



Telecom Regulatory Authority of India



Recommendations

On

In-Flight Connectivity (IFC)

(Response to reference received from Department of
Telecommunications on recommendations of
18th January 2018)

4th June 2018

Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg, New Delhi-110002

TRAI's RESPONSE TO THE BACK REFERENCE OF DoT

1. The Department of Telecommunications (DoT), through its reference dated 10th August 2017, had requested TRAI to furnish its recommendations on licensing terms and conditions for provision of In-Flight connectivity (IFC) for voice, data and video services and associated issues such as entry fee, licence fee, spectrum related issues including usage charges & method of allocation and other conditions as per clause 11(1)(a) of TRAI Act 1997 as amended. TRAI initiated consultation process by publishing a Consultation Paper on the subject on 29th September 2017. Based on the inputs received from various stakeholders and its own analysis, the Authority issued recommendations on In-Flight Connectivity (IFC) on 18th January 2018.
2. The Recommendations have been considered by the Government. On some of the issues, it was felt necessary by the Government to seek clarifications/reconsidered recommendation under Section 11 of the TRAI Act 1997. Therefore, through its letter dated 15th May 2018, some of the recommendations have been referred back to the Authority for clarifications/reconsideration. A copy of the DoT's back reference is attached at **Annexure**.
3. The Authority examined the observations of the DoT and noted that DoT has referred-back recommendations made at Para 2.70, 2.104(ii) and 2.125(i). These recommendations, DoT's observation and the Authority's response after reconsideration are given below:
4. **Para 2.70 of Authority's Recommendations dated 18th January 2018:**

The Authority recommends that:

For MCA Services

- i. IFC service providers should be permitted to provide MCA services in Indian airspace in either of the following manners:*

a. When MCA service is provided in partnership with Indian Unified Licensee- Provision of MCA services by an IFC service provider shall be permitted in partnership with a Unified Licensee having authorization for Access Service. In this case, the satellite backhaul links may be provided by a Unified Licensee having authorization for NLD services having its satellite gateway within the service area of the partnering Access Service provider.

OR

b. When MCA service is provided in partnership with Foreign Mobile Service Provider- Provision of MCA services by an IFC service provider shall be permitted in partnership with a foreign mobile service provider. This would, however, be permitted only when the same IFC service provider is providing the onboard Internet services in partnership with an Indian Unified Licensee with appropriate authorization, as recommended in Para 2.64. Use of foreign satellites and gateway would be permitted for the establishment of satellite backhaul links only for the provisioning of MCA services.

ii. Necessary provisions may need to be created in the Access Service authorization, Internet Service (Category 'A') authorization, Commercial VSAT CUG service authorization and NLD service authorization.

DoT View

DoT has opined that these recommendations may be accepted with option (a). However, the option (b) involves permission of foreign satellites and foreign gateways which are not in conformance with CoS decision as only Satellite approved by DoS, with Indian Gateways are allowed.

Therefore, TRAI is requested to reconsider the above view of DoT.

Response of TRAI

The rationale behind the Authority's recommendations has been clearly brought out in Para 2.65, 2.66, 2.67 and 2.68 of its recommendations dated 18th January 2018.

For provision of Internet services onboard Aircraft, any of the Internet Service Providers on ground may extend their Internet services to the Aircraft through Satellite links. Therefore, in case of onboard Internet services, it is easy to switch satellite as well as the Internet service provider while moving from one jurisdiction to other. Accordingly, for provision of Internet Services, the foreign aircraft entering into Indian airspace may switch the satellite and latch to the Satellite Gateway in India and connect to an Indian ISP.

However, the same is not true in case of Mobile Communication onboard Aircraft (MCA). The operation of MCA is more complex and that is why only a few IFC service providers are providing MCA services. These IFC service providers, in partnership with some foreign mobile service providers, have created on-ground facilities for provisioning of MCA. A pico-cell, compatible with the partnering mobile service provider's core network, is installed on-board aircraft for providing MCA services. The pico-cell installed on-board aircraft is connected to the core network located in a specific country in which the partnering Service Provider has a licence to operate as Mobile Service Provider. This link is established through satellite backhaul and/or terrestrial links. The pico cell installed on-board aircraft is compatible to its parent core network and, thus, cannot be connected to any other mobile service provider's core network. Irrespective of the country over which the aircraft is flying, the traffic originated in the aircraft will need to be routed to the same core network. The pico cell installed in the aircraft cannot be automatically interfaced with any other mobile service provider's core network.

Even if it is assumed that such a facility is created on Indian soil, aircrafts will need to be fitted with pico cell/equipments

which are compatible with one of the Indian TSP's core network. There are several countries where IFC services are already operational and accordingly, their aircrafts are equipped with pico cell which is connected to the core network of partnering foreign mobile service provider. These airlines certainly won't be willing to carry out any modification due to the downtime and costs involved. Therefore, for such aircrafts, MCA over the Indian airspace seems feasible only with the existing arrangements in which partnering mobile service provider would be a foreign entity. It may require the use of foreign satellites and gateway; and traffic from aircraft may not be routed through Gateway in Indian soil.

Even if the foreign aircraft, while entering into Indian airspace, switches the satellite and latches to the Satellite Gateway in India, the MCA traffic has to be taken to the core network at foreign location through terrestrial links. As the interception facility is generally available in the core network, such traffic can be made available to Indian LEAs for Lawful Interception only through mirror-mode Gateway mechanism.

Further, the airlines services are global in nature and mostly it is governed by bi-lateral mutual agreements. If we do not allow the foreign Aircrafts to provide the MCA services using their satellite and gateways over the Indian airspace, the other countries will also not allow the Indian Aircrafts to provide MCA services while over-flying their jurisdictions.

As mentioned in Para 2.68 of the recommendations, the IFC service provider should not be permitted to provide standalone MCA services if the partnering mobile service provider is a foreign entity. The IFC service provider, willing to provide MCA services in partnership with a foreign mobile service provider, should necessarily be required to deliver onboard Internet services in arrangement with an Indian Unified Licensee with

appropriate authorization. This provision has been recommended to ensure the smooth operation of mirror-mode mechanism for interception purposes.

From the above discussion, it can be inferred that the CoS decision to use only Satellite approved by DoS with Indian Gateways for MCA service is not implementable. If the use of foreign satellites and gateways are not permitted for MCA services, it would make the recommendation infructuous.

With this perspective, the Authority recommended that “Use of foreign satellites and gateway would be permitted for the establishment of satellite backhaul links only for the provisioning of MCA services.”

The Authority is of the view that DoT may take final decision considering the above narrative into consideration.

5. Para 2.104 (ii) of Authority’s Recommendations dated 18th January 2018:

The Authority recommends that:

For MCA Services- When MCA service is provided in partnership with Foreign Mobile Service Provider

- i. For the interception and monitoring of MCA traffic, if the partnering mobile service provider is a foreign licensee, mirror copy (MC) gateway solution should be permitted. As recommended in Para 2.70 (i)(b), the IFC service provider can provide MCA services in partnership with Foreign Mobile Service Provider, only when the same IFC service provider is providing the onboard Internet services in partnership with an Indian Unified Licensee with appropriate authorization. Mirror image of the MCA traffic in the Indian airspace from the foreign Gateway should be routed to the Indian Unified Licensee with whom IFC Service provider has partnered with for the purpose of providing onboard internet services. It would be the joint responsibility of IFC service provider and the partnering Indian Unified Licensee to ensure that the mandated Lawful Interception requirements are met through mirror-mode gateway mechanism.*

DoT View

DoT is of the view that the above recommendation envisages a foreign gateway and lawful interception through mirror copy solution. The CoS has in its approval permitted only Indian Satellites and Indian Gateway.

Therefore, TRAI is requested to reconsider the above view of DoT.

Response of TRAI

As discussed earlier, the IFC service provider partners with a TSP to install a pico-cell on-board aircraft for providing MCA services. The pico-cell on-board aircraft is connected to the core network of partnering TSP. In case the IFC service provider makes an arrangement with an Indian access service provider to install a pico-cell on-board aircraft for providing MCA services, the associated core network of the concerned access service provider shall be in India. In such scenario, it would be possible to mandate the use of Indian satellite gateway. However, as discussed in the Authority's response in Para 4 above, there are several countries where IFC services are already operational and accordingly, their aircrafts are equipped with pico cell which is connected to the core network of partnering foreign mobile service provider. Therefore, in such Aircrafts, MCA over the Indian airspace seems feasible only with the existing arrangements in which partnering mobile service provider would be a foreign entity.

As the interception facility is generally available in the core network, the interception in the above discussed arrangement would be possible only through mirror mode gateway since the core network of the foreign mobile service provider is outside India.

The Authority has recommended that IFC service providers should be permitted to provide MCA services in partnership with a foreign mobile service provider; provided the same IFC service provider is also delivering onboard Internet services in association with an Indian Unified Licensee with appropriate authorization. The Authority is of the view that mirror image of the traffic from the foreign Gateway should be routed to the Indian Unified Licensee with whom IFC Service provider has partnered with for the purpose of providing onboard Internet services. It would be the joint responsibility of IFC service provider and the partnering Indian Unified Licensee to ensure that Lawful Interception requirement as mandated are met through mirror-mode gateway mechanism.

As discussed in the Authority's response in Para 4 above, the CoS decision to use only Satellite approved by DoS with Indian Gateways for MCA service is not implementable. If the use of foreign satellites and gateways are not permitted for MCA services, it would make the recommendation infructuous.

The Authority is of the view that DoT may take final decision considering the above narrative into consideration.

6. Para 2.125 (i) of Authority's Recommendations dated 18th January 2018:

The Authority recommends that:

- i. TEC should issue Interface Requirements (IR) for AES (Aircraft Earth Station) before the start of service.*

DoT View

DoT is of the view that the AES are already deployed in many foreign Airlines. Hence, their deployment requiring IR from TEC does not seem justifies. Accordingly, TRAI is requested to reconsider

whether Interface Requirements (IR) for AES (Aircraft Earth Station) are required before start of service.

Response of TRAI

As per Unified Licence Clause 2.2 (ii), “For providing the Service the Licensee shall utilize any type of equipment and product that meet TEC standards, wherever made mandatory by the Licensor from time to time. In the absence of mandatory TEC standard, the Licensee may utilize only those equipment and products which meet the relevant standards set by International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc.; or set by International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc. as recognized by TEC and subject to modifications/adaptation, if any, as may be prescribed by TEC/Licensor from to time.”

It is understood that compliance to TEC IR is mandatory requirement for accessing the satellite network in India. Further, the Interface Requirements (IR) for AES (Aircraft Earth Station) to be finalised by TEC are likely to be drawn from the internationally adopted standards only.

In view of the above, the Authority reiterates its recommendations.

Government of India
 Ministry of Communications
 Department of Telecommunications
 WPC Wing, Sanchar Bhawan
 20, Ashoka Road, New Delhi-110001

No. J-19045/07/2015-Sat (Pt)

Dated: 15.05.2018

To,
 ✓ The Secretary,
 Telecom Regulatory Authority of India,
 Mahanagar Doorsanchar Bhawan,
 Jawahar Lal Nehru Marg (Old Minto Road),
 New Delhi-110002

Subject:- Back reference/ clarifications on TRAI recommendations dated 18th January 2018 on "In-Flight Connectivity (IFC)".

Undersigned is directed to refer to TRAI letter No. 102-6/2017-NSL-II Dated 18th January 2018, enclosing recommendations on "In-Flight Connectivity (IFC)" and to state that these recommendations have been considered by the Government and it is felt necessary to seek clarifications/ reconsidered recommendation, under Section 11 of the TRAI Act 1997, i.r.o. recommendations at paragraphs 2.70, 2.104(ii) and 2.125(i) mentioned below:

Recommendations of TRAI	DOT's view for reconsideration/ clarification from TRAI
<p>For MCA Services</p> <p>The Authority recommends that:</p> <p>i. IFC service providers should be permitted to provide MCA services in Indian airspace in either of the following manners:</p> <p>a. When MCA service is provided in partnership with Indian Unified Licensee- Provision of MCA services by an IFC service provider shall be permitted in partnership with a Unified Licensee having authorization for Access Service. In this case, the satellite backhaul links may be provided by a Unified Licensee having authorization for NLD services having its satellite gateway within the service area of the partnering Access Service provider.</p> <p>OR</p> <p>b. When MCA service is provided in partnership with Foreign Mobile Service Provider- Provision of MCA services by an IFC service provider shall be permitted in partnership with a foreign mobile service provider. This would, however, be permitted only when the same IFC service provider is providing the</p>	<p>DoT has recommended that this recommendations may be accepted with option (a).</p> <p>However, the option (b) involves permission of foreign satellites and foreign gateways which are not in conformance with the CoS decision as only Indian Satellites and Satellites approved by DoS, with Indian Gateways are allowed.</p> <p>Therefore, TRAI is requested to reconsider the above view of DoT.</p>

<p>onboard Internet services in partnership with an Indian Unified Licensee with appropriate authorization, as recommended in Para 2.64. Use of foreign satellites and gateway would be permitted for the establishment of satellite backhaul links only for the provisioning of MCA services.</p> <p>c. Necessary provisions may need to be created in the Access Service authorization, Internet Service (Category 'A') authorization, Commercial VSAT CUG service authorization and NLD service authorization. [Para 2.70]</p>	
<p>For MCA Services- When MCA service is provided in partnership with Foreign Mobile Service Provider:</p> <p>The Authority recommends that for the interception and monitoring of MCA traffic, if the partnering mobile service provider is a foreign licensee, mirror copy (MC) gateway solution should be permitted. As recommended in Para 2.70 (i)(b), the IFC service provider can provide MCA services in partnership with Foreign Mobile Service Provider, only when the same IFC service provider is providing the onboard Internet services in partnership with an Indian Unified Licensee with appropriate authorization. Mirror image of the MCA traffic in the Indian airspace from the foreign Gateway should be routed to the Indian Unified Licensee with whom IFC Service provider has partnered with for the purpose of providing onboard internet services. It would be the joint responsibility of IFC service provider and the partnering Indian Unified Licensee to ensure that the mandated Lawful Interception requirement is met through mirror-mode gateway mechanism. [Para 2.104(ii)]</p>	<p>DoT is of the view that the above recommendation envisages a foreign gateway and lawful interception through mirror copy solution. The CoS had in its approval has permitted only Indian Satellites and Indian Gateway.</p> <p>Therefore, TRAI is requested to reconsider the above view of DOT.</p>
<p>The authority recommends that TEC should issue Interface Requirements (IR) for AES (Aircraft Earth Station) before the start of service. [Para 2.125(i)]</p>	<p>DoT is of the view that the AES are already deployed in many foreign Airlines. Hence, their deployment requiring IR from TEC does not seem justified. Accordingly TRAI is requested to reconsider whether Interface Requirements (IR) for AES (Aircraft Earth Station) are required before start of service.</p>

2. It is requested to kindly expedite.

Prasad
15-5-2018
(R B Prasad)
Joint Wireless Adviser