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**Re: Counter Comments in Response to Consultation Paper on In Flight Connectivity (IFC) dated 29th September 2017**

Panasonic Avionics Corporation (Panasonic Avionics) once again would like to thank the Telecommunications Regulatory Authority of India (TRAI) for the opportunity to offer input as it considers formally opening the Indian market for In Flight connectivity (IFC). In response to the initial comments, we offer brief counter comments that address certain top-level matters and the following six basic issues:

1. India should implement “light touch” regulation of IFC, particularly for foreign airlines.
2. A separate IFC license for Indian airlines may facilitate the most rapid and pro-competitive implementation of IFC in India.
3. Allowing IFC providers to use Indian or foreign satellites and gateways would facilitate efficient implementation of IFC in India.
4. IFC “gate to gate” Wi-Fi Internet services can be permitted without added potential for interference.
5. Mobile communications onboard aircraft (MCA) enhances IFC competition and airline choice without added regulatory complexity.
6. India should enable satellite-based IFC in the near-term and separately address air-to-ground (ATG) technologies.

***Extension Request.*** Panasonic Avionics notes that limited time was available to fully assess and respond to the large number of initial comments in this proceeding, which address important and complex IFC regulatory issues. In addition, several comments were posted only recently, leaving little time for a full assessment and response. As a result, we respectfully request that TRAI consider a brief one-week extension of the deadline for counter comments to 17 November 2017 to enable Panasonic Avionics and others to supplement their responses on these important issues.

**Counter Comments.** As an initial matter, Panasonic Avionics would note that the comments of several unbiased and disinterested parties (i.e., neither IFC providers nor incumbent Indian telecommunications service providers) promote “light touch” and “international recognition” approaches to IFC regulation. Notably, the Ministry of Civil Aviation (MoCA), which is responsible for the safety and welfare of India airlines and passengers, suggested innovative IFC licensing and security approaches are possible with no restrictions on international operators in terms of satellite or gateway choice. The Ministry also encouraged TRAI to follow globally adopted standards and practices. The Broadband India Forum and the ITU APT Foundation similarly cite the principle of reciprocity in international aviation.

The Consumer Protection Association suggests that the authorities should aim to “put the decision of what kinds of wireless data services airline passengers enjoy in flight in the hands of the airlines,” and USIBC offers six principles for IFC which caution against heavy regulations and emphasize international legal principles and best practices. Panasonic Avionics agrees with these fundamental approaches and offers the following additional input.

**1. India should implement “light-touch” regulation of IFC, particularly for foreign airlines.**

A number of commenters suggested that IFC be subject to the same requirements on Indian and foreign airlines. Panasonic Avionics agrees with this basic principle, but TRAI should recognize the following important issues: (i) the off-board satellite links supporting IFC can be subject to the same operational requirements, including appropriate satellite terminal licensing for Indian airlines, without relicensing equipment on foreign aircraft; (ii) TRAI has direction jurisdiction to license IFC service on Indian aircraft but such jurisdiction is not certain with respect to services onboard foreign aircraft; and (iii) “light touch” rather than proscriptive IFC regulations applied to both Indian and foreign airlines will help Indian airlines more quickly implement IFC and better compete in the aviation marketplace.

With respect to IFC onboard foreign aircraft, in particular, TRAI should consider an approach that recognizes the primary licensing jurisdiction of the aircraft’s registering nation. The prevailing approach in IFC regulation includes: (i) recognition of foreign aircraft licensing for IFC equipment operations; (ii) regulation of service within the aircraft cabin by an airline’s home nation; (iii) standards compliance and licensing of equipment installed by national airlines which ensures spectrum use outside the aircraft cabin (i.e., the off-board link to the satellite) is compatible with other systems and services operating in the same spectrum. Such an approach is consistent with the legal principles prevalent in international aviation and would help ensure that foreign countries do not implement duplicative and burdensome IFC licensing requirements for Indian airlines operating abroad.

**2. A separate IFC license for Indian airlines may facilitate the most rapid and pro-competitive implementation of IFC in India.**

Although it is possible to extend the Unified License (UL) regime to IFC operations, such an approach may not be necessary and certainly should not be a requirement for implementing IFC onboard Indian or foreign airlines. The UL licensing regime was adopted for India's mass market telecommunications services and not for niche, satellite-based offerings that are inherently international in nature.

To facilitate rapid implementation of IFC in India and provide Indian airlines with maximum flexibility and bargaining power, Panasonic suggests putting authority for IFC operations into the hands of each individual Indian airline. In this way, Indian airlines can assess the passengers' needs, negotiate with IFC providers for specific features and services, and ensure that TRAI rules and policies are fully satisfied. Of course, UL holders can participate in the IFC market and offer Indian airlines services based on their unique network architectures. However, requiring participation of a UL holder greatly restricts competition and airline choice, which would appear contrary to the fundamental objectives of this proceeding.

The Ministry of Civil Aviation, the Consumer Protection Association and others agree that a developing a new IFC license may facilitate efficient implementation of IFC in India. Panasonic Avionics' proposal is driven by the same objective: maximizing the potential for success of IFC in India through a pro-competitive licensing approach that puts IFC authority in the hands of airlines – the entities closest to the passenger – and allows the airlines themselves to enable IFC services that best meet their passengers' needs. This, in turn, ultimately will result in the most cost-effective services for consumers in India.

**3. Allowing IFC providers to use Indian or foreign satellites and gateways would facilitate efficient implementation of IFC in India.**

Panasonic Avionics acknowledges the legitimate security interests of the Government of India. There are numerous IFC providers with varying network architectures and security solutions, some of which involve alternatives to Indian satellite capacity and gateway earth stations. Foreign airlines necessarily access international satellite networks on routes to India and through Indian airspace, which generally includes reliance on gateway facilities located outside India, and the Ministry of Civil Aviation recognized that security solutions exist to enable Indian airlines to access the same international satellite networks as their foreign counterparts to support IFC services.

Although incumbent UL holders and VSAT providers support requirements for India satellite and gateway facilities, many commenters agreed that access to both Indian and foreign networks is advisable and security solutions exist that do not require local Indian gateways. Indian airlines and their IFC provider partners should be permitted to access both Indian and foreign satellite capacity to enable the same flexibility and

seamless operations enjoyed by foreign airlines. Requiring IFC providers to use only Indian capacity and/or local gateways would add cost and complexity for IFC onboard Indian airlines that could make the offering non-viable.

**4. IFC “gate to gate” Internet services can be permitted without added potential for interference.**

Some commenters questioned whether permitting “gate to gate” IFC operations was advisable. Panasonic Avionics believes these questions may result from a potential misunderstanding regarding the scope and interference impact of “gate to gate” services. IFC “gate to gate” operations involve Internet services only because MCA services are suspended below a specified minimum altitude and do not operate on the ground. Internet Wi-Fi within the aircraft cabin is low-power and non-interfering so there is no potential for interference with airport Wi-Fi systems. In addition, satellite links operate in spectrum that is generally unshared with terrestrial services so there is no added potential for interference from on-ground operations.

Both the European Aviation Safety Agency (EASA) and the U.S. Federal Aviation Administration (FAA) conducted extensive inquiries and now permit “gate to gate” operations for IFC services. (*See* EASA Personal Electronic Device (PED) site, <https://www.easa.europa.eu/easa-and-you/passengers/portable-electronic-devices-ped-board>; *see also* FAA Advisory Circular 91.21-1C dated 7 May 2015, [https://www.faa.gov/documentLibrary/media/Advisory\\_Circular/AC\\_91.21-1C.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_91.21-1C.pdf).) As a result, we can see no safety, spectrum compatibility, or telecommunications policy issues that would preclude “gate to gate” operations in India.

**5. Mobile communications onboard aircraft (MCA) enhances IFC competition and airline choice without added regulatory complexity.**

Although most comments agreed that TRAI should enable all IFC services in India, some commenters suggested focusing on Internet services only because MCA service may involve more complex regulatory issues. Panasonic Avionics respectfully suggests that the latter approach would be short-sighted and inconsistent with international trend to exempt MCA services from additional regulation.

First, Internet services and MCA are complementary offerings, aiding passenger and crew safety, satisfaction, and convenience. MCA service enables connectivity using passenger and crew mobile devices associated with licensed wireless carriers for text, data, and even voice communications as if the user was roaming internationally. Enabling both types of IFC enhances competition and allows airlines to balance customer needs with cost and technical demands.

Second, with respect to foreign airlines, other jurisdictions have regulated MCA on a license exempt basis in accordance with well-accepted principles of international aviation, including (i) primary jurisdiction of an aircraft’s registering nation; (ii) mutual recognition; and (iii) operation pursuant to established international technical standards.

Indeed, there is no basis to treat MCA on foreign aircraft differently than in-flight Internet; both should be accorded similar exempt or “light touch” regulatory treatment.

Finally, adopting a similar exemption approach for MCA onboard Indian airlines may be possible because (i) MCA equipment operates pursuant to established international technical standards that prevent interference and facilitate connectivity to mobile devices as if the passengers were roaming internationally; (ii) each mobile device is provided by the passenger’s mobile service provider and operates under that provider’s authority; (iii) the mobile service provider affirmatively consents to MCA service for its customers through roaming arrangements with MCA providers (otherwise, the passenger’s device will not roam onto the onboard network); and (iv) the mobile service provider sets the pricing for MCA services and bills the passenger for such services pursuant to authority issued by its telecommunications regulator. In such circumstances, MCA should be considered to be provided under the authority granted to mobile service providers, and there is no need for additional licensing.

**6. India should enable satellite-based IFC in the near-term and separately address air-to-ground (ATG) technologies.**

Several commenters suggested that TRAI include the development of rules for ATG services in this consultation. Panasonic Avionics believes there may be a place for ATG networks in the Indian IFC ecosystem because they are particularly well-suited for domestic aviation applications. (ATG services involve the use of antennas on the bottom of aircraft communicating with ground-based towers located at fixed sites and, therefore, are deployed on a regional or national basis).

However, developing new rules for ATG systems is more complex and time-consuming than adopting regulations and standards for satellite-based IFC operations. International regulations and practices are already in place for satellite-based IFC and only require India to recognize and adopt globally accepted principles and operational requirements. Furthermore, these IFC rely on satellite networks with established spectrum sharing approaches and do not require exclusive spectrum allocations.

In contrast to satellite-based IFC, ATG systems generally require exclusive, nationwide spectrum assignments in order to operate. As a result, developing an ATG regulatory regime in India would, at a minimum, include: (i) identification of potential ATG spectrum bands; (ii) developing appropriate spectrum-sharing or band-clearing rules to facilitate ATG operations; (iii) developing appropriate operational and service rules for ATG systems; and (iv) developing appropriate licensing rules (e.g., eligibility requirements, auctions, etc.) to ensure a competitive ATG market. Although other national rules may serve as models, the process for implementing ATG in India would effectively require “starting from scratch” to build a regulatory regime crafted specifically for the Indian market.

Panasonic Avionics believes TRAI should adopt near-term rules to implement satellite-based IFC operations and consider rules for potential terrestrial solutions in a separate ATG-focused proceeding. In this way, TRAI can bring the benefits of satellite-based IFC to India at the earliest practicable time while providing a vehicle for potential ATG providers to develop technical and regulatory approaches that would facilitate availability of additional IFC networks.

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Again, Panasonic Avionics commends TRAI's efforts to formally enable IFC in India. We appreciate the opportunity to engage on these important issues and look forward to expeditious adoption of regulations that will facilitate the introduction of IFC services on Indian airlines at the earliest practicable time.

Respectfully submitted,

A handwritten signature in blue ink that reads "Mark DeFazio".

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and Licensing  
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