

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Gogo Business Aviation LLC Request for Waiver of ) WT Docket No. 21-282  
47 CFR 22.857 Applicable to 849-851 MHz and )  
894-896 MHz Bands )  
 )

**ORDER**

**Adopted: June 21, 2022**

**Released: June 21, 2022**

By the Chief, Mobility Division, Wireless Telecommunications Bureau:

**I. INTRODUCTION**

1. Gogo Business Aviation LLC (Gogo) requests a waiver<sup>1</sup> of section 22.867 of the Commission’s rules governing effective radiated power (ERP) limits for air-to-ground (A/G) operations in the 849-851 MHz and 894-896 MHz bands.<sup>2</sup> Gogo’s Waiver Request seeks to permit use of the maximum average power measurement technique for the ERP limit applicable to its operations rather than the currently required peak power measurement technique.<sup>3</sup> For reasons discussed below, we grant Gogo’s Waiver Request, subject to conditions described herein.

**II. BACKGROUND**

2. *A/G Spectrum Auction.* In 2004, the Commission revised its regime for A/G operations, determining that nationwide licenses would be assigned to the entities and their respective band plans receiving the highest gross aggregate bid at auction.<sup>4</sup> In adopting these rules, the Commission sought to “promote key spectrum policy objectives that would lead to greater technical, economic, and marketplace efficiency” while responding to evolving market demands.<sup>5</sup> In 2006, the Commission auctioned nationwide licenses to two winning bidders, Gogo<sup>6</sup> and LiveTV, LLC (LiveTV).<sup>7</sup> In 2013, Gogo acquired

<sup>1</sup> Gogo Business Aviation LLC Request for Waiver, WT Docket No. 21-282 (filed May 26, 2021), [https://www.fcc.gov/ecfs/file/download/DOC-5ea8365b65400000-A.pdf?file\\_name=AS%20FILED%20-%20Gogo%2022.867%20Waiver%20Request%205.26.21.pdf](https://www.fcc.gov/ecfs/file/download/DOC-5ea8365b65400000-A.pdf?file_name=AS%20FILED%20-%20Gogo%2022.867%20Waiver%20Request%205.26.21.pdf) (Waiver Request).

<sup>2</sup> 47 CFR § 22.867 (“The peak ERP of airborne mobile station transmitters must not exceed 12 Watts”).

<sup>3</sup> Waiver Request.

<sup>4</sup> *Amendment of Part 22 of the Commission’s Rules To Benefit the Consumers of Air-Ground Telecommunications Services, et al.*, WT Docket No. 03-103, et al., Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 4403, 4405-05, 4418-22, paras. 1, 24-32 (2005) (*Air-Ground Order*).

<sup>5</sup> *Air-Ground Order*, 20 FCC at 4407, para. 3.

<sup>6</sup> The bidding entity was AC BidCo, LLC, a wholly owned subsidiary of Gogo. We refer collectively to these entities as Gogo.

<sup>7</sup> *Auction of 800 MHz Air-Ground Radiotelephone Service Licenses Closes; Winning Bidders Announced for Auction No. 65*, Public Notice, 21 FCC Rcd 6304, 6312 (2006).

LiveTV's A/G service license becoming the sole A/G licensee for all four megahertz of A/G spectrum.<sup>8</sup>

3. *A/G Power Limits.* When the Commission adopted the *Air-Ground Order*, it determined that a ground station maximum power limit of 500 Watts ERP and an airborne mobile station maximum power limit of 12 Watts ERP would provide a licensee with sufficient flexibility to deploy its technology,<sup>9</sup> while limiting potential harmful interference to services operating in adjacent spectrum.<sup>10</sup> Although the *Air-Ground Order* did not discuss whether the maximum power should be measured using peak or average power measurement techniques, the Commission sought to “allow[] greater flexibility to deploy any type of transmission technology, both now and in the future, that [the licensee] believes will best enable it to provide services desired by Consumers.”<sup>11</sup> In the *2008 Biennial Review Report*, the Commission revised the radiated power rules for other commercial mobile services because it determined that allowing licensees to meet radiated power limits on an average rather than a peak basis would more accurately predict the interference potential for newer technologies such as Orthogonal Frequency Division Multiplex Technology (OFDM).<sup>12</sup> The *2008 Biennial Review Report* did not address power limits for the A/G service.

4. *Gogo's Waiver Request.* On May 26, 2021, Gogo requested that the Commission waive a portion of section 22.867 of its rules to permit measurement of the maximum average power for the current ERP limit rather than the currently required peak power measurement technique.<sup>13</sup> Gogo explains that the waiver is necessary so that Gogo can transition from its current system, which operates using Code Division Multiple Access (CDMA) Evolution-Data Optimized (EV-DO) technology, to its next generation system using OFDM to improve throughput, coverage, and reliability for in-flight connectivity.<sup>14</sup> Utilizing the 800 MHz A/G band, Gogo provides a variety of in-flight airborne services such as broadband Internet, Wi-Fi-based entertainment services, interconnected and non-interconnected VoIP, in-flight portals for e-commerce applications, and flight operations communications services.<sup>15</sup> Gogo explains that a waiver grant is crucial because it will allow Gogo to maximize the utility of its OFDM technology so that it can continue to meet users' increasing demand for Gogo's in-flight services.<sup>16</sup> Gogo further states that OFDM-based waveforms have a higher peak-to-average ratio (PAR) than other common waveforms.<sup>17</sup> Thus, without the waiver and with the current peak power limit, Gogo explains, its OFDM technology's average operational power would be unduly constrained and the overall utility of the service would be unnecessarily hampered.<sup>18</sup> In addition, Gogo states that a waiver would create uniformity since Canada already limits power in terms of maximum average power for A/G

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<sup>8</sup> *Application of AC BidCo, LLC, Gogo Inc., and LiveTV, LLC,; For Consent to Assign Commercial Aviation Air-Ground Radiotelephone (800 MHz band) License, Call Sign WQFX729*, WT Docket No. 12-155, Memorandum Opinion and Order, 28 FCC Rcd 3362, 3364-65, paras. 8-9 (2013).

<sup>9</sup> 47 CFR § 22.867 (effective radiated power limits); *see also Air-Ground Order*, 20 FCC Rcd at 4432, paras. 57-58. At that time, the proposed technologies were CDMA2000 1xEV-DO and/or FLASH-OFDM. *Id.*

<sup>10</sup> *Air-Ground Order*, 20 FCC at 4431-37, paras. 52-72.

<sup>11</sup> *Air-Ground Order*, 20 FCC at 4431, para. 54.

<sup>12</sup> *Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services*, WT Docket No. 03-264, Third Report and Order, 23 FCC Rcd 5319, 5337, para. 40 (2008) (*2008 Biennial Review Report*).

<sup>13</sup> Waiver Request.

<sup>14</sup> Gogo does not specify the exact technology it will be using; it just states that the system will be based on OFDM technology. *Id.* at 1.

<sup>15</sup> *Id.* at 2.

<sup>16</sup> *Id.* at 2-3.

<sup>17</sup> *Id.* at 4.

<sup>18</sup> *Id.* at 4.

operations and Commission rules use average instead of peak power for other mobile services, such as Cellular, Personal Communications Services (PCS), and Advanced Wireless Services (AWS), in Part 22, 24, and 27.<sup>19</sup>

5. The Bureau sought comment on Gogo's Waiver Request,<sup>20</sup> and received comments from Motorola Solutions, Inc. (Motorola) and the National Public Safety Telecommunications Council (NPSTC),<sup>21</sup> and reply comments from Gogo, Motorola, and Florida Power & Light Company (FPL).<sup>22</sup> Motorola initially opposed the Waiver Request due to concerns about harmful interference from Gogo to operations in the 900 MHz band.<sup>23</sup> Similarly, NPSTC at first expressed concern over the impact of Gogo's operation at a higher power, including that NPSTC's public safety members' mobile and portable units could be overloaded by the A/G base stations and could receive interference from Gogo's airborne units.<sup>24</sup> In an *ex parte* letter, the Association of Public-Safety Communications Officials International, Inc. (APCO) reiterated NPSTC's previous concerns, stating that Gogo's proposed operation may "pose an increased threat of harmful interference to public safety incumbents."<sup>25</sup>

6. However, after continued discussions between the parties during which Gogo provided additional technical and other information to Motorola and NPSTC, NPSTC and Motorola subsequently stated that they would remove their objections to the grant of Gogo's Waiver Request if the Commission imposed several recommended conditions.<sup>26</sup> These conditions included, among others, more stringent OOB limits, a means of identification of Gogo's signal so that the source of any interference can be readily determined, a 24/7 point of contact for interference complaints, and Gogo vacating the channel at issue until any interference complaint were resolved.<sup>27</sup> Motorola, however, proposed a more stringent

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<sup>19</sup> *Id.* at 4-7.

<sup>20</sup> *Wireless Telecommunications Bureau Seeks Comment on Request by GoGo Business Aviation LLC for Waiver of 800 MHz Air-Ground Service Power Measurement Rule*, WT Docket No. 21-282, Public Notice, DA 21-796 (July 7, 2021).

<sup>21</sup> See Opposition of Motorola Solutions, Inc. (Motorola Comments); Comments of The National Public Safety Telecommunications Council (NPSTC Comments).

<sup>22</sup> See Reply Comments of Florida Power & Light Company (FPL Reply); Reply Comments of Gogo Business Aviation LLC (Gogo Reply); Reply of Motorola Solutions, Inc. (Motorola Reply).

<sup>23</sup> Motorola Comments at 2-3; Motorola Reply at 2.

<sup>24</sup> NPSTC Comments at 7. NPSTC further expressed concerns that public safety devices could be at "increased risk of front-end overload" as well as concerns on how Gogo would mitigate and abate potential harmful interference. *Id.* at 6-8.

<sup>25</sup> Letter from Jeffrey S. Cohen, The Association of Public-Safety Communications Officials International, Inc., to Marlene H. Dortch, FCC, WT Docket No. 21-282 (filed June 15, 2022) (*APCO Ex Parte*).

<sup>26</sup> Motorola initially stated that Gogo's Waiver Request lacked technical information to properly analyze whether Gogo's proposed operations would protect neighboring licensees, but after multiple discussions with Gogo and following the filing of NPSTC's *Ex Parte*, stated that the conditions "would fully allay [Motorola's] concerns about interference" and that it agrees with NPSTC's conclusions. Motorola Comments at 2-3; Letter from Frank Korinek, Motorola Solutions Inc., to Marlene H. Dortch, FCC, WT Docket No. 21-282, at 2 (filed Dec. 15, 2021) (*Motorola Ex Parte*); Letter from Ralph A. Haller, National Public Safety Telecommunications Council, to Marlene H. Dortch, FCC, WT Docket No. 21-282 (filed Dec. 14, 2021) (*NPSTC Ex Parte*). Throughout its discussions, Gogo provided a list of its ground-based station site locations under a non-disclosure agreement, a 24/7 contact number in case any issues arise, and shared more detailed technical information about the impact of its proposal on any potential for interference—including a chart showing the emission mask Gogo plans to meet. See *NPSTC Ex Parte* at 3.

<sup>27</sup> See *NPSTC Ex Parte* at 4.

OBE level than NPSTC.<sup>28</sup> Gogo subsequently agreed to meet modified versions of NPSTC's and Motorola's recommended conditions, modifying them to rely in certain places on existing Commission rules.<sup>29</sup> After further discussions with NPSTC, on April 28, 2022, Gogo proposed an additional condition to specifically address NPSTC's continued concerns about signal identification to prevent "ghost interference."<sup>30</sup> Finally, during discussions with APCO regarding its concerns, Gogo agreed to meet versions of APCO's recommended conditions, including addressing or mitigating possible public safety concerns by conducting field testing with APCO in advance of the deployment of Gogo's new technology and notifying public safety licensees in the 851-854 MHz band of deployments by both email *and* certified mail (or telephonically, if preferred to certified mail).<sup>31</sup>

### III. DISCUSSION

7. The Division grants Gogo's Waiver Request of section 22.867 of the Commission's rules, subject to the conditions described below. Gogo has shown that allowing measurement of the maximum average power for the ERP limit, rather than the currently required peak power measurement technique, is necessary for Gogo to transition from its current system to its next generation system.<sup>32</sup> Further, this action will increase the spectral efficiency of Gogo's operations, is unlikely to increase harmful interference potential in the band, and will create parity in how power is measured in the flexible use spectrum bands below 2 GHz.

8. *Waiver Standard.* Waiver of a rule is appropriate where either (1) the "[t]he underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest," or (2) "[i]n view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative."<sup>33</sup> An applicant seeking a waiver faces a high hurdle and must plead with particularity the facts and circumstances that warrant a waiver.<sup>34</sup>

#### A. Application of Section 22.867 Would be Inequitable and Unduly Burdensome Absent Grant of the Waiver Request

9. We find that Gogo has shown that a waiver is warranted because application of section 22.867 would be inequitable and unduly burdensome and that a grant is in the public interest. Gogo needs to transition from its current CDMA EV-DO technology to OFDM technology to enhance Gogo's offerings by improving throughput, coverage, and reliability of its nationwide broadband network.<sup>35</sup> Gogo has shown that the legacy peak power regulation is incompatible with Gogo's modern, more efficient technology, and application of the limit would result in an undue constraint of its operations,

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<sup>28</sup> Compare Motorola *Ex Parte* at 3 (Gogo BA must attenuate emissions into the 896-897.5 MHz band by at least 43 + 10Log(P) dB) with NPSTC *Ex Parte* at 4 (Gogo BA must attenuate emissions into the 851-854 MHz public safety band by at least 50 + 10Log(P) dB).

<sup>29</sup> Letter from Michele C. Farquhar, Gogo Business Aviation LLC Council, to Marlene H. Dortch, FCC, WT Docket No. 21-282 (filed on Jan. 20, 2022) (Gogo Jan. 20 *Ex Parte*).

<sup>30</sup> Letter from Michele C. Farquhar, Gogo Business Aviation LLC Council, to Marlene H. Dortch, FCC, WT Docket No. 21-282 (filed on Apr. 28, 2022) (Gogo Apr. 28 *Ex Parte*).

<sup>31</sup> Letter from Michele C. Farquhar, Gogo Business Aviation LLC Council, to Marlene H. Dortch, FCC, WT Docket No. 21-282 (filed on June 15, 2022) (Gogo June 15 *Ex Parte*).

<sup>32</sup> 47 CFR § 22.867.

<sup>33</sup> 47 CFR § 1.925(b)(3).

<sup>34</sup> *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969) (citing *Rio Grande Family Radio Fellowship, Inc. v. FCC*, 406 F.2d 664 (D.C. Cir. 1968)); *Birach Broadcasting Corp.*, Memorandum Opinion and Order, 18 FCC Rcd 1414, 1415, para. 6 (2003).

<sup>35</sup> Waiver Request at 3, 8; Gogo Reply at 14-16.

which would unnecessarily hamper the overall utility of the service being delivered.<sup>36</sup> Specifically, Gogo stated that its “next-generation system’s average power would need to be significantly *reduced* by about 6 dB compared to the current ATG system” which would require Gogo to either “reduce the range of its system or use lower-order modulation techniques, reducing the throughput and capacity of the ATG system.”<sup>37</sup> For non-constant envelope technologies, like OFDM, applying the peak power measurement technique in section 22.867 would force Gogo’s average operating power to be lower due to the occurrence of very short duration spikes in signal strength that do not represent a significant interference threat, but rather are characteristic of spectrally efficient higher order modulation techniques.<sup>38</sup> Allowing such modulation techniques to be measured by average operational power with a limit on the PAR of the modulation used will allow Gogo to maintain sufficient capacity to meet the expected and reemerging growth in the competitive general aviation market and regional commercial airline market.<sup>39</sup>

10. We also agree with Gogo that application of section 22.867 in this instance would be inequitable given that the Commission has already removed peak power measurement from many of its rules, including those for other services operating in the 800 MHz and 900 MHz bands.<sup>40</sup> As mentioned above, in the *2008 Biennial Review Report*, the Commission revised the radiated power rules for PCS and AWS, determining that allowing licensees to meet radiated power limits on an average rather than a peak basis would more accurately predict the interference potential for technologies such as OFDM.<sup>41</sup> Moreover, the Commission stated that any increase in power that may be associated with limiting power on an average basis will be modest, and “outweighed by the benefit of measuring existing non-constant envelope technologies . . . using a more realistic and appropriate technique.”<sup>42</sup> To achieve parity amongst the commercial wireless service rules, the Commission subsequently revised the Cellular radiated power rules to use average instead of peak measurement.<sup>43</sup> Accordingly, allowing Gogo to use average instead of peak measurement would create uniformity and further the Commission’s goal of “harmoniz[ing] our rules, where appropriate, across various wireless services.”<sup>44</sup> In addition to harmonizing rules within the Commission, a waiver grant would aid Gogo’s multijurisdictional compliance obligations since Gogo operates in both the United States and Canada, and Canada already permits maximum average power measurement for A/G operations.<sup>45</sup>

**B. The Underlying Purpose of Section 22.867 Will Not be Frustrated by Grant of the Waiver Request**

11. We also conclude that the underlying purpose of section 22.867, to prevent harmful interference to public safety and adjacent licensees, will not be frustrated by a grant of Gogo’s Waiver Request. Gogo is the only A/G operator in the band and Gogo’s future OFDM-based technology presents

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<sup>36</sup> Waiver Request at 5; Gogo Reply at 2-4.

<sup>37</sup> Gogo Reply at 2-4.

<sup>38</sup> Gogo Reply at 3-4.

<sup>39</sup> Waiver Request at 3.

<sup>40</sup> See 47 CFR § 27.1507(c)-(d) (*900 MHz power measurement*); 47 CFR § 22.913(d) (*800 MHz power measurement*); Waiver Request at 5-6.

<sup>41</sup> *2008 Biennial Review Report*, 23 FCC Rcd at 5337, para. 40.

<sup>42</sup> *Id.* at 5337, para. 40.

<sup>43</sup> *Amendment of Parts 1 and 22 of the Commission’s Rules with Regard to the Cellular Service, Including Changes in Licensing of Unserved Area; Amendment of the Commission’s Rules Governing Radiated Power Limits for the Cellular Service, et al.*, WT Docket No. 12-40, *et al.*, Second Report and Order, Report and Order, and Second Further Notice of Proposed Rulemaking, 32 FCC Rcd 2518, 2551-53, paras. 89-96 (2017) (*Cellular R&O*).

<sup>44</sup> *Air-Ground Order*, 20 FCC Rcd at 4409, para. 6; *see also Cellular R&O*, 32 FCC Rcd at 2553, para. 96.

<sup>45</sup> Waiver Request at 5-6.

a low risk of interference.<sup>46</sup> Several factors support our conclusion that allowing average power measure will not lead to harmful interference problems in the 800 and 900 MHz bands. First, we note that A/G services operate at much lower power levels than their adjacent spectrum services that also operate under average power measurement regulations.<sup>47</sup> Second, it is unlikely that A/G aircraft that transmit only above 3,000 feet altitude<sup>48</sup> utilizing Gogo's services would cause receiver overload to Cellular Service devices receiving in the 800 MHz Cellular band (869-894 MHz) or to part 90 base stations receiving in the 896-901 MHz band due to spatial, power, and antenna diversity. Further, NPSTC's previous concerns are further mitigated by past and current coordination efforts between NPSTC and Gogo, which have led to no reported overload or interference issues.<sup>49</sup> In its reply, Gogo also states that it will continue to be a responsible spectrum user and neighbor to adjacent-band operators.<sup>50</sup> Moreover, this power change is unlikely to increase interference from Gogo base stations because there are only 260 base stations across the United States and Canada and around 80% of the base stations are located in remote or rural areas.<sup>51</sup> In addition, the base station antennas are pointing upward, above the horizon to aircraft whereas terrestrial antennas are generally tilted down towards receivers on the ground.<sup>52</sup> Finally, we have weighed the potential public interest benefits against potential adverse effects and find that it is in the public interest to grant Gogo's Waiver Request to permit Gogo to utilize maximum average power measurement for A/G operations subject to the conditions described below. Specifically, we conclude that it is in the public interest to foster the development of advanced technologies in the A/G band, thereby allowing Gogo to utilize its next generation technology, offering users access to these valuable in-flight airborne services.<sup>53</sup>

12. We note that the Commission has already established thorough interference resolution procedures for all spectrum operators in the 800 and 900 MHz range, including the A/G service, which have proven highly successful and should address any interference should it occur.<sup>54</sup> To further mitigate the threat of potential harmful interference to Cellular and part 90 licensees, including public safety

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<sup>46</sup> Waiver Request at 8-9; Gogo Reply at 2-3. Motorola previously asserted that more stringent A/G OOB limits, like the limits imposed in the 900 MHz band, should be implemented. Motorola Comments at 1-2. We clarify that the current A/G OOB limits, which are the same for similar services in our rules, are sufficient to protect the adjacent bands. Compare 47 CFR § 27.1509(a) (stating that the OOB limit for "900 MHz broadband operations in 897.5-900.5 MHz band [is] at least 43 + 10 log (P) dB"), with 47 CFR § 22.861 (stating that the OOB limit for 800 MHz A/G operations must "be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB").

<sup>47</sup> Compare 47 CFR § 22.593 (showing that the ERP for A/G operators must not exceed 150 Watts) with 47 CFR § 22.1507(a)(1)(i) (showing that the ERP for 900 MHz broadband systems operations must not exceed 400 Watts) and 47 CFR § 22.193(a)(1) (showing that the ERP for certain 800 MHz operations must not exceed 500 Watts per emission or 400 Watts/MHz per sector).

<sup>48</sup> See Gogo Reply at 6-9 (stating that the altitude of 3,000 feet is "the minimum altitude from which an airborne mobile station may transmit"); see also Gogo Jan. 20 *Ex Parte*, Attach. B at 6.

<sup>49</sup> NPSTC *Ex Parte* at 3-5; Motorola *Ex Parte* at 1-2. According to the filings, Gogo has offered close coordination with the parties. Gogo Apr. 28 *Ex Parte* at 1-2.

<sup>50</sup> Gogo Reply at 13; see also NPSTC *Ex Parte* at 4 (showing that Gogo provided NPSTC with a site list, emission mask information, and 24/7 point of contact information); Motorola *Ex Parte* at 1 (explaining that Gogo and Motorola have had multiple discussions regarding ways to avoid potential interference). Similarly, Gogo states that it is a member of the centralized interference reporting notification database which provides assistance and remedies if interference does occur. Gogo Reply at 9.

<sup>51</sup> Gogo Reply at 6.

<sup>52</sup> Waiver Request at 2, 8-9; Gogo Reply at 6-9.

<sup>53</sup> Gogo Reply at 14-16 (explaining that Gogo's system is used to provide broadband communications services throughout the United States to a broad cross-section of users, such as airline passengers, government agencies, and Federal Air Marshals, for many purposes).

<sup>54</sup> See 47 CFR §§ 22.877-22.880.

licensees, and to ensure swift resolution of any interference issues that may arise, we condition this waiver in several respects. Specifically, Gogo must meet a more stringent OOB limit which is akin to the OOB limit that the Commission adopted for the 900 MHz broadband operations.<sup>55</sup> In addition, Gogo agreed to certain conditions that should alleviate licensees' concerns of potential harmful interference.<sup>56</sup>

13. We adopt below several conditions based on the proposals of the public safety community, and to which Gogo had agreed to abide. We decline, however, to require signal identification of Gogo's transmissions. Although APCO states that the record in this proceeding "lacks sufficient technical information to demonstrate that transmitting a signal identifier would be ineffective or present such an imposition,"<sup>57</sup> we find that Gogo has sufficiently demonstrated that a signal identifier would be unnecessary, would not provide sufficient information that the associated signal is the source of harmful interference, and that adding the signal identifier would be prohibitively expensive.<sup>58</sup> Moreover, while we do not believe that NPSTC, Motorola, or APCO have sufficiently demonstrated that harmful interference will likely occur, Gogo nonetheless has agreed to take a number of steps to allay their concerns. We agree with Gogo that these conditions "provide public safety operators with sufficient information to be aware of a new potential source of harmful interference."<sup>59</sup>

### C. Conditions

14. This waiver grant is conditioned on the following, which largely reflect elements that Gogo has agreed to and that NPSTC and Motorola support in the record:<sup>60</sup>

- 1) Gogo must attenuate emissions into the 851-854 MHz public safety band by at least  $50 + 10\text{Log}(P)$  dB;
- 2) Gogo must maintain a 24/7 contact number that licensees in the 851-854 MHz and 869-897.5 MHz bands can use to report any instances of interference;
- 3) Gogo must notify, by email and certified mail (or telephonically, if preferred over certified mail), licensees in the 851-854 MHz band that are within a 10-mile radius of each Gogo base station of (1) the date that Gogo intends to deploy its new system; (2) the 24/7 Gogo contact number and the web address for submitting any interference complaints; and (3) Gogo's commitment to loan, at no cost, a spectrum analyzer with instructions for its use;
- 4) Upon APCO's request, Gogo shall conduct field testing with APCO in advance of the deployment of its new OFDM technology;
- 5) Gogo shall provide to licensees in the 851-854 MHz and 896-897.5 MHz bands, upon their request, instructions on how to ascertain through the use of a spectrum analyzer whether Gogo's transmissions are the source of harmful interference;

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<sup>55</sup> 47 CFR § 27.1509(b). Gogo volunteered to meet this more restrictive OOB limit in the 851-854 MHz public safety band after it was proposed by NPSTC. Gogo Jan. 20 *Ex Parte* at 2-3.

<sup>56</sup> Gogo Jan. 20 *Ex Parte* at 3-4; Gogo Apr. 28 *Ex Parte* at 1-2; Gogo June 15 *Ex Parte* at 2 (stating that Gogo's "proposed waiver conditions, including its willingness to provide spectrum analyzer and instructions if requested by a public safety entity, are *additional* to measures" that Gogo will take to address concerns of harmful interference).

<sup>57</sup> APCO *Ex Parte* at 2.

<sup>58</sup> Gogo June 15 *Ex Parte* at 2; *see also* Gogo Jan. 20 *Ex Parte* at 3 (stating "demodulating relatively weak interfering emissions for the purpose of detecting and decoding the station identity would be very challenging and likely unsuccessful, whether the interference was due to out-of-band emissions or intermodulation products").

<sup>59</sup> Gogo Apr. 28 *Ex Parte* at 2.

<sup>60</sup> NPSTC *Ex Parte* at 4; Motorola *Ex Parte* at 2-4; Gogo Jan. 20 *Ex Parte* at 2-4; Gogo Apr. 28 *Ex Parte* at 1-2; APCO *Ex Parte* at 1-3; Gogo June 15 *Ex Parte* at 1-2.

- 6) Gogo shall receive and respond to harmful interference complaints from part 90 operators in the 896-897.5 MHz band in a manner consistent with the requirements protecting adjacent part 90 non-Cellular 800 MHz licensees in sections 22.877 through 22.879 of the Commission rules; and
- 7) Gogo must file a Petition for Rulemaking within 30 days from release of this Order seeking rule changes that would permit more flexible use of the band. The rulemaking petition should, at a minimum, request any and all rule changes that may be necessary for Gogo's services to be provided over this spectrum.

#### IV. ORDERING CLAUSES

15. Accordingly, IT IS ORDERED that pursuant to Section 4(i) of the Communications Act, as amended, 47 U.S.C. § 154(i), and section 1.925 of the Commission's Rules, 47 CFR § 1.925, the Gogo Business Aviation LLC Request for Waiver of section 22.867, is GRANTED, subject to the conditions described herein.

16. These actions are taken under delegated authority pursuant to sections 0.131 and 0.331 of the Commission's Rules, 47 CFR §§ 0.131, 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Roger S. Noel  
Chief, Mobility Division  
Wireless Telecommunications Bureau