

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

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

COMMENTS OF PANASONIC AVIONICS CORPORATION

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Summary

Panasonic Avionics Corporation (“Panasonic”) strongly supports the Federal Communications Commission’s (“FCC” or “Commission”) efforts to facilitate the introduction of in-flight mobile connectivity (“IMC”) using airborne access systems (“AASs”) in the United States. Panasonic agrees that access to these new mobile broadband applications will provide significant benefits to U.S. consumers. Panasonic further believes that such benefits can be realized consistent with other important public policy objectives, including: (i) providing airlines the choice to offer IMC applications that best suit their passengers’ needs; (ii) facilitating U.S. passenger access to new in-flight mobile broadband applications at the earliest practicable time; (iii) ensuring IMC compatibility with co-frequency operations pursuant to appropriate technical rules and effective FCC oversight; (iv) fostering innovation in IMC offerings; and (v) promoting approaches that further U.S. interests in international aviation and in-flight connectivity.

The Commission is in the unique position of being able to base IMC technical requirements on extensive studies and years of real-world experience implementing global IMC operations. Panasonic suggests that existing IMC standards should form the basis of FCC technical rules to enable IMC in the United States. These standards have supported global IMC operations and ensure that co-frequency systems and services are not adversely affected by AAS or mobile device operations onboard aircraft in flight.

In addition, Panasonic suggests that the comprehensive IMC regulatory regimes adopted in Europe and elsewhere – and specifically by Ofcom in the United Kingdom – should inform the regulatory approaches considered in this proceeding. Specifically, although aircraft station licenses are issued to U.K.-registered aircraft, consistent with international aviation principles: (i) AAS equipment is otherwise license exempt in the United Kingdom; (ii) foreign aircraft IMC

licenses are recognized, subject to compliance with applicable technical requirements; and (iii) because current IMC commercial implementations ensure that communications policy considerations are satisfied, no IMC-specific service rules have been imposed.

Adopting the same fundamental elements in the United States will facilitate expeditious access to existing IMC applications and promote further innovation in IMC offerings, which would expand access to mobile broadband connectivity to U.S. consumers consistent with protection of other services. In addition, such an approach would preserve well-settled principles of international aviation law on which U.S. airlines and in-flight connectivity providers rely.

Finally, Panasonic agrees that the Commission is correctly focused on enabling IMC technology in the United States and that it need not address airline operational issues relating to specific IMC applications, such as voice service. IMC systems allow airlines to fully disable individual applications and other IMC applications, such as text and mobile data, have not given rise to any concerns. Although Panasonic believes that the availability of mobile voice applications actually enhances the passenger experience and that other governmental agencies have jurisdiction to address airline operational issues relating to voice, Panasonic submits that the airlines themselves remain in the best position to determine which IMC applications best meet their passengers' needs.

Panasonic stands ready to work with the Commission and interested parties to establish a technical basis for IMC systems to operate successfully in the United States pursuant to existing international standards, and to develop a comprehensive regulatory regime to deliver IMC offerings to U.S. consumers. Together with airlines, IMC providers, wireless carriers and others, the Commission can facilitate the introduction of new in-flight wireless broadband applications consistent with important policy considerations and the public interest.

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Panasonic Avionic Corporation (“Panasonic”) appreciates the opportunity to comment on the Federal Communications Commission’s (“FCC” or Commission”) proposals for expanding access to mobile wireless services onboard aircraft set forth in the notice of proposed rulemaking (“*NPRM*”) in this proceeding.¹ The Commission seeks comment on a wide range of issues associated with implementing a comprehensive regulatory framework to facilitate passenger access to in-flight mobile connectivity (“IMC”) via airborne access systems (“AASs”).

Panasonic strongly supports the Commission’s objectives in this proceeding and the introduction of IMC in the United States. Panasonic offers the following comments in an effort to hasten the delivery of new mobile broadband applications to U.S. airline passengers traveling in the United States and around the world.

I. BACKGROUND

Panasonic is the world’s leader in in-flight entertainment and communications systems for commercial aircraft. Panasonic has developed the Global Communications Service (“GCS”) system, comprising: (i) the “eXConnect” aeronautical broadband system, which provides

¹ Notice of Proposed Rulemaking, *Expanding Access to Mobile Wireless Services Onboard Aircraft*, 79 Fed. Reg. 2615 (Jan. 15, 2014), FCC 13-157, WT Docket No. 13-301 (rel. Dec. 12, 2013) (“*NPRM*”).

worldwide coverage for high-speed Internet access onboard commercial airlines using a constellation of satellites operating in Ku-band frequencies; (ii) in partnership with AeroMobile, the “eXPhone” system, which provides airline passengers with mobile broadband applications including text, data and voice using their own mobile devices; and (iii) eXTV, a real-time video offering that can be customized for individual customer airlines.

With the eXConnect and eXPhone connectivity offerings, in particular, Panasonic is satisfying the needs of airline passengers to remain connected even at 30,000 feet. Wi-Fi connectivity has become an increasing expected amenity onboard aircraft, particularly on long-haul routes. Passengers now also seek to access their mobile applications on such flights just as they would on the ground. Panasonic has found that the presence of both Wi-Fi and mobile connectivity onboard aircraft actually increases the utilization of both types of connectivity during the flight. Thus, Panasonic agrees that the Commission’s initiative to enable IMC in the United States will provide substantial benefits to U.S. consumers, as well as to U.S. and foreign airlines that are continually striving to enhance the passenger experience.

Panasonic would also note that, along with its partner AeroMobile, it has worked with many regulators around the world to authorize Wi-Fi and mobile connectivity offerings in their airspace and onboard their national airlines. Regulatory approaches have evolved over time and a clear trend is emerging: national regulators increasingly rely on compliance with international standards and recognition of home country licensing – rather than aircraft operator licensing – to authorize in-flight connectivity offerings. Panasonic would hope that this important trend, as well as the inherently international nature of the in-flight connectivity market, will weigh heavily in the Commission’s decisionmaking in this proceeding. These factors are particularly important because so many U.S. companies and U.S. airlines are global leaders in the field.

II. ACCESS TO IMC IN THE UNITED STATES WOULD FURTHER IMPORTANT PUBLIC INTEREST OBJECTIVES

Panasonic agrees with the Commission's conclusion that authorizing IMC in the United States will promote the public interest by expanding U.S. consumer access to mobile broadband applications.² As the *NPRM* acknowledges, consumer demand for mobile data applications has dramatically increased demand for mobile communications.³ This demand is becoming manifest even onboard aircraft, where passengers are increasingly using their mobile devices to remain connected – so much so that even U.S. air-ground connectivity providers are introducing mobile applications such as text and voice functionality in the United States.⁴

The Commission clearly recognizes these trends and is working to bring additional broadband mobile applications to U.S. consumers. By enabling new in-flight connectivity options in the United States, the Commission will enhance competition and consumer choice. Moreover, in proposing an approach that enables IMC technology while affording U.S. airlines the choice of which mobile applications to offer to their passengers, the Commission is properly avoiding intrusive regulation that may stifle innovation and competition.

The Commission must also weigh other important public policy considerations in adopting a comprehensive regulatory framework for IMC in the United States, including: (i) ensuring IMC compatibility with co-frequency systems and services; (ii) enabling U.S. consumer access to existing IMC offerings while fostering further market innovation; and (iii) providing appropriate authority for U.S. airlines to offer IMC domestically and internationally, and for foreign airlines to offer IMC while traversing U.S. airspace.

² *NPRM* at ¶ 56.

³ *Id.* at ¶ 22.

⁴ See, e.g., <http://www.aircell.com/gogotexttalk>.

The proposals set forth in the *NPRM* provide an important foundation for the Commission's ambitious objectives. However, some of the issues raised in this proceeding – particularly those that involve IMC approaches that diverge from existing implementations – have the potential to significantly delay the benefits that access to new mobile applications would provide to the U.S. public. For example, developing entirely new IMC technical standards specific to the U.S. market could take years of study, regulatory effort and aviation certification before new equipment designs could be brought to market. Although such efforts should not be foreclosed, Panasonic respectfully suggests that the public interest may be better served by first evaluating existing technical standards for use in the United States and then addressing other possible approaches.

Panasonic believes that reliance on available, well-proven technical standards will ensure compatibility with terrestrial systems and services, while enabling U.S. passenger access to existing IMC offerings at the earliest practicable time.⁵ Of course, the Commission and interested parties must evaluate existing standards and adopt any modifications necessary to accommodate spectrum allocation differences in the United States. However, because such work primarily involves validation of existing IMC analyses and operational requirements, it can be conducted on an expedited basis and would provide a solid foundation for future innovation.

Finally, enabling IMC in the United States would facilitate the efficient and flexible use of spectrum resources for mobile broadband applications. IMC systems share spectrum on an unprotected, non-interference basis and therefore bring the benefits of mobile broadband to the U.S. flying public without the need for exclusive access to scarce spectrum resources. Thus,

⁵ Most smart devices consumers used for mobile broadband applications already include the frequencies and international roaming features necessary to access IMC applications pursuant to existing commercial implementations, and next-generation IMC equipment will provide even greater consumer access and operational flexibility.

IMC constitutes an extremely efficient use of spectrum and, because it can share with many other services including commercial and government users, represents a very flexible use of spectrum.

III. ENABLING IMC PURSUANT TO NEW PART 15 RULES WOULD BEST SERVE THE PUBLIC INTEREST

The *NPRM* seeks to facilitate the implementation of IMC consistent with the mandates of the Communications Act, as informed by existing FCC regulations and approaches adopted in countries with analogous regulatory regimes. Although the Commission must balance a wide range of important policy factors in this proceeding, Panasonic submits that certain fundamental considerations should weigh heavily in its decisionmaking, including:

- AAS equipment is designed to operate on an unprotected, non-interference basis pursuant to uniform standards and without operator discretion, thereby obviating the need for individual licensing and suggesting a license-exempt approach is possible;
- AAS equipment operates in the context of international commercial aviation pursuant to harmonized standards applicable to both U.S. and foreign aircraft, suggesting that principles of international license recognition can be applied; and
- Although aircraft operators install and operate AAS equipment onboard their aircraft, IMC applications are actually provided to passengers through roaming arrangements with the passengers' home wireless carriers, suggesting that no additional service licensing is required.

Taken together, and assuming the Commission concludes as does Panasonic and many other IMC proponents that a technical basis for AAS operations pursuant to existing standards exists, the foregoing factors suggests that adopting new Part 15 rules is the most efficient and effective means to enable IMC in United States.

A. The Commission Should Adopt a Comprehensive IMC Regulatory Regime

The *NPRM* proposes to revise the Commission’s rules to permit AASs to operate onboard U.S. and foreign-registered aircraft pursuant to Part 87 aircraft station licenses.⁶ The Commission based its Part 87 licensing proposal, in part, on the approach adopted by Ofcom in the United Kingdom.

Panasonic agrees that the Ofcom example is an important model for the Commission to consider. However, it appears that the *NPRM*’s focus on aircraft station licensing may not have fully accounted for other elements of Ofcom’s comprehensive IMC regulatory regime. When more broadly considered, it appears that adoption of new Part 15 rules to govern the operation of AASs onboard U.S. and foreign aircraft may be a more appropriate regulatory mechanism to enable IMC in the United States, even if this approach is supplemented by Part 87 licensing for U.S.-registered aircraft.

1. The Commission Should Exempt AAS Equipment from Individual Licensing

AAS equipment is designed to operate at very low power on an unprotected, non-interference basis pursuant to uniform international technical standards. Indeed, there is no licensee discretion in how the equipment operates (*e.g.*, power levels, frequencies, minimum altitudes, etc.). As a result, Commission adoption of generally applicable technical rules would be appropriate and consistent with the fundamental construct of Part 15.

Shortly after its initial decision to permit IMC operations (called mobile communications on aircraft or “MCA” in Europe), Ofcom issued regulations exempting MCA equipment from

⁶ *NPRM* at ¶¶ 43-47.

licensing under the U.K. Wireless Telegraphy Act.⁷ Last week, Ofcom also commenced a consultation to update the MCA Exemption Regulations to add additional service link and control frequencies embodied in updated international standards.⁸ This consultation confirms the license exemption for MCA equipment operating in the United Kingdom, even though a notice of variation is issued to U.K. aircraft to confirm operating authority while traveling abroad.

The Commission should consider a similar approach in the United States. Like the MCA Exemption Regulations, a new Part 15 subpart could specify emission limits for mobile devices, picocells and NCUs in particular bands as outlined in CEPT Report 48.⁹ These rules would be applicable to all AAS operations and effectively prohibiting non-compliant operations. In addition, as discussed below, inclusion of AAS rules in Part 15 would avoid a number of complexities associated with Part 87 licensing or other regulatory constructs. In light of the public interest benefits that would accrue from enabling IMC in the United States, Panasonic urges the Commission to considering amending Part 15 to include new rules governing the operation of IMC equipment.

Such an approach also would be consistent with recent Commission precedent. Last month, the Commission released an order adopting new Part 15 rules for tank level probing

⁷ See 2008 No. 2427, *The Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2008*, (entered into force Oct. 1, 2008) (“MCA Exemption Regulations”).

⁸ See Ofcom, Notice of Proposal to make the Wireless Telegraphy (Mobile Communications Services on Aircraft) (Exemption) Regulations 2014 (Feb. 11, 2014) available at: http://stakeholders.ofcom.org.uk/binaries/consultations/mca-exemption/summary/FINAL_MCA_Notice.pdf (“MCA Consultation”).

⁹ 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 (Mar. 8, 2013), available at: <http://www.ero-docdb.dk/Docs/doc98/official/pdf/CEPTREP048.PDF> (“CEPT Report 48”).

radars (“LPRs”) with power levels in excess of traditional Part 15 devices, but with a similarly low interference potential given their unique operating characteristics.¹⁰ In these circumstances, the Commission adopted a new section in Part 15 to permit unlicensed operation of LPR equipment. Moreover, in the interest of harmonization and in the absence of comprehensive U.S. standards, the technical rules incorporated into Part 15 there were based on European technical standards notwithstanding certain frequency differences between Europe and United States.¹¹

The circumstances present in the *LPR Order* are strikingly similar to those implicated in this proceeding. AAS operations are confined to the aircraft cabin and comply with Part 15 levels at a relatively short distance from an aircraft operating at cruise altitude, thereby ensuring compatibility with co-frequency systems and services. In addition, no U.S. standards exist but existing IMC standards (developed in Europe and adopted globally) can serve to govern IMC operations in the United States. The Commission can incorporate these existing standards into new Part 15 rules as it did in the *LPR Order*.

2. The Commission Should Recognize Foreign IMC Licenses Subject to Compliance with U.S. Technical Requirements

Pursuant to generally accepted principles in international civil aviation, as well as treaty provisions in the Chicago Convention and ITU Radio Regulations, an aircraft’s registering nation has primary jurisdiction to license equipment onboard the aircraft.¹² Although radio equipment onboard foreign aircraft must operate in compliance with the regulations of overflown

¹⁰ *Amendment of Part 15 of the Commission’s Rules To Establish Regulations for Tank Level Probing Radars in the Frequency Band 77-81 GHz*, Report and Order and Order, ET Dockets 10-23 and 10-27 (rel. Jan. 15, 2014)(“*LPR Order*”).

¹¹ *Id.* at ¶¶ 21, 32 and FN.55.

¹² Section 87.191 of the Commission’s rules recognizes this fundamental principle. *See* 47 C.F.R. §87.191.

nations, including the potential need for supplemental operating authority, it is not at all clear that the Commission has the jurisdiction to independently issue aircraft station license for equipment onboard foreign aircraft, or that the Commission can or should exercise any such jurisdiction as contemplated in the *NPRM*.

In the Ofcom model, AAS equipment is license exempt subject to compliance with applicable technical rules.¹³ Thus, Ofcom necessarily recognized foreign AAS licensing consistent with well-settled principles in international civil aviation. There is simply no need to “relicense” equipment onboard foreign aircraft, or even to provide supplemental operating authority for such equipment to aircraft operators or others, because applicable technical standards are sufficient to ensure compliance with applicable regulations. Indeed, all available IMC equipment is manufactured to uniform standards so there is no possibility that the equipment will be operated by the aircraft operator in a non-compliant manner.

The Commission should similarly recognize foreign AAS licenses for equipment operated on foreign-registered aircraft. Importantly, this is precisely the approach employed by the Commission with respect to low-power Wi-Fi wireless access points (“WAPs”) operating onboard foreign aircraft today. Although foreign countries may issue aircraft station licenses for WAPs to operate outside their national airspace (where license exemptions rules may no longer be valid), the Commission appropriately accepts that such equipment will comply with FCC rules without requiring duplicative aircraft station licensing. AASs onboard foreign aircraft are not materially different and compliance with applicable standards can be assumed because the equipment is specifically designed to operate in the manner prescribed by the rules. Thus, the Commission can recognize home-nation licensing for AAS equipment onboard foreign airlines.

¹³ See MCA Exemption Regulations.

3. The Commission Need Not Adopt IMC-Specific Service Rules

Although airlines install and operate AAS equipment to support IMC offerings to their passengers, they are not involved in the delivery of IMC applications to the end users. Instead, the passenger's home wireless carrier partners with an IMC provider to deliver in-flight mobile broadband applications to the passenger. Thus, there is certainly no basis to impose service requirements on airlines as operators of AAS equipment, particularly under new Part 15 rules designed to facilitate low-power operation of AAS equipment onboard aircraft at cruising altitudes above 10,000 feet. Moreover, given the participation of a license wireless carrier in the delivery of mobile broadband applications, there is no basis to otherwise impose IMC-specific service requirements.

The Ofcom MCA decision, cited by the Commission as a principal example of IMC licensing, acknowledges that U.K. aircraft station operators are primarily responsible for operating AAS equipment onboard the aircraft but that IMC providers are more responsible for compliance with the general conditions applicable to provision of electronic communications services onboard the aircraft.¹⁴ The general conditions for service provision referenced by Ofcom are generally applicable to electronic communications service providers, including the IMC provider and the passenger's home wireless carrier. Given the existence of these general conditions and in the absence of any reason for regulatory intervention, Ofcom declined to impose additional service-related requirements on IMC offerings.¹⁵

¹⁴ *Communications on board Aircraft, Ofcom Statement on Authorizing MCA Services* (Mar. 26, 2008) 16.17 ("MCA Decision").

¹⁵ *Id.* at 20.

The Commission does not have parallel “general conditions,” but the roaming nature of IMC offerings requires a licensed carrier to be involved in order to deliver mobile broadband applications to the passenger. The passenger’s home wireless carrier permits access to IMC applications through a roaming agreement, sets retail pricing, bills the customer and otherwise maintains the carrier-customer relationship. The Commission can reasonably rely on private commercial arrangements between IMC providers and wireless carriers to maximize access to available IMC applications, and on existing carrier licensing to ensure that any service-related concerns vis-a-vis end-users will be appropriately addressed.

There is also no basis for the Commission to impose service obligations on a nascent IMC market, which is still developing internationally and has not yet been introduced in the United States. There is simply no indication that this developing industry requires regulatory intervention and circumstances in the United States do not alter that conclusion. To the extent technical or commercial differences exist between existing or next-generation IMC implementations (i.e., those that comply with the original or recently updated international standards) and “ideal” U.S.-specific IMC implementations that may be desired by certain parties, the Commission should recognize that current and next-generation IMC systems are the only ones that will be available for the foreseeable future. The Commission should therefore not deprive U.S. consumers of access to these broadband mobile networks while it considers possible alternative implementations. The Commission should rely on industry and market forces to address service-related issues and to develop new commercial approaches, as appropriate, in the United States.

Finally, if the Commission adopts IMC service regulations, the application of such rules should be limited to U.S. airlines only. The Commission should avoid “reaching into” the

foreign aircraft cabin to impose FCC service requirements on foreign airlines in contravention of basic principles of international law.¹⁶ Imposition of potentially conflicting IMC service requirements would infringe on the regulatory authority of a foreign airline's registering nation and invite other countries to impose intrusive regulation on IMC and other in-flight connectivity offerings onboard U.S. aircraft traveling abroad.

4. New Part 15 Rules Can Be Supplemented by Part 87 Licensing for U.S.-Registered Aircraft

As noted in the *NPRM*, Ofcom issues a 'notice of variation' to the radio station license held by U.K.-registered aircraft to grant express operating authority for AAS equipment. Although AAS equipment operations have been exempted from licensing by Ofcom consistent with general practice in international aviation, the notice of variation establishes that the aircraft operator has authority to operate AAS equipment outside the United Kingdom. However, as discussed above, Ofcom does not issue such licenses for AAS operations onboard foreign aircraft traversing U.K. airspace.

The Commission may implement Part 87 licensing for AAS equipment as proposed in the *NPRM* to ensure that U.S. airlines have clear authority to operate AAS equipment while traveling in international or foreign airspace. However, Panasonic respectfully submits that separate Part 87 licensing is not required for aircraft equipment used for in-flight connectivity. There is no indication that the Commission requires Part 87 licenses to support domestic or international

¹⁶ For example, like the exclusive criminal jurisdiction over acts committed onboard an aircraft under the Tokyo Convention, an aircraft's registering nation generally has exclusive jurisdiction over activities and services provided within the aircraft cabin. Panasonic acknowledges past U.S. efforts to ban gambling on U.S. and foreign aircraft on flights to, from and with the United States. However, significant legal controversy arose regarding extraterritorial application of U.S. law in that case. In addition, Panasonic respectfully submits that the current ban is honored on foreign aircraft located outside the United States as a result of foreign airline consent rather than the force of U.S. law applying outside the United States to legally prohibit such activity within a foreign aircraft cabin.

operation of Ku-band and Ka-band aircraft earth station terminals or Wi-Fi WAPs operated onboard U.S. aircraft.

Furthermore, Part 87 is designed to govern operations related to the “operation of aircraft.”¹⁷ Although “public correspondence” may be provided using Part 87 equipment operating on designated aeronautical spectrum, it is not certain that this concept can be extended to AAS equipment operating on non-aeronautical frequencies. Furthermore, the Commission should be cognizant of the potential impact of requiring Part 87 licensing for IMC equipment, but not for other in-flight connectivity equipment, onboard U.S. aircraft traveling in international and foreign airspace. Panasonic believes that, as with other in-flight connectivity equipment authorized under other rule parts for operations within and outside the United States, the Commission may properly rely on the authority granted under those separate rule parts.

The Commission can certainly remedy the issues noted above by appropriate modification of Part 87 and adopting a uniform approach to AAS equipment and other in-flight connectivity equipped operating under alternative FCC authority. However, the Commission may not be required to address these additional issues if it adopts a license-exempt approach for AAS equipment under Part 15 similar to that adopted by Ofcom.

B. Adopting New Part 15 Rules To Enable IMC Would Avoid Other Complex AAS Licensing Issues

In addition to the issues noted above, authorizing AAS operations under new Part 15 rules would avoid other potential complexities with Part 87 licensing and other regulatory approaches. For example, as previously discussed, duplicative Part 87 licensing would not be appropriate for equipment installed and operated onboard foreign aircraft. New Part 15 technical rules would apply equally to U.S. and foreign aircraft alike without separate FCC licensing.

¹⁷ See 47 C.F.R. §§ 87.5, 87.185.

Operation of AAS equipment under Part 15 would also avoid uncertainties associated with formal licensing on spectrum that may be licensed to others. Part 15 equipment operates on an unprotected, non-interference basis only and thus has no claim to operate vis-a-vis licensees operating in accordance with the terms of their licenses. If the Commission permits IMC operations under new Part 15 rules, the right of existing licensees and other users could not be compromised.¹⁸ Moreover, to the extent necessary, the Commission could adopt information sharing and interference mitigation procedures to address the concerns of incumbent users in the unlikely event that any issues should arise in the future.¹⁹

A Part 15 approach can also be viewed as underscoring the carrier-customer relationship and wireless carrier access to licensed spectrum. AAS equipment is essentially low-power networking equipment that extends the reach of licensed mobile networks into the aircraft cabin using passenger mobile devices linked to licensed carriers. Those devices will not operate with onboard AAS equipment unless the wireless carrier has authorized such operation via a roaming agreement with an IMC provider. Thus, to the extent carrier spectrum is used in the context of IMC operations, such use is pursuant to express carrier consent.

New Part 15 rules would also facilitate use of frequencies that have not been allocated for commercial use but can be used for low-power AAS operations. In particular, existing and next-generation AAS picocells use the 1800 MHz GSM band, which is allocated for government use in the United States. Access to such spectrum under Part 87 or other licensed constructs would appear to require reallocation by the Commission, but this spectrum is not restricted and can be

¹⁸ *See generally* MCA Consultation.

¹⁹ *See, e.g.*, 47 C.F.R. §§ 22.879-22.880. Of course, such procedures would be an anomaly with respect to operating Part 15 equipment, but the sensitivities of incumbent users in the unique context of in-flight equipment operations could potentially be addressed through such means.

used by Part 15 licensees operating in accordance with prescribed power levels. Thus, incorporating the power levels set forth in existing standards would enable existing AAS equipment to operate with the need for spectrum reallocation or similar measures.

Panasonic would note finally that its proposal to adopt new Part 15 rules for AAS operations is prompted by analogous Commission precedent (such as the recent *LPR Order*) and is materially different from Part 15 waiver concepts that have been considered in the past to enable IMC in the United States. Although a waiver of Part 15 requirements or Part 5 experimental authority may be appropriate to allow interim AAS operations for interference evaluation purposes, new Part 15 rules would obviate the need for a long-term waiver of Part 15 to support AAS operations in U.S. airspace as previously contemplated.²⁰

C. The Commission Should Adopt Existing International Standards Even if Additional U.S. Domestic Standards May Be Desirable

As a result of the Commission's forward-thinking initiative to bring new broadband mobile applications to U.S. consumers, interested parties are now exploring the technical and regulatory approaches to implement IMC in the United States. Fortunately for the Commission and interested parties, this examination is not happening in a vacuum. Technical standards have been developed to facilitate global IMC operations and many foreign regulators – including those with analogous regulatory regimes – have developed national approaches to facilitate IMC operations on their national airlines and on foreign aircraft traversing national airspace.

²⁰ A waiver of Part 15 field strength measurement distances had been contemplated because AAS equipment and onboard mobile device operations comply with Part 15 levels relatively close to the wingtips of aircraft flying at cruise altitudes. Nonetheless, this important operational circumstance, combined with extremely large separation distances from potential victim receivers and the speed of aircraft traveling at cruise altitudes (making worst cases assumptions and geometries extremely short-lived), underscore the viability of a Part 15 approach.

Examination of existing technical standards is warranted because they can be validated on an expedited basis through review of the extensive technical studies on which they are based, as adjusted for U.S. allocation and spectrum utilization differences. Moreover, because existing and next-generation equipment is based on the current standards, no alternative AAS designs exist for use in the United States. Although at some point it may be appropriate to consider the development of supplemental standards for the provision of IMC in the U.S. domestic market, the Commission should not delay adoption of international standards that must be employed by U.S. aircraft traveling internationally and foreign aircraft traveling in U.S. airspace.

In this connection, Panasonic notes that many U.S. consumers utilize mobile devices with mobile broadband functionality, including the frequencies and international roaming features necessary to access IMC offerings available today. The ability of U.S. consumers to access IMC offerings will be even greater when next generation IMC equipment is introduced that has the additional service link band at 2100 MHz. Thus, the Commission can make IMC applications available to U.S. consumers today, even if it explores additional approaches for implementation of IMC in the United States.

Panasonic also notes that AAS equipment operates in the context of international aviation. U.S. airlines that seek to provide IMC on long-haul international flight *must comply* with existing international standards when operating in international and foreign airspace, and U.S.-specific interference concerns would not apply outside the United States (where potentially affected U.S. systems generally do not operate). Furthermore, foreign aircraft are equipped with IMC systems compliant with international standards and should be permitted to continue AAS operations, subject to compliance with applicable technical requirements.

Commission validation and adoption of existing IMC technical standards addresses these issues and facilitates international harmonization necessary to enable the provision of IMC on long-haul international flights that cross multiple national boundaries. Adopting harmonized standards will also promote competition, enhance access to mobile broadband services and reduce costs by increasing scale in the global IMC marketplace for U.S. airlines, aircraft manufacturers, IMC equipment integrators and service providers, and wireless carriers – all to the benefit of the U.S. traveling public.

The Commission has emphasized that harmonization of standards has a role in enhancing competition, fostering innovation, and making equipment more affordable.²¹ The most recent example of this approach is the *LPR Order*, where the Commission looked to international standards in the absence of U.S. standards to govern operations in the United States despite differences in frequencies and spectrum allocations.²² The Commission should do the same in the context of enabling IMC in the United States.

D. Other Issues

Panasonic also provides the following comments on other issues raised in the *NPRM* associated with the provision of IMC in the United States.

²¹ See, e.g., *Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands*, Fourth Further Notice of Proposed Rulemaking, WT Docket No. 03-66, RM 11614 at ¶¶ 1, 11 (May 24, 2011). http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-11-81A1.pdf and Policy Statement, *Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium* (FCC 99-354) at ¶ 9 (Nov. 18, 1999). http://transition.fcc.gov/Bureaus/Engineering_Technology/Orders/1999/fcc99354.txt.

²² *LPR Order* at ¶¶ 21, 32 and n.55.

1. NCU Operations Within the Aircraft Cabin Are Consistent with Section 333 of the Communications Act

The FCC seeks comment on its tentative conclusion that operation of an AAS NCU within the aircraft cabin to prevent onboard mobile devices from connecting to the terrestrial network would constitute appropriate network management consistent with Section 333 of the Communications Act.²³ It is Panasonic's position that the use of an NCU to facilitate the provision of IMC while minimizing the potential for interference to terrestrial wireless networks does not contravene Section 333's prohibition on willfully or maliciously interfering with or causing interference to other authorized radio stations.

As the Commission is aware, the NCU emits a low noise signal within the aircraft cabin on mobile device receive frequencies to prevent mobile devices from hearing the pilot signals of terrestrial base stations and attempting to connect to the terrestrial network at high transmits powers. Thus, Section 333's prohibition must be examined solely by reference to the NCU's impact on the ability of mobile devices onboard the aircraft and on the ground to receive transmissions from terrestrial base stations.

In this connection, onboard mobile devices can be divided into two groups: those that can access the onboard AAS via a roaming agreement and those that cannot because no roaming agreement is in place. The wireless carrier that enables its subscribers' access can be deemed to have consented to AAS operations, including onboard network management using the NCU. For passengers without such access, the NCU prevents unwanted connections between their mobile device and the carrier's terrestrial base station, which is not designed to support direct

²³ 47 U.S.C. § 333; *See NPRM* at ¶ 62.

connections to mobile devices onboard aircraft in flight. Thus, in neither case is NCU operation “willfully or maliciously interfering with or causing interference to” onboard mobile devices.

Similarly, the impact of NCU transmissions on mobile devices on the ground does not contravene Section 333. As established by existing the technical studies which will be evaluated in the context of this proceeding, NCU transmissions have a *de minimis* impact on terrestrial network operations – particular the ability of higher-power base stations to communicate with mobile devices on the ground – even under the most conservative assumptions. The Commission has previously has acknowledged that that every radiocommunication system must work in the presence of some amount of RF noise and interference.²⁴ The *de minimis* incremental noise impact of NCU operations would fall into the reasonable margin for acceptable network performance, and would not seriously degrade, obstruct, or repeatedly interrupt terrestrial wireless services or other operations.²⁵ As a result, NCU operations within the aircraft cabin do not rise to the level of willful or malicious interference to other licensed radio stations.

Indeed, NCU operations would actually improve the interference environment for terrestrial wireless networks. Large numbers of mobile devices remain inadvertently powered-on while onboard commercial aircraft and transmit at high powers in an effort to connect to terrestrial base stations. By shielding mobile devices from receiving terrestrial base station signal and preventing them from transmitting at high powers, NCUs reduce the interference caused by uncontrolled mobile device transmissions. Thus, NCU operations in the context of IMC would be consistent with Section 333 of the Communications Act.

²⁴ *Establishment of an Interference Temperature Metric*, Notice of Inquiry and Notice of Proposed Rulemaking, 18 FCC Rcd 25309, ¶ 27 (2003).

²⁵ *See* 47 C.F.R. § 2.1.

2. The Commission Need Not Adopt IMC-Specific Requirements To Address Law Enforcement, National Security or Related Concerns

The Commission proposes that mobile wireless services offered by AAS operators be subject to the Communications Assistance for Law Enforcement Act (“CALEA”),²⁶ and requests input 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 between service providers and law enforcement agencies.²⁷ Panasonic submits that no additional measures are necessary to satisfy law enforcement, public safety, and national security concerns.

As noted in the *NPRM*, satellite providers, earth stations aboard aircraft (“ESAA”) operators, and 800 MHz Air-Ground licensees already address security concerns through individual negotiations with law enforcement agencies.²⁸ Like other in-flight connectivity offerings, IMC applications are provided to end-users via proprietary network designs. Thus, satisfying law enforcement concerns beyond the requirements of CALEA are necessarily subject to individual negotiations.²⁹ The Commission should continue to allow providers to pursue individual negotiations to satisfy law enforcement concerns, and those negotiations should remain confidential to avoid disclosure of proprietary network elements or service concepts.

²⁶ Pub. L.No.103-414, 108 Stat. 4279 (codified as amended in sections of 18 U.S.C. and 47 U.S.C.).

²⁷ *NPRM* at ¶ 76.

²⁸ *Id.* at ¶ 77.

²⁹ *See, e.g.*, 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, IB Docket No. 12-376, (rel. Dec. 28, 2012).

3. Border Coordination with Canada and Mexico is Unnecessary

The Commission seeks comment on the need to modify rules to codify future agreements with Canada and Mexico regarding IMC operations in the United States.³⁰ Due to the non-interfering nature of AAS operations, Panasonic believes that border coordination with Canada and Mexico are unnecessary. The fact that AAS operations have been exempted from licensing in Canada and Mexico underscores this conclusion.

4. There Is No Technical Basis To Permit IMC Operations Below 10,000 Feet

In the *NPRM*, the Commission inquires about the possibility of AASs operations below 3,048 meters (10,000 feet), the minimum altitude currently used to support global IMC offerings. The Commission asks whether this minimum altitude is appropriate for all mobile technologies and bands, and whether public safety entities could benefit from operations below this level.³¹ Panasonic believes that the Commission should limit the operation of AASs to altitudes above 3,048 meters (approximately 10,000 feet) at this time.

Existing studies suggest that this minimum separation distance is necessary to adequately protect terrestrial systems and services. Although some benefit could be realized in limited circumstances from permitting AAS operations below the current minimum altitude (e.g., public safety usage in exigent circumstances), no technical basis for such operations exist today. Rather, the technical studies that exist demonstrate that this minimum separation distance is essential to protect terrestrial systems and services. Additional studies would be required to support AAS operations below the current minimum altitude.

³⁰ *NPRM* at 27 ¶ 74

³¹ *Id.* at ¶¶ 55, 70-71.

5. The Commission Need Not Consider the Issue of Voice Services in this Proceeding

The Commission appropriately does not propose to limit the types of IMC applications that can be provided onboard the IMC-equipped aircraft. Instead, the ultimate decision relating to which specific mobile broadband applications to offer would be left to the airlines themselves.³²

Panasonic agrees that the Commission's objectives in this proceeding should be to further the public interest by facilitating the introduction of new in-flight mobile broadband technology while ensuring compatibility with other systems and services. Other agencies, such as the Federal Aviation Administration ("FAA") and Department of Transportation ("DoT"), have jurisdiction to address the potential impact of voice on passenger comfort, convenience and safety that have been raised with respect to the introduction of IMC in the United States. To the extent that such concerns persist, they can and should be addressed by those agencies.

Indeed, Panasonic understands that DoT is preparing to commence a rulemaking to consider the issue of voice services onboard aircraft.³³ Although Panasonic believes that airlines are in the best position to determine which IMC applications will best suit their passengers' needs, and that no regulatory or legislative ban on voice services is warranted, such issues can be considered in the context of that separate proceeding.

³² NPRM ¶¶ 3-4, 25, 27, 72-73.

³³ See Use of Mobile Wireless Devices for Voice Calls on Aircraft, RIN 2105-AE30 (Received by OMB Jan. 18, 2014, Pending EO 12866 Regulatory Review).

IV. CONCLUSION

For the foregoing reasons, Panasonic believes that the Commission can enable U.S. consumer access to in-flight mobile broadband applications consistent with other important public policy objectives, including: (i) providing airlines the choice to offer IMC applications that best suit their passengers' needs; (ii) facilitating U.S. passenger access to such mobile broadband applications at the earliest practicable time; (iii) ensuring IMC compatibility with co-frequency operations pursuant to appropriate technical rules and effective FCC oversight; (iv) fostering innovation in IMC offerings; and (v) promoting approaches that further U.S. interests in international aviation and in-flight connectivity. Panasonic further believes that Commission adoption of new Part 15 rules based on existing international standards would provide the most efficient and effective means to enable these important new in-flight connectivity applications in the United States.

Respectfully submitted,

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