



**6712-01**

**FEDERAL COMMUNICATIONS COMMISSION**

**47 CFR Part 27**

**[GN Docket No. 12-268; DA 13-1157]**

**Wireless Telecommunications Bureau Seeks to Supplement the Record on the 600 MHz Band Plan**

**AGENCY:** Federal Communications Commission.

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** In this document, the Commission's Wireless Telecommunications Bureau seeks further comment on how certain band plan approaches can best accommodate market variation, particularly in markets where available spectrum is constrained. Although the Commission continues to consider all band plan proposals in the record, this document seeks additional comment on certain variations of the "Down from 51" band plan framework in order to develop a more robust record on these concepts.

**DATES:** Submit comments on or before June 14, 2013. Submit reply comments on or before June 28, 2013.

**ADDRESSES:** Federal Communications Commission, 445 12<sup>th</sup> Street, SW, Washington, DC 20554.

You may submit comments, identified by GN Docket No. 12-268, DA 13-1157, by any of the following methods:

- **Federal eRulemaking Portal:** <http://www.regulations.gov>. Follow the instructions for submitting comments.
- **Federal Communications Commission's Web Site:** <http://www.fcc.gov/cgb/ecfs/>. Follow the instructions for submitting comments.
- **People with Disabilities:** Contact the FCC to request reasonable accommodations (accessible format documents, sign language interpreters, CART, etc.) by e-mail: [FCC504@fcc.gov](mailto:FCC504@fcc.gov) or phone: (202) 418-0530 or TTY: (202) 418-0432.

For detailed instructions for submitting comments and additional information on the rulemaking process, see the **SUPPLEMENTARY INFORMATION** section of this document.

**FOR FURTHER INFORMATION CONTACT:** Paul Malmud at 202-418-0006, or via e-mail at [Paul.Malmud@fcc.gov](mailto:Paul.Malmud@fcc.gov).

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's supplemental public notice on the 600 MHz Band Plan, GN Docket No. 12-268, DA 13-1157, released on **May 17, 2013**. The full text of this document is available for inspection and copying during normal business hours in the FCC Reference Information Center, Portals II, 445 12<sup>th</sup> Street, SW, Room CY-A257, Washington, DC 20554. The complete text may be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12<sup>th</sup> Street, SW, Room CY-B402, Washington, DC 20554, (202) 488-5300, facsimile (202) 488-5563, TTY (202) 488-5562, or via e-mail at [fcc@bcpiweb.com](mailto:fcc@bcpiweb.com). The complete text is also available on the Commission's Website at [http://hraunfoss.fcc.gov/edocs\\_public/attachment/DA\\_13-1157A1doc](http://hraunfoss.fcc.gov/edocs_public/attachment/DA_13-1157A1doc). Alternative formats (computer diskette, large print, audio cassette, and Braille) are available by contacting Brian Millin at (202) 418-7426, TTY (202) 418-7365, or via e-mail to [bmillin@fcc.gov](mailto:bmillin@fcc.gov).

Pursuant to §§ 1.415 and 1.419 of the Commission's rules, 47 CFR 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). See Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- For ECFS filers, 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](mailto: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.

- Paper Filers: 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.
- Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission, 445 12<sup>th</sup> Street, SW, Washington, DC 20554.
- All hand-delivered or messenger-delivered paper filings for the Commission’s Secretary must be delivered to FCC Headquarters at 445 12<sup>th</sup> Street, SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- 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 12<sup>th</sup> Street, SW, Washington DC 20554.
- Parties shall also serve one copy with the Commission’s copy contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW, Room CY-B402, Washington, D.C. 20554, (202) 488-5300, or via e-mail to [fcc@bcpiweb.com](mailto:fcc@bcpiweb.com).
- People with Disabilities. 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](mailto:fcc504@fcc.gov) or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).
- Availability of Documents. Comments, reply comments, and ex parte submissions will be available for public inspection during regular business hours in the FCC Reference Center,

Federal Communications Commission, 445 12<sup>th</sup> Street, SW, CY-A257, Washington, DC, 20554.

These documents will also be available via ECFS. Documents will be available electronically in ASCII, Microsoft Word, and/or Adobe Acrobat.

## **Summary**

### **I. INTRODUCTION**

1. In Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions 77 FR 69934 November 21, 2012 (NPRM), the Commission sought public comment on creating a 600 MHz wireless band plan from the spectrum made available for flexible use through the broadcast television incentive auction. The Commission identified five key policy goals that would provide the framework for adopting a wireless band plan: utility, certainty, interchangeability, quantity and interoperability. The majority of commenters support many features of the proposed band plan framework that aim to achieve these goals, but express a broader range of views on how and where to configure the uplink and downlink blocks in the band plan. To evaluate and quantify the technical tradeoffs associated with configuring the uplink and downlink bands, the Commission hosted a public workshop. At the workshop, stakeholders discussed a variety of technical aspects to consider in creating a 600 MHz wireless band plan, including mobile antenna issues, harmonics interference, intermodulation, and high power services in the duplex gap.

2. As discussed in the workshop, many stakeholders support the “Down from 51” band plan proposal – or a variation of it – in which the Commission would clear broadcast television channels starting at channel 51 and expand downward: the uplink band would begin at channel 51 (698 MHz), followed by a duplex gap, and then the downlink band. The workshop made clear that support for a Down from 51 band plan framework is primarily based on concerns over high power services in the duplex gap and antenna design issues.

3. The Down from 51 proposals in the record generally limit the amount of market variation that can be achieved, however. Specifically, most of these proposals are targeted at repurposing a specific amount of paired spectrum nationwide, and provide limited options for how to offer less spectrum in

constrained markets, or additional spectrum in individual markets, and only under certain scenarios. In the NPRM, the Commission expressed a strong interest in establishing a band plan framework that is flexible enough to accommodate market variation, i.e., offering varying amounts of spectrum in different geographic locations, depending on the spectrum available. Further, although the majority of commenters argue that the Commission should prioritize offering paired spectrum blocks over unpaired blocks, some variations of the Down from 51 band plan limit the amount of paired spectrum that can be offered. Under the policy framework set forth by the Commission, the Down from 51 approaches in the record appear to favor certainty of the operating environment over the utility of providing the maximum amount of spectrum through flexibility to offer a greater quantity of spectrum in geographic areas where more spectrum is available.

4. In the NPRM, the Commission sought comment on a number of band plan proposals. Emphasizing its goals of balancing flexibility with certainty while maximizing the amount of spectrum we can make available for wireless broadband services in each geographic area, the Commission recognized that other band plans are possible that may achieve the Commission's goals. Consequently, the Commission sought comment on the band plan approaches described in the NPRM, any variations on those approaches, and also invited commenters to propose their own band plans. To advance the Commission's goal of maintaining flexibility to offer different amounts of spectrum in different geographic markets, we seek further comment on how certain Down from 51 band plan approaches can best address the potential for market variation, particularly in markets where available spectrum is constrained. Although the Commission continues to consider all band plan proposals in the record, we seek additional comment on certain variations of the Down from 51 band plan, as described below, to develop a more robust record on these concepts. We invite commenters to discuss the relative merits of all of the band plan proposals and their variations in the record. Further, we also seek comment on which band plan other countries would be most likely to adopt to allow for global harmonization of the 600 MHz spectrum.

## II. “DOWN FROM 51 REVERSED” BAND PLAN VARIATION

5. We seek comment on a variation of the Down from 51 band plan in which we reverse the configuration of the uplink and downlink blocks (“Down from 51 Reversed”). Under a Down from 51 Reversed band plan, the Commission would clear broadcast television channels starting at channel 51 and expand downward: the downlink band would begin after a guard band at channel 51 (698 MHz), followed by a duplex gap, and then the uplink band. The uplink band could extend past channel 37, either nationwide or in certain markets, depending on the amount of repurposed spectrum.

6. As discussed in the NPRM, the Commission proposed a structure to keep the downlink spectrum band consistent nationwide while allowing variations in the amount of uplink spectrum available in any geographic area to promote interoperability and accommodate market variation. By reversing the uplink and downlink bands, the Down from 51 Reversed band plan framework can maintain a uniform downlink band nationwide and allow for market variation in the amount of uplink spectrum offered without placing high power services in the duplex gap.

7. We seek comment on the Down from 51 Reversed band plan variation. Are there any special considerations or rules that would be necessary in implementing this approach? We also seek comment on technical issues associated with the Down from 51 Reversed band plan. Specifically, we request comment on how this band plan approach would affect the ability of wireless broadband providers to utilize the 600 MHz band effectively, particularly in terms of network and device design. Further, we seek comment on whether the Down from 51 Reversed approach would provide greater flexibility with respect to market variation than other Down from 51 band plan proposals. We ask commenters to discuss the tradeoffs associated with accommodating market variation under the Down from 51 Reversed band plan and the other band plan proposals in the record.

8. Guard Bands. Like other band plan proposals, in a Down from 51 Reversed band plan, we must implement guard bands to ensure all spectrum blocks are as technically and functionally interchangeable as possible. Specifically, we would need to implement a guard band at the top of the 600 MHz wireless band between the 600 MHz downlink band and the lower 700 MHz uplink band to protect

these services from interfering with one another. Similarly, we would need to implement a guard band at the lower end of the 600 MHz wireless band between the 600 MHz uplink band and broadcast television stations. We seek comment on the appropriate size of the guard bands under this proposal.

9. Channel 37. Under a Down from 51 Reversed band plan, it is possible that 600 MHz wireless operations could be adjacent to radio astronomy (RA) and wireless medical telemetry services (WMTS) operations in channel 37, conceivably on both sides, if the 600 MHz uplink band extends below channel 37. Would the Down from 51 Reversed band plan require additional measures to protect existing channel 37 operations? If so, how would these measures affect the ability of wireless providers to utilize the adjacent spectrum? We also seek comment on a proposal to apply the spectral mask for TV white space devices (47 CFR 15.709(c)(4)) to prevent interference and protect existing channel 37 WMTS operations from interference if mobile uplink operations (rather than wireless downlink operations) are on both sides of channel 37. Further, in the event that the Commission can repurpose more than 84 megahertz of spectrum, yielding an uplink band that would extend below channel 37, wireless uplink operations will be both above and below channel 37. If this occurs, the duplex spacing for paired blocks with uplink blocks below channel 37 would be greater than for paired blocks with uplink blocks above channel 37 because wireless operations cannot operate on channel 37. We seek comment on the effects of this variable duplex spacing, and how this affects network and/or device design. We seek comment on other issues relating to existing channel 37 operations under the Down from 51 Reversed band plan approach.

### **III. DOWN FROM 51 WITH TV IN THE DUPLEX GAP IN CONSTRAINED MARKETS**

10. We also seek comment on how the Commission should address constrained markets where less spectrum is available if it adopts a version of the Down from 51 band plan that has been more generally discussed in the record and the workshop, with the 600 MHz uplink band beginning at channel 51, adjacent to the 700 MHz band uplink band. Specifically, should the Commission place television stations in the duplex gap in more constrained markets? Although we recognize that some commenters have concerns about allowing high power services to operate in the duplex gap, is this less problematic if

it occurs only in certain markets? As compared to a Down from 51 Reversed band plan, which alternative would allow the Commission to offer as many paired spectrum blocks as possible? Which band plan approach is preferable if the Commission decides to accommodate market variation?

#### **IV. DOWN FROM 51 TDD APPROACH**

11. In addition, we seek further comment on using a Down from 51 band plan framework with unpaired TDD blocks (“Down from 51 TDD”). Under a Down from 51 TDD band plan, the band would begin after a guard band at channel 51 (698 MHz) and expand downward, followed by a guard band between wireless operations and broadcast television operations at the lower edge of the 600 MHz wireless band. As in the other Down from 51 band plan proposals, the band could extend past channel 37, either nationwide or in certain markets, depending on the amount of repurposed spectrum, which may also require the Commission to protect existing channel 37 operations.

12. Although the Down from 51 TDD band plan would require guard bands at both ends of the 600 MHz wireless band, no duplex gap is necessary. Further, the Down from 51 TDD band plan would allow for market variation without placing television stations in the duplex gap. Although a TDD band plan could not support market variation through variable uplink, it could support market variation through an alternative approach that aligns the amount of repurposed spectrum in constrained markets with the expected filter configurations.

13. We seek additional comment on this Down from 51 TDD band plan. Specifically, we seek comment on the tradeoffs associated with implementing the Down from 51 TDD band plan as compared to the other Down from 51 band plan variations that also accommodate market variation. Which band plan provides the most flexibility while maintaining the best certainty about the operating environment?

#### **V. PROCEDURAL MATTERS**

14. **Ex Parte Presentations – Permit-But-Disclose Proceeding:** This matter shall be treated as a “permit-but-disclose” proceeding in accordance with the ex parte rules. Persons making oral ex parte presentations are reminded that memoranda summarizing the presentations must contain

summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one- or two-sentence description of the views and arguments presented generally is required. Other requirements pertaining to oral and written presentations are set forth in § 1.1206(b) of the rules.

15. **Initial Regulatory Flexibility Analysis:** The NPRM in this proceeding included an Initial Regulatory Flexibility Analysis (IRFA) pursuant to 5 U.S.C. 603, exploring the potential impact of the Commission's proposal on small entities. The matters discussed in this notice do not modify in any way the IRFA we previously issued.

**FEDERAL COMMUNICATIONS COMMISSION**

**Ruth Milkman,**  
**Chief, Wireless Telecommunications Bureau**

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