FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 25 and 27

[WT Docket No. 07–293; IB Docket No. 95–91; FCC 12–130]

Operation of Wireless Communications Services in the 2.3 GHz Band; Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310–2360 MHz Frequency Band

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, the Commission affirms, modifies, and clarifies its actions in response to various petitions for reconsideration and/or clarification. The revised rules are intended to enable Wireless Communications Service (WCS) licensees to deploy broadband services in the 2305–2320 MHz and 2345–2360 MHz (2.3 GHz) WCS bands while continuing to protect Satellite Digital Audio Radio Service (SDARS) operator Sirius XM Radio Inc. (Sirius XM) and aeronautical mobile telemetry (AMT) operations in adjacent bands and the deep space network (DSN) earth station in Goldstone, California from harmful interference. In addition, the revised rules will facilitate the flexible deployment and operation of SDARS terrestrial repeaters in the 2320–2345 MHz SDARS band, while protecting adjacent bands WCS licensees from harmful interference.

DATES: Effective March 13, 2013, except for §§ 25.263(b), 27.72(b), and 27.73(a), which contain information collection requirements that are not effective until approved by the Office of Management and Budget. The Commission will publish a document in the **Federal Register** announcing the effective dates for those sections. The Director of the **Federal Register** will approve the incorporation by reference in § 27.73(a) concurrently with the published office of Management and Budget approval of this section.

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SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Order on Reconsideration* in WT Docket No. 07–293 and IB Docket No. 95–91, FCC 12–130, adopted and released October 17, 2012. The full text of this document is available on the Commission's Internet site at www.fcc.gov. It is also available for inspection and copying during regular business hours in the FCC Reference Center (Room CY–A257), 445 12th Street, SW., Washington, DC 20554. The *Order on Reconsideration* also may be purchased from the Commission's duplication contractor, Best Copy and Printing Inc., Portals II, 445 12th St. SW., Room CY–B402, Washington, DC 20554; telephone (202) 488–5300; fax (202) 488–5563; email *FCC@BCPIWEB.COM.*

Summary

I. Introduction and Executive Summary

1. The *Order on Reconsideration* in WT Docket No. 07–293 and IB Docket No. 95–91 addressed five petitions for reconsideration of the *2010 WCS R&O and SDARS 2nd R&O,* 75 FR 45058, August 2, 2010, filed by ARRL, the national association for Amateur Radio (ARRL), AT&T Inc. (AT&T), Sirius XM, Stratos Offshore Services Company (Stratos), and the WCS Coalition. The *2010 WCS R&O* modified the technical rules and performance (*i.e.,* buildout) requirements for the WCS in the 2305–2320 MHz and 2345–2360 MHz bands; the *SDARS 2nd R&O* established technical and licensing rules for SDARS terrestrial repeaters in the 2320–2345 MHz band. The petitions sought reconsideration, clarification, or both of the Commission's decisions in the *2010 WCS R&O and SDARS 2nd R&O* regarding: (a) WCS base and fixed stations' ground level emissions limit, (b) fixed WCS customer premises equipment (CPE) power and power spectral density (PSD) limits, bands of operation, and outdoor antenna use, (c) distinction between fixed WCS CPE and fixed WCS point-to-point stations, (d) mobile and portable devices' PSD and out-of-band emissions (OOBE) limits, (e) restrictions on WCS frequency division duplexing (FDD) mobile and portable devices' bands of operation, (f) WCS mobile and portable devices' and fixed WCS CPE duty cycle limits, (g) WCS protection of Amateur Radio Service (ARS) operations and WCS base/fixed stations' and mobile devices' OOBE limits in the 2300–2305 MHz band, (h) WCS coordination, notification, and interference mitigation requirements; base station separation distance, (i) WCS performance requirements, (j) WCS/SDARS coordination zones, (k) interference protection for WCS from SDARS terrestrial repeaters, and (l) WCS and SDARS licensees' duty to cooperate in sharing information and preventing/mitigating interference. The revised rules are consistent with a June 15, 2012 compromise proposal between WCS licensee AT&T Inc. and Sirius XM designed to facilitate the efficient deployment and coexistence of the WCS and SDARS.

2. For the WCS, the *Order on Reconsideration*

- Established maximum design ground power level targets on roadways for WCS base and fixed station operations of –44 dBm in WCS Blocks A (2305–2310 MHz and 2350–2355 MHz) and B (2310–2315 MHz and 2355–2360 MHz) and –55 dBm in WCS Blocks C (2315–2320 MHz) and D (2345–2350 MHz) to serve as triggers for interference resolution if exceeded on roadways and harmful interference (*i.e.,* muting) to SDARS operations occurs;
- Established conditions on roadways constituting harmful interference to SDARS operations from WCS operations requiring WCS and SDARS operators to work cooperatively to resolve;
- Denied a petition to establish a specific distance at which an SDARS subscriber is expected to tolerate muting of SDARS signals by WCS base station transmitters;
- Eliminated the frequency band restrictions on WCS FDD base stations prohibiting transmissions in the lower WCS blocks (2305–2320 MHz);
- Clarified that point-to-point and point-to-multipoint WCS fixed stations operated and controlled by the WCS licensee and that comply with the WCS base and fixed station power and emissions limits are not considered to be fixed WCS CPE;
- Denied a petition to establish reduced power limits for low-power fixed WCS CPE (*i.e.,* CPE with average equivalent isotropically radiated power (EIRP) of 2 Watts or less) operating with the relaxed OOBE limits applicable to WCS mobile and portable devices;
- Denied a petition to establish PSD limits for all fixed WCS CPE;

• Denied a petition to establish guard bands in WCS Blocks C and D for fixed WCS CPE;

• Relaxed the restrictions on outdoor and outdoor antenna use for low-power fixed WCS CPE operating with the OOBE limits applicable to WCS mobile and portable devices under certain circumstances;

• Removed the restrictions on outdoor and outdoor antenna use for low-power fixed CPE operating with the more restrictive OOBE limits applicable to WCS base and fixed stations;

• Eliminated the PSD limits for WCS mobile and portable devices using appropriate uplink (user device to base station) transmission technology (*e.g.,* 3rd Generation Partnership Project Long Term Evolution (3GPP LTE);

• Denied a petition requesting further restrictions on WCS mobile and portable device OOBE limits;

• Denied a petition requesting removal of the restriction prohibiting WCS mobile and portable devices using FDD technology from transmitting in the upper WCS spectrum blocks (2345–2360 MHz) adjacent to the AMT spectrum;

• Prohibited WCS mobile and portable devices from transmitting in all portions of WCS Blocks C (2315–2320 MHz) and D (2345–2350 MHz);

• Eliminated the duty cycle limits on fixed WCS CPE and WCS mobile and portable devices using FDD technology;

• Denied a petition to eliminate the 38 percent duty cycle limit for fixed WCS CPE and WCS mobile and portable devices using time division duplexing (TDD) technology;

• Clarified the bands of applicability for WCS base, fixed, and fixed CPE station, and WCS mobile and portable device OOBE limits;

• Declined to address a petition regarding the interference protection rights of secondary Amateur Radio Service operations in the 2300–2305 MHz band adjacent to primary WCS operations in the 2305–2320 MHz band;

• Exempted low-power WCS stations (EIRP less than 2 Watts) from the WCS licensee notification requirements and relaxed the WCS licensee notification requirements for minor WCS station modifications;

• Clarified that WCS fixed stations are part of the WCS licensee coordination and notification processes;

• Lengthened by 6 months and restarted the WCS construction periods to enable WCS licensees to respond to the rule revisions;

• Denied petitions to eliminate the automatic WCS license forfeiture provisions for failure to comply with the WCS performance requirements;

• Denied petitions to replace the coverage-based performance requirements for WCS Blocks C (2315–2320 MHz) and D (2345–2350 MHz) with substantial service requirements;

• Encouraged WCS licensees to enter into coordination agreements with SDARS licensees for interference mitigation.

3. For the SDARS, the *Order on Reconsideration*

• Denied a petition to modify the site-by-site licensing procedures for high power SDARS terrestrial repeaters that are not eligible for blanket licensing (*e.g.,* repeaters with average EIRP greater than 12 kilowatts (kW));

• Maintained the option to authorize SDARS terrestrial repeaters that are not eligible for blanket licensing;

• Modified the definition of which WCS licensees would be potentially affected by SDARS terrestrial repeaters operating with high power or relaxed OOBE limits;

• Excepted low-power terrestrial repeaters (*i.e.,* repeaters with EIRP less than 2 Watts) from SDARS licensee notification requirements;

• Relaxed SDARS licensee notification requirements for minor modifications to SDARS terrestrial repeaters;

• Encouraged SDARS licensees to enter into coordination agreements with WCS licensees for interference mitigation.

II. Order on Reconsideration in WT Docket No. 07–293

A. WCS Base and Fixed Stations

4. *Emissions and Circumstances Requiring Coordination to Resolve Interference.* To foster deployment of innovative broadband services in the WCS spectrum and further mitigate the risk of harmful interference to SDARS operations, the *Order on Reconsideration* adopted AT&T's and Sirius XM's proposed roadway signal levels and harmful interference conditions to SDARS operations on roadways which would trigger coordinated efforts between WCS and SDARS licensees to mitigate the interference. Specifically, WCS and SDARS operators would work cooperatively to resolve harmful interference in a location where a WCS signal level is present on a roadway at a level greater than −44 dBm in the WCS A or B Blocks, or −55 dBm in the WCS C or D Blocks, and a test demonstrates that the SDARS customer would be muted over a road distance of greater than 50 meters; or for a mutually agreeable drive test route, if the ground signal level on roadways exceeds −44 dBm in the WCS A or B Blocks, or −55 dBm in the WCS C or D Blocks, for more than 1 percent of the cumulative surface road distance on that drive route, and a test demonstrates that the SDARS customer would be muted over a cumulative road distance of greater than ½ of 1 percent (incremental to any muting present prior to use of WCS frequencies in the area of that drive test). The *Order on Reconsideration* denied Sirius XM's petition to establish a specific separation distance at which an SDARS subscriber is expected to tolerate muting by WCS base station operations.

5. *Bands of Operation.* To provide WCS licensees with more flexibility to enhance service to the public and support FDD downlink carrier aggregation, in response to AT&T's request in its petition for reconsideration and consistent with AT&T's and Sirius XM's request in their June 15, 2012 joint submission, the Commission decided in the *Order on Reconsideration* that WCS FDD base stations may also transmit in the lower WCS blocks at 2305–2320 MHz in addition to operating in the upper WCS bands at 2345–2360 MHz, subject to the power and OOBE attenuation factors adopted for WCS base station operations in those bands. The Commission agreed with AT&T and Sirius XM that such operations would not increase the potential for harmful interference to adjacent-band services and there is no need to restrict their operation to the upper WCS bands (2345–2360 MHz).

6. *Point-To-Point/Point-To-Multipoint Station Description Clarification.* In the *Order on Reconsideration,* the Commission agreed with Stratos and the WCS Coalition that fixed WCS point-to-point stations that are controlled and operated by the WCS licensee and comply with the power levels and spectral mask (*i.e.,* OOBE limits) applicable to WCS base and fixed stations are not considered to be fixed WCS CPE, regardless of where the transmission equipment is installed. In addition, because fixed WCS CPE stations' operations commenced several years before the Commission adopted the *2010 WCS R&O* in May 2010, and the Commission has not received reports of harmful interference to SDARS receivers due to their operation, the Commission decided that testing of all potential fixed WCS CPE applications, as suggested by Sirius XM, was not needed to clarify that fixed WCS point-to-point and point-to-multipoint stations that are controlled and operated by the WCS licensee and comply with the power levels and spectral mask applicable to WCS base

and fixed stations are not considered to be fixed WCS CPE. Therefore, the *Order on Reconsideration* clarified that fixed WCS fixed WCS point-to-point stations and point-to-multipoint stations that are controlled and operated by the WCS licensee and that comply with the more restrictive OOBE attenuation factors applicable to WCS base and fixed stations are not considered to be fixed WCS CPE, regardless of where the equipment is installed.

B. Fixed WCS Customer Premises Equipment

7. *Power and Power Spectral Density Limits.* The signal attenuation from the propagation losses due to the likely separation distances between low-power fixed WCS CPE and SDARS receivers, coupled with the requirement to employ automatic transmit power control (ATPC), which is used to prevent inter-cell interference (*i.e.,* interference to adjacent cells base stations receiving on the same frequencies), will help limit the potential for harmful interference (*i.e.,* interference which seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service) from fixed WCS CPE to SDARS receivers receiving unwanted energy in the adjacent band. Thus, the Commission disagreed with Sirius XM that low-power fixed WCS CPE operating with the OOBE attenuation factors applicable to WCS mobile devices should be restricted to a maximum EIRP of 250 mW. In addition, although most 2.3 GHz-band fixed WCS CPE devices have been authorized for and are operating at 1 to 2 W EIRP, and some fixed WCS CPE devices have been authorized for and are operating at up to 20 W EIRP, which occurred before we relaxed the OOBE limits for fixed WCS CPE, SDARS licensees have not reported any instances of harmful interference due to this fixed WCS CPE. For these reasons, the Commission decided that maintaining the average EIRP at 2 W or less for low-power fixed WCS CPE operating with the same OOBE limits as WCS mobile and portable devices will not result in harmful interference to SDARS receivers. Therefore, the *Order on Reconsideration* declined to restrict the maximum allowed power of low-power fixed WCS CPE operating with the same OOBE limits as WCS mobile and portable devices to 250 mW, and denied that portion of Sirius XM's petition.

8. Furthermore, because imposition of a PSD limit on fixed WCS CPE would likely preclude the provision of fixed WCS services by making it uneconomical to provide the necessary base station coverage, the Commission also declined to impose a PSD limit of 4 W/MHz on fixed WCS CPE, as requested by Sirius XM. In support of this decision, the Commission noted that the *2010 WCS R&O* significantly reduced the potential for fixed WCS CPE to cause harmful interference to SDARS receivers by reducing the maximum allowed EIRP for these devices from 2 kW over any bandwidth to 20 W/5 MHz and that Sirius XM had previously claimed that its receivers, which were designed prior to adoption of the *2010 WCS R&O,* provide excellent adjacent band blocking performance. In addition, because of the likely sources of blockages—foliage, building walls, parked and moving vehicles, etc.—that will attenuate fixed WCS CPE devices' signals, if fixed WCS CPE were allowed to continue using up to 20 W/5 MHz peak EIRP without a specific per-megahertz PSD limit, the Commission determined that SDARS licensees are not likely to experience harmful interference from the operation of these devices. The Commission also affirmed that if WCS licensees were to aggregate spectrum for fixed WCS CPE, the power level in any 5-megahertz bandwidth would not be permitted to exceed 20 W.

9. The Commission further noted that the technologies that are being considered to provide WCS service—Long Term Evolution (LTE), Worldwide Interoperability for Microwave Access (WiMAX), and Wideband-Code Division Multiple Access (W–CDMA)—spread user devices' signals across the channel bandwidth and control the power of the RF subcarriers assigned to a particular device to prevent self-interference. Thus, even absent a specific PSD limit for fixed WCS CPE, the Commission determined that WCS licensees' efforts to prevent self-interference would effectively limit the PSD of fixed WCS CPE and further mitigate the potential for harmful interference to SDARS receivers. Finally, because wireless networks are typically initially designed for coverage and subsequently for capacity, the size of WCS cell sites is likely to decrease over time, which will decrease the maximum power transmitted by WCS CPE and ultimately lower these devices' resultant PSD. For these reasons, the *Order on Reconsideration* denied Sirius XM's request to impose a PSD limit of 4 W/MHz on fixed WCS CPE.

10. *Bands of Operation.* Sirius XM's petition regarding the establishment of guard bands for fixed WCS CPE in the 2.5-megahertz portions of WCS Blocks C and D nearest the SDARS band (*i.e.,* 2317.5 MHz–2320 MHz and 2345–2347.5 MHz) asserted arguments that Sirius XM raised—and the Commission considered and rejected—in the *2010 WCS R&O.* The Commission declined to revisit those contentions in the *Order on Reconsideration.* Sirius XM failed to present any new evidence that would compel the Commission to reconsider its previous findings. Moreover, it is ''settled Commission policy that petitions for reconsideration are not to be used for the mere re-argument of points previously advanced and rejected.'' Thus, the *Order on Reconsideration* denied that portion of Sirius XM's petition.

11. *Outdoor and Outdoor Antenna Use.* In response to AT&T's and the WCS Coalition's petitions for reconsideration, the Commission decided in the *Order on Reconsideration* to remove the restrictions on low-power fixed WCS CPE operating with the stepped emission mask applicable to WCS mobile devices that prohibited such equipment from being used outdoors or with outdoor antennas. Consistent with the request in AT&T's and Sirius XM's June 15, 2012 compromise proposal, if low-power fixed WCS CPE operating with the OOBE limits applicable to WCS mobile devices is professionally installed in locations that are removed by 20 meters from roadways or in locations where it can be shown that the ground power level of −44 dBm in WCS Blocks A and B or −55 dBm in WCS Blocks C and D will not be exceeded at the nearest road location, then such equipment may be used outdoors and with outdoor antennas. The Commission also decided to remove the prohibitions on the use of low-power fixed WCS CPE outdoors and with outdoor antennas if the fixed WCS CPE complies with the more restrictive OOBE attenuation factors applicable to WCS base and fixed stations. The Commission determined that if used outdoors or with outdoor antennas, low-power fixed WCS CPE that is professionally installed or that meets the more restrictive OOBE attenuation factors applicable to WCS base and fixed stations will avert the discontinuance of existing WCS service, foster the provision of wireless broadband services, especially in unserved and underserved areas, and enhance user experience without causing harmful interference to SDARS receivers. It also determined that the signal attenuation due to the separation distances and outdoor blockages (*i.e.,* building walls and other structures in urban settings; trees) that are likely to exist between low-power fixed WCS CPE transmitters and SDARS receivers and the requirement to use ATPC,

would help limit the potential for harmful interference to SDARS receivers from low-power fixed WCS CPE being used outdoors or with outdoor antennas.

C. WCS Mobile and Portable Devices

12. *Power Spectral Density Limit.* In response to AT&T's and the WCS Coalition's petitions for reconsideration and consistent with the request in AT&T's and Sirius XM's June 15, 2012 compromise proposal, in the *Order on Reconsideration,* the Commission decided to eliminate the PSD limit for WCS mobile devices that operate with bandwidths greater than or equal to 5 megahertz in WCS Blocks A and B and use an appropriate uplink transmission technology (*e.g.,* 3GPP LTE). In support of this decision, the Commission noted that in cellular systems, mobile device transmit (*i.e.,* uplink) power control is a key radio resource management function for improving system capacity, coverage, and user quality (data rate or voice quality), lowering battery consumption, and controlling interference to adjacent cells of the same system, and per-megahertz PSD limits are not standardized for wideband wireless technologies such as W–CDMA, WiMAX, or LTE. Instead of controlling mobile devices' transmit power on a per-megahertz basis, LTE technology is designed to control mobile devices' transmit power by dynamically allocating spectrum resources, known as Physical Resource Blocks (PRBs), among mobile devices and setting the power levels of these PRBs on a frame-by-frame basis. Similarly, despite having different uplink physical layer and transmission schemes, WiMAX technology controls mobile devices' transmit power by uniformly distributing the uplink transmissions from a given mobile device across the operating channel bandwidth and controlling the power of the radio frequency (RF) subcarriers assigned to a particular device. In Wideband Code Division Multiple Access (W–CDMA), also known as Universal Mobile Telecommunication System (UMTS), networks, to balance the power received at the base station from all mobile devices to within a few decibels (dB) and optimize system performance, uplink power control information is transmitted from the base station in every time slot to control the power transmitted in each data channel frame assigned to a particular mobile device.

13. Therefore, in the same manner that uplink power control is used in LTE, WiMAX, and W–CDMA networks to optimize system performance, the Commission found that WCS licensees may use LTE, WiMAX, and W–CDMA technologies' uplink power control algorithms to effectively limit the PSD of WCS mobile devices to avoid self-interference, maximize the capacity and efficiency of the network, and mitigate the risk that these devices will cause harmful interference to SDARS receivers. Although the PSD of WCS mobile devices may occasionally exceed 50 mW/MHz, the Commission concluded that such instances would be rare and short lived. It also concluded that WCS licensees could control WCS mobile devices' transmitter power via power control, signal spreading, and/or other signal modulation techniques to prevent these devices from concentrating power greater than 50 mW/MHz in narrow segments of bandwidth that are near the SDARS band to avoid causing harmful interference to SDARS receivers.

14. For these reasons, the *Order on Reconsideration* eliminated the 50 mW/MHz PSD limit for WCS mobile devices that operate in the WCS A and B Blocks (2305–2315 MHz and 2350–2360 MHz) and employ single carrier frequency-division multiple access (SC FDMA) or similar technology. However, to address Sirius XM's concerns that WCS licensees' mobile devices could transmit more power than they could otherwise transmit in a 5-megahertz block by aggregating spectrum blocks and consistent with the WCS Coalition's assertion that a WiMAX or LTE mobile device's transmit power is uniformly distributed across the available channel bandwidth, the *Order on Reconsideration* clarified that WCS mobile devices are limited to a maximum EIRP of 250 mW for any bandwidth greater than or equal to 5 megahertz.

15. *Out-of-Band Emissions Limits.* Sirius XM's petition regarding the OOBE limits for WCS mobile devices in the 2320–2345 MHz SDARS band asserted numerous arguments that Sirius XM raised—and the Commission considered and rejected—in the *2010 WCS R&O.* The Commission declined to revisit those contentions in the *Order on Reconsideration.* Sirius XM failed to present any new evidence that would compel the Commission to reconsider its previous findings. Moreover, it is ''settled Commission policy that petitions for reconsideration are not to be used for the mere re-argument of points previously advanced and rejected.'' Thus, the *Order on Reconsideration* denied the portion of Sirius XM's petition to further restrict the OOBE limits for WCS mobile and portable devices in the 2320–2345 MHz band.

16. *Bands of Operation.* The Commission declined to remove the restriction that WCS mobile devices using FDD technology may not transmit in the upper WCS A and B Blocks and the 2.5-megahertz portion of the WCS D Block furthest removed from the SDARS band (2347.5–2360 MHz), as requested by AT&T. The Commission determined that restricting WCS FDD mobile devices from transmitting in the upper WCS blocks at 2347.5–2360 MHz band would provide added protection from harmful interference to adjacent-band AMT receivers that operate in the 2360–2395 MHz band. Therefore, the *Order on Reconsideration* denied the portion of AT&T's petition requesting that WCS mobile devices be allowed to operate in the upper WCS bands at 2347.5–2360 MHz.

17. However, although the Commission determined in the *2010 WCS R&O* that the potential for harmful interference to SDARS receivers from mobile transmitters operating in the 2.5-megahertz portions of WCS Blocks C and D furthest removed from the SDARS band was negligible, in their June 15, 2012 joint agreement, AT&T and Sirius XM asserted that mobile operations in WCS Blocks C and D hold the most potential to cause harmful interference to satellite radio consumers. In their June 15, 2012 compromise proposal, AT&T and Sirius XM agreed that expanding the guard bands for WCS mobile and portable device transmissions to encompass all of WCS Blocks C and D would further reduce the risk that operation of WCS mobile transmitters in these bands could pose an unacceptable interference threat to SDARS reception. Thus, to further mitigate the potential for harmful interference to SDARS operations, the Commission decided to prohibit WCS mobile and portable transmitters from operating in all portions of WCS Blocks C and D. The Commission decided that this action would, in effect, provide a 5-megahertz transition band for SDARS receivers at each end of the SDARS band that would further decrease the potential for harmful interference to SDARS operations from WCS mobile devices operating in adjacent spectrum, while permitting the C and D Blocks spectrum to be used for WCS base stations or fixed services. Coupled with the relaxed PSD and duty cycle limits that the Commissions adopted in the *Order on Reconsideration* for WCS mobile devices, the Commission believed that this action would provide added interference protection to SDARS operations while advancing the Commission's goal of making mobile

broadband services over the WCS spectrum widely available.

18. The Commission's adoption of this approach also furthered its resolution of the interference protection matters raised in Sirius XM's petition for reconsideration. The Commission first provided notice that it was considering the issue of interference management between the WCS and SDARS in the *2001 Public Notice* in this proceeding, in which the Commission sought comment on requiring SDARS licensees to operate their repeaters in frequency bands at least 4 megahertz away from the edge of their licensed frequency bands, among other things. That issue remained in play with the timely filing of the Sirius XM Reconsideration Petition challenging the Commission's decision in the *2010 WCS R&O* to adopt a different approach.

D. WCS Mobile, Portable, and Fixed CPE Duty Cycle Limits

19. To facilitate the deployment of broadband services in WCS spectrum, the Commission decided in the *Order on Reconsideration* to eliminate the duty cycle requirements for WCS mobile, portable, and fixed CPE employing FDD-based technology, consistent with AT&T's and Sirius XM's request in their June 15, 2012 compromise proposal. The Commission agreed with AT&T that the activity factor of a WCS mobile device is not a factor in determining potential interference to SDARS receivers that warrants a 25 percent duty cycle for WCS mobile and portable devices in WCS Blocks A and B, as the Commission determined in the *2010 WCS R&O*. It also agreed with AT&T's and Sirius XM's assertions that adjacent-band WCS FDD operations will have minimal impact on the SDARS receivers' automatic gain control (AGC) circuitry because they involve no intermittent pulsing. However, based on Commission staff's analysis of the record and reinforced by the results of the testing in Ashburn, Virginia, the Commission decided to maintain the 38 percent duty cycle limit for WCS mobile devices using TDD-based technologies.

20. Regarding Sirius XM's argument that the 38 percent duty cycle limit for TDD-based devices established in *2010 WCS R&O* was not supported by the record in this proceeding, the Commission noted that its decision to adopt a 38 percent duty cycle for TDD-based WCS user devices was a tradeoff based on its analysis of the record leading up to adoption of the 2010 WCS rules and the WCS/SDARS testing in Ashburn, Virginia. The Commission decided in 2010 to round up the permitted TDD duty cycle from the 35 percent used in the Ashburn, Virginia testing to 38 percent to allow for the majority of TDD profiles under an LTE or WiMAX technology selection, because the 35 percent duty cycle used during the testing only resulted in two isolated instances of negligible interference to SDARS receivers, not harmful interference that repeatedly interrupted the SDARS signal.

21. The Commission also declined to limit WCS mobile devices' transmissions to every other 5 millisecond (ms) frame as Sirius XM requested in its petition. As determined by the Commission's analyses and verified by the WCS/SDARS testing in Ashburn, Virginia, it found that the WCS mobile device's transmissions need not be limited to every other transmission frame to limit the potential for harmful interference to SDARS receivers, as requested by Sirius XM. However, to eliminate any uncertainty about how compliance with the duty cycle is measured, the Commission clarified its requirement that WCS subscriber devices' duty cycle be measured in a manner that is referenced directly to the frame duration for WCS technology being used. Specifically, industry standards for WiMAX and LTE technology specify frame lengths of 5 ms and 10 ms, respectively. Accordingly, for WCS networks using WiMAX technology, the duty cycle should be measured over a 5 ms frame; for WCS networks using LTE technology, the duty cycle should be measured over a 10 ms frame. For TDD technologies other than LTE and WiMAX, the duty cycle should be measured over a frame duration that is referenced directly to the technology being used.

E. WCS Out-of-Band Emissions Limit in the 2300–2305 MHz Amateur Radio Service Band

22. Regarding ARRL's petition requesting that the Commission require WCS licensees to be responsible for mitigating harmful interference to Amateur Radio Service operations in the 2300–2305 MHz band through operation of § 2.102(f) of the Commission's rules and AT&T's and the WCS Coalition's opposition, as a general matter, the Commission noted that the technical and operating rules that its adopts for a particular service are designed to prevent harmful interference (*i.e.,* interference which seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service) to other services that operate in adjacent bands and to establish the RF environment for adjacent band services to coexist. In the case of the WCS, the Commission initially determined that an attenuation factor of 43 + 10 log (P) dB (*i.e.,* a fixed limit of -43 dBW) below the transmitter output power P in Watts for WCS fixed and mobile devices' OOBE in the 2300–2305 MHz band would prevent interference to Amateur Radio Service operations in that band. The *2010 WCS R&O* did not alter WCS fixed and mobile devices' OOBE limit of -43 dBW in the 2300–2305 MHz band and thus did not reduce or otherwise modify the interference protection that the Commission previously established for ARS operations in that band. For this reason, the Commission saw no reason to address the specific arguments that ARRL, AT&T, and the WCS Coalition made regarding the operation of § 2.102(f) because the FCC's existing service and technical rules are already designed to account for WCS users operating adjacent to the ARS band. To the extent that ARRL was asking that the Commission revisit the attenuation factor originally established for the WCS and that was left unmodified in the *2010 WCS R&O,* the Commission concluded that such a request for reconsideration was not timely filed and was not appropriate for reconsideration.

23. *Clarification of Applicable Bands for Out-of-Band Emissions Limits.* To eliminate any confusion in the Commission's rules about where the OOBE limits for WCS base and fixed stations, mobile devices, and fixed WCS CPE must be met, the *Order on Reconsideration* clarified the frequency bands in which the 43 + 10 log (P) dB and other OOBE attenuation factors below the transmitter power P are applicable. Specifically, WCS base and fixed stations and fixed WCS CPE transmitting with an average EIRP greater than 2 Watts must attenuate their OOBE below the transmitter power P, as measured over a 1 megahertz resolution bandwidth, by a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305–2320 MHz and between 2345–2360 MHz that are outside the licensed band(s) of operation, not less than 75 + 10 log (P) dB in the 2320–2345 MHz band, not less than 43 + 10 log (P) dB in the 2300–2305 and 2360–2362.5 MHz bands, not less than 55 + 10 log (P) dB in the 2362.5–2365 MHz band, not less than 70 + 10 log (P) dB in the 2287.5–2300 MHz and 2365–2367.5 MHz bands, not less than 72 + 10 log (P) dB in the 2285–2287.5 and 2367.5–2370 MHz bands, and not less than 75 + 10 log (P) dB below 2285 MHz and above 2370 MHz.

24. WCS mobile and portable devices operating in the WCS A and B Blocks and fixed WCS CPE transmitting with

an average EIRP of 2 Watts or less must attenuate their OOBE below the transmitter power P as measured over a 1 megahertz bandwidth, by a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305–2320 MHz and between 2345–2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB in the 2320–2324/2341–2345 MHz bands, not less than 61 + 10 log (P) dB in the 2324–2328/2337–2341 MHz bands, and not less than 67 + 10 log (P) dB in the 2328–2337 MHz band. In addition, WCS mobile and portable devices must attenuate their OOBE below the transmitter power P by a factor of not less than 43 + 10 log (P) dB in the 2300–2305 and 2360–2365 MHz bands, not less than 55 + 10 log (P) dB in the 2296–2300 MHz band, not less than 61 + 10 log (P) dB in the 2292–2296 MHz band, not less than 67 + 10 log (P) dB in the 2288–2292 MHz band, and not less than 70 + 10 log (P) dB below 2288 MHz and above 2365 MHz.

25. *Measurement Procedures.* The *Order on Reconsideration* clarified that measurements of the OOBE from WCS base, fixed, and fixed CPE stations and WCS mobile and portable devices made over a narrower resolution bandwidth than 1 megahertz (*e.g.,* 1 percent of the emission bandwidth) must be integrated over the full measurement bandwidth of 1 megahertz to determine compliance with the relevant out-of-band emissions limits. Specifically, compliance with the part 27 WCS emissions limits rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.,* 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

F. WCS Performance Requirements.

26. *Extension of WCS Construction Deadlines.* The *Order on Reconsideration* also lengthened by 6 months and restarted the WCS construction periods established in the *2010 WCS R&O* to enable WCS licensees to respond to the rule revisions while ensuring significant deployment of facilities in the near term. For mobile and point-to-multipoint systems in WCS Blocks A and B, and point-to-multipoint systems in WCS Blocks C and D, a licensee must provide reliable signal coverage and offer service to at least 40 percent of the license area's population within 48 months, and 75 percent within 78 months. For fixed point-to-point services, except those deployed in the Gulf of Mexico license area, licensees must construct and operate 15 point-to-point links per million persons (one link per 67,000 persons) in a license area within 48 months, and 30 links (one link per 33,500 persons) within 78 months. In those license areas where licensees demonstrate that 25 percent of the license area's population for Blocks A, B, or D is within an AMT coordination zone, alternative requirements are applicable for mobile and point-to-multipoint services. Specifically, affected licensees must serve 25 (rather than 40) percent of the population within 48 months, and 50 (rather than 75) percent within 78 months. For point-to-point systems deployed on any spectrum block in the Gulf of Mexico license area, a licensee must construct and operate a minimum of 15 point-to-point links within 48 months, and a minimum of 15 point-to-point links within 78 months. The construction periods currently applicable to existing WCS licensees will run from the effective date of the rule revisions adopted in the *Order on Reconsideration.*

27. *Coverage Requirements Instead of Substantial Service.* The Commission's decision in the *2010 WCS R&O* to migrate away from substantial service requirements was based upon a careful reading of the record, and a balanced consideration of the public interest. Therefore, the Commission disagreed with the Petitioners of the *2010 WCS R&O* that these judgments were arbitrary and capricious. Accordingly, it declined, as it did in the *2010 WCS R&O* after a careful assessment of that record, to apply substantial service performance requirements in the 2.3 GHz band for the C and D Blocks, or to reduce their quantitative benchmarks. In the *2010 WCS R&O,* the Commission stated that its revised performance requirements would ''afford WCS licensees bright-line certainty,'' and would ''facilitate Commission review of WCS performance showings.'' Petitioners provided little to support their arguments that circumstances with respect to this spectrum are so difficult that the Commission must reinstate substantial service or otherwise reduce their construction obligations.

28. The Commission disagreed with petitioners that the more stringent technical rules for C and D Blocks relegates them to ''niche services'' and it believed that relief that it provided in other areas will provide licensees with additional service options. It found that retaining quantitative benchmarks best supported its goals for this service; that is, that licensees will provide meaningful service in the near term and continue to use the spectrum throughout the course of their license periods. The Commission believed that, for the WCS, bright-line coverage requirements at specified thresholds serve to promote service throughout a licensed market, because they prevent licensees from ''cherry picking'' areas for service rather than meeting the benchmarks specified in their license requirements.

29. The Commission noted that because of its action to prohibit mobile operations in WCS Blocks C and D, the respective requirements for the 40 and 75 percent population coverage benchmarks would only be applicable to point-to-multi-point systems. However, it maintained that quantitative benchmarks—rather than a return to substantial service—is still the appropriate standard for all operations in the C and D Blocks spectrum. Accordingly, the service requirement for the C and D Blocks shall be: 40 and 75 percent population coverage at the 48 and 78 month deadlines, respectively, for point-to-multipoint operations, with 15 point-to-point links per million persons in a license area within 48 months, and 30 point-to-point links per million persons in a license area within 78 months for point-to-point fixed operations.

30. Finally, the Commission noted that certain entities had sought guidance as to the specific performance requirements that would be applied to current or potential operations in the C and D Blocks that do not fall within the traditional mobile, point-to-multipoint, or point-to-point fixed models. For example, Gogo, Inc. sought clarification as to whether ground-to-air uplinks could be deployed in the C and D Blocks, and what coverage requirements would apply. The Commission noted that there are hybrid or non-traditional operations that do not fit precisely in one category; for example, there may be WCS point-to-multipoint systems that could be viewed as functionally consistent with a WCS point-to-point RF network, *e.g.*, certain smart grid links to monitoring stations, maintenance

instrumentation, automatic metering collection points, and video surveillance. However, given the wide range of deployments and applications possible, the Commission found that WCS licensees should seek guidance from the Wireless Telecommunications Bureau on a case-by-case basis in determining whether their service is permissible within the C and D Blocks, and which benchmarks apply.

31. *Performance Penalties.* The Commission finds basis in the record for reconsidering the rule that licenses will automatically terminate if a performance benchmark is not satisfied. The parties reiterated many of the same arguments that were raised throughout the proceeding, which the Commission previously considered and rejected. Despite the parties' arguments that applying the automatic termination policy is counter to prior Commission practice, the decision to terminate licenses if performance benchmarks are not met was consistent with the Commission's past practice in most geographically-licensed wireless services, including the 800 MHz Specialized Mobile Radio Service (800 MHz SMR), PCS, and Advanced Wireless Services (AWS), as well as in the 1997 *WCS Report and Order.* Further, although Petitioners continued to claim that an automatic termination rule deters investment and construction of networks, they provided no support that licensees have been denied financing or that deployment of broadband has been slowed due to this policy. The Commission remained unconvinced that automatic termination of a license for which the performance requirements are not met itself deters capital investment or otherwise hinders the development or deployment of service. On the contrary, several wireless services subject to this kind of performance penalty have thrived.

32. The Commission remains unpersuaded that it should revise its WCS rules to adopt a ''keep-what-you-use'' policy because the Commission adopted the approach with respect to certain 700 MHz licenses. The Commission found that the considerations and goals with respect to WCS are so similar to the circumstances underlying the 700 MHz Service such that it was compelled to revise existing WCS requirements to mirror the 700 MHz performance penalties. While the *2010 WCS R&O* did call attention to the difference between WCS and 700 MHz rules with respect to submarket performance requirements, the Commission noted that the submarket performance rule is only one distinction. Differences in the specific policy objectives behind the respective performance requirements and penalties also supported the application of a different performance penalty.

33. In adopting the ''keep-what-you-use'' approach in the 700 MHz proceeding, the Commission sought to make available additional mechanisms to enable access to spectrum by new entrants after an initial licensee either fails or chooses not to provide service in a particular area by the applicable deadline. Alternatively, the focus of the performance requirements for the WCS adopted in the *2010 WCS R&O* was to ensure the rapid and meaningful provision of service throughout an entire licensed market. Given the length of time that currently licensed spectrum has remained largely unused, the Commission purposefully imposed ambitious construction criteria, including the automatic termination performance penalty, to ensure that extensive service coverage occurs in the near term. The Commission found that this goal would not be better served by implementing a ''keep-what-you-use'' performance penalty that may not facilitate service coverage in an area until after a current WCS licensee has returned unused spectrum to the Commission. In this context, the Commission concluded that the automatic termination approach would be more effective in accomplishing the Commission's objective of intensive, near term WCS construction.

34. Further, the Commission disagreed with the argument that the automatic termination approach is intrinsically tied to less strict performance benchmarks. The automatic termination approach has historically been applied to geographic market-based licenses generally. In adopting performance requirements for its various wireless services, the Commission has not as a practice linked substantial service and the use of the automatic termination penalty. To the contrary, the automatic termination approach has been used as a penalty for services that did not initially have a substantial service performance obligation.

35. Finally, the Commission rejected arguments that the automatic termination rule is unfair to licensees because, according to petitioners, the rule requires automatic termination of a license even where failure to meet a benchmark is due to circumstances out of the control of a licensee, or even, for example, if the licensee has covered 74 percent of the population at the final deadline. Petitioners argued that application of this policy would cut off service to customers and strand investment. However, § 1.946(e)(1) of the Commission's rules provides that extensions may be granted where failure to comply with construction requirements is due to causes beyond the control of the licensee, and Commission staff has previously granted relief from the Commission's performance rules in cases where it was in the public interest to do so. For example, Commission staff has granted extensions where it found that a complete lack of available equipment for a service presented circumstances beyond the control of licensees, or where licensees were able to show a significant level of diligence and commitment to construction of facilities. As noted in the *2010 WCS R&O,* the Commission stated that it would continue to consider and evaluate requests for extension or waiver and grant relief if circumstances warrant. The Commission emphasized, however, that any relief sought must be weighed against the public interest goals underlying our construction rules, which is to ensure the efficient use of spectrum and the expeditious provision of service to the public. As noted, in specifying performance rules for this service, the Commission purposefully imposed rigorous construction criteria and retained the automatic termination policy in order to ensure meaningful and rapid deployment of service in the WCS band. The Commission would grant extension or waiver relief only if it determines that such action is not contrary to the goals underlying the WCS performance requirements, and otherwise serves the public interest.

G. WCS Information Sharing Requirements

36. *Notification Requirements.* The Commission agreed that it is in the public interest to allow WCS licensees the flexibility to respond to market conditions by making minor modifications to their facilities as long as these modifications do not result in harmful interference to SDARS operations (*i.e.*, muting). While the Commission believed that the 2 dB power flux density (PFD) increase notification trigger sought by the WCS Coalition may be problematic, it nonetheless found it appropriate to permit WCS licensees to optimize facilities and correct coverage gaps without advance notice in circumstances where such modifications are unlikely to cause harmful interference to SDARS receivers. Therefore, WCS licensees were allowed to modify their facilities, other than changes in location, without prior notice so long as the change does

not increase the predicted PFD at ground level by more than 1 dB and notice of the modification is provided within 24 hours of deployment. The Commission saw no empirical evidence in the record that demonstrates that a 1 dB increase in PFD as a result of a WCS modification is likely to cause harmful interference to nearby SDARS receivers. Rather, it anticipated that in most cases there will be sufficient margin in the SDARS link budget such that harmful interference will be avoided.

37. Moreover, WCS licensees were not being exempted from their obligation to provide notice regarding modifications to their stations; WCS entities must notify SDARS licensees within 24 hours of these changes to allow for monitoring of the effects of the modifications. In addition, the notification exception for no more than a 1 dB increase in PFD can be distinguished from Sirius XM's prior proposal for imposition of system-wide PFD limits on WCS base station transmissions because it would only affect the trigger for notification of a modification to SDARS licensees, and is not an across the board criteria for limiting WCS base stations' ground-level power. If, after gaining experience with the 1 dB PFD increase exception to the notification procedures, there is harmful interference to SDARS receivers as a result of such modifications, the Commission would restore the formal notification procedure that requires 5-business days notice prior to modifying WCS facilities.

38. However, Sirius XM raised a valid argument that multiple modifications to WCS stations could result in a predicted aggregate PFD increase that may negatively affect SDARS receivers. To avoid such a result, although WCS licensees may make 24 hour post modification notifications as long as the predicted PFD increase at ground level is not greater than 1 dB, if an SDARS licensee demonstrates to the WCS licensee that the series of modifications using post-modification notification procedures may cause harmful interference to SDARS receivers, the WCS licensee must provide the SDARS licensee with a 5 day notice in advance of additional modifications to WCS base and fixed stations. However, the 1 dB limit will not apply where a coordination agreement between the parties specifies otherwise.

39. In addition, in light of the Commission's decision to adopt the maximum design ground power level targets along roadways of −44 dBm for WCS Blocks A and B and −55 dBm for WCS Blocks C and D, it also permitted after-the-fact notification where modifications to WCS base and fixed stations do not exceed these limits. However, it did not adopt Sirius XM's suggestion that, if it was unwilling to adopt WCS PFD limits, interference mitigation issues must be resolved through a separate coordination agreement between Sirius XM and the WCS licenses or through a clearinghouse acting on the licensees' behalf. Requiring such agreements or a clearinghouse would unnecessarily increase administrative burdens on all licensees.

40. Further, the Commission modified the rules to exclude WCS base and fixed stations operating under 2 W EIRP from the inventory and notification requirements and agreed with Sirius XM that, to the extent that the parties can mutually agree on alternative coordination and notification procedures, the rules should accommodate private agreements between WCS licensees and Sirius XM that implement such modified procedures. Although the Commission did not adopt a list of modifications unlikely to cause interference where ''after-the-fact-notification'' would apply as suggested by Sirius XM, it recognized that it would be beneficial for WCS licensees and Sirius XM to reach agreement on procedures that would streamline the notification process.

41. Lastly, the Commission clarified that the inventory and SDARS licensee notification requirements in § 27.72 apply to both WCS base and fixed stations (except fixed WCS CPE). Sirius XM is correct that the Commission has during this proceeding used the terms ''WCS base station'' and ''WCS station'' interchangeably in the context of information sharing requirements. It is discernible from a review of the *2001 Public Notice* and *2007 Notice* in this proceeding that the Commission's use of ''base station'' also encompassed fixed stations. Moreover, the *2010 WCS R&O*'s use of language directing WCS licensees to provide information to SDARS licensees regarding their ''deployed infrastructure'' also demonstrated that the information sharing obligations are not limited only to base stations used in a mobile system. Accordingly, it revised § 27.72 to make clear that WCS licensees must share fixed and base station information with SDARS licensees. However, it clarified that fixed WCS CPE (*i.e.,* fixed equipment operated by a WCS subscriber) is not subject to this requirement. Further, to the extent that WCS licensees have not yet provided notice for existing fixed stations to SDARS licensees, WCS licensees must do so no later than 30 days after the effective date of this Order.

42. *Duty to Cooperate and Coordination.* Upon review, the Commission found no basis to revise its requirements regarding WCS licensees' duty to cooperate. First, it declined to adopt the proposals submitted by Sirius XM as they were considered when they were initially proposed in this proceeding and explicitly rejected by the Commission in the *2010 WCS R&O.* The Commission found that no further evidence had been introduced into the record to cause us to reconsider this decision. Specifically, it rejected as unnecessary the proposals that WCS licensees provide a schedule of when network facilities will be transmitting, or make pre-sale devices available to Sirius XM for inspection. Although it expected the parties to cooperate and take good faith measures to prevent harmful interference, it decided it must balance the need for an exchange of useful information against requiring the disclosure of market sensitive information that is not reasonably necessary to prevent harmful interference, such as licensees' proprietary equipment information and business or operating plans.

43. For these reasons, the Commission also declined to require WCS licensees to enter into a coordination agreement with Sirius XM with provisions similar to the June 15, 2012 AT&T/Sirius XM agreement. It emphasized, however, that cooperation between WCS and SDARS licensees is critical to the successful coexistence between WCS and SDARS systems, and encouraged WCS licensees to develop and enter into separate coordination agreements with SDARS licensees for interference mitigation. The Commission therefore revised § 27.72 to incorporate the AT&T/Sirius XM proposed language encouraging the adoption of coordination agreements by WCS and SDARS. To the extent any provision of a coordination agreement between parties to mutually resolve harmful interference conflicts with other information sharing requirements adopted in this proceeding, the parties are obligated to follow the procedures established under the agreement.

44. The Commission also did not require that a clearinghouse or single point of contact be created to provide information from WCS licensees to Sirius XM. It agreed with the WCS Coalition that interference issues are best handled directly by the entities operating the networks and that an obligatory intermediary will add an unnecessary step into the process. Similarly, the Commission concluded that *de facto* spectrum transfer lessees already assume the notification and interference obligations pursuant to our

secondary markets rules and policies. However, if the number of WCS providers increases dramatically, the Commission may reevaluate whether the burden to SDARS of coordinating with multiple providers offsets the inefficiency of introducing a third party into the process.

45. Although the Commission did not mandate how information should be exchanged between WCS and SDARS licensees, it expected that licensees would coordinate to ensure the seamless and successful exchange of information. WCS and SDARS licensees are able to enter into agreements, as discussed above, regarding the logistics of information exchanges, and the Commission encouraged parties to implement measures to streamline the process to the extent possible.

H. Aeronautical Mobile Telemetry and Deep Space Network Coordination

46. Upon further review, the Commission found it necessary to reconsider and clarify the role of ITU–R M.1459 in the coordination of WCS and AMT facilities to promote and bring certainty to the coordination process. It required WCS and AMT entities, using accepted engineering practices, to apply ITU–R M.1459, as adapted to local conditions and operating characteristics of both WCS and AMT systems, in coordinating their stations, and thus modified rule § 27.73(a) accordingly.

47. Recommendation ITU–R M.1459 sets forth the recommended framework for co-channel sharing between AMT and mobile satellite services operations, but is not specific to WCS terrestrial operations. Although the *2010 WCS R&O* did not specifically require that the parties use the interference protection mechanism set forth in the Recommendation in coordinating AMT and WCS facilities, § 27.73(a) provides that coordination within 45 km or line of sight of an AMT facility is necessary to protect AMT receivers ''consistent with Recommendation ITU–R M.1459.''

48. In referencing the Recommendation in § 27.73(a), the Commission did not require parties to apply the recommended protection values found in the Recommendation. The reference to ITU–R M.1459 instead serves as a reference point that WCS licensees and AMT entities may consider in the course of determining how to coordinate their systems. In setting out general guidelines in the *2010 WCS R&O* and § 27.73(a), the Commission sought to provide parties with flexibility to reach agreement on an appropriate mechanism that provides both adequate protection to AMT facilities while permitting WCS licensees to operate around such facilities to the greatest extent possible.

49. The Commission continued to believe that the appropriate approach to reducing potential interference between WCS base stations and AMT installations is for the entities, when engaged in a coordination process, to take into account the local conditions around applicable AMT sites and specific operating characteristics of the AMT and WCS facilities. However, given the continued differences in how the parties view the basis of such coordination, it was concerned that the parties would be unable to reach a mutually satisfactory agreement regarding the WCS deployment in a timely manner—an outcome which could lead to unacceptable delays in the deployment of WCS networks. Therefore, the Commission found it necessary to provide additional clarity regarding the WCS/AMT coordination process.

50. Specifically, the Commission required that WCS and AMT entities take into account interference protection considerations identified in ITU–R M.1459 as part of the required coordination process. The Recommendation sets forth extremely conservative baseline protection, or PFD levels, intended to protect AMT receivers. The Commission believed that in many cases, the recommended protection criteria would provide more protection than required, unnecessarily restricting areas where WCS licensees may provide service. The Recommendation itself notes that AMT stations have a wide range of characteristics, and that some facilities may require less stringent protection criteria values than those contained in ITU–R M.1459. Also, ITU–R M.1459 notes that, even in the context of co-channel sharing, the calculation used to derive the protection values represents a worst case scenario. This notwithstanding, the ITU–R M.1459 PFD levels are based on general telemetry system characteristics that are applicable in helping to determine AMT facilities' vulnerability to interference. Moreover, given the conditions of testing and types of deployments in the AMT band, there may be circumstances where an AMT facility may require the level of protection contemplated by ITU–R M.1459. Accordingly, the Commission required the parties to use the ITU–R M.1459 PFD levels as a baseline from which to conduct negotiations and interference studies.

51. In doing so, however, the Commission did not intend for parties to strictly apply the recommended PFD level found in ITU–R M.1459. The Commission found that strict application of the Recommendation could, in many cases, lead to over-protection of the AMT receiver, thereby unnecessarily restricting the ability of the WCS licensee to operate. Therefore, to determine the appropriate protection level for an AMT facility, the parties must, using accepted engineering practices, evaluate local conditions surrounding an AMT receiver as well as the specific operating characteristics of the applicable AMT and WCS systems, and determine how the baseline PFD should be adapted and made less restrictive in light of these factors. The Commission specified that the local conditions and operating characteristics that the parties must consider in their analysis include (but are not limited to): line of sight obstructions (*e.g.* topography), actual performance characteristics of the AMT receiver (*e.g.* antenna gain, power level, and modulation), types of AMT antennas used, field of view of the AMT receiver, as well as area of operation of the AMT receiver and the manner in which telemetry testing is being performed. The Commission required parties to adapt the baseline protection criteria for AMT, *i.e.* the applicable PFD level, in light of these and other factors applicable to the facility in question. It found that these requirements would bring greater certainty to the coordination process, and better enable AMT and WCS entities to reach agreement on measures that will protect AMT receivers and enable WCS licensees to operate in the surrounding area to the greatest extent possible.

52. Thus, the Commission declined to remove the reference to ITU–R M.1459 in § 27.73(a), as the WCS Coalition requested, but clarified that WCS and AMT entities, using accepted engineering practices, are required to apply ITU–R M.1459, as adapted to local conditions and operating characteristics of both WCS and AMT systems, in coordinating their stations. In addition, as determined in the *2010 WCS R&O,* it clarified in § 27.73(a) that a coordination agreement to protect existing AMT receivers from WCS base station operations is between the WCS licensee and AMT entity(ies); Aerospace & Flight Test Radio Coordinating Council (AFTRCC) will facilitate achievement of a mutually satisfactory coordination agreement between the WCS licensee and AMT entity(ies) for AMT receiver sites in existence at the time of the coordination.

53. AFTRCC also requested, by way of a February 7, 2012 *Ex Parte* submission, that the Commission expand § 27.73 to require WCS licensees to coordinate

their fixed stations with AMT entities and NASA's DSN facility at Goldstone, California. Although the WCS Coalition opposed AFTRCC's request with respect to coordination with AMT entities, AT&T did not object to AFTRCC's request to include WCS fixed stations with WCS base stations in the AMT coordination regime. The WCS Coalition argued that coordination with AMT entities of WCS fixed stations should not be required since there have not been any reports of harmful interference to AMT receivers due to WCS fixed stations' operations, while AT&T had committed to coordinate with AMT entities WCS fixed stations that operate in the upper WCS bands at 2345–2360 MHz. The National Telecommunications and Information Administration (NTIA) supported coordination of WCS fixed stations that operate in the 2305–2320 MHz and 2345–2360 MHz bands with NASA and AMT entities, respectively.

54. To alert AMT entities and NASA to the location and operation of WCS fixed stations that will be deployed within 45 km of AMT receivers and 145 km of the Goldstone, California DSN facility, we clarify that the AMT and DSN coordination requirements for WCS licensees apply to both WCS base and fixed stations (*i.e.,* except fixed WCS CPE). It is discernible from a review of the *2001 Public Notice* and *2007 Notice* in this proceeding that the Commission's use of ''base station'' also encompassed fixed stations. Moreover, the *2010 WCS R&O*'s use of language directing WCS licensees to provide information to SDARS licensees regarding their ''deployed infrastructure'' also demonstrates that WCS licensees' information sharing obligations with respect to SDARS licensees are not limited only to base stations used in a mobile system. Accordingly, the Commission revised § 27.73 to make clear that WCS licensees must coordinate 2.3 GHz WCS base and fixed stations with AMT entities and NASA's DSN facility in Goldstone, CA. However, it clarified that fixed WCS CPE (*i.e.,* fixed equipment operated by a WCS subscriber) is not subject to this coordination requirement.

III. Order on Reconsideration in IB Docket No. 95–91

A. Operation of SDARS Terrestrial Repeaters Above 12 Kilowatts Average EIRP

55. *Site-by-Site Licensing.* The Commission declined to adopt the WCS Coalition's suggestions that the Commission clarify the rules governing site-by-site licensing of terrestrial repeaters by requiring that SDARS licensees seeking to operate a repeater at a power level greater than 12 kW average EIRP must request a waiver of the power limit rule and must serve such applications on all potentially affected WCS licensees. In the *SDARS 2nd R&O,* the Commission found that operation of SDARS repeaters above 12 kW average EIRP serves the public interest in areas where WCS facilities are not providing commercial service or such commercial service is not imminent. The Commission's rules explicitly allow repeater operations at power levels greater than 12 kW average EIRP on a site-by-site licensing basis, until a potentially affected WCS licensee notifies the SDARS licensee of the imminent commencement of commercial operations. Thus, the Commission determined that there was no need for an SDARS applicant to seek a waiver of the Commission's rules to operate repeaters at power levels greater than 12 kW average EIRP, because the Commission's rules already explicitly allow such operations. The Commission's Satellite Division has authorized the operations of a small number of SDARS repeaters at power levels above 12 kW average EIRP on delegated authority under a site-by-site licensing regime, without waiving the 12 kW average EIRP power limit set forth in § 25.214(d). The Commission has not found any error in the authorization.

56. The Commission also found in the *SDARS 2nd R&O* that the public interest supports authorizing as many SDARS repeaters as possible at levels of 12 kW average EIRP or less through a blanket licensing process, rather than at higher power levels through site-by-site licensing. The Commission reiterated its intent to authorize the vast majority of SDARS repeaters at power levels at or below 12 kW average EIRP under a blanket license. In addition, however, it anticipated authorizing repeaters *above* 12 kW average EIRP mainly in areas where WCS licensees do not provide commercial service and do not provide notice to SDARS licensees of imminent commercial service.

57. The Commission also found that it is unnecessary to require SDARS applicants to serve applications for site-by-site repeater authorization on WCS licensees. The Communications Act of 1934, as amended, and Commission rules generally require 30-days notice to the public before the Commission can act on any license application. Thus, parties potentially affected by the proposed operations already have an adequate opportunity to file comments or petitions to deny in response to any application to operate SDARS repeaters. The WCS Coalition provided no evidence why additional notice of proposed SDARS repeaters operations is necessary, particularly as there is only one SDARS licensee—Sirius XM—for WCS licensees to monitor.

58. *Definition of ''Potentially Affected'' WCS Licensee.* The Commission adopted the alternative definition of a ''potentially affected WCS licensee'' in §§ 25.202(h) and 25.214(d) of the Commission's rules, which Sirius XM and WCS licensees both supported. Accordingly, it amended §§ 25.202(h)(4) and 25.214(d)(3) to incorporate a 25 km metric for determining whether a WCS licensee is ''potentially affected'' by a repeater operating above 12 kW EIRP (average) or with an OOBE attenuation level less than those specified in §§ 25.202(h)(1) and (h)(2)). The Commission recognized in the *SDARS 2nd R&O* that the use of major economic areas (MEAs) and regional economic area groupings (REAGs) may be overbroad in determining which WCS licensees would be potentially affected by a particular SDARS repeater for the purposes of §§ 25.202(h) and 25.214(d). There was no basis at the time, however, to find that the proximity-based approach favored by Sirius XM would adequately protect WCS licensees from harm. The record established since the release of the *SDARS 2nd R&O,* as well as the support of both the WCS Coalition and Sirius XM, provided a basis for adopting a 25 km proximity-based definition of a ''potentially affected WCS licensee'' for purposes of §§ 25.202(h) and 25.214(d) of the Commission's rules.

59. The Commission did not, however, determine that a blanket notification issued by a WCS licensee for all locations ''potentially affected'' by repeater deployments—regardless of the actual predicted risk of interference—would constitute bad faith, as requested by Sirius XM. An SDARS licensee is required to change the operating parameters of repeaters under §§ 25.202 and 25.214 only when a ''potentially affected WCS licensee'' notifies it that the WCS licensee intends to commence commercial service within 365 days. Thus, SDARS repeater operations will be impacted only if a WCS licensee has either already commenced commercial service, or when such service is imminent. The Commission previously stated that this discourages a WCS licensee from sending notices for all areas in which it has licenses to operate, regardless of when the licensee actually contemplates service. Although there may be

instances where the WCS licensee provides notice of imminent commercial service but does not commence service within the 365-day period, the Commission stated that it did not expect bad faith to be the reason for the delay. It saw no reason to find differently. To the extent that a WCS licensee may overstate the potential for interference from a particular SDARS repeater, the Commission did not have reason to find that bad faith would necessarily be the motivating factor.

B. Operation of Low-Power SDARS Terrestrial Repeaters

60. The Commission agreed that SDARS terrestrial repeaters operating below 2 W EIRP are unlikely to be sources of interference, and therefore it is unnecessary to include these low-power devices in the inventory and notification requirements adopted in the *SDARS 2nd R&O* for higher-power devices. Accordingly, it modified § 25.263 to exempt such devices from the inventory and notification requirements for SDARS terrestrial repeaters.

C. Notification and Cooperation Requirements

61. The Commission declined to revisit the duty to cooperate requirement imposed on WCS licensees in § 27.72(e) of the Commission's rules and maintained the existing language of the rule. The existing language requires WCS licensees to provide SDARS licensees with ''as much lead time as practicable to provide ample time to conduct analyses and opportunity for prudent base station site selection prior to WCS licensees entering into real estate and tower leasing or purchasing agreements.'' Although the WCS Coalition argued that the additional language is unnecessary where the risk of interference is small, the purpose of the rule itself is to allow licensees to determine the risk of interference as early as practicable in the site selection process so that changes can be made if potential harmful interference is found. Thus, the Commission decided that it does not serve the purpose of the rule to remove requirements that allow sufficient time to conduct interference analyses and allow time to modify the site selection, if necessary.

62. The Commission agreed with the WCS Coalition, however, that the notice and duty to cooperate obligations between SDARS and WCS licensees should be parallel. To make the obligations parallel, it modified the duty to cooperate obligations for SDARS licensees to match the obligation for WCS licensees. The Commission disagreed with Sirius XM that the record in this proceeding demonstrates that risks of interference from WCS stations to SDARS operations are higher than the risks of interference from SDARS repeaters to WCS operations, and thus impose a greater duty to cooperate on WCS licensees than on SDARS licensees. Accordingly, it amended § 25.263(e) to add a requirement that SDARS licensees should provide WCS licensees as much lead time as practicable to provide ample time to conduct analyses and opportunity for prudent repeater site selection prior to SDARS licensees entering into real estate and tower leasing or purchasing agreements.

63. Because the Commission agreed that the notice and duty to cooperate obligations between SDARS and WCS licensees should be parallel, it modified the notice requirements for SDARS repeaters to permit SDARS licensees to modify existing facilities, other than changes in location, without prior notice so long as the change does not increase the predicted PFD at ground level by more than 1 dB and notice of the modification is provided within 24 hours of deployment. At the request of WCS licensees, the Commission also adopted this revision to the notice obligations for WCS licensees. It saw no reason why a parallel revision should not be made for SDARS repeaters and amend the notice requirements of § 25.263(b) accordingly. However, multiple modifications to SDARS terrestrial repeaters could result in a predicted aggregate PFD increase that may negatively affect WCS receivers. To avoid such a result, although an SDARS licensee may make 24-hour post-modification notifications as long as the predicted PFD increase at ground level is not greater than 1 dB, if a WCS licensee demonstrates to the SDARS licensee that the series of modifications using post-modification notification procedures may cause harmful interference to WCS receivers, the SDARS licensee must provide the WCS licensee with 5-business days notice in advance of additional modifications to SDARS terrestrial repeaters. However, the 1 dB limit will not apply where a coordination agreement between the parties specifies otherwise.

64. In addition, the Commission ordered Sirius XM to provide potentially affected WCS licensees an inventory of its terrestrial repeater infrastructure, including the information set forth in § 25.263 for each repeater currently deployed, within 30 days of the publication of a summary of this *Order on Reconsideration* in the **Federal Register**. It agreed with the WCS Coalition that such a requirement is consistent with the intent of the *SDARS 2nd R&O.* For the purpose of this requirement, the definition of ''potentially affected WCS licensee'' is the same as that used in § 25.263(b)(1) of the Commission's rules.

65. Finally, the Commission emphasized that cooperation between SDARS and WCS licensees is critical to the successful coexistence between SDARS and WCS systems, and encouraged SDARS licensees to develop and enter into separate coordination agreements with WCS licensees for interference mitigation. Therefore, it revised § 25.263(b)(3) to incorporate the AT&T/Sirius XM proposed language encouraging the adoption of coordination agreements by WCS and SDARS. To the extent any provision of a coordination agreement between parties to mutually resolve harmful interference conflicts with other information sharing requirements adopted in this proceeding, the parties are obligated to follow the procedures established under the agreement. The Commission also added a provision to § 25.263(b) to make clear that SDARS and WCS are able to enter into agreements regarding the logistics of information exchanges, and it encouraged parties to implement measures to streamline the process to the extent possible.

IV. Procedural Matters

A. Supplemental Final Regulatory Flexibility Analysis in WT Docket No. 07–293

66. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] Initial Regulatory Flexibility Analyses (IRFAs) were incorporated in the *Notice of Proposed Rulemaking* (*2007 Notice*)[2] and the *WCS Performance Public Notice*[3] in WT Docket No. 07–293. The Commission sought written public comment on the

[1] *See* 5 U.S.C. 603. The RFA, *see* 5 U.S.C. 601—612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Public Law 104–121, Title II, 110 Stat. 857 (1996).

[2] *See* Amendment of part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band and Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310–2360 MHz Frequency Band, *Notice of Proposed Rulemaking and Second Further Notice of Proposed Rulemaking,* WT Docket No. 07–293 and IB Docket No. 95–91, 73 FR 2437 (January 15, 2008) (''*2007 Notice''*).

[3] *See* ''Federal Communications Commission Requests Comment on Revision of Performance Requirements for 2.3 GHz Wireless Communications Service,'' WT Docket No. 07–293, *Public Notice,* 75 FR 17349 (April 6, 2010) (''*WCS Performance Public Notice''*).

proposals in the *2007 Notice* and *WCS Performance Public Notice,* including comment on the IRFAs. In addition, a Final Regulatory Flexibility Analysis (FRFA) was incorporated in the *Report and Order* in WT Docket No. 07–293 (*2010 WCS R&O*).[4] This present Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA) for the *Order on Reconsideration* conforms to the RFA.[5]

67. *Need for, and Objectives of, the Order on Reconsideration.* The *Order on Reconsideration* responded to petitions for reconsideration of the *Report and Order* adopting service rules for the Wireless Communications Service (WCS) in the 2305–2320 MHz and 2345–2360 MHz bands (2.3 GHz WCS bands). The need for and objectives of the rules adopted in this Order on Reconsideration are the same as those discussed in the FRFA for the *Report and Order.* In the *Report and Order,* the Commission took a number of steps to facilitate deployment of mobile broadband products and services in the 2305–2320 MHz and 2345–2360 MHz Wireless Communications Service (WCS) bands, while safeguarding from harmful interference satellite radio services, which are provided in the interstitial 2320–2345 MHz Satellite Digital Radio Service (SDARS) band. In the *2010 WCS R&O,* the Commission adopted provisions to establish a permanent regulatory framework for the co-existence of WCS and SDARS operations in the 2305–2360 MHz band while limiting the WCS's potential to cause harmful interference (*i.e.,* interference which seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service) to other adjacent bands services. Specifically, the Commission revised certain power and out-of-band emissions (OOBE) rules applicable to WCS licensees.

68. On reconsideration, the Commission took the following actions: (1) Established maximum design ground power level targets for WCS base and fixed station operations to define harmful interference on roadways and serve as triggers for interference resolution if exceeded and harmful interference (*i.e.,* muting) to SDARS operations occurs; (2) eliminated the frequency band restrictions on WCS FDD base station operations; (3) relax the restrictions on low-power fixed WCS customer premises equipment (CPE) (average equivalent isotropically radiated power (EIRP) less than 2 Watts) outdoor and outdoor antenna use under certain circumstances; (3) eliminated the duty cycle limits for WCS mobile and portable devices and fixed WCS CPE using FDD technology; (4) eliminated the power spectral density (PSD) limit for WCS mobile and portable devices using appropriate uplink protocols (e.g., 3rd Generation Partnership Project (3GPP) Long Term Evolution (LTE)); (5) restricted WCS mobile and portable device transmissions in all portions of WCS Blocks C and D; (6) encouraged WCS licensees to enter into coordination agreements with SDARS licensees to facilitate efficient deployment of and coexistence between each service; (7) required notification of WCS fixed stations to SDARS licensees; (8) require coordination of WCS fixed stations with aeronautical mobile telemetry (AMT) entities and NASA's Deep Space Network facility in Goldstone, California; (9) allowed post notification to SDARS licensees within 24 hours for minor WCS station modifications (other than location changes) so long as the ground level power flux density is not increased by more than 1 dB; 10) exclude WCS stations operating under 2 Watts EIRP from the WCS inventory and notification requirements. The Commission affirmed its decisions in the *2010 WCS R&O* to not establish guard bands near the SDARS band for fixed WCS CPE. It also affirmed its decision to prohibit FDD WCS mobile and portable devices from transmitting in the 2345–2360 MHz band, and affirmed the OOBE limits for WCS mobile and portable devices and duty cycle limit for WCS mobile and portable devices and fixed WCS CPE using time division duplexing (TDD) technology adopted in the *2010 WCS R&O.* Finally, the Commission restarted and extended, by six months, the period within which licensees must satisfy the WCS performance requirements.

69. *Summary of Significant Issues Raised by Public Comments in Response to the IRFA.* No comments were received in response to the IRFAs in the *2007 Notice* and the *WCS Performance Public Notice.*

70. *Description and Estimate of the Number of Small Entities to Which the Rules Will Apply.* 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 rules adopted. The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act. 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). A small organization is generally ''any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.'' Below, the Commission further describes and estimates the number of small entity licensees and regulatees that may be affected by the rules changes adopted in the Order on Reconsideration.

71. *Wireless Telecommunications Carriers (except satellite).* This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services. The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers. The size standard for that category is that a business is small if it has 1,500 or fewer employees. Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees. For this category, census data for 2007 show that there were 11,163 firms that operated for the entire year. Of this total, 10,791 firms had employment of 999 or fewer employees and 372 had employment of 1000 employees or more. Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities that may be affected by our proposed action.

72. *WCS Licensees.* The Wireless Communication Service in the 2305–2320 MHz and 2345–2360 MHz frequency bands has flexible rules that permit licensees in this service to provide fixed, mobile, portable, and radiolocation services. Licensees are also permitted to provide satellite digital audio radio services. The SBA rules establish a size standard for ''Wireless Telecommunications Carriers,'' which encompasses business entities engaged in radiotelephone communications employing no more

[4] *See* Amendment of part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band, WT Docket No. 07–293, Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310–2360 MHz Band, IB Docket No. 95–91, GEN Docket No. 90–357, RM–8610, *Report and Order and Second Report and Order,* 75 FR 45058 (April 2, 2010) (''*2010 WCS R&O and SDARS 2nd R&O''*).

[5] *See* 5 U.S.C. 604.

than 1,500 persons. There are currently 155 active WCS licenses held by 10 licensees. Of these, 7 licensees qualify as small entities and hold a total of 50 licenses.

73. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as follows: ''This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.'' The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. According to Census bureau data for 2007, there were a total of 939 firms in this category that operated for the entire year. Of this total, 912 had less than 500 employees and 17 had more than 1,000 employees. Thus, under that size standard, the majority of firms can be considered small.

74. *Audio and Video Equipment Manufacturing.* The SBA has classified the manufacturing of audio and video equipment under in NAICS Codes classification scheme as an industry in which a manufacturer is small if it has less than 750 employees. Data contained in the 2007 U.S. Census indicate that 491 establishments operated in that industry for all or part of that year. In that year, 456 establishments had 99 employees or less; and 35 had more than 100 employees. Thus, under the applicable size standard, a majority of manufacturers of audio and video equipment may be considered small.

75. *Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities.* The *Order on Reconsideration* imposed certain changes in projected reporting, record keeping, and other compliance requirements. These changes affect small and large companies equally. With respect to coordination requirements in circumstances where WCS licensees are within certain distances from aeronautical mobile telemetry (AMT) and the Deep Space Network (DSN) operations in Goldstone, CA, the *Order on Reconsideration* clarifies that WCS licensees are required to coordinate WCS base and fixed stations (except fixed WCS CPE) with AMT and DSN entities. WCS, AMT, and DSN entities are required to cooperate in good faith in order to minimize the likelihood of harmful interference, make the most effective use of facilities, as well as to resolve actual instances of harmful interference. Coordinating parties are also required to share accurate and relevant information in a timely and efficient manner. Parties unable to reach a mutually acceptable coordination agreement may approach the Wireless Telecommunications Bureau, which, in cooperation with the Office of Engineering and Technology and the National Telecommunications and Information Administration (NTIA), may impose restrictions on operating parameters such as the transmitter power, antenna height, or area or hours of operation of the stations. Deadlines may also be imposed if it appears that parties are unable to reach a mutually acceptable arrangement within a reasonable time period.

76. In the *2010 WCS R&O,* the Commission also required WCS and SDARS licensees to share certain technical information at least 10 business days before operating a new base station or repeater, and at least five business days before modifying an existing facility. The *Order on Reconsideration* excludes WCS stations operating under 2 Watts equivalent isotropically radiated power (EIRP) from the inventory and notification requirements. It also requires WCS licensees to notify SDARS licensees within 24 hours of station modifications that would not increase the predicted ground level power flux density by more than 1 dB. To avoid multiple modifications to WCS stations that could result in a predicted aggregate PFD increase that may negatively affect SDARS receivers, although WCS licensees may make 24 hour post modification notifications as long as the predicted PFD increase at ground level is not greater than 1 dB, if an SDARS licensee demonstrates to the WCS licensee that the series of modifications using post-modification notification procedures may cause harmful interference to SDARS receivers, the WCS licensee must provide the SDARS licensee with 5 days notice in advance of additional modifications to WCS base and fixed stations. However, the 1 dB limit will not apply where a coordination agreement between the parties specifies otherwise. The *Order on Reconsideration* also clarified that the WCS licensee inventory and SDARS licensee notification requirements apply to both WCS base and fixed stations (except fixed WCS CPE).

77. The *2010 WCS R&O* requires that WCS licensees demonstrate compliance with any revised performance requirements by filing a construction notification within 15 days of the relevant benchmark and certifying that they have met the applicable performance requirements. The *2010 WCS R&O* requires that each construction notification should 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. Further, the electronic coverage maps must clearly and accurately depict the boundaries of each license area (Regional Economic Area Grouping, REAG, or Major Economic Area, MEA) in the licensee's service territory, with REAG maps depicting MEA boundaries, and MEA maps depicting Economic Area boundaries. The *2010 WCS R&O* provides that if the licensee's signal does not provide service to the entire license area, the map must clearly and accurately depict the boundaries of the area or areas within each license area not being served. These procedures direct each licensee to file supporting documentation certifying the type of service it is providing for each REAG or MEA within its license service territory and the type of technology it is utilizing to provide such service. Further, the compliance procedures require the supporting documentation to provide the assumptions used to create the coverage maps, including the propagation model and the signal strength necessary to provide service with the licensee's technology. The *Order on Reconsideration* did not modify any of these requirements.

78. *Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered.* The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design

standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

79. The Commission's principal objective in this proceeding was to enable the provision of promising mobile broadband services to the public in the WCS spectrum to the maximum extent practicable, while ensuring that satellite radio operations are not unreasonably impacted by the Commission's actions. Adopting overly stringent technical rules for WCS to protect SDARS operations from interference would preclude WCS mobile operation, while liberalizing the WCS rules too much would result in harmful interference and disruption to SDARS service. Such results would cause significant adverse economic impact on either WCS licensees, which include small entities, or on SDARS operations. Accordingly, the Commission considered various alternatives, in order to best provide WCS licensees, including small-entity WCS licensees, with the flexibility to provide mobile service, while also protecting against disruptions to SDARS operations due to harmful interference.

80. The *Order on Reconsideration* adopted a package of compromise proposals from WCS licensee AT&T Inc. and SDARS operator Sirius XM Radio Inc. that were designed to facilitate the efficient deployment and coexistence of the WCS and SDARS and protect adjacent SDARS operator Sirius XM Radio Inc. and AMT users, and nearby DSN operations, from harmful interference.

81. *WCS Mobile and Portable (Handheld) Device Power Spectral Density (PSD) Limits.* The *Order on Reconsideration* eliminated the 50 milliwatt per megahertz PSD limit for WCS mobile and portable devices that operate with bandwidths greater than or equal to 5 megahertz and using appropriate uplink (user device to base station) transmission technologies. Because the uplink (user device to base station) transmission technologies being considered for mobile broadband service in the WCS spectrum spread the signal power across the available bandwidth, eliminating the PSD limit for these devices will not increase the potential for harmful interference to SDARS receivers. In addition, without a PSD limit for WCS mobile devices, WCS licensees will not be forced to increase the number of cell sites (*i.e.,* base stations installed) to ensure adequate service, which would make it economically unfeasible to deploy a WCS mobile network.

82. *WCS Performance Requirements.* Further, in the *2010 WCS R&O,* the Commission adopted revised performance requirements for WCS. The Commission adopted enhanced construction rules that replaced the substantial service requirement previously placed on WCS licensees with specific population-based benchmarks. In recognition of difficulties that may arise in license areas where WCS licensees must coordinate their facilities with AMT receive sites, the 2010 WCS R&O reduced the level of construction required in such markets. The Commission sought to establish a buildout requirement that is reasonable and achievable for WCS licensees, including small entities, but which encourages rapid and meaningful deployment of mobile broadband services. The Commission considered alternative performance benchmarks, including requirements using shorter timeframes, and lower percentages of required construction. However, the Commission concluded that other alternatives would not strike the appropriate balance. Further, with respect to the performance rules, all WCS entities are required to file construction notifications to inform the Commission that they have successfully met the performance requirements described above. The *Order on Reconsideration* extended the time period within which licensees must meet the WCS interim and final performance requirements to 48- and 78-months, respectively. Further, because certain technical specifications established in the *2010 WCS R&O* may have inadvertently hindered the ability of licensees to deploy mobile broadband services, the *Order on Reconsideration* restarted the construction periods to provide WCS licensees with the full 48- and 78 month construction timeframes to enable licensees to respond to the revisions the Commission made to the 2.3 GHz WCS rules.

83. *Report to Congress.* The Commission will send a copy of the *Order on Reconsideration,* including this Supplemental FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act. In addition, the Commission will send a copy of the *Order on Reconsideration,* including this Supplemental FRFA, to the Chief Counsel for Advocacy of the SBA.

B. Supplemental Final Regulatory Certification in IB Docket No. 95–91

84. The Regulatory Flexibility Act of 1980, as amended (RFA) requires that a regulatory flexibility analysis be prepared for rulemaking proceedings, unless the agency certifies that ''the rule will not have a significant economic impact on a substantial number of small entities.'' The RFA generally defines ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act. 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).

85. The rules adopted in this *Order on Reconsideration* affect providers of Satellite Digital Audio Radio Service (SDARS). With respect to providers of SDARS, *i.e.* providers of a nationally distributed subscription radio service, no small entities are affected by the rules adopted in this Order on Reconsideration. SDARS is a satellite service. The SBA has established a size standard for ''Satellite Telecommunications,'' which is that any large satellite services provider must have an annual revenue of $15.0 million. Currently, only a single operator, Sirius XM Radio Inc. (''Sirius XM''), holds licenses to provide SDARS, which requires a great investment of capital for operation. Sirius XM has annual revenues in excess of $15.0 million. Because SDARS requires significant capital, we believe it is unlikely that a small entity as defined by the Small Business Administration would have the financial wherewithal to become an SDARS licensee.

86. Therefore, since only one large entity is affected by the rules adopted in this *Order on Reconsideration,* we certify that the requirements of the Order on Reconsideration will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the *Order on Reconsideration,* including a copy of this final certification, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, see 5 U.S.C. 801(a)(1)(A). In addition, the *Order on Reconsideration* and this certification will be sent to the Chief Counsel for Advocacy of the Small Business Administration, and will be published in the **Federal Register**. See 5 U.S.C. 605(b).

C. Congressional Review Act

87. The Commission will send a copy of this *Order on Reconsideration* in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

V. Ordering Clauses

88. Pursuant to §§ 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r), and 307 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 157(a), 303(c), 303(f), 303(g), 303(r), 307, the *Order on Reconsideration* in WT Docket No. 07–293 and IB Docket No. 95–91 is hereby *adopted.*

89. The rule revisions adopted herein *will become effective* March 13, 2013, except for §§ 25.263(b), 27.72(b), and 27.73(a), which contain new or modified information collection requirements that require approval by the Office of Management and Budget under the Paperwork Reduction Act and *will become effective* after the Commission publishes a notice in the **Federal Register** announcing approval of the effective date.

90. ARRL's Petition for Clarification or Partial Reconsideration, filed September 1, 2010, *is granted in part* and *denied in part,* to the extent provided herein.

91. AT&T, Inc.'s Petition for Partial Reconsideration, filed September 1, 2010, *is granted in part* and *denied in part,* to the extent provided herein.

92. Sirius XM's Petition for Partial Reconsideration and Clarification, filed September 1, 2010, *is granted in part* and *denied in part,* to the extent provided herein.

93. Stratos' Petition for Clarification, filed September 1, 2010, IS GRANTED, to the extent provided herein.

94. WCS Coalition's Petition for Partial Reconsideration, filed September 1, 2010, *is granted in part* and *denied in part,* to the extent provided herein.

95. WCS licensees are *hereby directed* to provide Sirius XM with an inventory of their fixed (except fixed Customer Premises Equipment) station infrastructure within March 13, 2013, of this *Order on Reconsideration* in the **Federal Register**.

96. Sirius XM is *hereby directed* to provide potentially affected WCS licensees with an inventory of its terrestrial repeater infrastructure, including the information set forth in § 25.263(c)(2) for each repeater currently deployed, within March 13, 2013, of this *Order on Reconsideration* in the **Federal Register**.

97. The performance periods for licensees in the Wireless Communications Service are *hereby reset* and will recommence beginning 30 days after a summary of the Order on Reconsideration is published in the **Federal Register.**

98. Pursuant to §§ 4(i) and 308 of the Communications Act of 1934, 47 U.S.C. 154, 308, and § 1.946 of the Commission's rules, 47 CFR 1.946, that to obtain a renewal expectancy at their July 21, 2017 renewal deadline, each 2.3 GHz Wireless Communications Service licensee must certify, for each license area, that they have maintained, or exceeded, the level of coverage demonstrated for that license area at the 48-month construction deadline. This certification requirement and renewal standard are subject to any superseding or additional requirements or standards that the Commission may adopt in its ongoing rulemaking proceeding to harmonize the renewal requirements and standards for Wireless Radio Services, WT Docket No. 10–112.

99. The Consumer and Governmental Affairs Bureau, Reference Information Center, *shall send* a copy of this *Order on Reconsideration,* including the Supplemental Final Regulatory Flexibility Analysis and the Supplemental Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

100. The Commission SHALL SEND a copy of this *Order on Reconsideration,* including the Supplemental Final Regulatory Flexibility Analysis and Supplemental Final Regulatory Flexibility Certification, in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

List of Subjects

47 CFR Part 25

Communications common carriers, Communications equipment, Radio, Reporting and recordkeeping requirements, Satellites, Telecommunications.

47 CFR Part 27

Communications common carriers, Communications equipment, Incorporation by reference, Radio, Reporting and recordkeeping requirements.

Federal Communications Commission.

Gloria J. Miles,

Federal Register Liaison.

Rule Changes

For the reasons discussed, the Federal Communications Commission amends 47 CFR parts 25 and 27 as follows:

PART 25—SATELLITE COMMUNICATIONS

■ 1. The authority citation for part 25 is revised to read as follows:

Authority: 47 U.S.C. 701–744. Interprets or applies sections 4, 301, 302, 303, 307, 309, and 332 of the Communications Act, as amended, 47 U.S.C. 154, 301, 302a, 303, 307, 309, and 332, unless otherwise noted.

■ 2. Section 25.202 is amended by revising paragraph (h)(4) introductory text to read as follows:

§ 25.202 Frequencies, frequency tolerance, and emission limitations.

* * * * *

(h)* * *

(4) For the purpose of this section, a WCS licensee is potentially affected if it is authorized to operate a base station in the 2305–2315 MHz or 2350–2360 MHz bands within 25 kilometers of a repeater seeking to operate with an out of band emission attenuation factor less than those prescribed in paragraphs (h)(1) or (2) of this section.

* * * * *

■ 3. Section 25.214 is amended by revising paragraph (d)(3) to read as follows:

§ 25.214 Technical requirements for space stations in the satellite digital audio radio service and associated terrestrial repeaters.

* * * * *

(d)* * *

(3) For the purpose of this section, a WCS licensee is potentially affected if it is authorized to operate a base station in the 2305–2315 MHz or 2350–2360 MHz bands within 25 kilometers of a repeater seeking to operate with a power level greater than that prescribed in paragraph (d)(1) of this section.

■ 4. Section 25.263 is amended by revising the first sentence of paragraph (b) introductory text, revising paragraph (b)(1)(ii), adding paragraphs (b)(3) through (6), and revising paragraph (e) to read as follows:

§ 25.263 Information sharing requirements for SDARS terrestrial repeater operators.

* * * * *

(b) *Notice requirements.* SDARS licensees that intend to operate a new terrestrial repeater must, before commencing such operation, provide 10 business days prior notice to all potentially affected Wireless Communications Service (WCS) licensees. * * *

(1) * * *

(ii) Is authorized to operate base station in the 2315–2320 MHz or 2345–2350 MHz bands in the same Regional Economic Area Grouping (REAG) as that in which the terrestrial repeater is to be located;

* * * * *

(3) For modifications other than changes in location, a licensee may provide notice within 24 hours after the modified operation if the modification does not result in a predicted increase

of the power flux density (PFD) at ground level by more than 1 dB since the last advance notice was given. If a demonstration is made by the WCS licensee that such modifications may cause harmful interference to WCS receivers, SDARS licensees will be required to provide notice 5 business days in advance of additional repeater modifications.

(4) SDARS repeaters operating below 2 watts equivalent isotropically radiated power (EIRP) are exempt from the notice requirements set forth in this paragraph.

(5) SDARS licensees are encouraged to develop separate coordination agreements with WCS licensees to facilitate efficient deployment of and coexistence between each service. To the extent the provisions of any such coordination agreement conflict with the requirements set forth herein, the procedures established under a coordination agreement will control. SDARS licensees must maintain a copy of any coordination agreement with a WCS license in their station files and disclose it to prospective assignees, transferees, or spectrum lessees and, upon request, to the Commission.

(6) SDARS and WCS licensees may enter into agreements regarding alternative notification procedures.

* * * * *

(e) *Duty to cooperate.* SDARS licensees must cooperate in good faith in the selection and use of new repeater sites to reduce interference and make the most effective use of the authorized facilities. SDARS licensees should provide WCS licensees as much lead time as practicable to provide ample time to conduct analyses and opportunity for prudent repeater site selection prior to SDARS licensees entering into real estate and tower leasing or purchasing agreements. Licensees of stations suffering or causing harmful interference must cooperate in good faith and resolve such problems by mutually satisfactory arrangements. If the licensees are unable to do so, the International Bureau, in consultation with the Office of Engineering and Technology and the Wireless Telecommunications Bureau, will consider the actions taken by the parties to mitigate the risk of and remedy any alleged interference. In determining the appropriate action, the Bureau will take into account the nature and extent of the interference and act promptly to remedy the interference. The Bureau may impose restrictions on SDARS licensees, including specifying the transmitter power, antenna height, or other technical or operational measures to remedy the interference, and will take into account previous measures by the licensees to mitigate the risk of interference.

PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

■ 5. The authority citation for part 27 is revised to read as follows:

Authority: 47 U.S.C. 154, 301, 302a, 303, 307, 309, 332, 336, and 337, unless otherwise noted.

■ 6. Section 27.14 is amended by revising paragraphs (p)(1), (2), (3), and (5) to read as follows:

§ 27.14 Construction requirements; Criteria for renewal.

* * * * *

(p) * * *

(1) For mobile and point-to-multipoint systems in Blocks A and B, and point-to-multipoint systems in Blocks C and D, a licensee must provide reliable signal coverage and offer service to at least 40 percent of the license area's population by March 13, 2017, and to at least 75 percent of the license area's population by September 13, 2019. If, when filing the construction notification required under § 1.946(d) of this chapter, a WCS licensee demonstrates that 25 percent or more of the license area's population for Block A, B or D is within a coordination zone as defined by § 27.73(a) of the rules, the foregoing population benchmarks are reduced to 25 and 50 percent, respectively. The percentage of a license area's population within a coordination zone equals the sum of the Census Block Centroid Populations within the area, divided by the license area's total population.

(2) For point-to-point fixed systems, except those deployed in the Gulf of Mexico license area, a licensee must construct and operate a minimum of 15 point-to-point links per million persons (one link per 67,000 persons) in a license area by March 13, 2017, and 30 point-to-point links per million persons (one link per 33,500 persons) in a licensed area by September 13, 2019. The exact link requirement is calculated by dividing a license area's total population by 67,000 and 33,500 for the respective milestones, and then rounding upwards to the next whole number. For a link to be counted towards these benchmarks, both of its endpoints must be located in the license area. If only one endpoint of a link is located in a license area, it can be counted as a one- half link towards the benchmarks.

(3) For point-to-point fixed systems deployed on any spectrum block in the Gulf of Mexico license area, a licensee must construct and operate a minimum of 15 point-to-point links by March 13, 2017, and a minimum of 15 point-to-point links by September 13, 2019.

* * * * *

(5) If an initial authorization for a license area is granted after March 13, 2013, then the applicable benchmarks in paragraphs (p)(1), (2) and (3) of this section must be met within 48 and 78 months, respectively, of the initial authorization grant date.

* * * * *

■ 7. Section 27.50 is amended by removing paragraph (a)(1)(iii) and revising paragraphs (a)(2) and (3) to read as follows:

§ 27.50 Power limits and duty cycle.

(a) * * *

(2) *Fixed customer premises equipment stations.* For fixed customer premises equipment (CPE) stations transmitting in the 2305–2320 MHz band or in the 2345–2360 MHz band, the peak EIRP must not exceed 20 watts within any 5 megahertz of authorized bandwidth. Fixed CPE stations transmitting in the 2305–2320 MHz band or in the 2345–2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications. The use of outdoor antennas for CPE stations or outdoor CPE station installations operating with 2 watts per 5 megahertz or less average EIRP using the stepped emissions mask prescribed in § 27.53(a)(3) is prohibited except if professionally installed in locations removed by 20 meters from roadways or in locations where it can be shown that the ground power level of -44 dBm in the A or B blocks or -55 dBm in the C or D blocks will not be exceeded at the nearest road location. The use of outdoor antennas for fixed CPE stations operating with 2 watts per 5 megahertz or less average EIRP and the emissions mask prescribed in § 27.53(a)(1)(i) through (iii) is permitted in all locations. For fixed WCS CPE using TDD technology, the duty cycle must not exceed 38 percent;

(3) *Mobile and portable stations.* (i) For mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, *except that* for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average

EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305–2315 MHz and 2350–2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305–2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

(ii) Mobile and portable stations are not permitted to transmit in the 2315–2320 MHz and 2345–2350 MHz bands.

(iii) *Automatic transmit power control.* Mobile and portable stations transmitting in the 2305–2315 MHz band or in the 2350–2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications.

(iv) *Prohibition on external vehicle-mounted antennas.* The use of external vehicle-mounted antennas for mobile and portable stations transmitting in the 2305–2315 MHz band or the 2350–2360 MHz band is prohibited.

* * * * *

■ 8. Section 27.53 is amended by revising paragraphs (a)(1)(i) through (iii), (a)(2)(i) through (iii), and (a)(3) through (5) to read as follows:

§ 27.53 Emission limits.

(a) * * *

(1) * * *

(i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than 75 + 10 log (P) dB on all frequencies between 2320 and 2345 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5 MHz, and 75 + 10 log (P) dB below 2285 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz, 55 + 10 log (P) dB on all frequencies between 2362.5 and 2365 MHz, 70 + 10 log (P) dB on all frequencies between 2365 and 2367.5 MHz, 72 + 10 log (P) dB on all frequencies between 2367.5 and 2370 MHz, and 75 + 10 log (P) dB above 2370 MHz.

(2) * * *

(i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than 75 + 10 log (P) dB on all frequencies between 2320 and 2345 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5 MHz, and 75 + 10 log (P) dB below 2285 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz, 55 + 10 log (P) dB on all frequencies between 2362.5 and 2365 MHz, 70 + 10 log (P) dB on all frequencies between 2365 and 2367.5 MHz, 72 + 10 log (P) dB on all frequencies between 2367.5 and 2370 MHz, and 75 + 10 log (P) dB above 2370 MHz.

(3) For fixed CPE stations operating in the 2305–2320 MHz and 2345–2360 MHz bands transmitting with 2 watts per 5 megahertz average EIRP or less:

(i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

(4) For mobile and portable stations operating in the 2305–2315 MHz and 2350–2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

(5) *Measurement procedure.* Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.,* 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

* * * * *

■ 9. Section 27.64 is amended by adding paragraph (d) to read as follows:

§ 27.64 Protection from interference.

* * *

(d) *Harmful interference to SDARS operations requiring resolution.* The following conditions will be presumed to constitute harmful interference to SDARS operations from WCS operations in the 2305–2320 MHz and 2345–2360 MHz bands and require WCS operators to work cooperatively with SDARS operators to address areas where such power levels are exceeded and harmful interference occurs:

(1) A WCS ground signal level greater than -44 dBm in the upper or lower A or B block, or -55 dBm in the C or D block, present at a location on a roadway, where a test demonstrates that

SDARS service would be muted over a road distance of greater than 50 meters; or

(2) A WCS ground signal level exceeding -44 dBm in the upper or lower A or B block, or -55 dBm in the C or D block on a test drive route, which is mutually agreed upon by the WCS licensee and the SDARS licensee, for more than 1 percent of the cumulative surface road distance on that drive route, where a test demonstrates that SDARS service would be muted over a cumulative road distance of greater than 0.5 percent (incremental to any muting present prior to use of WCS frequencies in the area of that drive test).

■ 10. Section 27.72 is amended by revising the introductory text, paragraphs (a), (b), (c)(2)(i), (c)(3), and (e) to read as follows:

§ 27.72 Information sharing requirements.

This section requires WCS licensees in the 2305–2320 MHz and 2345–2360 MHz bands to share information regarding the location and operation of base and fixed stations (except fixed customer premises equipment) with Satellite Digital Audio Radio Service (SDARS) licensees in the 2320–2345 MHz band. Section 25.263 of this chapter requires SDARS licensees in the 2320–2345 MHz band to share information regarding the location and operation of terrestrial repeaters with WCS licensees in the 2305–2320 MHz and 2345–2360 MHz bands. WCS licensees are encouraged to develop separate coordination agreements with SDARS licensees to facilitate efficient deployment of and coexistence between each service. To the extent the provisions of any such coordination agreement conflict with the requirements set forth herein, the procedures established under a coordination agreement will control. WCS licensees must maintain a copy of any coordination agreement with an SDARS licensee in their station files and disclose it to prospective assignees, transferees, or spectrum lessees and, upon request, to the Commission.

(a) *Sites and frequency selections.* WCS licensees must select base and fixed station sites and frequencies, to the extent practicable, to minimize the possibility of harmful interference to operations in the SDARS 2320–2345 MHz band.

(b) *Prior notice periods.* WCS licensees that intend to operate a base or fixed station must, before commencing such operation, provide 10 business days prior notice to all SDARS licensees. WCS licensees that intend to modify an existing station must, before commencing such modified operation, provide 5 business days prior notice to all SDARS licensees. For the purposes of this section, a business day is defined by § 1.4(e)(2) of this chapter.

(1) For modifications other than changes in location, a licensee may provide notice within 24 hours after the modified operation if the modification does not result in a predicted increase of the power flux density (PFD) at ground level by more than 1 dB since the last advance notice was given. If a demonstration is made by the SDARS licensee that such modifications may cause harmful interference to SDARS receivers, WCS licensees will be required to provide notice 5 business days in advance of additional station modifications.

(2) WCS base and fixed stations operating below 2 watts equivalent isotropically radiated power (EIRP) are exempt from the notice requirements set forth in this paragraph.

(3) WCS and SDARS licensees may enter into agreements regarding alternative notification procedures.

(c) * * *

(2) * * *

(i) The coordinates of the proposed base or fixed stations to an accuracy of no less than ±1 second latitude and longitude;

* * * * *

(3) A WCS licensee operating base or fixed stations must maintain an accurate and up-to-date inventory of its stations, including the information set forth in § 27.72(c)(2), which shall be available upon request by the Commission.

* * * * *

(e) *Duty to cooperate.* WCS licensees must cooperate in good faith in the selection and use of new station sites and new frequencies to reduce interference and make the most effective use of the authorized facilities. WCS licensees should provide SDARS licensees as much lead time as practicable to provide ample time to conduct analyses and opportunity for prudent base station site selection prior to WCS licensees entering into real estate and tower leasing or purchasing agreements. WCS licensees must have sufficient operational flexibility in their network design to implement one or more technical solutions to remedy harmful interference. Licensees of stations suffering or causing harmful interference, as defined in § 27.64(d), must cooperate in good faith and resolve such problems by mutually satisfactory arrangements. If the licensees are unable to do so, the Wireless Telecommunications Bureau, in consultation with the Office of Engineering and Technology and the International Bureau, will consider the actions taken by the parties to mitigate the risk of and remedy any alleged interference. In determining the appropriate action, the Bureau will take into account the nature and extent of the interference and act promptly to remedy the interference. The Bureau may impose restrictions on WCS licensees, including specifying the transmitter power, antenna height, or other technical or operational measures to remedy the interference, and will take into account previous measures by the licensees to mitigate the risk of interference.

■ 11. Section 27.73 is amended by revising the introductory text and paragraphs (a), (b), and (c) to read as follows:

§ 27.73 WCS, AMT, and Goldstone coordination requirements.

This section requires Wireless Communications Services (WCS) licensees in the 2305–2320 MHz and 2345–2360 MHz bands, respectively, to coordinate the deployment of base and fixed stations (except fixed customer premises equipment) with the Goldstone, CA Deep Space Network (DSN) facility in the 2290–2300 MHz band and with Aeronautical Mobile Telemetry (AMT) facilities in the 2360–2395 MHz band; and to take all practicable steps necessary to minimize the risk of harmful interference to AMT and DSN facilities.

(a) WCS licensees operating base and fixed stations in the 2345–2360 MHz band must, prior to operation of such stations, achieve a mutually satisfactory coordination agreement with the AMT entity(ies) (*i.e.,* FCC licensee(s) and/or Federal operator(s)) for any AMT receiver facility within 45 kilometers or radio line of sight, whichever distance is larger, of the intended WCS base or fixed station location. The coordinator for the assignment of flight test frequencies in the 2360–2390 MHz band, Aerospace and Flight Test Radio Coordination Council (AFTRCC) or successors of AFTRCC, will facilitate a mutually satisfactory coordination agreement between the WCS licensee(s) and AMT entity(ies) for existing AMT receiver sites. The locations of current Federal and non-Federal AMT receiver sites may be obtained from AFTRCC at Post Office Box 12822 Wichita, KS 67277–2822, (316) 946–8826, or successor frequency coordinators of AFTRCC. Such coordination agreement shall provide protection to existing AMT receiver stations consistent with International Telecommunication Union (ITU) Recommendation ITU–R M.1459, ''Protection criteria for telemetry

systems in the aeronautical mobile service and mitigation techniques to facilitate sharing with geostationary broadcasting-satellite and mobile-satellite services in the frequency bands 1 452–1 525 MHz and 2 310–2 360 MHz May 2000 edition,'' adopted May 2000, as adjusted using generally accepted engineering practices and standards to take into account the local conditions and operating characteristics of the applicable AMT and WCS facilities. This ITU document is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51 and approved by the Director of Federal Register. Copies of the recommendation may be obtained from ITU, Place des Nations, 1211 Geneva 20, Switzerland, or online at *http://www.itu.int/en/publications/Pages/default.aspx.* You may inspect a copy at the Federal Communications Commission, 445 12th Street SW., Washington, DC 20554, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www/archives.gov/federal_ register/code_of_federal_regulations/ibr_locations.html.*

(b) WCS licensees operating base and fixed stations in the 2305–2320 MHz band must, prior to operation of such stations, achieve a mutually satisfactory coordination agreement with the National Aeronautics and Space Administration (NASA) within 145 kilometers of the Goldstone, CA earth station site (35°25′33″ N, 116°53′23″ W).

(c) After base or fixed station operations commence, upon receipt of a complaint of harmful interference, the WCS licensee(s) receiving the complaint, no matter the distance from the NASA Goldstone, CA earth station or from an AMT site, operating in the 2305–2320 or 2345–2360 MHz bands, respectively, shall take all practicable steps to immediately eliminate the interference.

* * * * *

[FR Doc. 2013–02907 Filed 2–8–13; 8:45 am]

BILLING CODE 6712–01–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA–2013–0011]

RIN 2127–AL11

Federal Motor Vehicle Safety Standards; Air Brake Systems

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Final rule; response to petition for reconsideration.

SUMMARY: On July 27, 2009, NHTSA published a final rule that amended the Federal motor vehicle safety standard for air brake systems by requiring substantial improvements in stopping distance performance on new truck tractors. This final rule responds to petitions for reconsideration of a July 27, 2011 final rule that slightly relaxed the stopping distance requirement for typical loaded tractors tested from an initial speed of 20 mph. NHTSA is granting the request to remove the stopping distance requirements for speeds of 20 mph and 25 mph and denying the request to relax the stopping distance requirements for speeds between 30 mph and 55 mph.

DATES: This final rule is effective February 11, 2013.

Petitions for reconsideration must be received not later than March 28, 2013.

ADDRESSES: Petitions for reconsideration should refer to the docket number and must be submitted to: Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: For technical issues, you may contact George Soodoo, Office of Crash Avoidance Standards, by telephone at (202) 366–4931, and by fax at (202) 366–7002.

For legal issues, you may contact David Jasinski, Office of the Chief Counsel, by telephone at (202) 366–2992, and by fax at (202) 366–3820.

You may send mail to both of these officials at the National Highway Traffic Safety Administration, 1200 New Jersey Avenue SE., Washington, DC 20590.

SUPPLEMENTARY INFORMATION:

Table of Contents

I. Background of the Stopping Distance Requirement

On July 27, 2009, NHTSA published a final rule in the **Federal Register** amending Federal Motor Vehicle Safety Standard (FMVSS) No. 121, *Air Brake Systems,* to require improved stopping distance performance for heavy truck tractors.[1] This rule reduced the maximum allowable stopping distance, from 60 mph, from 355 feet to 250 feet for the vast majority of loaded heavy truck tractors. For a small minority of loaded very heavy tractors, the maximum allowable stopping distance was reduced from 355 feet to 310 feet. Having come to the conclusion that modifications needed for ''typical three-axle tractors'' to meet the improved requirements were relatively straightforward, NHTSA provided two years lead time for those vehicles to comply with the new requirements. These typical three-axle tractors comprise approximately 82 percent of the total fleet of heavy tractors. The agency concluded that other tractors, which are produced in far fewer numbers and may need additional work to ensure stability and control while braking, would need more lead time to meet the requirements. Due to extra time needed to design, test, and validate these vehicles, which included two-axle tractors and severe service tractors, the agency allowed four years lead time for these tractors to meet the improved stopping distance requirements.

Requirements in FMVSS No. 121 provide that if the speed attainable by a vehicle in two miles is less than 60 mph, the speed at which the vehicle shall meet the specified stopping distances is four to eight mph less than the speed attainable in two miles. In the July 2009 final rule, the agency used an equation to derive the required stopping distances for vehicles with initial speeds of less than 60 mph.[2]

$$S_t = (\tfrac{1}{2}\, V_o\, t_r) + ((\tfrac{1}{2})\, V_o^2/a_f) - ((1/24)\, a_f\, t_r^2)$$

Where:

S_t = Total stopping distance in feet
V_o = Initial Speed in ft/sec
t_r = Air pressure rise time in seconds
a_f = Steady-state deceleration in ft/sec^2

For the final rule, the agency selected an air pressure rise time of 0.45 seconds,

[1] 74 FR 37122; Docket No. NHTSA–2009–0083–0001.

[2] The complete derivation for this equation was included in the docket. See Docket No. NHTSA–2005–21462–0039, at 18–22.