

**APPENDIX C**

Parts 21 and 74 of Title 47 of the Code of Federal Regulations are amended as follows:

1. In Section 21.23, paragraph (c)(2) is revised to read as follows:

**§ 21.23 Amendment of applications.**

\* \* \* \* \*

(c) \* \* \*

(1) \* \* \*

\* \* \* \* \*

(2) Except during the sixty (60) day amendment period provided for in § 21.27(d), any amendment to an application for a new or modified response station hub, booster station or point-to-multipoint I channel(s) station or to an application for a modified main station that reflects any change in the technical specifications of the proposed facility, includes any new or modified analysis of potential interference to another facility or submits any interference consent from a neighboring licensee, shall result in the application being assigned a new file number and being treated as newly filed.

2. In Section 21.31, paragraph (a) is revised to read as follows:

**§ 21.31 Mutually exclusive applications.**

(a) Except with respect to applications for new or modified response stations hubs, booster stations, and point-to-multipoint I channel stations, and to applications for modified main stations, filed on the same day or during the same window, the Commission will consider applications to be mutually exclusive if their conflicts are such that grant of one application would effectively preclude by reason of harmful electrical interference, or other practical reason, the grant of one or more of the other applications.

3. In Section 21.42, paragraph (c)(8) is revised to read as follows:

**§ 21.42 Certain modifications not requiring prior authorizations.**

\* \* \* \* \*

(c) \* \* \*

(8) A change to a sectorized antenna system comprising an array of directional antennas, provided that such system does not change polarization or result in an increase

in radiated power by more than one dB in any horizontal or vertical direction; provided, however, that notice of such change is provided to the Commission on FCC Form 331 within ten (10) days of installation.

\* \* \* \* \*

4. In Section 21.106, paragraph (a)(2) is revised to read as follows:

**§ 21.106 Emission limitations.**

\* \* \* \* \*

(a) \* \* \*

(2) When using transmissions employing digital modulation techniques (see §21.122(b)) in situations other than those covered by Subpart K of this Part:

\* \* \* \* \*

5. Section 21.902 is revised to read as follows:

**§ 21.902 Interference.**

(c) The following interference studies must be prepared:

\* \* \* \* \*

(g) \* \* \*

\* \* \* \* \*

(i)(1) For each application for a new station, or amendment thereto, proposing MDS facilities, filed on October 1, 1995, or thereafter, on or before the day the application or amendment is filed, the applicant must prepare an analysis demonstrating that operation of the MDS applicant's transmitter will not cause harmful electrical interference to each receive site registered as of September 17, 1998, nor within a protected service area as defined at paragraph (d)(1) of this section, of any cochannel or adjacent channel ITFS station licensed, with a conditional license, or proposed in a pending application on the day such MDS application is filed, with an ITFS transmitter site within 50 miles of the coordinates of the MDS station's proposed transmitter site.

\* \* \* \* \*

(m) The following information formats and storage media are to be used in connection with applications for new and modified MDS and ITFS stations:

(1) The data file prepared for submission to the Commission's Reference Room pursuant to the requirements set out at paragraph 74 of Appendix D (as amended) to the Report and Order in MM Docket 97-217, FCC 98-231, must be in ASCII format on either CD-ROMs or 3.5" diskettes. Any supplementary information submitted in connection with Appendix D may be in either ASCII or PDF format (graphics must be in PDF format) on either CD-ROMs or 3.5" diskettes. Applicants serving such data/information on other applicants and/or licensees should do so using the same format(s) and media as used in their submission to the Commission's Reference Room.

(2) Demonstrations and certifications prepared for submission to the Commission's Reference Room may be in either hard copy or in ASCII or PDF format on CD-ROM's or 3.5" diskettes. (Graphics must be either hard copy or PDF format) Applicants serving such demonstrations and certifications on other applicants and/or licensees should do so using the same format(s) and media as used in their submission to the Commission's Reference Room.

6. In Section 21.906, paragraph (d) is revised to read as follows:

**§ 21.906 Antennas.**

\* \* \* \* \*

(d) Directive receiving antennas shall be used at all points other than response station hubs and response stations operating with an EIRP no greater than -6 dBW per 6 MHz channel and shall be elevated no higher than necessary to assure adequate service. Receiving antenna height shall not exceed the height criteria of Part 17 of this chapter, unless authorization for use of a specific maximum height (above ground and mean sea level) for each location has been obtained from the Commission prior to the erection of the antenna. (See Part 17 of this chapter concerning construction, marking and lighting of antenna structures.) A response station operating with an EIRP no greater than -6 dBW per 6 MHz channel may use an omnidirectional receiving antenna. However, for the purpose of interference protection, such response stations will be treated as if utilizing a receive antenna meeting the requirements of the reference receiving antenna of Figure 1 of §21.902(f)(3).

7. In Section 21.908, paragraph (d) is revised to read as follows:

**§ 21.908 Transmitting equipment.**

\* \* \* \* \*

(d) The maximum out-of-band power of an MDS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP greater than -6 dBW per 6 MHz channel shall be attenuated (as measured in accordance with paragraph (e), below) at the 6 MHz channel edges at least 25 dB relative to the average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250

kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies. The maximum out-of-band power of an MDS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP no greater than -6 dBW per 6 MHz channel shall be attenuated (as measured in accordance with paragraph (e), below) at the channel edges at least 25 dB relative to the average 6 MHz channel transmitter output power level (P), then attenuated along a linear slope to at least 40 dB or 33+10log(P) dB, whichever is the lesser attenuation, at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB or 43+10log(P) dB, whichever is the lesser attenuation, at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB or 43+10log(P) dB, whichever is the lesser attenuation, at all other frequencies. Where MDS response stations with digital modulation utilize all or part of more than one contiguous 6 MHz channel to form a larger channel (*e.g.* , a channel of width 12 MHz), the above-specified attenuations shall be applied only at the upper and lower edges of the overall combined channel. Notwithstanding these provisions, should harmful interference occur as a result of emissions outside the assigned channel(s), additional attenuation may be required by the Commission.

\* \* \* \* \*

8. In Section 21.909, paragraphs (c)(1), (c)(2), (c)(2)(ii), (c)(2)(iii), (d), (d)(1), (g)(3), (g)(4), (g)(6), (g)(6)(i), (g)(6)(ii), (g)(6)(iii), (h) and (o) are revised, paragraphs (c)(2)(ii), (c)(2)(iii) are redesignated as (c)(2)(i), (c)(2)(ii) respectively, and paragraphs (c)(2)(i), (c)(3), and (g)(6)(iv) are deleted to read as follows:

**§ 21.909 MDS response stations.**

\* \* \* \* \*

(c) \* \* \*

(1) File FCC Form 331 with Mellon Bank, and certify on that form that it has complied with the requirements of paragraphs (c)(2) and (d) of this section and that the interference data submitted under paragraph (d) of this section is complete and accurate. Failure to certify compliance and to comply completely with the requirements of paragraphs (c)(2) and (d) of this section shall result in dismissal of the application or revocation of the response station hub license, and may result in imposition of a monetary forfeiture; and

(2) Submit the following (see §21.902(m) for permissible formats and media) to the Commission's Reference Room:

(i) The data files required by Appendix D (as amended) to the Report and Order in MM Docket 97-217, FCC 98-231, "Methods For Predicting Interference

From Response Station Transmitters And To Response Station Hubs And For Supplying Data on Response Station Systems”; and

(ii) The demonstrations and certifications required by paragraph (d) of this section.

(d) An applicant for a response station hub license shall prepare the following:

(1) A demonstration describing the system channel plan, to the extent that such information is not contained in the data file required in (c)(2)(i), above; and

\* \* \* \* \*

(g) \* \* \*

(3) No response station shall operate with an EIRP in excess of that specified in the application for the response station hub for the particular regional class of characteristics with which the response station is associated, and such response station shall not operate with an EIRP in excess of  $33 \text{ dBW} + 10\log(X/6) \text{ dBW}$ , where X is the channel width in MHz, and

(4) Each response station shall employ a transmission antenna oriented towards the response station hub with which the response station communicates and such antenna shall be no less directive than the worst-case outer envelope pattern specified in the application for the response station hub for the regional class of characteristics with which the response station is associated; and

\* \* \* \* \*

(6) The response stations transmitting simultaneously at any given time within any given region of the response service area utilized for purposes of analyzing the potential for interference by response stations shall conform to the numerical limits for each class of response station proposed in the application for the response station hub license. Notwithstanding the foregoing, where a response station hub licensee subchannelizes pursuant to §21.909(a) and limits the maximum EIRP emitted by any individual response station proportionately to the fraction of the channel that the response station occupies, the licensee may operate simultaneously on each subchannel the number of response stations specified in the license. Moreover, the licensee of a response station hub may alter the number of response stations of any class operated simultaneously in a give region, without prior Commission authorization, provided that the licensee:

(i) Files with the Commission (see §21.902(m) for permissible format(s) and media) a demonstration indicating the number of response stations of such class(es) to be operated simultaneously in such region and a certification that it has complied with the requirements of paragraphs (g)(6)(ii) and (iii) of this section and that

the interference data submitted pursuant to paragraph (g)(6)(ii) is complete and accurate; and

(ii) Provides the Commission's Reference Room (see §21.902(m) for permissible formats and media) with an update of the previously-filed response station data and with a demonstration that such alteration will not result in any increase in interference to the protected service area or protected receive sites of any existing or previously-proposed, cochannel or adjacent channel MDS or ITFS station or booster station, to the protected service area of any MDS Basic Trading Area or Partitioned Service Area licensee entitled to protection pursuant to paragraph (d)(3) of this section, or to any existing or previously-proposed, cochannel or adjacent channel response station hub, or response station under § 21.949 or § 74.949 of this chapter; or that the applicant for or licensee of such facility has consented to such interference; and

(iii) Serves a copy of such demonstration and certification upon each party entitled to be served pursuant to paragraph (d)(3) of this section; and

\* \* \* \* \*

(h) Applicants must comply with Part 17 of this chapter concerning notification to the Federal Aviation Administration of proposed antenna construction or alteration for all hub stations and associated response stations.

\* \* \* \* \*

(o) Interference calculations shall be performed in accordance with Appendix D (as amended) to the Report and Order in MM Docket 97-217, FCC 98-231, "Methods For Predicting Interference From Response Station Transmitters and To Response Station Hubs and For Supplying Data on Response Station Systems." (Note: This document is subject to change and will be updated/amended as needed without prior notification. Applicants should always utilize the most current version of the document, as found at the Commission's internet web site, <http://www.fcc.gov/mmb/vsd/files/methodology.doc>). Compliance with out-of-band emission limitations shall be established in accordance with § 21.908(e).

9. Section 21.913 is revised to read as follows:

**§ 21.913 Signal booster stations.**

(a) An MDS booster station may reuse channels to repeat the signals of MDS stations or to originate signals on MDS channels. The aggregate power flux density generated by an MDS station and all associated signal booster stations and all simultaneously operating cochannel response stations may not exceed  $-73 \text{ dBW/m}^2$  (or the appropriately adjusted value based on the actual bandwidth used if other than 6 MHz, see § 21.902(b)(7)(i)) at or beyond the boundary of the protected service area, as defined in §§ 21.902(d) and 21.933, of the main MDS station whose channels are being reused, as measured at locations for

which there is an unobstructed signal path, unless the consent of the affected cochannel licensee is obtained.

(b) A licensee or conditional licensee of an MDS station, or the capacity lessee of such MDS station upon the written consent of the licensee or conditional licensee, may secure a license for a high power signal booster station that has a maximum EIRP in excess of  $-9 \text{ dBW} + 10 \log(X/6) \text{ dBW}$  where X is the channel width in MHz, if it complies with the out- of-band emission requirements of § 21.908. Any licensee of a high-power booster station that is a capacity lessee shall, upon termination or expiration of the capacity lease, automatically assign the booster station license to the licensee or conditional licensee of the MDS station by and upon written notice to the Commission signed by the lessee and such licensee or conditional licensee. If upon termination or expiration of the capacity lease the licensee or conditional licensee no longer desires or needs the high-power booster station license, such a license must be returned to the Commission. The applicant for a high-power station, or for modification thereto, where not subject to § 21.41 or § 21.42, shall file FCC Form 331 with Mellon Bank, and certify on that form that the applicant has complied with the additional requirements of paragraph (b) of this section, and that the interference data submitted under this paragraph is complete and accurate. Failure to certify compliance and to comply completely with the following requirements of paragraph (b) of this section shall result in dismissal of the application or revocation of the high-power MDS signal booster station license, and may result in imposition of a monetary forfeiture. The applicant is additionally required to submit (see §21.902(m) for permissible format(s) and media) to the Commission's Reference Room the following information:

(1) \* \* \*

(2) A study which demonstrates that the aggregate power flux density of the MDS station and all associated booster stations and simultaneously operating cochannel response stations licensed to or applied for by the applicant, measured at or beyond the boundary of the protected service area of the MDS station whose channels are to be reused, does not exceed  $-73 \text{ dBW/m}^2$  (or the appropriately adjusted value based on the actual bandwidth used if other than 6 MHz, see § 21.902(b)(7)(i)) at locations for which there is an unobstructed signal path, unless the consent of the affected licensees has been obtained; and

\* \* \* \* \*

(8) If the applicant is a capacity lessee, a certification that: (i) the licensee or conditional licensee has provided its written consent to permit the capacity lessee to apply for the booster station license; and (ii) the applicant and the licensee or conditional licensee have entered into a lease that is in effect at the time of such filing.

\* \* \* \* \*

(e) A licensee or conditional licensee of an MDS station, or the capacity licensee of such MDS station upon the written consent of the licensee or conditional licensee, shall be eligible to install and operate a low power signal booster station that has a maximum EIRP of  $-9 \text{ dBW} + \log_{10}(X/6) \text{ dBW}$ , where X is the channel width in MHz. A low-power MDS signal booster station may operate only on one or more MDS channels that are licensed to the licensee of the MDS booster station, but may be operated by a third party with a fully-executed lease or consent agreement with the MDS conditional licensee or licensee. Any licensee of a low-power booster station that is a capacity lessee shall, upon termination or expiration of the capacity lease, automatically assign the booster station license to the licensee or conditional licensee of the MDS station by and upon written notice to the Commission signed by the lessee and such licensee or conditional licensee. If upon termination or expiration of the capacity lease the licensee or conditional licensee no longer desires or needs the low-power booster station license, such a license must be returned to the Commission. An MDS licensee, conditional licensee, or capacity lessee thereof, may install and commence operation of a low-power MDS signal booster station for the purpose of retransmitting the signals of the MDS station or for originating signals. Such installation and operation shall be subject to the condition that for sixty (60) days after installation and commencement of operation, no objection or petition to deny is filed by the licensee of a, or applicant for a previously-proposed, cochannel or adjacent channel ITFS or MDS station with a transmitter within 8.0 kilometers (5 miles) of the coordinates of the low-power MDS signal booster station. An MDS licensee, conditional licensee, or capacity lessee thereof seeking to install a low-power MDS signal booster station under this rule must submit a FCC Form 331 to the Commission within 48 hours after installation. In addition, the MDS licensee, conditional licensee, or capacity lessee must submit the following information (see §21.902(m) for permissible format(s) and media) to the Commission's Reference Room:

(1) \* \* \*

\* \* \* \* \*

(4) A certification that:

\* \* \* \* \*

(vi) The aggregate power flux density of the MDS station and all associated booster stations and simultaneously operating cochannel response stations licensed to or applied for by the applicant, measured at or beyond the boundary of the protected service areas of the MDS stations whose channels are to be reused, does not exceed  $-73 \text{ dBW/m}^2$  (or the appropriately adjusted value based on the actual bandwidth used if other than 6 MHz, see § 21.902(b)(7)(i)) at locations for which there is an unobstructed signal path, unless the consent of the affected licensees has been obtained; and

(viii) The applicant understands and agrees that, in the event harmful interference is claimed by the filing of an objection or petition to deny, **it** must terminate



operation within two (2) hours of notification by the Commission, and must not recommence operation until receipt of written authorization to do so by the Commission; and

(ix) If the applicant is a capacity lessee, a certification that: (A) the licensee or conditional licensee has provided its written consent to permit the capacity lessee to apply for the booster station license; and (B) the applicant and the licensee or conditional licensee have entered into a lease that is in effect at the time of such filing.

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**PART 74 -- EXPERIMENTAL RADIO, AUXILLIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES**

10. In Section 74.902, paragraphs (f) and (i) are revised to read as follows:

**§ 74.902 Frequency assignments.**

\* \* \* \* \*

(f) An ITFS licensee may apply to exchange evenly one or more of its assigned channels with another ITFS licensee, or with an MDS licensee or conditional licensee, except that an ITFS licensee may not exchange one of its assigned channels for MDS channel 2A. The licensees seeking to exchange channels shall file in tandem with the Commission separate pro forma assignment of license applications, each attaching an exhibit which clearly specifies that the application is filed pursuant to a channel exchange agreement. The exchanged channel(s) shall be regulated according to the requirements applicable to the assignee; provided, however, that an ITFS licensee which receives one or more E or F Group channels through a channel exchange with an MDS licensee or conditional licensee shall not be subject to the restrictions on ITFS licensees who were authorized to operate on the E or F Group channels prior to May 26, 1983.

\* \* \* \* \*

(i) On the E and F-channel frequencies, a point-to-point ITFS station may be involuntarily displaced by an MDS applicant or licensee, provided that suitable alternative spectrum is available and that the MDS entity bears the expenses of the migration. Suitability of spectrum will be determined on a case-by-base basis; at a minimum, the alternative spectrum must be licensable by ITFS operators on a primary basis (although it need not be specifically allocated to the ITFS service), and must provide a signal that is equivalent to the prior signal in picture quality and reliability, unless the ITFS licensee will accept an inferior signal. Potential expansion of the ITFS licensee may be considered in determining whether alternative available spectrum is suitable.

\* \* \* \* \*

11. Section 74.903 is revised to read as follows:

**§ 74.903 Interference.**

(a) \* \* \*

\* \* \* \* \*

(b) \* \* \*

(4) In lieu of the interference analyses required by paragraphs (b)(1) and (2) of this section, an applicant may submit (a) statement(s) from the affected cochannel or adjacent channel licensee(s) that any resulting interference is acceptable.

\* \* \* \* \*

(c) Existing licensees and prospective applicants, including those who lease or propose to lease excess capacity pursuant to § 74.931(c) or (d), are expected to cooperate fully and in good faith in attempting to resolve problems of potential interference before bringing the matter to the attention of the Commission.

(d) Each authorized or previously-proposed applicant, or licensee must be protected from harmful electrical interference at each of its receive sites registered previously as of September 17, 1998, and within a protected service area as defined at § 21.902(d) of this chapter and in accordance with the reference receive antenna characteristics specified at § 21.902(f) of this chapter. An ITFS entity which did not receive protected service area protection prior to September 17, 1998 shall be accorded such protection by a cochannel or adjacent channel applicant for a new station or station modification, including a booster station, response station or response station hub, where the applicant is required to prepare an analysis, study or demonstration of the potential for harmful interference. An ITFS entity receiving interference protection provided by this section will continue to receive such protection if it elects to swap channels with another ITFS or MDS station as specified in § 74.902(f).

12. Section 74.911 is revised to read as follows:

**§ 74.911 Processing of ITFS station applications.**

(a) \* \* \*

(b) A new file number will be assigned to an application for a new station or for major changes in the facilities of an authorized station, when it is amended so as to effect a major change, as defined in paragraph (a)(2) of this section, or results in a situation where the original party or parties to the application do not retain control of the applicant as originally filed. An application for change in the facilities of any existing station will

continue to carry the same file number even though (pursuant to Commission approval) an assignment of license or transfer of control of such licensee has taken place if, upon consummation, the application is amended to reflect the new ownership

\* \* \* \* \*

(d) Notwithstanding any other provisions of this part, effective as of September 17, 1998, there shall be a one-week window, at such time as the Commission shall announce by public notice, for the filing of applications for all major changes, high-power signal booster station, response station hub, and I channels point-to-multipoint transmissions licenses, during which all applications shall be deemed to have been filed as of the same day for purposes of §§ 74.939 and 74.985. Following the publication of a public notice announcing the tendering for filing of applications submitted during that window, applicants shall have a period of sixty (60) days to amend their applications, provided such amendments do not result in any increase in interference to any previously-proposed or authorized station, or to facilities proposed during the window, absent consent of the applicant for or licensee of the station that would receive such additional interference. At the conclusion of that sixty (60) day period, the Commission shall publish a public notice announcing the acceptance for filing of all applications submitted during the initial window, as amended during the sixty (60) day period. All petitions to deny such applications must be filed within sixty (60) days of such second public notice. On the sixty-first (61st) day after the publication of such second public notice, applications for major changes, new or modified response station hub, high powered signal booster and booster station licenses may be filed and will be processed in accordance with the provisions of §§ 74.939 and 74.985. Each application submitted during the initial window shall be granted on the sixty-first (61st) day after the Commission shall have given such public notice of its acceptance for filing, unless prior to such date either a party in interest timely files a formal petition to deny or for other relief pursuant to § 74.912, or the Commission notifies the applicant that its application will not be granted. Where an application is granted pursuant to the provisions of this paragraph, licensee shall maintain a copy of the application at the transmitter site or response station hub until such time as the Commission issues a license.

(e) Except as provided in paragraph (d) of this section, major change applications may be filed at any time. Except during the sixty (60) day amendment period provided for in paragraph (d) of this section, any amendment to a major change application that reflects any change in the technical specifications of the proposed facility, includes any new or modified analysis of potential interference to another facility, or submits any interference consent from a neighboring licensee, shall cause the application to be considered newly-filed. Notwithstanding any other provision of part 74, major change applications meeting the requirements of part 74 shall cut-off applications that are filed on a subsequent day for facilities that would cause harmful electromagnetic interference to the facilities proposed in the major change application. A facility proposed in a major change application shall not be entitled to protection from interference caused by any facilities proposed on or prior to the day the major change application is filed. A facility proposed in a major change application shall not be required to protect from interference facilities

proposed on or after the day the major change application is filed. Except as provided by paragraph (d) of this section, any petition to deny a major change application shall be filed no later than the sixtieth (60th) day after the date of public notice announcing the filing of such application. Except as provided in paragraph (d) of this section a major change application that meets the requirements of part 74 shall be granted on the sixty-first (61st) day after the Commission shall have given public notice of the acceptance for filing of it, unless prior to such date either a party in interest files a timely petition to deny or files for other relief pursuant to § 74.912, or the Commission notifies the applicant that its application will not be granted at such time. Where an application is granted pursuant to the provisions of this paragraph, the licensee shall maintain a copy of the application at the facility until such time as the Commission issues a license for that facility's operations.

13. In Section 74.931, paragraphs (c) and (d) are revised, new paragraph (e) is added, and paragraphs (e), (f), (g), (h), (i) and (j) are redesignated respectively as paragraphs (f), (g), (h), (i), (j) and (k) to read as follows:

**§ 74.931 Purpose and permissible service.**

\* \* \* \* \*

(c) \* \* \*

(1) Before leasing excess capacity on any one channel, the licensee must provide at least 20 hours per week of ITFS educational usage on that channel, except as provided in paragraph (c)(2) and (c)(3) of this section. An additional 20 hours per week per channel must be strictly reserved for ITFS use and not used for non-ITFS purposes, or reserved for recapture by the ITFS licensee for its ITFS educational usage, subject to one year's advance, written notification by the ITFS licensee to its lessee and accounting for all recapture already exercised, with no economic or operational detriment to the licensee. These hours of recapture are not restricted as to time of day or day of the week, but may be established by negotiations between the ITFS licensee and the lessee. This 20 hours per channel per week ITFS educational usage requirement and this recapture and/or reservation requirement of an additional 20 hours per channel per week shall apply spectrally over the licensee's whole actual service area.

(2) \* \* \*

(3) The licensee may shift its requisite ITFS educational usage onto fewer than its authorized number of channels, via channel mapping or channel loading technology, so that it can lease full-time channel capacity on its ITFS station and/or associated ITFS booster stations, subject to the condition that it provide a total average of at least 20 hours per channel per week of ITFS educational usage on its authorized channels. The use of channel mapping or channel loading consistent with the Rules shall not be considered adversely to the ITFS licensee in seeking a license renewal. The licensee also retains the unabridgeable right to recapture, subject to six months' advance

written notification by the ITFS licensee to its lessee, an average of an additional 20 hours per channel per week, accounting for all recapture already exercised. Regardless of whether the licensee has educational receive sites within its psa, the licensee may lease booster stations in the entire psa, provided that the licensee maintains the unbridgeable right to recapture at least 40 hours per channel per week for ITFS educational usage. The licensee may agree to the transmission of this recapture time on channels not authorized to it, but which are included in the wireless system of which it is a part. A licensee under this paragraph which leases excess capacity on any one of its channels to an operator may "channel shift" pursuant to and under the conditions of paragraph (d)(2) of this section.

(4) An ITFS applicant or licensee may specify an omnidirectional antenna for point-to multipoint transmissions to facilitate the leasing of excess capacity.

\* \* \* \* \*

(d) \* \* \*

(1) The licensee must reserve a minimum of 5% of the capacity of its channels for instructional purposes only, and may not lease this reserved capacity. In addition, before leasing excess capacity, the licensee must provide at least 20 hours per licensed channel per week of ITFS educational usage. This 5% reservation and this 20 hours per licensed channel per week ITFS educational usage requirement shall apply spectrally over the licensee's whole actual service area. However, regardless of whether the licensee has an educational receive sites within its psa served by a booster, the licensee may lease excess capacity without making at least 20 hours per licensed channel per week of ITFS educational usage, provided that the licensee maintains the unbridgeable right to recapture on one months' advance notice such capacity as it requires over and above the 5% reservation to make at least 20 hours per channel per week of ITFS educational usage.

(2) The licensee may shift its requisite ITFS educational usage onto fewer than its authorized number of channels, via channel mapping or channel loading technology, and may shift its requisite ITFS educational usage onto channels not authorized to it, but which are included in the wireless system of which it is a part ("channel shifting"), so that it can lease full-time channel capacity on its ITFS station, associated ITFS booster stations, and/or ITFS response stations and associated response station hubs, subject to the condition that it provide a total average of at least 20 hours per licensed channel per week of ITFS educational usage. The use of channel mapping, channel loading, and/or channel shifting consistent with the Rules shall not be considered adversely to the ITFS licensee in seeking a license renewal. In addition, an ITFS entity receiving interference protection provided by § 74.903, will continue to receive such protection if it elects to swap channels with another ITFS or MDS station as specified in § 74.902(f).

(3) An ITFS applicant or licensee may specify an omnidirectional antenna for point-to multipoint transmissions to facilitate the leasing of excess capacity.

\* \* \* \* \*

(e) ITFS excess capacity leases entered into prior to March 31, 1997, which contain a provision for automatic renewal which would be effective after March 31, 1997, are exempt for the duration of said lease from compliance with subsequently adopted Commission rules. However, the total term of such applicable lease may not exceed fifteen years.

14. Section 74.936(f) is revised to read as follows:

**§ 74.936 Emissions and bandwidth.**

\* \* \* \* \*

(f) The maximum out-of-band power of an ITFS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP greater than  $-6$  dBW per 6 MHz channel shall be attenuated (as measured in accordance with §21.908(e)) at the 6 MHz channel edges at least 25 dB relative to the average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies. The maximum out-of-band power of an ITFS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP no greater than  $-6$  dBW per 6 MHz channel shall be attenuated (as measured in accordance with §21.908(e)) at the channel edges at least 25 dB relative to the average 6 MHz channel transmitter output power level (P), then attenuated along a linear slope to at least 40 dB or  $33+10\log(P)$  dB, whichever is the lesser attenuation, at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB or  $43+10\log(P)$  dB, whichever is the lesser attenuation, at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB or  $43+10\log(P)$  dB, whichever is the lesser attenuation, at all other frequencies. Where ITFS response stations with digital modulation utilize all or part of more than one contiguous 6 MHz channel to form a larger channel (*e.g.*, a channel of width 12 MHz), the above-specified attenuations shall be applied only at the upper and lower edges of the overall combined channel. Notwithstanding these provisions, should harmful interference occur as a result of emissions outside the assigned channel(s), additional attenuation may be required by the Commission.

\* \* \* \* \*

15. In sections 74.937, paragraphs (a) and (b) are revised to read as follows:

**§ 74.937 Antennas.**

(a) In order to minimize the hazard of harmful cochannel and adjacent channel interference from other stations, directive receiving antennas should be used at all receiving locations other than response station hubs and response stations operating with an EIRP no greater than -6 dBW per 6 MHz channel. The choice of receiving antennas is left to the discretion of the licensee. However, for the purpose of interference calculations, except as set forth in §74.939, the general characteristics of the reference receiving antenna shown in Figure 1 of this section (i.e., a 0.6 meter (2 foot) parabolic reflector antenna, are assumed to be used in accordance with the provisions of §74.903(a)(3) unless pertinent data is submitted of the actual antenna in use for reception. Licensees may install receiving antennas with general characteristics superior to those of the reference antenna. Should interference occur and it can be demonstrated that the existing receiving antenna is inadequate, a more suitable antenna should be installed. In such cases, installation of the new receiving antenna will be the responsibility of the system operator serving the receive site. A response station operating with an EIRP no greater than -6 dBW per 6 MHz channel may use an omnidirectional receiving antenna. However, for the purpose of interference protection, such response stations will be treated as if utilizing a receive antenna meeting the requirements of the reference receiving antenna shown in Figure 1 of this section.

(b) Except as set forth in §74.931(c)(4) and (d)(3), directive transmitting antennas shall be used whenever feasible so as to minimize interference to other licensees. The radiation pattern shall be designed to minimize radiation in directions where no reception is intended. When an ITFS station is used for point-to-point service, an appropriate directional antenna must be used. Notwithstanding these provisions, response stations operating with an EIRP no greater than -6 dBW per 6 MHz channel may utilize omnidirectional transmitting antennas.

\* \* \* \* \*

16. In Section 74.939, paragraphs (c)(2), (c)(2)(i), (c)(2)(ii), (d), (d)(1), (g)(3), (g)(4), (g)(6), (g)(6)(i), (g)(6)(ii), (g)(6)(iii), (h), (l)(2), and (q) are revised and (c)(2)(iii), (c)(3) and (g)(6)(iv) are deleted to read as follows:

#### **§74.939 ITFS response stations**

\* \* \* \* \*

(c) \* \* \*

(1) \* \* \*

(2) Submit the following (see §21.902(m) for permissible formats and media) to the Commission's Reference Room:

(i) The data files required by Appendix D (as amended) to the Report and Order in MM Docket 97-217, FCC 98-231, “Methods For Predicting Interference From Response Station Transmitters And To Response Station Hubs And For Supplying Data on Response Station Systems”; and

(ii) The demonstrations and certifications required by paragraph (d) of this section.

(d) An applicant for a response station hub license shall prepare the following:

(1) A demonstration describing the system channel plan, to the extent that such information is not contained in the data file required in (c)(2)(i), above; and

\* \* \* \* \*

(g) \* \* \*

(1) \* \* \*

\* \* \* \* \*

(3) No response station shall operate with an EIRP in excess of that specified in the application for the response station hub for the particular regional class of characteristics with which the response station is associated, and such response station shall not operate with an EIRP in excess of  $33 \text{ dBW} + 10\log(X/6) \text{ dBW}$ , where X is the channel width in MHz, and

(4) Each response station shall employ a transmission antenna oriented towards the response station hub with which the response station communicates and such antenna shall be no less directive than the worst-case outer envelope pattern specified in the application for the response station hub for the regional class of characteristics with which the response station is associated; and

\* \* \* \* \*

(6) The response stations transmitting simultaneously at any given time within any given region of the response service area utilized for purposes of analyzing the potential for interference by response stations shall conform to the numerical limits for each class of response station proposed in the application for the response station hub license. Notwithstanding the foregoing, where a response station hub licensee subchannelizes pursuant to §74.939(a) and limits the maximum EIRP emitted by any individual response station proportionately to the fraction of the channel that the response station occupies, the licensee may operate simultaneously on each subchannel the number of response stations specified in the license. Moreover, the licensee of a response station hub may alter the number of response stations of any class operated simultaneously in a give region, without prior Commission authorization, provided that the licensee:



(i) Files with the Commission (see §21.902(m) for permissible format(s) and media) a demonstration indicating the number of response stations of such class(es) to be operated simultaneously in such region and a certification that it has complied with the requirements of paragraphs (g)(6)(ii) and (iii) of this section and that the interference data submitted pursuant to paragraph (g)(6)(ii) is complete and accurate; and

(ii) Provides the Commission's Reference Room (see §21.902(m) for permissible formats and media) with an update of the previously-filed response station data and with a demonstration that such alteration will not result in any increase in interference to the protected service area or protected receive sites of any existing or previously-proposed, cochannel or adjacent channel MDS or ITFS station or booster station, to the protected service area of any MDS Basic Trading Area or Partitioned Service Area licensee entitled to protection pursuant to paragraph (d)(3) of this section, or to any existing or previously-proposed, cochannel or adjacent channel response station hub, or response station under § 21.949 or § 74.949 of this chapter; or that the applicant for or licensee of such facility has consented to such interference; and

(iii) Serves a copy of such demonstration and certification upon each party entitled to be served pursuant to paragraph (d)(3) of this section; and

\* \* \* \* \*

(h) Applicants must comply with Part 17 of this chapter concerning notification to the Federal Aviation Administration of proposed antenna construction or alteration for all hub stations and associated response stations.

\* \* \* \* \*

(l) \* \* \*

(1) \* \* \*

(2) Submit to the Commission's Reference Room (see §21.902(m) for permissible format(s) and media) the following:

\* \* \* \* \*

(q) Interference calculations shall be performed in accordance with Appendix D (as amended) to the Report and Order in MM Docket 97-217, FCC 98-231, "Methods For Predicting Interference From Response Station Transmitters and To Response Station Hubs and For Supplying Data on Response Station Systems." (Note: This document is subject to change and will be updated/amended as needed without prior notification. Applicants should always utilize the most current version of the document, as found at the Commission's internet web site, <http://www.fcc.gov/mmb/vsd/files/methodology.doc>).

Compliance with out-of-band emission limitations shall be established in accordance with § 21.908(e).

\* \* \* \* \*

17. In Section 74.951, paragraph (b) is revised to read as follows:

**§ 74.951 Modification of transmission systems.**

\* \* \* \* \*

(b) Any change in the antenna system affecting the direction of radiation, directive radiation pattern, antenna gain, or radiated power; provided, however, that a licensee may install a sectorized antenna system without prior consent if such system does not change polarization or result in an increase in radiated power by more than one dB in any direction, and notice of such installation is provided to the Commission on FCC Form 331 within ten (10) days of installation. When an applicant proposes to employ a directional antenna, or a licensee notifies the Commission pursuant to this paragraph of the installation of a sectorized antenna system, the applicant shall provide the Commission with information regarding the orientation of the directional antenna(s), expressed in degree of azimuth, with respect to true north, and the make and model of such antenna(s).

\* \* \* \* \*

17. Section 74.985 is revised to read as follows:

**§ 74.985 Signal booster stations.**

\* \* \* \* \*

(b) A licensee or the capacity lessee of such ITFS station upon the written consent of the licensee, may secure a license for a high power signal booster station that has a maximum EIRP in excess of  $-9 \text{ dBW} + 10 \log(X/6) \text{ dBW}$  where X is the channel width in MHz, if it complies with the out- of-band emission requirements of § 21.908. Any licensee of a high-power booster station that is a capacity lessee shall, upon termination or expiration of the capacity lease, automatically assign the booster station license to the licensee of the ITFS station by and upon written notice to the Commission signed by the lessee and such. If upon termination or expiration of the capacity lease the licensee no longer desires or needs the high-power booster station license, such a license must be returned to the Commission. Furthermore, such capacity lessee must reserve 20 hours per week per channel for ITFS use, or reserve for recapture by the ITFS licensee for its ITFS educational usage, subject to one year's advance, written notification by the ITFS licensee to its lessee and accounting for all recapture already exercised, with no economic or operational detriment to the licensee, for a lessor using analog transmissions. Alternatively, the capacity lessee must reserve a minimum of 5% of the capacity of its

channels for instructional purposes only and provide at least 20 hours per licensed channel per week of ITFS educational usage for the lessor using digital transmissions. The applicant for a high-power station, or for modification thereto, shall file FCC Form 331 with the Commission Reference Room in Washington, DC, and certify on that form that the applicant has complied with the additional requirements of paragraph (b) of this section, and that the interference data submitted under this paragraph is complete and accurate. Failure to certify compliance and to comply completely with the following requirements of paragraph (b) of this section shall result in dismissal of the application or revocation of the high-power ITFS signal booster station license, and may result in imposition of a monetary forfeiture. The applicant is additionally required to submit (see §21.902(m) for permissible format(s) and media) to the Commission's Reference Room the following information:

(1) \* \* \*

\* \* \* \* \*

(5) In lieu of the requirements of § 74.903, a study which demonstrates that the proposed signal booster station will cause no harmful interference (as defined in § 74.903(a)(1) and (2)) to cochannel and adjacent channel, authorized or previously-proposed ITFS and MDS stations with protected service area center coordinates as specified in § 21.902(d) of this chapter, to any authorized or previously-proposed response station hubs, booster service areas, or I channel stations associated with such ITFS and MDS stations, or to any ITFS receive sites registered as of September 17, 1998, within 160.94 kilometers (100 miles) of the proposed booster station's transmitter site. Such study shall consider the undesired signal levels generated by the proposed signal booster station, the main station, all other licensed or previously-proposed associated booster stations, and all simultaneously operating cochannel response stations licensed to or applied for by the applicant. In the alternative, a statement from the affected MDS or ITFS licensee stating that it does not object to operation of the high-power ITFS signal booster station may be submitted; and

\* \* \* \* \*

(7) A certification that copies of the materials set forth in paragraph (b) of this section have been served upon the licensee of each station (including each response station hub and booster station) required to be studied pursuant to paragraph (b)(5) of this section, and upon any affected holder of a BTA or PSA authorization pursuant to paragraph (b)(4) of this section.

(8) If the applicant is a capacity lessee, a certification that: (i) the licensee has provided its written consent to permit the capacity lessee to apply for the booster station license; and (ii) the applicant and the licensee have entered into a lease that is in effect at the time of such filing.

\* \* \* \* \*

(d) Notwithstanding the provisions of § 74.912 and except as provided in § 74.911(e), any petition to deny an application for a high-power ITFS signal booster station license shall be filed no later than the sixtieth (60th) day after the date of public notice announcing the filing of such application or major amendment thereto. Except as provided in § 74.911(e), an application for a high-power ITFS signal booster station license that meets the requirements of paragraph (b) of this section shall be granted on the sixty-first (61st) day after the Commission shall have given public notice of the acceptance for filing of it, or of a major amendment to it if such major amendment has been filed, unless prior to such date either a party in interest timely files a formal petition to deny or for other relief pursuant to § 74.912, or the Commission notifies the applicant that its application will not be granted. Where an application is granted pursuant to the provisions of this paragraph, the licensee shall maintain a copy of the application at the ITFS booster station until such time as the Commission issues a high- power ITFS signal booster station license.

(e) A licensee or the capacity lessee of such ITFS station upon the written consent of the licensee, shall be eligible to install and operate a low power signal booster station that has a maximum EIRP of  $-9 \text{ dBW} + \log_{10}(X/6) \text{ dBW}$ , where X is the channel width in MHz. A low-power ITFS signal booster station may operate only on one or more ITFS channels that are licensed to the licensee of the ITFS booster station, but may be operated by a third party with a fully-executed lease or consent agreement with the ITFS licensee. . Any licensee of a low-power booster station that is a capacity lessee shall, upon termination or expiration of the capacity lease, automatically assign the booster station license to the licensee of the ITFS station by and upon written notice to the Commission signed by the lessee and such licensee. If upon termination or expiration of the capacity lease the licensee no longer desires or needs the low-power booster station license, such a license must be returned to the Commission. An ITFS licensee or capacity lessee thereof may install and commence operation of a low-power ITFS signal booster station for the purpose of retransmitting the signals of the ITFS station or for originating signals. Such installation and operation shall be subject to the condition that for sixty (60) days after installation and commencement of operation, no objection or petition to deny is filed by the licensee of a, or applicant for a previously-proposed, cochannel or adjacent channel ITFS or MDS station with a transmitter within 8.0 kilometers (5 miles) of the coordinates of the low-power ITFS signal booster station. An ITFS licensee or capacity lessee thereof seeking to install a low-power ITFS signal booster station under this rule must submit a FCC Form 331 to the Commission within 48 hours after installation. In addition, the ITFS licensee, or capacity lessee must submit the following information (see §21.902(m) for permissible format(s) and media) to the Commission's Reference Room:

(1) \* \* \*

\* \* \* \* \*

(4) A certification that

\* \* \* \*

(viii) The applicant understands and agrees that in the event harmful interference is claimed by the filing of an objection or petition to deny, it must terminate operation within two (2) hours of notification by the Commission, and must not recommence operation until receipt of written authorization to do so by the Commission; and

(ix) If the applicant is a capacity lessee, a certification that: (A) the licensee has provided its written consent to permit the capacity lessee to apply for the booster station license; and (B) the applicant and the licensee have entered into a lease that is in effect at the time of such filing.

\* \* \* \* \*