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> DA 11-1011 June 7, 2011

WIRELESS BACKHAUL: FURTHER INQUIRY INTO FIXED SERVICE SHARING OF THE 6875-7125 MHz AND 12700-13200 MHz BANDS

WT Docket No. 10-153

Comment Date: June 27, 2011

- 1. On August 5, 2010, the Commission commenced a proceeding to remove regulatory barriers to the use of spectrum for wireless backhaul and other point-to-point and point-to-multipoint communications.¹ The proceeding sought to increase efficient use of spectrum for backhaul, by updating regulatory classifications that may not have kept pace with the evolution of converged digital technologies.² With this *Public Notice*, the Wireless Telecommunications Bureau (WTB) seeks additional, focused comment on certain issues raised in the Commission's *Wireless Backhaul* proceeding. Specifically, we seek to supplement the record in this proceeding on: (1) the feasibility of sharing in the 7 and 13 GHz bands; (2) limiting the frequency ranges available for Fixed Service (FS) in order to ensure the continuation of electronic newsgathering operations; and (3) the appropriate channelization scheme, coordination procedures, and capacity and loading requirements for the bands.
- 2. Feasibility of FS Sharing in BAS and CARS Bands: The Wireless Backhaul NPRM/NOI proposed to allow FS operations to share the 6875-7125 MHz (7 GHz Band) and 12700-13200 MHz (13 GHz band) bands currently used by the Broadcast Auxiliary Service (BAS) and the Cable TV Relay Service (CARS).³ The Commission stated its intention to protect existing licensees, through use of existing frequency coordination procedures.⁴ There are currently both fixed and mobile BAS and CARS operations in the 7 and 13 GHz bands. Fixed BAS in those bands include television studio-to-transmitter links, television relay stations, and television translator relay stations.⁵ CARS stations are authorized to relay various types of signals intended for use by cable television systems or other eligible systems.⁶ Mobile BAS includes television pickup stations and CARS pickup stations ("TV pickup stations")⁷, which are authorized to transmit program material, orders concerning such program material, and related communications from the scenes of events occurring in places other than a television studio to associated

¹ See Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees, et al., WT Docket No. 10-153, et al., Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 11246 (2010) (Wireless Backhaul NPRM/NOI).

 $^{^{2}}$ Id. at 11247 ¶ 1.

 $^{^{3}}$ *Id.* at 11253-11256 ¶¶ 14-20.

⁴ *Id.* at 11254 ¶ 17.

⁵ See 47 C.F.R. § 74.602(a).

⁶ See 47 C.F.R. § 78.11(a).

⁷ We refer herein to covered entities collectively as "TV pickup stations".

television stations. TV pickup stations in these bands are licensed either for a radius around a set of coordinates or in the vicinity of a given television market. In addition, there are a limited number of Local Television Transmission Service (LTTS) stations in the 7 and 13 GHz bands authorized pursuant to Section 101.803(b) of the Commission's Rules.

- 3. In the *Wireless Backhaul NPRM/NOI*, the Commission proposed to require frequency coordination for new FS, BAS, and CARS applications in the 7 and 13 GHz bands. ¹⁰ Under the current rules, all FS and fixed BAS and CARS stations above 2110 MHz must use the prior coordination notice procedure described in Section 101.103(d) of the Commission's Rules. ¹¹ LTTS licenses in the 7 and 13 GHz bands contain special conditions that require use of the prior coordination notice procedure before they operate in any given area. ¹² TV pickup stations and temporary fixed facilities may coordinate using less formal procedures, including using local frequency coordination committees. ¹³ The Society of Broadcast Engineers (SBE) conducts a local frequency coordination program for BAS and CARS spectrum. ¹⁴
- 4. A majority of commenters express qualified support for the proposal to open the 7 and 13 GHz bands to Part 101 FS operators, ¹⁵ while several broadcasting-affiliated entities oppose the proposal. ¹⁶ Both supporters and opponents of the proposal express concerns about how to protect existing electronic news-gathering operations using TV pickup stations from interference due to FS operations, and whether meaningful FS operation in the bands will be possible given the potential for such interference. ¹⁷ In contrast, there appears to be little concern about the ability of FS to coexist with fixed BAS and CARS.

⁸ See 47 C.F.R. § 74.631(a) and 47 C.F.R. § 78.11(e).

⁹ See 47 C.F.R. § 101.803(b).

¹⁰ Wireless Backhaul NPRM/NOI, 25 FCC Rcd at 11254 ¶ 17.

¹¹ See 47 C.F.R. §§ 74.638(b), 78.36(b), 101.103(d).

¹² See, e.g., License for Station KC26389 ("Each use of facilities under this authorization must be prior coordinated with existing users and applicants in accordance with 101.103(d) of the Commission's Rules.")

¹³ See 47 C.F.R. § 74.638(d), 78.36(d).

¹⁴ Comments of The Society of Broadcast Engineers, Incorporated (filed Oct. 25, 2010) (SBE Comments) at 4.

¹⁵ Comments of Ceragon Networks, Ltd. (filed Oct. 25, 2010) (Ceragon Comments) at 2; Comments of Cielo Networks, Ltd. (filed Oct. 25, 2010) (Cielo Comments) at 1; Comments of Clearwire Corporation (filed Oct. 25, 2010) at 2; Comments of Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (filed Oct. 25, 2010) (EIBASS Comments) at 1-2; Comments of FiberTower Corporation (filed Oct. 25, 2010) (FiberTower Comments) at 4-5; Comments of Kasian Franks, Chief Executive & Visionary Officer, Mimvi, Inc. (filed Sep. 15, 2010) at 5-6, Comments of Motorola, Inc. (filed Oct. 25, 2010) at 4; Comments of OEM Communications LLC (filed Oct. 13, 2010) (OEM Comments) at 2, Comments of Sierra Telecom, Inc. (filed Oct. 25, 2010) at 1; Comments of Sprint Nextel Corporation (filed Oct. 25, 2010) at 3; Comments of T-Mobile USA, Inc. (filed Oct. 25, 2010) (T-Mobile Comments) at 5; Comments of United States Cellular Corporation (filed Oct. 25, 2010) at 3; Comments of Wireless Strategies, Inc. (filed Oct. 25, 2010) at 2; and Comments of The Wireless Internet Service Providers Association (filed Oct. 25, 2010) at 3.

¹⁶ Comments of Agape Church d.b.a. VTN (filed Oct. 20, 2010) (VTN Comments) at 1-2; Comments of Association for Maximum Service Television, Inc. and National Association of Broadcasters (filed Oct. 25, 2010) (MSTV and NAB Comments) at 4-5; Comments of Orion Broadcast Solutions (filed Oct. 25, 2010)) at 1; SBE Comments at 3, 6 and 8.

¹⁷ See, e.g., EIBASS Comments at 1-2, FiberTower Comments at 5, Comments of AT&T, Inc. (filed Oct. 25, 2010) at 8: Comments of the Fixed Wireless Communications Coalition (filed Oct. 25, 2010) at 5: VTN Comments at 1:

- 5. WTB staff has conducted additional analysis of the 7 and 13 GHz bands. The results are depicted in several maps, included as Attachments to this Public Notice, that show existing BAS and CARS operations in the 7 and 13 GHz bands. In light of this staff analysis, we seek additional comment to understand better the circumstances in which FS sharing of the 7 and 13 GHz bands with BAS and CARS might be practical. The analysis appears to indicate that, even if FS operations were totally excluded from the service areas of TV pickup stations and CARS facilities, there would be considerable areas where FS facilities could be licensed.¹⁸ For example, in the 7 GHz band in Minnesota, there is only one TV pickup station with a defined area of operation authorized in the entire state, and three additional stations authorized in adjacent states that have minimal overlapping area within the state of Minnesota. In comparison, the prevalence of fixed links in the adjacent 6525-6875 MHz bands shows much more extensive use of that band.¹⁹ It appears that opening the 7 and 13 GHz bands to FS operations could be of particular benefit in rural areas, where the spectrum is largely available. We also note that only one new BAS TV pickup license has been granted in the 7 GHz and 13 GHz bands in the last two years.²⁰ Moreover, the Fixed Wireless Communications Coalition (FWCC) reports that BAS and CARS path and channel licensing, respectively, in the 13 GHz band have dropped sharply in the last decade.²¹
- 6. We seek further input regarding whether imposing geographic restrictions on FS sharing in the 7 and 13 GHz bands would minimize interference potential between FS facilities and TV pickup stations. Specifically, the Commission could prohibit an FS station from locating its path within the service area of a co-channel TV pickup station. Additionally, the Commission could require FS operators to coordinate any new fixed links with TV pickup stations within the appropriate coordination zone of any new fixed link.²²
- 7. We also seek comment on whether limiting new FS links in the 7 and 13 GHz bands to those areas outside the service areas of TV pickup stations would address commenters' concerns regarding the potential for harmful interference. We invite comment on the staff analysis and the data reported by FWCC on 13 GHz utilization. Are there other factors the Commission should consider regarding bands' suitability for FS use in areas where TV pickup stations are not operating?
- 8. Reserving Spectrum for Nationwide BAS Use. The Wireless Backhaul NPRM/NOI sought comment on making the 7 and 13 GHz band available for FS use and whether FS use would be compatible with existing uses in those bands.²³ We now inquire whether the Commission should continue to reserve a portion of these bands exclusively for BAS and CARS operations, in order to enhance the ability of BAS and CARS to coexist with FS and facilitate nationwide use of BAS and CARS services. There are some differences in the rules governing BAS and CARS and those governing FS that might warrant such a reservation. For example, the Commission's rules authorize broadcasters to operate

MSTV and NAB Comments at 4-5; Orion Comments at 1 and SBE Comments at 3, 6 and 8; see also, Comments of the National Spectrum Management Association (filed Oct. 25, 2010) at 4.

¹⁸ See Attachments A and B.

¹⁹ Attachment C shows existing BAS facilities in the 7 GHz band in Minnesota, as well as existing FS facilities in the 6525-6875 MHz band.

²⁰ See License for Station WQLG694 (granted Jan. 14, 2010)

²¹ See Letter from Mitchell Lazarus and Christine E. Goepp, Counsel for the Fixed Wireless Communications Coalition to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 10-153 (filed Apr. 29, 2011) (FWCC April 29 Ex Parte) at 4.

²² TIA bulletin TSB 10-F recommends specific coordination distances based on the transmit frequency.

²³ Wireless Backhaul NPRM/NOI, 25 FCC Rcd at 11253-11254 ¶ 15-17.

broadcast auxiliary facilities on a short-term basis on a secondary basis without prior Commission authorization.²⁴ This provision may permit broadcasters to cover breaking news events in areas outside those covered by their TV pickup stations authorization.

- 9. Consistent with the request for comment in the *Wireless Backhaul NPRM/NOI* on the ability of BAS and CARS to share with FS in the 7 and 13 GHz bands, we seek comment on whether the Commission should continue to exclude FS facilities from the 7075-7125 MHz and 13.15-13.2 GHz bands, and reserve two 25 megahertz channels for BAS and CARS use in each band. In the 7 GHz band, reserving 7075-7125 MHz for BAS would mean that FS sharing could occur in the 6875-7075 MHz frequency range, which is contiguous to the 6525-6875 MHz band where FS operations are already authorized. In the 13 GHz band, this proposal would maintain the status quo in the 13.15-13.2 GHz band, which is currently reserved for TV pickup stations inside a 50 kilometer basis of the top 100 television markets. We seek comment on whether this proposal will strike the appropriate balance between making FS spectrum available for backhaul and other uses and ensuring spectrum is available for critical newsgathering activities. We also seek comment on other alternatives for reserving capacity for BAS and CARS. We also seek comment on how alternative technologies for providing video coverage of live events may affect the need to exclude FS from a portion of these bands. ²⁶
- 10. Channelization Plans: In the Wireless Backhaul NPRM/NOI, noting that existing operations in the 7 and 13 GHz band used 25 megahertz bandwidth channels, the Commission proposed to make a variety of channel bandwidths available for both FS and BAS use, and to list such channel bandwidths in our rules, consistent with our practice in other FS bands.²⁷ The Commission also sought comment on alternative channelization schemes.²⁸ Several commenters, including FWCC and EIBASS, express concern that allowing 10 and 30 megahertz channels would preclude operation on multiple 25 megahertz channels used by BAS and result in wasted spectrum.²⁹ EIBASS argues that the Commission already allows broadcasters to request signal bandwidths that are less than the standard channel bandwidth, and that there is no need to clutter the Commission's rules with a large list of arbitrarily chosen channel segments.³⁰ With respect to the 13 GHz band, FWCC proposes a channel plan based on 28 megahertz channels.³¹
- 11. In light of the concerns raised by FWCC and EIBASS, we seek comment on whether the Commission should allow a maximum channel bandwidth of 25 megahertz for FS in the 7 and 13 GHz

²⁴ See 47 C.F.R. § 74.24.

²⁵ See 47 C.F.R. § 74.602(a) n.2.

²⁶ See, e.g., Ex Parte Presentation of Nomad Innovations, LLC, d.b.a. LiveEdge.tv (filed May 24, 2011) (describing a 1.5-lb. device that will attach to a news camera and will be fully integrated with Verizon Wireless' 4G network to enable live coverage for broadcast, cable or the Internet).

²⁷ Wireless Backhaul NPRM/NOI, 25 FCC Rcd at 11254-11255 ¶ 18-19.

²⁸ Id. at 11255 ¶ 18.

²⁹ FWCC Comments at 5-7, EIBASS Comments at 6.

³⁰ EIBASS Comments at 6, *citing* Revisions to Broadcast Auxiliary Service Rules in Part 74 and Conforming Technical Rules for Broadcast Auxiliary Service, Cable Television Relay Service and Fixed Services in Parts 74, 78 and 101 of the Commission's Rules, ET Docket No. 01-75, *Memorandum Opinion and Order*, 18 FCC Rcd 21834-21835, ¶ 13 (2003).

³¹ FWCC April 29 Ex Parte at 4.

bands. We invite comment on whether a maximum 25 megahertz channel bandwidth would be useful to FS operators and whether equipment manufacturers would develop equipment for such a band plan.³²

12. For the 7 GHz band, we seek comment on the following band plan:

25 MHz bandwidth channels:

Transmit	Receive
(receive)	(transmit)
(MHz)	(MHz)
6887.5	6987.5
6912.5	7012.5
6937.5	7037.5
6962.5	7062.5

For the 13 GHz band, we seek comment on the following channel plan based on 25 megahertz channels:

25 MHz Bandwidth Channels:

Transmit	Receive
(receive)	(transmit)
(MHz)	(MHz)
12712.5	12937.5
12737.5	12962.5
12762.5	12987.5
12787.5	13012.5
12812.5	13037.5
12837.5	13062.5
12862.5	13087.5
12887.5	13112.5
12912.5	13137.5

We also seek comment on the alternative band plan offered by FWCC based on 28 megahertz bandwidth channels, which it explains comes from the International Telecommunications Union:³³

Transmit	Receive
(receive)	(transmit)
(MHz)	(MHz)
12765	13031

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³² FWCC reports, in response to a question raised by staff, that one unidentified equipment manufacturer advises that it formerly marketed 25 megahertz equipment, did not recover its costs, and has no plans to repeat the experiment. *FWCC April 29 Ex Parte* at 5. A second equipment manufacturer reports that "it would consider introducing 25 [megahertz] channel equipment if the Commission were to open sufficient spectrum in the BAS/CARS bands to create a viable Fixed Service band and if there were a sufficient business case to do so." *Id.*

³³ Under the FWCC's proposed band plan, the four channel pairs that overlapped with the ENG priority channels in the 13.15-13.2 GHz band would only be available outside the areas in the top 100 television markets where ENG is primary. *See FWCC April 29 Ex Parte* at 4.

12793	13059
12821	13087
12849	13115
12877	13143
12905	13171
12933	13199
12961	13227

- 13. We also seek comment on EIBASS' suggestion that FS operators be allowed to specify a lesser channel bandwidth without identifying such lesser channel bandwidths in our rules. We also seek comment on whether we should allow 50 megahertz channels in the 13 GHz band for FS, BAS, and CARS in order to allow systems to use wider channels to obtain higher data rates.
- 14. *Coordination Procedures*: Several commenters express concern that permitting FS operations in the 7 and 13 GHz bands, subject to frequency coordination, will inhibit mobile electronic newsgathering and temporary fixed operation for video coverage of newsworthy events.³⁴
- 15. If the Commission were to permit FS operations in the 7 and 13 GHz bands only outside of the authorized service areas of TV pickup stations, as discussed in paragraphs 2-7 above, it could likewise maintain the existing requirements that FS and fixed BAS and CARS applicants coordinate using the more formal Part 101 procedures. The Commission, however, could allow TV pickup stations and other temporary fixed operators to continue to use informal frequency coordination procedures within the authorized service areas of TV pickup stations. We seek comment on appropriate coordination procedures for FS with fixed BAS, CARS stations, and TV pickup stations in shared frequencies, especially in light of geographic restrictions the Commission may adopt.
- 16. Capacity and Loading Requirements: The Wireless Backhaul NPRM/NOI proposed to apply the Fixed Services minimum capacity and loading requirements³⁵ to the 6875-7125 MHz and 12700-13200 MHz bands.³⁶ While several commenters support that proposal,³⁷ SBE and EIBASS express concern.³⁸ SBE states that BAS links in the 7 and 13 GHz bands are used for intercity relay backhaul from distant electronic news-gathering sites, and have no content and no modulation on them until a new live shot is tuned in and transmitting.³⁹ SBE argues that such necessary usage would be prohibited by the proposed rule change.⁴⁰ EIBASS echoes SBE's concern, and proposes certain exemptions to address the concern.⁴¹
- 17. With respect to this issue, we note that the *NPRM* did not propose to apply the capacity and loading criteria to operations authorized under Part 74 and Part 78, such as TV studio-transmitter links

³⁴ *Id.* at 3, 5; See also FWCC Comments at 5.

³⁵ 47 C.F.R. § 101.141(a)(3).

³⁶ Wireless Backhaul NPRM/NOI, 25 FCC Rcd at 11255-11256 ¶ 20.

³⁷ Comments of Ceragon at 3-4, EIBASS at 6, FiberTower at 5 and Sprint at 4.

³⁸ See SBE Comments at 10; EIBASS Comments at 6.

³⁹ SBE Comments at 10.

⁴⁰ *Id*.

⁴¹ EIBASS Comments at 6.

and intercity relays, but rather only to the FS operations authorized under Part 101. In addition, Section 101.141(a)(5) of the Rules exempts transmitters carrying digital video motion material from the capacity and loading requirements of Sections 101.141(a)(2) and (3), provided that at least 50 percent of the payload is digital video motion material and the minimum bit rate specified in Section 101.141(a)(1) is met, i.e., that the bit rate, in bits per second, is equal to or greater than the bandwidth measured in Hertz. We seek comment on the extent to which this existing exemption addresses the concerns expressed by SBE and EIBASS. In what ways, if any, should this exemption be modified before it can be applied to the 6875-7125 MHz and 12700-13200 MHz bands?

- 18. *Procedural*: The *Wireless Backhaul NPRM/NOI* included an Initial Regulatory Flexibility Analysis (IRFA) pursuant to 5 U.S.C. § 603, exploring the potential impact on small entities of the Commission's proposal.⁴³ We invite parties to file comments on the IRFA in light of this additional notice.
- 19. Interested parties may file comments on or before June 27, 2011. When filing comments, please reference **WT Docket No. 10-153**.
- 20. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies. 44 Comments filed through the ECFS can be sent as an electronic file via the Internet to http://www.fcc.gov/cgb/ecfs/. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of the proceeding, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking numbers. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form." A sample form and directions will be sent in reply. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number.
- 21. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). Parties are strongly encouraged to file comments electronically using the Commission's ECFS. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, DC 20554.
- 22. All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of <u>before</u> entering the building. The filing hours at this location are 8:00 a.m. to 7:00 p.m. Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743. U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

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⁴² 47 C.F.R. § 101.141(a)(1)-(3).

⁴³ Wireless Backhaul NPRM/NOI, 25 FCC Rcd at 11334-11341, App. B.

⁴⁴ See Electronic Filing of Documents in Rulemaking Proceedings, GC Docket No. 97-113, Report and Order, 13 FCC Rcd 11,322 (1998).

- 23. Parties shall also serve one copy with the Commission's copy contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, S.W., Room CY-B402, Washington, DC 20554, (202) 488-5300, or via e-mail to fcc@bcpiweb.com.
- 24. Documents in WT Docket No. 10-153 will be available for public inspection and copying during business hours at the FCC Reference Information Center, Portals II, 445 12th St. S.W., Room CY-A257, Washington, DC 20554. The documents may also be purchased from BCPI, (202) 488-5300, (202) 488-5563 (fax), (202) 488-5562 (tty), e-mail fcc@bcpiweb.com.
- 25. To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (tty).
- 26. This matter shall be treated as a "permit-but-disclose" proceeding in accordance with the ex parte rules. 45 Persons making ex parte presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the ex parte presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during ex parte meetings are deemed to be written ex parte presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing. written ex parte presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules.
- 27. For further information, contact Charles Oliver, Broadband Division, Wireless Telecommunications Bureau at (202) 418-1325, or by e-mail at Charles.Oliver@fcc.gov.

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⁴⁵ 47 C.F.R. § 1.1200 et seq.