Number [1] of tests or vaccinations and number of animals or birds on the certificate	User fee beginning Oct. 1, 2003
* * * * * * *	
Nonslaughter horses to Canada:	
First horse	$38.00
Each additional horse	4.25
* * * * * * *	

[1] Rabies vaccinations are not included in this number.

* * * * *

13. Section 130.30 is amended as follows:

a. In the introductory text of paragraph (a), by removing the words ''through (a)(13)'' and adding the words ''through (a)(18)'' in their place.

b. Paragraph (a)(2) is revised.

c. In paragraph (a)(4), by adding the words '', such as monitoring birds-including but not limited to pet birds-between flights'' after the word ''quarantine''.

d. Paragraph (a)(13) is redesignated as paragraph (a)(18), and new paragraphs (a)(13), (a)(14), (a)(15), (a)(16), and (a)(17) are added to read as set forth below.

§ 130.30 Hourly rate and minimum user fees.

(a) * * *

* * * * *

(2) Conducting inspections, including inspections of laboratories and facilities (such as biosecurity level two facilities), required either to obtain import permits for animal products, aquaculture products, or organisms or vectors, or to maintain compliance with import permits. This hourly rate does not apply to inspection activities covered in § 130.11.

* * * * *

(13) Import or entry services for feeder animals including, but not limited to, feeder goats and feeder bison not covered by a flat rate user fee in § 130.7.

(14) Export-related bird banding for identification.

(15) Export-related inspection and approval of pet food facilities, including laboratories that perform pet food testing.

(16) Export-related services provided at animal auctions.

(17) Various export-related facility inspections, including, but not limited to, fertilizer plants that utilize poultry waste, rendering plants, and potential embarkation facilities.

* * * * *

PART 156—VOLUNTARY INSPECTION AND CERTIFICATION SERVICE

14. The authority citation for part 156 continues to read as follows:

Authority: 7 U.S.C. 1622 and 1624; 21 U.S.C. 136a; 7 CFR 2.22, 2.80, and 371.4.

§ 156.2 [Amended]

15. Section 156.2 is amended as follows:

a. By removing the definition of *cooperative agreement.*

b. In the definition of *inspector,* by removing the words ''under a cooperative agreement''.

§ 156.4 [Amended]

16. Section 156.4 is amended by removing the words ''under a cooperative agreement''.

§ 156.5 [Amended]

17. Section 156.5 is amended by removing the words ''service is to be furnished under a cooperative agreement;'' and adding the words ''the requirements of part 130 of this title are met;'' in their place.

18. Section 156.7 is revised to read as follows:

§ 156.7 User fees under 9 CFR part 130.

User fees under part 130 of this chapter for service (including travel and other expenses incurred in connection with the furnishing of service) under this part shall be paid by the applicant. If required by the Administrator, the user fees under part 130 of this chapter shall be paid in advance. Since the user fees under part 130 of this chapter are for the purpose of reimbursing the Department for all costs incurred in connection with the furnishing of service under this part, the appropriate user fees under part 130 of this chapter to cover any such costs shall be paid even if service is withheld pursuant to § 156.8.

Done in Washington, DC, this 11th day of July 2007.

Kevin Shea,

Acting Administrator, Animal and Plant Health Inspection Service.

[FR Doc. E7–13775 Filed 7–16–07; 8:45 am]

BILLING CODE 3410–34–P

DEPARTMENT OF AGRICULTURE

Rural Utilities Service

7 CFR Part 1755

Telecommunications Policies on Specifications, Acceptable Materials, and Standard Contract Forms

AGENCY: Rural Utilities Service, USDA.

ACTION: Proposed rule.

SUMMARY: The Rural Utilities Service, an agency delivering the United States Department of Agriculture's (USDA) Rural Development Programs, hereinafter referred to as Rural Development and/or Agency, proposes to revise the fiber optic cable specification used by borrowers, their consulting engineers, and cable manufacturers. This revision will bring the specification to meet current industries standards. Additional requirements have been included in the specification to meet the construction requirement of fiber-to-the-home construction.

DATES: Comments must be submitted on or by September 17, 2007.

ADDRESSES: Submit comments by either of the following methods:

Federal eRulemaking Portal: Go to *http://www.regulations.gov* and, in the lower ''Search Regulations and Federal Actions'' box, select ''Rural Utilities Service'' from the agency drop-down menu, then click on ''Submit.'' In the Docket ID column, select RUS–07–Telecom–0005 to submit or view public comments and to view supporting and related materials available electronically. Information on using Regulations.gov, including instructions for accessing documents, submitting comments, and viewing the docket after

the close of the comment period, is available through the site's ''User Tips'' link.

Postal Mail/Commercial Delivery: Please send your comment addressed to Michele Brooks, Acting Deputy Director, Program Development and Regulatory Analysis, USDA Rural Development, 1400 Independence Avenue, STOP 1522, Room 5159, Washington, DC 20250–1522. Please state that your comment refers to Docket No. RUS–07–Telecom–0005.

Other Information: Additional information about Rural Development and its programs is available on the Internet at *http://www.rurdev.usda.gov/index.html*.

FOR FURTHER INFORMATION CONTACT: Norberto Esteves, Chair, Technical Standards Committee ''A'' (Telecommunications), Advanced Services Division, USDA Rural Development Telecommunications Program, STOP 1550, Washington, DC 20250–1550, telephone number 202–720–0699, fax number 202–205–2924, e-mail *norberto.esteves@wdc.usda.gov*.

SUPPLEMENTARY INFORMATION:

Executive Order 12866

This rule is exempted from the Office of Management and Budget (OMB) review for purposes of Executive Order 12866 and, therefore, has not been reviewed by OMB.

Executive Order 12988

This proposed rule has been reviewed under Executive Order 12988, Civil Justice Reform. USDA Rural Development has determined that this proposed rule meets the applicable standards provided in section 3 of the Executive Order. In addition, all state and local laws and regulations that are in conflict with this proposed rule will be preempted; no retroactive effect will be given to the rule, and, in accordance with section 212(e) of the Department of Agriculture Reorganization Act of 1994 (7 U.S.C. 6912(e)), administrative appeals procedures, if any are required, must be exhausted before an action against the Department or its agencies may be initiated.

Regulatory Flexibility Act Certification

USDA Rural Development has determined that this proposed rule will not have a significant economic impact on a substantial number of small entities, as defined by the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*). The standard USDA Rural Development telecommunications loan documents contain provisions on procurement of products and construction of telecommunications facilities purchased with loan funds. This ensures that the telecommunications systems financed with loan funds are adequate to serve the purposes for which they are to be constructed and that loan funds are adequately secured. USDA Rural Development borrowers, as a result of obtaining Federal financing, receive economic benefits that exceed any direct cost associated with complying with USDA Rural Development regulations and requirements.

Information Collection and Recordkeeping Requirements

The information collection and recordkeeping requirements contained in this proposed rule are cleared under control numbers 0572–0059 and 0572–0132 pursuant to the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35, as amended).

Executive Order 13132

This regulation will not have substantial direct effects on the States, on the relationship between the national government and the States, or on distribution of power and responsibilities among the various levels of government. Under Executive Order 13132, this proposed rule does not have sufficient federalism implications requiring the preparation the preparation of a Federalism Assessment.

Catalog of Federal Domestic Assistance

The program described by this proposed rule is listed in the Catalog of Federal Domestic Assistance Program under No. 10.851, Rural Telephone Loans and Loan Guarantees and No. 10.857, Rural Broadband Access Loans and Loan Guarantees. This catalog is available on a subscription basis from the Superintendent of Documents, the United States Government Printing Office, Washington, DC 20402. Telephone: (202) 512–1800.

Executive Order 12372

This proposed rule is excluded from the scope of Executive Order 12372, Intergovernmental Consultation, which may require consultation with State and local officials. See the final rule related notice titled ''Department Programs and Activities Excluded from Executive Order 12372'' (50 FR 47034), advising that USDA Rural Development Utilities Programs loans and loan guarantees are excluded from the scope of Executive Order 12372.

Unfunded Mandates

This proposed rule contains no Federal Mandates (under the regulatory provisions of Title II of the Unfunded Mandates Reform Act of 1995 (2 U.S.C. Chapter 25)) for State, local, and tribal governments or the private sector. Thus, this proposed rule is not subject to the requirements of sections 202 and 205 of the Unfunded Mandates Reform Act of 1995.

National Environmental Policy Act Certification

The Agency has determined that this proposed rule will not significantly affect the quality of the human environment as defined by the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) Therefore, this action does not require an environmental impact statement or assessment.

Background

This proposed rule revises the current requirements for fiber optic cables of 7 CFR 1755.900 codified in 1995. The proposed rule sets the minimum performance requirements based on current industry standards. This revision was initiated to resolve problems the rural telecom industry is experiencing with cables manufactured under the existing specification and reported by rural carriers and their consulting engineers. It addresses the buffer tube shrinkage caused by storage at low temperatures, which impairs fiber-to-the-home system performance. The proposed specification also sets new requirements for drop cables (cables with 12 or fewer fibers operating up to 100 meters (300 feet)).

Cables manufactured to this revised specification will have lower average bi-directional loss at fusion splices, about 0.1 decibels (dB) instead of the 0.2 dB currently required. For fiber-to-the-home applications the specification requires a maximum mid-span length of 4.9 meters (16 feet) or 3 meters (10 feet), as specified by the buyer, for cables used on mid-span applications with buffer tube storage. From a polarization mode dispersion standpoint, the maximum Statistical Parameter of Polarization Mode Dispersion (PMD_Q) of 0.20 Picosecond per nanometer times kilometer (ps/√km) specified will allow the deployment of higher-speed transmission systems at longer distances: 3,000 kilometers (km) (1,864 miles) for digital systems operating at 10 Gigabit per second (Gbps) and 80 km (50 miles) operating at 40 Gbps. These performance refinements are necessary because purchasers deploying cable meeting this level of performance expect it to deliver high bitrate services during the useful economic life of these cables.

List of Subjects in 7 CFR Part 1755

Broadband, Fiber optic cables, Loan programs—communications, Reporting and recordkeeping requirements, Rural areas, Telecommunications, Telephone.

For the reasons set out in the preamble, the Agency proposes to amend part 1755, chapter XVII of title 7 of the Code of Federal Regulations, as follows:

PART 1755—TELECOMMUNICATIONS POLICIES ON SPECIFICATIONS, ACCEPTABLE MATERIALS, AND STANDARD CONTRACT FORMS

1. The authority citation for part 1755 continues to read as follows:

Authority: 7 U.S.C. 901 *et seq.*, 1921 *et seq.*, 6941 *et seq.*

2. The heading of part 1755 is revised to read as set out above.

3. Section 1755.900 is revised, an undesignated center heading is added, appendixes A and B to § 1755.900 are removed, and a new appendix to § 1755.900 is added, to read as follows:

Minimum Performance Specification for Fiber Optic Cables

§ 1755.900 Agency specification for fiber optic cables.

(a) *Abbreviations.* The following abbreviations apply to this section:

(1) ASTM Amercian Society for Testing and Materials;

(2) °C Centigrade temperature scale;

(3) dB Decibel;

(4) dB/km Decibels per 1 kilometer;

(5) ECCS Electrolytic chrome coated steel;

(6) EIA Electronic Industries Alliance;

(7) EIA/TIA Electronic Industries Alliance Telecommunications Industry Association;

(8) FTTH Fiber-to-the-Home;

(9) Gbps Gigabit per second or Gbit/s;

(10) GE General Electric;

(11) HDPE High density polyethylene;

(12) ICEA Insulated Cable Engineers Association, Inc.;

(13) Km kilometers(s)

(14) LDPE Low density polyethylene;

(15) m meter(s)

(16) Max. Maximum;

(17) MDPE Medium density polyethylene;

(18) MHz-km Megahertz-kilometer;

(19) Min. Minimum;

(20) MFD Mode-Field Diameter

(21) nm Nanometer(s);

(22) N Newton(s);

(23) NA Numerical aperture;

(24) NESC National Electrical Safety Code;

(25) OC Optical cable;

(26) O.D. Outside Diameter;

(2) OF Optical fiber;

(28) OSHA Occupational Safety and Health Administration;

(29) OTDR Optical Time Domain Reflectometer

(30) % Percent;

(31) ps/(nm·km) Picosecond per nanometer times kilometer;

(32) ps/(nm^2·km) Picosecond per nanometer squared times kilometer;

(33) SI International System (of Units) (From the French Système international d'unités); and

(34) µm Micrometer.

(b) *Definitions.* The following definitions apply to this section:

(1) *Agency:* The Rural Utilities Service, an agency which delivers the United States Department of Agriculture's (USDA) Rural Development Utilities Programs;

(2) *Armor:* A metal tape intended to provide mechanical and environmental protection against rodents, termites, etc.

(3) *Bandwidth:* The range of signal frequencies that can be transmitted by a communications channel with defined maximum loss or distortion. Bandwidth indicates the information-carrying capacity of a channel. For an optic fiber system bandwidth is usually given as its capacity to transmit information in a specific time period for a specific length, *e.g.*, 10 Mbit/sec/km.

(4) *Chromatic Dispersion:* The spreading out of light pulses as they travel in an optical fiber, proportional to length.

(5) *Cladding:* A layer of glass or other transparent material fused to and concentrically surrounding the core. The cladding has a lower refractive index than the core, so light is internally reflected along the core.

(6) *Core:* The central region of an optical waveguide or fiber through which light is transmitted.

(7) *Cutoff Wavelength:* The shortest wavelength at which only the fundamental mode of an optical wavelength can propagate.

(8) *Dielectric Cables:* Cable with no metallic members or other electrically conductive materials.

(9) *Graded Refractive Index Profile:* Any index profile that varies smoothly with radius.

(10) *Loose Tube Buffer:* A protective tube loosely surrounding a cabled fiber, often filled with suitable water blocking material.

(11) *Matched Cable:* Cable manufactured to this specification for which the calculated loss due to Mode Field Diameter (MFD) mismatch between two fibers to be spliced is ≤ 0.06 dB when using the following formula:

$$\text{LOSS (dB)} = -10\ \text{LOG}_{10}\left[4/(\text{MFD}_1/\text{MFD}_2 + \text{MFD}_2/\text{MFD}_1)^2\right],$$

where subscripts 1 and 2 refer to the two fibers to be spliced.

(12) *Mil:* A measurement unit of length indicating one thousandth of an inch.

(13) *Minimum Bending Diameter:* A smallest diameter that must be maintained to avoid degrading cable performance (Bending Diameter/Cable Diameter.)

(14) *Mode-Field Diameter:* The diameter of the one mode of light propagating in a single mode fiber.

(15) *Multimode Fiber:* An optical fiber which will allow more than one bound mode to propagate. It may be either a graded index or step index optical fiber.

(16) *Numerical Aperture (NA):* An optical fiber parameter that indicates the angle of acceptance of light into a fiber.

(17) *Optical Fiber:* Any fiber made of dielectric material that guides light.

(18) *Optical Point Discontinuities:* Localized deviation of the optical fiber loss characteristic which location and magnitude may be determined by appropriate OTDR measurements.

(19) *Optical Waveguide:* Any structure capable of guiding optical power. In optical communications, the term generally refers to a fiber designed to transmit optical signals.

(20) *Polarization Mode Dispersion:* A form of modal dispersion where different polarizations of the light caused by asymmetric distortions of the fiber form the ideal perfect shape of a cylinder that travel at different speeds due to random imperfections in the fiber waveguide causing random spreading of optical pulses.

(21) *Ribbon:* A planar array of parallel optical fibers.

(22) *Shield:* Conductive metal tape for lightning protection, bonding, grounding and electrical shielding.

(23) *Single Mode Fiber:* An optical fiber in which only one bound mode can propagate at the wavelength of interest.

(24) *Step Refractive Index Profile:* An index profile characterized by a uniform refractive index within the core and a sharp decrease in refractive index at the core-cladding interface. It corresponds to a power-law profile with profile parameter, g, approaching infinity.

(25) *Tight Tube Buffer:* One or more layers of buffer material tightly surrounding a fiber in contact with the coating of the fiber.

(c) *Scope.* This section is intended for cable manufacturers, Agency borrowers, and consulting engineers. It covers the requirements for fiber optic cables intended for aerial installation either by

attachment to a support strand or by an integrated self-supporting arrangement, for underground application by placement in a duct, or for buried installations by trenching, direct plowing, and directional or pneumatic boring.

(1) *Requirements.* Specification requirements are given in SI units which are the controlling units in this part. Approximate English equivalent of units are given for information purposes only.

(i) The optical waveguides are glass fibers having directly-applied protective coatings, and are called ''fibers'', herein. These fibers may be assembled in either loose fiber bundles with a protective core tube, encased in several protective buffer tubes, in tight buffer tubes, or ribbon bundles with a protective core tube.

(ii) Fillers, strength members, core wraps, and bedding tapes may complete the cable core.

(iii) The core or buffer tubes containing the fibers and the interstices between the buffer tubes, fillers, and strength members in the core structure are filled with a suitable material or water swellable elements to exclude water.

(iv) The cable structure is completed by an extruded overall plastic jacket. A shield or armor or combination thereof may be included under the jacket. The jacket may have strength members embedded in it.

(v) Buried installation requires armor under the outer jacket.

(vi) For self-supporting cable, the outer jacket may be extruded over the support messenger and cable core.

(vii) Cables for mid-span applications for network access shall be designed for easy mid-span access to the fibers. The manufacturer may use reversing oscillating stranding (SZ) described in section 6.4 of ITU–T Recommendation L.58 or any other manufacturer's method that is acceptable to the Agency.

(2) The normal temperature ranges for cable under this specification must meet paragraph 1.1.3 of ANSI/ICEA S–87–640.

(3) *Tensile Rating.* The standard installation tensile rating for cable under this specification is 2670 N (600 lbf.), unless, installation involves micro type cables that utilize less stress related methods of installation, i.e. blown micro-fiber cable or All-Dielectric Self-Supporting (ADSS) cables (see paragraph (c)(4) of this section.)

(4) *ADSS cables.* Based on the storm loading districts referenced in Section 25, Loading of Grades B and C, of the latest edition of NESC and the maximum span and location of cable installation provided by the purchaser, the manufacturer shall provide a cable design with sag and tension tables showing the maximum span and sag information for that particular installation. The information included shall be for Rule B, Ice and Wind Loading, and when applicable, information on Rule 250C, Extreme Wind Loading. Additionally, to ensure the proper ground clearance, typically 4.3 m (14 feet) the end user should factor in the maximum sag under loaded conditions as well as height of attachment for each application.

(5) *Minimum Bend Diameter.* For cable under loaded and unloaded conditions, the cable shall have the minimum bend diameters indicated in paragraph 1.1.5, Minimum Bend Diameter of the ANSI/ICEA S–87–640. For very small cables, manufacturers may specify fixed cable minimum bend diameters that are independent of the outside diameter. For a bend diameter of cables having a non-circular cross-section is to be determined using the thickness as the cable diameter and bending in the direction of the preferential bend.

(6) The cable is fully color coded so that each fiber is distinguishable from every other fiber. A basic color scheme of twelve colors allows individual fiber identification. Colored tubes, binders, threads, strippings, or markings provide fiber group identification.

(7) Cable manufactured to this specification must demonstrate compliance with the qualification testing requirements to ensure satisfactory end-use performance characteristics for the intended applications.

(8) Optical cable designs not specifically addressed by this specification may be allowed if accepted by the Agency. Justification for acceptance of a modified design must be provided to substantiate product utility and long term stability and endurance.

(9) All cables sold to Agency borrowers for projects involving Agency loan funds under this specification must be accepted by the Agency's Technical Standards Committee ''A'' (Telecommunications.) For cables manufactured to this specification, all design changes to an accepted design must be submitted for acceptance. The Agency will be the sole authority on what constitutes a design change.

(10) The Agency intends that the optical fibers contained in the cables manufactured under this specification have characteristics that will allow signals, having a range of wavelengths, to be carried simultaneously.

(d) *Optical Fibers.* (1) The solid glass optical fibers must consist of a cylindrical core and cladding covered by either an ultraviolet-cured acrylate or other suitable coating. Each fiber shall be continuous throughout its length.

(2) *Zero-dispersion.* Optical fibers shall meet the fiber attributes of Table 2/G.652, *G.652.B attributes*, of ITU–T Recommendation G.652. However, when the purchaser stipulates a low water peak fiber the optical fibers shall meet the fiber attributes of Table 4/G.652, *G.652.D attributes*, of ITU–T Recommendation G.652.

(3) *Non-zero dispersion.* Optical fibers shall meet the fiber attributes of ITU–T Recommendation G.656. However, when the buyer specified ITU–T Recommendation G.655 A, B, C, D, or E, the optical fibers shall meet the fiber attributes of such ITU–T Recommendation.

(4) *Multimode fibers.* Optical fibers shall meet the requirements of paragraphs 2.1 and 2.3.1 of ANSI/ICEA S–87–640.

(5) *Matched cables.* Unless otherwise specified by the buyer, all single mode fiber cables delivered to an Agency-financed project must be manufactured to the same MFD specification. However, notwithstanding the requirements indicated in paragraphs (d)(2) and (d)(3) of this section, the maximum MDF tolerance allowed for cable made under this specification shall be of a magnitude so the cable meets the definition of ''matched cables,'' as defined in this specification. With the use of cable manufactured to this specification the user can reasonably expect that the average bi-directional loss of a fusion splice to be ≤ 0.1 dB.

(6) Buyers will normally specify the MFD for the fibers in the cable. When a buyer does not specify the MFD for fiber compliant with ITU–T Recommendation G.652.B or 652.D, the fibers shall be manufactured to an MFD of 9.2 ± 0.5 μm (362 ± 20 microinch), unless the buyer agrees to accept cable with fibers specified to a different MD. When the buyer does specify an MFD with a MDF tolerance conflicting with the MFD maximum tolerance allowed by paragraph (d)(5) of this section, the requirements of paragraph (d)(5) shall prevail.

(7) Factory splices are not allowed.

(8) *Coating.* The optical fiber must be coated with a suitable material to preserve the intrinsic strength of the glass having an outside diameter of 250 ± 15 micrometers (10 ± 0.6 mils) when measured per EIA/TIA–455–55C. The protective coverings must be free from holes, splits, blisters, and other

imperfections and must be as smooth and concentric as is consistent with the best commercial practice. The diameter of the fiber as the fiber is used in the cable includes any coloring thickness or the uncolored coating, as the case may be. The strip force required to remove 30 ± 3 millimeters (1.2 ± 0.1 inch) of protective fiber coating shall be between 1.0 N (0.2 pound-force) and 9.0 N (2 pound-force).

(9) All optical fibers in any single length of cable must be of the same type unless otherwise specified by purchaser.

(10) Optical fiber dimensions and data reporting shall be as required by paragraph 7.13.1.1 of ANSI/ICEA S–87–640.

(e) *Buffers*. (1) The optical fibers contained in a tube buffer (loose tube), an inner jacket (unit core), a channel, or otherwise loosely packaged must have a clearance between the fibers and the inside of the container sufficient to allow for thermal expansions without constraining the fibers. The protective container must be manufactured from a material having a coefficient of friction sufficiently low to allow the fibers free movement. The loose tube shall contain a suitable water blocking material. Loose buffer tubes must be removable without damage to the fiber when following the manufacture's recommended procedures.

(2) The tubes for single mode loose tube cables shall be designed to allow a maximum mid-span buffer tube exposure of 3 meters (10 feet) or 4.9 meters (16 feet). The buyer should be aware that certain housing hardware may require cable designed for 4.9 meter buffer tube storage.

(3) Optical fibers covered in near contact with an extrusion (tight tube) must have an intermediate soft buffer to allow for thermal expansions and minor pressures. The buffer tube dimension shall be established by the manufacturer to meet the requirement of this specification. Tight buffer tubes must be removable without damage to the fiber when following the manufacture's recommended procedures. The tight buffered fiber shall be strippable per paragraph 7.20 of ANSI/ICEA S–87–640.

(4) Both loose tube and tight tube coverings of each color and other fiber package types removed from the finished cable must meet the following shrinkback and cold bend performance requirements. The fibers may be left in the tube.

(i) *Shrinkback*: Testing must be conducted per ASTM D 4565, Paragraph 14.1, using a talc bed at a temperature of 95 °C (203 °F). Shrinkback must not exceed 5 percent of the original 150 millimeter (6 inches) length of the specimen. The total shrinkage of the specimen must be measured. (Buffer tube material meeting this test may not meet the midspan test in paragraph (t)(18) of this section.)

(ii) *Cold Bend*: Testing must be conducted on at least one tube from each color in the cable. Stabilize the specimen to −30 ± 1 °C (−22 ± 2 °F) for a minimum of four hours. While holding the specimen and mandrel at the test temperature, wrap the tube in a tight helix ten times around a mandrel with a diameter to be the greater of five times the tube diameter or 50mm (2 inches.) The tube must show no evidence of cracking when observed with normal or corrected-to-normal vision.

Note to paragraph (E)(4)(II): Channel cores and similar slotted single component core designs need not be tested for cold bend.

(f) *Fiber Identification*. (1) Each fiber with a unit and each unit within the cable shall be identifiable per paragraph 4.2.1 and 4.3.1 of ANSI/ICEA S–87–640.

(2) The colors designated for identification of loose buffer tubes, tight tube buffer fibers, individual fibers in multi-fiber tubes, slots, bundles or units of fibers, and the units in cables with more than one unit shall be per TIA–598–C, *Optical Fiber Cable Color Coding*.

(3) *Standards of Colors*: The colors of fibers and tubes supplied shall be per the terms of the Munsell Color System (ASTM D 1535) and must comply with the color limits as defined in TIA–598–C.

(g) *Optical Fiber Ribbon*. (1) Each ribbon shall be identified per paragraphs 3.4.1 and 3.4.2 of ANSI/ICEA S–87–640.

(2) Ribbon fiber count shall be specified by the purchaser, *i.e.* 2, 4, 6, 12, etc.

(3) Ribbon dimensions shall be as agreed by the purchaser and manufactures per Paragraphs 3.4.4.1 of ANSI/ICEA S–87–640.

(4) Ribbons shall meet each of the following tests. These tests are included in the paragraphs of ANSI/ICEA S–87–640 that are indicated in parentheses below.

(i) Ribbon Dimensions (7.14 through 7.14.2)—Measures ribbon dimension using FOTP–123.

(ii) Ribbon Twist Test (7.15 through 7.15.2)—evaluates the ability of the ribbon to resist splitting or other damage while undergoing dynamic cyclically twisting the ribbon under load.

(iii) Ribbon Residual Twist Test (7.16 through 7.16.2)—evaluates the degree of permanent twist in a cabled optical ribbon.

(iv) Ribbon Separability Test (7.17 through 7.17.2)—evaluates the ability to separate fibers.

(5) Ribbons shall meet paragraph 3.4.4.6 of ANSI/ICEA S–87–640, Ribbon Strippability.

(h) *Strength Members*. (1) Strength members may be an integral part of the cable construction, but are not considered part of the support messenger for self-supporting optical cable.

(2) The strength members may be metallic or nonmetallic.

(3) The combined strength of all the strength members must be sufficient to support the stress of installation and to protect the cable in service.

(4) Strength members may be incorporated into the core as a central support member or filler, as fillers between the fiber packages, as an annular serving over the core, as an annular serving over the intermediate jacket, embedded in the outer jacket or as a combination of any of these methods.

(5) The central support member or filler must contain no more than one splice per kilometer of cable. Individual fillers placed between the fiber packages and placed as annular servings over the core must contain no more than one splice per kilometer of cable. Cable sections having central member or filler splices must meet the same physical requirements as un-spliced cable sections.

(6) In each length of completed cable having a metallic central member, the dielectric strength between the shield or armor, when present, and the metallic center member must withstand at least 15 kilovolts when tested per ASTM D 4566. The voltage shall be applied for 3 seconds minimum; no failures are allowed.

(i) *Cable Core*. (1) Protected fibers may be assembled with the optional central support member, fillers and strength members in such a way as to form a cylindrical group.

(2) The standard cylindrical group or core designs commonly consist of 4, 6, 12, 18, or 24 fibers. Cylindrical groups or core designs larger than the sizes shown above must meet all the applicable requirements of this section.

(3) When threads or tapes are used in cables using water blocking elements as core binders, they must be a non-hygroscopic and non-wicking dielectric material or be rendered such by the gel or water blocking material produced by the ingress of water.

(4) When threads or tapes are used as unit binders to define optical fiber units in loose tube, tight tube, slotted, or bundled cored designs, they must be a

non-hygroscopic and non-wicking dielectric material or be rendered such by the filling compound. The colors of the binders must be per paragraphs (f)(2) and (f)(3) of this section.

(j) *Core Water Blocking.* (1) To prevent the ingress of water into the core and water migration, a suitable filling compound or water blocking elements must be applied into the interior of the loose fiber tubes and into the interstices of the core. When a core wrap is used, the filling compound water or blocking elements, as the case may be, must also be applied to the core wrap, over the core wrap and between the core wrap and inner jacket when required.

(2) The materials or elements must be homogeneous and uniformly mixed; free from dirt, metallic particles and other foreign matter; easily removed; nontoxic and present no dermal hazards. The filling compound and water blocking elements shall contain a suitable antioxidant or be of such composition as to provide long term stability.

(3) The individual cable manufacturer must satisfy the Agency that the filling compound or water blocking elements selected for use is suitable for its intended application by submitting test data showing compliance with ASTM D 4568. The filling compound and water blocking elements must be compatible with the cable components when tested per ASTM D 4568 at a temperature of 80 °C (176 °F). The jacket shall retain a minimum of 85% of its un-aged tensile and elongation values.

(k) *Water Blocking Material.* (1) Sufficient flooding compound or water blocking elements must be applied between the inner jacket and armor and between the armor and outer jacket so that voids and air spaces in these areas are minimized. The use of flooding compound or water blocking elements between the armor and outer jacket is not required when uniform bonding, paragraph (o)(10) of this section, is achieved between the plastic-clad armor and the outer jacket.

(2) The flooding compound or water blocking elements must be compatible with the jacket when tested per ASTM D 4568 at a temperature of 80 °C ± 1 °C (176 ± 2 °F). The aged jacket shall retain a minimum of 85% of its unaged tensile strength and elongation values. The flooding compound must exhibit adhesive properties sufficient to prevent jacket slip when tested per paragraph 7.30.1 of ANSI/ICEA S–87–640 and meets paragraph 7.30.2 for minimum sheath adherence of 14 N/mm for armored cables.

(3) The individual cable manufacturer must satisfy the Agency by submitting test data showing compliance with the appropriate cable performance testing requirements of this section that the flooding compound or water blocking elements selected for use is acceptable for the application.

(l) *Core Wrap.* (1) At the option of the manufacturer, one or more layers of dielectric material may be applied over the core.

(2) The core wrap(s) can be used to provide a heat barrier to prevent deformation or adhesion between the fiber tubes or can be used to contain the core.

(m) *Inner Jackets.* (1) For designs with more than one jacket, the inner jackets shall be applied directly over the core or over the strength members when required by the purchaser. The jacket must be free from holes, splits, blisters, or other imperfections and shall be as smooth and concentric as is consistent with the best commercial practice. The inner jacket shall not adhere to other cable components such as fibers, buffer tubes, etc.

(2) For armored and unarmored cable an inner jacket is optional. The inner jacket may absorb stresses in the cable core that may be introduced by armor application or by armored cable installation.

(3) The inner jacket material and test requirements must be as for the outer jacket material of this specification, except that either black or natural polyethylene may be used and the thickness requirements are included in paragraph (m)(4) of this section. In the case of natural polyethylene, the requirements for absorption coefficient and the inclusion of furnace black are waived.

(4) The inner jacket thickness shall be determined by the manufacturer, but shall be no less than a nominal jacket thickness of 0.5mm (0.02 inch) with a minimum jacket thickness of 0.35mm (0.01 inch.)

(n) *Outer Jacket.* (1) The outer jacket must provide the cable with a tough, flexible, protective covering which can withstand exposure to sunlight, to atmosphere temperatures and to stresses reasonably expected in normal installation and service.

(2) The jacket must be free from holes, splits, blisters, or other imperfections and shall be as smooth and concentric as is consistent with the best commercial practice.

(3) The raw material used for the outer jacket must be one of the types listed below. The raw material must contain an antioxidant to provide long term stabilization and the materials must contain a minimum of 2.35 percent concentration of furnace black to provide ultraviolet shielding.

(i) Type L1. Low density, polyethylene (LDPE) must conform to the requirements of ASTM D 1248, Type I, Class C, Category 4 or 5, Grade J3.

(ii) Type L2. Linear low density, polyethylene (LLDPE) must conform to the requirements of ASTM D 1248, Type I, Class C, Category 4 or 5, Grade J3.

(iii) Type M. Medium density polyethylene (MDPE) must conform to the requirements of ASTM D 1248, Type II, Class C, Category 4 or 5, Grade J4.

(iv) Type H. High density polyethylene (HDPE) must conform to the requirements of ASTM D 1248, Type III, Class C, Category 4 or 5, Grade J4.

(4) Particle size of the carbon selected for use must not average greater than 20 nm.

(5) Absorption coefficient must be a minimum of 400 per the procedures of ASTM D 3349.

(6) The outer jacketing material removed from or tested on the cable shall be capable of meeting the performance requirements of Table 5.1 found in ANSI/ICEA S–87–640.

(7) *Testing Procedures.* The procedures for testing the jacket specimens for compliance with paragraph (n)(6) of this section must be as follows:

(i) *Jacket Material Density Measurement.* Test per paragraphs 7.7.1 and 7.7.2 of ANSI/ICEA S–87–640.

(ii) *Tensile Strength, Yield Strength, and Ultimate Elongation.* Test per paragraphs 7.8.1 and 7.8.2 of ANSI/ICEA S–87–640.

(iii) *Jacket Material Absorption Coefficient Test.* Test per paragraphs 7.9.1 and 7.9.2 of ANSI/ICEA S–87–640.

(iv) *Environmental Stress Crack Resistance Test.* For large cables (outside diameter ≥ 30 mm (1.2 inch)), test according with 7.10.1 through 7.10.1.2 of ANSI/ICEA S–87–640. For small cables (Diameter < 30 mm (1.2 inch)), test per paragraphs 7.10.2 through and 7.10.2.2 of ANSI/ICEA S–87–640. A crack or split in the jacket constitutes failure.

(v) *Jacket Shrinkage Test.* Test per paragraphs 7.11.1 and 7.11.2 of ANSI/ICEA S–87–640.

(8) *Jacket Thickness.* The outer jacket must meet the requirements of Paragraph 5.4.5.1 and 5.4.5.2 of ANSI/ICEA S–87–640.

(9) *Jacket Repairs.* Repairs are allowed per Paragraph 5.5 of ANSI/ICEA S–87–640.

(o) *Armor.* (1) A steel armor, plastic coated on both sides, is required for direct buried cable manufactured under this section. Armor is optional for duct and aerial cable, as required by the purchaser. The plastic coated steel armor must be applied longitudinally

directly over the core wrap or the intermediate jacket and have a minimum overlap of 3.0 millimeters (118 mills), except for small diameter cables with diameters of less than 10 mm (394 mills) for which the minimum overlap shall be 2mm (79 mills). When a cable has a shield, the armor should normally be applied over the shielding tape.

(2) The uncoated steel tape must be electrolytic chrome coated steel (ECCS) and shall meet the requirements of paragraph B.2.4 of ANSI/ICEA S–87–640.

(3) The reduction in thickness of the armoring material due to the corrugating or application process must be kept to a minimum and must not exceed 10 percent at any spot.

(4) The armor of each length of cable must be electrically continuous with no more than one joint or splice allowed in any length of one kilometer of cable. This requirement does not apply to a joint or splice made in the raw material by the raw material manufacturer.

(5) The breaking strength of any section of an armor tape, containing a factory splice joint, must not be less than 80 percent of the breaking strength of an adjacent section of the armor of equal length without a joint.

(6) For cables containing no flooding compound over the armor, the overlap portions of the armor tape must be bonded in cables having a flat, non-corrugated armor to meet the mechanical requirements of paragraphs (t)(1) through (t)(16)(ii) of this section. If the tape is corrugated, the overlap portions of the armor must be sufficiently bonded and the corrugations must be sufficiently in register to meet the requirements of paragraphs (t)(1) through (t)(16)(ii) of this section.

(7) The armor tape must be so applied as to enable the cable to pass the Cable Low (− 30 °C (− 22 °F)) and High (60 C (140 F)) Temperatures Bend Test, as required by paragraph (t)(3) of this section.

(8) The protective coating on the steel armor must meet the Bonding-to-Metal, Heat Sealability, Lap-Shear and Moisture Resistance requirements of Type I, Class 2 coated metals per ASTM B 736–92a.

(9) The ability of the plastic-clad metal to resist the flooding compound must be determined as required by ASTM D 4568 using a one meter (3.3 feet) length of coated steel which must be aged for 7 days at 68 ± 1 °C (154 ± 2 °F). There must be no delamination of the coating from the steel at the conclusion of the test.

(10) When the jacket is bonded to the plastic coated armor, the bond between the plastic coated armor and the outer jacket must not be less than 525 Newtons per meter (36 pound-force) over at least 90 percent of the cable circumference when tested per ASTM D 4565–90a. For cables with strength members embedded in the jacket, and residing directly over the armor, the area of the armor directly under the strength member is excluded from the 90 percent calculation.

(p) *Figure 8 Aerial Cables.* (1) When self-supporting aerial cable containing an integrated support messenger is supplied, the support messenger must comply with the requirements specified in paragraphs D.2.1 through D.2.4 of ANSI/ICEA S–87–640 with exceptions and additional provisions as follows:

(i) Any section of a completed strand containing a joint must have minimum tensile strength and elongation of 29,500 Newtons (6,632 pound-force) and 3.5 percent, respectively, when tested per the procedures specified in ASTM A 640.

(ii) The individual wires from a completed strand which contain joints must not fracture when tested according to the ''Ductility of Steel'' procedures specified in ASTM A 640 except that the mandrel diameter must be equal to 5 times the nominal diameter of the individual wires.

(iii) The support strand must be completely covered with a flooding compound that offers corrosion protection. The flooding compound must be homogeneous and uniformly mixed.

(iv) The flooding compound must be nontoxic and present no dermal hazard.

(v) The flooding compound must be free from dirt, metallic particles, and other foreign matter that may interfere with the performance of the cable.

(2) Other methods of providing self-supporting cable specifically not addressed in this section may be allowed if accepted by the Agency. Justification for acceptance of a modified design must be provided to substantiate product utility and long term stability and endurance.

(3) *Jacket Thickness Requirements.* Jackets applied over an integral messenger must meet the following requirements:

(i) The minimum jacket thickness at any point over the support messenger must meet the requirements of paragraph D.3 of ANSI/ICEA S–87–640.

(ii) The web dimension for self-supporting aerial cable must meet the requirements of paragraph D.3 of ANSI/ICEA S–87–640.

(q) *Sheath Slitting Cord.* (1) A sheath slitting cord or ripcord is optional.

(2) When a sheath slitting cord is used it must be capable of slitting the jacket or jacket and armor, at least a 1 meter (3.3 feet) length without breaking the cord at a temperature of 23 ± 5 °C (73 ± 9 °F).

(3) The sheath slitting cord must meet the sheath slitting cord test depicted in paragraph (t)(1) of this section.

(r) *Identification Markers.* (1) Each length of cable shall be permanently identified. The method of marking must be by means of suitable surface markings producing a clear distinguishable contrasting marking meeting paragraph 6.1.1 of ANSI/ICEA S–87–640 and shall meet the durability requirements of paragraphs 7.5.2 through 7.5.2.2 of ANSI/ICEA S–87–640.

(2) The color of the initial marking must be white or silver. If the initial marking fails to meet the requirements of the preceding paragraphs, it will be permissible to either remove the defective marking and re-mark with the white or silver color or leave the defective marking on the cable and re-mark with yellow. No further re-marking is permitted. Any re-marking must be on a different portion of the cables circumference than any existing marking when possible and have a numbering sequence differing from any other marking by at least 3,000. Any reel of cable that contains more than one set of sequential markings must be labeled to indicate the color and sequence of marking to be used. The labeling must be applied to the reel and also to the cable.

(3) Each length of cable must be permanently labeled either OPTICAL CABLE, OC, OPTICAL FIBER CABLE, or OF on the outer jacket and identified as to manufacturer and year of manufacture.

(4) Each length of cable intended for direct burial installation shall be marked with a telephone handset in compliance with Rule 350G of the National Electrical Safety Code (NESC).

(5) Each length of cable shall be identified as to the manufacturer and year of manufacturing. The manufacturer and year of manufacturing may also be indicated by other means as indicated in paragraphs 6.1.2 through 6.1.4 of ANSI/ICEA S–87–640.

(6) The number of fibers on the jacket shall be marked on the jacket.

(7) An alternative method of marking may be used if acceptable to the Agency.

(8) The completed cable must have sequentially numbered length markers in METERS or FEET at regular intervals of not more than 2 feet or not more than 1 meter along the outside of the jacket. Continuous sequential numbering must

be employed in a single length of cable. The numbers must be dimensioned and spaced to produce good legibility and must be approximately 3 millimeters (118 mills) in height. An occasional illegible marking is permissible if form the illegible mark a legible marking is located within 2 meters cable marked in meters or 4 feet for cable marked in feet.

(9) Agreement between the actual length of the cable and the length marking on the cable jacket must be within the limits of +1 percent and −0 percent.

(10) *Jacket Print test.* Cables manufactured under this specification must meet the Jacket Print Test depicted in paragraphs 7.5.2.1 and 7.5.2.2 of ANSI/ICEA S–87–640.

(s) *Performance of a Finished Cable.*—(1) *Zero Dispersion Optical Fiber Cable.* Unless otherwise specified by the purchaser, the optical performance of the fibers in a finished cable must comply, as appropriate, with the cable attributes of Table 2G/G.652.B Attributes or Table 2G/G.652D found in ITU Recommendations G.652.B and G.652.D.

(2) *Nonzero Dispersion Optical Fiber Cable.* Unless otherwise specified by the purchaser, the optical performance of the fibers in a finished cable must comply with the cable attributes of Table 1 of ITU–T Recommendation G.656. When the buyer specifies ITU–T G.655 Recommendation A, B, C, D or E, the optical performance of the fibers in a finished cable must comply with the cable attributes of such Recommendation.

(3) *Multimode Optical Fiber Cable.* Unless otherwise specified by the purchaser, the optical performance of the fibers in a finished cable must comply with Table 8.1 through 8.3, of ANSI/ICEA S–87–640.

(4) Measurement of the attenuation must be conducted at the wavelength specified for application and must be expressed in decibels per kilometer.

(5) Because the accuracy of attenuation measurements for single mode fibers becomes questionable when measured on short cable lengths, attenuation measurements are to be made utilizing characterization cable lengths. Master Cable reels shall be tested and the attenuation values measured will be used for shorter ship lengths of cable.

(6) Because the accuracy of attenuation measurements for multimode fibers becomes questionable when measured on short cable lengths, attenuation measurements are to be made utilizing characterization cable lengths. If the ship length of cable is less than one kilometer, the attenuation values measured on longer lengths of cable (characterization length of cable) before cutting to the ship lengths of cable may be applied to the ship lengths.

(7) Attenuation must be measured per FOTP–78.

(8) The bandwidth of multimode fibers in a finished cable shall be no less than the values specified in ANSI/ICEA S–87–640, Table 8.2 according to paragraph 8.3.1

(t) *Mechanical Requirements.* Fiber optic cables manufactured under the requirements of this section shall be tested by the manufacturer to determine compliance with such requirements. Unless otherwise specified, testing shall be performed at the standard conditions defined in TIA/EIA–455 (Temperature of 23 ± 5 °C (73 ± 9 °), Relative Humidity of 20 to 70%, and Atmospheric Pressure of the Site Ambient.) The standard optical test wavelengths to be used are 1550 nm single mode and 1300 nm multi-mode, unless otherwise specified in the individual test.

(1) *Sheath Slitting Cord Test.* All cables manufactured under the requirements of this section must meet the Ripcord Functional Test depicted in paragraphs 7.18.1 and 7.18.2 of ANSI/ICEA S–87–640.

(2) *Material Compatibility and Cable Aging Test.* All cables manufactured under the requirements of this section must meet the Material Compatibility and Cable Aging Test depicted in paragraphs 7.19 through paragraph 7.19.2.4 of ANSI/ICEA S–87–640.

(3) *Cable Low and High Bend Test.* Cables manufactured under the requirements of this section must meet the Cable Low (−30 °C (−22 °F)) and High (60 C (140 F)) Temperatures Bend Test per paragraphs 7.21 and 7.21.2 of ANSI/ICEA S–87–640.

(4) *Compound Flow Test.* All cables manufactured under the requirements of this section must meet the test depicted in paragraphs 7.23, 7.23.1 and 7.23.2 of ANSI/ICEA S–87–640.

(5) *Cyclic Flexing Test.* All cables manufactured under the requirements of this section must meet the Flex Test depicted in paragraphs 7.27 through 7.27.2 of the ICEA S–87–640.

(6) *Water Penetration Test.* All cables manufactured under the requirements of this section must meet paragraphs 7.28 through 7.28.2 of ANSI/ICEA S–87–640.

(7) *Cable Impact Test.* All cables manufactured under the requirements of this section must meet the Cable Impact Test depicted in paragraphs 7.29.1 and 7.29.2 of ANSI/ICEA S–87–640.

(8) *Cable Tensile Loading and Fiber Strain Test.* Cables manufactured under the requirements of this section must meet the Cable Loading and Fiber Strain Test depicted in paragraphs 7.30 through 7.30.2 of ANSI/ICEA S–87–640. This test does not apply to aerial self-supporting cables.

(9) *Cable Compression Test.* All cables manufactured under requirements of this section must meet the Cable Compressive Loading Test depicted in paragraphs 7.31 through 7.31.2 of ICEA S–87–640.

(10) *Cable Twist Test.* All cables manufactured under the requirements of this section must meet the Cable Twist Test depicted in paragraph 7.32 through 7.32.2 of ANSI/ICEA S–87–640.

(11) *Cable Lighting Damage Susceptibility Test.* Cables manufactured under the requirements of this section must meet the Cable Lighting Damage Susceptibility Test depicted in paragraphs 7.33 and 7.33.1 of ANSI/ICEA S–87–640.

(12) *Cable External Freezing Test.* All cables manufactured under the requirements of this section must meet the Cable External Freezing Test depicted in paragraphs 7.22 and 7.22.1 of ANSI/ICEA S–87–640.

(13) *Cable Temperature Cycling Test.* All cables manufactured under the requirements of this section must meet the Cable Temperature Cycling Test depicted in paragraph 7.24.1 of ANSI/ICEA S–87–640.

(14) *Cable Sheath Adherence Test.* All cables manufactured under the requirements of this section must meet the Cable Sheath Adherence Test depicted in paragraph 7.26.1 and 7.26.2 of ANSI/ICEA S–87–640.

(15) *Mid-Span Test.* This test is applicable only to cables of a loose tube design specified for mid-span applications with tube storage. Cable of specialty design may be exempted of this requirement when such exception is accepted by the Agency. All buried and underground loose tube single mode cables manufactured per the requirements in this section and intended for mid-span applications with tube storage must meet the following mid-span test without exhibiting an increase in fiber attenuation greater than 0.1 dB.

(i) The specimen shall be installed in a commercially available pedestal or closure, or in a device that mimics their performance, as follows: A length of cable sheath, equal to the mid-span length, shall be removed from the middle of the test specimen so as to allow access the buffer tubes. All binders, tapes, strength members, etc. shall be removed. The buffer tubes shall be left intact. The cable ends defining the ends of the mid-span length shall be properly secured in the closure, to the

more stringent of the cable or hardware manufacturer's recommendations. Strength members shall be secured with an end stop type clamp and the outer jacket shall be clamped to prevent slippage. A minimum of 20 feet of cable shall extend from the entry and exit ports of the closure, for the purpose of making optical measurements.

(ii) The expressed buffer tubes shall be loosely constrained during the test.

(iii) The enclosure, with installed cable, shall be placed in an environmental chamber for temperature cycling. It is acceptable for some or all of the two 20 ft. cable segments to extend outside the environmental chamber.

(iv) Lids, pedestal enclosures, or closure covers shall be removed if possible to allow for temperature equilibrium of the buffer tubes. If this is not possible, the manufacture must demonstrate that the buffer tubes are at temperature equilibrium prior to beginning the soak time.

(v) Measure the attenuation of dispersion-unshifted single mode fibers at 1310 ± 10 and 1550 ± 10 nm, dispersion-shifted single mode fibers at 1550 ± 10 nm.

(vi) After measuring the attenuation of the optical fibers, test the cable sample per EIA/TIA–455–3A. The following detailed test conditions shall apply:

(A) Section 4.1—Loose tube single mode optical cable sample shall be tested.

(B) Section 4.2—An Agency accepted 8 to 12 inch diameter optical buried distribution pedestal or equivalent sample shall be tested.

(C) Mid-span opening for installation of loose tube single mode optical cable in pedestal shall be 3 meters (10 feet) or 4.9 meters (16 feet) depending on the cable listing.

(D) Section 5.1—3 hours soak time.

(E) Section 5.2—Test Condition C–2, minimum −40 °C (−40 °F) and maximum 70° Celsius (158 °F).

(F) Section 5.7.2—A statistically representative amount of transmitting fibers in all express buffer tubes passing through the pedestal and stored shall be measured.

(vii) The cable may be allowed to warm to room temperature before visual inspection. The cable mid-span opening must not show visible evidence of fracture of the buffer tubes nor any degradation of all exposed cable assemblies. Fiber cable attenuation measured through the express buffer tubes during the last cycle at −40 °C C (−40 °F) and +70C (158 °F) and after the test shall not exceed 0.1 dB from the initial baseline measurements made per EIA/TIA–455–3A, Section 5.7.1 and Section 5.7.2 specified in paragraph (t)(15)(vi) of this section.

(16) *Aerial Self-Supporting Cables.* The following tests apply to aerial cables only:

(i) *Static Tensile Testing of Aerial Self-Supporting Cables.* Aerial self-supporting cable made to this specification must meet the test depicted in paragraphs D.4.1.1 through D.4.1.5 of ANSI/ICEA S–87–640 when using FOTP–33.

(ii) *Cable Galloping Test.* Aerial self-supporting cable made to the requirements of this section must meet the test depicted in paragraphs D.4.2 through D.4.2.3 of ANSI/ICEA S–87–640.

(u) *Pre-connectorized Cable.* (1) At the option of the manufacturer and upon request by the purchaser, the cable may be factory terminated with connectors acceptable to the Agency.

(2) All connectors must be accepted by the Agency prior to their use.

(v) *Acceptance Testing.* (1) The tests described in the Appendix to this section are intended for acceptance of cable designs and major modifications of accepted designs. What constitutes a major modification is at the discretion of the Agency. These tests are intended to show the inherent capability of the manufacturer to produce cable products that have satisfactory performance characteristics, long life and long-term optical stability but are not intended as field tests. After initial Agency acceptance is granted, the manufacturer will need to apply for continued product acceptance on January of the third year after the year of initial acceptance.

(2) *Acceptance.* For initial acceptance, the manufacturer must submit:

(i) An original signature certification that the product fully complies with each section of this specification;

(ii) Qualification Test Data, per the Appendix to this section;

(iii) A set of instructions for handling the cable;

(iv) OSHA Material Safety Data Sheets for all components;

(v) Agree to periodic plant inspections;

(vi) A certification stating whether the cable, as sold to the Agency Telecommunications program borrowers, complies with the following two provisions:

(A) Final assembly or manufacture of the product, as the product would be used by an Agency Telecommunications program borrower, is completed in the United States or eligible countries (currently, Mexico, Canada and Israel); and

(B) The cost of United States and eligible countries' components (in any combination) within the product is more than 50 percent of the total cost of all components utilized in the product. The cost of non-domestic components (components not manufactured within the United States or eligible countries) which are included in the finished product must include all duties, taxes, and delivery charges to the point of assembly or manufacture;

(vii) Written user testimonials concerning performance of the product; and

(viii) Other nonproprietary data deemed necessary by the Agency.

(3) *Re-qualification acceptance.* For submission of a request for continued product acceptance after the initial acceptance, follow paragraph (v)(1) of this section and then, on January every three years, the manufacturer shall submit an original signature certification stating that the product fully complies with each section of the specification, excluding the Qualification Section, and a certification that the products sold to Agency Telecommunications Program borrowers comply with paragraphs (v)(2)(vi) through (v)(2)(vi)(B) of this section. The tests of the Appendix to this section shall be conducted and records kept for at least three years and the data shall be made available to the Agency on request. The required data must have been gathered within 90 days of the submission. A certification shall be submitted to the Agency stating that the cable manufactured to the requirements of this section has been tested per the Appendix of this section and that the cable met the test requirements.

(4) Initial and re-qualification acceptance requests should be addressed to: Chairman, Technical Standards Committee ''A'' (Telecommunications), STOP 1550, Advanced Services Division, Rural Development Telecommunications Program, Washington, DC 20250–1500.

(5) *Tests on 100 Percent of Completed Cable.* (i) The armor for each length of cable must be tested for continuity using the procedures of ASTM D 4566.

(ii) Attenuation for each optical fiber in the cable must be measured.

(iii) Optical discontinuities greater than 0.1dB must be isolated and their location and amplitude recorded.

(6) *Capability Tests.* The manufacturer shall establish a quality assurance system consistent with nationally or internationally recognized standards such as ANSI/ASQC Q9000, ISO 9001, or TL 9000®. Tests on a quality assurance basis must be made as frequently as is required for each

manufacturer to determine and maintain compliance with all the mechanical requirements and the fiber and cable attributes required by this section, such as:

(i) Numerical aperture and bandwidth of multimode fibers;

(ii) Cut off wavelength of single mode fibers;

(iii) Dispersion of single mode fibers;

(iv) Shrinkback and cold testing of loose tube and tight tube buffers;

(v) Adhesion properties of the protective fiber coating;

(vi) Dielectric strength between the armor and the metallic central member;

(vii) Performance requirements for the fibers.

(viii) Performance requirements for the inner and outer jacketing materials;

(ix) Performance requirements for the filling and flooding compounds;

(x) Bonding properties of the coated armoring material;

(xi) Sequential marking and lettering;

(xii) Mechanical tests depicted in paragraphs (t)(1) through (t)(16)(ii) of this section.

(w) *Records Tests.* (1) Each manufacturer must maintain suitable summary records for a period of at least 3 years of all optical and physical tests required on completed cable by this specification as set forth in paragraphs (v)(5) and (v)(6) of this section. The test data for a particular reel must be in a form that it may be readily available to the Agency upon request. The optical data must be furnished to the purchaser on a suitable and easily readable form.

(2) Measurements and computed values must be rounded off to the number of places or figures specified for the requirement according to ASTM E 29.

(x) *Manufacturing Irregularities.* (1) Repairs to the armor, when present, are not permitted in cable supplied to the end user under this section.

(2) Minor defects in the inner and outer jacket (defects having a dimension of 3 millimeters or less in any direction) may be repaired by means of heat fusing per good commercial practices utilizing sheath grade compounds.

(y) *Packaging and Preparation for Shipment.* (1) The cable must be shipped on reels containing one continues length of cable. The diameter of the drum must be large enough to prevent damage to the cable from reeling and unreeling. The diameter must be at least equal to the minimum bending diameter of the cable. The reels must be substantial and so constructed as to prevent damage during shipment and handling.

(2) A circumferential thermal wrap or other means of protection must be secured between the outer edges of the reel flange to protect the cable against damage during storage and shipment. The thermal wrap must comply with the requirements included in the following test:

(i) *Thermal Reel Wrap Test.* This test procedure is for qualification of initial and subsequent changes in thermal reel wraps.

(A) *Sample Selection.* All testing must be performed on two 450 millimeter (18 inches) lengths of cable removed sequentially from the same fiber jacketed cable. This cable must not have been exposed to temperatures in excess of 38 °C (100 °F) since its initial cool down after sheathing.

(B) *Test Procedure. (1)* Place the two samples on an insulating material such as wood.

(2) Tape thermocouples to the jackets of each sample to measure the jacket temperature.

(3) Cover one sample with the thermal reel wrap.

(4) Expose the samples to a radiant heat source capable of heating the uncovered sample to a minimum of 71°C (160 °F). A GE 600 watt photoflood lamp or an equivalent lamp having the light spectrum approximately that of the sun shall be used.

(5) The height of the lamp above the jacket shall be 380 millimeters (15 inches) or an equivalent height that produces the 71 °C (160 °F) jacket temperature on the unwrapped sample shall be used.

(6) After the samples have stabilized at the temperature, the jacket temperatures of the samples shall be recorded after one hour of exposure to the heat source.

(7) Compute the temperature difference between jackets.

(8) For the thermal reel wrap to be acceptable to the Agency, the temperature difference between the jacket with the thermal reel wrap and the jacket without the reel wrap shall be greater than or equal to 17 °C (63 °F).

(3) Cable manufactured to the requirements of this specification must be sealed at the ends to prevent entrance of moisture.

(4) The end-of-pull (outer end) of the cable must be securely fastened to prevent the cable from coming loose during transit. The start-of-pull (inner end) of the cable must project through a slot in the flange of the reel, around an inner riser, or into a recess on the flange near the drum and fastened in such a way to prevent the cable from becoming loose during installation.

(5) Spikes, staples or other fastening devices must be used in a manner which will not result in penetration of the cable.

(6) The arbor hole must admit a spindle 63.5 millimeters (2.5 inches) in diameter without binding. Steel arbor hole liners may be used but must be accepted by the Agency prior to their use.

(7) Each reel must be plainly marked to indicate the direction in which it should be rolled to prevent loosening of the cable on the reel.

(8) Each reel must be stenciled or lettered with the name of the manufacturer.

(9) The following information must be either stenciled on the reel or on a tag firmly attached to the reel:

OPTICAL CABLE
Number of Fibers
Armored or Non-armored
Year of Manufacture
Name of Cable Manufacturer
Length of Cable
Reel Number 7 CFR 1755.900
Minimum Bending Diameter for both Residual and Loaded Condition during installation

Example:

OPTICAL CABLE
4 fibers
Armored
XYZ Company
1050 meters
Reel Number 3
7 CFR 1755.900
Minimum Bending Diameter:
Residual (Installed): 20 times Cable O.D
Loaded Condition: 40 times Cable O.D

APPENDIX TO § 1755.900

FIBER OPTIC CABLES

Bulletin 1753F–601(PE–90) Qualifications Test Data; Initial qualification and three year re-qualification test data required for TELECOMMUNICATIONS PROGRAM product acceptance. Please note that some tests may apply only to a particular cable design.

Paragraph	Test	Initial qualification	3 year re-qualification
(e)(4)(i)	Shrinkback	X	
(e)(4)(ii)	Cold Bend	X	

FIBER OPTIC CABLES—Continued

Bulletin 1753F–601(PE–90) Qualifications Test Data; Initial qualification and three year re-qualification test data required for TELECOMMUNICATIONS PROGRAM product acceptance. Please note that some tests may apply only to a particular cable design.

Paragraph	Test	Initial qualification	3 year re-qualification
(t)(1)	Sheath Slitting Cord	X	
(t)(2)	Material Compatibility	X	
(t)(3)	Cable Low & High Bend	X	X
(t)(4)	Compound Flow	X	
(t)(5)	Cyclic Flexing	X	X
(t)(6)	Water Penetration	X	X
(t)(7)	Cable Impact	X	X
(t)(8)	Cable Tensile Loading & Fiber Strain	X	X
(t)(9)	Cable Compression	X	
(t)(10)	Cable Twist	X	X
(t)(11)	Cable Lighting Damage Susceptibility	X	
(t)(12)	Cable External Freezing	X	
(t)(13)	Cable Temperature Cycling	X	X
(t)(14)	Cable Sheath Adherence	X	
(t)(15)	Mid-Span	X	
(t)(16)(i)	Static Tensile Testing of Aerial Self-Supporting Cables	X	X
(t)(16)(ii)	Cable Galloping	X	
(y)(2)(i)	Thermal Reel Wrap test	X	

4. Section 1755.901 is added to read as follows:

§ 1755.901 Incorporation by reference.

(a) The specifications in the table following paragraph (b) of this section are incorporated by reference by the Telecommunications Program and apply to §§ 1755.900 and 1755.902. This incorporation by reference was approved by the Director of the Federal Register per 5 U.S.C. 552(a) and 1 CFR part 51. Copies of these documents are available for inspection at the National Archives and Records Administration (NARA). For more information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal-register/cfr/ibr-locations.htm.*

(b) ANSI/IEEE C–2 can be obtained from IEEE at *http://standards.ieee.org/nesc/index.html.* ANSI ICEA S–87–640 and S–110–717 can be obtained from HIS at *http://global.ihs.com*; ASTM Standards A 370, A 640, A657/A657M, B 736, D 1248, D 1535, D 1693, D 3349, D 4565, D 4566, D 4568, and E 29 can be obtained from ANSI at *http://webstore.ansi.org/ansidocstore/default.asp;* EIA/TIA Standards 455–3 and 455–55C can be obtained at HIS at *http://global.ihs.com;* TIA/EIA 455–78A and EIA/TIA–455–78B can be obtained at *http://www.tiaonline.org/standards/catalog;* and ITU Recommendations G.652, G.655 and L.58 can be obtained at *http://www.itu.int/ITU-T/publications/recs.html.*

Specification and issue date	Title
ANSI/IEEE C–2 (2007)	National Electrical Safety Code (NESC).
ANSI/ICEA S–87–640 (2006)	Optical Fiber Outside Plant Communications Cable.
ANSI/ICEA S–110–717 (2003)	Optical Drop Cables.
ASTM A 370 (2005)	Standard Test Methods and Definitions for Mechanical Testing of Steel Products.
ASTM A 640 (1997)	Standard Specification for Zinc-Coated Steel Strand for Messenger Support of Figure 8 Cable.
ASTM A657/A657M (2003)	Standard Specification for Tin Mill Products, Black Plate Electrolytic Chromium-Coated, Single and Double Reduced.
ASTM B 736 (2000)	Standard Specification for Aluminum, Aluminum Alloy and Aluminum-Clad Steel Cable Shielding Stock.
ASTM D 1248 (2004)	Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.
ASTM D 1535 (2006)	Standard Practice for Specifying Color by the MUNSELL System.
ASTM D 1693—01	Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.
ASTM D 3349—(1999)	Standard Test Method for Absorption Coefficient of Ethylene Polymer Material Pigmented with Carbon Black.
ASTM D 4565 (1999)	Standard Test Methods for Physical and Environmental Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable.
ASTM D 4566—98	Standard Test Methods for Electrical Performance Properties of Insulations and Jackets for Telecommunications Wire and Cable.
ASTM D 4568—(1999)	Standard Test Methods for Evaluating Compatibility Between Cable Filling and Flooding Compounds and Polyolefin Wire and Cable Materials.
ASTM E 29 (2006)	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications.
EIA/TIA–455–3 (1989)	FOTP–3, Procedure to Measure Temperature Cycling on Optical Fibers, Optical Cable, and Other Passive Fiber Optic Components.
EIA/TIA–455–55C (1998)	FOTP–55 End-View Methods for Measuring Coating and Buffer Geometry of Optical Fibers.
EIA/TIA–455–78A	FOTP–78 Spectral-Attenuation Cutback Measurement for Single-Mode Optical Fibers.
TIA/EIA 455–78B (2002)	Optical Fibres—PART 1–40: Measurement Methods and Test Procedures—Attenuation; FOTP–178 IEC 60793–1–40.
ITU–T Recommendation G.652 (2005)	Characteristics of a single-mode optical fibre and cable.
ITU–T Recommendation G.655 (2006)	Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable.

Specification and issue date	Title
ITU–T Recommendation G.656 (2006)	Characteristics of a fibre and cable with non-zero dispersion for wideband optical transport.
ITU–T Recommendation L.58 (2004)	Construction, Installation and Protection of Cables and Other Elements of Outside Plant.
TIA–598–C (2005)	Optical Fiber Cable Color Coding.
TIA/EIA–455–B (1998)	Standard Test Procedure for Fiber Optic Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices, and Other Fiber Optic Components.
TIA/EIA–455–3	Procedure to Measure Temperature Cycling Effects on Optical Fibers Optical Cable, and Other Passive Fiber Optic Components.

5. Section 1755.902 and an undesignated center heading are added to read as follows:

Fiber Optic Service Entrance Cables

§ 1755.902 Fiber optic service entrance cables.

This section covers the requirements for fiber optic service entrance cables intended for aerial installation either by attachment to a support strand or by an integrated self-supporting arrangement, for underground application by placement in a duct, or for buried installations by trenching, direct plowing, directional or pneumatic boring. Cable meeting this specification is recommended for fiber optic service entrances having 12 or fewer fibers with distances less than 100 meters (300 feet.) Service entrance cables shall meet the requirements of § 1755.900, except for any conflicting requirements with this section, in which case the following stipulations supersede requirements of § 1755.900:

(a) *Cable Detection.* For detection purposes, the cable may have toning elements embedded or extruded with the outer jacket.

(b) *Tensile Rating.* The cable shall have ratings that are no less than the tensile ratings indicated in paragraph 1.1.4, Tensile Rating, of Part 1 of the ICEA S–110–717 (ANSI/TIA 472F000).

(c) *Single Mode Cables.* Unless otherwise specified by the purchaser, the single mode optical fibers used in service entrance cables shall meet the fiber attributes of Table 2/G.652, *G.652.B attributes,* of ITU–T Recommendation G.652. However, when the purchaser stipulates a low water peak fiber the optical fibers shall meet the fiber attributes of Table 4/G.652, *G.652.D attributes,* of ITU–T Recommendation G.652.

(d) *Fiber Count.* Unless otherwise specified by the purchaser, the service entrance cable shall contain 12 fibers or less.

(e) *Armor.* A steel armor required in § 1755.900 for direct buried cable manufactured is optional, as required by the purchaser, for service entrance cable under this specification.

Dated: June 20, 2007.

James M. Andrew,

Administrator, Rural Utilities Service.

[FR Doc. E7–13795 Filed 7–16–07; 8:45 am]

BILLING CODE 3410–15–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2007–28319; Directorate Identifier 2007–NE–27–AD]

RIN 2120–AA64

Airworthiness Directives; General Electric Company (GE) CF6–80C2D1F Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for GE CF6–80C2D1F turbofan engines, installed on McDonnell Douglas Corporation MD–11 series airplanes. This proposed AD would require removing previous software versions from the engine electronic control unit (ECU). Engines with new version software will have increased margin to flameout. This proposed AD results from reports of engine flameout events during flight, including reports of events where all engines simultaneously experienced a flameout or other adverse operation. Although the root cause investigation is not yet complete, we believe that exposure to ice crystals during flight is associated with these flameout events. We are proposing this AD to minimize the potential of an all-engine flameout event caused by ice accretion and shedding during flight.

DATES: We must receive any comments on this proposed AD by September 17, 2007.

ADDRESSES: Use one of the following addresses to comment on this proposed AD.

- *DOT Docket Web site:* Go to *http://dms.dot.gov* and follow the instructions for sending your comments electronically.
- *Government-wide rulemaking Web site:* Go to *http://www.regulations.gov* and follow the instructions for sending your comments electronically.
- *Mail:* U.S. Department of Transportation, Docket Operations, M–30, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- *Hand Delivery:* Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- *Fax:* (202) 493–2251.

You can get the service information identified in this proposed AD from General Electric Company via Lockheed Martin Technology Services, 10525 Chester Road, Suite C, Cincinnati, Ohio 45215, telephone (513) 672–8400, fax (513) 672–8422.

FOR FURTHER INFORMATION CONTACT: John Golinski, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: *john.golinski@faa.gov;* telephone: (781) 238–7135, fax: (781) 238–7199.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send us any written relevant data, views, or arguments regarding this proposal. Send your comments to an address listed under **ADDRESSES**. Include ''Docket No. FAA–2007–28319; Directorate Identifier 2007–NE–27–AD'' in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the proposed AD. We will consider all comments received by the closing date and may amend the proposed AD in light of those comments.

We will post all comments we receive, without change, to *http://dms.dot.gov,* including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this proposed AD. Using the search function of the DOT Web site, anyone can find and read the