed or otherwise damaged during testing shall not be delivered.

4.7 Methods of Inspection.

4.7.1 Visual and Mechanical Examination. Connectors and associated contacts shall be examined to verify that the design, construction, physical dimensions, marking and workmanship are in accordance with the requirements (see 3.1, 3.4, 3.5, 3.7 and 3.8) specified herein and applicable engineering standard drawings.

4.7.2 Coupling Forces (see 3.6.1)

4.7.2.1 Coupling Torque. The connector shall be coupled with and decoupled from its mating part (see 4.5.1). During the entire coupling/decoupling cycle the torque necessary to couple/decouple the connectors shall be measured. The bayonet coupled connector is fully engaged with its mating standard part when the bayonet studs have entered the detent.

4.7.2.2 Coupling Forces. The longitudinal force necessary to mate the connectors prior to the engagement of the threads (for threaded coupled connectors) or prior to the entry of the bayonet pins into the coupling nut ramps (for bayonet series connectors) shall be measured. The longitudinal force necessary to unmate the connectors after the release of the threads or bayonet pins shall be measured.

4.7.3 Mating Characteristics (See 3.6.2). After insertion of the specified oversize pin the specified number of times, the contact to be tested shall be held rigid by means of a suitable jig or fixture. A gage containing the test pin or test ring and a suitable force-indicating dial shall be aligned to with- in 0.004 total indicator reading (TIR) of any plane passing through the axis of the connector under test. Engagement or withdrawal of the test pin shall be made smoothly and at such a rate that the dial does not bounce or otherwise give a false reading. The test pin or test ring may be chamfered to facilitate entry, but the specified engagement length shall not include the chamfer length and the finish shall be as specified and in accordance with ANSI B46.1-1462.

4.7.4 Permeability of Nonmagnetic Materials (See 3.6.3). The permeability of the connector shall be tested in accordance with Method 3006 of MIL-STD-1344.

4.7.5 Insulation Resistance (See 3.6.4). Mated connector shall be tested in accordance with Method 3003 of MIL-STD-1344. Measurements shall be made between the connector body and the contact and, if applicable, between the conductors of the contact.

4.7.6 Contact Retention (See 3.6.5). An axial force shall be applied to the contact from the mating face of the contact utilizing a suitable fixture. When the force is applied, contact movement in the axial direction shall be measured.

4.7.7 Salt Spray (See 3.6.6).

4.7.7.1 Salt Spray (Corrosion). Connectors with nickel plating shall be tested in accordance with Method 1001, Test Condition B, of MIL-STD-1344.

4.7.7.2 Salt Spray (Dynamic Test). Connectors shall be mated and unmated 50 cycles in accordance with 4.7.16. The connectors shall then be mated and exposed to salt for 452 hours in accordance with Method 1001 of MIL-STD-1344. Connectors shall then be unmated and exposed to salt fog 48 hours. Following salt fog exposure, 450 mate and unmate cycles shall be performed.

4.7.8 Dielectric Withstanding Voltage at Sea Level (See 3.6.7). Connectors shall be tested in accordance with Method 3001 of MIL-STD-1344. Test voltage shall be 900V rms. The test voltage shall be applied between the connector body and the contact and, if applicable, between the conductors of the contact.

4.7.9 Vibration (See 3.6.8). Mated, cabled connectors shall be tested in accordance with Method 2005 of MIL-STD-1344. Threaded coupled connectors shall be subjected to Test Condition IV (20g peak) except that the frequency range shall be 4-2000Hz. Bayonet coupled connectors shall be subjected to Test Condition V except that the test shall be for 4 hours duration in each of three perpendicular axes using the spectrum shown in Figure 1, followed by 4 hours in each of the same axes using the spectrum shown in Figure 2. Cabled connectors shall be mounted in a manner simulating actual use, and electrical continuity shall be monitored throughout the test.

4.7.10 Shock (Specified Pulse) (See 3.6.9). Mated, cabled connectors shall be subjected to mechanical shock testing in accordance with Method 2004 of MIL-STD-1344. Threaded coupled connectors shall be subjected to Test Condition C (100g-half sine) and shall not be safety wired. Bayonet coupled connectors shall be subjected to test Condition E (50g sawtooth). Connectors shall be mounted in a manner similar to actual use and electrical continuity shall be monitored throughout the test.

4.7.11 Thermal Shock (See 3.6.10). Unmated connectors shall be subjected to testing per Method 107, Test Condition B-3, of MIL-STD-202.

4.7.12 Humidity (See 3.6.11). Unless otherwise specified (see 3.1), mated connectors shall be subjected to testing per Method 1002, Procedure Type II, of MIL-STD-1344. During Step 6 of the final cycle, insulation resistance shall be measured. After high humidity, insulation resistance shall be measured after 2 hours and after 24 hours of drying in standard ambient conditions.

4.7.13 Contact Resistance (See 3.6.12). Contact resistance tests shall be performed in accordance with MIL-C-49142, Paragraph 4.6.16.

4.7.14 Cable Retention Force (See 3.6.13). When applicable (see 3.1), the connector shall be assembled to its mating test cable as specified in Paragraph 4.5.1. The connector shall be firmly fixed and a movable sleeve attached to the cable. The sleeve is then moved longitudinally away from the fixed connector gradually and in such a manner that the cable remains unbent and un- twisted. A scale for measuring the retention force shall be attached to the sleeve. The force shall be held for 30 seconds minimum. The assembly shall then be examined for mechanical failure, loosening, or rupture and tested with a suitable low voltage continuity circuit. With the connector still in the fixed position, the cable shall be held at a distance from the connector equal to 10 times the diameter of the cable, and a torque shall be applied in both directions as specified. The cable shall then be bent to a radius of 10 times the diameter of the cable and a torque shall be applied in both directions as specified. The cable shall then be bent to a radius of 10 times the diameter of the cable, starting at the connector at an angle of 90° +5° from the axis of the connector, then reversed 180° ± 10°. Repeat this procedure four times, then retest and re-examine as outlined above. Test force shall be as specified on the detail specification sheet.

4.7.15 Coupling Mechanism Retention Force (See 3.6.14). The connector body and coupling mechanism shall be secured to the lower and upper jaws, respectively, of a tensile tester. A tensile load shall be applied at a rate of approximately 100 pounds per minute up to 100 pounds minimum and held at that value for 1 minute. During the 1 minute of constant applied force, the coupling mechanism shall be rotated with respect to the connector body, two full revolutions in each direction.

4.7.16 Connector Durability (See 3.6.15). Mated connectors shall be subjected to 500 cycles of mating and unmating at a rate of approximately 300 cycles per hour. Debris may be shaken or blown from the threads or interface surfaces at intervals of not less than 50 cycles. Solvents or tools shall not be used for cleaning.

4.7.17 Altitude Immersion (See 3.6.16). Mated connectors shall be tested in accordance with Method 1004 of MIL-STD-1344.

4.7.18 Contact Engagement and Separation Force (Contacts) (See 3.6.1). Socket contacts shall be mounted in a suitable fixture for applying gradually increasing loads for the engagement and separation of the specified test pins in accordance with Method 2014 of MIL-STD-1344. The test pins shall be inserted and removed from each socket contact. The engagement force shall be measured during insertion with maximum diameter pin. A minimum-diameter test pin shall be inserted and removed from each socket contact and the separation force shall be measured during removal.

4.7.19 Air Leakage (See 3.6.18). Terminated, mated pressure bulkhead connector assemblies shall be tested in accordance with the environmental seal test method of MIL-STD-1344, Method 1008. Cable attached to the connector shall be sealed and remain within the test chamber. The test shall be conduct- ed at room temperature with a pressure differential of 1 atmosphere maintained for 30 minutes.

4.7.20 Coupling Overtorque (See 3.6.19). Terminated connector assemblies shall be mated in the normal manner. A torque of 150% of the maximum coupling torque specified shall then be applied to the coupling nut.

4.7.21 Ruggedness Proof Test. Terminated, mated, connector assemblies shall be subjected to tensile loading by pulling on each cable with a force of 25 lbs. The required force shall be maintained for one minute, following which the connectors shall be visually examined for damage.

5. Packaging

Unless otherwise specified in the procurement document, the requirements for packaging shall be in accordance with standard commercial practice.

6. Notes

6.1 Intended Use. Connectors and associated shielded contacts covered by this specification are primarily intended for use with coaxial, triaxial or twinaxial cable for data transmission applications.

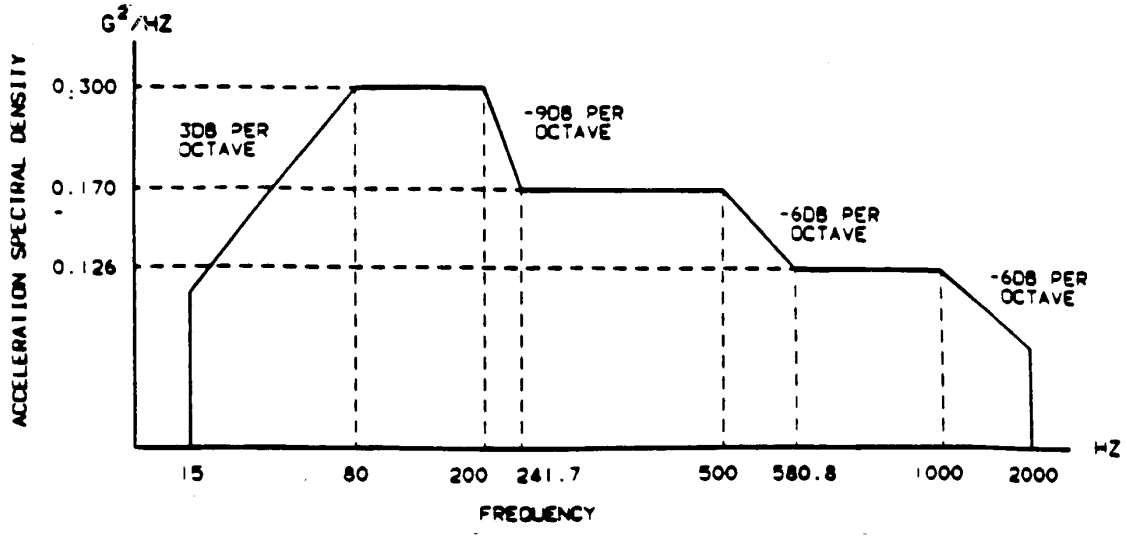

Figure 1. Functional Vibration Test Curve (15.3 grms)

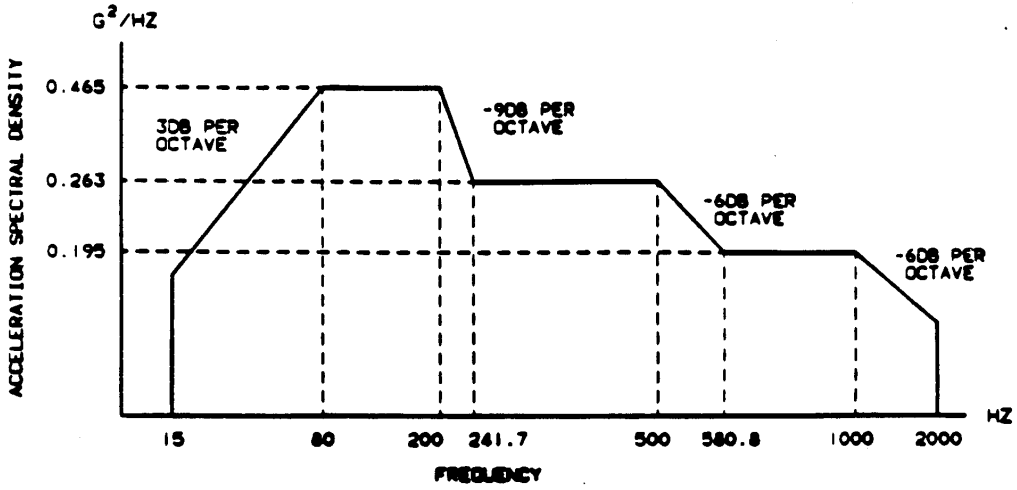

Figure 2. Endurance Vibration Test Curve (19 grms)