ARTICLE 7

LICENSE ADMINISTRATION

Section 7.1 INDEMNIFICATION

(a) The Licensee shall indemnify and hold the Town and its agents harmless at all times during the term of this License from any and all claims arising out of the actions of the Licensee, its agents, affiliates and contractors in the construction, installation, operation, maintenance and/or removal of any structure, equipment, wire or cable authorized pursuant to the License and in accordance herewith. Upon receipt of notice in writing from the Town, the Licensee shall at its own expense defend any such actions or proceedings. Indemnified expenses shall include, without limitation, all reasonable out-of-pocket expenses, such as attorney's fees. Licensee shall not be required to indemnify the Town for willful misconduct on the part of the Town or its officials, Boards, Commissions, agencies or employees.

(b) In order for the Town to assert its right to be indemnified and held harmless, the Town shall:

1. Timely notify the Licensee of any claim or legal proceeding which gives rise to such right;

2. Afford the Licensee the opportunity to participate in and control the case; provided that any compromise, settlement, resolution or disposition of such claim or proceeding in which the Town is indemnified, defended or held harmless, will be subject to approval by the Issuing Authority and such approval

shall not be unreasonably withheld. The Town shall throughout the proceedings have the right to participate in all aspects of the proceedings and to be consulted on same and to receive copies of any and all notices and correspondence concerning the case.

3. Fully cooperate in the defense of such claim and make available to the Licensee all such information under its control relating thereto upon written request by the Licensee.

Section 7.2 INSURANCE

At all times during the term of this License, including the time for removal of facilities provided for herein, Licensee shall obtain, pay all premiums for, and file with the Issuing Authority insurance company certificates of the following insurance:

(a) A general comprehensive hazard and property liability policy naming the Town as an additional insured on all claims on account of injury to or death of a person or persons occasioned by the construction, upgrade, maintenance or operation of the Licensee's Cable Television System, with a minimum liability of one million dollars ($1,000,000.00) for property damage, injury or death to any one person in any one occurrence and three million dollars ($3,000,000.00) for injury or death to two (2) or more persons in any one occurrence.

(b) It is hereby understood and agreed that this policy (or bond) shall not be canceled or materially changed until after

receipt by the Issuing Authority by certified mail of one (1) copy of a written notice of such intent to cancel or materially change the policy. It is further understood and agreed that such notice of cancellation or change shall be sent by Licensee to and received by the Issuing Authority within 3 business days after notification has been received by the Licensee.

Section 7.3 PERFORMANCE BOND

(a) The Licensee shall maintain at its own expense throughout the term of this License a faithful performance bond running to the Town, with at least one good and sufficient surety licensed to do business in the Commonwealth of Massachusetts and subject to reasonable approval by the Town in the sum one hundred twenty-five thousand ($125,000.00) during a period of a system rebuild or upgrade and reduced to fifty thousand ($50,000) sixty (60) days after system activation provided for in Section 3.1. The condition of said bond shall be that the Licensee shall well and truly observe, fulfill and perform each material term and condition of this License and that in case of any failure to comply with any material term and/or condition contained herein, the amount thereof shall be recoverable from said performance bond by the Town for all amounts resulting from the failure of Licensee to comply with any material term or condition in this License, provided that first Licensee received written notification of such failure and has been given a reasonable opportunity to cure and be heard. The parties may at any time

renegotiate the amounts required for the foregoing bond but are under no obligation to change the amounts.

(b) The performance bond shall be effective throughout the term of this License, including the time for removal of facilities provided for herein, and shall be on the condition that in the event that Licensee shall fail to comply with any one or more material term or condition of this License; or fail to comply with material terms of legal orders or permits of agency, commission, board, or office of the Town having jurisdiction over its acts; or fail to pay any claims, liens or taxes legally due the Town, the Town shall recover from the surety of such bond up to the limits insured by such bond, within thirty (30) days after a written request for same. Said condition shall be a continuing obligation of this License until Licensee has liquidated all of its obligations to the Town. Neither this section, any bond accepted pursuant hereto, or any damages recovered hereunder shall limit the liability of Licensee under this License.

Section 7.4 COMPLIANCE PROCEDURES;
NOTICE AND OPPORTUNITY TO CURE

(a) In addition to the performance bond hereinabove required,the Licensee agrees that in the event of a license transfer, the Issuing Authority shall have the power, upon a finding by the Issuing Authority that security for the performance of obligations under this license is reasonably necessary, to require the successor Licensee to establish a Letter of Credit,

provided by such successor Licensee to the Issuing Authority not less than sixty (60) days after such Issuing Authority request, with said Letter of Credit being with respect to non-compliance with the License, in a form substantially similar to the sample Letter of Credit attached as Schedule 7.4, in accordance herewith:

(b) If the successor Licensee fails, after thirty (30) days notice, to pay to the Issuing Authority any material fees, taxes, penalties, damages, or expenses required pursuant to this License; or fails, after thirty (30) days notice or such longer period as is reasonably necessary as determined by the Issuing Authority, to comply with any material provision of this License and to effect a cure of such non-compliance, the Issuing Authority may, in its discretion, draw on the Letter of Credit, subject to the following conditions:

1. The Issuing Authority must indicate in a 30 day notice by which it informs the Licensee of the default for which damages are sought that failure to cure the act or omission within thirty (30) days or such longer period as is reasonably required, may result in a charge recoverable pursuant to the Letter of Credit. In this notice, the Issuing Authority shall also indicate the specific basis upon which it believes the Licensee is in default, the amount to be charged, and specific reasons such amount is due. Such notice shall also provide that at Licensee's

request, a meeting with the Issuing Authority shall be held and if not resolved, a hearing on the matter will be held by the Issuing Authority prior to the assessment of damages and drawing on the Letter of Credit. At such hearing the Licensee may present evidence as to why damages should not be assessed. After the conclusion of said hearing, the Issuing Authority shall issue a written statement of reasons on its decision to assess or not to assess damages or draw on the Letter of Credit. Any hearing held pursuant to this section shall be subject to Ch. 30A of the General Laws.

2. In the event Licensee cures any breach of which it has been notified by the Issuing Authority, no damages for such breach shall be recoverable.

3. Any decision of the Issuing Authority to assess damages hereunder may be appealed to the Massachusetts Cable Commission. Any such appeal of the Issuing Authority decision shall not result in a mandatory stay of the Issuing Authority's right to draw on the Letter of Credit, but the Licensee may apply for such a stay.

(c) The rights reserved to the Issuing Authority with respect to the Letter of Credit are in addition to all other rights of the Issuing Authority, whether reserved by this License or authorized by law, and no action, proceeding or exercise of a right with

respect to the Letter of Credit shall affect any other right the Issuing Authority may have. Notwithstanding the foregoing, the Issuing Authority shall not draw on the Letter of Credit or any other source of compensation resulting in duplicative coverage for any loss or injury.

(d) As actual damages for material failure to complete system upgrade and construction in accordance with the terms of the License, unless the delay is due to the occurrence of conditions beyond the Licensee's control, the Licensee shall pay to the Issuing Authority three hundred and fifty dollars ($350.00) per day for each day a deficiency continues following the 20th month after the effective date of this License.

(e) Each material breach of each provision shall be considered a separate violation for which separate damages are imposed.

(f) The aforesaid Letter of Credit shall be for an amount not less than $15,000.00 and shall be irrevocable and replenishable and in form customary for said instruments.

Section 7.5 ADMINISTRATION OF THE CABLE SYSTEM: CABLE ADVISORY COMMITTEE

At the discretion of the Issuing Authority, the Cable Advisory Committee may be vested by the Issuing Authority with such power and authority as may lawfully be delegated, including but not limited to, monitoring the Licensee's compliance with the terms and conditions of this License. The Licensee shall meet with the

Issuing Authority or the Cable Advisory Committee to review the Licensee's compliance to the License as well as to review other issues related to this License. Such meetings may be requested by the Issuing Authority, the Cable Advisory Committee, or the Licensee. The number of Cable Advisory Committee members and its composition shall be determined by the Issuing Authority in its sole discretion and upon prior notice to Licensee.

Section 7.6 PERFORMANCE EVALUATION SESSIONS

The Issuing Authority may, at its discretion, hold a performance evaluation session not more than annually. All such evaluation sessions shall be open to the public. The purpose of said evaluation sessions shall be to review Licensee's compliance with and performance under the terms and conditions of this License. The Issuing Authority shall have the right to question Licensee concerning the upgrade, operation, maintenance and extension of the Cable Television System. During review and evaluation by the Issuing Authority, Licensee shall fully cooperate with the Issuing Authority or its designee, and produce such documents or other materials as are reasonably requested by the Town and reasonably related to compliance with the License.

Section 7.7 INFORMATION REQUESTS AND RIGHT TO INSPECT RECORDS AND FACILITIES

If the Issuing Authority has reasonable basis to believe that Licensee is not in compliance with the License, upon request of the Issuing Authority, the Licensee shall promptly submit to the Town appropriate information, reasonably needed to show

compliance with this License or compliance with Federal or State Law.

Section 7.8 NON-PERFORMANCE BY THE LICENSEE

(a) The payment of damages for violations under this License shall not be deemed to excuse the violation.

(b) Failure of the Town to enforce the performance of any term of this License shall not be deemed a waiver of its right to insist upon the subsequent performance of that term.

Section 7.9 LICENSE FEE ENTITLEMENT AND ACCESS PAYMENTS

(a) Subject to applicable law, Licensee shall, on or before March 15th of each year, submit a license fee to the Issuing Authority equal to fifty cents per subscriber per year as provided in Section 9 of Chapter 166A of the Massachusetts General Laws and such payments required pursuant to the section 5.6 of the Licensee. The number of subscribers, for purposes of this section, shall be calculated on the last day of each year. The parties further agree that at the time ofexecution of this License, the Licensee shall prepay franchise fees or ETP funds required under Section 4.2, as permitted in accordance with 47 U.S.C. 542, in an amount not to exceed $25,000.00 of funds payable under this license, adjusted for the time value of money, to the Issuing Authority or its designee for Issuing Authority access development and cable-related costs as directed by the Issuing Authority.

(b) In accordance with federal law, License fees as defined by federal law, shall not exceed five percent (5%) of Licensee's Gross Annual Revenues and the term License fees shall include fees for PEG operating expenses pursuant to federal or state law (for purposes of the federal franchise fee cap).

Section 7.10 TAXES

Payment of the License fee made by Licensee to the Town pursuant to the provisions of this License shall not be considered in the nature of a tax, but shall be in addition to any and all taxes of general applicability which are now or may be required hereafter to be paid by any law of the Commonwealth of Massachusetts or the United States.

Section 7.11 SUBSCRIBER AND USER COMPLAINTS

Licensee shall keep all written complaints it receives on file in its local business office for a minimum of two (2) years after receipt.

Section 7.12 SUBSCRIBER COMPLAINT REPORT

The Licensee shall submit a completed copy of Commission Form 500B to the Issuing Authority, or its designee, no later than two (2) weeks after each of the following dates: March 31st, June 30th , September 30th and December 31st or such other dates as required by the Commission. The Licensee shall record written and verbal complaints from its Subscribers on said Form 500B and shall attach to said form a summary of service calls including

those kinds of consumer matters listed on the summary of service form attached here to as Schedule 7.12.

Section 7.13 INDIVIDUAL COMPLAINT REPORTS

Licensee shall, within ten (10) days after receiving a written request therefor from the Issuing Authority, send a written report to the Issuing Authority with respect to any complaint. Such report shall provide a full explanation of the investigation, finding(s) and corrective steps taken.

Section 7.14 ANNUAL PERFORMANCE TEST

Proof of performance tests, as required by the F.C.C., shall be conducted to ensure compliance with the F.C.C. Technical Specifications referenced in Section 3.26 herein. The costs of such test(s) shall be borne by Licensee.

Proof of performance tests shall be submitted to the Issuing Authority, upon request, on an annual basis within ten (10) calendar days after completion of testing.

Section 7.15 SERVICE INTERRUPTION REPORT

The Licensee shall submit a completed copy of Commission Form 500C to the Issuing Authority, or its designee, no later than two (2) weeks after each of the following dates: March 31st, June

30th, September 30th and December 31st or such other dates as required by the Commission.

Section 7.16 FINANCIAL REPORTS

(a) The Licensee shall furnish the Issuing Authority, or its designee(s) no later than one hundred twenty (120) days after the end of Licensee's fiscal year, Commission Forms 200, 300 and 400, as prepared for the Massachusetts Cable Commission, prepared in accordance with Generally Accepted Accounting Principles, including statements of significant assumptions and definitions as needed, or if such forms are not in use, balance sheet, income and cash flow statements shall be filed with the Issuing Authority.

(b) In the event that the Town or its designee receives a percentage License Fee pursuant to applicable law, the Licensee shall furnish the Issuing Authority and/or its designee(s), no later than one hundred and twenty (120) days after the end of the Licensee's fiscal year, a Statement of Gross Annual Revenues and, any other reports required by State and/or federal law pertaining to its gross revenues.

Section 7.17 NUMBER OF SUBSCRIBERS

Licensee shall file with the Issuing Authority a report containing the number of subscribers in the Town. Said report shall be filed annually with the Financial Reports required pursuant to Section 7.17 above.

Section 7.18 NON-EXCLUSIVITY OF REMEDY

No decision by the Issuing Authority or the Town to invoke any remedy under this License or under any statute, law or ordinance shall preclude the availability of any other such remedy except that monetary remedies shall not be duplicative of each other with respect to a single occurrence.

Section 7.19 DUAL FILINGS

Upon request of the Issuing Authority the Licensee shall make available to the Town, and copy at the Licensee's expense, copies of any formal petitions or formal filings by the Licensee in any State or federal agency adjudication pertaining to compliance with any material aspect of this License.

Section 7.20 ARBITRATION

Any dispute between the parties as to performance under this license which the parties are unable to resolve after good faith efforts may be submitted by either party to arbitration to a mutually acceptable arbitrator to be resolved in accordance with the rules of the American Arbitration Association at an arbitration fee mutually acceptable to the parties. Prior to exercise by any party of its rights under this clause, the parties may seek resolution of disputes in any other lawful forum including but not limited to the Massachusetts Cable Television Commission, the courts or a mediation agency.

Section 7.21 REVOCATION OF RENEWAL LICENSE

This License may be revoked by the Issuing Authority subject to the revocation provisions of G.L. ch. 166A, Section 11. Subject to applicable law, the License may after hearing be revoked by the Issuing Authority or the Commission for any of the following reasons:

(a) for false or misleading statements in, or material omissions from any application submitted under section four, five or any annual return under section eight of G.L. ch. 166A;

(b) for failure to file and maintain a bond as required under subsection (k) of section five of ch. 166A or to maintain insurance as required under subsection (c) of said section;

(c) for repeated violations, as determined by the commission, of commitments of a license set forth in subsection (j) of section five of ch. 166A;

(d) for any transfer or assignment of a license or control thereof without consent in violation of section seven of ch. 166A;

(e) for repeated violations of other obligations of the Licensee set forth in section five of ch. 166A, except subsection (j), or of the terms of its License;

(f) for failure to complete construction in accordance with the provisions of subsection (n) of said section five.

ARTICLE 8

GENERAL PROVISIONS

Section 8.1 ENTIRE AGREEMENT

This instrument contains the entire agreement between the parties, supersedes all prior agreements or proposals except as specifically incorporated herein, and cannot be changed orally but only by instrument in writing executed by the parties.

Section 8.2 CAPTIONS

The captions to sections throughout this License are intended solely to facilitate reading and reference to the sections and provisions of this License. Such captions shall not affect the meaning or interpretation of this License.

Section 8.3 SEVERABILITY

If any section, sentence, paragraph, term or provision of this License is determined to be illegal, invalid or unconstitutional, by any court of competent jurisdiction or by any state or federal regulatory agency having jurisdiction thereof, such determination shall have no effect on the validity of any other section, sentence, paragraph, term or provision

thereof, all of which shall remain in full force and effect for the term of this License.

Section 8.4 FORCE MAJEURE

If for any reason of force majeure either party is unable in whole or in part to carry out its obligations hereunder, said party shall not be deemed in violation or default during the continuance of such inability. Unless further limited elsewhere in this License, the term "force majeure" as used herein shall have the following meaning: strikes; acts of God; acts of public enemies, orders of any kind of the government of the United States of America or of the Commonwealth of Massachusetts or any of their departments, agencies, political subdivisions, or officials, or any civil or military authority; insurrections; riots, epidemics; landslides; lightning; earthquakes; fires, hurricanes; volcanic activity; storms; floods; snowstorms; washouts; droughts; arrests; civil disturbances; explosions; partial or entire failure of utilities and unavailability of essential equipment, services or materials; or any other cause or event not reasonably within the control of the disabled party.

Section 8.5 LICENSE EXHIBITS

The Schedules or Exhibits to this License, attached hereto, and all portions thereof, are incorporated herein by reference and expressly made a part of this License.

Section 8.6 WARRANTIES

The Licensee warrants, represents and acknowledges that, as of the Effective Date of this License:

(a) The Licensee is duly organized, validly existing and in good standing under the laws of the State;

(b) The Licensee has the requisite power and authority under applicable law and its by-laws and articles of incorporation and/or other organizational documents, is authorized by resolutions of its Board of Directors or other governing body, and has secured all consents which are required to be obtained as of the execution date of this License, to enter into and legally bind the Licensee to this License and to take all actions necessary to perform all of its obligations pursuant to this License;

(c) This License is enforceable against the Licensee in accordance with the provisions herein; and

(d) There is no action or proceedings pending or threatened against the Licensee which would interfere with performance of this License.

Section 8.7 STATEMENT OF THE LICENSEE

By executing this License, the Licensee represents that, as of the execution date, the performance of all terms and conditions in this License is commercially practicable as that term is defined in 47 U.S.C. 545.

Section 8.8 APPLICABILITY OF LICENSE

All of the provisions in this License shall apply to the Town, the Licensee, and their respective successors and assigns.

Section 8.9 REMOVAL OF ANTENNAS

Licensee shall not remove any television antenna of any subscriber but shall, to the extent required by applicable law, at cost plus a reasonable rate of return , offer to said subscriber an adequate switching device ("A/B Switch") to allow said subscriber to choose between cable and non-cable television reception.

Section 8.10 SUBSCRIBER TELEVISION SETS

To the extent prohibited by M.G.L. ch. 166A, Licensee shall not engage directly or indirectly in the business of selling or repairing television or radio sets; provided, however, that Licensee may make adjustments to television sets in the course of normal installation and maintenance of cable television service.

Section 8.11 JURISDICTION

Exclusive jurisdiction and venue over any dispute or judgment rendered pursuant to any Article herein shall be in a court or agency of appropriate venue and subject matter jurisdiction located in the Commonwealth of Massachusetts and the parties by this Agreement subject themselves to the personal jurisdiction of said court for the entry of any such judgment and

for the resolution of any dispute, action, or suit arising in connection with same.

Section 8.12 NOTICE

Every notice to be served under this agreement shall be delivered in hand or sent by certified mail (postage prepaid), and shall be deemed to have been given on the date of hand delivery or on the mailing date thereof and shall be addressed as follows:

1. To the Issuing Authority: The Board of Selectmen
[or Mayor as applicable]
Amesbury Town Hall
Friend Street
Amesbury, MA 01913

or such other address as the Issuing Authority may specify in writing to the Licensee.

2. To the Licensee: System Manager
New England Cablevision
of Massachusetts, Inc.
194R Main Street
Amesbury, MA 01913

or such other address as the Licensee may specify in writing to the Issuing Authority.

Section 8.13 TOWN'S RIGHT OF INTERVENTION

The Town hereby reserves to itself, and the Licensee acknowledges the Town's right, to the extent authorized by applicable law or regulation, to intervene in any suit, action or

proceeding directly relating to the provisions of this License, or any provision in this License.

Section 8.14 RESERVATION OF RIGHTS

Acceptance of the terms and conditions of this franchise will not constitute, or be deemed to constitute, a waiver, either expressly or impliedly, by Licensee or by the Town of any legal rights which either party may have or may be subsequently determined to have, either by subsequent legislation or court decisions.

Section 8.15 COMPETITION

If during the term of this License the Issuing Authority grants a license to operate a cable system to a party other than the Licensee hereunder, the Issuing Authority shall, in such license, upon written request of Licensee, to the extent permitted by law and applicable licensing regulations, include specifications that would require the new cable operator to make services available to the Town on conditions substantially similar to those set forth in this License to the extent such similar conditions are necessary to provide for equitable terms of competition.

WITNESS OUR HANDS AND OFFICIAL SEALS, THIS 27th DAY OF JUNE, 1996.

TOWN OF AMESBURY
BY THE BOARD OF SELECTMEN

Approved as to Form:

William August, Esq.
Horton & August, P.C.
Special Counsel

This License is hereby Accepted:

NEW ENGLAND CABLEVISION OF MASSACHUSETTS, INC.
By:

William B. Russell, President

TABLE OF SCHEDULES

SCHEDULE 3.3

Service Area Line Extension Formula

With respect to extension of service to unwired commercial locations, the following line extension formula shall apply: The Cable Television System shall be extended from existing cable plant to any commercial area of the Town containing ten (10) subscribers, commercial or residential, per mile of cable plant or fractional portion thereof. The Cable Television system shall be further extended to commercial areas in the Town that do not meet the requirements above upon request of the prospective commercial subscribers in such areas and based upon the following cost calculation: The cost of wiring such areas shall be calculated by taking the capital cost for extending such service divided by the number of commercial subscribers in such areas minus the costs of extending service to the commercial subscriber in an area that meets the ten (10) subscribers per mile of cable plant and/or fractional proportion thereof. The resulting cost shall equal the per commercial subscriber contribution relating to a line extension cable service in that particular area of the Town.

All residences within the entire Town shall receive service subject to charges for non-standard drops.

Scedule 3.6

Origination Points

SCHEDULE 3.6
REMOTE ORIGINATION POINTS

1. Town Hall/Town Hall Annex (Existing)
2. Amesbury High School (Existing)
3. Amesbury Middle School (Existing)
4. Amesbury Elementary School
5. Cashman School
6. Superintendent's Office
7. Police Dept.
8. Fire Dept.
9. Civil Defense Dept.
10. Library
11. Millyard Area
12. Senior Housing Center
13. Amesbury Health Center
14. Landry Field

SCHEDULE 3.21

Technical Specifications

Subpart K — Technical Standards

§76.601 Performance tests.

(a) The operator of each cable television system shall be responsible for insuring that each such system is designed, installed, and operated in a manner that fully complies with the provisions of this subpart. Each system operator shall be prepared to show, on request by an authorized representative of the commission or the local franchiser, that the system does, in fact, comply with the rules.

(b) The operator of each cable television system shall maintain at its local office a current listing of the cable television channels which that system delivers to its subscribers.

(c) The operator of each cable television system shall conduct complete performance tests of that system at least twice each calendar year (at intervals not to exceed seven months), unless otherwise noted below, and shall maintain the resulting test data on file at the operator's local business office for at least five (5) years. The test data shall be made available for inspection by the commission or the local franchiser, upon request. The performance tests shall be directed at determining the extent to which the system complies with all the technical standards set forth in §76.605(a) and shall be as follows:

(1) For cable television systems with 1,000 or more subscribers but with 12,500 subscribers or less, proof-of-performance tests conducted pursuant to this section shall include measurements taken at six (6) widely separated points within each mechanically continuous set of cables within the cable television system. However, within each cable system, one additional test point shall be added for every additional 12,500 subscribers or fraction thereof (e.g., 7 test points if 12,501 to 25,000 subscribers; 8 test points if 25,001 to 37,500 subscribers, etc.). Such proof-of-performance test points shall be balanced to represent all geographic areas served by the cable system. Within each mechanically continuous set of cables, at least one-third of the test points shall be representative of subscriber terminals most distant from the system input in terms of cable length. The measurements may be taken at convenient monitoring points in the cable network: Provided, That data shall be included to relate the measured performance of the system as would be viewed from a nearby subscriber terminal. An identification of the instruments, including the makes, model numbers, and the most recent date of calibration, a description of the procedures utilized, and a statement of qualifications of the person performing the tests shall be set forth.

(2) Proof-of-performance tests to determine the extent to which a cable television system complies with the standards set forth in §76.605(a)(3), (4), and (5) shall be made on each of the NTSC or similar video channels of that system. Proof-of-performance tests for all other standards in §76.605(a) shall be made on a minimum of four (4) channels plus one additional channel for every 100 MHz, or fraction thereof, of cable distribution system upper frequency limit (e.g., 5 channels for cable television systems with a cable distribution system upper frequency limit of 101 to 216 MHz; 6 channels for cable television systems with a cable distribution system upper frequency limit of 217-300 MHz; 7 channels for cable television systems with a cable distribution upper frequency limit of 300 to 400 MHz, etc.). The channels selected for testing must be representative of all the channels within the cable television system.

(3) The operator of each cable television system shall conduct semi-annual proof-of-performance tests of that system, to determine the extent to which the system complies with the technical standards set forth in §76.605(a)(4) as follows. The visual signal level on each channel shall be measured and recorded, along with the date and time of the measurement, once every six hours (at intervals of not less than five hours or no more than seven hours after the previous measurement), to include the warmest and the coldest times, during a 24-hour period in January or February and in July or August.

(4) The operator of each cable television system shall conduct triennial proof-of-performance tests of that system to determine the extent to which the system complies with the technical standards set forth in §76.605(a) (11), (12), and (13).

NOTE. Prior to requiring any additional testing pursuant to §76.601(d), the local franchising authority shall notify the cable operator who will be allowed thirty days to come into compliance with any perceived signal quality problems which need to be corrected. The commission may request cable operators to test their systems at any time.

(d) Successful completion of the performance tests required by paragraph (c) of this section does not relieve the system of the obligation to comply with all pertinent technical standards at all subscriber terminals. Additional tests, repeat tests, or tests involving specified subscriber terminals may be required by the commission of the local franchiser to secure compliance with the technical standards.

(e) The provisions of paragraphs (c) and (d) of this section shall not apply to any cable television system having fewer than 1,000 subscribers: Provided, however, that any cable television system using any frequency spectrum other than that allocated to over-the-air television and FM broadcasting (as described in 73.603 and 73.210 of this chapter) is required to conduct all tests, measurements and monitoring of signal leakage that are required by this subpart. A cable television system operator complying with the monitoring, logging and the leakage repair requirements of §76.614, shall be considered to have met the requirements of this paragraph. However, the leakage log, shall be retained for five years rather than the two years prescribed in §76.614.

§76.605 Technical standards.

(a)(1)(i) The cable television channels delivered to the subscriber's terminal shall be capable of being received and

displayed by TV broadcast receivers used for the off-the-air reception of TV broadcast signals, as authorized under part 73 of this chapter.

(ii) Cable systems shall transmit channels to subscriber premises equipment on frequencies in accordance with the channel allocation plan set forth in the Electronics Industries Association's Cable Television Channel Identification Plan, EIA IS-132, May 1994 (EIA IS-132). This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Cable systems are required to use this channel allocation plan for signals transmitted in the frequency range 54 MHz to 1002 MHz. Copies of EIA IS-132 may be obtained from: Global Engineering Documents, 2805 McGraw Ave., Irvine, CA 92714. Copies of EIA IS-132 may be inspected during normal business hours at the following locations: Federal Communications Commission, 1919 M Street, N.W., Dockets Branch (Room 239), Washington, DC, or the Office of the Federal Register, 800 North Capitol Street, N.W., Suite 700, Washington, DC. This requirement is applicable on May 31, 1995, for new and re-built cable systems, and on June 30, 1997, for all cable systems.

(2) The aural center frequency of the aural carrier must be 4.5 MHz ±5 kHz above the frequency of the visual carrier at the output of the modulating or processing equipment of a cable television system, and at the subscriber terminal.

(3) The visual signal level, across a terminating impedance which correctly matches the internal impedance of the cable system as viewed from the subscriber terminal, shall not be less then 1 millivolt across and internal impedance of 75 ohms (0 dBmV). Additionally, as measured at the end of a 100 foot cable drop that is connected to the subscriber tap, it shall not be less than 1.41 millivolts across an internal impedance of 75 ohms (+3 dBmV). (At other impedance values, the minimum visual signal level, as viewed from the subscriber terminal, shall be the square root of 0.0133(Z) millivolts and, as measured at the end of a 100 foot cable drop that is connected to the subscriber tap, shall be 2 times the square root of 0.00662(Z) millivolts, where Z is the appropriate impedance value.)

(4) The visual signal level on each channel shall not vary more than 8 decibels within any six-month interval which must include four tests performed in six-hour increments during a 24-hour period in July or August and a 24-hour period in January or February, and shall be maintained within:

(i) 3 decibels (dB) of the visual signal level of any visual carrier within a 6 MHz nominal frequency separation;

(ii) 10 dB of the visual signal level on any other channel on a cable television system of up to 300 MHz of cable distribution system upper frequency limit, with a 1 dB increase for each additional 100 MHz of cable distribution system upper frequency limit (e.g., 11 dB for a system at 301-400 MHz; 12 dB for a system at 401-500 MHz, etc.); and

(iii) A maximum level such that signal degradation due to overload in the subscriber's receiver or terminal does not occur.

(5) The rms voltage of the aural signal shall be maintained between 10 and 17 decibels below the associated visual signal level, and shall be maintained at levels not to cause interference to the upper adjacent channel. This requirement must be met both at the subscriber terminal and at the output of the modulating and processing equipment (generally the headend).

(6) The amplitude characteristic shall be within a range of ±2 decibels from 0.75 MHz to 5.0 MHz above the lower boundary frequency of the cable television channel, referenced to the average of the highest and lowest amplitudes within these frequency boundaries.

(i) Prior to December 30, 1999, the amplitude characteristic may be measured after a subscriber tap and before a converter that is provided and maintained by the cable operator.

(ii) As of December 30, 1999, the amplitude charateristic shall be measured at the subscriber terminal.

(7) The ratio of RF visual signal level to system noise shall be as follows:

(i) From June 30, 1992, to June 30, 1993, shall not be less than 36 decibels.

(ii) From June 30, 1993 to June 30, 1995, shall not be less than 40 decibels.

(iii) As of June 30, 1995, shall not be less then 43 decibels.

(iv) For class I cable television channels, the requirements of paragraphs (a)(7)(i), (a)(7)(ii) and (a)(7)(iii) of this section are applicable only to:

(A) Each signal which is delivered by a cable television system to subscribers within the predicted Grade B contour for that signal;

(B) Each signal which is first picked up within its predicted Grade B contour;

(C) Each signal that is first received by the cable television system by direct video feed from a TV broadcast station, a low power TV station, or a TV translator station.

(8) The ratio of visual signal level to the rms amplitude of any coherent disturbances such as intermodulation products, second and third order distortions or discrete-frequency interfering signals not operating on proper offset assignments shall be as follows:

(i) The ratio of visual signal level to coherent disturbances shall not be less than 51 decibels for noncoherent channel cable television systems, when measured with modulated carriers and time averaged; and

(ii) The ratio of visual signal level to coherent disturbances which are frequency-coincident with the visual carrier shall not be less than 47 decibels for coherent channel cable systems, when measured with modulated carriers and time averaged.

(9) The terminal isolation provided to each subscriber terminal:

(i) Shall not be less than 18 decibels. In lieu of periodic testing, the cable operator may use specifications provided by the manufacturer for the terminal isolation equipment to meet

this standard; and

(ii) Shall be sufficient to prevent reflections caused by open-circuited or short-circuited subscriber terminals from producing visible picture impairments at any other subscriber terminal.

(10) The peak-to-peak variation in visual signal caused by undesired low frequency disturbances (hum or repetitive transients) generated within the system, or by inadequate low frequency response, shall not exceed 3 percent of the visual signal level.

(11) As of June 30, 1995, the following requirements apply to the performance of the cable television system as measured at the output of the modulating or processing equipment (generally the headend) of the system:

(i) The chrominance-luminance delay inequality or chroma delay, which is the change in delay time of the chrominance component of the signal relative to the luminance component, shall be with 170 nanoseconds.

(ii) The differential gain for the color subcarrier of the television signal, which is measured as the difference in amplitude between the largest and smallest segments of the chrominance signal (divided by the largest and expressed in percent), shall not exceed ±20 percent.

(iii) The differential phase for the color subcarrier of the television signal which is measured as the largest phase difference in degrees between each segment of the chrominance signal and reference segment (the segment at the blanking level of 0 IRE), shall not exceed ±10 degrees.

(12) As an exception to the general provision requiring measurements to be made at subscriber terminals, and without regard to the type of signals carried by the cable television system, signal leakage from a cable television system shall be measured in accordance with the procedures outlined in §76.609(h) and shall be limited as follows:

Frequencies	Signal leakage limit (micro-volt/meter)	Distance in meters (m)
Less than and including 54 MHz, and over 216 MHz.....	15	30
Over 54 up to and including 216 Mhz.....	20	3

(b) Cable television systems distributing signals by using methods such as nonconventional coaxial cable techniques, noncoaxial copper cable techniques, specialized coaxial cable and fiber optical cable hybridization techniques or specialized compression techniques or specialized receiving devices, and which, because of their basic design, cannot comply with one or more of the technical standards set forth in paragraph (a) of this section, may be permitted to operate: Provided, that an adequate showing is made pursuant to §76.7 which establishes that the public interest is benefited. In such instances, the commission may prescribe special technical requirements to ensure that subscribers to such systems are provided with an equivalent level of good quality service.

NOTE 1: Local franchising authorities of systems serving fewer than 1000 subscribers may adopt standards less stringent than those in §76.605(a). Any such agreement shall be reduced to writing and be associated with the system's proof-of-performance records.

NOTE 2: For systems serving rural areas as defined in §76.5, the system may negotiate with its local franchising authority for standards less stringent than those in §§76.605(a)(3), 76.605(a)(7), 76.605(a)(8), 76.605(a)(10) and 76.605(a)(11). Any such agreement shall be reduced to writing and be associated with the system's proof-of-performance records.

NOTE 3: The requirements of this section shall not apply to devices subject to the provisions of §§15.601 through 15.626.

NOTE 4: Should subscriber complaints arise from a system failing to meet §76.605(a)(6) prior to December 30, 1999, the cable operator will be required to provide a converter that will allow the system to meet the standard immediately at the complaining subscriber's terminal. Further, should the problem be found to be system-wide, the commission may order all converters on the system be changed to meet the standard.

NOTE 5: Should subscriber complaints arise from a system failing to meet §76.605(a)(10), the cable operator will be required to remedy the complaint and perform test measurements on §76.605(a)(10) containing the full number of channels as indicated in §76.601(c)(2) at the complaining subscriber's terminal. Further, should the problem be found to be system-wide, the commission may order that the full number of channels as indicated in §76.601(c)(2) be tested at all required locations for future proof-of-performance tests.

NOTE 6: No state or franchising authority may prohibit, condition, or restrict a cable system's use of any type of subscriber equipment or any transmission technology.

§76.606 Closed captioning.

(a) As of June 30, 1992, the operator of each cable television system shall not take any action to remove or alter closed captioning data contained on line 21 of the vertical blanking interval.

(b) As of July 1, 1993, the operator of each cable television system shall deliver intact closed captioning data contained on line 21 of the vertical blanking interval, as it arrives at the headend or from another origination source, to subscriber terminals and (when so delivered to the cable system) in a format that can be recovered and displayed by decoders meeting §15.119 of this chapter.

§76.607 Resolution of complaints.

Cable system operators shall establish a process for resolving complaints from subscribers about the quality of the television signal delivered. These records shall be maintained for at least a one-year period. Aggregate data based upon these complaints shall be made available for inspection by the commission and franchising authorities, upon request. Subscribers shall be advised, at least once each calendar year, of the procedures for resolution of complaints by the cable system operator, including the address of the responsible officer of the local franchising authority.

NOTE: Prior to being referred to the commission, complaints from subscribers about the quality of the television signal delivered must be referred to the local franchising authority and the cable system operator.

§76.609 Measurements.

(a) Measurements made to demonstrate conformity with the performance requirements set forth in §§76.601 and 76.605 shall be made under conditions which reflect system performance during normal operations, including the effect of any microwave relay operated in the Cable Television Relay (CARS) Service intervening between pickup antenna and the cable distribution network. Amplifiers shall be operated at normal gains, either by the insertion of appropriate signals or by manual adjustment. Special signals inserted in a cable television channel for measurement purposes should be operated at levels approximating those used for normal operation. Pilot tones, auxiliary or substitute signals, and nontelevision signals normally carried on the cable television system should be operated at normal levels to the extent possible. Some exemplary, but not mandatory, measurement procedures are set forth in this section.

(b) When it may be necessary to remove the television signal normally carried on a cable television channel in order to facilitate a performance measurement, it will be permissible to disconnect the antenna which serves the channel under measurement and to substitute therefor a matching resistance termination. Other antennas and inputs should remain connected and normal signal levels should be maintained on other channels.

(c) As may be necessary to ensure satisfactory service to a subscriber, the commission may require additional tests to demonstrate system performance or may specify the use of different test procedures.

(d) The frequency response of a cable television channel may be determined by one of the following methods, as appropriate:

(1) By using a swept frequency or a manually variable signal generator at the sending end and a calibrated attenuator and frequency-selective voltmeter at the subscriber terminal; or

(2) By using either a multiburst generator or vertical interval test signals and either a modulator or processor at the sending end, and by using either a demodulator and either an oscilloscope display or a waveform monitor display at the subscriber terminal.

(e) System noise may be measured using a frequency-selective voltmeter (field strength meter) which has been suitably calibrated to indicate rms noise or average power level and which has a known bandwidth. With the system operating at normal level and with a properly matched resistive termination substituted for the antenna, noise power indications at the subscriber terminal are taken in successive increments of frequency equal to the bandwidth of the frequency-selective voltmeter, summing the power indications to obtain the total noise power present over a 4 MHz band centered within the cable television channel. If it is established that the noise level is constant within this bandwidth, a single measurement may be taken which is corrected by an appropriate factor representing the ratio of 4 MHz to the noise bandwidth of the frequency-selective voltmeter. If an amplifier is inserted between the frequency-selective voltmeter and the subscriber terminal in order to facilitate this measurement, it should have a bandwidth of at least 4 MHz and appropriate corrections must be made to account for its gain and noise figure. Alternatively, measurements made in accordance with the NCTA Recommended Practices for Measurements on Cable Television Systems, 2nd edition, November 1989, on noise measurement may be employed.

(f) The amplitude of discrete frequency interfering signals within a cable television channel may be determined with either a spectrum analyzer or with a frequency-selective voltmeter (field strength meter), which instruments have been calibrated for adequate accuracy. If calibration accuracy is in doubt, measurements may be referenced to a calibrated signal generator, or a calibrated variable attenuator, substituted at the point of measurement. If an amplifier is used between the subscriber terminal and the measuring instrument, appropriate corrections must be made to account for its gain.

(g) The terminal isolation between any two terminals in the cable television system may be measured by applying a signal of known amplitude to one terminal and measuring the amplitude of that signal at the other terminal. The frequency of the signal should be close to the midfrequency of the channel being tested. Measurements of terminal isolation are not required when either:

(1) The manufacturer's specifications for subscriber tap isolation based on a representative sample of no less than 500 subscribers taps or

(2) Laboratory tests performed by or for the operator of a cable television system on a representative sample of no less than 50 subscriber taps, indicates that the terminal isolation standard of §76.605(a)(9) is met.

To demonstrate compliance with §76.605(a)(9), the operator of a cable television system shall attach either such manufacturer's specifications or laboratory measurements as an exhibit to each proof-of-performance record.

(h) Measurements to determine the field strength of the signal leakage emanated by the cable television system shall be made in accordance with standard engineering procedures. Measurements made on frequencies above 25 MHz shall include the following:

(1) A field strength meter of adequate accuracy using a horizontal dipole antenna shall be employed.

(2) Field strength shall be expressed in terms of the rms value of synchronizing peak for each cable television channel for which signal leakage can be measured.

(3) The resonant half wave dipole antenna shall be placed 3 meters from and positioned directly below the system components and at 3 meters above ground. Where such placement results in a separation of less than 3 meters between the center of the dipole antenna and the system components, or less than 3 meters between the dipole and ground level, the dipole shall be repositioned to provide a separation of 3 meters from the system components at a height of 3 meters or more above ground.

(4) The horizontal dipole antenna shall be rotated about a vertical axis and the maximum meter reading shall be used.

(5) Measurements shall be made where other conductors are 10 or more feet away from the measuring antenna.

(i) For systems using cable traps and filters to control the delivery of specific channels to the subscriber terminal, measurements made to determine compliance with §76.605(a)(5) and (6) may be performed at the location immediately prior to the trap or filter for the specific channel. The effects

of these traps or filters, as certified by the system engineer or the equipment manufacturer, must be attached to each proof-of-performance record.

(j) Measurements made to determine the differential gain, differential phase and the chrominance-luminance delay inequality (chroma delay) shall be made in accordance with the NCTA Recommended Practices for Measurements on Cable Television Systems, 2nd edition, November 1989, on these parameters.

§76.610 Operation in the frequency bands 108-137 and 225-400 MHz — Scope of application.

The provisions of §§76.611 (effective July 1, 1990), 76.612, 76.613, 76.614 and 76.615 are applicable to all cable television systems transmitting carriers or other signal components carried at an average power level equal to or greater than 10^{-4} watts across a 25 kHz bandwidth in any 160 microsecond period, at any point in the cable distribution system in the frequency bands 108-137 and 225-400 MHz for any purpose. For grandfathered systems, refer to §§76.618 and 76.619.

NOTE 1: See the provisions of §76.616 for cable operation near certain aeronautical and marine emergency radio frequencies.

NOTE 2: Until January 1, 1990, the band 136-137 MHz is allocated as an alternative allocation to the space operation, meteorological-satellite service and the space research service on a primary basis. After January 1, 1990, the space service will become secondary to aeronautical mobile service radio. Until January 1, 1990, the band 136 to 137 MHz is excluded from the rule sections regarding protection of aeronautical frequencies.

§76.611 Cable television basic signal leakage performance criteria.

$$I_{3000} = \frac{1}{\theta} \sum_{i=1}^{n} \frac{E_i^2}{R_i^2} ,$$

$$I_{\infty} = \frac{1}{\theta} \sum_{i=1}^{n} E_i^2 ,$$

where

$$R_i^2 = r_i^2 + (3000)^2$$

(a) No cable television system shall commence or provide service in the frequency bands 108-137 and 225-400 MHz unless such systems is in compliance with one of the following cable television basic signal leakage performance criteria:

(1) prior to carriage of signals in the aeronautical radio bands and at least once each calendar year, with no more than 12 months between successive tests thereafter, based on a sampling of at least 75 percent of the cable strand, and including any portion of the cable system which are known to have or can reasonably be expected to have less leakage integrity than the average of the system, the cable operator demonstrates compliance with a cumulative signal leakage index by showing either that (i) 10 log I_{3000} is equal to or less than -7 or (ii) 10 log I_{∞} is equal to or less than 64, using one of the following formula:

r_i is the distance (in meters) between the leakage source and the center of the cable television system;

θ is the fraction of the system cable length actually examined for leakage sources and is equal to the strand miles of plant tested divided by the total strand miles in the plant;

R_i is the slant height distance (in meters) from leakage source i to a point 3000 meters above the center of the cable television system;

E_i is the electric field strength in microvolts per meter (μV/m) measured pursuant to §76.609(h) 3 meters from the leak i; and

n is the number of leaks found of field strength equal to or greater than 50 μV/m pursuant to Section 76.609(h).

The sum is carried over all leaks i detected in the cable examined; or

(2) prior to carriage of signals in the aeronautical radio bands and at least once each calendar year, with no more than 12 months between successive tests thereafter, the cable operator demonstrates by measurement in the airspace that at no point does the field strength generated by the cable system exceed 10 microvolts per meter (μV/m) RMS at an altitude of 450 meters above the average terrain of the cable system. The measurement system (including the receiving antenna) shall be calibrated against a known field of 10 μV/m RMS produced by a well characterized antenna consisting of orthogonal resonant dipoles, both parallel to and one quarter wavelength above the ground plane of a diameter of two meters or more at ground level. The dipoles shall have centers collocated and be excited 90 degrees apart. The half-power bandwidth of the detector shall be 25 kHz. If an aeronautical receiver is used for this purpose it shall meet the standards of the Radio Technical Commission for Aeronautics (RCTA) for aeronautical communications receivers. The aircraft antenna shall be horizontally polarized. Calibration shall be made in the community unit or, if more than one, in any of the community units of the physical system within a reasonable time period to performing the measurements. If data is recorded digitally the 90th percentile level of points recorded over the cable system shall not exceed 10 μV/m RMS; if analog recordings is used the peak values of the curves, when smoothed according to good engineering practices, shall not exceed 10 μV/m RMS.

(b) In paragraphs (a)(1) and (a)(2) of this section the unmodulated test signal used on the cable plant shall: (1) Be within the VHF aeronautical band 108-137 MHz or any other frequency in which the results can be correlated to the VHF aeronautical band and (2) have an average power level equal to the average power level of the strongest cable television carrier on the system.

(c) In paragraph (a)(1) and (2) of this section, if a modulated test signal is used, the test signal and detector technique must, when considered together, yield the same result as though an unmodulated test signal were used in conjunction with a detection technique which would yield the RMS value of said unmodulated carrier.

(d) If a sampling of at least 75 percent of the cable strand (and including any portions of the cable system which are known to have or can reasonably be expected to have less leakage integrity than the average of the system) as described in paragraph (a)(1) cannot be obtained by the cable operator

o. otherwise not reasonably feasible, the cable operator shall perform the airspace measurements described in paragraph (a)(2).

(e) Prior to providing service to any subscriber on a new section of cable plant, the operator shall show compliance with either: (1) The basic signal leakage criteria in accordance with paragraph (a)(1) or (a)(2) of this section for the entire plant in operation or (2) a showing shall be made indicating that no individual leak in the new section of the plant exceeds 20 μV/m at 3 meters in accordance with §76.609.

(f) Notwithstanding paragraph (a) of this section, a cable operator shall be permitted to operate on any frequency which is offset pursuant to §76.612 in the frequency band 108-137 MHz for the purpose of demonstrating compliance with the cable television basic signal leakage performance criteria.

§76.612 Cable television frequency separation standards.

All cable television systems which operate in the frequency bands 108-137 and 225-400 MHz shall comply with the following frequency separation standards:

(a) In the aeronautical radiocommunication bands 118-137, 225-328.6 and 335.4-400 MHz, the frequency of all carrier signals or signal components carried at an average power level equal to or greater than 10^{-4} watts in a 25 kHz bandwidth in any 160 microsecond period must operate at frequencies offset from certain frequencies which may be used by aeronautical radio services operated by commission licensees or by the United States government or its agencies. The aeronautical frequencies from which offsets must be ntained are those frequencies which are within one of the aeronautical bands defined in this subparagraph, and when expressed in MHz and divided by 0.025 yield an integer. The offset must meet one of the following two criteria:

(1) All such cable carriers or signal components shall be offset by 12.5 kHz with a frequency tolerance of ±5 kHz; or

(2) The fundamental frequency from which the visual carrier frequencies are derived by multiplication by an integer number which shall be 6.0003 MHz with a tolerance of ±1 Hz (Harmonically Related Carrier (HRC) comb generators only).

(b) In the aeronautical radionavigation bands 108-118 and 328.6-335.4 MHz, the frequency of all carrier signals or signal components carrier at an average power level equal to or greater than 10^{-4} watts in a 25 kHz bandwidth in any 160 microsecond period shall be offset by 25 kHz with a tolerance of ±5 kHz. The aeronautical radionavigation frequencies from which offsets must be maintained are defined as follows:

(1) Within the aeronautical band 108-118 MHz when expressed in MHz and divided by 0.025 yield an even integer.

(2) Within the band 328.6-335.4 MHz, the radionavigation glide path channels are listed in Section 87.501 of the rules.

NOTE: The HRC system, as described above, will meet this requirement in the 328.6-335.4 MHz navigation glide path band. Those Incrementally Related Carriers (IRC) systems, with comb generator reference frequencies set at certain odd multiples equal to or greater than 3 times the 0.0125 MHz aeronautical communications band offset, e.g. (6n + 1.250 ±0.0375) MHz, may also meet the 25 kHz offset equirement in the navigation glide path band.

§76.613 Interference from a cable television system.

(a) Harmful interference is any emission, radiation or induction which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with this chapter.

(b) The operator of a cable television system that causes harmful interference shall promptly take appropriate measures to eliminate the harmful interference.

(c) If harmful interference to radio communications involving the safety of life and protection of property cannot be promptly eliminated by the appliciation of suitable techniques, operation of the offending cable television system or appropriate elements thereof shall immediately be suspended upon notification by the engineer in charge (EIC) of the commission's local field office, and shall not be resumed until the interference has been eliminated to the satisfaction of the EIC. When authorized by the EIC, short test operations may be made during the period of suspended operation to check the efficacy of remedial measures.

(d) The cable television system operator may be required by the EIC to prepare and submit a report regarding the cause(s) of the interference, corrective measures planned or taken, and the efficacy of the remedial measures.

(Secs. 1, (302); (82 Stat. 290); 47 U.S.C. 151, 302)

§76.614 Cable television system regular monitoring.

Cable television operators transmitting carriers in the frequency bands 108-137 and 225-400 MHz shall provide for a program of regular monitoring for signal leakage by substantially covering the plant every three months. The incorporation of this monitoring program into the daily activities of existing service personnel in the discharge of their normal duties will generally cover all portions of the system and will therefore meet this requirement. Monitoring equipment and procedures utilized by a cable operator shall be adequate to detect a leakage source which produces a field strength in these bands of 20 μV/m or greater at a distance of 3 meters. During regular monitoring, any leakage source which produces a field strength of 20 μV/m or greater at a distance of 3 meters in the aeronautical radio frequency bands shall be noted and such leakage sources shall be repaired within a reasonable period of time. The operator shall maintain a log showing the date and location of each leakage source identified, the date on which the leakage was repaired, and the probable cause of the leakage. The log shall be kept on file for a period of two (2) years and shall be made available to authorized representatives of the commission upon request.

§76.615 Notification requirements.

All cable television operators shall comply with each of the following notification requirements:

(a) The operator of the cable system shall notify the commission annually of all signals carried in the aeronautical radio frequency bands, noting the type of information carried by the signal (television picture, aural, pilot carrier, or system control, etc.) The timely filing of FCC Form 325, Schedule 2, will meet this requirement.

(b) The operator of a cable system shall notify the commission before transmitting any carrier or other signal component with an average power level across a 25 kHz bandwidth in any 160 microsecond time period equal to or greater than 10^{-4} watts at any point in the cable distribution system on any new frequency or frequencies in the aeronautical radio frequency bands. Such notification shall include:

(1) Legal name and local address of the cable television operator;

(2) The names and FCC identifiers (e.g. CA0001) of the system communities affected;

(3) The names and telephone numbers of local system officials who are responsible for compliance with §§76.610, 76.611 (effective July 1, 1990), and §§76.612 through 76.616 of the rules;

(4) Carrier and subcarrier frequencies and tolerance, types of modulation and the maximum average power levels of all carriers and subcarriers occurring at any location in the cable distribution system.

(5) The geographical coordinates of a point near the center of the cable system, together with the distance (in kilometers) from the designated point to the most remote point of the cable plant, existing or planned, which defines a circle enclosing the entire cable plant;

(6) A description of the routine monitoring procedure to be used; and

(7) For cable operators subject to §76.611 (effective July 1, 1990), the cumulative signal leakage index derived under §76.611(a)(1) (effective July 1, 1990) or the results of airspace measurements derived under §76.611(a)(2) (effective July 1, 1990), including a description of the method by which compliance with basic signal leakage criteria is achieved and the method of calibrating the measurement equipment. This information shall be provided to the commission prior to July 1, 1990 and each calendar year thereafter.

§76.616 Operation near certain aeronautical and marine emergency radio frequencies.

The transmission of carriers or other signal components capable of delivering peak power levels equal to or greater than 10^{-5} watts at any point in a cable television system is prohibited within 100 kHz of the frequency 121.5 MHz, and is prohibited withn 50 kHz of the two frequencies 156.8 MHz and 243.0 MHz.

§76.617 Responsibility for interference.

Interference resulting from the use of cable system terminal equipment (including subscriber terminal, input selector switch and any other accessories) shall be the responsibility of the cable system terminal equipment operator in accordance with the provisions of part 15 of this chapter: provided, however, that the operator of a cable system to which the cable system terminal equipment is connected shall be responsible for detecting and eliminating any signal leakage where that leakage would cause interference outside the subscriber's premises and/or would cause the cable system to exceed the Part 76 signal leakage requirements. In cases where excessive signal leakage occurs, the cable operator shall be required only to discontinue service to the subscriber until the problem is corrected.

§76.618 Grandfathering.

Cable television systems are permitted to use aeronautical frequencies which were requested or granted for use by November 30, 1984, under Section 76.619 of the rules until July 1, 1990.

§76.619 Grandfathered Operation in the frequency bands 108-136 and 225-400 MHz.

All cable television systems operating in a grandfathered status under §76.618 of the rules and transmitting carriers or other signal components capable of delivering peak power equal to or greater than 10^{-5} watts at any point in the cable system in the frequency bands 108-136 and 225-400 MHz for any purpose are subject to the following requirements:

(a) The operator of the cable system shall notify the commission annually of all signals carried in these bands, noting the type of information carried by the signal (television, aural, or pilot carrier and system control, etc.). The timely filing of FCC Form 325, Schedule 2, will meet this requirement.

(b) The operator of the cable system shall notify the commission of the proposed extension of the system radius in these bands. Notification shall include carrier and subcarrier frequencies, types of modulation, the previously notified geographical coordinates, the new system radius and the maximum peak power occurring at any location in the cable distribution system. No system shall extend its radius in these bands without prior commission authorization.

(c) The operator of the cable system shall maintain at its local office a current listing of all signals carried in these bands, noting carrier and subcarrier frequencies, types of modulation, and maximum peak power which occurs at any location within the cable distribution system.

(d) The operator of the system shall provide for regular monitoring of the cable system for signal leakage covering all portions of the cable system at least once each calendar year. Monitoring equipment and procedures shall be adequate to detect leakage sources which produce field strengths in these bands of 20 microvolts per meter at a distance of 3 meters. The operator shall maintain a log showing the date and location of each leakage source identified, the date on which the leakage was eliminated, and the probable cause of the leakage. The log shall be kept on file for a period of two (2) years, and shall be made to authorized representatives of the commission on request.

(e) All carrier signals or signal components capable of delivering peak power equal to or greater than 10^{-5} watts must be operated at frequencies offset from aeronautical radio services operated by commission licensees or by the United States government or its agencies within 111 km (60 nautical miles) of any portion of the cable system as given in paragraph (f) of this section. (The limit of 111 km may be increased by the commission in cases of "extended service volumes" as defined by the Federal Aviation Administration or other federal government agency for low altitude radio navigation or communication services). If an operator of a cable system is notified by the commission that a change in operation of an aeronautical radio service will place the cable system in conflict with any of the offset criteria, the cable system operator is responsible for eliminating such conflict within 30 days of notification.

(f) A minimum frequency offset between the nominal carrier frequency of an aeronautical radio service qualifying under paragraph (d) of this section and the nominal frequency of any cable system carrier or signal component capable of delivering peak power equal to or greater than 10-5 watts shall be maintained or exceeded at all times. The minimum frequency offsets are as follows:

Frequencies	Minimum frequency offsets
108-118 MHz.....	(50+T) kHz.
328.6-335.4 MHz.....	
108-136 MHz.....	
225-328.6 MHz.....	(100+T) kHz.
335.4-400 MHz.....	

In this table, T is the absolute value of the frequency tolerance of the cable television signal. The actual frequency tolerance will depend on the equipment and operating procedures of the cable system, but in no case shall the frequency tolerance exceed ±25 kHz in the bands 108-136 and 225-400 MHz.

§76.630 Compatibility with consumer electronics equipment.

(a) Cable system operators shall not scramble or otherwise encrypt signals carried on the basic service tier. Requests for waivers of this prohibition must demonstrate either a substantial problem with theft of basic tier service or a strong need to scramble basic signals for other reasons. As part of this showing, cable operators are required to notify subscribers by mail of waiver requests. The notice to subscribers must be mailed no later than thirty calendar days from the date the request waiver was filed with the commission, and cable operators must inform the commission in writing, as soon as possible, of that notification date. The notification to subscribers must state:

> On (date of waiver request was filed with the commission), (cable operator's name) filed with the Federal Communications Commission a request for waiver of the rule prohibiting scrambling of channels on the basic tier of service. 47 CFR §76.630(a). The request for waiver states (a brief summary of the waiver request). A copy of the request for waiver is on file for public inspection at (the address of the cable operator's local place of business).
>
> Individuals who wish to comment on this request for waiver should mail comments to the Federal Communications Commission by no later than 30 days from (the date the notification was mailed to subscribers). Those comments should be addressed to the: Federal Communications Commission Cable Services Bureau, Washington, DC 20554, and should include the name of the cable operator to whom the comments are applicable. Individuals should also send a copy of their comments to (the cable operator at its local place of business).

Cable operators may file comments in reply no later than seven days from the date subscriber comments must be filed.

(b) Cable system operators that provide their subscribers with cable system terminal devices and other customer premises equipment that incorporates remote control capability shall permit the remote operation of such devices with commercially available remote control units or otherwise take no action that would prevent the devices from being operated by a commercially available remote control unit. Cable system operators are advised that this requirement obliges them to actively enable the remote control functions of customer premises equipment where those functions do not operate without a special activation procedure. Cable system operators may, however, disable the remote control functions of a subscriber's customer premises equipment where requested by the subscriber.

(c) Cable system operators that use scrambling, encryption or similar technologies in conjunction with cable system terminal devices, as defined in §15.3(e) of this chapter, that may affect subscribers' reception of signals shall offer to supply each subscriber with special equipment that will enable the simultaneous reception of multiple signals. The equipment offered shall include a single terminal device with dual descramblers/decoders and/or timers and signal bypass switches. Other equipment, such as two independent set-top terminal devices, may be offered at the same time that the single terminal device with dual tuners/descramblers is offered. For purposes of this rule, two set-top devices linked by a control system that provides functionality equivalent to that of a single device with dual descramblers is considered to be the same as a terminal device with dual descramblers/decoders.

(1) The offer of special equipment shall be made to new subscribers at the time they subscribe and to all subscribers at least once each year.

(2) Such special equipment shall, at a minimum, have the capability:

(i) To allow simultaneous reception of any two scrambled or encrypted signals and to provide for tuning to alternative channels on a preprogrammed schedule; and,

(ii) To allow direct reception of all other signals that do not need to be processed through descrambling or decryption circuitry (this capability can generally be provided through a separate by-pass switch or through internal by-pass circuitry in a cable system terminal device).

(3) Cable system operators shall determine the specific equipment needed by individual subscribers on a case-by-case basis, in consultation with the subscriber. Cable system operators are required to make a good faith effort to provide subscribers with the amount and types of special equipment needed to resolve their individual compatibility problems.

(4) Cable operators shall provide such equipment at the request of the individual subscriber and may charge for purchase or lease of the equipment and its installation in accordance with the provisions of the rate regulation rules for customer premises equipment used to receive the basic service tier, as set forth in §76.923. Notwithstanding the required annual offering, cable operators shall respond to subscriber requests for special equipment for reception of multiple signals that are made at any time.

(d) Cable system operators shall provide a consumer education program on compatibility matters to their subscribers in writing, as follows:

(1) The consumer information program shall be provided to subscribers at the time they first subscribe and at least once a year thereafter. Cable operators may choose the time and means by which they comply with the annual consumer information requirement. This requirement may be satisfied by a once-a-year mailing to all subscribers. The information may be included in one of the cable system's regular subscriber billings.

(2) The consumer information program shall include the following information:

(i) Cable system operators shall inform their subscribers that some models of TV receivers and videocassette recorders may not be able to receive all of the channels offered by the cable system when connected directly to the cable system. In conjunction with this information, cable system operators shall briefly explain the types of channel compatibility problems that could occur if subscribers connected their equipment directly to the cable system and offer suggestions for resolving those problems. Such suggestions could include,

for example, the use of a cable system terminal device such as a set-top channel converter. Cable system operators shall also indicate that channel compatibility problems associated with reception of programming that is not scrambled or encrypted programming could be resolved through use of simple converter devices without descrambling or decryption capabilities that can be obtained from either the cable system or a third party retail vendor.

(ii) In cases where service is received through a cable system terminal device, cable system operators shall indicate that subscribers may not be able to use special features and functions of their TV receivers and videocassette recorders, including features that allow the subscriber to: view a program on one channel while simultaneously recording a program on another channel; record two or more consecutive programs that appear on different channels; and, use advanced picture generation and display features such as "Picture-in-Picture," channel review and other functions that necessitate channel selection by the consumer device.

(iii) In cases where cable system operators offer remote control capability with cable system terminal devices and other customer premises equipment that is provided to subscribers, they shall advise their subscribers that remote control units that are compatible with that equipment may be obtained from other sources, such as retail outlets. Cable system operators shall also provide a representative list of the models of remote control units currently available from retailers that are compatible with the customer premises equipment they employ. Cable system operators are required to make a good faith effort in compiling this list and will not be liable for inadvertent omissions. This list shall be current as of no more than six months before the date the consumer education program is distributed to subscribers. Cable operators are also required to encourage subscribers to contact the cable operator to inquire about whether a particular remote control unit the subscriber might be considering for purchase would be compatible with the subscriber's customer premises equipment.

Note: The provisions of paragraphs (a) and (b) of this section are applicable as of July 31, 1994, and June 30, 1994, respectively. The provisions of paragraphs (c) and (d) of this section are applicable as of October 31, 1994, except for the requirement under paragraph (c) of this section for cable system operators to supply cable system terminal devices with dual tuners (as needed), which is applicable October 31, 1995. The initial offer of special equipment to all subscribers, as required under paragraph (c) of this section shall be made by October 31, 1994.

Schedule 3.21(d)

Interference Reduction Technologies

Schedule 3.21 (d)
Interference Reduction Technologies

1. NECMA will have the radio transmitters operating in the channel 19 and 20 frequency bandwidths monitored twice each year at six (6) month intervals by an independent engineering company to ensure that said transmitters are operating within FCC specifications.

2. NECMA will relocate the programming for channels 19 and 20 to the system satellite reception facility located on Clinton Street to further reduce the possibility of such radio interference.

3. NECMA will, if necessary, install a phase cancellation system on channels 19 and 20 to further remove interfering radio signals.

4. NECMA agrees to use "Quad-Shield" house drop cable to help prevent interference ingress at the subscriber's residence.

5. NECMA intends to establish an interconnect agreement with Continental Cablevision in order to receive direct studio feeds over their existing regional digital fiber optic interconnect to receive those major Boston signals that are subject to interference.

Schedule 4.1(b)

Local capital and operating budgets

Schedule 4.1 (b)
Local Programming - Operating and Capital Expenditures

	1992	1993	1994	1995
Operating Expenditures	$32,068	$33,562	$42,865	$39,465
Capital Expenditures	$14,722	$14,143	$15,884	$1,536

Schedule 4.1(c)

Access training curriculum

Schedule 4.1 (c)
Local Programming and Access Training and Curriculum

The public access course offered by Amesbury studio staff consists of training in the use of portable audio, video, and lighting equipment. Also, as a second tier of training, the use of post-production (editing) equipment is taught. The implementation of this usage is covered in terms of picture composition, shooting for editing (pre-production), field etiquette, and other such information.

The course is structured to be taught in four sessions which are usually presented at 1-2 hours each and given on separate days. Additonal sessions for training can be scheduled, if necessary. The scheduling of these days is at the discretion of the instructor who takes into consideration the schedules of all those involved.

The second tier of training, post-production, is scheduled after students display proficiency in the use of the field equipment and have footage that needs editing. This training is usually done on a one-to-one basis and consists of the proper usage of this equipment as well as information about the aesthetics of creating programming.

Schedule 4.1(f)

Access Equipment Inventory

Schedule 4.1 (f)

EXISTING EQUIPMENT INVENTORY

STUDIO PRODUCTION QUANTITY	DESCRIPTION
3	Sony DXC3000 cameras w/studio configuration monitors and remote controls
2	Sony camera control units for DXC3000 with CMA-8 AC adapters
3	Bogen 3068 fluid head tripods
3	Bogen 3067 Dollies
1	EchoLab DV-7 video effects generator/switcher
1	Panasonic WV-5203B 3-monitor bank
1	ClearCom CS-222 2-channel intercom system
2	ClearCom CS-501 remote receiver/transmitters w/headsets
2	Uninterruptable power supplies
1	Professionally constructed lighting grid and electrical
8	1k Strand 6" Studio Fresnelite lights
4	1k Scoop lights
2	Source four pattern projection lights
2	Desks (props)
1	Soundcraft Spirit Folio 12-input audio mixer
3	Sony ECM-44B lavalier microphones
5	Audio-Technica 803B lavalier microphones
1	Shure SM7 Microphone
1	50' Whirlwind 6-channel audio snake
1	Sony CT-2081VY 20" color monitor/television
2	DuoFone 102 telephone amplifier systems
1	Radio Shack ET-291 2-line phone system
1	Radio Shack single-line telephone

Schedule 4.1 (f)

EXISTING EQUIPMENT INVENTORY
(continued)

EDITING	DESCRIPTION
1	Videotek TVM-620 waveform/vectorscope
1	Sony EVO-9850 Hi8 videocassette player/recorder
1	Prime Image Clean Cut/EFX switcher/effects gen./TBC
1	Sony VO-5800 3/4" video cassette edit source deck
1	Sony VO-5850 3/4" video cassette edit recorder
1	Sony RM-440 automatic edit controller
1	Panasonic WV-5360 B & W video monitor
1	Panasonic BT-S700N color video monitor
1	Panasonic BT-S901Y color video monitor
1	Toaster 2000 switcher/effects gen./character gen. w/Kitchen Sync 2-channel TBC
1	Commodore 1084S computer monitor
1	Panasonic TR930 video monitor
3	Panasonic WJ-300B 2-channel video distribution amplifiers
1	VideoTek VDA16 variable gain video distribution amplifier
1	Allen Avionica Inc. pulse & video delay line
1	Realistic SCT-86 audio cassette tape player/recorder
PLAYBACK/ CABLECAST SYSTEM	
1	Realistic 6-Channel stereo audio mixer
1	Panasonic WJ-225 vertical interval switcher
1	Sony VO-5600 3/4" video cassette player/recorder
1	Sony VP-5000 3/4" video cassette player
1	Panasonic AG-2510 1/2" VHS video cassette player/recorder
1	Texscan flexicasting system w/battery back-up
1	Panasonic CT-110MA color video monitor
1	Panasonic CT-1030M color video monitor
1	Panasonic CT-2084-VY monitor/receiver
1	Panasonic AG-1300 1/2" VHS VCR
1	Jerrold modulator (T-8)
2	Jerrold modulators (T-10)
1	Jerrold stereo receiver

Schedule 4.1 (f)

EXISTING EQUIPMENT INVENTORY
(continued)

LOCATION SHOOTS	DESCRIPTION
1	Panasonic WJ-4600B effects generator/switcher
1	Panasonic CT500V color monitor/receiver
1	Sony VO-5600 video cassette player/recorder
1	Sony VO-6800 3/4" portable video cassette player/recorder
1	Sony 8020 portable color video monitor
1	Sony EV-300 Hi8 3-CCD camcorder
1	Bogen 3068 tripod w/fluid head
1	Lowell 4-light portable kit (two spots, two broads)
1	Amiga 500 character generation system w/SuperGen genlock
1	Panasonic Ramsa 8-channel audio mixer
1	100' Whirlwind 8-channel audio snake
1	100' Whirlwind 16-channel audio snake
2	Shure M267 4-channel audio mixer
1	JVC 8-channel audio mixer
11	Electrovoice 635A omnidirectional microphones
1	Sennheiser K3 power microphone power module
1	Sennheiser ME80 shotgun microphone head
1	Sennheiser MKE2 lavalier microphone head
1	Sony shotgun microphone
1	Vega wireless microphone system w/handheld & lavalier microphones
11	Table microphone stands
1	Telex headsets
13	Anton Bauer NP-1A camera/deck/monitor batteries
2	Anton Bauer camera brick batteries
3	Anton Bauer Slim Line 14vol & batteries
1	Sony BC-1WA NP-1A battery charger
2	Anton Bauer Lifesaver brick battery chargers
1	Anton Bauer Quad charger

Schedule 4.1 (f)

EXISTING EQUIPMENT INVENTORY
(continued)

PUBLIC ACCESS	DESCRIPTION
1	Sony Hi8 camcorder
7	Sony NP-80 Hi8 camcorder batteries
1	Sony VO-4800 3/4" portable video cassette player/recorder w/AC adaptor and batteries
1	JVC BY-110 camera w/AC adaptor
1	Sony AC-S10 NP-80 battery charger/AC adaptor
1	Bogen 3046 tripod w/fluid head
2	Omni-directional microphone
1	Strand/Century 3-light portable lighting kit
1	Headphones
	Miscellaneous supply of 1/2" VHS, Hi8 and 3/4" format video cassette tapes
	Cords, cable, connectors and adaptors

Schedule 4.5(b)

I-Net sites

Schedule 4.5 (b)
I-NET SITES

1. Town Hall/ Town Hall Annex/ Offices
2. Police Department
3. Fire Department
4. Civil Defense Office
5. Library
6. Amesbury High School
7. Amesbury Middle School
8. Amesbury Elementary School
9. Cashman School
10. Superintendent's Office