

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
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)	GN Docket No. 13-114 RM-11640

**COMMENTS OF THE
NATIONAL ASSOCIATION OF BROADCASTERS**

The National Association of Broadcasters (“NAB”)¹ submits these brief comments in the above-captioned proceeding.² The Commission proposes to establish a terrestrial-based air-ground mobile broadband service in the 14.0–14.5 GHz band (“Aeronautical Mobile Service” or “AMS”). The service would provide broadband connectivity to passengers aboard aircraft flying within the contiguous United States. Notice at ¶¶1-2.

NAB supports the improvement of broadband connectivity aboard aircraft, and agrees that the proposal should increase competition and service quality and provide travelers with a greater ability to communicate, obtain information and stream entertainment content. *Id.* at ¶¶16-17. We also agree that, under certain conditions, the proposed service could be effectively deployed in the 14.0-14.5 GHz band. Most

¹ NAB is a nonprofit trade association that advocates on behalf of local radio and television stations and broadcast networks before Congress, the FCC and other federal agencies, and the courts.

² 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 (*rel.* May 9, 2013) (“Notice”). The Notice is based largely on a proposal offered two years ago by Qualcomm, Inc. Qualcomm, Inc. Petition for Rulemaking, RM-11640, filed July 7, 2011.

importantly, AMS must be designated a secondary allocation in the band, and its service rules must clearly establish this secondary status and prevent interference to primary and co-secondary incumbent services in the band, including Fixed-Satellite Service (“FSS”) earth-to-space communications.

The Notice states that the 14.0-14.5 GHz band is “heavily used” for satellite applications, including television programming backhaul distribution and satellite newsgathering (“SNG”). *Id.* at ¶27. SNG enables television stations to transmit video from mobile, remote newsgathering trucks to the studio, where the video is then broadcast. Before SNG, broadcasters had to either physically transport tapes or rely on line-of-sight microwave transmission to relay remote video and information to the studio. SNG has revolutionized remote news gathering by freeing on-the-scene reporters from the limitations of these older methods. SNG technology allows broadcasters to receive high-quality feeds from nearly anywhere in the world, enables reporting teams to venture closer to breaking news events, and vastly improves the quality and timeliness of the video broadcasters deliver to viewers.³ Live, on-the-scene news reporting, especially during emergencies, is one of the most important services that broadcasters provide to the public. It is therefore essential that the proposed aeronautical mobile service avoid interference to these satellite services in the 14.0-14.5 GHz band.

The Notice also explains that many FSS services in the band are blanket licensed, meaning that the exact number of such earth stations can vary, and that many such stations are mobile and move around frequently. NAB agrees that the mobility and

³ Jason Bates, *Satellite News Gathering: Users Seeking Smaller, Easier Equipment*, *Satellite Today* (Nov. 1, 2006), available at <http://bit.ly/1ct5qdb>.

ubiquity of FSS earth stations require “great caution” in preventing harmful interference. *Id.* at ¶27.

Accordingly, the Notice correctly proposes AMS as a secondary allocation in the band. *Id.* Pursuant to 47 C.F.R. § 2.104(d)(3), secondary service stations “[s]hall not cause harmful interference to stations of primary services” and “[c]annot claim protection from harmful interference from stations of a primary service.”⁴ In other words, AMS may not interfere with FSS operations, and must be prepared to accept any interference from such primary services in the band.

In particular, broadcasters support the Commission’s statement that it does “not contemplate any way to entertain a future request to elevate the status [of the proposed service] to primary, because co-primary status . . . could prohibit satellite newsgathering trucks from changing locations to cover news events.” Notice at ¶27. All FSS services, including television broadcasters, will require this level of certainty going-forward.

NAB’s concern lies not with the Commission’s commitment to protecting FSS operations in the 14 GHz band, but with the clarity of the proposed rules. While the Notice properly amends Part 2 of the rules by adding Aeronautical Mobile Service as a secondary service,⁵ the proposed service rules governing AMS in Part 22 fail to codify the secondary nature of the service. NAB submits that more specificity is required in Part 22 to prevent any potential conflict or uncertainty over the status of AMS. NAB thus proposes to insert text which emphasizes and clarifies the secondary allocation of AMS in relation to FSS incumbent licensees in sections 22.1101, 22.1110, and 22.1120

⁴ 47 C.F.R. § 2.104(d)(3)(i) and (ii)

⁵ Notice at Appendix B.

of the proposed rules.⁶ These changes to the proposed service rules will help ensure interference-free communications between mobile newsgathering trucks and broadcast studios, for the benefit of America's television viewers, and appropriately protect all FSS operations in the band.

Accordingly, NAB supports the proposal to establish a new Aeronautical Mobile Service, and respectfully requests that certain changes be made to the proposed service rules to clarify the secondary status of the proposed service.

Respectfully submitted,



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⁶ Please refer to the attached redlined version of the Commission's proposed amendments to Part 22 of the rules for NAB's specific suggestions.

APPENDIX B**Proposed Rules**

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 CFR parts 2 and 22 as follows:

* * * * *

PART 22 –Public Mobile Services

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

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

4. Part 22 is amended by adding the following to the end of Subpart B

* * * * *

§ 22.232 14.0-14.5 GHz band subject to competitive bidding.

Mutually exclusive initial applications for 14.0 –14.5 GHz band licenses are subject to competitive bidding. The general competitive bidding procedures set forth in 47 CFR Part 1, Subpart Q will apply unless otherwise provided in this subpart.

§ 22.233 Designated entities in the 14.0-14.5 GHz bands.

- a) Eligibility for small business provisions:

(1) A small business is an entity that, together with its affiliates, its controlling interests, the affiliates of its controlling interests, and the entities with which it has an attributable material relationship, has average gross revenues not exceeding \$40 million for the preceding three years.

(2) A very small business is an entity that, together with its affiliates, its controlling interests, the affiliates of its controlling interests, and the entities with which it has an attributable material relationship, has average gross revenues not exceeding \$15 million for the preceding three years.

- b) Bidding credits.

A winning bidder that qualifies as a small business as defined in this section or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter. A winning bidder that qualifies as a very small business as defined in this section or a consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter.

5. Part 22 is amended by adding the following to the end of the Part:

* * * * *

Subpart K – Air-Ground Mobile Broadband Service

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§ 22.1100 Scope.

The rules in this subpart govern the licensing and operation of the air-ground mobile broadband service in the 14.0-14.5 GHz band. The licensing and operation of these stations and systems is also subject to rules elsewhere in this part that apply generally to the public mobile services. However, in case of conflict, the rules in this subpart govern.

§ 22.1101 Definitions Associated With Air-Ground Mobile Service.

Air-Ground Mobile Broadband Service. An air-ground mobile broadband service that operates **on a secondary basis** in the 14.0 to 14.5 GHz band and provides high-data-rate connectivity between terrestrial ground stations and aircraft stations flying above the contiguous United States (“CONUS”).

Comment [A1]: Insert text

Air-Ground Mobile Broadband Equipped Aircraft. Aircraft equipped with air-ground mobile broadband communications technology.

Base Stations. Fixed terrestrial-based air-ground mobile broadband communications stations that provide air-ground mobile broadband to air-ground mobile broadband equipped aircraft.

§ 22.1102 Permissible communications.

The 14.0-14.5 GHz band may be used to provide air-ground mobile broadband. Such service shall be provided in a manner consistent with §2.106 of this chapter.

§ 22.1104 Frequencies.

Two channel block(s) are available for assignment in the 14.0-14.5 GHz air-ground mobile broadband service:

A Block: 14.0-XX.XX GHz
[B Block: XX.XX-14.5 GHz]

§ 22.1106 Service Areas.

Service areas for 14.0-14.5 GHz air-ground mobile broadband are available on a nationwide basis. For the purposes of this paragraph, “nationwide” refers to a geographic market area covering the contiguous United States, *i.e.* the United States excluding Alaska, Hawaii, and island territories

§ 22.1110 Regulatory status.

(a) *Single authorization.* Authorization will be granted to provide any or a combination of the following **secondary** services in a single license: common carrier, non-common carrier, private internal communications, and broadcast services. A licensee may render any kind of communications service consistent with the regulatory status in its license and with the Commission's rules applicable to that service. An applicant or licensee may submit a petition at any time requesting clarification of the regulatory status for which authorization is required to provide a specific communications service.

Comment [A2]: Insert text

(b) *Designation of regulatory status in initial application.* An applicant shall specify in its initial application if it is requesting authorization to provide common carrier, non-common carrier, private internal communications, or broadcast services, or a combination thereof.

(c) *Amendment of pending applications.* The following rules apply to amendments of a pending application.

- (1) Any pending application may be amended to:
 - (i) Change the carrier regulatory status requested, or
 - (ii) Add to the pending request in order to obtain common carrier, non-common carrier, private internal communications, or broadcast services status, or a combination thereof, in a single license.
- (2) Amendments to change, or add to, the carrier regulatory status in a pending application are minor amendments filed under §1.927 of this chapter.

(d) *Modification of license.* The following rules apply to amendments of a license.

- (1) A licensee may modify a license to:
 - (i) Change the regulatory status authorized, or
 - (ii) Add to the status authorized in order to obtain a combination of services of different regulatory status in a single license.
- (2) Applications to change, or add to, the carrier status in a license are modifications not requiring prior Commission authorization. The licensee must notify the Commission within 30 days of the change. If the change results in the discontinuance, reduction, or impairment of an existing service, the licensee is subject to the provisions of § [discontinuance rule].

(e) *Secondary Status.* Notwithstanding any other provisions in this section, Air-Ground Mobile Broadband Service operates on a secondary basis to other operations in the 14.0-14.5 GHz frequency band, and may not cause interference to such existing services in that band.

Comment [A3]: Insert new paragraph (e).

§ 22.1111 Eligibility.

Any entity other than those precluded by section 310 of the Communications Act of 1934, as amended, 47 U.S.C. 310, is eligible to hold a license under this part.

§22.1112 License period.

Initial authorizations will have a term not to exceed ten years from the date of initial issuance or renewal.

§ 22.1113 Construction requirements.

Licensees of 14.0-14.5 GHz air-ground mobile broadband, must, as a performance requirement, make a showing of “substantial service” in their license area within the prescribed license term set forth in §[license term rule].

(a) “Substantial service” is defined as service which is sound, favorable and substantially above a level of mediocre service which just might minimally warrant renewal. Failure by any licensee to meet this requirement will result in forfeiture of the license and the licensee will be ineligible to regain it.

(b) Each 14.0-14.5 GHz air-ground mobile broadband system subject to the requirements of this section must demonstrate substantial service within 10 years after grant of the authorization. Substantial service

may be demonstrated by, but is not limited to, the following “safe harbor” provision:

(1) The construction and operation of ground stations that provides robust, uninterrupted service on routes serving at least 50 airports classified as large or medium hubs (as measured by the most recent Federal Aviation Administration data for annual passenger enplanements) within ten years of license grant.

§ 22.1114 Renewal Criteria.

Air-ground mobile broadband licensees in the 14.0-14.5 GHz band must file a renewal application in accordance with the provisions set forth in §1.949, and must make a showing of substantial service, independent of its performance requirements, as a condition for renewal at the end of each license term.

§ 22.1115 Geographic partitioning and spectrum disaggregation.

(a) *Eligibility.*

(1) Parties seeking approval for partitioning and disaggregation shall request from the Commission an authorization for partial assignment of a license pursuant to §1.948.

(2) Licensees in 14.0-14.5 GHz air-ground mobile broadband may apply to partition their licensed geographic service area or disaggregate their licensed spectrum at any time following the grant of their licenses.

(b) *Filing Requirements.* Parties seeking approval for geographic partitioning, spectrum disaggregation, or a combination of both must apply for a partial assignment of authorization by filing FCC Form 603 pursuant to § 1.948 of this chapter. Each request for geographic partitioning must include an attachment defining the perimeter of the partitioned area by geographic coordinates to the nearest second of latitude and longitude, based upon the 1983 North American Datum (NAD83). Alternatively, applicants may specify an FCC-recognized service area (*e.g.*, Basic Trading Area, Economic Area, Major Trading Area, Metropolitan Service Area, or Rural Service Area), county, or county equivalent, in which case, applicants need only list the specific FCC-recognized service area, county, or county equivalent names comprising the partitioned area.

(c) *License Term.* The license term for a partitioned license area or disaggregated spectrum license is the remainder of the original licensee's license term.

(d) *Performance Requirements.* Each party to a geographic partitioning, spectrum disaggregation, or a combination of both must individually meet any applicable performance requirements (*i.e.*, construction and operation requirements). If a licensee fails to meet any performance requirements on or before the required date, its authorization will terminate automatically on that date without further Commission action pursuant to §1.946 of this chapter.

(e) *Unjust Enrichment.* Licensees making installment payments or that received a bidding credit, that partition their licenses or disaggregate their spectrum to entities that do not meet the eligibility standards for installment payments or bidding credits, are subject to the unjust enrichment requirements of §1.2111 of this chapter.

§ 22.1116 Initial authorization.

(a) An applicant must file a single application for an initial authorization for all markets won and frequency blocks desired. Initial authorizations shall be granted in accordance with §§[frequencies and service areas rules]. Applications for individual sites are not required and will not be accepted, except where required for environmental assessments, in accordance with §§1.1301 through 1.1319 of this chapter.

(b) Initial authorizations for 14.0-14.5 GHz air-ground mobile broadband shall be for ____ megahertz of spectrum in accordance with §[frequencies rule]. Authorizations will be on a nationwide service area basis as defined in § XX.X06.

§ 22.1118 Discontinuance of Service.

(a) A 14.0-14.5 GHz air-ground mobile broadband licensee's authorization will automatically terminate, without specific Commission action, if it permanently discontinues service. Permanent discontinuance of service is defined as 180 consecutive days during which a licensee is not providing service to aircraft or subscribers

(b) Filing Requirements. A licensee that permanently discontinues service as defined in this section must notify the Commission of the discontinuance within 10 days by filing FCC Form 601 or 605 requesting license cancellation. An authorization will automatically terminate, without specific Commission action, if service is permanently discontinued as defined in this section, even if a licensee fails to file the required form requesting license cancellation.

(c) Extension Request. A licensee may file a request for a longer discontinuance period for good cause. An extension request must be filed at least 30 days before the end of the 180-day discontinuance period. The filing of an extension request will automatically extend the discontinuance period a minimum of the latter of an additional 30 days or the date upon which the Wireless Telecommunications Bureau acts on the request.

§ 22.1120 Protecting GSO Satellite Systems from Harmful Interference from Air-Ground Mobile Broadband.

The aggregate increase in interference ($\Delta T/T$) from all air-ground mobile broadband aircraft and base stations into the uplink of GSO satellites shall not exceed one percent. This one percent $\Delta T/T$ limit may be met by complying with subsections (a), (b) and (c) below:

- a) For a baseline air-ground mobile broadband system consisting of 600 beams (*e.g.*, 150 base station sites and 4 beams per site) operating on a given band of spectrum, the transmitted power spectral density from a single base station beam into the GSO arc must not exceed -74.5 dBW/Hz. If the number of base station beams is increased beyond 600, then the total transmitted power toward the GSO arc must be adjusted accordingly, such that the total transmitted power toward the GSO arc from all beams is not greater than -46.7 dBW/Hz. If the number of air-ground mobile broadband base stations increases from 150 to 250, the single beam EIRP density must be less than the value

$$-74.5 - 10 \text{Log}\left(\frac{n}{150}\right) \text{ dBW/Hz} \quad \text{for } 150 \leq n \leq 250 \quad (1)$$

and the aggregate EIRP density from all beams must be less than

$$-46.7 - 10 \text{Log}\left(\frac{n}{150}\right) \text{ dBW / HZ} \quad \text{for } 150 \leq n \leq 250 \quad (2)$$

where n is the number of base stations.

- b) -Transmissions from an air-ground mobile broadband aircraft stations must not exceed an EIRP density of 3 dBW/2 megahertz. Furthermore, the aggregate EIRP from all air-ground mobile broadband aircraft stations toward the GSO arc must not exceed -47 dBW/Hz. When deriving the aggregate EIRP density toward the GSO arc, the aircraft cruise level roll angle of $\pm 5^\circ$ in elevation must be taken into account.
- c) Every air-ground mobile broadband base station may increase its transmit power by up to 6 dB to compensate for rain fade. In compensation for the increase in power, the air-ground mobile broadband base station must reduce the number of beams it transmits to maintain the same maximum transmitted power.

e)d) Secondary Status. Air-Ground Mobile Broadband Service operations are secondary and must protect all primary and existing operations in the 14.0-14.5 GHz band. If interference is caused to primary users, Air-Ground Mobile Broadband Service operations must cease until the interference is resolved.

Comment [A4]: Insert new paragraph (d)

§ 22.1122 Out of Band Emissions (OOBE) Requirement for Two Separate Air-Ground Mobile Broadband Systems.

If two separate licensees deploy air-ground mobile broadband systems within distinct portions of the 14.0 to 14.5 GHz band, the power level of any emission outside a air-ground mobile broadband licensee's frequency band of operation shall be attenuated below the transmitter power of P watts (with averaging performed only during periods of transmission) within the licensee's band of operation by at least $43 + 10 \log (P)$ dB. Compliance with this rule shall be measured via use of instrumentation employing a resolution bandwidth of 1 megahertz or greater, except that in the 1 megahertz bands immediately adjacent to the licensee's frequency band of operation, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (that is, 1 megahertz or 1 percent of the emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least 26 dB below the transmit power level.