Date: 17th August 2023

To,

Shri Akhilesh Kumar Trivedi,

Advisor (Networks, Spectrum and Licensing)

Telecom Regulatory Authority of India

New Delhi

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

Dear Sir,

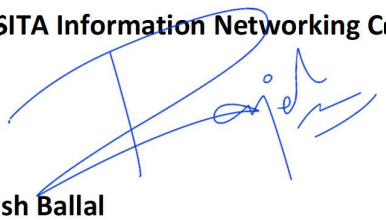
This is in reference to the Supplementary Consultation Paper on "Data Communication Services Between Aircraft and Ground Stations Provided by Organizations Other Than Airports Authority of India dated 3rd August 2023" for which SITA has already filed its response on 9th January 2023 and also shared its view on 10th March 2023 during the Open House Discussion. SITA has also shared further inputs on 17th March 2023 post the Open House Discussion as was suggested by TRAI Chairman during the OHD session.

We would like to place on table our comments on the questions raised in the Supplementary Consultation Paper as below.

We thank you for your consideration,

Yours sincerely,

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



Rajesh Ballal

Director, Regulatory Affairs, Asia Pacific Region

SQ1. In case it is decided to bring data communication services between aircraft and ground stations provided by organizations other than Airports Authority of India under service licensing regime, what should be the eligibility conditions for obtaining service licence for data communication services between aircraft and ground stations? Please provide a detailed response with justifications.

SITA's Response : SITA would like to once again reiterate that the current practice of WOL license has been running smoothly for many years and there is no need to change the same. The arguments in support of the same are as below:-

- The two Communication Service Providers (CSP) have been offering services for more than a decade and it would not be reasonable to add new entry condition to a player already offering services for such a long time. Moreover, certain conditions are already prescribed by DOT, which SITA has highlights in its response to the principal Consultation Paper on this subject.
- The said service is more in the nature of Aviation/Aeronautics rather than telecommunications services; therefore, it does not call for issuance of license under Section 4 of Indian Telegraph Act, 1885.
- The air to ground data communication is not offered to public at large, retail customer or end users, but specific to Air Traffic Control and Aircraft/Airlines or by the ICAO.
- The data communication services between aircraft and ground stations are primarily used for providing critical safety feature required by the Airlines.
- The ACARS data communications are generally accepted to be far more reliable than the voice communication provided by ATC, thus having voice and data communication will be complimenting and critical for the safety related and other essential features provided to the Airlines.
- Principal of same service same rule should be considered, as the service given by AAI and CSP are similar in nature. They are both providing service to the close user community and a niche segment of the Industry i.e. Aviation sector.

SQ2: In case it is decided to auction the spectrum in the frequency range 117.975-137 MHz for Data Communication Services Between Aircraft and Ground Stations, -

(a) What should be the eligibility conditions for participating in auction?
(b) Whether the entire available spectrum in 117.975 - 137 MHz band at each airport/ ground station should be put to auction?
(c) What should be the block size of spectrum and minimum bid quantity in terms of number of blocks?
(d) What should be the spectrum cap for each airport/ ground station?
(e) What should be the roll-out obligations associated with the assignment of spectrum at each airport/ ground station?
(f) What should be the period of assignment of spectrum?
(g) What should be the minimum period beyond which the spectrum acquired through auction may be permitted to be surrendered?

(h) What should be the process and associated terms and conditions for permitting surrender of spectrum through auction?

Kindly provide a detailed response with justification in respect of each of the above.

SITA's Response: SITA would NOT recommend that the frequency {i.e. frequency range 117.975 - 137 MHz which have been earmarked for Aeronautic Mobile service by the National Frequency Allocation Plan (NFAP), International Telecommunication Union (ITU) Radio Regulation and Annex10, Vol V to the Convention on International Civil Aviation Organization (ICAO Chicago Convention)} be placed under auction. It is inappropriate for certain part of spectrum e.g defence, aeronautic or low value spectrum to be placed in auction.

The rationale for the same are

(i) The allocation should not be done per frequency block but per channel which has a 25 kHz bandwidth

(ii) The allocation of the Common Signalling Channel (CSC) for the VDL mode 2 operating at 136.975 MHz is shared by the Communication Service Provider

(iii) Only few channels will be used by both CSPs. Two POA channels (i.e. 131.550 MHz to SITA) and four dedicated alternate channels for VDL allocated within the band 136-137 MHz. However due to potential congestion in near future in India's air space, there is a need for TRAI to consider adding other POA channels / frequency-terminal and/or enroute in future.

(iv) International nature of the services and treaties associated with them.

(v) 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.

(vi) The service is not being offered to public at large or other business entities. The offering is limited to Airlines and Airport Authorities.

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

(viii) 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.

(ix) 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.

(x) 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.

Section wise response on each question below:-

(a) What should be the eligibility conditions for participating in auction?

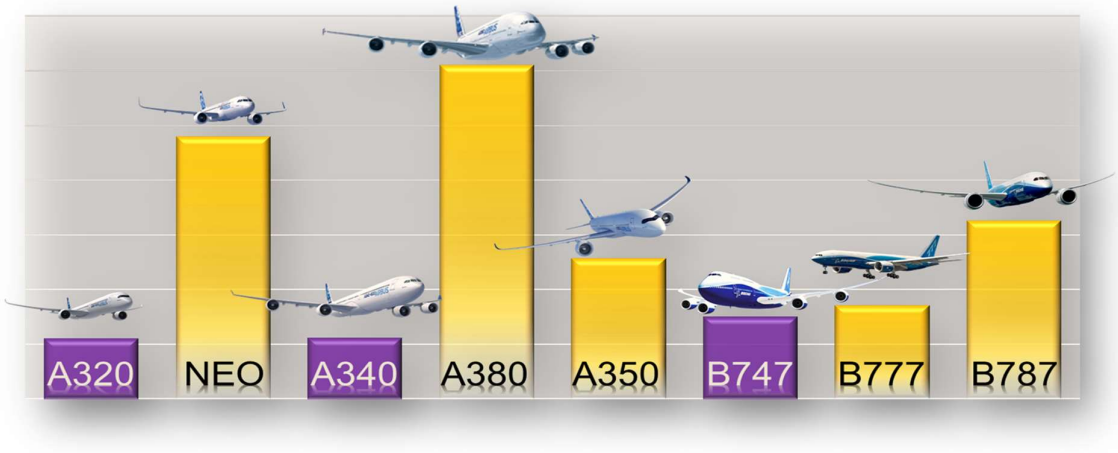
SITA's Response: the nature of service being very global in nature and very niche, only operators with sufficient prior experience and having a global coverage to be eligible.

(b) Whether the entire available spectrum in 117.975 - 137 MHz band at each airport/ ground station should be put to auction?

SITA's Response: The band 117.975 – 137 MHz is indeed allocated to the Aeronautical Mobile services. SITA would like to highlight that some frequencies within this band are reserved for specific use (tower and approach services, emergency, operational control services, just to name a few) and are not assigned to the CSPs (Table 4-1 of Annex 10, Vol V providing the allotment table).

In addition, as mentioned in our earlier response, the traffic volume in the India is increasing exponentially, therefore there is a need for CSP to have minimum two POA and VDL channels of 25 kHz bandwidth each. One can see the upward traffic trend in the growth of air traffic over the last ten years – with domestic traffic growing almost threefold and international traffic more than doubling. This would further increase in more than 1,000 new aircraft ordered by the Indian carriers.

SITA is of the opinion that 4 to 6 channels of 25 kHz each would be sufficient for VHF service. There would be many other use case that may come in future for the remaining spectrum, thus placing the whole band of spectrum may restrict the future growth.



Newer Aircraft generate more than double the quantum of message. With many newer aircraft being planned deployed in India, the volume of traffic is expected to further increase.

TRAI can also consider allocation of alternate channels within the band 136 -137 MHz for VDL stations which would offload the POA. Those alternate channels are not shared contrarily to the CSC.

Ps. Note: The VDL CSC is always allocated on 136.975 MHz and is shared between the two CSPs, while VDL alternate channels are allocated within the band 136 – 136.800 MHz and those channels are dedicated to one CSP. It would be best to consider the allocation done to the CSP in other countries of the Region, i.e. to keep the same assignments.

(c) What should be the block size of spectrum and minimum bid quantity in terms of number of blocks?

SITA's Response: SITA is of the opinion that the approach based on block size and number of blocks is not relevant for such services as it is explained in the various sections of our response. The relevant approach is rather the number of channels which would be dedicated to ACARS and to the VDL mode 2. Those channels would have 25 kHz bandwidth. SITA believes 25kHz is ideal block size for allocation to CSPs, as one also needs to consider the bandwidth to cope with the doppler effect (shift of the frequency due to the speed of the aircraft).

SITA would wish the Authority to refer to the Annex 1 of the Radio Regulation Appendix 3 [https://life.itu.int/radioclub/rr/ap03.pdf] which gives the necessary bandwidth (Bn) according to the operating frequency. The below table is an extract of this Annex

Values for frequency separation between the centre frequency and the boundary of the spurious domain

Frequency range	Narrow-band case		Normal separation	Wideband case	
	for B_N<	Separation		for B_N>	Separation
9 kHz < f_c ≤ 150 kHz	250 Hz	625 Hz	2.5 B_N	10 kHz	1.5 B_N + 10 kHz
150 kHz < f_c ≤ 30 MHz	4 kHz	10 kHz	2.5 B_N	100 kHz	1.5 B_N + 100 kHz
30 MHz < f_c ≤ 1 GHz	25 kHz	62.5 kHz	2.5 B_N	10 MHz	1.5 B_N + 10 MHz
1 GHz < f_c ≤ 3 GHz	100 kHz	250 kHz	2.5 B_N	50 MHz	1.5 B_N + 50 MHz
3 GHz < f_c ≤ 10 GHz	100 kHz	250 kHz	2.5 B_N	100 MHz	1.5 B_N + 100 MHz
10 GHz < f_c ≤ 15 GHz	300 kHz	750 kHz	2.5 B_N	250 MHz	1.5 B_N + 250 MHz
15 GHz < f_c ≤ 26 GHz	500 kHz	1.25 MHz	2.5 B_N	500 MHz	1.5 B_N + 500 MHz
f_c > 26 GHz	1 MHz	2.5 MHz	2.5 B_N	500 MHz	1.5 B_N + 500 MHz

The bandwidth for an emission 13KO2AD (as presently allocated by DOT) is 13 kHz, and according to the above table, for the frequency operation (between 30 MHz and 1 GHz), the necessary bandwidth will be set to 25 kHz.

(d) What should be the spectrum cap for each airport/ ground station?

SITA's Response: As mentioned earlier, to cater to the requirements of India and increasing number of airports and aircrafts, there is a need to have more stations permitted at each Airport. SITA is of the opinion two POA and three VDL channels (one shared and two dedicated) be permitted per CSP taking into consideration the increasing volumes due to modernization of aircrafts resulting in higher quantum of messages between air to ground.

(e) What should be the roll-out obligations associated with the assignment of spectrum at each airport/ ground station?

SITA's Response: there are many operational and technical aspects required to be addressed while offering service within the Airport. Thus, sufficient time should be given to CSPs for rollout of service. Indeed, CSPs needs to have:

- CSPs be permitted to do the site survey, as the license application requires the station details to be mentioned. Current practice is two fold in nature, where generic address is mention followed by site survey (accurate location address) post issuance of license causing further delay in rollout.
- Rollout obligation tenure if any, should also take into consideration time required by CSPs for grant of import license prior to which no equipment's can be imported. Import license can only be initiated post issuance of WOL.
- obtain the authorization to install antenna on a roof.

and these may lead to delay in rolling out the services.

(f) What should be the period of assignment of spectrum?

SITA's Response: License should be assigned perpetually, as long as the CSP continue to pay the license fee and services are continued to be offered.

(g) What should be the minimum period beyond which the spectrum acquired through auction may be permitted to be surrendered?

SITA's Response: CSP should be free to surrender the spectrum anytime by giving sufficient notice to the concerned stakeholders.

(h) What should be the process and associated terms and conditions for permitting surrender of spectrum through auction?

SITA's Response: SITA would once again reiterate that it does not recommend auction methodology to be recommended for allocation of spectrum. With respect to surrender of spectrum, notice to the concerned stakeholders as per terms of contract with airlines and Airport Authority should be sufficient. 3 months advance notice may be prescribed to be given by CSPs to the licensor.

SQ3. In case of auction based and/or administrative assignment of spectrum, what should the payment terms and associated conditions for the assignment of spectrum for Data Communication Services between Aircraft and ground Stations relating to:

(i) Upfront payment,
(ii) Moratorium period,
(iii) Total number of instalments to recover deferred payments, and
(iv) Rate of discount in respect of deferred payment and prepayment?

Please support your answer with detailed justification.

SITA's Response: SITA maintains its earlier stand that the license be issued via administrative mechanism. The current process of frequency assignment done administratively has been

followed across many geographies globally including in India and has been functioning well. SITA would urge the same methodology be continued, while considering the need to streamline the license fee considering the quantum of license fees in other comparable countries in APAC region and Rest of World. As mentioned earlier, the current administrative assigned fee in India is far higher than other countries in APAC region. SITA believes 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.

SITA would like to reiterate the fact that the band 117 – 137 MHz has some dedicated allotments which are defined by ICAO though its Annex 10, Vol V and is allocated to different actors (airlines, airport). This aspect could not be ignored when doing the channel assignments.

The frequency band in question is to enable services to be delivered safely and efficiently to the Airlines and to Airport Authority of India. The airlines rely heavily on these services operating in some frequencies for various safety related features required for safe travel in the entire journey from take-off to landing of the aircraft. If TRAI recommends any increase in license fee, then the same be recommended in a phased manner.

Point wise response below:-

(i) Upfront payment: SITA's Response: Assuming the license would be issued on an administrative manner, SITA would recommend collection of total fees upfront for each year. As mentioned above, SITA would want TRAI to take into consideration the license fee charged for the same band in other countries across Asia Pacific and accordingly send their recommendation to the Department of Telecommunications.

(ii) Moratorium period: SITA's Response: 12 months or start of service whichever is earlier, moratorium period maybe prescribed for any new station.

(iii) Total number of instalments to recover deferred payments, and
(iv) Rate of discount in respect of deferred payment and prepayment?
SITA's Response to (iii & iv): As mentioned above it is very important to keep the license fee cost inline with license fee charged by other Regulatory bodies. 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.

SQ4. Whether there are any other issues/ suggestions relevant to the subject? The same may be submitted with proper explanation and justification.
SITAs Response:

Traffic Congestion:

SITA has seen tremendous growth in traffic volume in recent times in the Air to Ground Data communication. This can be attributed to the increase in number of flights clubbed with

additional airports across India. As mentioned in our initial response, India has 72 additional airports built in last 8 years, which is double of what was built in last seven decades and this development continues in rapid speed. Recently two major carriers in India, Air India and Indigo announced ordering for around 500 new Aircrafts respectively. The number of aircraft will further increase with new domestic carriers like Akasa Air and Fly91 being introduced in the domestic sector. As a result, those aircraft incorporating new technologies and systems will lead to an increase of data exchange between the aircraft and the ground, and SITA anticipate the need of additional Production Organisation Approvals (POA) frequency and the need to deploy rapidly a VDL network.

The focus of these airlines is to cater to the India's rising middle class. Government has not only focused on big cities but also on second and third-tier cities.

Considering that above, the traffic volumes will go up many folds in times to come and having requisite infrastructure in place on ground is one of the critical elements in this chain. The airlines rely heavily on VHF Air to Ground services for various safety related features required for safe travel in the entire journey from take-off to landing of the aircraft. To reiterate SITA's view, with these new generation aircraft, it is paramount to deploy VDL station operating at the CSC frequency (i.e. 136.975 MHz) and in other VDL frequencies (Enroute and Terminal) allowing the offload of the CSC and to obtain additional POA channels. It is important that TRAI takes the above into consideration while submitting its recommendation.

Type of License

SITA would continue to 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.

We have many other examples of service providers who have been granted license outside the Unified Licensing regime. Some examples could be tower companies offering services under IP1 license. It is well known that separate legal entity were carved out just to continue services using the existing Infrastructure (Tower).

Similarly, we have other examples of services being given by Operators outside the Unified License. So Non-Unified License is well established alternative mechanism under the Department of Telecommunications. Some examples that readily come to mind are In-Flight connectivity (IFC), PM Wani operator, Voice Mail/Audiotex/UMS Service provider. As mentioned by us in our earlier response, VHF service providers being more aligned to aeronautical service rather than telecommunication service, SITA believe that it should not fall under the Unified Licensing regime.

Nature of allocation of License: Auction Vs. Administrative allocation

SITA has not seen the VHF range being auction anywhere in the world and there is a reason for the same; Regulators have understood the critical nature of services that this frequency is being used by the Service Providers.

As per "**best practice recommendation**" of GSMA in their report published in Sep 2021 (Auction Best Practice GSMA Public Policy Position), Auction should only be considered when the demand for spectrum – both in terms of the number of applicants and how much spectrum they each want – exceeds the amount of spectrum on offer'. Auction-Best-Practice.pdf (gsma.com)

Presently the service offered by SITA and AAI are similar in nature, except that AAI caters to the voice communication and Communication Service Providers cater to the Data Communication using VHF band. The services offered by AAI and Communication Service providers are both offered to the Close User Group community. It's also important to note that it's just not technically feasible for Airlines to take their respective license and deploy the stations across the different airports that they fly to. These services have always been offered by independent Communication Service Providers like SITA.

ICAO Chicago Convention

It's also important to note the International Telecommunication Union (ITU) Radio Regulation and Annex10, Vol V to the Convention on International Civil Aviation (ICAO Chicago Convention). Its position on *Airport and similar charges:*

*"Every airport in a contracting State which is open to public use by its national aircraft shall likewise, subject to the provisions of Article 68, be **open under uniform conditions** to the aircraft of all the other contracting States. The like **uniform conditions shall apply** to the use, by aircraft of every contracting State, of all air navigation facilities, including radio and meteorological services, which may be provided for public use for the safety and expedition of air navigation."*

India is one of the signatories[1] to the convention. Thus, the charges levied to all stakeholders including AAI[2], should be done under uniform condition to all stakeholders. Auctioning the spectrum will go against this principal of uniformity. **It would not be wrong to even go as far as to advise that DOT should consider applying same service same rules principal and exempt the data communication services from any license fee for the VHF band, same as the Voice Communications services by AAI that are exempted from any license fee burdens.**

TRAI other recommendation on allocation of spectrum by means other than auction:

It would be good to know that not only has the said VHF band never been auctioned anywhere in the world, but we have some recent examples of recommendation made by TRAI on allocation of Frequency without the use of auction methodology.

- **TRAI Recommendation on "Satellite Earth Station Gateway" (SESG)**: under section 3.4 of the said recommendation dated 29th November 2022 mentions a flat entry fee of Rs. Ten Lakhs and subsequently Re. 1 per annum to be paid by SESG licensees.

[1] STATUS OF INDIA (icao.int)
[2] chicago.pdf (icao.int)

We understand DOT too has [3]accepted the recommendation of TRAI with some minor modification.

- **TRAI Recommendation on "In-Flight connectivity" (IFC)**: TRAI in its recommendation dated 18th January 2018 has proposed a flat fee of Re. 1 for all In-Flight connectivity license. Clause 2.113 [4]of the said recommendation mentions "In view of the above, the Authority recommends that: i. To promote the adoption of IFC services in Indian airspace, the IFC service provider should be imposed a flat annual Licence Fee of token amount of Re. 1. However, the same may be reviewed and amended at a later stage if need be. ii. There should not be any difference in the charges to be levied for domestic and foreign airlines in Indian Airspace

The auction if proposed by TRAI and implemented by DOT may prove counter intuitive, as some unrelated players may bid for the spectrum with the intent to trade for it with genuine operators subsequently. This will further increase the burden on the Communication Service Provider and in turn make it more expensive for the flying public. As it will be in the end the customer/passenger who must ultimately bear this burden.

Spares:

SITA had brought up the issue of the critical requirement of permitting service provider to keep spare inventory of the VHF equipment's. current practice of mapping one set of equipment's with one station possesses great threat of service unavailability and resulting downtime could be catastrophic.

VHF Service not for Public at large:

We have seen multiple response during the consultation process and Open House Discussion, indicating that the said service should not be offered to public at large. We would like to once again reiterate VHF service is strictly confined to Aircraft communication with Aircraft crew. The said frequency in question has been earmarked for Aeronautic Mobile service by the National Frequency Allocation Plan (NFAP) and ICAO. There is no way that the said frequency can be used for any service to public present in the aircraft cabin and this is in line with Article 1.36 of the ITU Radio Regulation.

[3] Guidelines for Captive VSAT CUG License-2022.pdf (dot.gov.in)
[4] Recommendation_IFC_19012018.pdf (trai.gov.in)