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ER date 9/20/85

Table Mountain  
Rules

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D. C. 20554

G-3  
FCC 85-497  
36137

In the Matter of )  
)  
Amendment of Parts 21, 22, 23, 25, 73, )  
90, and 94 the Commission's Rules to )  
clarify the protection provisions )  
for the Table Mountain Radio Receiving )  
Zone. )

ORDER

Adopted: September 10, 1985

Released: September 16, 1985

By the Commission: Commissioner Rivera not participating.

1. At the request of the United States Department of Commerce, on behalf of its National Oceanic and Atmospheric Administration (NOAA), the Commission is clarifying its rules regarding the radio interference protection provisions for the Table Mountain Radio Receiving Zone at Boulder Colorado. The Table Mountain facility occupies about 1800 acres and serves as a site for radio propagation research, including research related to national security matters for the Departments of Commerce and Defense as well as for other agencies. The facility administers a coordination procedure implemented by the Commission in Docket 18180 <sup>1/</sup> to protect receivers at the Table Mountain site from interference from radio stations in its vicinity. As an aid in doing this, the coordinates of a central point representative of the site are listed in the Commission's Rules. However, with the growth of radio usage in the Boulder area and the development of sophisticated equipment and antenna configurations, the Department of Commerce has expressed the need to clearly state that the entire Table Mountain site--not just the location of the reference point--should be protected.

2. The Commission agrees with the Department of Commerce request. In Docket 18180, we noted that the site is "an elevated flat-top butte" and indicated our intention to establish a protected area. We are herein amending Sections 21.113(b), 22.113(b), 23.20(d), 25.203(f), 73.1030(b), 90.177(c), and 94.25(g) to clearly state the applicability of the radio interference protection provision for all of the Table Mountain Radio Receiving Zone. This action will not affect existing station operations but will serve to clarify requirements for the coordination of new and modified systems. Some editorial changes regarding the mailing address and telephone number of the Boulder Laboratory are also being made to the enumerated rule sections.

<sup>1/</sup> Report and Order in Docket 18180, adopted December 6, 1972 (26 RR 2d 131).

3. The specific rule amendments that we are adopting are set forth in the Appendix. Authority for the amendments is contained in Sections 4(i) and 303(r) of the Communications Act of 1934, as amended. We are dispensing with the prior notice and public procedure provisions of the Administrative Procedure Act as unnecessary pursuant to 5 U.S.C. 553(b)(3)(B). This is due to the fact that it is in the interest of national security to require that Table Mountain radio operations be protected from potential interference from radio stations operating in the vicinity of the site and the action is not considered to be controversial. See also 5 U.S.C. Section 553(a)(1) (military or foreign affairs functions). Further, the action is exempt from public procedure requirements because it is an interpretive rule that merely conforms requirements with existing policy. 5 U.S.C. Section 553 (b)(3)(A).

4. Accordingly, **IT IS ORDERED**, effective October 23, 1985, that Parts 22, 23, 25, 73, 90, and 94 of the Commission's Rules are amended as set forth in the attached Appendix.

5. For further information regarding matters covered in this document contact Sam Tropea (202) 653-8149.

FEDERAL COMMUNICATIONS COMMISSION

William J. Tricarico  
Secretary

Attachment: Appendix

APPENDIX

In Chapter I of Title 47 of the Code of Federal Regulations, Sections 21.113(b), 22.113(b), 23.20(d), 25.203(f), 73.1030(b), 90.177(c), and 94.25(g) are amended to read as follows:

The authority citations in Parts 21, 22, 23, 25, 73, 90, and 94 continue to read:

Authority: Secs. 4, 303, 48 stat. 1066, 1082 as amended; 47 U.S.C. 154, 303, unless otherwise noted.

A. Part 21 - DOMESTIC PUBLIC FIXED RADIO SERVICES

In Section 21.113, paragraph (b) is revised to read as follows:

§21.113 Quiet Zones

\* \* \* \* \*

(b) In order to minimize possible harmful interference at the Table Mountain Radio Receiving Zone of the Research Laboratories of the Department of Commerce located in Boulder County, Colorado, applicants for new or modified radio facilities in the vicinity of Boulder County, Colorado are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength (mV/m) in authorized bandwidth of service	Power flux density <sup>1/</sup> (dBW/m <sup>2</sup> ) in authorized bandwidth of service
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	<u>2/</u> -65.8
470 to 890 MHz.....	30	<u>2/</u> -56.2
Above 890 MHz.....	1	<u>2/</u> -85.8

<sup>1/</sup> Equivalent values of power flux density are calculated assuming free space characteristic impedance of  $376.7=120\pi$  ohms.

<sup>2/</sup> Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4 kHz band for all angles of arrival.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 1.5 statute miles;

(ii) Stations within 3 statute miles with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 10 statute miles with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 50 statute miles with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filling their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

\* \* \* \* \*

B. Part 22 - Public Mobile Radio Services.

In Section 22.113, paragraph (b) is amended to read as follows:

§22.113 Quiet Zones.

\* \* \* \* \*

(b) In order to minimize possible harmful interference at the Table Mountain Radio Receiving Zone of the Research Laboratories of the Department of Commerce located in Boulder County, Colorado, applicants for new or modified radio facilities in the vicinity of Boulder County, Colorado are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency Range	Field strength (mV/m) in authorized bandwidth of service	Power flux density <sup>1/</sup> (dBW/m <sup>2</sup> ) in authorized bandwidth of service
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	<u>2/</u> -65.8
470 to 890 MHz.....	30	<u>2/</u> -56.2
Above 890 MHz.....	1	<u>2/</u> -85.8

<sup>1/</sup> Equivalent values of power flux density are calculated assuming free space characteristic impedance of 376.7=120π ohms.

<sup>2/</sup> Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4 kHz band for all angles of arrival.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

- (i) All stations within 1.5 statute miles;

(ii) Stations within 3 statute miles with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 10 statute miles with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 50 statute miles with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

#### C. Part 23 - International Fixed Public Radio Communications Services.

In Section 23.20, paragraph (d) is amended as follows:

§23.20 Assignment of frequencies.

\* \* \* \* \*

(d) Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado: Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength (mV/m) in au- thorized band- width of service	Power flux den- sity <sup>1/</sup> (dBW/m <sup>2</sup> ) in authorized bandwidth of service
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	<u>2/</u> -65.8
470 to 890 MHz.....	30	<u>2/</u> -56.2
Above 890 MHz.....	1	<u>2/</u> -85.8

<sup>1/</sup> Equivalent values of power flux density are calculated assuming free space characteristic impedance of  $376.7=120\pi$  ohms.

<sup>2/</sup> Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4 kHz band for all angles of arrival.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 1.5 statute miles;

(ii) Stations within 3 statute miles with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 10 statute miles with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 50 statute miles with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

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D. Part 25 - Satellite Communications.

In Section 25.203, paragraph (f) is amended as follows:

§25.203 Choice of sites and frequencies

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(f) Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado.

(1) Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength (mV/m) in authorized bandwidth of service	Power flux density <sup>1/</sup> (dBW/m <sup>2</sup> ) in authorized bandwidth of service
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	<u>2/</u> -65.8
470 to 890 MHz.....	30	<u>2/</u> -56.2
Above 890 MHz.....	1	<u>2/</u> -85.8

<sup>1/</sup> Equivalent values of power flux density are calculated assuming free space characteristic impedance of 376.7=120 π ohms.

<sup>2/</sup> Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4 kHz band for all angles of arrival.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:



(i) All stations within 1.5 statute miles;

(ii) Stations within 3 statute miles with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 10 statute miles with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 50 statute miles with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

E. Part 73 - Radio Broadcast Services.

In Section 73.1030, paragraph (b) is amended as follows:

§73.1030 Notifications concerning interference to radio astronomy, research and receiving installations.

\* \* \* \* \*

(b) Radio receiving installations. Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado: Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength <sup>1/</sup>	Power flux density * <sup>2/</sup>
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	** -65.8
470 to 890 MHz.....	30	** -56.2
Above 890 MHz.....	1	** -85.8

<sup>1/</sup> (mV/m) in authorized bandwidth of service.

<sup>2/</sup> (dBW/M2) in authorized bandwidth of service.

\* Equivalent values of power flux density are calculated assuming free space characteristic impedance of  $376.7=120\pi$  ohms.

\*\* Space stations shall conform to the power flux density limits at the earth's surface specified in appropriate parts of the FCC rules, but in no case should exceed the above levels in any 4 kHz band for all angles of arrival.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 2.4 km (1.5 statute miles);

(ii) Stations within 4.8 km (3 statute miles) with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 16 km (10 statute miles) with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone;

(iv) Stations within 80 km (50 statute miles) with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

F. Part 90 - PRIVATE LAND MOBILE RADIO SERVICES.

In Section 90.177, paragraph (c) is amended as follows:

§90.177 Protection of certain radio receiving locations

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(c) Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado. Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the following values:

Frequency range	Field strength (millivolt per meter) in authorized bandwidth of service	Power flux density <sup>1/</sup> (decibel watt per square meter) in authorized bandwidth of service
Below 540 kHz.....	10	-65.8
540 to 1600 kHz.....	20	-59.8
1.6 to 470 MHz.....	10	-65.8
470 to 890 MHz.....	30	-56.2
Above 890 MHz.....	1	-85.8

<sup>1/</sup> Equivalent values of power flux density are calculated assuming free space characteristic impedance of  $376.7=120\pi$  ohms.

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities (except mobile stations). In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 2.4 km (1.5 statute miles);

(ii) Stations within 4.8 km (3 statute miles) with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 16 km (10 statute miles) with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of the Table Mountain Receiving Zone;

(iv) Stations within 80 km (50 statute miles) with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of the Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

G. Part 94 - PRIVATE OPERATIONAL - FIXED MICROWAVE SERVICE.

In Section 94.25, paragraph (g) is amended as follows:

§94.25 Filing of applications.

\* \* \* \* \*

(g) Protection for Table Mountain Radio Receiving Zone, Boulder County, Colorado. Applicants for a station authorization to operate in the vicinity of Boulder County, Colorado under this part are advised to give due consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from harmful interference. These are the research laboratories of the Department of Commerce, Boulder County, Colorado. To prevent degradation of the present ambient radio signal level at the site, the Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50"N Latitude, 105° 14' 40"W Longitude) resulting from new assignments or from the modification or relocation of existing facilities do not exceed 1 mV/m in the authorized bandwidth of service. (A field strength of 1 mV/m is equivalent to a power flux density of .85.8 dBW/m<sup>2</sup> assuming a free-space characteristic impedance of 376.7 ohms.)

(1) Advance consultation is recommended particularly for those applicants who have no reliable data which indicates whether the field strength or power flux density figures would be exceeded by their proposed radio facilities. In such instances, the following is a suggested guide for determining whether coordination is recommended:

(i) All stations within 2.4 km (1.5 statute miles);

(ii) Stations within 4.8 km (3 statute miles) with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations within 16 km (10 statute miles) with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of the Table Mountain Receiving Zone;

(iv) Stations within 80 km (50 statute miles) with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of the Table Mountain Receiving Zone.

(2) Applicants concerned are urged to communicate with the Radio Frequency Management Coordinator, Department of Commerce, Research Support Services, NOAA R/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of filing their applications with the Commission.

(3) The Commission will not screen applications to determine whether advance consultation has taken place. However, applicants are advised that such consultation can avoid objections from the Department of Commerce or proceedings to modify any authorization which may be granted which, in fact, delivers a signal at the site in excess of the field strength specified herein.

