



Federal Communications Commission
Washington, D.C. 20554

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Small Entity Compliance Guide

Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands

Report and Order and Order of Proposed Modification
FCC Number 12-151
WT Docket Nos. 12-70 and 04-356; ET Docket No. 10-142
Released: December 17, 2012

This Guide is prepared in accordance with the requirements of Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996. It is intended to help small entities—small businesses, small organizations (non-profits), and small governmental jurisdictions—comply with the new rules adopted in the above-referenced FCC rulemaking docket(s). This Guide is not intended to replace the rules and, therefore, final authority rests solely with the rules. Although we have attempted to cover all parts of the rules that might be especially important to small entities, the coverage may not be exhaustive. This Guide may, perhaps, not apply in a particular situation based upon the circumstances, and the FCC retains the discretion to adopt approaches on a case-by-case basis that may differ from this Guide, where appropriate. Any decisions regarding a particular small entity will be based on the statute and regulations.

In any civil or administrative action against a small entity for a violation of rules, the content of the Small Entity Compliance Guide may be considered as evidence of the reasonableness or appropriateness of proposed fines, penalties or damages. Interested parties are free to file comments regarding this Guide and the appropriateness of its application to a particular situation; the FCC will consider whether the recommendations or interpretations in the Guide are appropriate in that situation. The FCC may decide to revise this Guide without public notice to reflect changes in the FCC's approach to implementing a rule, or to clarify or update the text of the Guide. Direct your comments and recommendations, or calls for further assistance, to the FCC's Consumer Center:

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I. OBJECTIVES OF THE PROCEEDING

In the *AWS-4 Report and Order and Order of Proposed Modification (AWS-4 Report and Order)*, the Commission increased the Nation’s supply of spectrum for mobile broadband by eliminating regulatory barriers to deployment and by adopting flexible use rules for 40 megahertz of spectrum in the 2 GHz band (2000-2020 MHz and 2180-2200 MHz), which the Commission termed the AWS-4 band.¹ The Commission enabled the provision of stand-alone terrestrial services in this spectrum band, thus dramatically increasing the value of this spectrum to the public. The *AWS-4 Report and Order* removes regulatory barriers to mobile broadband use of this spectrum; adopts service, technical, and licensing rules that encourage innovation and investment in mobile broadband; and provides certainty and a stable regulatory regime for the rapid deployment of wireless broadband.

II. REGULATIONS AND POLICIES THAT THE COMMISSION ADOPTED OR MODIFIED, INCLUDING COMPLIANCE REQUIREMENTS

A. AWS-4 Band Plan

1. The Commission adopted as the AWS-4 band plan the 2000-2020 MHz band paired with the 2180-2200 MHz band, configured in two consistently-spaced 10 megahertz blocks. The blocks will be licensed on an Economic Area (EA) geographic-area basis.

PCS (A-G) Downlink	H	AWS-4 UL	J	BAS, CARS, LTTS, EESS, Space Operations	AWS-1 (A-F) Downlink	AWS-3	J	AWS-4 DL	Fed.
	1995	2000	2025		2110	2155	2175	2180	2200
								A	B

Frequencies in MHz

AWS-4 Band Plan

2. For the AWS-4 band plan, the Commission adopted the same uplink and downlink pairing designations as those currently used in the 2 GHz Mobile Satellite Service (MSS) band. Specifically, for AWS-4 spectrum, the lower band (2000-2020 MHz) will be the uplink band and the upper band (2180-2200 MHz) will be the downlink band.

3. The Commission adopted a consistent (*i.e.*, non-variable) duplex spacing for the AWS-4 band. The Commission also adopted 10 megahertz block sizes. The AWS-4 band therefore consists of two paired 10 + 10 megahertz blocks as follows: Block A pairs 2000-2010 MHz with 2180-2190 MHz and Block B pairs 2010-2020 MHz with 2190-2200 MHz.

¹ Advanced Wireless Services (AWS).

4. The terrestrial spectrum use rights in the AWS-4 band will be assigned on a geographic-area basis. Specifically, the AWS-4 spectrum rights will be based on an EA basis, including the Gulf of Mexico as EA licensing area 176. As with licensing other Part 27 services, the Gulf of Mexico service area is comprised of the water area of the Gulf of Mexico starting 12 nautical miles from the U.S. Gulf coast and extending outward.

B. Technical Issues

1. Out-of-band Emission (OOBE) Limits

a. Interference between Services in Adjacent AWS-4 Blocks

5. Fixed and mobile transmitters operating in 2000-2020 MHz and 2180-2200 MHz bands are required to attenuate emissions outside the licensed channels in these bands by $43 + 10 \log_{10}(P)$ dB, unless all affected parties agree otherwise.

6. The Commission further adopted the measurement procedures found in § 27.53(h) to AWS-4 mobile and base stations, specifically, requiring a measurement bandwidth of 1 MHz or greater, with an exception allowing a smaller measurement bandwidth within the first megahertz outside the channel.

b. Interference with Services in Adjacent and Other Bands

(i) Interference with operations below 1995 MHz

7. Fixed and mobile transmitters operating in the 2000-2020 MHz AWS-4 uplink band must attenuate emissions below 1995 MHz by $70 + 10 \log_{10}(P)$ dB. The Commission will also apply the existing measurement procedure contained in § 27.53(h) of our rules, whereby a measurement bandwidth of 1 MHz or greater is required, with an exception allowing a smaller measurement bandwidth in the first megahertz outside the channel.

(ii) Interference with operations in 1995-2000 MHz

8. For AWS-4 operations in 2000-2020 MHz, the Commission adopted an OOBE limit of $70 + 10 \log_{10}(P)$ dB at and below 2000 MHz. The Commission also adopted the measurement procedure set forth in Section 27.53(h) of our rules to determine compliance with this limit. This section requires a measurement bandwidth of 1 megahertz or greater with an exception allowing a smaller measurement bandwidth in the first megahertz adjacent to the channel. The Commission also allowed for licensees of AWS-4 authority to enter into private operator-to-operator agreements with all 1995-2000 MHz licensees to operate in 1995-2000 MHz at OOBE levels above $70 + 10 \log_{10}(P)$ dB.

(iii) Interference with operations in 2020-2025 MHz; 2025-2110 MHz; and 2155-2180 MHz

9. The Commission concluded that the $43 + 10 \log_{10}(P)$ dB OOBE limit and the measurement procedure set forth in § 27.53(h) are appropriate for protecting the 2020-2025 MHz band; the federal operations and BAS and CARS operations at 2025-2110 MHz; and, wireless systems that will operate below 2180 MHz, from emissions from AWS-4 operations.

(iv) Interference with operations in 2200-2290 MHz

10. The Commission adopted the following approach for protecting Federal operations in the 2200-2290 MHz band from harmful interference from AWS-4 operations in the 2180-2200

MHz band. First, the Commission will permit, but not require, AWS-4 operators and Federal operators to enter into an operator-to-operator agreement that will specify terms of the permissible AWS-4 OOB limits and/or maximum actual AWS-4 emissions to be received at the sites of Federal operations in the 2200-2290 MHz band, so long as such agreements do not otherwise run afoul of other Commission rules. The Commission observed that the existing MSS/Ancillary Terrestrial Component (ATC) licensees and federal users of the 2200-2290 MHz band have already effectuated such an agreement on what they as actual operators, find to be the best environment to avoid actual harmful interference.² The Commission permitted that agreement to govern AWS-4 base station emissions from 2180-2200 MHz into the 2200-2290 MHz band. To ensure that this agreement and any other such agreements are consistent with other Commission rules and do not impede the operation of secondary markets, the Commission required that the licensee of AWS-4 authority who is a party to an operator-to-operator agreement maintain a copy of the agreement(s) in its station files and disclose it, upon request, to prospective AWS-4 assignees, transferees, or spectrum lessees, to Federal operators in the 2200-2290 MHz band, and to the Commission.

11. Second, the Commission established default OOB limits for AWS-4 operations into the 2200-2290 MHz band in the event such private agreement were not in effect (*e.g.*, the agreement was terminated pursuant to its terms; AWS-4 licenses return to the Commission (*e.g.*, for a licensee's failure to meet the construction requirements)). The Commission adopted the protection levels that were previously contained in the ATC rules relative to protection of Federal operations in the 2200-2290 MHz band. Accordingly, AWS-4 base stations operating in 2180-2200 MHz under the default rules must not exceed an equivalent isotropically radiated power (EIRP) of -100.6 dBW/4 kHz for emissions into the 2200-2290 MHz band. Further AWS-4 base stations operating in 2180-2200 MHz may not be located less than 820 meters from a U.S. Earth Station facility operating in the 2200-2290 MHz band.

12. To avoid possible confusion between the operation of an operator-to-operator agreement and the default OOB limit, the Commission clarified the application of the Commission's rules in the event that (1) an operator-to-operator agreement ceases to operate (for whatever reason) or (2) is operative for less than the entire universe of AWS-4 licenses or Federal operations in the 2200-2290 MHz band. In either case where the agreement is not in effect, the licensee of AWS-4 operating authority must comply with the default rule described in the preceding paragraph.

13. To ensure that AWS-4 base stations would be able to operate pursuant both to an operator-to-operator agreement and to the default rule, equipment manufacturers may seek equipment authorization for equipment designed against either the OOB limit in the default rule, the OOB limit in an executed operator-to-operator agreement between a licensee of AWS-4 authority and Federal operators in the 2200-2290 MHz band (which must provide at least $43 + 10 \log_{10}(P)$ dB of attenuation), or both, except as specified below. The Commission shall

² See Letter from Karl Nebbia, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, to Julius Knapp, Chief, Office of Engineering and Technology, Federal Communications Commission, WT Docket Nos. 12-70, 04-356, ET Docket No. 10-142, Attachment ("Operator-to-Operator Agreement between New DBSD Satellite Services G.P. and Gamma Acquisition L.L.C. and United States Federal Government Agencies Operating Earth Stations and/or Aeronautical Mobile Telemetry (AMT) Stations in the 2200-2290 MHz Band") (Dec. 11, 2012).

approve or deny the equipment authorization, based on testing against whichever (or both) OOBs the manufacturer requests.

14. The Commission recognized that equipment designed to operate to the stricter default OOB limits will also comply with any more relaxed OOB limit contained in an operator-to-operator agreement. In the case where equipment is intended to be operated at either the default or the relaxed limits, the Commission noted its belief that the equipment will be either modified or adjusted by the manufacturer or in the field. That is, the Commission expects the equipment to have more than one mode of operation in this case. The Commission required that the application for equipment authorization for such equipment to clearly demonstrate compliance with both limits. If at the time of authorization the equipment is only approved for compliance with one limit, but is expected to be modified subsequently by the manufacturer to operate in another mode either in the factory or in the field, the original equipment must be approved to permit such changes or meet such changes as allowed in the permissive change rules for equipment authorization.

15. In addition, a licensee in the AWS-4 band may operate its base stations consistent with its operator-to-operator agreement only if such an agreement is in effect. In any other situation, including where such an agreement existed, but has been terminated (for whatever reason), the licensee must operate AWS-4 base stations that have obtained equipment authorization based on the default rule. To the extent that a licensee of AWS-4 authority that is a party to an operator-to-operator agreement installs and operates base stations that are authorized against an OOB limit that is less stringent than the default rule, that licensee is solely responsible for ensuring that its equipment would be authorized to operate in the event that the agreement terminates (for whatever reason).

(v) Interference with Global Positioning Systems (GPS) operations

16. Because the prospective licensees of AWS-4 operating authority have reached a private agreement with the industry council representing GPS interests, the US GPS Industry Council (USGIC), the Commission determined that the most appropriate approach was to require, as a license condition, that licensees comply with this agreement and the specific GPS protection limits contained therein.³ The licenses shall remain subject to this license condition in the event that the licensees assign or otherwise transfer the licenses to successors-in-interest or assignees. To the extent that AWS-4 licenses return to the Commission (e.g., for a licensee's failure to meet the construction requirements), the Commission will, prior to reassigning such licenses, consult with the National Telecommunications and Information Administration (NTIA) about the need for specific OOB requirements on the new licenses to protect GPS operations in the 1559-1610 MHz band.

2. Co-Channel Interference among AWS-4 Systems

17. In the *AWS-4 NPRM*, the Commission proposed that the current AWS-1 signal strength limit be applied to AWS-4 operations. The Commission adopted the proposed co-channel interference levels and expanded § 27.55(a)(1) of the Commission's rules to include the

³ See Letter from Jeffrey H. Blum, Deputy General Counsel, DISH Network Corporation, and F. Michael Swiek, Executive Director, The U.S. GPS Industry Council, to Marlene H. Dortch, Sec'y, Federal Communications Commission, WT Docket Nos. 12-70, 04-356, ET Docket No. 10-142 (filed Sept. 27, 2012).

2180-2200 MHz band. The Commission observed, however, that the assignment approach adopted will likely result in an individual licensee obtaining assignments for geographically adjacent AWS-4 EA licenses. In such a scenario, that licensee may choose not to observe this signal strength limit between its geographically adjacent AWS-4 licenses, so long as it complies with other Commission rules and the adjacent affected service area licensee(s) agree(s) to a different field strength.

3. Power Limits

a. Base Stations

18. The Commission adopted three base station power limits. First, AWS-4 base stations are limited to 1640 watts EIRP for emissions less than 1 MHz and 1640 watts/MHz EIRP for emissions over 1 MHz for non-rural areas. Second, AWS-4 power limits for base stations operating in rural areas are set at the limits specified in 27.50(d)(1-2) of the Commission's rules. Third, AWS-4 base stations with transmit power above 1640 watts EIRP and 1640 watts/MHz EIRP are required to coordinate with users in adjacent AWS blocks located within 120 kilometers.

b. Mobile Stations

19. For AWS-4 mobile operations, the Commission adopted a limit of 2 watts EIRP for the total power of a device operating in the AWS-4 uplink. To protect future operations in the adjacent 1995-2000 MHz band, the Commission limited the power of the portion of a device's transmission that falls into 2000-2005 MHz to 5 milliwatts.

20. The Commission recognized that further improvement of the performance of receivers in 1995-2000 MHz band, as well as willingness on the part of licensees of the 1995-2000 MHz band to accept a higher probability of interference could reduce or eliminate the need for power restrictions in 2000-2005 MHz. Therefore, the Commission allowed for licensees of AWS-4 authority to enter into private operator-to-operator agreements with all 1995-2000 MHz licensees to operate in 2000-2005 MHz at power levels above 5 milliwatts EIRP. In no case, however, may the total power of the AWS-4 mobile emissions exceed 2 watts EIRP.

4. Acceptance of Interference into the AWS-4 Uplink Band.

21. The Commission determined that, to the extent that future operations in the 1995-2000 MHz band operating within the rules established for use of the 1995-2000 MHz band, cause harmful interference to AWS-4 operations or MSS⁴ operations due to either OOB in the 2000-2005 MHz portion of the AWS-4 and 2 GHz MSS uplink band, or in-band power in 1995-2000 MHz, AWS-4 and 2 GHz MSS licensees must accept this interference.

22. The Commission emphasized that it was limiting the acceptance of OOB interference to the 2000-2005 MHz portion of the AWS-4 and 2 GHz MSS bands but noted that, should in band interference occur due to the power in 1995-2000 MHz overloading receivers above 2000 MHz, this overload could potentially affect the entire receive band. Overload interference can be prevented by improved receive filters. Therefore, if a licensee of AWS-4 operating authority determines such filters are necessary, the impact to the uplink band is limited to the transition band of the filter, not the entire band. Such a transition band would be less than

⁴ MSS is a radiocommunication service involving transmission between mobile earth stations and one or more space stations.

5 megahertz, thus the impact would be limited to (at most) the 2000-2005 MHz portion of the AWS-4 bands, and there is no legacy equipment impact, as ATC service has not been deployed.

23. Finally, the Commission noted that unlike the terrestrial service, MSS has been deployed in this band, with two satellites launched. Because both satellites were launched well after the Commission initiated the H block proceeding, the Commission noted its expectation that they were designed with this overload scenario in mind and concluded that there should be no impact to MSS. To the extent this is not the case, the Commission noted that it did not expect to limit use of 1995-2000 MHz due to any limitations of receivers deployed after our proceeding on use of 1995-2000 MHz was opened.

5. Antenna Height Restrictions

24. Base Stations. The Commission found that specific antenna height restrictions for AWS-4 base stations are not necessary. The general requirement⁵ to not endanger air navigation and the effective height limitations implicitly resulting from the Commission's co-channel interference rules obviate the need for specific antenna height restrictions for AWS-4 base stations.

25. Fixed Stations. Because the AWS-4 uplink band at 2000-2020 MHz is not adjacent to Federal operations, and to promote flexibility in the use of AWS-4 spectrum, the Commission declined to adopt a height limitation for fixed stations in the AWS-4 uplink band.

6. Canadian and Mexican Coordination

26. Because of the United States' shared borders with Canada and Mexico, the Commission routinely works in conjunction with the United States Department of State and Canadian and Mexican government officials to ensure efficient use of the spectrum as well as interference-free operations in the border areas. Until such time as any adjusted agreements, as needed, between the United States, Mexico and/or Canada can be agreed to, operations must not cause harmful interference across the border, consistent with the terms of the agreements currently in force. The Commission noted that further modifications of the rules might be necessary in order to comply with any future agreements with Canada and Mexico regarding the use of these bands.

7. Other Technical Issues

27. The Commission adopted its proposal to apply additional part 27 rules to licensees of AWS-4 authority. These rules include sections: §§ 27.51 Equipment authorization, 27.52 RF safety, 27.54 Frequency stability, 27.56 Antennas structures; air navigation safety, and 27.63 Disturbance of AM broadcast station antenna patterns. The Commission reasoned that because AWS-4 will be a part 27 service, these rules should apply to all licensees of AWS-4 terrestrial authority, including those who acquire licenses through partitioning or disaggregation.

C. Protection of MSS Operations

28. The Commission required that AWS-4 operations not cause harmful interference to 2 GHz MSS operations and accept any interference received from duly authorized 2 GHz MSS operations. This approach involves reliance upon rapid terrestrial build-out by the licensees, with potential loss of MSS interference protection in the event terrestrial services are not built

⁵ See 47 C.F.R. § 27.56.

out. This approach is incompatible with deployment of additional MSS systems in the band, and therefore the Commission does not anticipate accepting applications for new or modified MS operations, except from an incumbent operator or its assignee or transferee. In addition, the Commission observed that, should a licensee of AWS-4 operating authority who also possesses 2 GHz MSS operating authority fail to satisfy its AWS-4 Final Build-out Requirement in an EA (see below), among other things, this MSS protection rule shall not apply to that EA.

D. Assignment of AWS-4 Operating Authority

29. The Commission proposed to modify, pursuant to its Section 316 authority, the incumbent 2 GHz MSS authorization holders' licenses to include AWS-4 terrestrial spectrum rights. These modifications include adding part 27 terrestrial spectrum rights to the 2 GHz MSS licenses, creating more uniform duplex spacing for the MSS rights, and eliminating ATC authority from the licenses.

E. Performance Requirements

30. For the AWS-4 band, the Commission adopted performance requirements that will ensure that the spectrum is put to use expeditiously, while providing licensees with the flexibility needed to deploy services according to their business plans. Specifically, the Commission required:

AWS-4 Interim Build-out Requirement: Within four (4) years, a licensee shall provide reliable terrestrial signal coverage and offer terrestrial service to at least forty (40) percent of its total AWS-4 population. A licensee's total AWS-4 population shall be calculated by summing the population of each of its license areas in the AWS-4 band.

AWS-4 Final Build-out Requirement: Within seven (7) years, a licensee shall provide reliable terrestrial signal coverage and offer terrestrial service to at least seventy (70) percent of the population in each of its license areas.

31. The Commission also adopted the following penalties for failing to meet the build-out benchmarks:

Failure to Meet AWS-4 Interim Build-out Requirement: Where a licensee fails to meet the aggregate AWS-4 Interim Build-out Requirement, the AWS-4 Final Build-out Requirement shall be accelerated by one year (from seven to six years).

Failure to Meet AWS-4 Final Build-out Requirement: Where a licensee fails to meet the AWS-4 Final Build-out Requirement in any EA, its authorization for each EA in which it fails to meet the requirement shall terminate automatically without Commission action. To the extent that the licensee also holds the 2 GHz MSS rights for the affected license area, failure to meet the AWS-4 Final Build-out Requirement in an EA shall also result in the MSS protection rule in § 27.1136 of the Commission's rules no longer applying to that EA.

32. The Commission concluded that no additional rural-specific construction benchmarks are warranted beyond the performance requirements described above.

33. The Commission declined to impose any "use it or share it" requirements for the AWS-4 spectrum band. Even though the Commission did not adopt a requirement, the Commission encouraged providers to enter into leasing agreements for unused spectrum.

34. Compliance Procedures. The Commission determined that licensees must demonstrate compliance with the new performance requirements by filing a construction notification within 15 days of the relevant milestone certifying that they have met the applicable performance benchmark, consistent with § 1.946(d) of the Commission's rules. Each construction notification must include electronic coverage maps and supporting documentation, which must be truthful and accurate and must not omit material information that is necessary for the Commission to determine compliance with its performance requirements.

35. Electronic coverage maps must accurately depict the boundaries of each license area in the licensee's service territory. If a licensee does not provide reliable signal coverage to an entire EA, its map must accurately depict the boundaries of the area or areas within each EA not being served. Each licensee also must file supporting documentation certifying the type of service it is providing for each EA within its service territory and the type of technology used to provide such service. Supporting documentation must include the assumptions used to create the coverage maps, including the propagation model and the signal strength necessary to provide reliable service with the licensee's technology.

36. The licensee must use the most recently available decennial U.S. Census Data at the time of measurement to meet the population based build-out requirements. Specifically, the licensee must base its claims of population served on areas no larger than the Census Tract level. This requirement tracks the Commission's action requiring broadband service providers to report "snapshots" of broadband service at the Census Tract level twice each year by completing FCC Form 477.

F. Applications for Any AWS-4 Spectrum Returned to the Commission

37. The Commission determined that any returned AWS-4 terrestrial spectrum rights would be reassigned using a geographic-area approach with licenses to be made available on an EA basis. In such a situation, the Commission will adopt a licensing process that provides for the acceptance of mutually exclusive applications, which would be resolved by means of competitive bidding pursuant to the statutory directive. In the event that AWS-4 spectrum rights are returned to the Commission, any such rights will be made available for reassignment for terrestrial use only.

38. The Commission found it appropriate to put a framework in place now that would govern the reassignment of AWS-4 spectrum rights. To the extent that the MSS licensee relinquishes its terrestrial spectrum rights either voluntarily or involuntarily the MSS licensee bears the consequences of any interference that occurs as an attendant result of its opening the door to satellite/terrestrial use in the same band by two different licensees. That is, the MSS licensee would be responsible for its own considered choices or for its failure to fulfill the responsibilities that attends the expansion of its licensed rights into the terrestrial realm. Accordingly, the returned spectrum rights will be subject to the competitive bidding procedures adopted in *Report and Order* and will not be subject to any MSS protection rule.

39. Procedures for Any AWS-4 Licenses Subject to Assignment by Competitive Bidding. The Commission will conduct any auction for AWS-4 licenses resulting from terrestrial spectrum rights being returned to the Commission pursuant to its standard competitive bidding rules found in part 1, subpart Q of the Commission's rules and will provide bidding credits for qualifying small businesses

40. Small Business Provisions for Terrestrial Geographic Area Licenses. In authorizing the Commission to use competitive bidding, Congress mandated that the Commission “ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women are given the opportunity to participate in the provision of spectrum-based services.” In addition, section 309(j)(3)(B) of the Communications Act provides that, in establishing eligibility criteria and bidding methodologies, the Commission shall promote “economic opportunity and competition . . . by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by members of minority groups and women.” One of the principal means by which the Commission fulfills this mandate is through the award of bidding credits to small businesses.

41. In the event that AWS-4 licenses are awarded through competitive bidding the Commission adopted size standards and associated bidding credits for small businesses. A small business is defined as an entity with average gross revenues for the preceding three years not exceeding \$40 million, and a very small business as an entity with average gross revenues for the preceding three years not exceeding \$15 million. Small businesses will be provided with a bidding credit of 15 percent and very small businesses with a bidding credit of 25 percent, consistent with the standardized schedule in part 1 of the Commission’s rules.

42. The projected reporting, recordkeeping, and other compliance requirements resulting from the *Report and Order* will apply to all entities in the same manner. The Commission believes that applying the same rules equally to all entities in this context promotes fairness. Any applicants for licenses of AWS-4 operating authority will be required to file license applications using the Commission’s automated Universal Licensing System (ULS). ULS is an online electronic filing system that also serves as a powerful information tool that enables potential licensees to research applications, licenses, and antennae structures. It also keeps the public informed with weekly public notices, FCC rulemakings, processing utilities, and a telecommunications glossary. Licensees of AWS-4 operating authority that must submit long-form license applications must do so through ULS using Form 601, FCC Ownership Disclosure Information for the Wireless Telecommunications Services using FCC Form 602, and other appropriate forms

G. Regulatory Issues; Licensing and Operating Rules

1. Flexible Use, Regulatory Framework, and Regulatory Status.

43. Flexible Use. The Commission decided to allow licensees of AWS-4 authority to utilize the spectrum for any terrestrial use permitted by the United States Table of Frequency Allocations contained in part 2 of the Commission’s rules, provided that the licensee complies with the applicable service rules.

44. Regulatory Framework. The Commission determined to license the AWS-4 spectrum under part 27 because these rules provide a broad and flexible regulatory framework for licensing spectrum, thereby enabling the spectrum to be used to provide a wide variety of broadband services. This light-handed regulatory approach permits licensees to use the spectrum for a multitude of purposes across the country and provides licensees with the ability to change technologies in response to changes in market conditions.

45. Regulatory Status. The Commission decided to apply § 27.10 of its rules to the AWS-4 band. Applying § 27.10 of the Commission’s rules to the AWS-4 band will achieve efficiencies in the licensing and administrative process, and provide licensees with additional flexibility.

46. Under this flexible regulatory approach, licensees in the AWS-4 band may provide common carrier, non-common carrier, private internal communications or any combination of these services, so long as the provision of service otherwise complies with applicable service rules. This broad licensing framework will encourage licensees to develop new and innovative services with minimal regulatory restraint.

47. In order to fulfill the Commission’s enforcement obligations and to ensure compliance with Titles II and III of the Communications Act, the Commission required the licensee to identify the regulatory status of the services it intends to provide. Consistent with § 27.10 of the Commission’s rules, the licensee will not be required to describe its particular services, but only to designate the regulatory status of the service(s). The Commission reminded potential licensees that an election to provide service on a common carrier basis requires that the elements of common carriage be present; otherwise the applicant must choose non-common carrier status. If a potential licensee is unsure of the nature of its services and whether classification as common carrier is appropriate, it may submit a petition to the Commission with its applications, or at any time, requesting clarification and including service descriptions for that purpose.

48. The Commission also determined that if the licensee elects to change the service or services it offers such that its regulatory status would change, it must notify the Commission and must do so within 30 days of making the change. A change in the licensee’s regulatory status will not require prior Commission authorization, provided the licensee is in compliance with the foreign ownership requirements of section 310(b) of the Communications Act that apply as a result of the change. See 47 U.S.C. 310(b). The Commission noted that a different time period (other than 30 days) may apply, as determined by the Commission, where the change results in the discontinuance, reduction, or impairment of the existing service.

2. Ownership Restrictions

49. Foreign Ownership. The Commission determined that all licensees of AWS-4 authority shall be subject to the provisions of § 27.12 of the Commission’s rules. All such entities are subject to section 310(a) of the Communications Act, which prohibits licenses from being “granted to or held by any foreign government or the representative thereof.” In addition, a licensee that would provide a common carrier, aeronautical en route, or aeronautical fixed service in this band would also be subject to the foreign ownership and citizenship requirements in section 310(b) of the Communications Act.

50. All licensees will be required to provide the same foreign ownership information, which covers both sections 310(a) and 310(b) of the Communications Act, regardless of whether the licensee will provide common carrier or non-common carrier service. The Commission noted, however, that it would be unlikely to deny a license to an applicant requesting to provide exclusively services that are not subject to section 310(b), solely because its foreign ownership would disqualify it from receiving a license if the applicant had applied for authority to provide such services.

51. Eligibility and Mobile Spectrum Holding Policies. The Commission found that open eligibility is appropriate for the AWS-4 band and is consistent with the Commission's statutory mandate to promote the development and rapid deployment of new technologies, products, and services; economic opportunity and competition; and the efficient and intensive use of the electromagnetic spectrum. Open eligibility is also consistent with Section 6404 of the Spectrum Act.

52. The Commission declined to address the issue of how to assess AWS-4 spectrum holdings for purposes of spectrum concentration analysis. Instead, during the pendency of the Commission's *Mobile Spectrum Holdings Policies* proceedings, the Commission will continue to apply its case-by-case approach to secondary market transactions and initial license applications, as necessary.

3. Secondary Markets

53. Partitioning and Disaggregation. The Commission's part 27 rules generally allow for geographic partitioning and spectrum disaggregation. Geographic partitioning refers to the assignment of geographic portions of a license to another licensee along geopolitical or other boundaries. Spectrum disaggregation refers to the assignment of a discrete amount of spectrum under the license to another entity. Disaggregation allows for multiple transmitters in the same geographic area operated by different companies on adjacent frequencies in the same band.

54. The Commission concluded that a licensee of AWS-4 authority should have the same ability to partition its service territories and disaggregate its spectrum as other wireless licensees and, found it in the public interest to permit any licensee of AWS-4 authority to partition any geographic portion of its license area, at any time following the grant of its license, and to also permit any such licensee to disaggregate spectrum in any amount, at any time following the grant of its license.

55. The Commission concluded that it would require each party to a partitioning, disaggregation, or combination of both in the AWS-4 band to individually meet the applicable AWS-4 performance requirements.

56. Spectrum Leasing. The Commission decided to permit spectrum leasing of AWS-4 spectrum and extended its secondary leasing policies to both spectrum manager lease arrangements and *de facto* transfer lease arrangements.

4. License Term, Renewal Criteria, and Permanent Discontinuance of Operations

57. License Term. The Commission adopted a license term for AWS-4 spectrum rights of ten years and subsequent renewal terms of ten years. In addition, the Commission required that, in the event that the terrestrial portion of a license is partitioned or disaggregated, any partitionee or disaggregatee will be authorized to hold its license for the remainder of the partitioner's or disaggregator's license term.

58. Renewal Criteria. The Commission found that all licensees of spectrum in the AWS-4 band seeking renewal of their authorizations at the end of their license term must file a renewal application, independent of their performance requirements, pursuant to § 1.949 of the Commission's rules.

59. The Commission noted that a licensee's renewal showing is distinct from its performance showing. In the renewal context, the Commission said it would consider the level and types of a licensee's service provided over the entire license term, as opposed to measuring services offered at a specific point in time for performance requirements. Thus, a licensee that meets the applicable performance requirements might nevertheless fail to meet the renewal requirements.

60. The Commission will require the renewal showing to include a detailed description of the renewal applicant's provision of service during the entire license period and discuss: (1) the level and quality of service provided by the applicant (e.g., the population served, the area served, the number of subscribers, the services offered); (2) the date service commenced, whether service was ever interrupted, and the duration of any interruption or outage; (3) the extent to which service is provided to rural areas; (4) the extent to which service is provided to qualifying tribal land as defined in § 1.2110(e)(3)(i); and (5) any other factors associated with the level of service to the public. A licensee must also demonstrate at renewal that it has substantially complied with all applicable Commission rules and policies, and the Communications Act of 1934, as amended, including any applicable performance requirements. The licensee must also maintain the level of service provided at its final performance benchmark to the end of the license term.

61. The Commission prohibited the filing of mutually exclusive renewal applications. If a license is not renewed, the associated spectrum will be returned to the Commission for reassignment.

62. Permanent Discontinuance of Operations. The Commission decided to apply § 1.955(a)(3) of the Commission's rules to any licensee, such that an AWS-4 operator's terrestrial spectrum rights, will automatically terminate, without specific Commission action, if service is "permanently discontinued." For AWS-4 spectrum, the Commission defined "permanently discontinued" as a period of 180 consecutive days during which a licensee does not operate and does not serve at least one subscriber that is not affiliated with, controlled by, or related to, the provider in an EA. The discontinuance rule applies commencing on the date a licensee must meet its final performance requirement benchmark, thereby providing a licensee with adequate time to construct its terrestrial network.

63. The Commission decided that if a licensee permanently discontinues service, the licensee must notify the Commission of the discontinuance within 10 days by filing FCC Form 601 or 605 and requesting license cancellation. The Commission emphasized that an authorization will automatically terminate without specific Commission action if service is permanently discontinued even if a licensee fails to file the required form requesting license cancellation. The Commission also clarified that operation of so-called channel keepers, e.g., devices that transmit test signals, tones and/or color bars, does not constitute operation for purposes of the permanent discontinuance rules.

64. Other Operating Requirements. In order to maintain general consistency among various wireless communication services, the Commission also required any licensee of AWS-4 operating authority to comply with other rule parts that pertain generally to wireless communication services. For example, § 27.3 of the Commission's rules lists some of the other rule parts applicable to wireless communications service licensees generally; the Commission thus found it appropriate to apply this and similar rules to the AWS-4 band. Some of these other

rule parts will be applicable by virtue of the fact that they apply to all licensees, and others will apply depending on the type of service a licensee provides. For example: applicants and licensees will be subject to the application filing procedures for the Universal Licensing System, set forth in part 1 of the Commission's rules; licensees will be required to comply with the practices and procedures listed in part 1 of the Commission's rules for license applications, adjudicatory proceedings, etc.; licensees will be required to comply with the Commission's environmental provisions, including § 1.1307; licensees will be required to comply with the antenna structure provisions of part 17 of our rules; to the extent a licensee provides a Commercial Mobile Radio Service (CMRS), such service is subject to the provisions of part 20 of the Commission's rules, including 911/E911 and hearing-aid compatibility requirements, along with the provisions in the rule part under which the license was issued. Part 20 applies to all CMRS providers, even though the stations may be licensed under other parts of our rules; and the application of general provisions of parts 22, 24, or 27 will include rules related to equal employment opportunity, etc.

H. Relocation and Cost Sharing

1. Emerging Technologies Policies

65. Background. The lower portion of the AWS-4 band (2000-2020 MHz) is part of the 1990-2025 MHz band that the Commission reallocated from the Broadcast Auxiliary Service (BAS) to emerging technologies such as the Personal Communications Service (PCS), AWS, and MSS. Consistent with the relocation principles first established in the Commission's Emerging Technologies proceeding, each new entrant had an independent responsibility to relocate incumbent BAS licensees. Sprint Nextel (Sprint), which is the PCS licensee at 1990-1995 MHz, completed the BAS transition for the entire 35 megahertz in 2010. In 2011, Sprint notified the Commission that it entered in a private settlement with DISH to resolve its dispute with MSS licensees with respect to MSS licensees' obligation to reimburse Sprint for their share of the BAS relocation costs.

66. The Commission found that no additional relocation or cost-sharing procedures are necessary for the 2000-2020 MHz AWS-4 band. The Commission noted that, although it did not adopt cost-sharing rules in this *Report and Order*, AWS-2 licensees will continue to be responsible for reimbursing Sprint for 2/7th of the BAS relocation costs (i.e., the proportional share of the costs associated with Sprint relocating 10 megahertz of BAS spectrum that may be used by AWS-2 entrants) and that such cost-sharing issues will be addressed in a separate proceeding.

67. Cost Sharing. Even though Sprint only benefits from the use of five megahertz of spectrum (1990-1995 MHz), Sprint incurred significant costs in clearing the remaining thirty megahertz of spectrum (1995-2025 MHz) to the benefit of other entrants. The Commission has consistently affirmed its general cost-sharing policy that an entrant who has relocated incumbents from reallocated spectrum is entitled to reimbursement for a portion of the band clearing costs from other entrants benefitting from that relocation. The Commission has emphasized that all entrants to the 1990-2025 MHz band may be required to bear a proportional share of the costs incurred in the BAS clearance, on a *pro rata* basis according to the amount of spectrum each entrant is assigned. Of the total 35 megahertz of spectrum, five megahertz was authorized for PCS and held by Sprint; 10 megahertz is authorized for (but yet to be auctioned and licensed as) AWS-2; and 20 megahertz was authorized for MSS. Sprint clarified in the

record that DISH satisfied the cost-sharing obligations associated with 20 megahertz of spectrum in the 1990-2025 MHz band and that the only remaining cost-sharing obligations in this band are attributable to the 10 megahertz of spectrum authorized for AWS-2.

68. The Commission concluded that, consistent with the Commission's policy that all entrants to the 1990-2025 MHz band bear a proportional share of the costs incurred in the BAS clearance on a *pro rata* basis according to the amount of spectrum each entrant is assigned, future AWS-2 licensees who enter the band prior to the sunset date will be responsible for reimbursing Sprint for 2/7th of the BAS relocation costs (*i.e.*, the proportional share of the costs associate with Sprint relocating 10 megahertz of BAS spectrum that will be used by AWS-2 entrants). Each five megahertz block of spectrum in the 1990-2025 MHz band represents one-seventh of the relocated BAS spectrum. Sprint has stated that the *pro rata* share of the overall BAS relocation costs attributable to each five megahertz of relocated BAS spectrum amounts to \$94,875,516.

2. Relocation and Cost Sharing for 1915-1920 MHz.

69. The Commission deferred cost-sharing issues for the 1915-1920 MHz band until the Commission establishes establish service rules for that band.

3. Relocation and Cost-Sharing for 2180-2200 MHz

70. The upper portion of AWS-4 (2180-2200 MHz) is part of the 2160-2200 MHz band that the Commission previously reallocated from the Fixed Microwave Services (FS) to emerging technologies. The Commission's licensing records show approximately 700 active FS licenses in the 2180-2200 MHz band and that most of these incumbents appear to be state or local governmental entities, utilities, railroads, and other businesses with FS links licensed in the Microwave Public Safety Pool (MW) or the Microwave Industrial/Business Pool (MG) for private, internal communication. FS links in the 2180-2200 MHz band typically are paired, for two-way operation, with FS links in the 2130-2150 MHz band. The Commission previously adopted relocation and cost-sharing rules for AWS-1 licensees in the 2110-2155 MHz band, and the Commission proposed in the AWS-4 NPRM to adopt similar rules for licensees of AWS-4 operating authority to govern relocation and cost-sharing in the 2180-2200 MHz band.

71. Relocation. The Commission established a 10-year sunset date from the grant of the first license or issuance of a modification of a license to authorize the use of the 2180-2200 MHz band for AWS-4 under part 27.

72. The Commission concluded that it is in the public interest to adopt relocation rules for licensees of AWS-4 authority, including the trigger for determining the mandatory negotiation period and the sunset date for relocation obligations, that are based on our traditional *Emerging Technologies* proceedings and similar to rules that have governed the relocation of incumbent licensees by AWS-1 licensees and other terrestrial wireless licensees.

73. Licensees of AWS-4 authority are required to coordinate their frequency usage with all potentially affected co-channel and adjacent channel FS incumbents operating in the 2180-2200 MHz band prior to initiating operations from any base or fixed station. If interference would occur, the licensee of AWS-4 authority can initiate a mandatory negotiation period (two-years for non-public safety, three-years for public safety) during which each party must negotiate in good faith 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 licensee of AWS-4 authority that may result in an otherwise impermissible level of interference to the FS operations. If no agreement is reached during the mandatory negotiation period, the licensee of AWS-4 authority can initiate involuntary relocation procedures.

74. The Commission also established a 10-year sunset date from the grant of the first license or issuance of a modification of a license to authorize the use of the 2180-2200 MHz band for AWS-4 under part 27.

75. Cost-Sharing. The Commission extended the cost-sharing rules adopted for AWS-1 licensees to the AWS-4 band. This results in the cost-sharing requirements sunseting on the same date as the relocation obligations. Thus, the Commission adopted rules based on the formal cost-sharing procedures codified in part 27 of the Commission's rules to apportion relocation costs among those entrants that benefit from the relocation of FS incumbents in the 2180-2200 MHz band.

76. Consistent with the Commission's proposal to extend the cost-sharing rules adopted for AWS-1 licensees to the AWS-4 band, the Commission adopted rules to permit for voluntary self-relocating FS incumbents to obtain reimbursement from those licensees of AWS-4 authority benefiting from the self-relocation. The Commission required licensees of AWS-4 authority to reimburse FS incumbents that voluntarily self-relocate from the 2110-2150 MHz and 2160-2200 MHz bands. AWS licensees will be entitled to *pro rata* cost sharing from other AWS licensees that also benefited from the self-relocation.

77. With respect to cost-sharing obligations on MSS operators for FS incumbent self-relocation in the 2180-2200 MHz band, the Commission recognized that it previously declined to impose cost sharing on MSS operators for voluntary self-relocation by FS incumbents in that band. Accordingly, for FS incumbents that elect to self-relocate their paired channels in the 2130-2150 MHz and 2180-2200 MHz bands, the Commission imposed cost-sharing obligations on AWS licensees but not on MSS operators. Where a voluntarily relocating microwave incumbent relocates a paired microwave link with paths in the 2130–2150 MHz and 2180–2200 MHz, it may not seek reimbursement from MSS operators but is entitled to reimbursement from the first AWS beneficiary for its actual costs for relocating the paired link, subject to the reimbursement cap in § 27.1164(b). This amount is subject to depreciation as specified in § 27.1164(b). An AWS licensee who is obligated to reimburse relocation costs under this rule is entitled to obtain reimbursement from other AWS beneficiaries in accordance with §§ 27.1164 and 27.1168.⁶ For purposes of applying the cost-sharing formula relative to other AWS licensees that benefit from the self-relocation, depreciation shall run from the date on which the clearinghouse issues the notice of an obligation to reimburse the voluntarily relocating microwave incumbent.

78. The Commission required AWS-4 relocators to file their reimbursement requests with the clearinghouse within 30 calendar days of the date the relocator signs a relocation agreement with an incumbent. Terrestrial operations trigger incumbent microwave relocations on a link-by-link basis, and the Commission imposed a mandatory requirement that all terrestrial operators—AWS and MSS ATC—that relocate FS incumbents from the 2110-2150 MHz and 2160-2200 MHz bands use a clearinghouse. The Commission noted that it continues to believe

⁶ 47 C.F.R. §§ 27.1164 and 27.1168.

that a mandatory requirement will allow the clearinghouses to accurately track cost-sharing obligations as they relate to all terrestrial operations and expedite the relocation of FS incumbents from the 2180-2200 MHz band by minimizing disputes over the reimbursement of those costs. For similar reasons and consistent with precedent, the Commission also required self-relocating microwave incumbents in the 2180-2200 MHz band to file their reimbursement requests with the clearinghouse within 30 calendar days of the date that they submit their notice of service discontinuance with the Commission.

79. The Commission further required all licensees of AWS-4 authority that are constructing a new site or modifying an existing site to file site-specific data with the clearinghouse prior to initiating operations for a new or modified site. The site data must provide a detailed description of the proposed site's spectral frequency use and geographic location. The Commission also imposed a continuing duty on those entities to maintain the accuracy of the data on file with the clearinghouse.

80. Utilizing the site-specific data submitted by licensees of AWS-4 authority, the clearinghouse determines the cost-sharing obligations of each entrant by applying the Proximity Threshold Test. The Commission found that the presence of an entrant's site within the Proximity Threshold Box, regardless of whether it predates or postdates relocation of the incumbent, and regardless of the potential for actual interference, will trigger a cost-sharing obligation. Accordingly, any entrant that engineers around the FS incumbent will trigger a cost-sharing obligation once relocation of the FS incumbent occurs.

81. The Commission established the sunset date for cost sharing purposes as the date on which the relocation obligation for the subject band terminates. The Commission reiterated that AWS entrants that trigger a cost-sharing obligation prior to the sunset date must satisfy their payment obligation in full.

82. The Commission decided to continue to require participants in the cost-sharing plan to submit their disputes to the clearinghouse for resolution in the first instance. Where parties are unable to resolve their issues before the clearinghouse, parties are encouraged to use expedited Alternative Dispute Resolution (ADR) procedures, such as binding arbitration, mediation, or other ADR techniques. Except for the independent third party appraisal of the compensable relocation costs for a voluntarily relocating microwave incumbent and documentation of the relocation agreement or discontinuance of service required for a relocater or self-relocator's reimbursement claim, both of which must be submitted in their entirety, the Commission requires participants in the cost-sharing plan to provide only the uniform cost data requested by the clearinghouse subject to the continuing requirements that relocators and self-relocators maintain documentation of cost-related issues until the sunset date and provide such documentation, upon request, to the clearinghouse, the Commission, or entrants that trigger a cost-sharing obligation. In addition, the Commission required that parties of interest contesting the clearinghouse's determination of specific cost-sharing obligations must provide evidentiary support to demonstrate that their calculation is reasonable and made in good faith. Specifically, these parties are expected to exercise due diligence to obtain the information necessary to prepare an independent estimate of the relocation costs in question and to file the independent estimate and supporting documentation with the clearinghouse.

83. The Commission noted that it expects new entrants and incumbent licensees to act in good faith in all matters relating to the cost-sharing process herein established. Although the

Commission has generally required “good faith” in the context of parties’ participation in negotiations, self-relocating incumbents benefit through their participation in the cost-sharing regime and therefore they are expected to act in good faith in seeking reimbursement for recoverable costs in accordance with the Commission’s rules. The Commission found that the question of whether a particular party was acting in good faith is best addressed on a case-by-case basis. By retaining sufficient flexibility to craft an appropriate remedy for a given violation in light of the particular circumstances at hand, the Commission can ensure that any party who violates the Commission’s good faith requirements, either by acting in bad faith or by filing frivolous or harassing claims of violations, will suffer sufficient penalties to outweigh any advantage it hoped to gain by its violation.

I. Ancillary Terrestrial Component in the 2 GHz MSS Band

84. The Commission eliminated the ATC rules for the 2 GHz band. In eliminating the ATC rules for the 2 GHz MSS band, the Commission emphasized that this action did not result in changes to the ATC rules for either the L-band or the 1610–1626.5 MHz/2483.5–2500 MHz bands (Big LEO band); rather, the Commission noted that the Commission intended to address issues pertaining to the ATC rules for those bands in one or more separate proceedings at a later date.

III. INTERNET LINK AND CITATIONS

“Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands”

Report and Order and Order of Proposed Modification:

http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0111/FCC-12-151A1.pdf

27 FCC Rcd 16102 (2012); 78 Fed. Reg. 8230 (2013).