Date: 9th January 2023

To,

Shri Akhilesh Kumar Trivedi,

Advisor (Networks, Spectrum and Licensing)

Telecom Regulatory Authority of India

New Delhi

Sub: Response to TRAI Consultation paper on "Data Communication Services Between Aircraft and Ground Stations Provided by Organizations Other Than Airports Authority of India"

Dear Sir,

This is in reference to the Consultation Paper on Data Communication Services Between Aircraft and Ground Stations Provided by Organizations Other Than Airports Authority of India dated 10th December 2022.

Please find enclosed SITA questions wise comment on the said Consultation Paper for your consideration.

Thanking you,

Yours sincerely,

For **SITA Information Networking Computing (India) Private Limited**

Rajesh Ballal
Director, Regulatory Affairs, Asia Pacific Region

"Ude Desh ka Aam Naagrik - Journey from Hawai Chapal to Hawai Jahaj"
the vision of Hon'ble Prime Minister of India

SITA's response to TRAI Consultation Paper on "Data Communication Services Between Aircraft and Ground Stations Provided by Organizations Other Than Airports Authority of India"

Preamble

At the outset, SITA thanks the Authority for providing us the opportunity to share our comments on this important paper considering India has become the world's 3rd largest aviation market with an expected 6.2% annual growth of passenger traffic over the next two decades in this sector according to the Airbus Global Market forecast.

SITA supports the definition of the frequency assignment for data communication service between aircraft and ground stations for services provided by organisations other than the Airport Authority of India (AAI) and the adoption of a suitable regulatory regime that would not burden on the Communication Service Providers.

This consultation paper has been issued on an apt time when Government has its focus to improve ease of travel and enhance tourism profile of the country. The UDAN scheme of Government of India has facilitated to expand the presence the airport network across the country and been able to fulfil the dreams of many middle-class families with the opportunity to fly in an aeroplane. We understand that more than ten million of people had taken the advantage of the UDAN scheme to travel by air.

Therefore, an expeditious recommendation will be critical in defining the policy framework which would support issuance of requisite license to the Communication Service Provider once again. With 72 airports built in last 8 years, non-issuance of license to Communication Service Providers have severally impacted their capabilities to rollout the air-to-ground data link services in these airports. These would also help in airlines meeting the air safety regulation prescribed by Directorate General of the Civil Aviation ("DGCA").

All Airbus and Boeing passenger carrying aircraft manufactured in the past twenty-eight years have systems, installed at manufacture, which need to exchange operational airline and air traffic control navigation messages with various ground systems (VHF radio or VDLmode2 radio). In the same period SITA's AIRCOM® (Aircraft Communication) services have interconnected with these aircrafts, effectively acting as the 'bridge' between the aircraft cockpit computers and the airline/ANSP ground systems. These are mission critical systems providing the 'bridge' between the aircraft and the ground via multiple bearer types (VHF, Satellite). These are all essential services which are used for aircraft navigation and aircraft safety/distress. ***Without routine access to SITA's AIRCOM® services, an airline would not be able to operate its aircraft with desired safety requirements.***

There is an urgent need for TRAI to come with their Policy Framework Recommendation for allocation of radio frequency for the use of air-to-ground data link service by Communication Service Providers like SITA. In addition, the need to formulate a pricing model in line with the best global practice across comparable geographies.

Issue wise Response

Q1. Whether there is a need to bring data communication services between aircraft and ground stations provided by organizations other than Airport Authority of India under service licensing regime? Kindly provide a detailed response with justification.

SITA's Response:

SITA agree on the need to allow Communication Service Providers other than the Airport Authority of India to bring data communication service between aircraft and ground stations.

Wherever they may be in the world, Air Navigation Service Providers (ANSPs) must ensure the safe and efficient passage of aircraft in their airspaces. For decades, SITA has provided the air-ground communications network and systems that support the aviation industry, in every corner of the globe. With a wide range of digital communications technologies, SITA enables seamless air-ground data and voice exchanges for ANSPs, for mission-critical weather information and operational messages at airports and to aircraft inflight. As a result, SITA is one of the key users of the dedicated Aeronautical Mobile Services (AMS) VHF band for / on behalf of its airline member community. SITA is an important stakeholder in the Air Transport Industry (ATI) and is using the VHF band not only in India but across the globe. Our submission seeks to explain the value SITA provides to the growth and safety of the Aviation sector thereby making flying more economically efficient while providing the necessary safety features.

SITA's AIRCOM® services provide airline operational services to most of the world's airlines and Air Navigation Service Providers (ANSPs). The purpose of this service is to allow the airline community to communicate using data while in-flight and, on the tarmac via SITA Remote Ground Stations (also known as RGS or VHF Stations), to allow optimizing the operation of the aircraft fleet by implementing automated applications supporting flight operations, crew management, aircraft maintenance and all the other functions needed to support aircraft operations including communications with Air Traffic Control. SITA implements Air/Ground datalink communication services complying with ICAO standards for VHF Digital Link (VDL) Mode2.

Taking into consideration the critical nature of service and the need to meet the air safety norms and to fill this void, which can only be done meaningfully by Service Providers in addition to what Airport Authority of India ("AAI") is presently doing on the voice communication, it is also paramount to note that;

a) the VHF base channel should be as allocated in the India Sub-region , i.e. the channel 131.725 MHz being dedicated to SITA.

b) the frequency 136.975 is reserved on a worldwide basis to provide a common signalling channel (CSC) to the VHF Data link mode 2 and is shared amongst the Communication Service Provider and

c) each of the Communication Service Providers may need to operate on a separate VDLmode2 frequency due to the increase traffic and to manage efficiently its network. A guard band should be included in the channel plan in order to avoid harmful interference between the Communication Service providers. The spectrum that is used must have adequate protection from interference to ensure safety and regularity of flight harmonized throughout the world. Indeed, the new generation of aircraft generate much more data than the previous generation due to the sensor, engine monitoring, just to mention few.

In order to cater to the needs of the Airlines for air-to-ground data communication in all the uncovered airports of India, it is paramount that Communication Service Providers are offering services under the licensing framework which have been clearly laid out in the DOT's policy. The two key Communication Service Providers in this market segment being Global Players would always want transparency in the licensing framework from the Department which would be issuing license and the related compliance associated with them.

It would be pertinent to mention that the said service of air-to ground data communication services between aircraft and ground stations are regulated in most countries by way of issuance of license by the National Regulatory Authority and in coordination with the Civil Aviation Authority. There are few instances where the requirements of license have been explicitly exempted upon receipt of necessary clearances from appropriate authority. SITA would therefore suggest TRAI to recommend light touch licensing regime as followed by globally for similar service offered by Communication Service Providers in India. The current policy too can be considered to be continued with little facilitating provisions.

Q2. In case your answer to Q1 is in the affirmative, should the providers of data communication services between aircraft and ground stations be licensed through –

(a) an authorization under Unified License; or

(b) a separate service license.

Kindly provide a detailed response with justification.

SITA's Response:

The current process of issuance of Wireless Operating License has been working well and SITA would urge the Authority even consider recommending similar licensing regime that which is existing today (Wireless Operating License under Wireless Telegraph Licence).

The rational for the same being: -

- the service is very niche in nature and does not involve the public at large. It is operated in Close User Group environment, thus having a full-fledged license would not be required.
- this has also been the practice in all other geographies
- this service is non-public, non-captive and is only dedicated to a specific sector ATI
- most National Regulatory Authorities have prescribed a basic license/registration methodology, however, in few cases, the National Regulatory Authorities have even decided to grant a licence exemption to Communication Service Providers.

SITA believe that the licensing structure like the one for Unified license is not relevant in this case as such Unified licence was created for a different market (convergence of both fixed and mobile market and of technologies, technology neutral) and is more dedicated to Network Mobile Operator or related to public networks. Within the Aeronautical mobile band, the only technologies that could be used are VHF system and VDLmode2 radio and it is not expected any change in the technology in this band. In addition, contrarily to the Mobile Network Operators, there is no rollout obligations. The only obligation is driven by our customer, i.e. Airlines. The Aeronautical band is a private network and could not be accessed by the public.

Q3. What should be the broad terms and conditions of the licensing framework for data communication services between aircraft and ground stations, such as –

Kindly provide a detailed response with justification.

(a) licensed service area,

(b) validity period of the license,

(c) scope of the license,

(d) technical conditions,

(e) operating conditions,

(f) security conditions, and

(g) financial conditions (such as application processing fee, entry fee, license fee, bank guarantees, etc.)?

SITA's Response:

Point wise response below: -

(a) **licensed service area**: License should be given per station, with fixed site address. Lat long coordinates of the antenna should be cleared by both AAI & SACFA, due to the sensitive nature of service. However, the "service Area" should be left open, as the objective of the service is to establish an air-to-ground communication service with the aircraft which are

within the ground radio coverage which is typically about 200 to 250 nautical miles same as also been noted by the Authority in the Chapter II of their consultation paper. It is important to note that the services are not only given to the airlines which are landing or taking-off but even airlines which are flying over the Indian airspace. Therefore limiting the service area would not be pragmatic.

(b) **validity period of the license**: Presently the license is being issued on a yearly basis, which puts heavy burden on Communication Service Provider on taking steps well in advance. However, it has been seen despite best of interest of people concerned, there are delays in renewal process. We would thus recommend a larger tenure be fixed for the validity of license. SITA would recommend that the licenses are automatically renewed upon payment of annual license fee unless the Communication Service Provider informs the National Telecom Authority its willing to deactivate a specific radio. Such option would avoid any delay in the license renewal process and would allow easy cancellation. This would also reduce the administrative work on both sides.

(c) **scope of the license**: Scope of license should be limited air-to-ground communication between Aircraft and Ground station (Airport Authority and Airlines).

(d) **technical conditions**: the license should be technology neutral, and the licensor should not prescribe any technical condition except below: -

- Frequency band
- Max Power output
- Designation of emission

(e) **operating conditions**: All the designated Communication Service Providers should have access to the Common Signalling Channel ("CSC") operating in the frequency 136.975 MHz. This channel provides a means for an aircraft first to log on to the system. Once a connection is established on the CSC, an aircraft can be returned to any discrete frequency within the assigned frequency range thanks to the Central VHF management entity. The CSC also may be utilized as a common channel, when there is an emergency, or as a default channel whenever communication is lost; when traffic is light in an area, it may be used as a normal data channel. It should be noted that additional exclusive channels may be required by the Communication Service providers to allow additional capacities at airport and for En-Route services. VHF Radio intended to provide terminal area will be installed at airport or close to it in the event no suitable location could be found. The power transmitted by the ground radio should not exceed 25 W, and the operating hour is 24.

(f) **security conditions**:

License should be granted to a Communication Service Provider post: -

i. For New Communication Service Provider: Any pre-licensing security check presently in place may also be prescribed for any new entrant. Like checks on Directors, CEO, CFO etc.

ii. For all existing Communication Service Providers applying for new stations: Necessary clearance of coordinate from Airport Authority of India to be considered. There should be provision for deemed approval process in place, if no negative feedback is received from Airport Authority of India within 60 days period.

iii. SACFA Clearance is required to be taken by Communication Service Providers for each new station.

iv. Currently, the importation of the wireless equipment is subject to the grant of a import licence to the Communication Service Provider. Consequently, the deployment of a station could be delayed due to the importation process. SITA would like to highlight that a) the VHF and VDL mode 2 radios are certified according to the ETSI standards and b) those radios are already deployed in India. SITA therefore would kindly suggest simplifying the importation process, allowing the Communication Service Providers to import additional radios equipment's and to have some spares in India in case of radio failure.

(g) **financial conditions (such as application processing fee, entry fee, license fee, bank guarantees, etc.)**:

Application processing fee & Entry Fee: SITA is of the opinion that **No Entry Fee** should be charged. Present license tenure is one year basis, unlike Unified Access which are granted for far longer tenure. The DOT themselves felt the need to remove/reduce the entry fee burden and have recently asked for TRAI recommendation on the same vide its letter dated 3rd March 2022. Moreover, the entry fee is charged as one of the deterrents for entry of non-serious players, which is not the case in the current scenario, as the service in India are being provider by two serious MNCs having global coverage and have been providing service for around two decades in India. Moreover, entry fee is not charged or charged at a very nominal value in most geographies around the word for the air-to-ground data link communications service. In India there is an already a nominal application process fee being imposed at the time of applying by SACFA clearances.

License fee: the license fee that is being charged today by the DOT for the WOL is amongst the highest in the world. We understand that in Asia Pacific region, license fee charges by DOT for similar VHF frequency band used for air-to-ground data communications is highest. The average license fee in the region is less than one third to that of India. Most Licensor are levying a nominal administrative fee from the Communication Service Provider. If once sees

some of the close neighbours of India, all of them charge less than ten thousand rupees annually as license fee for same VHF band.

The scenario is very similar when one looks beyond Asia Pacific Region. The Licensors are only levying a very nominal fee, which helps in keeping the cost low for the service thereby benefiting the Air Transport Industry. The service in question is considered as a critical safety feature required by the Airlines and accordingly a nominal fee has been prescribed.

In our pre consultation discussion with the Authority, SITA have shared best pricing benchmark with the Authority, which would help them compare the current license fee in India viz other countries across the globe.

Bank Guarantees: SITA would not recommend prescribing any Bank Guarantee on Communication Service Providers. Performance Bank Guarantees are required to be taken from licensee when there is a roll out obligation attached to the license, which is not the case in WOL. Similarly for the Financial Bank Guarantee, the licensee's (Communication Service Providers) are required to pay the license fee in advance to DOT. Therefore, SITA believe that the need for Financial Bank Guarantee also does not arise.

Q4. What should be the methodology for assignment of the spectrum in frequency range 117.975-137 MHz to the providers of data communication services between aircraft and ground stations? Should the spectrum be assigned administratively, or through auction, or through any other method? Kindly provide a detailed response with justification.

SITA's Response: The frequency range 117.975 - 137 MHz have been earmarked for Aeronautic Mobile service by the National Frequency Allocation Plan (NFAP), issued by the Wireless Planning and Coordination of the Department of Telecommunications. This is in line with the International Telecommunication Union (ITU) Radio Regulation and Annex10, Vol V to the Convention on International Civil Aviation (ICAO Chicago Convention).

The service provider for air-to-ground communication service needs to lock the frequency with the airlines per region and accordingly the requisite equipment's are imported by the Communication Service Provider. It is of paramount importance that the same VHF and VDLmode2 channels are allocated to the Service Provider for optimum delivery of service across all Airports in India and are identical to those allocated in the region. There is also a need to have additional frequencies allocated in bigger airport having heavier coverage. As mentioned earlier the Communication Service provider use the VDLmode2 frequency 136.975 MHz which has been earmarked as a shared channel between the service providers by ICAO. The shared frequency by more than one service provider, the fee should be divided equally between the Service Provider(s).

Considering the above, we would advocate the current methodology of channel allocation to the Communication Service Provider within the stipulated frequency range be continued as per the request made by Service Providers. The Communication Service Providers have an

understanding to ensure that they request for assignment of same frequency in each region, to ensure minimum technical issues while offering services to the airlines.

On the second part of the question raised by The Authority: -

(A) **Administratively: -** the current process of frequency assignment done administratively has been followed across many geographies globally including in India by the Department and has been functioning well. SITA would urge the same methodology be continue, while considering the need to streamline the same considering the quantum of license fees in other comparable countries in APAC region and Rest of World. As mentioned in our earlier response, the current administrative assigned fee in India is far higher than other countries in APAC region. SITA believe that for services in question, the fee should be based on the administrative cost to issue such license and nature of service and the sector to which it is serving.

As indicated in the consultation paper, the services that are provided by both the Communication Service Providers are considered as a non-captive non-public network and a lighter licensing regime may apply for the provisions of the air-to-ground communication services.

The said frequency band is to enable services to be delivered safely and efficiently to the Airlines and to the Airport Authority of India. The airlines rely heavily on these services for various safety related features required for safe travel in the entire journey from take-off to landing of the aircraft. Thus, if any upward change, it should only be recommended in a phased manner.

(B) **Auction: -** SITA would NOT advise that the given frequency band be placed under auction. Although SITA recognize that while auctions are commonly recognised as the best way of assigning key cellular spectrum such as 3G, it is inappropriate for certain part of spectrum e.g defence, aeronautic and for low value spectrum The rational for the same is

(i) The bandwidth of allocation in the given frequency is 25 kHz allocation is not done per frequency block but per channel.
(ii) The allocation of the Common Signalling Channel (CSC) operating at 136.975 MHz is shared by the Communication Service Provider
(iii) International nature of the services and treaties associated with them
(iv) Auction mechanism is conducted where there is scarcity of frequency and heavy demand, which is not the case for the VHF band, as there are only two Communication Service Providers offering services in India and limited request in term of channels.
(v) The service is not being offered to public at large or other business entities. The offering is limited to Airlines and Airport Authorities.

(vi) Nowhere in the world is this frequency band under the Aeronautical Mobile (R) Service put under auction.

(vii) Any increase in the cost of the frequency will have a cascading impact on the service cost to the airlines, which are already offering service under wafer thin margins. The spectrum costs kept at bare minimum or should even consider to be absorbed by the Government as public service costs, as is the case elsewhere in APAC.

(viii) It is also important to consider the economic and other benefits that would arise from keeping the cost at minimum level to the travel industry, which in turn has impact on making travel affordable to common man.

(ix) The scope of the coverage being 200 to 250 nautical miles it will in most cases not just be limited to a State or just India. Therefore, the jurisdiction in some instances may go beyond Indian territorial sea limits of 12 nautical miles and land mass for stations in boarder States.

Q5. In case administrative assignment is to be followed, what should be the mechanism for charging the VHF spectrum in the frequency range 117.975-137 MHz to be assigned to the providers of data communication services between aircraft and ground? Whether the auction determined prices for other frequency bands can be accounted for estimating the value of VHF spectrum in the frequency range 117.975-137 MHz? Kindly provide a detailed response with justification.

SITA's Response:

As mentioned in our response to the previous question, SITA strongly support the license fee to be kept at minimum to cover the administrative fee. The current process of issuance of Wireless Operating License ("WOL") via administrative process have been working efficiently and there is no need to change the same. The license fee should aim at recovering the administrative cost and this is the methodology followed world over, especially when it comes to the frequency band in question in this consultation paper. The service in question, that is air-to-ground communication services is for exchange of flight critical, safety-of-flight communications between the aircraft and Ground Stations. While voice communications offered directly by ATC are essential, data communications are also a norm for routine communications and eliminate potential issues arising from interpretation, speaking accent, missing voice packet etc. The ACARS data communications are generally accepted to be far more reliable than the voice communication, thus having voice and data communication will be complimenting and critical for the safety related and other essential features provided to the Airlines.

SITA believe there is no need to conduct auction for the said frequency band for the reasons mentioned in our response to Q4.

Q6. If auction methodology is to be followed, whether the valuation of VHF spectrum in frequency range 117.975-137 MHz assigned to the providers of data communication services between aircraft and ground stations should be derived by relating it to the valuation of other frequency bands by using technical efficiency factor? If yes, with which frequency band, should these frequencies be related to and what efficiency factor or formula should be used for estimating the value of VHF spectrum in frequency range 117.975-137 MHz? Kindly justify your suggestions.

SITA's Response:

As mentioned in our earlier response SITA do not recommend the VHF frequency band in 117.975 to 137 MHz be put for auction. To our understanding this practice has not been followed anywhere in the world for such type of services. Indeed, the service provided by the Communication Service Providers is international by nature. Contrarily to the cellular band, there is not a high demand to access to this part of the spectrum. Auctions have certainly shown good outcome to access to the cellular spectrum for which there is a high demand and whom market is very competitive. However, for the other allocation, the National Regulatory Body predominantly use the administrative approach.

Additionally, the Airline community has been severely impacted by COVID19, which had brought many airlines to see difficult times not seen in decades. It would take many years to recover from the financial impact left by COVID. These have indirectly impacted the Service Providers who cater to the Airline community. If in such times, the Authority recommends new auction driven higher price, then such cost will have to be passed on to the Airlines and finally they would cascade to the end customer.

Q7. What are the prevalent international practices being followed in other countries for assignment and charging (including other applicable charges and fees) of spectrum in the frequency range 117.975-137 MHz, which is used for providing data communication services between aircraft and ground stations? Please provide a detailed response.

SITA's Response:

The EUR Frequency Management Manual provides the frequency band subject to ICAO EUR regional planning criteria and procedures. Within this manual, some channels are designated to be allocated to the two Communication Service Providers. For each state, the Communication Service Provider will submit an application form which contains some technical parameters of the VHF radio and its location. The licence is issued on a regular renewal basis which varies from one country to another one.

In the US, any request needs to go through Aviation Spectrum Resources, Inc. (ASRI) which manages and coordinates radio communication licensing for the aviation industry and is done online. The approach is similar in the other countries where the Communication Service Provider need to reach out the National Regulatory Authority to obtain the right to use the frequency

Q8. Whether the valuation of VHF spectrum assigned to the providers of data communication services between aircraft and ground stations be derived using the methodologies used internationally in this regard? If yes, which of the methodologies can be followed? Please provide a detailed response.

SITA's Response:

While authorization practice varies from one country to another one, there is frequently common features. The administrative fee is the most commonly approach adopted by the various National Regulatory Body.

The fee could be calculated according to some coefficients – Although that ITU has developed several documents on this subject, it seems that the whole approach considers services provided to the public while, in the present subject, the services is considered as a non-captive non-public services. The difficulty of such approach is the choice of the coefficient which may consider for example the specific features of services, the bandwidth and/or the operating frequency range and, as a result, the license fee may have large variations from one country to another one.

As example of aeronautical fee calculation:

The **Turkish regulatory administration** uses:

- a coefficient which expresses the position within the spectrum of the frequency or allocated frequency band
- a fixed value which serves as a basis to calculate the fee, expressed in the national currencies
- a coefficient which expresses the location of the radio
- And another value related to the bandwidth

The multiplication of all the above values will provide the yearly license fee.

The **Finish regulatory Administration** uses different coefficients:

* a coefficient related to the mode of operation. It is defined based on the mode of operation of the frequencies assigned in the licensee's radio licence.

* a basic fee coefficient. The coefficient enables the same basic fee to be used for all radio equipment categories

* the basic fee for calculating the frequency fee of all radio equipment categories.

Similarly, to the Turkish approach, the multiplication of the coefficient provides the frequency fee to be paid

Nevertheless, SITA believe that the recovery of administrative cost model seems the most appropriate for such services,

Q9. Apart from the approaches highlighted above, which other valuation approaches should be adopted for valuation of the VHF spectrum in the frequency range 117.975-137 MHz? Kindly support your suggestions with detailed methodologies, related assumptions, and other relevant factors.

SITA's Response:

SITA has no further suggestions on this question. SITA believe that some elements are already provided in the Q8.

Q10. Whether there are any other issues/ suggestions relevant to the subject? The same may be submitted with proper explanation and justification.

SITA's Response:

With the emergence of the next generation of aircraft, SITA have seen an increase of the downlink data due to the system monitoring system, sensor, etc. Airlines rely more and more on real time data exchanges between flying aircraft and Airline Operational Control Centres. Such functionality become essential for airlines operation efficiency. Additional applications such as Electronic Flight Bag (EFB) which are utilised by the aircraft crew or cockpit system require additional capacity. An access to the appropriate VHF band would be required to support the foreseen traffic growing. In addition, abased on the latest Airbus press release, its passenger traffic is expected to grow at 6.2% annually over the next two decades and India would require 2,210 new aircraft over the next 20 years.

Such increase would require additional capacity to cope with the data growth. Therefore, SITA suggest the Authority to allocate, probably in cooperation with the Directorate General of Civil Aviation (DGCA), additional VDLmode2 channels to avoid the congestion of the network in near-term and to cope with the additional capacity demand. SITA would recommend assigning per CSP one channel for EN-route service and one for Terminal/Enroute service in the view of offloading the CSC.

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