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

In the Matter of	)	
Expanding Access to Mobile Wireless Services Onboard Aircraft	)	WT Docket No. 13-301
	)	

NOTICE OF PROPOSED RULEMAKING

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I. INTRODUCTION AND SUMMARY

1. By this Notice of Proposed Rulemaking (*Notice*), we propose to revise outdated rules and adopt consistent new rules governing mobile communications services aboard airborne aircraft. These rule changes would give airlines, subject to applicable Federal Aviation Administration (FAA) and Department of Transportation (DoT) rules, the choice of whether to enable mobile communications services using an Airborne Access System and, if so, which specific services to enable. The draft rules would also replace an existing patchwork of regulatory prohibitions on airborne use of mobile services in some, but not all, of the heavily used mobile bands with a consistent regulatory framework that explicitly forbids airborne use of mobile services in those bands unless they are operating on an aircraft equipped with an Airborne Access System. If adopted, the rule changes would reduce consumer confusion, increase protection against harmful interference, improve administrative efficiency, and facilitate expanded access to broadband services in flight. Additionally, while many airlines offer in-flight Wi-Fi broadband services, the proposals in this *Notice* would give airlines the option to allow consumers to access broadband services when airborne through their existing wireless service providers, just as they would on the ground. The *Notice* does not propose to mandate that airlines permit any new airborne mobile services. It does, however, provide a path for interested airlines to authorize increased consumer access to airborne mobile broadband services across licensed commercial mobile spectrum bands in a safe, non-interfering manner.

2. In recent years, air carriers have been enhancing their in-flight communications service offerings to meet the increasing consumer demand for broadband connectivity on aircraft. One study predicts that the number of aircraft offering wireless connectivity will reach 4,048 by the end of 2013 (representing 21 percent of the global fleet), and will rise to 14,000 by 2022 (a 50 percent connectivity penetration in commercial aircraft).[1] This study also projects that approximately 5,000 of these aircraft will offer both Wi-Fi and cellular options.[2] According to one survey of adult airline passengers, 69 percent of airline passengers that brought a portable electronic device (PED) – such as a tablet or

[1] News Release, IHS, In-Flight Wireless Installations Take Off; Change in FAA Rules Gives Airlines Opportunity to Promote Services (Nov. 1, 2013), http://press.ihs.com/press-release/design-supply-chain-media/flight-wireless-installations-take-change-faa-rules-gives-ai. This penetration of wireless is up from 15 percent in 2012 and 12 percent in 2011. *Id*.

[2] *Id*.

smartphone – onto an aircraft in the past 12 months reported that they used their devices during flight.[3] The report did not distinguish between transmitting PEDs and non-transmitting PEDs. Also, notably, in October 2013, the FAA announced that, after performing recommended assessments and tests, airlines could safely expand passenger use of PEDs during all phases of flight.[4]

3. Internationally, more than forty jurisdictions, including the European Union (EU), Asia, and Australia, have authorized the use of mobile communications services on aircraft. To the best of our knowledge, these services have successfully operated without causing harmful interference to terrestrial commercial wireless networks.[5] Given the rapidly expanding demand for mobile broadband services, our recent efforts to improve consumers' access to broadband services on aircraft,[6] and the successful deployment of mobile communications services on aircraft in numerous other countries, we find that it is in the public interest to bring the benefits of mobile communications services on aircraft to domestic consumers. Specifically, we propose to:

(1) Remove existing, narrow restrictions on airborne use of mobile devices in the 800 MHz cellular and Specialized Mobile Radio (SMR) bands, replacing them with a more comprehensive framework encompassing access to mobile communications services in all mobile wireless bands;[7]

(2) Harmonize regulations governing the operation of mobile devices on airborne aircraft across all commercial mobile spectrum bands;[8]

(3) Add the authority to provide mobile communications services on airborne aircraft across all

[3] Airline Passenger Experience Association (APEX) and the Consumer Electronics Association (CEA), Portable Electronic Devices on Aircraft, at 4, 7 (2013), *available at*: Appendix H of A Report from the Portable Electronics Devices Aviation Rulemaking Committee to the Federal Aviation Administration, Recommendations on Expending the Use of Portable Electronic Devices During Flight, *available at*: http://www.faa.gov/about/initiatives/ped/media/PED_ARC_FINAL_REPORT.pdf (APEX/CEA Report). *See also* Press Release, APEX, APEX/CEA Study Reveals Importance, Use of Devices In-Flight (May 9, 2013), http://apex.aero/News/PressRelease/Details/tabid/466/ArticleId/22/APEX-CEA-study-reveals-importance-use-of-devices-in-flight.aspx; Press Release, CEA, Most U.S. Flyers Brought Portable Electronic Devices on Planes in the Last Year, Nearly 30 Percent Accidently Left Them Turned On (May 9, 2013), http://www.ce.org/News/News-Releases/Press-Releases/2013-Press-Releases/Most-U-S-Flyers-Brought-Portable-Electronic-Device.aspx.

[4] *See* Press Release, FAA, FAA to Allow Airlines to Expand Use of Personal Electronics (Oct. 31, 2013), http://www.faa.gov/news/press_releases/news_story.cfm?newsId=15254 (FAA PED Press Release); *See also* A Report from the Portable Electronics Devices Aviation Rulemaking Committee to the Federal Aviation Administration, Recommendations on Expending the Use of Portable Electronic Devices During Flight, at ix (Sept. 30, 2013), *available at*: http://www.faa.gov/about/initiatives/ped/media/PED_ARC_FINAL_REPORT.pdf (ARC Report).

[5] Throughout the *Notice* we refer to networks primarily providing ground-based network services as "terrestrial" networks or licensees. This colloquial usage is not intended to invoke technical meanings of the term "terrestrial" that may be familiar in other regulatory (*e.g.*, FCC or International Telecommunication Union (ITU)) contexts.

[6] *See infra* Section II.D.

[7] *See* 47 C.F.R. §§ 22.925 and 90.423.

[8] For purposes of this *Notice*, "commercial mobile spectrum bands" include: (1) the 800 MHz cellular band (824-849 and 869-894 MHz); (2) SMR spectrum within the bands (806-824 and 851-869 MHz and 896-901 and 935-940 MHz); (3) the Broadband Personal Communications Service (PCS) band (1850-1915 and 1930-1995 MHz); (4) 700 MHz band (698-757 and 775-787 MHz); (5) the Advanced Wireless Services (AWS) band (1710-1755 and 2110-2155 MHz); (6) the Wireless Communications Service (WCS) band (2305-2320 and 2345-2360 MHz); and AWS-4 (2000-2020 MHz and 2180-2200 MHz). We would expect to add other spectrum bands if and when they are allocated for commercial mobile broadband use.

commercial mobile spectrum bands to existing Part 87 aircraft station licenses;[9]

(4) Allow mobile communications services on airborne aircraft only if managed by an Airborne Access System certified by the FAA, which would control the emissions of onboard PEDs by requiring them to remain at or near their lowest transmitting power level;[10]

(5) Limit authorization for mobile communications services to aircraft travelling at altitudes of more than 3,048 meters (approximately 10,000 feet) above the ground;

(6) We also seek comment on alternative authorization frameworks, the potential impact of these proposals on public safety and national security, and issues related to the use of voice services onboard aircraft.

4. Consistent with our continued efforts to increase consumer access to broadband and the FAA's recent actions, this proposal would provide airlines with the technological tools to offer additional in-cabin communications services to their passengers at their discretion. Our proposal is focused on data services, but it is technology-neutral; we do not propose to limit the use of mobile communications services on airborne aircraft to non-voice applications. Deployment of such services, including etiquette and other rules, would be at the discretion of individual airlines, within the context of any rules or guidelines established by the FAA or DoT.[11]

II. BACKGROUND

A. FCC Regulations Limiting Airborne Mobile Use

5. Commission rules governing the use of airborne mobile devices vary significantly among services. Specifically, airborne use of the 800 MHz cellular band is prohibited and airborne use of the 800 MHz SMR band is prohibited on aircraft that typically fly at altitudes over one mile.[12] There are no such restrictions on airborne use of the AWS, PCS, WCS, 700 MHz, or AWS-4 bands.[13] As noted above resolving these inconsistencies is one of the primary goals of this proceeding.

6. Part 22 of the Commission's rules prohibits the airborne use of 800 MHz cellular telephones, including the use of such phones on commercial and private aircraft.[14] This prohibition was adopted in 1991 to guard against the threat of harmful interference from airborne use of cellular phones to terrestrial cellular networks.[15] The Commission's prohibition was not to ensure interference-free

[9] *See* 47 C.F.R. § 87.18.

[10] A description of the components and capabilities of the most common type of Airborne Access System in use can be found in Section III.B.2 *infra.*

[11] The FAA has oversight of all aspects of U.S. civil aviation, with responsibilities that include ensuring civil aviation safety. The DoT has oversight over aviation consumer protection issues.

[12] *See* 47 C.F.R. §§ 22.925 and 90.423.

[13] Wi-Fi on aircraft, as anywhere, uses unlicensed spectrum and therefore has no such restrictions.

[14] *See* 47 C.F.R. § 22.925 ("Cellular telephones installed in or carried aboard airplanes, balloons or any other type of aircraft must not be operated while such aircraft are airborne (not touching the ground). When any aircraft leaves the ground, all cellular telephones onboard that aircraft must be turned off.").

[15] Amendment of Sections of Part 22 of the Commission's Rules in the Matter of Airborne Use of Cellular Telephones and the Use of Cell Enhancers in the Domestic Public Cellular Radio Service, *Report and Order*, CC Docket No. 88–411, 7 FCC Rcd 23 (1991) (*Airborne Use of Cellular Telephones Report and Order*). An exception to section 22.925's strict prohibition against airborne cellular use was made when AirCell, Inc. demonstrated that its equipment would not cause harmful interference to terrestrial cellular systems. *See* AirCell, Inc. Petition, Pursuant to Section 7 of the Act, For a Waiver of the Airborne Cellular Rule, or in the Alternative, For a Declaratory Ruling, *Order*, 14 FCC Rcd 806 (1998), recon. granted in part, denied in part, *Order on Reconsideration*, 14 FCC Rcd 18430 (1999), app. for rev. denied, *Memorandum Opinion and Order*, 15 FCC Rcd 9622 (2000), pet. for rev. granted in part, denied in part sub nom; *AT&T Wireless Svcs., Inc. v. FCC*, 270 F.3d 959 (D.C. Cir. 2001), pet. for (continued….)

operation of avionics equipment. When the prohibition was adopted, the Commission noted that a cellular telephone used onboard an airborne aircraft would have greater range than a land-based handset, and its signal would be received by multiple terrestrial cell sites in a given market, causing harmful interference.[16] Moreover, the Commission found that because a cellular telephone can transmit on all assigned 800 MHz cellular frequencies, a single handset could interfere with cellular systems in multiple cellular market areas simultaneously.[17] Thus, the Commission concluded that "the need for noninterference in all cellular transmissions outweighs the benefits that would be realized by allowing the public to use cellular service in airborne aircraft."[18]

7. Similarly, the Part 90 rules restrict the use of SMR handsets while airborne in certain circumstances.[19] The altitude restriction in section 90.423 prohibits operations on aircraft that are regularly flown at altitudes at one mile or above and, consequently, essentially bans Part 90 land mobile radio use on commercial airline flights.[20] These rules were enacted to prevent harmful interference with land-based operations by the use of land mobile frequencies aboard high-flying aircraft, especially aircraft operated by scheduled passenger airlines.[21] The rules governing all other commercial mobile spectrum bands are silent with regard to airborne operations.

B. 2004 Airborne Mobile NPRM

8. On December 15, 2004, the Commission adopted the *Airborne Mobile NPRM*, in which it proposed to relax or replace the Part 22 and Part 90 restrictions on airborne use of cellular mobile handsets.[22] The *Airborne Mobile NPRM* also included several proposals to facilitate the use of wireless devices onboard airborne aircraft, including those used for broadband applications.[23] Overall, the proposals were intended "to minimize the potential for harmful interference to terrestrial systems while providing maximum flexibility to wireless telecommunications carriers seeking to address consumer demand for air-ground connectivity."[24]

9. Notably, the *Airborne Mobile NPRM* proposed to require onboard use of picocells to prevent harmful interference to terrestrial mobile networks.[25] Under this proposal, airborne picocells would have been used to manage the power levels of mobile handsets onboard aircraft to ensure that they operated at or near their minimum power levels.[26] The *Airborne Mobile NPRM* also sought comment on whether this proposal should be applied to only the 800 MHz cellular spectrum covered by the current

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reh'g denied Jan. 29, 2002, *Order on Remand*, 18 FCC Rcd 1926 (2003), pet. for rev. denied sub nom; *AT&T Wireless Svcs., Inc. v. FCC*, 365 F.3d 1095 (D.C. Cir. 2004).

[16] *See Airborne Use of Cellular Telephones Report and Order*, 7 FCC Rcd at 23 ¶ 5.

[17] *See id*.

[18] *See id*.

[19] *See* 47 C.F.R. § 90.423.

[20] *See id*.

[21] *See* Amendment of Parts 89, 91, and 93 of the Commission's Rules Concerning Use of Land Mobile Frequencies Aboard Aircraft, *Report and Order*, Docket No. 19545, 42 F.C.C.2d 505, 505 ¶ 2 (1973) (*Airborne Land Mobile Order*).

[22] *See* Amendment of the Commission's Rules to Facilitate the Use of Cellular Telephones and Other Wireless Devices Aboard Airborne Aircraft, *Notice of Proposed Rulemaking*, WT Docket No. 04-435, 20 FCC Rcd 3753 (2004) (*Airborne Mobile NPRM*).

[23] *See id.* at 3754 ¶ 2.

[24] *See id.* at 3755 ¶ 3.

[25] *See id.* at 3755 ¶ 4, 3761-64 ¶¶ 13-21.

[26] *See id.* at 3762 ¶¶ 14-16.

Part 22 rule, or whether the picocell requirement should be expanded to include handsets and devices operating on spectrum bands under Part 24, 27, or 90.[27]

10. The Commission received more than 8,000 submissions in the docket.[28] However, few of the commenters provided requested technical analyses. Citing the insufficiency of the technical record and finding that it would be premature to decide the issues presented in the *Airborne Mobile NPRM* without additional information, the Commission terminated the proceeding on March 28, 2007.[29] The Commission, however, left open the possibility of revisiting the issues raised in this proceeding, should new technical information become available.[30]

C. International Developments

11. Since the Commission issued the *Airborne Mobile Termination Order* in 2007, numerous foreign communications administrations have issued regulations that have successfully allowed the non-interfering use of mobile communications services on airborne aircraft utilizing Airborne Access Systems.[31]

12. Most notably, in 2008, the European Commission (EC) mandated that EU member countries allocate the 1800 MHz band, which utilizes Global System for Mobile Communications (GSM)[32] technology, above 3,000 meters for mobile communications onboard aircraft (MCA).[33] The EC issued its Decision following a Report[34] and a Decision[35] from the Electronic Communications Committee

[27] *See id.* at 3764 ¶¶ 20-21.

[28] *See generally* Comments in WT Docket No. 04-435.

[29] *See* Amendment of the Commission's Rules to Facilitate the Use of Cellular Telephones and Other Wireless Devices Aboard Airborne Aircraft, *Memorandum Opinion and Order*, WT Docket No. 04-435, 22 FCC Rcd 7156, 7156-57 ¶¶ 2-3 (2007) (*Airborne Mobile Termination Order*).

[30] *id.* at 7157 ¶ 3.

[31] Among these nations are Azerbaijan, Egypt, Jordan, Malaysia, Qatar, Russia, Saudi Arabia, Singapore, Thailand, and the United Arab Emirates. In addition, the Asia Pacific Telecommunity (APT) has adopted non-mandatory Guidelines on Technical Conditions for the Use of Mobile Phones Onboard Aircraft. No. APT/AWG/OP-02 (Rev.2) (2008, rev. 2011), *available at*: http://www.apt.int/AWF-RECREP (APT Guidelines). APT members include Australia, the Democratic Republic of Korea, India, Japan, New Zealand, the People's Republic of China, Philippines, the Republic of Malaysia, Singapore, Thailand, and Vietnam.

[32] *See, e.g.*, Recommendation ITU-R M.1224-1 (03/2012), Vocabulary of terms for International Mobile Telecommunications (IMT), at 62, *available at*: http://www.itu.int/rec/R-REC-M.1224-1-201203-I/en (posted May 11, 2012); Report from CEPT to the European Commission in response to the Second Mandate to CEPT on mobile communication services on board aircraft (MCA), CEPT Report 48, at 6 (Mar. 8, 2013), *available at*: http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP048.PDF (CEPT MCA Report 48). The 1800 MHz band is comprised of frequencies 1710-1785 MHz for uplink and 1805-1880 MHz for downlink. *See*, *e.g.*, Commission Decision 2008/294/EC, 2008 O.J. (L 98/19), at Annex, Table 1 (EC), *available at*: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:098:0019:0023:EN:PDF (EC Decision).

[33] *See* EC Decision. Specifically, a "mobile communications service on aircraft" service is an "electronic communications service[] . . . provided by an undertaking to enable airline passengers to use public communication networks during flight without establishing direct connections with terrestrial mobile networks." *Id.* at Art. 2. In the United States, the 1710-1785 and 1805-1880 MHz bands are allocated for various uses, including commercial wireless, federal use, fixed microwave, cable antenna relay service, and other uses.

[34] Report from CEPT to the European Commission in response to the EC Mandate on Mobile Communication Services on board aircraft (MCA), CEPT Report 016 (Mar. 30, 2007), *available at*: http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP016.PDF (CEPT MCA Report 16).

[35] ECC Decision of 1st December 2006 on the harmonised use of airborne GSM systems in the frequency bands 1710-1785 and 1805-1880 MHz, ECC/DEC/(06)07 (amended Mar. 13, 2009), *available at*: http://www.erodocdb.dk/Docs/doc98/Official/Pdf/ECCDec0607.pdf (ECC Decision).

(ECC) of the EU's European Conference of Postal and Telecommunications Administrations (CEPT).[36] CEPT MCA Report 16 found that operating an Airborne Access System-based mobile communications system above 3,000 meters above ground level[37] prevents harmful interference to ground-based mobile networks (in all studied bands[38] in which the onboard mobile terminals would be capable of transmitting).[39]

13. Pursuant to the EC Decision, the communications administrations of all twenty-seven EU member states subsequently created licensing mechanisms for airborne mobile services in their individual jurisdictions.[40] On November 14, 2013, the EC issued a new decision modifying the existing EC

[36] The ECC is one of three business committees of CEPT. CEPT MCA Report 16 and the ECC Decision both were created pursuant to a Mandate given by the EC to CEPT in 2006. CEPT MCA Report 16 at Annex 1. Pursuant to the EU's Radio Spectrum Decision (Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community), CEPT is mandated to undertake the work required to identify the most appropriate technical criteria for the timely and harmonized introduction of mobile communications service on aircraft applications in the EU.

[37] CEPT MCA Report 16 assumes an interference criterion of I/N < -6dB (equivalent to a 1 dB increase of the noise floor) to terrestrial systems.

[38] While CEPT Report 16 only addressed the operation of Airborne Access Systems in the 1800 MHz band, the report did study potential harmful interference from such systems into terrestrial operations in the 460-470 MHz, 921-960 MHz, 1805-1880 MHz, and 2110-2170 MHz bands.

[39] *See generally* CEPT MCA Report 16. The ECC Decision covers the free circulation and harmonized usage of mobile communications service on aircraft systems and sets out the technical limits that should be observed to ensure that such systems do not cause any harmful interference. *See generally* ECC Decision. *See also* Ofcom, Mobile Communications on board Aircraft, Ofcom Statement on Authorising MCA Services, at 33(Mar. 26, 2008), *available at*: http://stakeholders.ofcom.org.uk/binaries/consultations/mca/statement/mca.pdf (Ofcom Statement). It found that EU administrations must allow the use of mobile communications services on aircraft within the 1800 MHz band, provided that the system does not cause harmful interference to, or claim protection from, any other authorized system and that the use of the system complies with the technical and operational requirements set out in the ECC Decision. ECC Decision at 5. ECC Decisions are regulatory texts providing measures on significant harmonization matters, which CEPT member national regulatory authorities are strongly urged, but not required, to follow. ECC reports and decisions and CEPT reports inform EC decisions; EC decisions are binding on EU Member States, but CEPT – and ECC – reports and decisions are not. *See* CEPT, All About Our Organisation, The European Conference of Postal and Telecommunications Administrations, at 1, http://www.cept.org/files/1047/CEPT_about_us.pdf; Ofcom Statement at 33.

[40] *See* European Commission, Implementation of Decision 2008/294/EC, https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/2008_294_100915impl.pdf; *see also* Ofcom Statement. The nations that allow mobile communications services on aircraft authorize the service in various ways. For example, in the United Kingdom, the Office of Communications (Ofcom) authorizes the installation and use of airborne systems by varying the aircraft radio license of aircraft registered in the United Kingdom through a Notice of Variation. *See* Ofcom Statement at 23; Ofcom, Notice of Proposal to Make the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2008, Annex 7, Draft Notice of Variation (NoV) to Aircraft Licence (2008), *available at*: http://stakeholders.ofcom.org.uk/binaries/consultations/mca08/summary/mca.pdf. Pursuant to a Notice of Variance, the Airborne Access System is authorized in the relevant aircraft radio license for certain frequencies, with certain technical requirements. In Australia, for frequencies that are not licensed, use of the radiofrequency spectrum for airborne mobile services may be authorized by an apparatus license for the onboard base station and by a class license for user devices. *See* Australian Communications and Media Authority, Proposed amendments to radiocommunications licensing instruments for mobile communication services on aircraft radiocommunications licensing policy discussion paper at 11 (2009), *available at*: http://www.acma.gov.au/webwr/_assets/main/lib311255/mobile_svces_on_aircraft-disc_paper.pdf; Press Release, Australian Communications and Media Authority, ACMA green lights new licensing arrangements for mobile communication services on aircraft (July 30, 2010), http://www.acma.gov.au/theACMA/acma-media-release-952010-30-july-2010-acma-green-lights-new-licensing-arrangements-for-mobile-communication-services-on-aircraft. However, in licensed spectrum bands, mobile communications services on aircraft must be authorized by

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Decision in order to allow for additional frequency ranges and technologies, such as UMTS and LTE, to be used in aircraft.[41] Prior to this Decision, CEPT issued a Report on the technical aspects of adding these new frequencies and technologies.[42]

14. Outside of the United States, two third-party providers, OnAir and AeroMobile Communications Ltd. (AeroMobile), currently offer mobile communications services on airborne aircraft.[43] OnAir provides such third-party services to airlines including British Airways, Emirates, and Royal Jordanian,[44] while AeroMobile provides such third-party services to airlines including Emirates, SAS, and Virgin Atlantic.[45] According to OnAir, approximately eighty countries across Europe, the Middle East, North Africa, Asia Pacific, North America, and Latin America have authorized the use of its service.[46] As of May 2012, at least one foreign air carrier, Virgin Atlantic, has installed and is operating a system to provide mobile communications services on some aircraft on transatlantic flights from the United Kingdom to the United States.[47]

15. We are not aware of any reported cases of harmful interference to terrestrial systems stemming from the use of Airborne Access Systems since airlines began offering mobile communications

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agreement with the spectrum license holder. *Id*.

[41] *See* Commission Implementing Decision 2013/654/EU, 2013 O.J. (L 303/48) (EC), *available at*: https://ec.europa.eu/digital-agenda/en/news/commission-implementing-decision-c-2013-7491-mca-services-adopted-12112013 (Updated EC Decision). The decision authorized the use of Long Term Evolution (LTE) technology in the 1800 MHz band and Universal Mobile Telecommunications System (UMTS) technology in the 1920-1980 / 2110-2170 MHz band consistent with the recommendations set forth in CEPT MCA Report 48. *See also* Press Release, European Commission, Surfing in the sky: Commission gives airlines green-light for 3G and 4G broadband services on board aircraft (Nov. 14, 2013), http://europa.eu/rapid/press-release_IP-13-1066_en.htm. UMTS and LTE are technologies based on the GSM standard.

[42] CEPT MCA Report 48.

[43] *See, e.g.,* Press Release, European Union, First European airlines offering in-flight use of mobile phones thanks to EU-wide ground rules (Apr. 2, 2009), http://europa.eu/rapid/press-release_IP-09-526_en.htm?locale=en. *See also* Todd Shields, *Yes, You Can Use Your Phone on a Plane. Just Not to Talk.*, BLOOMBERG, Nov. 12, 2013, http://www.bloomberg.com/news/2013-11-12/airlines-run-from-onboard-gabfests-as-gadget-use-embraced.html; Bart Jansen, *Should U.S. airlines allow cell calls during flight?*, USA TODAY, Oct. 8, 2012, http://www.usatoday.com/story/travel/flights/2012/10/07/airline-cellphones/1611079/; Kent German, *Cell phones in the sky: Airlines that allow mobile use*, CNET, Jan. 31, 2011, http://www.cnet.com/8301-17918_1-20030100-85.html#ixzz2NLo7c2UZ; *FAQs*, AeroMobile, http://www.aeromobile.net/passengers/faqs (AeroMobile FAQs); *Mobile OnAir*, OnAir, http://www.onair.aero/en/commercial-airlines-products-mobile-onair.

[44] *Who Flies With Us*, OnAir, http://www.onair.aero/en/commercial-airlines-customers (Who Flies with OnAir). *See also* Shields, *supra* note 40; Jansen, *supra* note 40. OnAir provides service to a total of sixteen air carriers: Aeroflot, Azerbaijan Airlines, British Airways, Cebu Pacific Air, Egyptair, Emirates Airlines, Etihad Airways, Hong Kong Airlines, Libyan Airlines, Oman Air, Philippine Airlines, Qatar Airways, Royal Jordanian, Saudia, Singapore Airlines, and TAM Airlines. *See also* Shields, *supra* note 43; Jansen, *supra* note 43.

[45] *About Us*, AeroMobile, http://www.aeromobile.net/about-us (About AeroMobile). *See also* Jansen, *supra* note 40. AeroMobile provides service to a total of nine air carriers: Aer Lingus, Air France, Emirates Airlines, Etihad Airways, KLM Airlines, SAS Scandinavian Airlines, Singapore Airlines, Transaero Airlines, and Virgin Atlantic. About AeroMobile. *See also* Jansen, *supra* note 43.

[46] *Regulatory Bodies*, OnAir, http://www.onair.aero/en/partners-regulatory-bodies.

[47] *See, e.g.,* Jansen, *supra* note 43; Rachel Sang-hee Han, *Virgin Atlantic offers in-flight mobile service. Annoyed yet?*, CNN, May 18, 2012; *Virgin Atlantic allows in-flight calls - six at a time*, BBC, May 16, 2012. Virgin Atlantic disables the service within 250 miles of U.S. airspace. Jansen, *supra* note 43. Airborne Access Systems on board Virgin Atlantic flights automatically switch off once they enter U.S. air space. *Aeromobile - Where does it work?*, Virgin Atlantic, http://virginatlantic.custhelp.com/app/answers/detail/a_id/675.

services on airborne aircraft. In response to an FAA inquiry regarding the use of PEDs during flight,[48] Panasonic stated that since deployment of the eXPhone system[49] – a system for providing mobile communications services on aircraft – there has been no harmful interference to aircraft systems or terrestrial networks, nor have there been any system failures.[50] In comments filed by AeroMobile in the same proceeding, AeroMobile stated that it has operated its Airborne Access Systems since 2008 "without any reported instances of harmful interference to avionics or other aircraft systems, or to terrestrial mobile networks."[51]

D. Current FCC Authorization of Airborne Broadband Access

16. The Commission first paved the way for in-flight voice and data services in 1990 when it allocated four megahertz of spectrum for commercial Air-Ground Radiotelephone Service.[52] This led to the deployment of service offered via seat-back phones in many commercial aircraft. Additionally, in 1998, the Commission granted to AirCell, Inc. (AirCell) a waiver of section 22.925's airborne cellular prohibition to allow AirCell to use cellular frequencies for in-flight communication using specially designed equipment.[53] In 2005, the Commission reconfigured the 800 MHz Air-Ground Radiotelephone Service to facilitate the provision of broadband service to passengers aboard aircraft.[54] After that, companies began to offer Wi-Fi using unlicensed spectrum on aircraft along with an air-to-ground link.[55]

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[48] This proceeding is discussed in more detail in Section II.E, *infra.*

[49] Panasonic is a part owner of AeroMobile. AeroMobile comments, Passenger Use of Portable Electronic Devices on Board Aircraft, Docket No. FAA-2012-0752, at 1 (2012) (AeroMobile Comments to FAA). The companies partner to provide the "eXPhone" system, which provides mobile communications services on aircraft. *Id*.

[50] Panasonic Comments, Passenger Use of Portable Electronic Devices on Board Aircraft, Docket No. FAA-2012-0752 at 2 (2012).

[51] AeroMobile Comments to FAA at 1. In that same proceeding, AIRBUS stated that "[d]ue to the high robustness of safety relevant equipment against EMI [electromagnetic interference], the number of proven EMI influence caused by PED is negligible today." AIRBUS comments, Passenger Use of Portable Electronic Devices on Board Aircraft, Docket No. FAA-2012-0752 at 3 (2012).

[52] *See* Amendment of the Commission's Rules Relative to Allocation of the 849-851/894-896 MHz Bands, *Report and Order*, GN Docket No. 88-96, 5 FCC Rcd 3861 (1990), recon. granted in part, Amendment of the Commission's Rules Relative to Allocation of the 849-851/894-896 MHz Bands, *Memorandum Opinion and Order*, 6 FCC Rcd 4582 (1991). The Commission authorized this operation at 849-851 MHz (ground stations) and 894-896 MHz (airborne mobile stations).

[53] AirCell, Inc., Petition, Pursuant to Section 7 of the Act, For a Waiver of the Airborne Cellular Rule, or in the Alternative, For a Declaratory Ruling, *Order*, 14 FCC Rcd 806 (1998). Though AirCell operated in the cellular spectrum (825 to 894 MHz), AirCell did not provide service to conventional cellular handsets. *See id.* at 807 ¶ 3. Instead, AirCell used "modified cellular telephones" and specially-designed "airborne mobile terminals installed on board general aviation aircraft" that incorporated a "specially designed aircraft antenna." *See id.* at 806 ¶ 1, 807 ¶ 3.

[54] *See* Amendment of Part 22 of the Commission's Rules to Benefit the Consumers of Air-Ground Telecommunications Services, *Report and Order*, WT Docket No. 03-103, 20 FCC Rcd 4403 (2005).

[55] For example, Gogo Inc. (Gogo), formerly AirCell, acquired three megahertz of 800 MHz Air-Ground spectrum and began offering Wi-Fi services on board aircraft in 2008. See *Company info, History*, Gogo, http://gogoair.mediaroom.com/history. Gogo has installed Wi-Fi service on approximately 2,000 commercial aircraft. *See* News Release, Gogo, Gogo Surpasses 2,000 Aircraft Installed with Its In-flight Internet Service (Sept. 26, 2013), http://ir.gogoair.com/phoenix.zhtml?c=251827&p=irol-newsArticle&ID=1859111&highlight=. In addition, Gogo recently introduced a new "Text & Talk" technology, which leverages Gogo's in-flight Wi-Fi system to allow passengers to send text messages and make phone calls using their smartphone while airborne. *See* Press Release, Gogo, Gogo Unveils Its Next In-Air Technological Innovation: Gogo Text & Talk, http://gogoair.mediaroom.com/2013-11-08-Gogo-Unveils-Its-Next-In-Air-Technological-Innovation-Gogo-Text-Talk.

17. In addition to the 800 MHz Air-Ground band, satellite spectrum also has been used as an air-to-ground link. The L-band Mobile Satellite Service (MSS) has been used to provide data service to and from aircraft since the 1990s. Beginning in 2001, the Commission authorized, on an *ad hoc* basis, the use of earth stations aboard aircraft (ESAA) communicating with Ku-band geosynchronous orbit (GSO) Fixed Satellite Service (FSS) space stations to provide connectivity to airborne aircraft.[56] In December 2012, the Commission adopted service and technical rules for ESAA operations to formalize ESAA as a means of providing in-flight broadband services to passengers and flight crews aboard commercial airliners and private aircraft (in conjunction with in-cabin Wi-Fi).[57]

18. The Commission recently has taken further action to expand access to broadband services onboard aircraft and improve the quality of services offered. Notably, on March 29, 2013, the Wireless Telecommunications Bureau (WTB) granted Gogo's request of a waiver of section 22.853[58] of the Commission's rules to allow the assignment of one megahertz of LiveTV Inc.'s licensed nationwide 800 MHz Air-Ground Radiotelephone Service license to Gogo.[59] Gogo now has access to all four megahertz of nationwide 800 MHz Air-Ground spectrum, which Gogo asserts is necessary to provide the full array of high-speed wireless communications services that consumers expect.[60]

19. The Commission also has released a *Notice of Proposed Rulemaking* that proposes to establish a new air-ground mobile broadband service in the 14.0-14.5 GHz band.[61] The new service will operate on a secondary, non-interference basis with FSS Earth-to-space communications.[62] If the rules proposed in that proceeding are adopted, the new service would significantly increase the capacity available to aircraft for broadband backhaul.

E. Other Federal Government Actions

20. In January 2013, the FAA Administrator established the PED Aviation Rulemaking Committee (ARC) in order to provide a forum for the U.S. aviation community and PED manufacturers to review comments received from the FAA's Notice of Policy/Request for Comments regarding PED policy and guidance.[63] The ARC was tasked to make recommendations to further clarify and provide

[56] *See*, *e.g.*, Panasonic Avionics Corporation, *Order and Authorization*, 26 FCC Rcd 12557 (2011); Row 44, Inc., *Order and Authorization*, 24 FCC Rcd 10223 (2009); ViaSat, Inc., *Order and Authorization*, 22 FCC Rcd 19964 (2007); ARINC Incorporated, *Order and Authorization*, 20 FCC Rcd 7553 (2005); and Boeing Company, *Order and Authorization*, 16 FCC Rcd 5864 (2001), *Order and Authorization*, 16 FCC Rcd 22645 (2001). Gogo also was recently granted an authorization to operate earth stations aboard aircraft transmitting in the Ku-band. Gogo LLC, *Application for Blanket Authority for Operation of 1,000 Technically Identical Ku-Band Transmit/Receive Earth Stations in the Aeronautical Mobile Satellite Service*, IBFS File Nos. SES-LIC-20120619-00574, SES-AMD-20120731-00709, SES-AFS-20121008-00902, granted May 1, 2013.

[57] Revisions to Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands, *Notice of Proposed Rulemaking and Order*, IB Docket No. 12-376, 27 FCC Rcd 16510 (2012) (*ESAA Order*). For example, Southwest Airline offers satellite enabled Wi-Fi internet access. http://www.southwest.com/wifi/.

[58] 47 C.F.R. § 22.853.

[59] *See* 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, *Memorandum Opinion and Order*, WT Docket No. 12-155, 28 FCC Rcd 3362 (WTB 2013).

[60] *Id.*at 3366-67 ¶¶ 13-14.

[61] Expanding Access to Broadband and Encouraging Innovation through Establishment of an Air-Ground Mobile Broadband Secondary Service for Passengers Aboard Aircraft in the 14.0-14.5 GHz Band, *Notice of Proposed Rulemaking*, GN Docket No. 13-114, 28 FCC Rcd 6765 (2013) (*14 GHz NPRM*).

[62] *See generally id*.

[63] *See* ARC Report; *See also* Press Release, FAA, *supra* note 4.

guidance on allowing additional passenger PED usage without compromising the continued safe operation of the aircraft.[64] The ARC transmitted its report to the FAA Administrator on September 30, 2013, and the FAA released the report publicly on October 31, 2013.[65]

21. The ARC concluded that most commercial airplanes can tolerate radio interference signals from PEDs. However, PEDs with cellular capabilities must disable those capabilities during flight. The ARC recommended that, subject to this condition, PEDs be permitted to operate "gate-to-gate" provided that the airline operators and aircraft manufacturers certify their aircraft to demonstrate "tolerance" of emissions from PEDs.[66] While cell phones were excluded from the scope of the ARC Report, the ARC did recommend that the FAA consult with the Commission to review our current rules.[67] On October 31, 2013, the FAA announced that, based on the ARC Report, it had determined that airlines can safely expand passenger use of PEDs during all phases of flight and provided airlines with implementation guidelines.[68]

III. DISCUSSION

22. In the six years since the Commission issued the *Airborne Mobile Termination Order*, the mobile communications landscape has undergone a series of dramatic changes. Global mobile data traffic increased by 70 percent from 2011 to 2012[69] and, driven by widespread adoption of smartphones, tablets, and other high data use devices, it is projected to increase thirteen-fold by 2017.[70] Consumers are ever more dependent on reliable high speed connectivity for these devices for personal communications, business, and entertainment. Moreover, as noted, numerous international administrations have adopted rules for the safe, non-interfering use of mobile services on airborne aircraft utilizing Airborne Access Systems.[71] The successful widespread international adoption of these systems demonstrates the technical viability of mobile communications services on airborne aircraft today.

23. In light of the increasing demand for mobile communications services on airborne aircraft and widespread confirmation of its technical viability, we propose to revise our rules to enable domestic and international travelers to access mobile services onboard aircraft flying in U.S. airspace. To that end, we propose to: (1) remove existing Commission restrictions on airborne use of mobile devices in the 800 MHz cellular and 800 MHz SMR bands;[72] (2) harmonize regulations governing the operation of mobile

[64] ARC Report at ix. *See also* Press Release, FAA, *supra* note 4.

[65] *See* ARC Report at ix. *See also* Press Release, FAA, *supra* note 4.

[66] *See generally* ARC Report.

[67] *See id*. at 5, 34.

[68] *See* Press Release, FAA, *supra* note 4; FAA, Expanding Use of Passenger Portable Electronic Devices (PED), InFO Information for Operators, InFO 13010 (Oct. 31, 2013), *available at*: http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2013/InFO13010.pdf; FAA, FAA Aid to Operators for the Expanded Use of PEDs, FAA, InFO Information for Operators, InFO 13010 SUP (Oct. 31, 2013), *available at*: http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2013/InFO13010SUP.pdf; FAA, Expanded Use of Passenger Portable Electronic Devices (PED), Notice 8900.240 (Oct. 31, 2013), *available at*: http://www.faa.gov/documentLibrary/media/Notice/N8900.240.pdf (collectively, FAA Guidance).

[69] Global mobile data traffic was 885 petabytes per month at the end of 2012 as compared to 520 petabytes per month at the end of 2011. *See* Cisco, Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2012–2017 at 1 (rel. February 6, 2013), *available at*: http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf.

[70] *See id*. at 5-8.

[71] *See supra* Section II.C.

[72] *See* 47 C.F.R. §§ 22.925 and 90.423.

devices on airborne aircraft across all commercial mobile spectrum bands; and (3) implement a comprehensive licensing and regulatory framework to facilitate access to mobile communications services on aircraft. These proposals are consistent with our longstanding commitment to facilitate universal broadband access, promote investment and innovation, and encourage efficient, flexible use of spectrum. We seek comment on these proposals.

24. The proposals in this *Notice* would also require airlines to install Airborne Access Systems if they choose to provide mobile communications services on airborne aircraft. As described below, the Airborne Access System incorporates hardware and software to enable the provision of service and to manage services onboard the aircraft. In practice, the system would connect wireless devices on the aircraft operating on licensed wireless frequencies to a terrestrial network via satellite or air-ground links. While business models may vary, under one model, passengers on a flight with an Airborne Access System would be able to access the wireless service to which they subscribe when above 3,048 meters (10,000 feet) through the Airborne Access System, and would be billed for the service directly by their service provider.[73]

25. In this *Notice*, we also seek comment on the alternative licensing and regulatory frameworks for the provision of mobile communications services on airborne aircraft, the potential impact of these proposals on public safety and national security, and any potential operational issues related to the use of mobile services, including voice, onboard aircraft. We are committed to working closely with other federal agencies that have expertise and may have more appropriate jurisdiction over some of these operational areas.

26. Throughout the *Notice*, where we seek comment on the costs and benefits of a proposal, we ask that commenters take into account costs and benefits that result from the implementation of the particular rules that could be adopted, including any proposed requirement or potential alternative requirement. Further, to the extent possible, commenters should provide specific data and information, such as actual or estimated dollar figures for each specific cost or benefit addressed, including a description of how the data or information was calculated or obtained, and any supporting documentation or other evidentiary support.

A. Changes to Current Rules Restricting Airborne Mobile Broadband Use

27. As an initial matter, we propose to remove or modify the current restrictions on airborne mobile operations in Parts 22 and 90 of the Commission's rules.[74] We propose to replace these restrictions with references to a revised authorization regime under Part 87 of the Commission's rules that would allow aircraft station licensees to provide mobile communications services using an Airborne Access System.[75] We seek comment on whether, in light of the proposals set forth herein and recent technological advances, these restrictions remain necessary to prevent harmful interference to terrestrial mobile networks.

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[73] As an example of how this type of service has been offered internationally, OnAir has agreements with individual airlines to provide service on board airplanes equipped with OnAir's Airborne Access System. To provide its in-cabin mobile service to passengers, OnAir has roaming agreements with various mobile network operators, and the rates charged to passengers for mobile phone use are determined by the passenger's home mobile operator. OnAir also has partnered with satellite provider Inmarsat for its air-ground link. *See FAQs*, OnAir, http://www.onair.aero/en/faqs (OnAir FAQs). AeroMobile's mobile service also is comparable to international roaming, whereby it has roaming agreements with home mobile operators, and roaming charges are set by the home operator. *See* AeroMobile FAQs, *supra* note 40. Charges then appear on passengers' existing mobile phone bill, just as when roaming abroad. *Id*.

[74] *See* 47 C.F.R. §§ 22.92 and 90.423.

[75] *See* Appendix A.

28. We also propose to add cross references to the new Part 87 airborne mobile service authorization to Parts 22, 24, 27, and 90 as set forth in Appendix A.[76] We propose to make the rules governing airborne mobile service consistent across all commercial mobile spectrum bands, thereby reducing confusion, improving administrative efficiency, and promoting Airborne Access System measures that will permit the provision of mobile communications services on aircraft across all commercial mobile spectrum bands. We seek comment on these proposals. Parties that oppose the removal of the extant bans or the harmonization of airborne mobile access rules should provide detailed technical and legal analyses to support their positions.

B. Airborne Access Systems

1. Potential Harmful Interference from Uncontrolled Airborne Mobile Devices

29. Mobile devices typically connect to a wireless network through the nearest cell site that can serve the device. As the distance between the devices and cell sites increases, signals are attenuated by terrain and obstacles such as buildings, and blocked by the curvature of the earth. However, an uncontrolled wireless device on an airborne aircraft could potentially cause co-channel interference at multiple cell sites.[77] This is because, even though the airborne wireless signal becomes weaker with increasing height above the ground, unlike the terrestrial case, it is not attenuated by terrain and obstacles, and it is not affected by the curvature of the earth. Thus, the signal from an airborne handset with an unobstructed line of sight may remain sufficiently strong as the device attempts to access multiple terrestrial sites, causing harmful interference or other undesirable effects to terrestrial systems. We concur with the conclusions in the CEPT MCA Reports that interactions between mobile terminals onboard aircraft and terrestrial mobile networks are possible unless managed properly.[78] Unmanaged airborne mobile devices will attempt to connect and in some cases will succeed in temporarily connecting to a terrestrial system, causing harmful interference and disruption to the system it is connected to and to surrounding systems.[79]

2. Benefits of Airborne Access Systems

30. As set forth above, the current Part 22 and Part 90 prohibitions on mobile communications services on aircraft were designed to guard against the threat of harmful interference from airborne use of mobile devices to terrestrial wireless networks.[80] Airborne Access Systems are used to minimize the potential for airborne wireless devices interfering with terrestrial networks. The most common Airborne Access System in use internationally today consists of an airborne picocell and a network control unit (NCU).[81] In effect, an airborne picocell is a low power base station transceiver installed in the aircraft for the purpose of communicating with (and controlling the operations of) mobile

[76] This proceeding does not address paging services authorized under Part 22 of the Commission's rules. This *Notice* is primarily concerned with facilitating the deployment of airborne mobile broadband services and, as such, paging services are beyond the scope of this proposal.

[77] *Airborne Use of Cellular Telephones Report and Order*, 7 FCC Rcd at 23 ¶ 5.

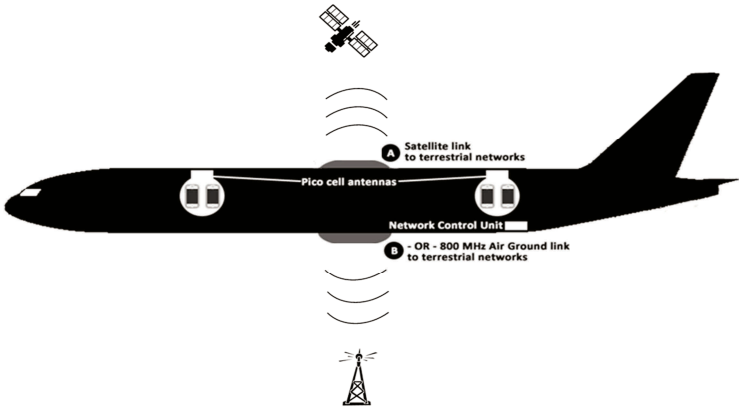
[78] *See generally* CEPT MCA Report 16 and CEPT MCA Report 48.

[79] According to one report, almost one-third (30 percent) of passengers report they have accidently left a PED turned on during a flight. APEX/CEA Report at 5, 15. *See also* Press Release, APEX, *supra* note 3. The APEX/CEA Report also found that when asked to turn off their electronic devices, 59 percent of passengers say they always turn their devices completely off, 21 percent of passengers say they switch their devices to "airplane mode," and 5 percent say they sometimes turn their devices completely off. APEX/CEA Report at 5, 15. *See also* Press Release, APEX, *supra* note 3.

[80] *See Airborne Use of Cellular Telephones Report and Order*, 7 FCC Rcd at 23 ¶ 5; *Airborne Land Mobile Order*, 42 F.C.C.2d at 505 ¶ 2.

[81] Airborne Access Systems using picocells and NCUs are used extensively in EU member countries and elsewhere. *See supra* Section II.C.

handsets or other transmitting electronic devices onboard an aircraft. As illustrated in Figure A below, the picocell controls the power levels of all transmitting mobile broadband devices operating onboard aircraft, keeping them at or near their *minimum* output power. A picocell is analogous to an in-building distributed antenna system (like those used in large buildings, malls, etc.) for use in the aircraft. The signal travels from the handset to the picocell, which then relays the call to the ground via a separate air-ground link, *e.g.*, via a satellite band or the 800 MHz Air-Ground band, after which it can be transferred to the terrestrial network.[82] In addition, the NCU raises the noise floor within the cabin to prevent devices from attempting to communicate with terrestrial networks.[83] Under the rules proposed below, terrestrial service providers and aircraft station licensees would be permitted to negotiate commercial agreements to facilitate access to terrestrial networks.[84] We note that for the Airborne Access Systems to effectively prevent cell phones that have the capability to operate outside the network from attempting to communicate with terrestrial networks and prevent potential interference to avionics, the noise floor likely would have to be raised onboard aircraft in all commercial mobile spectrum bands. We seek comment on whether airline passengers would be capable of accessing broadband services onboard aircraft over commercial mobile spectrum bands absent an agreement between their terrestrial mobile service provider and the aircraft station licensee.



31. Used in this manner, Airborne Access Systems appear to be an effective means of providing airline passengers with mobile broadband connectivity, while preventing harmful interference to terrestrial wireless networks. Indeed, as noted above, Airborne Access Systems are used to provide mobile broadband connectivity on flights in Europe and Asia.[85] To date, we are unaware of any instances of harmful interference to terrestrial systems resulting from the use of PEDs in conjunction with an Airborne Access System on airborne aircraft.[86] While these international systems primarily utilize GSM technology,[87] such use also is now permissible with other mobile technologies such as CDMA and LTE.[88] We seek comment on the use of non-GSM mobile technologies onboard aircraft and ask commenters to submit technical analyses and studies to support their arguments. We also seek comment on whether the potential for harmful interference to terrestrial networks could vary depending on how heavily Airborne Access Systems are used. Further, while we believe that airborne picocells are a proven technology and could be used as effective Airborne Access Systems on domestic flights, consistent with our commitment

[82] *See Airborne Mobile NPRM*, 20 FCC Rcd at 3761-62 ¶ 13; CEPT MCA Report 16 at 6.

[83] *See* CEPT MCA Report 16 at 11-12.

[84] *See infra* Section III.C.3.

[85] *See supra* Section II.C.

[86] *See id*.

[87] *See* EC Decision at Table 1; AeroMobile Comments to FAA, Docket No. FAA-2012-0752 at 2.

[88] *See* Updated EC Decision. *See also* CEPT MCA Report 48.

to technological neutrality, we propose to permit any type of Airborne Access System that meets the technical requirements set forth in the rules and any applicable rules and approval procedures required by the FAA.

3. Technical Requirements

32. Based on the available research and international practices, we tentatively conclude that Airborne Access Systems can be used to facilitate airborne mobile broadband access without causing harmful interference to terrestrial networks. We therefore propose to allow airborne use of mobile devices controlled by a properly managed Airborne Access System.

33. Our review of existing operations reveals that, for an Airborne Access System to effectively manage emissions from mobile broadband-capable devices, certain technical restrictions must be enforced. Specifically, three types of devices transmitting aboard the aircraft must be limited in power to prevent harmful interference to terrestrial networks: (1) the mobile device; (2) the picocell; and (3) the NCU. Measures that may be taken to limit power include, but are not necessarily limited to, mobile power restrictions, aircraft picocell power restrictions, NCU power and/or technology limitations, altitude restrictions, and methods to prevent an airborne mobile phone from accessing the terrestrial CMRS network. We use the technical analyses and conclusions released by CEPT earlier this year on these matters as a baseline for our technical inquiries.[89] We note that this report focused only on European commercial mobile spectrum bands, and believe that CEPT's findings are a solid foundation on which we can adopt technical requirements. We seek comments on this belief, as well as on the potential implications of the use of different spectrum bands in the United States. Are there any differences between the commercial mobile spectrum bands used in the EU and those used in the United States that would affect the relevant CEPT findings? We also ask commenters to provide us with any tests or technical analyses that have been performed regarding the use of Airborne Access Systems over commercial mobile spectrum bands in use in the United States. We note that the international systems appear to offer service only in a particular frequency band or bands. Should Airborne Access Systems be permitted to operate only in particular frequency bands? If so, which bands and what impact might this have on competition?

a. Mobile Device

34. Unmanaged airborne PEDs will attempt to connect and in some cases will succeed in temporarily connecting to a terrestrial system, causing harmful interference and disruption to the system it is connected to and to surrounding systems.[90] Thus, airborne mobile devices must be operated at sufficiently low power levels to prevent harmful interference with terrestrial broadband networks while still being able to communicate with the Airborne Access System.

35. CEPT MCA Report 48 concluded that an Airborne Access System would not interfere with terrestrial networks provided it met certain technical criteria.[91] It defined acceptable radiation from various sources for a point outside the aircraft at various altitudes. At 3,000 meters (approximately 9,842 feet), the report specifies an aggregate effective isotropic radiated power (EIRP) of 3.1 dBm/3.84 megahertz outside the aircraft for up to 20 individual mobile UMTS devices limited to -6 dBm/3.84 megahertz.[92] The report also specifies a limit of 1.7 dBm/5 megahertz for individual LTE devices transmitting at 5 dBm/5 megahertz at 3,000 meters.[93] Because the analysis in CEPT MCA Report 48 is limited to frequency bands utilized within the EU, we request comment on whether the same findings are

[89] *See* CEPT MCA Report 48.

[90] *See generally* CEPT MCA Report 16 and CEPT MCA Report 48.

[91] *See* CEPT MCA Report 48.

[92] *See id.* at 21.

[93] *See id*.

applicable to systems operating on bands used for commercial mobile radio services in the United States and whether any adjustments to CEPT MCA Report 48's findings or methods should be made.[94] We encourage commenters to submit relevant data and studies pertaining to bands used for commercial mobile radio services in the United States. What, if any, adjustments to these assumptions must be made for other mobile technologies? We also request comment on whether it is necessary to limit the number of mobiles in operation, or if an aggregate limit for emissions from the aircraft is sufficient to protect terrestrial systems from harmful interference. Is such an approach practical? Should the rules require the Airborne Access System to limit the maximum in-cabin transmit power of individual mobile units rather than specifying the allowable aggregate EIRP outside the aircraft? Commenters should include technical analyses to support their proposals, including the costs and benefits of adopting a particular approach.

b. Aircraft Picocell

36. The aircraft picocell communicates with the individual mobile devices onboard the aircraft and with its air-to-ground or satellite backhaul link.[95] The power of onboard picocells must be limited to prevent harmful interference to the terrestrial network. CEPT MCA Report 48 limits the EIRP outside the aircraft from picocell transmissions to 1.0 dBm/3.84 megahertz for UMTS and 1.0 dBm/megahertz for LTE.[96] We request comment on whether these levels are appropriate and can be applied to operations on U.S. commercial mobile spectrum bands. We also encourage commenters to submit relevant data and studies pertaining to bands used for commercial mobile radio services in the United States. What would be an appropriate method of making measurements or otherwise determining compliance? How should the Commission approach equipment authorization of picocells given that compliance would be determined by the aircraft in which the system is installed? We also request comment on whether we should limit the type of technology utilized for communications between the picocell and onboard mobiles to minimize the risk of harmful interference with terrestrial networks. We note that in its initial report, CEPT limited its analysis of communication services aboard aircraft to picocells operating with GSM technology[97] but its more recent report offers expanded analysis on both UMTS and LTE.[98] From an interference standpoint, are some technologies used on airborne aircraft less likely to cause harmful interference to terrestrial networks than others?

c. Network Control Unit

37. The NCU prevents mobile devices from connecting to the terrestrial network while on the aircraft. Uncontrolled, some mobile devices are capable of contacting terrestrial networks, even at altitudes exceeding 3,048 meters (10,000 feet).[99] The NCU raises the noise floor within the aircraft cabin to prevent onboard mobile devices from communicating with the terrestrial network.[100] NCUs also must be limited in power to prevent harmful interference to terrestrial networks. CEPT MCA Report 48 specifies for operations in the 2600 MHz (2500-2570 MHz and 2620-2690 MHz) band a limit at 3000 meters of 1.9 dBm/4.75 megahertz and for operations in the 800 MHz (790-862 MHz) band the limit is -0.87 dBm/10 megahertz.[101] The EC previously established limits for the 460-470 MHz, 921-960 MHz,

[94] For example, the report assumed operation in the 2100 MHz and 1800 MHz bands. The limitations discussed above, if applicable, could be adjusted to account for changes in free space path loss for operation on U.S. spectrum.

[95] CEPT's analysis assumes an Airborne Access System using one or more picocells.

[96] *See* CEPT MCA Report 48 at 21-22.

[97] *See* CEPT MCA Report 16.

[98] *See* CEPT MCA Report 48.

[99] *See id.* at 13, 16, 21-22.

[100] *See* EC Decision at Article 2; CEPT MCA Report 48 at 10.

[101] *See* CEPT MCA Report 48 at 22.

1805-1880 MHz, and 2110-2170 MHz bands in its Decision.[102] Those findings were reaffirmed by CEPT MCA Report 48.[103] We request comment on whether these levels are appropriate and can be applied to operations on domestic mobile spectrum bands. As CEPT MCA Report 48 limits vary by frequency band, which of these limits would be appropriate for each of the bands used for commercial mobile service in the United States? We encourage commenters to submit relevant data and studies pertaining to bands used for commercial mobile radio services in the United States. We also seek comment on whether there are other technical solutions that could prevent an onboard mobile device from accessing the terrestrial network.

38. We also seek comment generally on CEPT's findings and technical proposals. We ask that commenters address: (1) whether Airborne Access Systems can effectively prevent harmful interference into terrestrial wireless networks; (2) whether alternative or supplemental technological solutions would be more effective; (3) whether the proposed power levels are appropriate; and (4) what additional technical specifications may be needed to ensure that these systems and airborne mobile broadband devices do not interfere with existing terrestrial networks. We also request comment on any other technical restrictions or requirements that may be necessary to prevent harmful interference to terrestrial CMRS networks or to ensure reliable communications for mobile communications services on aircraft, or whether an alternative technical solution may be more appropriate in the domestic marketplace. Commenters should include technical analyses to support their proposals, including the costs and benefits of adopting a particular approach.

39. We reiterate that the FAA is responsible for regulations regarding the safety of passengers and crew aboard domestic aircraft. As such, regardless of the ultimate disposition of this proceeding, all elements of the Airborne Access Systems and any permissible airborne mobile devices remain subject to applicable FAA rules. In addition, elements of these systems may be subject to FAA certification, testing, and approval; the FAA has a comprehensive process by which it certifies all aspects of commercial and general aviation aircraft, and any Airborne Access System presumably would be subject to these procedures.[104] In addition, in response to the ARC Report, the FAA has adopted procedures to test and certify that aircraft manufactured in the United States are tolerant of PED emissions.[105]

40. Although any FAA actions related to the issues in this proceeding are outside the Commission's scope, in order to fully comprehend this regulatory framework, we seek information regarding any aspect of the FAA's authority regarding Airborne Access Systems that we should appropriately consider in this proceeding. We reiterate that we are committed to working closely with other federal agencies that have expertise and may have more appropriate jurisdiction in these areas.

41. Moreover, we note that, within the context of applicable FCC, FAA, and DoT rules, individual airlines will have flexibility to deploy or not deploy mobile communications services on an aircraft-by-aircraft basis. For example, abroad, OnAir and AeroMobile offer airlines the option of selecting which type of mobile communications services they offer,[106] and foreign airlines have chosen to offer the mobile communications services in different ways. For example, Ireland's Aer Lingus allows

[102] *See* EC Decision at Table 3.

[103] *See* CEPT MCA Report 48 at 22.

[104] *See Aircraft Certification*, FAA, http://www.faa.gov/aircraft/; *Advisory Circulars, Aircraft*, FAA, http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.list/parentTopicID/101; *The FAA and Industry Guide to Product Certification (CPI Guide)*, FAA, http://www.faa.gov/aircraft/air_cert/design_approvals/media/cpi_guide_ii.pdf.

[105] *See* FAA PED Press Release; FAA Guidance; ARC Report at 23-25, Appendix F.

[106] *See* OnAir FAQs ("Operators using Mobile OnAir can also choose to turn off the voice element of the Mobile OnAir service, for example during the plane's local night.").

texting and Internet access using mobile communications but does not allow the use of voice calls in the cabin, while the UK's Virgin Atlantic offers passengers the option of accessing the Internet, texting, and making voice calls through their mobile communications system.[107]

C. Airborne Commercial Mobile Use

42. We propose to allow aircraft station licensees to provide airborne commercial mobile services as part of their aircraft station license under Part 87 of the Commission's rules and seek comment on alternative authorization methodologies. Under any airborne authorization scheme, Airborne Access Systems would be required to manage in-flight mobile use. Mobile communications services controlled by authorized Airborne Access Systems would be permitted across all commercial mobile spectrum bands at altitudes above 3,048 meters (10,000 feet). These authorizations would cover only in-cabin operations. Moreover, any authorization method would require an agreement with separately authorized satellite or air-to-ground backhaul links to transmit mobile data from the aircraft to terrestrial networks.

1. Part 87 Authorization Methodology

a. Part 87 Aircraft License Modification

43. We propose to revise Part 87 of the Commission's rules to permit mobile communications services on aircraft as one element of an aircraft station license and seek comment on this proposal, as well as alternative authorization frameworks. Part 87 of the Commission's rules governs the authorization and use of radio services onboard aircraft, between aircraft, and between air and ground stations for aircraft travelling domestically and U.S. aircraft travelling to international destinations (including international waters).[108] Unless exempted, airlines must obtain an aircraft station license to cover any radio equipment or services other than certain two-way VHF, radar, or emergency locator services.[109] Under certain conditions, two or more aircraft having a common owner or operator may be issued a single fleet license to cover all aircraft stations in a given fleet.[110] We seek comment on how this proposal would work with FAA's established airframe dependent equipment certification procedures.

44. Authorizing the proposed use in this manner would allow airlines and other commercial aircraft operators to install and operate Airborne Access Systems as part of their existing aircraft station or fleet licenses.[111] Aircraft station licensees would be required to file for a modification of their existing aircraft station or fleet licenses on FCC Form 605 to include the newly designated airborne mobile communications authorization.[112] To the extent that an aircraft operator does not have an aircraft station license, that aircraft operator would, under this proposal, be required to apply for an aircraft station license in order to operate an Airborne Access System. Licensees would be permitted to contract with third parties to install and operate Airborne Access System aboard licensed aircraft.[113] However, aircraft

[107] *See Inflight Experience, Comfort and Entertainment, Transatlantic Economy, Wi-Fi & Connectivity*, Aer Lingus, http://www.aerlingus.com/inflight-experience/comfort-and-entertainment/longhaul/wifi-connectivity/; *Mobile Phones*, Virgin Atlantic, http://www.virgin-atlantic.com/us/en/the-virgin-experience/inflight-connectivity/mobile-phones.html.

[108] *See* 47 C.F.R. § 87.1, *et seq.* We note that U.S.-registered civil aircraft licensed for an Airborne Access System would bear the responsibility of ascertaining and complying with the applicable laws, regulations, and rules of any foreign nation in which they seek to operate.

[109] *See* Amendment of Parts 80 and 87 of the Commission's Rules to Permit Operation of Certain Domestic Ship and Aircraft Radio Stations Without Individual Licenses, *Report and Order*, WT Docket No. 96-82, 11 FCC Rcd 14849 (1996); 47 C.F.R. § 87.18(b).

[110] *See* 47 C.F.R. § 87.18.

[111] *See* Appendix A.

[112] *See id*.

[113] *See id*.

station licensees would retain sole responsibility for ensuring that such equipment is installed and operated in accordance with all applicable rules.

45. The airborne radio environment is interference-sensitive and must be closely controlled by aircraft station licensees to ensure stable operation of mission critical equipment, the safety of aircraft passengers and crew, and compliance with all applicable rules and regulations. Aircraft station licensees currently manage this unique environment for a wide variety of radio services in accordance with FCC and FAA rules.[114] As such, they may be well positioned to ensure that Airborne Access Systems are properly operated and integrated into the existing device ecosystem. Indeed, regardless of the authorization scheme we select, no Airborne Access System could be installed and operated without the permission, supervision, and control of aircraft station licensees.[115] In addition, modifying existing aircraft fleet or station licenses to include proposed airborne mobile communications use should not impose significant administrative burdens on applicants or the Commission. Finally, this proposal is roughly analogous to the successful authorization regimes adopted by other administrations in recent years.[116]

46. We propose to retain the current licensing assignment methods applicable to Part 87 aircraft station licenses. Although we propose to permit licensees to provide a new service offering, the underlying functions of aircraft station licenses remains the same. Under this proposal, existing aircraft station licensees seeking to provide mobile communications services on aircraft could request a modification of their current authorizations to permit operation of an Airborne Access System, and applicants for new aircraft station authorizations could indicate on their applications their intention to provide mobile communications services on aircraft. We seek comment on whether such license modifications must be placed on public notice for thirty days pursuant to Section 309 of the Communications Act.[117] We seek comment on this proposed authorization approach, as well as the alternative authorization mechanisms listed below, and on what changes, if any, may need to be made to the table of allocations to reflect this licensing regime.[118]

47. We acknowledge that, with respect to the NCU transmissions and the communications between the picocell and the consumer mobile devices, the Airborne Access System proposed here would operate on spectrum licensed to mobile service providers for terrestrial wireless use. However, we do not propose to modify the existing rights of commercial mobile licensees or otherwise impede their ability to provide mobile services within their license areas. Under our proposal, aircraft operators should be able to offer access to wireless services to the limited confines of the in-cabin environment in a safe and effective manner – and thereby extend broadband service to an otherwise difficult-to-serve market segment – while protecting incumbent terrestrial licensees from harmful interference and without infringing upon incumbents' existing operations. We seek comment on this proposal, including potential impacts it may have on the existing rights of terrestrial mobile licensees.

b. Alternative Authorization Methods

48. We also seek comment on alternative authorization methods. For completeness, we describe several alternatives below, although we acknowledge that some of these methods may suffer from deficiencies that make them less desirable in a public interest analysis. We also request comment on other approaches that are not enumerated below. We encourage commenters to provide details on how any authorization regime, including the Part 87 authorization method described above, would work in

[114] *See generally* ARC Report; FAA Guidance.

[115] *Id.*

[116] *See supra* Section II.C.

[117] *See* 47 U.S.C. § 309(a).

[118] As noted below, we propose to prohibit mobile communications services on aircraft from operating on spectrum allocated exclusively for federal use. *See infra* Section III.C.3.

practice (including the relationship with other licensees or services authorized in the same frequency bands), how it would further the various public interest goals enumerated in this *Notice*, and its relative costs and benefits.

49. *Non-Exclusive License*. One alternative authorization method would establish an Airborne Access System Service pursuant to which applicants could file for non-exclusive licenses to provide airborne mobile services. Eligibility for such licenses would be limited to applicants with appropriate commercial agreements with aircraft operators to operate such systems on specific aircraft. Would such an authorization system provide additional benefits to the public or to aircraft station licensees? Under this alternative authorization scheme, would the airlines retain sufficient control over the in-cabin environment to ensure that services are provided safely and effectively? Are there any additional eligibility conditions that should be required of licensees under this authorization method?

50. *Secondary Markets.* Another option would authorize operation of an Airborne Access System pursuant to spectrum lease agreements with mobile wireless service providers. We observe that for any given flight, an aircraft is likely to fly above license areas for many different licensees. Moreover, the licensees implicated will likely vary throughout the course of the flight. The Commission has issued thousands of geographic mobile licenses.[119] Would this authorization method be administrable in practice? How would the Commission ensure that a leasing arrangement involves the necessary parties? Would it require the cooperation of every mobile wireless service provider? Would the use of a leasing framework introduce market efficiencies or inefficiencies not present in other authorization models? Under this alternative, how would the Commission determine the boundaries of mobile licenses along a flight path and at various altitudes, especially considering the curvature of the earth?

51. *Auctioned Sky Licenses.* Alternately, should the Commission create nationwide or geographic "sky licenses" and allow eligible applicants to bid on these licenses via auction? Would such an authorization system provide unique benefits to the public or to aircraft station licensees? How would the Commission determine the geographic boundaries of such licenses and the proper number of licensees for each geographic area? How would such a licensing construct affect the ability of airlines to manage their in-cabin environment? Would such an authorization method create "artificial" limitations on market-based agreements between airlines and Airborne Access System providers?

52. *Unlicensed Use or License-by-Rule.* Should the Commission authorize unlicensed use of an Airborne Access System pursuant to our Part 15 rules? Alternatively, would a license-by-rule approach be appropriate? Both methods appear, on first consideration, to raise significant issues with respect to providing airlines sufficient ability to manage mobile access in flight and to mitigate potential harmful interference into terrestrial networks. Do commenters agree? How would such authorization mechanisms work in practice? Would they require revisions to existing rule parts? Would these methodologies offer appropriate Commission oversight of the mobile communications services being proposed?

53. Commenters that advocate an alternative authorization methodology should support their arguments with detailed technical and legal analyses. Commenters should also address how the issues raised in Sections III.C.2. and 3. below would apply for any alternative authorization scheme.

2. Scope of the Authorization

54. To facilitate the widespread use of airborne mobile data services, we propose to authorize aircraft station licensees to operate Airborne Access Systems that encompass all domestic commercial mobile spectrum bands. Most broadband capable mobile devices are capable of accessing multiple commercial mobile spectrum bands which vary by device and mobile service provider. We tentatively conclude that permitting Airborne Access Systems to operate across all such bands would provide greater

[119] There are over 14,166 licenses, held by approximately 788 unique entities (based on licensee FCC Registration Number), for the spectrum bands within the scope of this *Notice*.

access to broadband data for the travelling public, and is consistent with the Commission's longstanding policy of technological neutrality. However, our proposal does not require a compliant Airborne Access System to cover all commercial mobile spectrum bands or wireless technologies.[120] We seek comments on our proposal to not require Airborne Access Systems to cover all commercial mobile spectrum bands, including on whether this approach may increase the risk of harmful interference to terrestrial networks.

55. We further propose that airborne commercial broadband operations be permitted only at altitudes exceeding 3,048 meters (10,000 feet). The available research suggests that, at those altitudes, there is little to no risk of harmful interference into terrestrial mobile networks from properly managed airborne mobile operations.[121] Moreover, this service floor is consistent with the rules established by the EU for airborne GSM mobile use.[122] As noted above, we are unaware of any instances of harmful interference from properly managed airborne mobile broadband operations at altitudes above 3,048 meters (10,000 feet) into terrestrial mobile networks. We seek comment on whether the 3,048 meter (10,000 feet) service floor is appropriate for all mobile technologies (*e.g.*, CDMA, GSM, and LTE) and spectrum bands. We also seek comment as to whether we should allow Airborne Access Systems to remain operational below 3,048 meters (10,000 feet), even if mobile communications services are not permitted at that altitude. Could low altitude Airborne Access System use actually help mitigate harmful interference by preventing activated mobile devices from attempting to access terrestrial networks? We encourage commenters to support their arguments with detailed technical studies and analyses for domestic commercial mobile spectrum bands and technologies, including detailed analyses of the costs and benefits of any such proposals.

56. We tentatively conclude that, if adopted, our proposal to permit the provision of mobile communications services on aircraft-by-aircraft station licensees at altitudes above 3,048 meters (10,000 feet) would promote the public interest by expanding mobile broadband coverage to consumers in an efficient, non-interfering manner. The deployment of Airborne Access Systems aboard commercial aircraft could provide significant public benefits without harming existing terrestrial licensees in the band. Moreover, terrestrial mobile licensees could benefit from this new commercial service offering if they choose to partner with aircraft station licensees on commercial connection agreements. We seek comment on these proposals and conclusions as well as viable alternative models. Commenters should provide detailed legal and technical analyses in support of their proposals, including detailed analyses of the costs and benefits of any such proposals.

3. Other Authorization and Licensing Issues

57. *Regulatory Status*. While aircraft stations authorized under Part 87 are typically considered private mobile radio services,[123] we propose to allow aircraft station licensees choosing to offer mobile communications services using an Airborne Access System to specify their regulatory status depending on the service they are providing. The Commission's current radio service license application requires an applicant for mobile services to identify the regulatory status of the service(s) it intends to provide because service offerings may bear on the applicant's eligibility to be a licensee, and other statutory and regulatory requirements.[124] In applying that model, an applicant is permitted to choose among several regulatory classifications (*e.g.*, common carrier, non-common carrier, or private, internal communications), or a combination thereof, and prospective airborne mobile licensees may benefit from a

[120] *See supra* Section III.B.3.

[121] *See supra* Section II.C.

[122] *See* EC Decision at Article 4.

[123] *See* 47 C.F.R. § 20.3.

[124] *See* FCC Form 601.

similar approach.[125] We seek comment on the merits of applying a similar licensing approach to the provision of mobile communications services on aircraft and ask that commenters discuss the costs and benefits of this approach. We also seek comment on whether there are any obligations under a particular classification that should not apply to mobile communications services on aircraft. For example, should an aircraft station licensee that elects a common carrier regulatory status be required to comply with all rules applicable to CMRS licensees under Part 20 of the Commission's rules given the limited scope of the in-cabin service offering?[126]

58. If the Commission permits an aircraft station licensee to choose its regulatory status in this manner, we propose that such licensees must identify their regulatory status on the FCC Form 605.[127] We also propose that if a licensee changes the service it offers such that it would be inconsistent with its regulatory status, the licensee must notify the Commission.[128] Further, we propose that licensees must file the notice within 30 days of a change made without the need for prior Commission approval. We seek comment on whether a different time period should apply where the change results in the discontinuance, reduction, or impairment of the existing service.[129] We seek comment on alternative proposals regarding changes to the regulatory status of a mobile communications services on aircraft provider and the costs and benefits of such proposals.

59. Given our proposal to allow an aircraft station licensee to choose its regulatory status, we note that all Commission licensees are subject to the provisions of section 310 of the Act.[130] Section 310 requires the Commission to review foreign investment in radio station licenses and imposes specific restrictions on who may hold certain types of radio licenses.[131] Specifically, section 310(a) of the Act

[125] The Commission sought comment on a similar approach in the *14 GHz NPRM*. *See 14 GHz NPRM*, 28 FCC Rcd at 6781-82 ¶¶ 54-55.

[126] For example, section 20.15 identifies requirements relating to Title II of the Communications Act that are applicable to CMRS licensees. *See* 47 C.F.R. § 20.15. Such Title II requirements include the obligation to provide service "upon reasonable request therefor," and at a "just and reasonable" rate, 47 U.S.C. § 201, as well as the requirement to provide services without "unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services." 47 U.S.C. § 202. Other obligations identified in Part 20 include 911 service, hearing aid compatibility as well as roaming. *See* 47 C.F.R. §§ 20.12, 20.18, 20.19.

[127] Form 605 would be modified to incorporate this proposal.

[128] *See, e.g.*, 47 C.F.R. § 27.10(d).

[129] *See, e.g.*, 47 C.F.R. § 27.66.

[130] 47 U.S.C. § 310 provides in relevant part: "(a) The station license required under this Act shall not be granted to or held by any foreign government or representative thereof. (b) No broadcast or common carrier or aeronautical en route or aeronautical fixed radio station license shall be granted to or held by—(1) any alien or the representative of any alien; (2) any corporation organized under the laws of any foreign government; (3) any corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country; (4) any corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country, if the Commission finds that the public interest will be served by the refusal or revocation of such license."). 47 U.S.C. §§ 310(a), (b). *See also* Review of Foreign Ownership Policies for Common Carrier & Aeronautical Radio Licensees Under Section 310(b)(4) of the Communications Act of 1934, As Amended, *Second Report and Order*, IB Docket No. 11-133, 28 FCC Rcd 5741 (2013).

[131] A "station license" is defined in Section 3(49) of the Act as "that instrument of authorization required by [the] Act or the rules and regulations of the Commission made pursuant to [the] Act, for the use or operation of apparatus for transmission of energy, or communications, or signals by radio by whatever name the instrument may be designated by the Commission." 47 U.S.C. § 153(49). For example, the Commission issues radio station licenses for the provision of broadcast, wireless personal communications services, cellular, microwave, aeronautical en route, and mobile satellite services.

expressly prohibits a foreign government or its representative from holding any radio license.[132] Further, section 310(b) places additional restrictions on who can hold a broadcast, common carrier, aeronautical en route and aeronautical fixed radio station license.[133] In particular, the foreign ownership restrictions in sections 310(b)(3) and (b)(4)[134] may be implicated for those airlines that have foreign ownership – whether governmental or non-governmental – where the airline provider seeks authorization to provide a common carrier service under the rules adopted in this proceeding.[135] We therefore tentatively conclude that we should revise FCC Form 605 to require all applicants to answer foreign ownership questions to ensure compliance with section 310. We seek comment on this tentative conclusion.

60. *Connection with Terrestrial Networks.* The rules governing connection with terrestrial networks would vary depending on the regulatory classification selected by a given aircraft station licensee. Aircraft station licensees that choose to register as CMRS providers would be subject to applicable Part 20 and common carrier obligations.[136] The requirements applicable to a regulatory classification would govern the rights and obligations of licensees' connections to terrestrial networks. All licensees would be permitted to enter into commercial agreements with terrestrial mobile licensees for connection to their terrestrial wireless networks. We seek comment on the costs and benefits of this approach and any other approaches that may be used to connect mobile communications services on aircraft with terrestrial networks.

61. *Handset Authorization.* Section 301 of the Communications Act requires a valid FCC license to operate a radio frequency transmitter, including a wireless handset, aircard, or other mobile broadband device.[137] This statutory requirement is reflected in the Commission's rules, which require either an FCC license or licensee consent to operate a station in the Wireless Radio Services.[138] Our proposal grants aircraft station licensees authorization to operate Airborne Access Systems on commercial mobile spectrum bands. As the definition of Wireless Radio Services includes services provided pursuant to Part 87 of the Commission's rules,[139] we conclude that, for purposes of airborne mobile communications services operations, wireless devices can be operated as subscriber equipment under the aircraft station license, consistent with the proposed rules set forth in Appendix A. We seek comment on this tentative conclusion.

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[132] 47 U.S.C. § 310(a). This prohibition is absolute, and the Commission has no discretion to waive it. The Commission has stated that, for purposes of section 310(a), a "representative" is a person or entity that acts "on behalf of" or "in connection with" the foreign government. *See*, *e.g.*, QVC Network, Inc., *Memorandum Opinion and Order*, 8 FCC Rcd 8485, 8490-91 ¶ 21 (1993) (quoting *Letter from the Commission to Russell G. Simpson, Esq.*, 2 F.C.C. 2d 640 (1966)).

[133] 47 U.S.C. § 310(b).

[134] *Id.* at §§ 310(b)(3) and (4).

[135] Providers of mobile radio services are typically considered common carriers under the Act. *See* 47 U.S.C. § 332

[136] *See*, *e.g.*, 47 C.F.R. §§ 20.11 and 20.12. As explained in paragraph 57, *supra*, we seek comment on the CMRS obligations that should apply to aircraft station licensees that choose to operate as CMRS.

[137] 47 U.S.C. § 301.

[138] *See* 47 C.F.R. § 1.903(c) ("[A]uthority for subscribers to operate mobile or fixed stations in the Wireless Radio Services…is included in the authorization held by the licensee providing service to them."). We note that, applying the language of section 1.903(c) to our proposed expansion of the Part 87 license, if a Part 87 licensee provides service to subscribers using devices normally served by a terrestrial-based provider, the "authority for [such] subscribers to operate" these devices would be included in the Part 87 license at the time these subscribers are receiving service from the Part 87 licensee; under these circumstances, the "licensee providing service" to the subscribers is the Part 87 licensee, not the terrestrial-based provider.

[139] *See* 47 C.F.R. § 1.907.

62. *Section 333.* Section 333 of the Communications Act states that "[n]o person shall willfully or maliciously interfere with or cause interference to any radio communications of any station licensed or authorized by or under this Act…."[140] The proposed Airborne Access Systems likely will operate by maintaining transmissions from mobile devices operating on commercial mobile spectrum bands at or near their lowest power level, thereby preventing these devices from attempting to access terrestrial base stations.[141] We tentatively conclude that, pursuant to section 1.903 of the Commission's rules, mobile units would be deemed to be authorized and operated under the aircraft station license. Accordingly, we tentatively conclude that operation of an Airborne Access System to prevent mobile transmissions from affecting terrestrial base stations constitutes a proper network management function and is not the willful or malicious interference at issue in Section 333. We seek comment on these tentative conclusions.

63. *Federal Spectrum*. Most of the Airborne Access Systems currently authorized by foreign countries operate, at least partially, in the 1800 MHz band, consistent with international commercial allocation of this band.[142] It is conceivable that U.S.-registered aircraft that wish to offer airborne mobile communications services will choose Airborne Access Systems with the technical ability to operate in that band, particularly those aircraft that operate internationally. Included in this band are the frequencies 1755-1850 MHz, which in the United States currently is allocated on an exclusive basis to the United States federal government for fixed and mobile services, including airborne systems.[143] We therefore propose requiring airlines (whether U.S.-registered or registered by another administration) operating an Airborne Access System in the 1755-1850 MHz frequency band to turn off the Airborne Access System or otherwise disengage transmission in this band prior to reaching U.S. airspace.[144] We seek comment on this proposal, including potential in-flight enforcement issues. We also note that the Commission has proposed to make the 1755-1780 MHz band available for shared federal and non-federal use.[145] We seek comment on what, if any, impact such shared operations could have on the proposals set forth in this *Notice*. In addition, we note that other bands are subject to operational limitations that could affect their availability for airborne commercial mobile operations.[146] We seek comment on what, if any, impact such operational limitations could have on the proposals set forth in this *Notice*. Given our proposal to prohibit operations on Federal frequencies, we invite comment as to whether it would be technologically feasible

[140] 47 U.S.C. § 333.

[141] *See supra* Section III.B.3.

[142] *See, e.g.,* APT Guidelines. As described above, the EU has mandated that mobile communications services on aircraft operate in the GSM 1800 band. *See supra* Section II.C.

[143] *See* 47 C.F.R. § 2.106. *See also* Commerce Spectrum Management Advisory Committee (CSMAC), Working Group 2: 1755-1850 MHz Law Enforcement Surveillance, Explosive Ordnance Disposal, and other short distance links, at 3, 4 (Jan. 2013), *available at*: http://www.ntia.doc.gov/files/ntia/publications/csmac_wg-2_final_report_jan-4-2012.pdf; CSMAC Spectrum Management Advisory Committee, Working Group 5: 1755-1850 MHz Airborne Operations (CSMAC WG-5 Report) (Sept. 2013), *available at*: http://www.ntia.doc.gov/files/ntia/publications/wg5_1755-1850_final_reportl-09-16-2013.pdf; *See* NTIA, An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, 4200-4220 MHz, and 4380-4400 MHz Bands at 3-25 – 3-29 (rel. October 2010), *available at* http://www.ntia.doc.gov/files/ntia/publications/fasttrackevaluation_11152010.pdf.

[144] Currently, Virgin Atlantic disables its Airborne Access System AAS service within 250 miles of U.S. airspace. *See supra* Section II.C. We also invite commenters to provide technical studies demonstrating what is sufficient to prevent harmful interference in the 1755-1850 MHz band.

[145] *See* Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands, *Notice of Proposed Rulemaking*, GN Docket No. 13-185, 28 FCC Rcd 11479 at 11495-96 and 11512-15, ¶¶ 32-34 and 73-79 (2013).

[146] *See*, *e.g.*, 47 C.F.R. §§ 2.106 and notes 338, 339 and 385 (addressing limitations on aeronautical use of the WCS Band and ban on aeronautical mobile use of BRS/EBS Band).

for systems designed for international flights to switch to authorized non-federal frequency bands in United States airspace.

4. Applicability to Non-U.S.-Registered Aircraft Operating in U.S. Airspace

64. Non-U.S.-registered aircraft with Airborne Access Systems currently turn off airborne mobile communications services before entering U.S. airspace.[147] We seek comment on whether it is in the public interest to allow aircraft authorized by a foreign government to provide mobile communications services to continue operating its Airborne Access System within U.S. airspace and thereby provide uninterrupted airborne mobile communications services to its passengers.

65. We also seek comment on the appropriate regulatory framework for the operation of Airborne Access Systems on non-U.S.-registered aircraft within U.S. territory. The ability of a foreign entity to use spectrum or operate radio equipment within the United States stems from rights derived from international agreements, or from direct authorization from the United States. Accordingly, in determining how such use may be permitted, we must take several factors into consideration, including the applicability of international agreements to which we are a party.

66. The United States is a signatory to the Convention on International Civil Aviation (Chicago Convention), which provides a mechanism for recognizing foreign licenses.[148] Under the Chicago Convention, aircraft registered to a member country may use radio transmitter equipment over another country's territory provided that the transmitter is licensed by the country that registered the aircraft and that said use is in compliance with the regulations of the country over which the aircraft is flying.[149] The Chicago Convention also provides that licenses issued by member nations must be equal to or above the minimum standards adopted by the International Civil Aviation Organization (ICAO).[150] As we interpret the Chicago Convention, foreign-registered aircraft do not currently have authority to operate an Airborne Access System within U.S. airspace as such use is not currently permitted under the Commission's rules.

67. Further, to the extent the Commission adopts rules to permit mobile communications services on aircraft, a non-U.S.-registered carrier may operate an Airborne Access System that complies with such rules. Moreover, we are not aware that ICAO has adopted or intends to adopt standards and recommended practices for the operation of Airborne Access System pursuant to the Chicago

[147] *See, e.g.*, Jansen, *supra* note 43; Rachel Sang-hee Han, *supra* note 47; *Virgin Atlantic allows in-flight calls, supra* note 47; *AeroMobile - Where does it work?*, *supra* note 43.

[148] Convention on International Civil Aviation, signed Dec. 7, 1944, Article 30. The Commission implemented this Article in the Part 87 regulations concerning aviation services. Section 87.191(a) states: "Aircraft of member States of the International Civil Aviation Organization may carry and operate radio transmitters in the United States airspace only if a license has been issued by the State in which the aircraft is registered and the flight crew is provided with a radio operator license of the proper class, issued or recognized by the State in which the aircraft is registered. The use of radio transmitters in the United States airspace must comply with these rules and regulations." 47 C.F.R. § 87.191(a).

[149] By its terms, the Chicago Convention does not prohibit the nation over which the foreign-registered aircraft is flying from also issuing a license for the transmitter. Therefore, a single Airborne Access System onboard a single aircraft could have a separate license for each nation through which it passes.

[150] ICAO is a specialized agency of the United Nations created in 1944 to promote the safe and orderly development of international civil aviation throughout the world. It sets standards and regulations necessary for safety, security, efficiency and regularity of flight, as well as for aviation environmental protection. Contracting States undertake to adopt and put into operation the standards and recommendations issued by ICAO. Mutual recognition of licenses by Contracting States is tied to the requirement that licenses be "equal to or above the minimum standards which may be established from time to time pursuant to this Convention." Information on how ICAO adopts technical standards may be found at http://www.icao.int/icao/en/anb/mais/index.html.

Convention.[151] We therefore tentatively conclude that the Chicago Convention is not an independent source of authorization for foreign airlines to operate an Airborne Access System within U.S. airspace. It also does not appear that other agreements offer a means by which the United States may recognize the authority of a foreign-registered aircraft to operate an Airborne Access System. We also are not aware of any bilateral agreements between the United States and any other administrations that would serve as a mechanism for allowing foreign-registered aircraft to operate an Airborne Access System over U.S. airspace.

68. In light of these considerations, we tentatively conclude that current agreements do not provide non-U.S.-registered carriers independent authorization to operate Airborne Access Systems in U.S. airspace. We seek comment on these tentative conclusions. Commenters believing otherwise should identify the applicable agreement(s) and legal authority under which we may permit such operation. We also request comment on any other mechanisms that might allow for recognition of an Airborne Access System authorization issued by another administration.

69. Assuming that there are no international agreements permitting foreign-registered aircraft to operate an Airborne Access System within U.S. airspace, we seek comment as to whether the Commission should directly authorize such use on the same terms that would apply to Airborne Access System operation onboard domestic aircraft. Specifically, operators of foreign-registered aircraft would be permitted to apply for an aircraft station license under Part 87 for the purpose of providing access to airborne mobile communications services to passengers while within U.S. airspace.[152] We seek comment on this proposal, as well as on any alternative licensing approaches. Commenters should discuss the costs and benefits of this or any alternative proposal. We note that applications for such authorizations would be subject to the foreign ownership provisions of sections 310(a) and (b) of the Act, just as they apply to operators of U.S.-registered aircraft.[153]

D. Other issues

1. Service below 3,048 meters (10,000 feet)

70. As noted previously, the proposed 3,048 meter (10,000 feet) altitude floor for airborne mobile communications services would minimize the risk of harmful interference with terrestrial networks and is consistent with FAA regulations and international practices. However, there may be circumstances where mobile communications services on aircraft operating below 3,048 meters (10,000 feet) would be in the public interest and would not cause harmful interference. We seek comment as to whether there are circumstances in which mobile communications services on aircraft would not raise the concerns set forth above (*e.g.*, in low flying, slow moving aircraft) and whether the 3,048 meter (10,000 feet) altitude limit and/or Airborne Access System requirement would be necessary in such cases. For instance, certain providers of critical public services routinely operate aircraft at altitudes below 3,048 meters (10,000 feet) and may have a need for mobile communications services at these altitudes. These operators include medical evacuation, police departments, news organizations, and public safety entities. Could these use cases be accommodated within the proposed rules? What would the appropriate

[151] ICAO has stated that "The free circulation and use of radio equipment on board aircraft for the purpose of public correspondence is not governed by the provisions of the ICAO Convention. Such utilization needs to be regulated by the relevant national authorities." ECC, Licensing and operation of GSM base stations on board aircraft, ICAO Comments on ECC/DEC/(06)07 at 3 (Feb. 2006), *available at:* http://www.icao.int/safety/acp/ACPWGF/ACP-WG-F-15/ACP-WGF15-WP04-ICAO%20comments%20on%20RA6(06)04%20Draft%20Decision%20GSM%20on%20board%20aircraft%20Rev1.doc.

[152] For foreign-registered aircraft, the Part 87 aircraft station license would authorize Airborne Access System operation only and would not cover other aircraft station functions.

[153] *See supra* ¶ 59.

regulatory and technical parameters be for the use of mobile communications services on aircraft by these and other, similarly situated entities?

71. While we propose to authorize service only above 3,048 meters (10,000 feet) for all commercial aircraft, we also seek comment generally on the technical viability, safety, and legality of mobile communications services on aircraft below 3,048 meters (10,000 feet) (or other reasonable altitude limit adopted in this proceeding) for specific purposes on certain types of aircraft. Would operations below 3,048 meters (10,000 feet) be technically viable? Should Airborne Access Systems be permitted to remain in operation at altitudes below 3,048 meters (10,000 feet)? Would such low altitude operations help to mitigate the potential for harmful interference from mobile devices into terrestrial mobile networks? If allowed, would such operations require the permission of terrestrial CMRS licensees? We emphasize that nothing in this proposal should be read to contradict the FAA's authority to determine the proper conditions for operation of PEDs on aircraft.

2. Voice Service Onboard Aircraft

72. In response to the 2004 *Airborne Mobile NPRM*, commenters raised concerns regarding the use of voice services on airborne aircraft.[154] We note that airborne voice service, *e.g.*, 800 MHz Air-Ground Radiotelephone Service, has been available on many airlines for years, although we understand that voice service has been little-used. At the time of the *Airborne Mobile NPRM* proceeding, commercial wireless was primarily a voice service. Today, commercial mobile services are used much more heavily for data services and Internet access. We appreciate that some people and organizations may continue to have concerns about permitting voice services on aircraft. We also note that international airlines offering airborne mobile voice and data services have not experienced significant problems related to voice.[155] Yet, consistent with our review of our technical rules and commitment to technological neutrality, our proposal would create an avenue through which airlines may choose to offer consumers an additional way to access mobile broadband services while in flight.

73. To be clear, nothing in this proposal would require or ensure the provision of voice service on airplanes. Individual airlines would determine whether this option would, in fact, be available to their passengers. The airlines themselves would be free to choose and manage the types of in-flight data and voice services they provide, subject to applicable FAA and DoT rules or guidelines with respect to safety and etiquette. These considerations notwithstanding, however, we seek comment on whether it is appropriate for the Commission to take concerns regarding the use of voice service into account in this proceeding. Specifically, we seek comment on the operational impacts that may stem from the provision of voice service, and whether the Commission has any role in addressing such effects. We also recognize that the provision of wireless services, including, but not limited to, voice onboard aircraft may require consumer education to ensure that consumers are aware of what FCC rules do and do not permit. We seek comment on the ways that the Commission can help consumers understand our current rules and any rules that the Commission may ultimately adopt in this proceeding.

3. Agreements with Canada and Mexico

74. We conclude that any Airborne Access System rules we adopt in this proceeding would limit such operations to U.S. airspace and would require such operations to comply with current and future international agreements with Mexico and Canada. Until such time as any agreements between the United States, Mexico and/or Canada can be agreed to for the proposed airborne mobile communications service, any operations conducted pursuant to rules adopted in this proceeding must not cause harmful

[154] *See generally* comments in Commission WT Docket No. 04-435 and FAA Docket No. FAA-2012-0752. For example, commenters raised safety and social etiquette concerns. *See*, *e.g.*, Transport Workers Union of America Comments, WT Docket No. 04-435 at 6-8.

[155] *See* FAA, Study on the Use of Cell Phones on Passenger Aircraft, DOT/FAA/AR-12/30, at 1, 8- 9 (July 2012), *available at*: http://content.aristotle.com/CEA/PassengerAircraft.pdf.

interference across the border, and must operate consistent with the terms of the international agreements currently in force. We also note that it may be necessary to modify any rules adopted in this proceeding to codify future agreements with Canada and Mexico regarding the aeronautical use of these bands. We seek comment on these conclusions.

4. Law Enforcement and Public Safety

75. While this *Notice* focuses primarily on the technical parameters and licensing mechanisms by which we may allow airlines to offer mobile wireless services on aircraft, we recognize that our proposals may also raise public safety, law enforcement and national security concerns. We note that wireless service providers are currently obligated to provide assistance to law enforcement agencies with respect to the Communications Assistance for Law Enforcement Act (CALEA).[156] Specifically, Congress enacted CALEA in 1994 in order to preserve the ability of law enforcement agencies to conduct electronic surveillance by requiring that telecommunications carriers and manufacturers of telecommunications equipment modify and design their equipment, facilities, and services to ensure that they have necessary surveillance capabilities.[157] In addition to telecommunications carriers identified in CALEA and its legislative history,[158] the Commission has concluded that facilities-based broadband Internet access providers and providers of interconnected Voice over Internet Protocol (VoIP) service would also be deemed to be "telecommunications carriers" for purposes of applying CALEA.[159] Accordingly, we propose that any mobile wireless services offered by Airborne Access System operators would be subject to the provisions of CALEA, regardless of whether such offerings are voice or data services.

76. Beyond satisfying CALEA obligations, satellite providers,[160] ESAA operators,[161] as well as 800 MHz Air-Ground licensees[162] address specific public safety, law enforcement, and national

[156] Pub. L.No.103-414, 108 Stat. 4279 (codified as amended in sections of 18 U.S.C. and 47 U.S.C.).

[157] *See* 47 U.S.C. § 1002(a)(1-4). The Commission has subsequently taken several actions to implement CALEA requirements. *See* Communications Assistance for Law Enforcement Act and Broadband Access and Services, *Notice of Proposed Rulemaking and Declaratory Ruling*, ET Docket No.04-295, RM-10865, 19 FCC Rcd 15676, 15678-91, ¶¶ 5-29 (2004) (discussing the history of the Commission's CALEA implementation actions and orders).

[158] A "telecommunications carrier" is defined by CALEA as "a person or entity engaged in the transmission or switching of wire or electronic communications as a common carrier for hire." 47 U.S.C. § 1001(8). Communications Assistance for Law Enforcement Act, CC Docket No. 97-213, *Second Report and Order*, 15 FCC Rcd 7105, 7110 (2000). The *Second Report and Order* noted that the legislative history contains examples of the types of service providers subject to CALEA: local exchange carriers, interexchange carriers, competitive access providers, cellular carriers, providers of personal communications services, satellite-based service providers, cable operators, and electric and other utilities that provide telecommunications services for hire to the public, and any other wireline or wireless service for hire to the public. *Id*. at 7111 [other history omitted]. The Communications Act, as amended, also extends the term to commercial mobile service providers generally. *See* 47 U.S.C. § 332(d).

[159] *See Communications Assistance for Law Enforcement Act and Broadband Access and Services*, ET Docket No. 04-295, *First Report and Order and Further Notice of Proposed Rulemaking*, 20 FCC Rcd 14989, 15001, ¶ 24 (2005). CALEA also identifies a telecommunications carrier as "a person or entity engaged in providing wire or electronic communication switching or transmission service to the extent that the Commission finds that such service is a replacement for a substantial portion of the local telephone exchange service and that it is in the public interest to deem such a person or entity to be a telecommunications carrier for purposes of this title." 47 U.S.C. § 1001(8)(B)(ii). The Commission interpreted this provision to encompass facilities-based broadband Internet access and interconnected VoIP providers.

[160] *See* Boeing Reply Comments in IB Docket Nos. 05-20 and 12-376 at 18-19 (citing numerous examples of the Commission relying on agreements to address law enforcement concerns).

[161] *See*, *e.g.*, Panasonic Application Narrative at 19, IBFS File No. SES-LIC-20100805-00992 ("Panasonic is engaged in active discussions with U.S. law enforcement officials regarding lawful interception ("LI") and network security functionality to be deployed in the eXConnect System. Panasonic has engaged a CALEA-compliant

(continued….)

security concerns through individual negotiations with law enforcement agencies. We anticipate that an entity seeking to provide mobile wireless services through the use of an Airborne Access System would follow the established process and work diligently with law enforcement agencies to address any public safety, law enforcement, and national security concerns through individual negotiations and agreements.

77. We seek comment on whether there are additional measures that the Commission should take to address in-flight safety and security concerns beyond CALEA obligations and individual agreements among service providers and law enforcement agencies. While we again emphasize that issues of onboard security and safety of flight are matters primarily reserved for the FAA, DoT, and the airlines, there may be measures within our regulatory purview that can be taken to further the Commission's interests in preserving and promoting public safety and homeland security. We therefore request that commenters identify specific public safety, law enforcement and national security-related concerns that may stem from the Commission's proposals, and the steps that the Commission could take to address those concerns.

IV. CONCLUSION

78. By this *Notice*, we propose to harmonize our rules, and allow airlines to provide mobile communications services on aircraft equipped with Airborne Access Systems at altitudes above 3,048 meters (10,000 feet), consistent with appropriate technical rules. If adopted, these proposals would facilitate the use of mobile data services onboard aircraft, to the benefit of air travelers in a way that would not cause harmful interference to terrestrial networks.

V. PROCEDURAL MATTERS

A. Filing Requirements

79. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 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/.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers 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.
    - All hand-delivered or messenger-delivered paper filings for the Commission's

(Continued from previous page)
equipment vendor to implement its LI solution, which will be in place before the commencement of commercial operations. In addition, Panasonic is implementing additional functionality subject to final agreement with U.S. law enforcement."); Letter from Carlos Nalda, Esq., Counsel to Panasonic Avionics Corporation, to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket Nos. 05-20 and 12-376, dated June 30, 2012 at 3 (operators "have uniformly engaged in direct consultations with law enforcement to develop appropriate capabilities consistent with their system characteristics and service offerings.").

[162] Letter from Karis Hastings, Esq., Counsel for Gogo LLC, to Marlene H. Dortch, Secretary, Federal Communications Commission, in IB Docket Nos. 05-20 and 12-376, July 20, 2012 at 2 (noting that in designing its terrestrial-based 800 MHz Air-Ground network, Gogo worked closely with law enforcement to incorporate functionalities and protections that would serve the public interest and national security interests).

Secretary must be delivered to FCC Headquarters at 445 12th St., 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 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 12th Street, SW, Washington DC 20554.

- 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 or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

80. For additional information on this proceeding, please contact Amanda Krohn Huetinck of the Wireless Telecommunications Bureau at Amanda.Krohn@fcc.gov.

B. *Ex Parte* Rules

81. The proceeding this *Notice* initiates shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules. 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 section 1.1206(b). In proceedings governed by section 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.

C. Initial Regulatory Flexibility Analysis

82. As required by the Regulatory Flexibility Act,[163] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities of the proposals addressed in this *Notice*. The IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines for comments on the *Notice*, and they should have a separate and distinct heading designating them as responses to the IRFA. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this *Notice*, including the IRFA, to the

[163] *See* 5 U.S.C. § 603.

Chief Counsel for Advocacy of the Small Business Administration, in accordance with the Regulatory Flexibility Act.[164]

D. Paperwork Reduction Act of 1995

83. This NPRM seeks comment on a potential new or revised information collection requirement. If the Commission adopts any new or revised information collection requirement, the Commission will publish a notice in the Federal Register inviting the public to comment on the requirement, as required by the Paperwork Reduction Act of 1995, Public Law 104-13 (44 U.S.C. 3501-3520). In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), the Commission seeks specific comment on how it might "further reduce the information collection burden for small business concerns with fewer than 25 employees."

VI. ORDERING CLAUSES

84. Accordingly, IT IS ORDERED THAT, pursuant to the authority contained in sections 1, 4(i), 11, 303(r), 303(y), 308, 309, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 161, 303(r), 303(y), 308, 309, and 332, this NOTICE OF PROPOSED RULEMAKING is hereby ADOPTED.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[164] *See* 5 U.S.C. § 603(a).

APPENDIX A

Proposed Rules

Part 22 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 22 continues to read as follows:

   AUTHORITY: 47 U.S.C. 154, 222, 303, 309, and 332.

2. Section 22.925 is revised to read as follows:

§ 22.925 Airborne Operation of Mobile Devices

Devices using frequencies licensed under this subpart are prohibited from operating onboard airborne aircraft except as authorized by § 87.205, *et seq.*

Part 24 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 24 continues to read as follows:

   AUTHORITY: 47 U.S.C. 154, 301, 302, 303, 309, and 332.

2. Section 24.3 is revised to read as follows:

§ 24.3 Permissible Communications

PCS licensees may provide any mobile communications service on their assigned spectrum. Fixed services may be provided on a co-primary basis with mobile operations. Broadcasting as defined in the Communications Act is prohibited. Devices using frequencies licensed under this rule part are prohibited from operating onboard airborne aircraft except as authorized by § 87.205, *et seq.*

Part 27 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 27 continues to read as follows:

   AUTHORITY: 47 U.S.C. 154, 301, 302(a), 303, 307, 309, 332, 336, 337, 1403, 1404, and 1451unless otherwise noted.

2. Section 27.2 is revised to read as follows:

§ 27.2 Permissible Communications

(a) Miscellaneous wireless communications services. Except as provided in paragraph (b), (d), or (e) of this section and subject to technical and other rules contained in this part, a licensee in the frequency bands specified in § 27.5 may provide any services for which its frequency bands are allocated, as set forth in the non-Federal Government column of the Table of Allocations in § 2.106 of this chapter (column 5).

(f) Devices using frequencies licensed under this rule part are prohibited from operating onboard airborne aircraft except as authorized by § 87.205, *et seq.*

Part 87 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 87 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 303 and 307 (e) unless otherwise noted.

2. New sections 87.205-207 are added to read as follows

AIRBORNE MOBILE SERVICE

§ 87.205 Scope of Service

(a) Aircraft Station Licensees shall be permitted to provide mobile broadband service under this rule part subject to the following conditions:
   (i) mobile broadband services shall be authorized only within aircraft cabins;
   (ii) mobile broadband service shall be authorized only over the frequencies designated in section 87.206;
   (iii) Aircraft station licensees must utilize an airborne access system that complies with the technical rules set forth in section 87.207.
   (iv) The Airborne Mobile Service shall be authorized only at altitudes above 3,048 meters (~10,000) feet. No transmissions shall be authorized over designated frequencies below this altitude.

§ 87.206 Frequencies

(a) The frequencies 698-757 MHz, 775-787 MHz, SMR spectrum within the bands (806-824 MHz, 851-869 MHz, 896-901 MHz, and 935-940 MHz), 824-849 MHz, 869-894 MHz, 1850-1915 MHz, 1930-1995 MHz, 1710-1755 MHz, 2000-2020 MHz, 2110-2155 MHz, 2180-2200 MHz, 2305-2320 MHz, and 2345-2360 MHz are authorized for airborne in-cabin use consistent with the requirements and 87.205, *et seq.*

§ 87.207 Technical Requirements

(a) Airborne access systems on licensed aircraft must:
   (i) utilize only frequencies authorized in section 87.206 for the provision of Airborne Mobile Service;
   (ii) manage all in-cabin transmissions from mobile devices transmitting on frequencies listed in section 87.206;
   (iii) prevent in-cabin mobile devices transmitting on frequencies listed in section 87.206 from operating at power levels sufficient to potentially cause harmful interference to terrestrial mobile networks;
   (iv) ensure that each transmitting component of the airborne access system maintains minimal emissions, as measured outside the aircraft cabin, to ensure that airborne operations do not cause harmful interference to terrestrial mobile networks;
   (v) otherwise comply with technical rules applicable to terrestrial base stations operating on the frequencies listed in section 87.206;

Part 90 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332 (c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), and 332(c)(7), and Title VI of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112-96, 126 Stat. 156.

2. Section 90.423 is revised to read as follows:

§ 90.423 Airborne Operation of Mobile Devices

Devices using frequencies licensed under this rule part are prohibited from operating onboard airborne aircraft except as authorized by § 87.205, *et seq.*

APPENDIX B

Initial Regulatory Flexibility Analysis

I. INITIAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in this *Notice*. Written comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Notice*. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

A. Need for, and Objectives of, the Proposed Rules.

2. By this *Notice*, we propose to allow airlines (or more specifically, station licensees) to provide mobile communications services on aircraft (mobile communications services on aircraft). Currently, the Commission's rules prohibit airborne use of mobile devices in the 800 MHz cellular band and restrict use in the 800 MHz SMR band, while the rules governing other commercial mobile spectrum bands are silent. Since a previous *Notice of Proposed Rulemaking* that sought to address these restrictions was terminated in 2007, more than forty jurisdictions, including the European Union and Australia, have authorized the use of mobile communications services on aircraft. To the best of our knowledge, there have been no reports of these services causing any harmful interference to terrestrial networks. We believe that it is in the public interest to bring the benefits of mobile communications services on aircraft to domestic consumers and that the proposals set forth in this *Notice* further our recent efforts to expand access to airborne broadband services.

3. We propose to allow mobile communications services on aircraft by: (1) removing existing restrictions on airborne use of mobile devices in the 800 MHz cellular and 800 MHz SMR bands; (2) harmonizing regulations governing the operation of mobile devices on airborne aircraft across all commercial mobile spectrum bands; and (3) implementing a comprehensive regulatory framework to promote airborne mobile data use using all commercial mobile spectrum bands.

4. Under our proposal, we would add the authority to provide mobile communications services on aircraft across all commercial mobile spectrum bands (as categorized below) to the existing Part 87 aircraft station licenses of domestic airlines. Alternatively, the *Notice* seeks comment on whether we should permit inflight mobile wireless service using an alternative authorization method. Alternatives could include: 1) non-exclusive licenses by which applicants, an airline or other entity, could file to provide airborne wireless services; 2) terrestrial license leases whereby an airline could provide service through lease agreements with mobile wireless service licensees; 3) auctioned "sky licenses" covering nationwide or geographic markets that would be assigned pursuant to competitive bidding, or; 4) unlicensed use or license-by-rule whereby eligible entities would be permitted to operate without the Commission issuing individual licenses.

5. We propose to allow mobile communications services on aircraft only if managed by an Airborne Access System (Airborne Access System), which would control the emissions of onboard portable electronic devices by requiring them to remain at or near their lowest transmitting power level

[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), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[2] *See* 5 U.S.C. § 603(a).

[3] *See id*.

and prevent such devices from causing harmful interference to terrestrial networks. We also propose to limit mobile communications services on aircraft to aircraft travelling at altitudes above 3,048 meters (10,000 feet).

B. Legal Basis.

6. This action is taken under Sections 1, 4(i), 11, and 303(r) and (y), 308, 309, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 161, 303(r), (y), 308, 309, and 332.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply.

7. 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 proposed rules, if adopted herein.[4] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[5] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[6] 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 SBA.[7]

8. In addition, we have adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits. We have defined a small business as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[8] A very small business is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[9] The SBA has approved these small size standards.[10]

9. In the following paragraphs, we further describe and estimate the number and type of small entities that may be affected by the proposals set forth in the *Notice*. If our proposals are adopted, small airlines that choose to implement mobile communications services on aircraft could be required to modify their existing Part 87 licenses and comply with new regulatory requirements, including as to the mobile communications services on aircraft equipment.[11] Such compliance would involve, to varying degrees, the services described below. Under our proposals, an airline would be permitted to negotiate commercial agreements with the entities described in the following. It is possible that an airline could

[4] 5 U.S.C. § 604(a)(3).

[5] 5 U.S.C. § 601(6).

[6] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[7] 15 U.S.C. § 632.

[8] 47 C.F.R. § 1.2110(f)(2)(ii).

[9] 47 C.F.R. § 1.2110(f)(2)(iii).

[10] *See* Letter to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated August 10, 1999.

[11] Aircraft station licensees would be required to file for a modification of their existing aircraft station or fleet licenses on FCC Form 605 to include the newly designated airborne mobile communications authorization. To the extent that an aircraft operator does not have an aircraft station license, that aircraft operator would be required to apply for an aircraft station license using Form 605 in order to operate an Airborne Access System.

negotiate agreements affecting all communications services listed, or an airline may reach agreements involving only certain categories.

10. The *Notice* also request comment on whether we should permit inflight mobile wireless services through alternative licensing methodologies. In such cases, any eligible entity (airlines or others) would be permitted to provide mobile wireless services onboard aircraft. In such cases, the authorized parties could be any of the service providers listed below. In addition, any device manufacturers that choose to manufacture devices for mobile communications services on aircraft use will have to ensure that such devices comply with any rules adopted in this proceeding.

11. **Small Businesses, Small Organizations, and Small Governmental Jurisdictions**. The proposals set forth in the *Notice*, may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards that encompass entities that could be directly affected by the proposals under consideration. As of 2009, small businesses represented 99.9% of the 27.5 million businesses in the United States, according to the SBA. Additionally, a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." Nationwide, as of 2007, there were approximately 1,621,315 small organizations. Finally, the term "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand." Census Bureau data for 2007 indicate that there were 89,527 governmental jurisdictions in the United States. We estimate that, of this total, as many as 88,761 entities may qualify as "small governmental jurisdictions." Thus, we estimate that most governmental jurisdictions are small.

12. **Wireless Telecommunications Carriers (except Satellite)**. Since 2007, the SBA has recognized wireless firms within this new, broad, economic census category.[12] Prior to that time, such firms were within the now-superseded categories of Paging and Cellular and Other Wireless Telecommunications.[13] Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees.[14] For this category census data2007 show that there were 11,163 establishments that operated for the entire year.[15] Of this total, 10,791 establishments had employment of 999 or fewer employees and 372 had employment of 1000 employees or more.[16] 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

13. Similarly, according to Commission data, 413 carriers reported that they were engaged in the provision of wireless telephony, including cellular service, Personal Communications Service (PCS), and Specialized Mobile Radio (SMR) Telephony services.[17] Of these, an estimated 261 have 1,500 or

[12] 13 C.F.R. § 121.201, NAICS code 517210.

[13] U.S. Census Bureau, 2002 NAICS Definitions, 517211 Paging;available at http://www.census.gov/cgibin/sssd/naics/naicsrch?code=517211&search=2002%20NAICS%20Search; U.S. Census Bureau, 2002 NAICS Definitions, 517212 Cellular and Other Wireless Telecommunications available at http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517212&search=2002%20NAICS%20Search. .

[14] 13 C.F.R. § 121.201, NAICS code 517210 (2007 NAICS). The now-superseded, pre-2007 C.F.R. citations were 13 C.F.R. § 121.201, NAICS codes 517211 and 517212 (referring to the 2002 NAICS).

[15] U.S. Census Bureau, Subject Series: Information, Table 5, "Establishment and Firm Size: Employment Size of Firms for the United States: 2007 NAICS Code 517210" (issued Nov. 2010).

[16] *Id.* Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with "100 employees or more."

[17] *Trends in Telephone Service*, at tbl. 5.3.

fewer employees and 152 have more than 1,500 employees.[18] Consequently, the Commission estimates that approximately half or more of these firms can be considered small. Thus, using available data, we estimate that the majority of wireless firms can be considered small.

14. **Wireless Telephony**. Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. As noted, the SBA has developed a small business size standard for Wireless Telecommunications Carriers (except Satellite).[19] Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees.[20] According to *Trends in Telephone Service* data, 413 carriers reported that they were engaged in wireless telephony.[21] Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees.[22] Therefore, more than half of these entities can be considered small.

15. **Cellular Licenses**. The Cellular Radiotelephone (Cellular) Service is in the 824 – 849 and 869 – 894 MHz spectrum range. The most common use of cellular spectrum is mobile voice and data services, including cell phone, text messaging, and Internet.

16. The Commission adopted initial rules governing allocation of spectrum for commercial Cellular service, including the establishment of two channel blocks (Blocks A and B), in 1981.[23] To issue cellular licenses, the FCC divided the U.S. into 734 geographic markets called Cellular Market Areas (CMAs) and divided the 40 megahertz of spectrum into two, 20 megahertz amounts referred to as channel blocks; channel block A and channel block B. A single license for the A block and the B block were made available in each market. The B block of spectrum was awarded to a local wireline carrier that provided landline telephone service in the CMA. The A block was awarded to non-wireline carriers. The wireline/non-wireline distinction for cellular licenses no longer exists.

17. The licensee of the initial license was provided a five-year period to expand coverage within the CMA. The area timely built out during that five-year period became the licensee's initial Cellular Geographic Service Area (CGSA), while any area not built out by the five-year mark was automatically relinquished for re-licensing on a site-by-site basis by the Commission.

18. The Commission established a two phase licensing approach for areas that reverted back to the FCC. Phase I was a one-time process that started as soon as the five-year period ended and allowed parties to file an application to operate a new cellular system or expand an existing cellular system. Phase I licensing is no longer available. **Phase** II is an on-going process that allows parties to apply for unserved areas after Phase I ended. At this point, all cellular licensing is in Phase II. On June 4, 2002, the Commission completed the auction of three cellular Rural Service Area licenses.[24] Three winning bidders won a total of 3 licenses in this auction. On June 17, 2008, the Commission completed the closed auction of one unserved service area. The auction concluded with one provisionally winning bid for the unserved

[18] *Id.*

[19] 13 C.F.R. § 121.201, NAICS code 517210.

[20] *Id*.

[21] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, *Trends in Telephone Service* at Table 5.3, Page 5-5, *available at*: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-301823A1.pdf (Sept. 2010) (*Trends in Telephone Service*). This source uses data that are current as of October 13, 2008.

[22] *Trends in Telephone Service* at Table 5.3, Page 5-5.

[23] *See generally* An Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems, *Report and Order,* CC Docket No. 79-318, 86 F.C.C.2d 469 (1981).

[24] *See* Cellular Rural Service Areas Auction Closes; Winning Bidders Announced, *Public Notice*, 17 FCC Rcd 10582 (2002).

area totaling $25,002.[25] No bidders in either auction received small business bidding credits.

19. **Broadband Personal Communications Service**. The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a "small business" for C- and F-Block licenses as an entity that has average gross revenues of $40 million or less in the three previous years.[26] For Block F licenses, an additional small business size standard for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three years.[27] These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.[28] No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C Block auctions.[29] A total of 93 bidders that claimed "small" and "very small" business status won licenses in the first auction of the D, E, and F Blocks.[30] In 1999, the Commission completed a subsequent auction of C, D, E, and F Block licenses.[31] Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.[32]

20. In 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses (Auction 35). Of the 35 winning bidders in that auction, 29 claimed small or very small businesses status.[33] Subsequent events concerning that Auction, including judicial and agency determinations, resulted in only a portion of those C and F Block licenses being available for grant. The Commission completed an auction of 188 C Block licenses and 21 F Block licenses in 2005. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses.[34] In 2007, the Commission completed an auction of licenses in the A, C, and F Blocks.[35] Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses.[36] Most recently, in 2008, the

[25] *See* Auction Of Cellular Unserved Service Area License Closes; Winning Bidder Announced for Auction 77, *Public Notice*, 23 FCC Rcd 9501 (2008).

[26] *See* Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap et al., WT Docket No. 96-59, *Report and Order*, 11 FCC Rcd 7824, 7850–52 ¶¶ 57–60 (1996) (*PCS Report and Order*); *see also* 47 C.F.R. § 24.720(b).

[27] *See PCS Report and Order*, 11 FCC Rcd at 7852 ¶ 60.

[28] *See Alvarez Letter 1998*.

[29] *See* Entrepreneurs' C Block Auction Closes, *Public Notice*, DA 96-716 (1996); Entrepreneurs C Block Reauction Closes, *Public Notice*, 11 FCC Rcd 8183 (1996).

[30] *See* Broadband PCS, D, E and F Block Auction Closes, *Public Notice*, Doc. No. 89838 (rel. Jan. 14, 1997).

[31] *See* C, D, E, and F Block Broadband PCS Auction Closes, *Public Notice*, 14 FCC Rcd 6688 (1999). Before Auction No. 22, the Commission established a very small standard for the C Block to match the standard used for F Block. Amendment of the Commission's Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licensees, WT Docket No. 97-82, *Fourth Report and Order*, 13 FCC Rcd 15,743, 15,768 ¶ 46 (1998).

[32] *See* C, D, E, and F Block Broadband PCS Auction Closes, *Public Notice*, 14 FCC Rcd 6688 (1999).

[33] *See* C and F Block Broadband PCS Auction Closes; Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 2339 (2001).

[34] *See* Broadband PCS Spectrum Auction Closes; Winning Bidders Announced for Auction No. 58, *Public Notice,* 20 FCC Rcd 3703 (2005).

[35] *See* Auction of Broadband PCS Spectrum Licenses Closes; Winning Bidders Announced for Auction No. 71, *Public Notice*, 22 FCC Rcd 9247 (2007) (*Auction No. 71 Public Notice*).

[36] *Auction No. 71 Public Notice*, 22 FCC Rcd 9247.

Commission completed the auction of C, D, E, and F Block Broadband PCS licenses.[37] Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.[38]

21. **Advanced Wireless Services**. In 2006, the Commission conducted its first auction of Advanced Wireless Services licenses in the 1710-1755 MHz and 2110-2155 MHz bands (AWS-1), designated as Auction 66.[39] For the AWS-1 bands, the Commission has defined a "small business" as an entity with average annual gross revenues for the preceding three years not exceeding $40 million, and a "very small business" as an entity with average annual gross revenues for the preceding three years not exceeding $15 million.[40] In Auction 66, 31 winning bidders identified themselves as very small businesses and won 142 licenses.[41] Twenty-six of the winning bidders identified themselves as small businesses and won 73 licenses.[42] In a subsequent 2008 auction, the Commission offered 35 AWS-1 licenses.[43] Four winning bidders identifying themselves as very small businesses won 17 licenses, and three winning bidders identifying themselves as a small business won five AWS-1 licenses. [44]

22. **Lower 700 MHz Band Licenses**. The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.[45] The Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[46] A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[47] Additionally, the Lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses —"entrepreneur"— which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years.[48] The SBA approved these small size

[37] *See* Auction of AWS-1 and Broadband PCS Licenses Closes; Winning Bidders Announced for Auction 78, AU Docket No. 08-46, *Public Notice*, 23 FCC Rcd 7496 (2008) (*Auction No. 78 Public Notice)*.

[38] *Auction No. 78 Public Notice*, 23 FCC Rcd 7496 .

[39] *See* Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 66, AU Docket No. 06-30, *Public Notice*, 21 FCC Rcd 4562 (2006).

[40] *See* Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket No. 02-353, *Report and Order*, 18 FCC Rcd 25162, App. B (2003), *modified by* Service Rules for Advanced Wireless Services In the 1.7 GHz and 2.1 GHz Bands, *Order on Reconsideration*, 20 FCC Rcd 14058, App. C (2005).

[41] *See* Auction of Advanced Wireless Services Licenses Closes; Winning Bidders Announced for Auction No. 66, *Public Notice*, 21 FCC Rcd 10521 (2006) (*Auction No. 66 Public Notice*).

[42] *See Auction No. 66 Public Notice*, 21 FCC Rcd 10521.

[43] *See* Auction of AWS-1 and Broadband PCS Licenses Rescheduled for August 13, 2008; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments, and Other Procedures for Auction 78, AU Docket No. 08-46, *Public Notice*, 23 FCC Rcd 7496, 7499. Auction 78 also included an auction of broadband PCS licenses.

[44] *See* Auction of AWS-1 and Broadband PCS Licenses Closes, Winning Bidders Announced for Auction 78, Down Payments Due September 9, 2008, FCC Forms 601 and 602 Due September 9, 2008, Final Payments Due September 23, 2008, Ten-Day Petition to Deny Period, *Public Notice*, 23 FCC Rcd 12749, 12749-65 (2008).

[45] *See* Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), GN Docket No. 01-74, *Report and Order*, 17 FCC Rcd 1022 (2002) (*Channels 52-59 Report and Order*).

[46] *See id.* at 1087-88 ¶ 172.

[47] *See id.* at 1087-88 ¶ 172.

[48] *See id.* at 1088, ¶ 173.

standards.[49]

23. An auction of 740 licenses was conducted in 2002 (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs). Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business, or entrepreneur status and won a total of 329 licenses.[50] A second auction commenced on May 28, 2003, closed on June 13, 2003, and included 256 licenses.[51] Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.[52] In 2005, the Commission completed an auction of 5 licenses in the lower 700 MHz band (Auction 60). All three winning bidders claimed small business status.

24. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*.[53] An auction of A, B and E block licenses in the Lower 700 MHz band was held in 2008.[54] Twenty winning bidders claimed small business status. Thirty three winning bidders claimed very small business status.

25. **Upper 700 MHz Band Licenses**. In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz band licenses.[55] In 2008, the Commission conducted Auction 73 in which C and D block licenses in the Upper 700 MHz band were available.[56] Three winning bidders claimed very small business status.

26. **Specialized Mobile Radio**. The Commission adopted small business size standards for the purpose of determining eligibility for bidding credits in auctions of Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands. The Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[57] The Commission defined a "very small business" as an entity that together with its affiliates and controlling principals, has average gross revenues not exceeding $3 million for the preceding three years.[58] The SBA has approved these small

[49] *See* Letter from Aida Alvarez, Administrator, SBA, to Thomas Sugrue, Chief, WTB, FCC (Aug. 10, 1999) (*Alvarez Letter 1999*).

[50] *See* Lower 700 MHz Band Auction Closes, *Public Notice*, 17 FCC Rcd 17272 (2002).

[51] *See* Lower 700 MHz Band Auction Closes, *Public Notice*, 18 FCC Rcd 11873 (2003).

[52] *See* Lower 700 MHz Band Auction Closes, *Public Notice*, 18 FCC Rcd 11873 (2003).

[53] Service Rules for the 698-746, 747-762 and 777-792 MHz Band, WT Docket No. 06-150, Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephone, WT Docket No. 01-309, 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, Former Nextel Communications, Inc. Upper700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, WT Docket No. 06-169, Implementing a Nationwide, Broadband Interoperable Public Safety Network in the 700 MHz Band, PS Docket No. 06-229, Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State, and Local Public Safety Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Second Report and Order*, 22 FCC Rcd 15289 (2007) (*700 MHz Second Report and Order*).

[54] *See* Auction of 700 MHz Band Licenses Closes, *Public Notice*, 23 FCC Rcd 4572 (2008) (*700 MHz Auction Public Notice*).

[55] *700 MHz Second Report and Order*, 22 FCC Rcd 15289.

[56] *See 700 MHz Auction Public Notice*, 23 FCC Rcd 4572.

[57] 47 C.F.R. §§ 90.810, 90.814(b), 90.912.

[58] 47 C.F.R. §§ 90.810, 90.814(b), 90.912.

business size standards for both the 800 MHz and 900 MHz SMR Service.[59] The first 900 MHz SMR auction was completed in 1996. Sixty bidders claiming that they qualified as small businesses under the $15 million size standard won 263 licenses in the 900 MHz SMR band. In 2004, the Commission held a second auction of 900 MHz SMR licenses and three winning bidders identifying themselves as very small businesses won 7 licenses.[60] The auction of 800 MHz SMR licenses for the upper 200 channels was conducted in 1997. Ten bidders claiming that they qualified as small or very small businesses under the $15 million size standard won 38 licenses for the upper 200 channels.[61] A second auction of 800 MHz SMR licenses was conducted in 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.[62]

27. The auction of the 1,053 800 MHz SMR licenses for the General Category channels was conducted in 2000. Eleven bidders who won 108 licenses for the General Category channels in the 800 MHz SMR band qualified as small or very small businesses .[63] In an auction completed in 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded.[64] Of the 22 winning bidders, 19 claimed small or very small business status and won 129 licenses. Thus, combining all three auctions, 41 winning bidders for geographic licenses in the 800 MHz SMR band claimed to be small businesses.

28. In addition, there are numerous incumbent site-by-site SMR licensees and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR pursuant to extended implementation authorizations, nor how many of these providers have annual revenues not exceeding $15 million. One firm has over $15 million in revenues. In addition, we do not know how many of these firms have 1500 or fewer employees.[65] We assume, for purposes of this analysis, that all of the remaining existing extended implementation authorizations are held by small entities, as that small business size standard is approved by the SBA.

29. **Wireless Communications Services**. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined "small business" for the wireless communications services (WCS) auction as an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" as an entity with average gross revenues of $15 million for each of the three preceding years.[66] The SBA approved these definitions.[67]

30. The Commission conducted an auction of geographic area licenses in the WCS service in 1997. In the auction, seven bidders that qualified as very small business entities won licenses, and one bidder that qualified as a small business entity won a license.

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[59] *See Alvarez Letter 1999*.

[60] *See* 900 MHz Specialized Mobile Radio Service Spectrum Auction Closes: Winning Bidders Announced, *Public Notice*, 19 FCC Rcd 3921 (2004).

[61] *See* Correction to Public Notice DA 96-586 FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas, *Public Notice*, 18 FCC Rcd 18367 (1996).

[62] *See* Multi-Radio Service Auction Closes, *Public Notice*, 17 FCC Rcd 1446 (2002).

[63] *See* 800 MHz Specialized Mobile Radio (SMR) Service General Category (851-854 MHz) and Upper Band (861-865 MHz) Auction Closes; Winning Bidders Announced, *Public Notice*, 15 FCC Rcd 17162 (2000).

[64] *See* 800 MHz SMR Service Lower 80 Channels Auction Closes; Winning Bidders Announced, *Public Notice*, 16 FCC Rcd 1736 (2000).

[65] *See generally* 13 C.F.R. § 121.201, NAICS code 517210.

[66] Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service (WCS), GN Docket No. 96-228, *Report and Order*, 12 FCC Rcd 10785, 10879 ¶ 194 (1997).

[67] *See Alvarez Letter 1998*.

31. **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 firms in this category, which is: all such firms having 750 or fewer employees.[68] According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for the entire year.[69] Of this total, 912 had employment of less than 500, and an additional 27 had employment of 500 or more. Thus, under this size standard, the majority of firms can be considered small.

32. **Scheduled Passenger Air Transportation**. Air transportation entities, specifically airlines, are implicated only to the extent that the Commission adopts the proposal to permit airlines to provide mobile wireless services. This proposal would give airlines the choice of whether to enable mobile communications services using an Airborne Access System, as well as the specific services to enable. All elements of the Airborne Access Systems and any permissible airborne mobile devices would be subject to applicable FAA and DoT rules and approval procedures.[70]

33. The Census Bureau defines this category as follows: This U.S. industry comprises establishments primarily engaged in providing air transportation of passengers or passengers and freight over regular routes and on regular schedules. Establishments in this industry operate flights even if partially loaded. Scheduled air passenger carriers including commuter, and helicopter carriers (except scenic and sightseeing) are included in this industry.[71] The SBA has developed a size standard for this industry, which is, all establishments having 1,500 or fewer employees.[72] According to Census Bureau information for 2007, 2,569 establishments operated in that year. Of that number, 1,742 operated with more than 1,000 employees.[73] Based on this data, we estimate that 827, or approximately 31 percent of these establishments, are small. However, it must be understood that since use of the technology necessary to provide mobile communications services on aircraft is permissive rather than compulsory, no data are available to indicate what percentage of all such passenger-carrying airlines establishments will use this technology after their Part 87 licenses are modified. Accordingly, the Commission cannot project at this time what percentage of all such licensees will be small passenger air transportation establishments.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements.

34. Under the Commission's proposal, all Airborne Access System devices must comply with technical and operational requirements, including: Measures that may be taken to limit power include, but are not necessarily limited to, mobile power restrictions, aircraft picocell power restrictions,

[68] 13 C.F.R. § 121.201, NAICS code 334220.

[69] U.S. Census Bureau, 2007 Economic Census, Sector 51, 2007 NAICS code 334220 (rel. Oct. 20, 2009), http://www.census.gov/econ/industry/ec07/a334220.htm.

[70] We note that any FAA actions related to the issues in this proceeding, such as necessary certification and approval of equipment, are outside the Commission's scope, and we emphasize our commitment to working closely with the FAA in areas over which it has more appropriate jurisdiction.

[71] *See* http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=481111&search=2007 NAICS Search.

[72] 13 C.F.R. § 121.201, NAICS Code 481111.

[73] *See* http://
factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_48SSSZ2&prodType=table

network control unit power and/or technology limitations, altitude restrictions, and methods to prevent an airborne mobile phone from accessing the ground-based commercial mobile networks.

35. While our proposals would require small airline businesses to modify their existing Part 87 licenses if they want to provide mobile communications services on aircraft, airlines are not required to install and operate mobile communications services on aircraft Licensees would be permitted to contract with third parties to install equipment for or offer mobile communications services on aircraft. In addition, modifying existing aircraft fleet or station licenses to include proposed mobile communications services on aircraft use should not impose significant administrative burdens on airlines, and they would have the opportunity for an additional revenue stream. On balance, this would constitute a significant benefit for small business.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

36. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): (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.[74]

37. In the *Notice*, the Commission proposes that domestic aircraft operators that want to offer mobile communications services on aircraft be required to file for a modification of their existing aircraft station or fleet licenses to include the newly designated use. Also, terrestrial commercial mobile providers would have the option of entering into permissive commercial contracts with airlines to provide access to wireless subscriber services.

38. The *Notice* specifically solicits alternative licensing proposals, especially those that would not incur significant and undue adverse impacts on small entities. We also specifically solicit comment regarding the affect our proposals may have on small business entities that may lack the financial and technical resources necessary to deploy mobile communications services on aircraft. We seek comment on factors that may minimize any undue impacts on parties, including small and very small businesses, that may be affected by our proposals. For example, we request comment on whether our proposals have a disproportionate financial impact on small businesses, *e.g.* smaller air carriers as compared to larger entities, *e.g*. large airlines. Will our proposals affect the ability of small businesses to compete with larger entities that may more easily afford to deploy an Airborne Access System? If so, we request comment on whether there are factors that could offset such impact. For example, could a small business enter into business agreements with other entities that would make the provision of mobile communications services more feasible for such entities? We seek comment on how to lessen potential burdens on these small carriers, including any factors or arrangements that could make the provision of mobile communications services more practical for small entities.

F. Federal Rules that May Duplicate, Overlap or Conflict with the Proposed Rules.

39. 14 C.F.R. §§ 91.21, 121.306, 125.204, and 135.144.

[74] 5 U.S.C. § 603 (c)(1)-(4).

STATEMENT OF
CHAIRMAN TOM WHEELER

Re: ***Expanding Access to Mobile Wireless Services Onboard Aircraft,*** **Notice of Proposed Rulemaking, WT Docket 13-301.**

Today's proposal to remove outdated rules and expand access to mobile wireless services during air travel is pro-free market, pro-competition, pro-consumer, pro-technology, and de-regulatory. It has also garnered a great deal of attention and been widely misunderstood.

Let me say up front that, I get it. I don't want the person in the seat next to me yapping at 35,000 feet any more than anyone else. So then why are we still moving forward with this item?

To answer that question, let's look at what this proposal does and does NOT do.

First off, today's action represents the beginning of a process to collect information and consumer input. As always, we will review input from the public before taking any final action.

Next, the *status quo* requirement that cellphones may not be used in-flight would be retained. The prohibition, in fact, would be explicitly expanded. The current rule applies only to phones operating on the 800MHz frequency band and ignores all other cellular frequencies. This regulatory inconsistency is poor policy.

The rule change on which we seek comment would extend that prohibition to all frequency bands *unless* the aircraft is outfitted with on-board equipment that manages a cellular signal before it has the potential to interfere with terrestrial networks. Absent such equipment, the ban would remain in effect.

However, if an airline installs new on-board equipment, the FCC's ban is no longer necessary. Our engineering belief (on which comment is sought) is that it is technically safe to use the new onboard equipment to prevent interference with terrestrial networks. The proposal would not require airlines to either install such equipment, or to offer mobile wireless services aboard their aircraft. Airlines would be free, within the confines of the rules of the Federal Aviation Administration (FAA) and Department of Transportation (DoT), to make their own decisions. We simply propose that because new technology makes the old rule obsolete the FCC should get government out from between airlines and their passengers. Where there is not a need for regulation, the free market works best to determine the appropriate outcome.

So how might this play out for consumers? If an airline decides to install an on-board access system consumers would be permitted to use their existing mobile devices and not be limited to signing up for WiFi. And the airline would be in total control of what types of mobile services to permit. A mobile device can send texts and emails, and can surf the Web. A mobile device can also make a voice call. The technology allows for the differentiation among such services. Thus, airlines would be free to make their own determination whether to program the new equipment to block voice calls while permitting texting, email and Web surfing, consistent with the rules of the authorities on aviation safety and consumer issues: the FAA and the DoT. I am pleased that the DoT today announced that will begin a process that will look at the possibility of banning in-flight calls.

Today's proposal is intended to solicit input. It is not a final decision. We look forward to the technology and consumer input this proposal will generate. We invite all interested parties to participate and file comments.

Today's vote is about more than just how you can use your mobile phone on airplanes; it's about how this agency should do its job.

The FCC is the expert agency on communications. It is charged with making technology-based decisions.

For over 20 years, an FCC rule from the analog era of cell phones has banned the use of mobile devices on airplanes because of the potential to interfere with terrestrial networks below. But on-board mobile access technology has been operational internationally with great success for the last five years. In accord with that experience, and other data, the Commission's engineers believe that there are no technical reasons to prohibit such technology to operate in the United States. If the basis for the rule is no longer valid, then the rule is no longer valid. It's that simple.

The FCC is sometimes criticized for relying on outdated rules that do not reflect current technologies or markets. This is a textbook opportunity to do something about eliminating an unnecessary regulation of the FCC and letting the marketplace function. If we are serious about eliminating outdated regulations that serve no purpose, the decision is clear. A vote not to proceed on seeking comments on this issue is a vote against regulatory reform.

Finally, a word on process. Going back to Commissioner McDowell, there have been calls for increased transparency in the matter in which the FCC presents issues to the public, notably that NPRMs should include proposed rules. I support the calls for this reform. Such a rebuttable presumption allows respondents to target their comments. Failure to include a rebuttable presumption from being the focus of debate would not in the spirit of procedural improvement, and that is why I am pleased this Notice adopts such an approach.

We need to update this rule for the benefit of consumers and to reflect accurately changing technical realities. I urge support for an effort to start this process.

STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN

Re: ***Expanding Access to Mobile Wireless Services Onboard Aircraft,*** **Notice of Proposed Rulemaking, WT Docket No. 13-301.**

Proposing rule changes, so consumers can benefit from advances in communications technology, is one of the Commission's core responsibilities. Currently, the FCC prohibits certain cellular communications services on aircraft to guard against the threat of harmful interference to terrestrial wireless networks. However, over the past several years, we have seen the development of Airborne Access Systems that use picocells and a network control unit to minimize potential interference. This technology has now advanced to the point where providers can offer mobile services on planes while protecting aviation safety.

The item before us, today, stands to promote competition for mobile broadband services on planes and creates an environment in which interested air travelers will no longer be left with one option for data service currently allowed by any particular airline. Allowing other wireless companies to compete with available inflight Wi-Fi services could lead to lower prices and better quality data options for fliers. Initiating a rule making, today I believe, is the best way to create an appropriate forum for the wireless industry to provide thoughtful comment so that our staff can carefully examine the engineering and licensing issues necessary to deploy competitive options.

As we know all too well, the announcement of this NPRM was met with some strong reaction based on the belief that these proposals from the FCC would automatically lead to a rash of annoying telephone conversations on planes during flight. As the item explains, however, our proposed rules would not require commercial airlines to permit voice calls. In fact, the Airborne Access Systems give commercial airlines the capacity to prevent voice calls and provide data services only. So I am confident that commercial airlines will continue to monitor the debate and determine if they should simply continue to limit their passengers' use of this technology to only "quiet" or data services.

Now I admit, upfront, that when traveling by rail I strive to be among the first in line for the quiet car. However, it is my opinion, that this robust debate about mobile phone call etiquette in-flight should not stop the FCC from removing unnecessary and outdated technical rules that could provide consumers with safe, competitive options for mobile broadband service while traveling by air. If enough members of the consuming public oppose voice calls, during flight, I expect the airlines will hear that opposition and govern themselves accordingly.

I thank John Leibovitz and his team for their presentation and I welcome Roger Sherman as the new Chief of the Wireless Telecommunications Bureau.

CONCURRING STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL

Re: ***Expanding Access to Mobile Wireless Services Onboard Aircraft*, Notice of Proposed Rulemaking, WT Docket 13-301.**

More than two decades ago, the Commission adopted rules prohibiting the use of cell phones on commercial and private aircraft. These rules, specific to the 800 MHz band, were part of an effort to promote safety and prevent harmful interference.

Today, the Commission begins a rulemaking to reassess this prohibition. In this rulemaking, we ask many questions about the use of cellphones on planes, including for voice calls. As a matter of principle, I believe it is good to ask questions—even the hard ones. So I will concur.

But make no mistake, I do not like this proceeding. Because I believe as public servants we have a duty to look beyond these four walls and ask ourselves if our actions do in fact serve the public. When it comes to authorizing voice calls on planes, I think the answer is a resounding no. We are not just technicians. Whatever bureaucratic desire we have to harmonize our 800 MHz spectrum rules does not absolve ourselves of the consequences of our decisions. If we move beyond what we do here today and actually update our rules to allow voice calls on planes, we could see a future where our quiet time is monetized and seating in the silent section comes at a premium. But worse, given the anger this proposal has generated and the negative response of so many of those who work on planes, I fear that our safety would be compromised. This is not acceptable.

I fly a lot. I am a regular resident of the last row and middle seat. I know what it is like to have the person in front of you pop their seat back, leaving you scrambling to hold on to your drink, hold on to your reading material, and hold on to some semblance of peace. It is not easy. This Commission does not need to add to that burden. I, for one, will not.

DISSENTING STATEMENT OF COMMISSIONER AJIT PAI

Re: ***Expanding Access to Mobile Wireless Services Onboard Aircraft*, Notice of Proposed Rulemaking, WT Docket No. 13-301.**

Like most Americans, I fly coach. Each year, the seats feel a little smaller, and my legs get a little more cramped. The airlines charge fees to check luggage, which fuels a mad rush to find space for carry-on bags on packed flights. Going through airport security . . . that's a whole other set of hassles and indignities. In short, airplane travel these days is often stressful and unpleasant.

As a result, I wasn't surprised to be bombarded with e-mails as soon as it was announced that the FCC would vote on a proposal that could allow passengers to make in-flight phone calls. Many of these messages were quite colorful. One person wrote: "It's bad enough being herded like cattle on these planes without having to listen to boorish idiots have needless conversations on their cell phones." Another said: "[Being] stuck next to a gabber on a 6 hour flight to San Francisco . . . I fear what I'd do with my cutlery!!!" A third wrote simply: "NOOOO." And those were just from my family!

Although I'm pretty sure that I could resist the urge to stab a fellow passenger, I understand these sentiments and share these concerns. Like most Americans, I don't want people making phone calls on planes. But given the proposal before us, our task is to determine whether such use of the nation's spectrum is consistent with the public-interest standard outlined in the Communications Act.

In my judgment, today's proposal is not in the public interest, and I must respectfully dissent. My principal objections are twofold; they relate to the proposed licensing framework and concerns about public safety.

First, the licensing framework proposed in this item sets a dangerous precedent when it comes to spectrum policy. Wireless carriers have spent tens of billions of dollars, both at auction and in the secondary market, to purchase spectrum licenses. These licenses provide carriers with exclusive use of specified frequencies in specified geographic areas.

Today's proposal, however, would infringe upon carriers' exclusive use licenses. Through administrative fiat, airlines would suddenly be licensed (for free) to use the same frequencies that are currently licensed to carriers. However, the NPRM cites no precedent for taking such action. Nor does it answer important questions, such as: Can anyone use a carrier's licensed spectrum so long as they're pretty sure they won't cause interference? With a series of spectrum auctions on the horizon, now is the not the time to cast doubt on the scope of such licenses.

Additionally, I suspect that neither we nor the airlines will find the proposed licensing framework workable or appealing. Under the approach set forth in the NPRM, I do not see how it would be possible for an airline to allow passengers to make telephone calls unless it chose to become a commercial mobile radio station (CMRS) carrier, presumptively subject to the full panoply of obligations and regulations that apply to such carriers. We therefore may have to comb through our rules and decide which ones should apply to airlines that are CMRS carriers, and which ones should not, and come up with a persuasive explanation for each decision. These burdens on the agency and airlines alike are unnecessary.

Rather than inflexibly proposing one particular framework, I believe we should have proposed multiple approaches or just sought comment on a variety of ideas without favoring any one in particular. For example, we could have also proposed spectrum leasing, a tried-and-true method that respects carriers' exclusive use of licenses. Or we could have proposed altering our base station rules so that carriers could contract with airlines to place cell service on board. Or perhaps there's another approach that could work, from auctioning "sky licenses" to unlicensed use. In any event, I believe that it is

premature for us to endorse one specific proposal today, especially the flawed one that is contained in this item.

Second, the NPRM does not adequately address public safety and national security concerns. Being annoyed at a chatty passenger during a flight is one thing. But flight safety is quite another. And while today's item maintains that "issues of onboard security and safety of flight are matters primarily reserved for the FAA," to me the other issues at play in this proceeding are trivial by comparison.

Back in 2005, when the Commission was considering a proposal similar to this one, the Department of Justice, Federal Bureau of Investigation, and Department of Homeland Security told us that there were "public safety and national security-related concerns that stem from the Commission's proposal." However, their specific concerns are mentioned nowhere in today's NPRM. For example, these federal law enforcement agencies told us that our proposal could make it easier for terrorists to coordinate hijackings or detonate remote-controlled improvised explosive devices aboard aircraft. Echoing recent comments from flight attendants, the agencies also voiced their opinion that the Commission's proposal could lead to more air-rage incidents, which would pose difficulties for air marshals who are supposed to remain anonymous, if possible, during flights.

Before coming to the Commission for my first stint, I worked at the Department of Justice, where I concentrated on counter-terrorism policy. One lesson I learned there was the necessity of close inter-agency coordination when it comes to protecting the American people. I was therefore surprised and disappointed to learn that the Commission didn't consult and engage in a direct dialogue with federal law enforcement officials prior to circulating this proposal. I am also disappointed that the item does not propose or specifically mention the recommendations made by federal law enforcement officials back in 2005 to mitigate public safety and national security concerns. If we do not specifically ask about these proposals here, I am concerned that we will not have a sufficient record to address those concerns and we will not have sufficient legal notice to include necessary measures in our final rules. That won't serve anyone well in the end.

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I've often said that it is important for the Commission to update its rules to reflect current technological and marketplace realities. So while I believe that there are many other rules on our books that cause more harm and deserve our attention, I am sympathetic to the argument that we should allow the Federal Aviation Administration or individual airlines to decide whether to permit phone calls aboard aircraft. Open to moving forward with a rulemaking, I carefully reviewed the item and offered a number of suggestions for improving it. Unfortunately, most of my suggestions were not accepted, and I cannot support the proposal that remains.

For these reasons, I respectfully dissent.

DISSENTING STATEMENT OF
COMMISSIONER MICHAEL O'RIELLY

Re: ***Expanding Access to Mobile Wireless Services Onboard Aircraft*, Notice of Proposed Rulemaking, WT Docket No. 13-301.**

I associate myself with the statement of my friend from Kansas, Commissioner Pai, in dissenting on this notice and incorporate his substantive comments by reference. I strongly believe in eliminating unnecessary regulations and the Commission's ongoing duty to review its rules to determine whether they remain necessary, especially in light of technological or marketplace changes. However, what was originally framed as a deregulatory action – seeking comment on eliminating an outdated rule – was, in fact, accompanied by a proposal for a problematic licensing framework that I am unable to support at this time. The notice also raises important public safety and national security issues that should have been addressed more fully. Nevertheless, I thank the staff for their hard work on this item.