

## PART 21--DOMESTIC PUBLIC FIXED RADIO SERVICES

3. The authority citation for part 21 continues to read as follows:

AUTHORITY: Secs. 1, 2, 4, 201-205, 208, 215, 218, 303, 307, 313, 403, 404, 410, 602, 48 Stat. as amended, 1064, 1066, 1070-1073, 1076, 1077, 1080, 1082, 1083, 1087, 1094, 1098, 1102; 47 U.S.C. 151, 154, 201-205, 208, 215, 218, 303, 307, 313, 314, 403, 404, 602; 47 U.S.C. 552, 554.

4. Section 21.901 is amended by revising paragraph (e) to read as follows:

**§ 21.901 Frequencies**

\* \* \* \* \*

(e) Frequencies in the band segments 18,580-18,820 MHz and 18,920-19,160 MHz that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations for point-to-point return links from a subscriber's location on a shared co-primary basis with other services under Parts 25, 74, 78 and 101 of the Commission's rules until (date 10 years from adoption of this R&O). Prior to this date, such stations are subject to relocation by licensees in the fixed-satellite service. Such relocation is subject to the provisions of §§ 101.85 through 101.97. After this date, such operations are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. No new licenses will be granted in these bands after (date of the adoption of the R&O).

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## PART 25--SATELLITE COMMUNICATIONS

5. The authority citation for Part 25 continues to read as follows:

AUTHORITY: 47 U.S.C. 701-744. Interprets or applies sec. 303, 47 U.S.C. 303. 47 U.S.C. sections 154, 301, 302, 303, 307, 309 and 332, unless otherwise noted.

6. Section 25.115 is amended by adding a new paragraph (e) to read as follows:

**§ 25.115 Application for earth station authorizations.**

\* \* \* \* \*

(e) *Earth stations operating in the 20/30 GHz Fixed-Satellite Service with U.S.-licensed or non-U.S. licensed satellites:* Applications to license individual earth stations operating in the 20/30 GHz band shall be filed on FCC Form 312, Main Form and Schedule B, and shall also include the information described in §25.138. Earth stations belonging to a network operating in the 18.58-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz or 29.5-30.0 GHz bands may be licensed on a blanket basis. Applications for such blanket authorization may be filed using FCC Form 312, Main Form and Schedule B, and specifying the number of terminals to be covered by the blanket license. Each application for a blanket license under this section shall include the information described in §25.138.

7. A new section 25.138 is added to read as follows:

**§ 25.138 Blanket Licensing Provisions of GSO FSS Earth Stations in the 18.58-18.8 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 28.35-28.6 GHz (Earth-to-space) and 29.5-30.0 GHz (Earth-to-space) bands.**

(a) All applications for a blanket earth station license in the GSO FSS in the 18.58-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz and 29.5-30.0 GHz bands that meet the following requirements shall be routinely processed:

(1) GSO FSS earth station antenna off-axis EIRP spectral density for co-polarized signals shall not exceed the following values, within  $\pm 3^\circ$  of the GSO arc, under clear sky conditions:

$18.5 - 25\log(\theta) - 10\log(N)$	dBW/40kHz	for $2.0^\circ \leq \theta \leq 7^\circ$
$-2.63 - 10\log(N)$	dBW/40kHz	for $7^\circ \leq \theta \leq 9.23^\circ$
$21.5 - 25\log(\theta) - 10\log(N)$	dBW/40kHz	for $9.23^\circ \leq \theta \leq 48^\circ$
$-10.5 - 10\log(N)$	dBW/40kHz	for $48^\circ < \theta \leq 180^\circ$

where  $\theta$  is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, e.g., CDMA systems, N is the likely maximum number of simultaneously transmitting co-frequency earth stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

(2) GSO FSS earth station antenna off-axis EIRP spectral density for co-polarized signals shall not exceed the following values, for all directions other than within  $\pm 3^\circ$  of the GSO arc, under clear sky conditions:

$21.5 - 25\log(\theta) - 10\log(N)$	dBW/40kHz	for $3.5^\circ \leq \theta \leq 7^\circ$
$0.37 - 10\log(N)$	dBW/40kHz	for $7^\circ < \theta \leq 9.23^\circ$
$24.5 - 25\log(\theta) - 10\log(N)$	dBW/40kHz	for $9.23^\circ < \theta \leq 48^\circ$
$-7.5 - 10\log(N)$	dBW/40kHz	for $48^\circ < \theta \leq 180^\circ$

where  $\theta$  is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, e.g., CDMA systems,

N is the likely maximum number of simultaneously transmitting co-frequency earth stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

(3) The values given in (1) and (2) above may be exceeded by 3 dB, for values of  $\theta > 10^\circ$ , provided that the total angular range over which this occurs does not exceed  $20^\circ$  when measured along both sides of the GSO arc.

(4) GSO FSS earth station antenna off-axis EIRP spectral density for cross-polarized signals shall not exceed the following values, in all directions relative to the GSO arc, under clear sky conditions:

$$8.5 - 25\log(\theta) - 10\log(N) \quad \text{dBW/40kHz for } 2.0^\circ \leq \theta \leq 7^\circ - 12.63 - 10\log(N)$$

$$\text{dBW/40kHz for } 7^\circ < \theta \leq 9.23^\circ$$

where  $\theta$  is the angle in degrees from the axis of the main lobe; for systems where more than one earth station is expected to transmit simultaneously in the same bandwidth, e.g., CDMA systems, N is the likely maximum number of simultaneously transmitting co-frequency earth stations in the receive beam of the satellite; N=1 for TDMA and FDMA systems.

(5) For earth stations employing uplink power control, the values in (1), (2), and (4) above may be exceeded by up to 20 dB under conditions of uplink fading due to precipitation. The amount of such increase in excess of the actual amount of monitored excess attenuation over clear sky propagation conditions shall not exceed 1.5 dB or 15 % of the actual amount of monitored excess attenuation in dB, whichever is larger, with a confidence level of 90 percent except over transient periods accounting for no more than 0.5% of the time during which the excess is no more than 4.0 dB.

(6) Power-flux density (PFD) at the Earth's surface produced by emissions from a space station for all conditions, including clear sky, and for all methods of modulation shall not exceed a level of  $-118 \text{ dBW/m}^2/\text{MHz}$  for the band 19.7-20.2 GHz.

(b) Each applicant for earth station license(s) that proposes levels in excess of those defined in (a) above shall submit link budget analyses of the operations proposed along with a detailed written explanation of how each uplink and each transmitted satellite carrier density figure is derived. Applicants shall also submit a narrative summary which must indicate whether there are margin shortfalls in any of the current baseline services as a result of the addition of the applicant's higher power service, and if so, how the applicant intends to resolve those margin short falls. Applicants shall certify that all potentially affected parties (i.e., those GSO FSS satellite networks that are 2, 4, and 6 degrees apart) acknowledge and do not object to the use of the applicant's higher power densities.

(c) Licensees authorized pursuant to paragraph (b) of this section shall bear the burden of coordinating with any future applicants or licensees whose proposed compliant operations at 6 degrees or smaller orbital spacing, as defined by paragraph (a) of this section, is potentially or actually adversely affected by the operation of the non-compliant licensee. If no good faith agreement can be reached, however, the non-compliant licensee shall reduce its earth station and

space station power density levels to be compliant with those specified in paragraph (a) of this section.

(d) The applicant shall provide for each earth station antenna type, a series of radiation patterns measured on a production antenna performed on a calibrated antenna range and, as a minimum, shall be made at the bottom, middle, and top frequencies of the 30 GHz band. The radiation patterns are:

(1) Co-polarized patterns for each of two orthogonal senses of polarizations in two orthogonal planes of the antenna.

(i) In the azimuth plane, plus and minus 10 degrees and plus and minus 180 degrees.

(ii) In the elevation plane, zero to 30 degrees.

(2) Cross-polarization patterns in the E- and H-planes, plus and minus 10 degrees

(3) Main beam gain.

(e) Protection of receive earth stations from adjacent satellite interference is based on either the antenna performance specified in §25.209 (a) and (b), or the actual receiving earth station antenna performance, if actual performance provides greater isolation from adjacent satellite interference. For purposes of insuring the correct level of protection, the applicant shall provide, for each earth station antenna type, the antenna performance plots for the 20 GHz band, including the format specified in subsection (d)(1-3) of this section.

(f) The earth station licensee shall not transmit towards a GSO FSS satellite unless it has prior authorization from the satellite operator or a space segment vendor authorized by the satellite operator. The specific transmission shall be conducted in accordance with the operating protocol specified by the satellite operator.

(g) A licensee applying to renew its license must include on FCC Form 405 the number of constructed earth stations.

8. Section 25.145 is amended by adding a new subparagraphs (g)(4) and new paragraphs (h) and (i) to read as follows:

**§ 25.145 Licensing conditions for the Fixed-Satellite Service in the 20/30 GHz bands**

\* \* \* \* \*

(g) \* \* \* \* \*

\* \* \* \* \*

\* \* \* \* \*

(4) Licensees shall submit to the Commission a yearly report indicating the number of earth stations actually brought into service under its blanket licensing authority. The annual report is due to the Commission no later than the first day of April of each year and shall indicate the deployment figures for the preceding calendar year.

(h) Policy governing the relocation of terrestrial services from the 18.58 to 19.3 GHz band: Frequencies in the 18.58-19.3 GHz band listed in Parts 21, 74, 78, and 101 of this chapter have been reallocated for primary use by the Fixed-Satellite Service, subject to various provisions for the existing terrestrial licenses. In accordance with procedures specified in §§ 101.85 through 101.97 of this chapter, Fixed-Satellite Service licensees are required to relocate the existing co-primary terrestrial licensees in these bands if interference to those operations would occur during the period that the terrestrial stations remain co-primary and the terrestrial antenna is pointing within 2 degrees of the GSO satellite. Additionally, Fixed-Satellite Service operations are not entitled to protection from the co-primary operations until after that period has expired. (see §§ 21.901(e), 74.502(c), 74.602(g), 78.18(a)(4), and 101.147(r))

(i) Protection of fixed services receivers in the 18.3-19.3 GHz band

For purposes of this section, FSS space stations operating in accordance with the power-flux density limits of § 25.208 are considered not to cause unacceptable interference to fixed service receivers that are pointed more than 2 degrees from the FSS space station.

(1) 18.3-18.58 GHz: FSS space stations transmitting in the 18.3-18.58 GHz band may not cause unacceptable interference to fixed service receive stations that were licensed or for which an application was pending prior to (date of adoption of R&O)

(2) 18.58-18.8 GHz: FSS space stations transmitting in the 18.58-18.8 GHz band may not cause unacceptable interference to fixed service receive stations that were licensed or for which an application was pending prior to September 18, 1998. After (date 10 years from adoption of R&O), such fixed station receivers are no longer afforded protection from FSS space stations operating in accordance with § 25.208 and the fixed station transmitters shall not cause harmful interference to the GSO FSS receiving earth stations.

(3) 18.8-19.3 GHz: FSS space stations transmitting in the 18.8-19.3 GHz band may not cause unacceptable interference to fixed service receive stations that were licensed or for which an application was pending prior to [adoption date of R&O]. After (date 10 years from adoption of R&O), such fixed station receivers (except those operating in 19.26-19.3 GHz) are no longer afforded protection from FSS space stations operating in accordance with § 25.208.

9. Section 25.202(a)(1) is amended to read as follows:

**§ 25.202 Frequencies, frequency tolerance and emission limitations.**

(a)(1) Frequency bands. The following frequencies are available for use by the fixed-satellite service. Precise frequencies and bandwidths of emission shall be assigned on a case-by-case basis.

Space-to-Earth (GHz)	Earth-to-space (GHz)
3.7-4.2 <sup>1</sup>	<sup>1</sup> 5.925-6.425
10.95-11.2 <sup>1</sup>	<sup>4</sup> 13.75-14.0
11.45-11.7 <sup>2</sup>	<sup>5</sup> 14.0-14.2
11.7-12.2 <sup>3</sup>	14.2-14.5
	<sup>9</sup> 17.3-17.8
18.3-18.58 <sup>1,10</sup>	
18.58-18.8 <sup>6,10,11</sup>	
18.8-19.3 <sup>7,10</sup>	
19.3-19.7 <sup>8,10</sup>	<sup>1</sup> 27.5-29.5
19.7-20.2 <sup>10</sup>	29.5-30.0

<sup>1</sup> This band is shared coequally with terrestrial radiocommunication services.

<sup>2</sup> Use of this band by the fixed-satellite service is limited to international systems, i.e., other than domestic systems.

<sup>3</sup> Use of this band by the fixed-satellite service in Region 2 is limited to national and subregional systems. Fixed-satellite transponders may be used additionally for transmissions in the broadcasting-satellite service.

<sup>4</sup> This band is shared on an equal basis with the Government radiolocation service, grandfathered space stations in the Tracking and Data Relay Satellite System, and until January 1, 2000, spaceborne sensors.

<sup>5</sup> In this band, stations in the radionavigation service shall operate on a secondary basis to the fixed-satellite service.

<sup>6</sup> The band 18.58-18.8 GHz is shared co-equally with existing terrestrial radiocommunications systems until (a date 10 years after the release of the R&O)

<sup>7</sup> The band 18.8-19.3 GHz is shared co-equally with terrestrial radiocommunications services until [10 years after adoption date of R&O]. After this date, the sub-band 19.26-19.3 GHz is shared co-equally with existing terrestrial radiocommunications systems.

<sup>8</sup> The use of the band 19.3-19.7 GHz by the Fixed-Satellite Service (space-to-Earth) is limited to feeder links for the Mobile-Satellite Service

<sup>9</sup> The use of the band 17.3-17.8 GHz by the Fixed-Satellite Service (Earth-to-space) is limited to feeder links for broadcasting-satellite service, and the sub-band 17.7-17.8 GHz is shared co-equally with terrestrial fixed services.

<sup>10</sup> This band is shared co-equally with the Federal Government Fixed-Satellite Service.

<sup>11</sup> The band 18.6-18.8 GHz is shared co-equally with the non-Federal Government and Federal Government Earth Exploration-Satellite (passive) and Space Research (passive) Services.

\* \* \* \* \*

10. Section 25.208 is amended by modifying paragraph (c) and adding new paragraphs (d), (e) and (f) to read as follows:

**§ 25.208 Power-flux density limits.**

\* \* \* \* \*

(c) In the 19.3-19.7 GHz, 22.55-23.00 GHz, 23.00-23.55 GHz, and 24.45-24.75 GHz frequency bands, the power-flux density at the Earth's surface produced by emissions from a space station for all conditions and for all methods of modulation shall not exceed the following values:

(1) -115 dB (W/m<sup>2</sup>) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane.

(2) -115+0.5 (d-5) dB (W/m<sup>2</sup>) in any 1 MHz band for angles of arrival d (in degrees) between 5 and 25 degrees above the horizontal plane.

(3) -105 dB (W/m<sup>2</sup>) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

(d) In the 18.3-18.8 GHz frequency bands, the power-flux density at the Earth's surface produced by emissions from a space station for all conditions and for all methods of modulation shall not exceed the following values:

(1) -118 dB (W/m<sup>2</sup>) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane.

(2) -118+0.65 (d-5) dB (W/m<sup>2</sup>) in any 1 MHz band for angles of arrival d (in degrees) between 5 and 25 degrees above the horizontal plane.

(3) -105 dB (W/m<sup>2</sup>) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

(e) In addition to the limits specified in subparagraph (d) of this section, the power flux-density across the 200 MHz band 18.6-18.8 GHz produced at the Earth's surface by emissions from a space station under assumed free-space propagation conditions shall not exceed -95 dB(W/m<sup>2</sup>) for all angles of arrival. This limit may be exceeded by up to 3 dB for no more than 5% of the time.

(f) In the 18.8-19.3 GHz frequency band, the power-flux density at the Earth's surface produced by emissions from a space station for all conditions and for all methods of modulation shall not exceed the following values:

$$\begin{array}{ll} -115 - X \text{ dB(W/m}^2 \cdot \text{MHz)} & \text{for } 0^\circ \leq \delta < 5^\circ \\ -115 - X + ((10 + X)/20)(\delta - 5) \text{ dB(W/m}^2 \cdot \text{MHz)} & \text{for } 5^\circ \leq \delta < 25^\circ \\ -105 \text{ dB(W/m}^2 \cdot \text{MHz)} & \text{for } 25^\circ \leq \delta < 90^\circ \end{array}$$

where  $\delta$  is the angle of arrival above the horizontal plane and X is defined as a function of the number of satellites in the non-GSO FSS constellation, n, as follows:

$$\text{for } n \leq 50 \quad X = 0 \quad (\text{dB})$$

for $50 < n \leq 288$	$X = (5/119) (n - 50) \text{ (dB)}$
for $n > 288$	$X = (1/69) (n + 402) \text{ (dB)}$

11. Section 25.251(a) is modified to read as follows:

**§ 25.251 Special requirements for coordination**

(a) The administrative aspects of the coordination process are set forth in §§ 101.103(d) of this chapter in the case of coordination of terrestrial stations with earth stations and in § 25.203 in the case of coordination of earth stations with terrestrial stations.

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**PART 74—EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES**

12. The authority citation for Part 74 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 303, 307, and 554.

13. Section 74.502(c) is amended to read as follows:

**§ 74.502 Frequency assignment.**

\* \* \* \* \*

(c) Aural broadcast STL and intercity relay stations that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations in the band 18,760-18,820 and 19,100-19,160 MHz on a shared co-primary basis with other services under Parts 21, 25, and 101 of the Commission's rules until (date 10 years from adoption of this R&O). Prior to this date, such stations are subject to relocation by licensees in the fixed-satellite service. Such relocation is subject to the provisions of §§ 101.85 through 101.97. After this date, such operations are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. No new licenses will be granted in these bands after (date of the adoption of the R&O).

(1) 5 MHz maximum authorized bandwidth channels:

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Transmit (receive) (MHz)	Receive (transmit) (MHz)
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## 340 MHz Separation

18762.5.....	19102.5
18767.5.....	19107.5
18772.5.....	19112.5
18777.5.....	19117.5
18782.5.....	19122.5
18787.5.....	19127.5
18792.5.....	19132.5
18797.5.....	19137.5
18802.5.....	19142.5
18807.5.....	19147.5
18812.5.....	19152.5
18817.5.....	19157.5

Licensees may use either a two-way link or one frequency of a frequency pair for a one-way link and shall coordinate proposed operations pursuant to the procedures required in Sec. 101.103(d).

\* \* \* \* \*

14. Section 74.551 is amended by adding a new paragraph (d) to read as follows:

**§ 74.551 Equipment changes.**

\* \* \* \* \*

(d) Permissible changes in equipment operating in the bands 18.76-18.82 GHz and 19.1-19.16 GHz:

Notwithstanding other provisions of this section, licensees of stations that remain co-primary under the provisions of Sec. 74.502(c) may not make modifications to their systems that increase interference to satellite earth stations, or result in a facility that would be more costly to relocate.

15. Section 74.602(g) is amended to read as follows:

**§ Sec. 74.602 Frequency assignment.**

\* \* \* \* \*

(g) The following frequencies are available for assignment to television STL, television relay stations and television translator relay stations. Stations operating on frequencies in the sub-band 19.26-19.3 GHz that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations on a shared co-primary basis with other services under Parts 21, 25, 78, and 101 of the Commission's rules. Such stations, however, are subject to relocation by licensees in the fixed-satellite service. Such relocation is subject to the

provisions of §§ 101.85 through 101.97. No new licenses will be granted in the 19.26-19.3 GHz band after (date of the adoption of the R&O). The provisions of Section 74.604 do not apply to the use of these frequencies. Licensees may use either a two-way link or one or both frequencies of a frequency pair for a one-way link and shall coordinate proposed operations pursuant to procedures required in Sec. 101.103(d).

(1) \* \* \* \* \*

\* \* \* \* \*

16. Section 74.638(b) is amended to read as follows:

**§ 74.638 Frequency coordination.**

\* \* \* \* \*

(b) Coordination of assignments in the 6425-6525 MHz and 17.7-19.7 GHz bands will be in accordance with the procedure established in Sec. 101.103(d) except that the prior coordination process for mobile (temporary fixed) assignments may be completed orally and the period allowed for response to a coordination notification may be less than 30 days if the parties agree.

17. Section 74.651 is amended by adding a new paragraph (e) to read as follows:

**§ 74.651 Equipment changes.**

\* \* \* \* \*

(e) Permissible changes in equipment operating in the band 19.26-19.3 GHz: Notwithstanding other provisions of this section, licensees of stations that remain co-primary under the provisions of Sec. 74.602(g) may not make modifications to their systems that increase interference to satellite earth stations, or result in a facility that would be more costly to relocate.

**PART 78—CABLE TELEVISION RELAY SERVICE**

18. The authority citation for Part 78 continues to read as follows:

AUTHORITY: Secs. 2, 3, 4, 301, 303, 307, 308, 309, 48 Stat., as amended, 1064, 1065, 1066, 1081, 1082, 1083, 1084, 1085; 47 U.S.C. 152, 153, 154, 301, 303, 307, 308, 309.

19. Section 78.18(a)(4) is amended to read as follows:

**§ 78.18 Frequency assignments.**

(a) \* \* \* \* \*

\* \* \* \* \*

(4) The Cable Television Relay Service is also assigned the following frequencies in the 17,700-19,700 MHz band. These frequencies are co-equally shared with stations in other services under Parts 25, 74, and 101 of the Commission's rules. Cable Television Relay Service stations operating on frequencies in the sub-band 19.26-19.3 GHz that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations on a shared co-primary basis with other services under Parts 25, 74, and 101 of the Commission's rules. Such stations, however, are subject to relocation by licensees in the fixed-satellite service. Such relocation is subject to the provisions of §§ 101.85 through 101.97. No new Part 78 licenses will be granted in the 19.26-19.3 GHz band after (date of the adoption of the R&O). Licensees may use either a two-way link or one or both frequencies of a frequency pair for a one-way link and shall coordinate proposed operations pursuant to procedures required in Sec. 101.103(d). These bands may be used for analog or digital modulation.

(i) \* \* \* \* \*

\* \* \* \* \*

20. Section 78.36(b) is amended to read as follows:

**§ 78.36 Frequency coordination.**

\* \* \* \* \*

(b) 6425-6525 MHz and 17.7-19.7 GHz. Coordination of fixed and mobile assignments will be in accordance with the procedure established in Sec. 101.103(d), except that the prior coordination process for mobile (temporary fixed) assignments may be completed orally and the period allowed for response to a coordination notification may be less than 30 days if the parties agree.

21. Section 78.109 is amended by adding a new paragraph (d) to read as follows:

**§ 78.109 Equipment changes.**

\* \* \* \* \*

(d) Permissible changes in equipment operating in the band 19.26-19.3 GHz: Notwithstanding other provisions of this section, licensees of stations that remain co-primary under the provisions of Sec. 78.18(a)(4) may not make modifications to their systems that increase interference to satellite earth stations, or result in a facility that would be more costly to relocate.

**PART 101—FIXED MICROWAVE SERVICES**

22. The authority citation for Part 101 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, and 303.

23. Section 101.57 is amended by adding a new paragraph (f) to read as follows:

**§ 101.57 Modification of station license**

\* \* \* \* \*

(f) Permissible changes in equipment operating in the band 18.58-19.3 GHz: Notwithstanding other provisions of this section, stations that remain co-primary under the provisions of Sec. 101.147(r) may not make modifications to their systems that increase interference to satellite earth stations, or result in a facility that would be more costly to relocate.

24. A new heading is added immediately following section 101.81 to read as follows:

**POLICIES GOVERNING FIXED SERVICE RELOCATION FROM THE 18.58-19.30 GHZ BAND**

25. A new section 101.85 is added to read as follows:

**§ 101.85 Transition of the 18.58-19.3 GHz band from the terrestrial fixed services to the fixed-satellite service (FSS)**

Fixed services (FS) frequencies in the 18.58-19.3 GHz bands listed in Secs. 21.901(e), 74.502(c), 74.602(g), 78.18(a)(4), and 101.147(a) and (r) have been allocated for use by the fixed-satellite service (FSS). The rules in this section provide for a transition period during which FSS licensees may relocate existing FS licensees using these frequencies to other microwave bands.

(a) FSS licensees may negotiate with FS licensees authorized to use frequencies in the 18.58-19.30 band for the purpose of agreeing to terms under which the FS licensees would:

- (1) Relocate their operations to other fixed microwave bands or other media; or alternatively,
- (2) Accept a sharing arrangement with the FSS licensee that may result in an otherwise impermissible level of interference to the FSS operations.

(b) FS operations in the 18.58-19.30 GHz band that remain co-primary under the provisions of §§ 21.901(e), 74.502(c), 74.602(d), 78.18(a)(4), and 101.147(r) will continue to be co-primary with the FSS users of this spectrum until (10 years after date of adoption of R&O) or until the relocation of the fixed service operations, whichever occurs sooner. After this date, only FS operations in the band 19.26-19.3 GHz will continue to be co-primary with the FSS users. Notwithstanding this continued co-primary status, FS users in the 19.26-19.3 GHz band remain

subject to the relocation procedures of §§ 101.85-101.95. If no agreement is reached during the negotiations, an FSS licensee may initiate relocation procedures. Under the relocation procedures, the incumbent is required to relocate, provided that the FSS licensee meets the conditions of Sec. 101.91.

(c) Negotiation periods are defined as follows:

- (1) Non-public safety incumbents will have a two-year negotiation period.
- (2) Public safety incumbents will have a three-year negotiation period.

26. A new section 101.89 is added to read as follows:

### **§ 101.89 Negotiations.**

(a) The negotiation is triggered by the fixed-satellite service (FSS) licensee, who must contact the fixed services (FS) licensee and request that negotiations begin.

(b) Once negotiations have begun, an FS licensee may not refuse to negotiate and all parties are required to negotiate in good faith. Good faith requires each party to provide information to the other that is reasonably necessary to facilitate the relocation process. In evaluating claims that a party has not negotiated in good faith, the FCC will consider, inter alia, the following factors:

(1) Whether the FSS licensee has made a bona fide offer to relocate the FS licensee to comparable facilities in accordance with Section 101.91(b);

(2) If the FS licensee has demanded a premium, the type of premium requested (e.g., whether the premium is directly related to relocation, such as system-wide relocations and analog-to-digital conversions, versus other types of premiums), and whether the value of the premium as compared to the cost of providing comparable facilities is disproportionate (i.e., whether there is a lack of proportion or relation between the two);

(3) What steps the parties have taken to determine the actual cost of relocation to comparable facilities;

(4) Whether either party has withheld information requested by the other party that is necessary to estimate relocation costs or to facilitate the relocation process.

(c) Any party alleging a violation of our good faith requirement must attach an independent estimate of the relocation costs in question to any documentation filed with the Commission in support of its claim. An independent cost estimate must include a specification for the comparable facility and a statement of the costs associated with providing that facility to the incumbent licensee.

(d) Negotiations will commence when the FSS licensee informs the FS licensee in writing of its desire to negotiate. Negotiations will be conducted with the goal of providing the FS licensee with comparable facilities, defined as facilities possessing the following characteristics:

(1) *Throughput*. Communications throughput is the amount of information transferred within a system in a given amount of time. If analog facilities are being replaced with analog, the FSS licensee is required to provide the FS licensee with an equivalent number of 4 kHz voice channels. If digital facilities are being replaced with digital, the FSS licensee must provide the FS licensee with equivalent data loading bits per second (bps). FSS licensees must provide FS

licensees with enough throughput to satisfy the FS licensee's system use at the time of relocation, not match the total capacity of the FS system.

(2) *Reliability.* System reliability is the degree to which information is transferred accurately within a system. FSS licensees must provide FS licensees with reliability equal to the overall reliability of their system. For digital data systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmissions, it is measured by the percent of time that audio signal quality meets an established threshold. If an analog voice system is replaced with a digital voice system, only the resulting frequency response, harmonic distortion, signal-to-noise ratio and its reliability will be considered in determining comparable reliability.

(3) *Operating costs.* Operating costs are the cost to operate and maintain the FS system. FSS licensees must compensate FS licensees for any increased recurring costs associated with the replacement facilities (e.g., additional rental payments, increased utility fees) for five years after relocation. FSS licensees may satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FS licensee must be equivalent to the 18 GHz system in order for the replacement system to be considered comparable.

27. A new section 101.91 is added to read as follows:

**§ 101.91 Involuntary relocation procedures.**

(a) If no agreement is reached during the negotiations period, an FSS licensee may initiate relocation procedures under the Commission's rules. FSS licensees are obligated to pay to relocate only the specific microwave links from which their systems may receive interference. Under these procedures, the FS licensee is required to relocate, provided that the FSS licensee:

(1) Guarantees payment of relocation costs, including all engineering, equipment, site and FCC fees, as well as any legitimate and prudent transaction expenses incurred by the FS licensee that are directly attributable to the relocation, subject to a cap of two percent of the hard costs involved. Hard costs are defined as the actual costs associated with providing a replacement system, such as equipment and engineering expenses. FSS licensees are not required to pay FS licensees for internal resources devoted to the relocation process. FSS licensees are not required to pay for transaction costs incurred by FS licensees during the negotiations once the negotiation is initiated, or for fees that cannot be legitimately tied to the provision of comparable facilities;

(2) Completes all activities necessary for implementing the replacement facilities, including engineering and cost analysis of the relocation procedure and, if radio facilities are used, identifying and obtaining, on the incumbents' behalf, new microwave frequencies and frequency coordination; and

(3) Builds the replacement system and tests it for comparability with the existing 18 GHz system.

(b) *Comparable facilities.* The replacement system provided to an incumbent during a relocation must be at least equivalent to the existing FS system with respect to the following three factors:

(1) *Throughput.* Communications throughput is the amount of information transferred within a system in a given amount of time. If analog facilities are being replaced with analog, the FSS licensee is required to provide the FS licensee with an equivalent number of 4 kHz voice

channels. If digital facilities are being replaced with digital, the FSS licensee must provide the FS licensee with equivalent data loading bits per second (bps). FSS licensees must provide FS licensees with enough throughput to satisfy the FS licensee's system use at the time of relocation, not match the total capacity of the FS system.

(2) *Reliability*. System reliability is the degree to which information is transferred accurately within a system. FSS licensees must provide FS licensees with reliability equal to the overall reliability of their system. For digital data systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmissions, it is measured by the percent of time that audio signal quality meets an established threshold. If an analog voice system is replaced with a digital voice system, only the resulting frequency response, harmonic distortion, signal-to-noise ratio and its reliability will be considered in determining comparable reliability.

(3) *Operating costs*. Operating costs are the cost to operate and maintain the FS system. FSS licensees must compensate FS licensees for any increased recurring costs associated with the replacement facilities (e.g., additional rental payments, increased utility fees) for five years after relocation. FSS licensees may satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FS licensee must be equivalent to the 18 GHz system in order for the replacement system to be considered comparable.

(c) The FS licensee is not required to relocate until the alternative facilities are available to it for a reasonable time to make adjustments, determine comparability, and ensure a seamless handoff.

(d) If the FS licensee demonstrates to the Commission that the new facilities are not comparable to the former facilities, the Commission may require the FSS licensee to further modify or replace the FS licensee's equipment.

28. A new section 101.95 is added to read as follows:

**§ 101.95 Sunset provisions for licensees in the 18.58-19.26 GHz band.**

(a) FSS licensees are not required to pay relocation costs after the relocation rules sunset (see §§ 74.502(c), 74.602(g), 78.18(a)(4), and 101.147(a) and (r)). Once the relocation rules sunset, an FSS licensee may require the incumbent to cease operations, provided that the FSS licensee intends to turn on a system within interference range of the incumbent, as determined by TIA Bulletin 10-F or any standard successor. FSS licensee notification to the affected FS licensee must be in writing and must provide the incumbent with no less than six months to vacate the spectrum. After the six-month notice period has expired, the FS licensee must turn its license back into the Commission, unless the parties have entered into an agreement which allows the FS licensee to continue to operate on a mutually agreed upon basis.

(b) If the parties cannot agree on a schedule or an alternative arrangement, requests for extension will be accepted and reviewed on a case-by-case basis. The Commission will grant such extensions only if the incumbent can demonstrate that:

(1) It cannot relocate within the six-month period (e.g., because no alternative spectrum or other reasonable option is available), and;

(2) The public interest would be harmed if the incumbent is forced to terminate operations (e.g., if public safety communications services would be disrupted).

29. A new section 101.97 is added to read as follows:

**§ 101.97 Future licensing in the 18.58-19.30 MHz band.**

After (date of adoption of the R&O), all major modifications and extensions to existing FS systems in the 18.58-19.30 band (with the exception of certain low power operations authorized under Sec. 101.147(r)(10)) will be authorized on a secondary basis to FSS systems. All other modifications will render the modified FS license secondary to FSS operations, unless the incumbent affirmatively justifies primary status and the incumbent FS licensee establishes that the modification would not add to the relocation costs for FSS licensees. Incumbent FS licensees will maintain primary status for the following technical changes:

- (a) Decreases in power;
- (b) Minor changes (increases or decreases) in antenna height;
- (c) Minor location changes (up to two seconds);
- (d) Any data correction which does not involve a change in the location of an existing facility;
- (e) Reductions in authorized bandwidth;
- (f) Minor changes (increases or decreases) in structure height;
- (g) Changes (increases or decreases) in ground elevation that do not affect centerline height;
- (h) Minor equipment changes.

The provisions of § 101.57 are applicable, notwithstanding any other provisions of this section.

30. Section 101.101 is amended to read as follows:

**§ 101.101 Frequency availability**

Frequency band (MHz)	Radio Service				Notes
	Common carrier (Part 101)	Private radio (Part 101)	Broadcast auxiliary (Part 74)	Other (Parts 15, 21, 24, 25, 74, 78, 100)	
***** 14,200 – 14,400 17,700 – 18,580 19,300 – 19,700 *****	LTTS CC CC	OFS OFS	TV BAS TV BAS	SAT SAT CARS CARS SAT	

\*\*\*\*\*

31. Section 101.147(a) is amended to read as follows:

**§ 101.147 Frequency assignments**

(a) Frequencies in the following bands are available for assignment for fixed microwave services.

\* \* \* \* \*

14,200-14,400 MHz (24)

17,700-18,300 MHz (10) (15)

18,300-18,580 MHz (5) (10) (15)

19,300-19,700 MHz (5) (10) (15)

21,200-22,000 MHz (4) (11) (12) (13) (24) (25) (26)

\* \* \* \* \*

Notes

\* \* \* \* \*

32. Section 101.147(r) is amended to read as follows:

**§ 101.147 Frequency assignments**

\* \* \* \* \*

(r) *17,700 to 19,700 and 24,250 to 25,250 MHz*: Stations operating on the following frequencies in the band 18.58-18.8 GHz that were licensed or had applications pending before the Commission as of (date of adoption of this R&O) may continue those operations on a shared co-primary basis with other services under Parts 21, 25, and 74 of the Commission's rules until (date 10 years from adoption of this R&O). Those stations operating on the following frequencies in the band 18.8-19.3 GHz that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations on a shared co-primary basis with other services under Parts 21, 25, and 74 of the Commission's rules until (date 10 years from adoption of this R&O). After this date, operations in the 18.58-19.26 GHz band are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. No new Part 101 licenses will be granted in the 18.58-19.3 GHz band after (date of the adoption of the R&O), except for certain low power operations authorized under Sec. 101.147(r)(10), which may continue to operate on a co-primary basis. Licensees may use either a two-way link or one frequency of a frequency pair for a one-way link and must coordinate proposed operations pursuant to the procedures required in Sec. 101.103. (Note, however, that stations authorized as of September 9, 1983, to use frequencies in the band 17.7-19.7 GHz may, upon proper application, continue to be authorized for such operations, consistent with the above conditions related to the 18.58-19.3 GHz band)

\* \* \* \* \*

33. Section 101.147(r)(10) is amended by adding a new subsection (iv) to read as follows:

§ 101.147 Frequency assignments

\* \* \* \* \*

(r) (10) \* \* \* \* \*

\* \* \* \* \*

(iv) Low power stations authorized in the band 18.8-19.3 GHz after June 8, 2000 are restricted to indoor use only.

## APPENDIX B

### Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA)<sup>1</sup>, an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities was incorporated in the *18 GHz NPRM*.<sup>2</sup> The Commission sought written public comments on the proposals in the *NPRM* including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.<sup>3</sup>

#### A. Need for, and Objectives of, the Rules

In this *Report and Order*, the Commission provides a band plan that should go a long way in facilitating the deployment of new services by designating different dedicated sub-bands for ubiquitously deployed FSS earth stations and near-ubiquitous terrestrial fixed services in the 18 GHz band. Additionally, this plan will, through the judicious choice of band segments subject to co-primary sharing, significantly lower any consequential administrative costs of coordination.

#### B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA.

No comments were submitted in direct response to the IRFA. However VisionStar made a specific proposal for the treatment of FSS licensees that are small businesses (see ¶ 55 of this *Report and Order*) and several commenters provided licensee data for sub-bands of the spectrum concerned, incorporated below for the specific services involved. We were unable to act on VisionStar's proposal for the provision of an "Early Service" for FSS licensees that are small businesses, because we do not collect annual revenue information from space station or earth station licensees, which would be necessary to determine if they are small businesses (see C below) and because of the potential interference impact of such "temporary secondary" operations on other FSS licensees, as discussed in the Secondary Use section of this *Report and Order*.

#### C. Description and Estimate of the Number of Small Entities To Which the Rules Will Apply

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<sup>1</sup> See 5 U.S.C. § 603. The RFA, *see*, 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

<sup>2</sup> See Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use, *Notice of Proposed Rulemaking*, IB Docket No. 98-172, 13 FCC Rcd 19923 (1998) (*18 GHz NPRM*), at Appendix B.

<sup>3</sup> 5 U.S.C. § 604.

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the adopted rules.<sup>4</sup> The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."<sup>5</sup> In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.<sup>6</sup> A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>7</sup> A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."<sup>8</sup> Nationwide, as of 1992, there were approximately 275,801 small organizations.<sup>9</sup> "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."<sup>10</sup> As of 1992, there were approximately 85,006 such jurisdictions in the United States.<sup>11</sup> This number includes 38,978 counties, cities, and towns; of these, 37,566, or 96 percent, have populations of fewer than 50,000.<sup>12</sup> The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (91 percent) are small entities. Below, we further describe and estimate the number of small entity licensees that may be affected by the adopted rules.

1. Cable Services. The SBA has developed a definition of small entities for cable and other pay television services, which includes all such companies generating \$11 million or less in revenue annually. This definition includes cable systems operators, closed circuit television services, direct broadcast satellite services, multipoint distribution systems, satellite master antenna systems and subscription television services. According to the Census Bureau, there were 1,788 total cable and other pay television services and 1,423 had less than \$11 million in revenue. The Commission has developed its own definition of a small cable system operator for

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<sup>4</sup> 5 U.S.C. § 603(b)(3).

<sup>5</sup> *Id.* § 601(6).

<sup>6</sup> 5 U.S.C. § 601(3). (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after the opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

<sup>7</sup> Small Business Act, 15 U.S.C. § 632 (1996).

<sup>8</sup> 5 U.S.C. § 601(4).

<sup>9</sup> 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

<sup>10</sup> 5 U.S.C. § 601(5).

<sup>11</sup> U.S. Dept. of Commerce, Bureau of the Census, "1992 Census of Governments."

<sup>12</sup> *Id.*

the purposes of rate regulation. Under the Commission's Rules, a "small cable company," is one serving fewer than 400,000 subscribers nationwide. Based on our most recent information, we estimate that there were 1,439 cable operators that qualified as small cable system operators at the end of 1995. Since then, some of those companies may have grown to serve over 400,000 subscribers, and others may have been involved in transactions that caused them to be combined with other cable operators. Consequently, we estimate that there are fewer than 1,439 small entity cable system operators.

The Communications Act also contains a definition of a small cable system operator, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed \$250,000,000." The Commission has determined that there are 61,700,000 subscribers in the United States. Therefore, we found that an operator serving fewer than 617,000 subscribers shall be deemed a small operator, if its annual revenues, when combined with the total annual revenues of all of its affiliates, do not exceed \$250 million in the aggregate. Based on available data, we find that the number of cable operators serving 617,000 subscribers or less totals 1,450. We do not request nor do we collect information concerning whether cable system operators are affiliated with entities whose gross annual revenues exceed \$250,000,000, and thus are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

#### International Services

The Commission has not developed a definition of small entities applicable to licensees in the international services. Therefore, the applicable definition of small entity is generally the definition under the SBA rules applicable to Communications Services, Not Elsewhere Classified (NEC).<sup>13</sup> This definition provides that a small entity is expressed as one with \$11.0 million or less in annual receipts.<sup>14</sup> According to the Census Bureau, there were a total of 848 communications services providers, NEC, in operation in 1992, and a total of 775 had annual receipts of less than \$9.999 million.<sup>15</sup> The Census report does not provide more precise data.

2. Fixed Satellite Transmit/Receive Earth Stations. Currently there are no operational fixed satellite transmit/receive earth stations authorized for use in the 17.7-20.2 GHz and 27.5-30 GHz band. However, with 12 GSO/FSS licensees and 1 NGSO/FSS licensee, and our decision to adopt blanket licensing, we expect applications for FSS earth station licenses to be filed in the near future. We do not request or collect annual revenue information, and thus are unable to estimate the number of earth stations that would constitute a small business under the SBA definition.

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<sup>13</sup> An exception is the Direct Broadcast Satellite Service (DBS), *infra*.

<sup>14</sup> 13 C.F.R. § 120.121, SIC code 4899.

<sup>15</sup> 1992 *Economic Census Industry and Enterprise Receipts Size Report*, Table 2D, SIC code 4899 (U.S. Bureau of the Census data under contract to the Office of Advocacy of the Small Business Administration).

3. Mobile Satellite Earth Station Feeder Links. We have granted one license for MSS earth station feeder links. We do not request or collect annual revenue information, and thus are unable to estimate of the number of mobile satellite earth stations that would constitute a small business under the SBA definition.

4. Space Stations (Geostationary). Commission records reveal that there are 12 space station licensees. We do not request nor collect annual revenue information, and thus are unable to estimate of the number of geostationary space stations that would constitute a small business under the SBA definition, or apply any rules providing special consideration for Space Station (Geostationary) licensees that are small businesses.

5. Space Stations (Non-Geostationary). There is one Non-Geostationary Space Station licensee and that licensee is operational. We do not request nor collect annual revenue information, and thus are unable to estimate of the number of non-geostationary space stations that would constitute a small business under the SBA definition.

6. Direct Broadcast Satellites. Because DBS provides subscription services, DBS falls within the SBA definition of Cable and Other Pay Television Services (SIC 4841). This definition provides that a small entity is expressed as one with \$11.0 million or less in annual receipts. As of December 1996, there were eight DBS licensees. However, the Commission does not collect annual revenue data for DBS and, therefore, is unable to ascertain the number of small DBS licensees that could be impacted by these proposed rules. Although DBS service requires a great investment of capital for operation, we acknowledge that there are several new entrants in this field that may not yet have generated more than \$11 million in annual receipts, and therefore may be categorized as a small business, if independently owned and operated.

7. Auxiliary, Special Broadcast and other program distribution services. This service involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit back to the station). At the frequencies under consideration in this proceeding there are no transmissions of this type directly to the public. The Commission has not developed a definition of small entities applicable to broadcast auxiliary licensees. Therefore, the applicable definition of small entity is the definition under the Small Business Administration (SBA) rules applicable to radio broadcasting stations (SIC 4832) and television broadcasting stations (SIC 4833). These definitions provide, respectively, that a small entity is one with either \$5.0 million or less in annual receipts or \$10.5 million in annual receipts. 13 C.F.R. § 121.201, SIC CODES 4832 and 4833. The numbers of these stations are very small. The FCC does not collect financial information on any broadcast facility and the Department of Commerce does not collect financial information on these auxiliary broadcast facilities. We believe, however, that most, if not all, of these auxiliary facilities could be classified as small businesses by themselves. We also recognize that most of these types of services are owned by a parent station which, in some cases, would be covered by the revenue definition of small business entity discussed above. These stations would likely have annual revenues that exceed the SBA maximum to be designated as a small business (as noted, either \$5 million for a radio station or \$10.5 million for a TV station). Furthermore, they do not meet the Small Business Act's definition of a "small business concern" because they are not independently owned and operated.

8. Microwave Services. Microwave services includes common carrier, private operational fixed, and broadcast auxiliary radio services. At present, there are 22,015 common carrier licensees, approximately 61,670 private operational fixed licensees and broadcast auxiliary radio licensees in the microwave services. Inasmuch as the Commission has not yet defined a small business with respect to microwave services, we will utilize the SBA's definition applicable to radiotelephone companies -- i.e., an entity with no more than 1,500 persons. 13 C.F.R. § 121.201, SIC CODE 4812. We estimate, for this purpose, that all of the Fixed Microwave licensees (excluding broadcast auxiliary licensees) would qualify as small entities under the SBA definition for radiotelephone companies.

#### **D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements**

The Commission's existing rules in Part 25 on FSS operations contain reporting requirements for FSS systems, and we modify these reporting requirements to eliminate duplicative costs of filing multiple applications. In addition, we add an annual reporting requirement to indicate the number of satellite earth stations actually brought into service. The proposed blanket licensing procedures do not affect small entities disproportionately and it is likely no additional outside professional skills are required to complete the annual report indicating the number of small antenna earth stations actually brought into service.

#### **E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

*The 18 GHz NPRM* solicited comment on several alternatives for spectrum sharing, blanket licensing, and band segmentation. This *Report and Order* considered comments offering alternatives, and has acted in response to stated concerns and suggestions, particularly those representing significant agreement or consensus by commenters. The decisions of this *Report and Order* should positively impact both large and small businesses by providing a faster, more efficient, and less economically burdensome coordination and licensing procedure, as well as providing an alternative band plan that better meets these concerns. The blanket licensing service rules provide for consolidation of licensing for small antenna earth stations and a new balanced requirement designed to ensure that new satellite services will not cause interference to existing terrestrial services. These rules substitute a single requirement to annually report the number of satellite earth stations brought into service in the last year, compared to the current requirement for individual licensing of such stations. This change, discussed further above, should minimize the impact on Small entities.

#### **F. Report to Congress**

The Commission will send a copy of this *Report and Order* including this FRFA, in a report to be sent to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1966, see 5 U.S.C. § 801 (a)(1)(A). In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the Small Business

Administration. A copy of this *Report and Order* and FRFA (or summaries thereof) will also be published in the Federal Register. See 5 U.S.C. § 604(b).

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**Appendix C****List of Comments**

IB Doc. 98-172, RM-9005, RM-9118

ABC, Inc.  
AESCO Systems, Inc.  
Airtouch Communications, Inc.  
American Petroleum Institute  
Association of American Railroads  
Association for Maximum Service Television, Inc.  
Association of Public-Safety Communications Officials-International, Inc.  
AT&T Wireless Services, Inc.  
BellSouth Corporation  
Boeing Company  
BP Communications of Alaska, Inc.  
Capitol Broadcasting Co., Inc.  
Cellular Telecommunications Industry Association  
Comsearch  
County of Los Angeles  
DirecTV Enterprises, Inc.  
Fixed Wireless Communications Coalition  
GE American Communications, Inc. (GE Americom)  
GTE Service Corporation  
Hughes Electronics, Inc.  
Independent Cable & Telecommunications Association  
Iridium LLC  
KaStar Satellite Communications Corporation  
Lockheed Martin Corporation  
Loral Space & Communications Ltd.  
Motorola, Inc.  
PanAmSat Corporation  
Pegasus Development Corporation  
RCN Telecom Services, Inc.  
SBC Communications, Inc.  
SkyBridge LLC  
State of California  
Taridan Microwave Networks  
Teligent, Inc.  
Teledesic LLC  
Telecommunications Industry Association (FPTP)  
Telecommunications Industry Association (SOUS)  
TRW, Inc.  
UTC  
WinStar Communications, Inc.

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Wireless Communications Association International, Inc.  
VisionStar, Inc.

**List of Reply Comments**  
IB Docket No. 98-172

Airtouch Communications, Inc.  
American Petroleum Institute  
Association of American Railroads  
APCO  
BellSouth Corporation  
BP Communications Alaska, Inc.  
Celsat America, Inc.  
County of Los Angeles  
City of Long Beach  
DirecTV Enterprises, Inc.  
Fixed Wireless Communications Coalition  
GE American Communications, Inc. (GE Americom)  
Hughes Electronics, Inc.  
Independent Cable & Telecommunications Association  
KaStar Satellite Communications Corp.  
Lockheed Martin Corporation  
Loral Space and Communications, Ltd.  
Motorola, Inc. and Iridium LLC  
PanAmSat Corporation  
Pegasus Development Corporation  
RCN Telecom Services, Inc.  
SBC Communications, Inc.  
SkyBridge LLC  
Teledesic LLC  
Teligent, Inc.  
Watson Communications Systems, Inc.  
WinStar Communications, Inc.

**SEPARATE STATEMENT OF  
COMMISSIONER HAROLD FURCHTGOTT-ROTH,  
APPROVING IN PART, DISSENTING IN PART**

Re: *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 Frequency Bands, et al.* IB Docket No. 98-172, RM-9005, RM-9118.

I support much of today's item. The International Bureau has done a good job of balancing the interests of terrestrial and satellite service providers in developing today's Order.<sup>1</sup> These are complex and difficult issues, and the Bureau should be applauded for its hard work in bringing this item to closure.

I do fear, however, that this decision represents a lost opportunity to further improve our Emerging Technologies relocation policy<sup>2</sup> prior to the application of these bands.<sup>3</sup>

There appears to be some sense that the Emerging Technologies' relocation policy worked well for PCS. Therefore, the argument goes, we should apply this successful policy in other bands as well.

Although I believe there were some under-publicized bumps in that PCS road,<sup>4</sup> it may well be true that the Emerging Technologies relocation policy "worked" for those bands. A number of factors, however, may have obscured the actual efficiency of the Commission's Emerging Technologies relocation policy. First, PCS providers were about to enter into an almost certainly lucrative marketplace. Second, PCS could offer regional or even local service, therefore permitting only partial band clearing before revenues could flow. Third, PCS could viably use only a portion of its spectrum in the initial stages of deployment, thus sidestepping intransigent incumbents. These factors created more flexibility for PCS to make the rules "work" – regardless of whether or not they optimized efficient relocation.

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<sup>1</sup> Of course, in retrospect it would have been far easier to segment this band sixteen years ago, when the FSS industry first requested such a plan. See *Establishment of Spectrum Utilization Policy and Amendment to Commission Rules Regarding Digital Termination Systems*, 49 Fed. Reg. 37760, ¶ 41 (Sept. 26, 1984) (declining to segment the band). Unfortunately, our delay will impose costs on all parties.

<sup>2</sup> See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, First Report and Order and Third Notice of Proposed Rulemaking*, 7 FCC Rcd 6886 (1992); *Second Report and Order*, 8 FCC Rcd 6495 (1993); *Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589 (1993); *Memorandum Opinion and Order*, 9 FCC Rcd 1943 (1994); *Second Memorandum Opinion and Order*, 9 FCC Rcd 7797 (1994); see also 47 C.F.R. §§ 101.67-101.81.

<sup>3</sup> See *Re: Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 Frequency Bands, et al.*, IB Docket No. 98-172, RM-9005, RM-9118 at ¶¶ 76-84 (rel. June --, 2000) (18 GHz Order).

<sup>4</sup> See e.g., Rick Brand "Making Way for Wireless Telephones/ County Radio Frequencies Sold to Sprint Spectrum," *Newsday*, at A35 (February 25, 1997) (reporting that Sprint Corporation paid Suffolk County, New York a \$4.2 million premium in order to move two of the county's microwave radio frequencies earlier than the five-year period provided for under the rules. Suffolk County originally requested a little more than \$18 million for all five of its links).

In my view, however, “working” is not enough. We need to get the right answer on relocation policy.

### **Why is relocation policy so significant?**

Current FCC relocation policy implicitly sets the entry price for new providers. Just as a business plan must incorporate an auction price, the plan must also consider the costs of incumbent relocation.<sup>5</sup> This is particularly true in the satellite context. Unlike PCS, satellite providers must consider the national – or even international – costs of relocation before they can make a rational assessment of the viability of their business plans. Furthermore, unlike PCS, satellite providers must evaluate relocation costs as a condition precedent to providing any revenue-producing service.<sup>6</sup> Thus, with a national scope and the lack of early revenue to offset subsequent relocation costs, satellite service providers face particularly high stakes in the relocation debate.

The consequences of crafting a faulty relocation policy are enormous. If the FCC sets relocation costs too high, artificially high entry costs may prevent the offering of economically efficient services. Alternatively, if relocation costs are set too low, the Commission may essentially be funding new entrants on the backs of terrestrial incumbents.

These factors legitimately prompted the Commission to take a particularly close look at relocation policy in this specific proceeding. Apart from the case-specific facts in this Order, however, the FCC must develop a generally applicable relocation policy that facilitates efficient relocation transactions in all spectrum bands and for all types of business models. The agency should not be lured into making different policies for different services based on the different business models.

### **The Emerging Technologies Precedent**

Our current relocation rules for emerging technologies are codified in Part 101.<sup>7</sup> Those rules establish three “periods” for the relocation process: voluntary negotiation, mandatory negotiation, and involuntary relocation.<sup>8</sup> Public safety incumbents are entitled to a three-year

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<sup>5</sup> See Testimony of Ronald T. LeMay, COO of Sprint Corporation, Senate Commerce Committee (March 27, 1996) (arguing that the high relocation costs facing new licensees significantly reduces the value of new and auctionable spectrum, resulting in the government losing between \$930 million and \$1.9 billion in revenues in the next round of PCS auctions. LeMay further suggests that “the impact on auctions for spectrum that is reallocated in the future could be dramatically higher”); see e.g., Letter from Mark Golden, Vice President, PCIA to Reed Hundt, Chairman of the FCC, September 22, 1995 (describing premiums demanded by some incumbents in PCS relocation process).

<sup>6</sup> In this regard, it is also important that new entrants only be required to clear as much spectrum as is necessary to provide their service. Only when spectrum-clearing costs are tied to a particular service can licensees assess whether it is economical for them to proceed with their business plans.

<sup>7</sup> See 47 C.F.R. §§ 101.67-101.81.

<sup>8</sup> See 47 C.F.R. §§ 101.69 (c) and 101.75.

voluntary period, followed by a two-year mandatory period. Non-public safety licensees are subject to a one-year voluntary period followed by a one-year mandatory period. Parties are required to engage in “good faith” negotiations only during the mandatory negotiation period.<sup>9</sup> If the parties fail to reach agreement by the end of the voluntary and mandatory negotiation periods, the new entrant may force incumbent licensees into involuntary relocation.

Under involuntary relocation, incumbents are entitled to a new system that is “comparable” to the old one.<sup>10</sup> The “replacement system” must be “at least equivalent to the existing system” with respect to three variables: throughput, reliability, and operating costs. Involuntary relocation disputes are to be resolved through a Commission proceeding.

Not a single transaction has ever made it to the involuntary relocation phase; thus, the Commission has never been called upon to spell out exactly what is required under our “comparability” standard.<sup>11</sup>

### Common Goals

The fundamental basis of any relocation policy is that incumbent relocation and prompt entry by new service providers best serve both the public interest and efficient spectrum management.<sup>12</sup> This public interest assessment is not unlike the use of eminent domain powers by government entities to make room for a new highway or civic building.<sup>13</sup> Here the Commission has determined that the new services in a specific band of spectrum (like the highway or the civic building) are more valuable to the public than the old services (like the prior uses of the land). In implementing this policy, there is very little debate about the Commission’s goals. The terrestrial incumbents must be relocated and made whole as promptly and efficiently as possible.<sup>14</sup>

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<sup>9</sup> See 47 C.F.R. § 101.73.

<sup>10</sup> See 47 C.F.R. 101.75 (a)(3).

<sup>11</sup> In part this is no doubt a function of the long negotiating periods: new entrants cannot afford to wait years until the involuntary relocation phase to clear out the incumbents.

<sup>12</sup> This determination assumes, at least implicitly, that the new entrant cannot share with the incumbent service providers.

<sup>13</sup> See Jan Paul Acton, Stanley M. Besen, Charles River Associates Inc., *An Economic Analysis of Regulatory Takings and Just Compensation with an Application to Mobile Satellite Services* (June 18, 1999) (asserting relocation policy parallels regulatory takings); see e.g., *Olson v. United States*, 292 U.S. 246, 255 (1934) (property holder must be placed “in as good a position pecuniarily as if his property had not been taken. He must be made whole but is not entitled to more.”); *United States v. 564.54 Acres of Land*, 99 S.Ct. 1854 (1979) (holding that a property holder should recover “the fair market value of its property, rather than the cost of substitute facilities.”). See also Letter from Norman P. Levant, Counsel for the ICO USA Service Group, to Ms. Magalie Roman Salas, Secretary, FCC, ET Docket 95-18 (dated June 21, 1999).

<sup>14</sup> See e.g., Amendment to the Commission’s Rules Regarding a Plan for Sharing the Costs of Microwave Relocation, 11 FCC Rcd 8825, ¶ 32 (1996) (“...our goal is to ensure that incumbents are no worse off than they would be if relocation were not required...”).

However, our current rules and procedures simply do not lend a sufficient degree of clarity to the negotiating parties. Clear expectations reduce transaction costs and would expedite incumbent relocation.<sup>15</sup> Below, I describe some possible improvements to our relocation policy.

### A Streamlined Procedure

I support today's decision to eliminate the voluntary negotiation period and shorten the negotiation period for public safety licensees. Eliminating the voluntary negotiation period requires the parties immediately to begin negotiations to resolve these relocation issues. In addition, the "comparability" criteria, formerly relegated to the involuntary relocation period, are now applicable to the mandatory negotiation period.<sup>16</sup> These comparability criteria should assist the negotiating parties in reaching agreements sooner.<sup>17</sup> Today's order also eliminates the burdensome requirement that incumbents have one year to assess the comparability of their new and relocated equipment. Now an incumbent is entitled to a "reasonable time" to assess comparability.<sup>18</sup> Each of these decisions is a step in the right direction.

I am still concerned, however, about the government's central role at the involuntary relocation phase. The parties would be well served by a process that is reliably prompt and provides incentives for good faith negotiations. Alternative dispute resolution procedures, such as binding arbitration, may provide the answer.

Congress has strongly supported the use of alternative dispute resolution in administrative law contexts.<sup>19</sup> In following this lead, the Commission has previously adopted similar

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<sup>15</sup> See Peter Crampton, Evan Kwerel and John Williams, *Efficient Relocation of Spectrum Incumbents*, Paper presented at the Telecommunications Policy Research Conference, Solomons, Maryland, at 26 (1996) (on file with authors); Gregory L. Rosston and Jeffrey S. Steinberg, *Using Market-Based Spectrum Policy To Promote The Public Interest*, 50 Fed. Comm. L.J. 87, at 93-94 (December 1997).

<sup>16</sup> There is little doubt that these valuation questions are quite difficult. For an interesting examination of these issues, see Crampton, *supra note 15*.

<sup>17</sup> The comparability criteria today are hopelessly complex and provide little clarity or predictability of outcome. All parties would be better served by simpler rules that take into account not only reliability, throughput, and operating costs (47 C.F.R. § 101.75), but also technological neutrality and depreciation. See e.g., Letter from Mark Grannis, Counsel for Teledesic Corporation, to Commissioner Harold Furchtgott-Roth, Federal Communications Commission (dated May 1, 2000) (discussing potential windfall from effectively requiring new equipment to replace incumbents older equipment). Although simpler rules may be less precise, the diminished transaction costs may well result in a net gain for all parties concerned. Moreover, these valuation criteria only serve to set a floor price for the negotiation period. It should thus be set at the minimum value that makes incumbents whole.

<sup>18</sup> See 18 GHz Order, *supra note 3*, at ¶ 82.

<sup>19</sup> See Pub. L. 101-552, 104 Stat. 2739 (Nov. 15, 1990), reauthorized under Pub. L. 104-320, 110 Stat. 3870 (Oct. 19, 1996). (expressing Congressional intent to encourage ADR through federal agencies). 5 U.S.C. § 571 et seq. provides the guidelines whereby ADR is to take place. See e.g. § 575(a)(1) ("Arbitration may be used as an alternative means of dispute resolution whenever all parties consent. Consent may be obtained either before or after an issue in controversy has arisen"); § 577(a) ("The parties to an arbitration proceeding shall be entitled to participate in the selection of the arbitrator"); § 579(c)(1) ("The parties to the arbitration are entitled to be heard, to present evidence material to the controversy, and to cross-examine witnesses appearing at the hearing"); § 580(c)

alternative dispute resolution approaches.<sup>20</sup> For example, recently the Commission encouraged alternative dispute resolution for SMR relocation under Part 90 of our rules: “[d]isputes arising out of the costs of relocation, such as disputes over the amount of reimbursement required, will be encouraged to use expedited ADR procedures. ADR procedures provide several alternative methods such as binding arbitration, mediation, or other ADR techniques.”<sup>21</sup> I believe a similar approach would benefit the parties in all relocation proceedings.

Binding arbitration would create an efficient “end game” for parties that cannot reach an agreement during the negotiation phase. Today, these parties would face a potentially lengthy and uncertain Commission proceeding to assess comparability. If at the end of an unsuccessful negotiation phase, however, a new entrant could choose binding arbitration, the results would be more prompt and certain.<sup>22</sup> Under binding arbitration, the parties would face the prospect of submitting alternative proposals to an arbitrator who would simply choose one or the other. Such a process would presumably encourage the parties to be reasonable in their relocation proposals and would largely remove the Commission from the transaction. Moreover, binding arbitration could and should be completed in a short time frame, perhaps within sixty days. Such a process would both encourage agreements and resolve any remaining disputes with minimal transaction costs.<sup>23</sup>

### Conclusion

Relocation policy is one of the greatest challenges facing this Commission. In the years to come, we will increasingly be forced to rely on spectrum clearing as a method of freeing up spectrum for new services. This challenge creates a corresponding historic opportunity: to get relocation policy right. Only with an efficient relocation policy can the telecommunications marketplace function properly for incumbents and new entrants alike. I believe today’s Order is a step in that direction. I am hopeful, however, that in future proceedings the Commission will move towards a relocation policy that provides greater certainty along with more efficient procedures.

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(“A final award is binding on the parties to the arbitration proceeding, and may be enforced pursuant to sections 9 through 13 of title 9”).

<sup>20</sup> See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Technologies*, 8 FCC Rcd 6589, ¶ 38 (1993); *Use of Alternative Dispute Resolution Procedures in Commission Proceedings and Proceedings in which the Commission is a Party*, 6 FCC Rcd 5669 (1991) (stating that the Commission encourages the use of ADR in proceedings between parties under a Commission rule where the Commission is not a party); see also 47 C.F.R. § 76.804; 47 C.F.R. 76.1513(b).

<sup>21</sup> See 47 C.F.R. § 90.699(f)(6).

<sup>22</sup> Presumably an incumbent would not choose arbitration, since the default outcome is that the incumbent is permitted to maintain its facilities.

<sup>23</sup> It may be legally required for the Commission to play a role in these proceedings. The Office of the Administrative Law Judges may provide the needed expertise for any Commission role.