

Telecom

TRAI recommendations on satellite spectrum assignment largely neutral for telcos

TRAI published recommendations (click [here](#) and [here](#)) on terms & conditions for the assignment of spectrum for satellite-based commercial communication services. It recommended that spectrum should be assigned to satcom players (like Starlink) for a period of 5 years (extendable up to 2 years) and suggested DoT to consider assigning spectrum in Ku, Ka, Q/V, L and S bands for satcom services. Further, it recommended that the satcom players don't need to pay any upfront charges but should pay: a) 4% of AGR as spectrum charges - this is higher than the rate being lobbied by satcom players (vs. 5% spectrum charge being paid by telcos for earlier spectrum, but brought down to NIL since the 2022 spectrum auction); b) 8% licence fee (similar to that paid by telcos); and c) an additional INR 500 annually for every subscriber served in urban areas. These recommendations will now be vetted by the Digital Communications Commission after which they will be put up for Cabinet approval.

As highlighted in our thematic note "[Satellite internet: Potential to disrupt Telcos?](#)" and "[Bharti/Jio-Starlink tie-up largely neutral — mostly distribution arrangement for now](#)", we continue to believe that Starlink's satellite broadband services pose limited threat to telcos' home broadband business given its higher pricing (7-18x expensive) and limited speed. Further, Starlink's direct-to-cell satellite services are also unlikely to disrupt telcos' key wireless business given its dependence on telcos, and inferior performance. Hence, we believe these recommendations are largely neutral for Bharti/Jio; we also don't foresee any significant risk to growth potential for Indus Towers.

- **TRAI recommends assignment of satellite spectrum for 5 years; suggests no upfront cost but levy 4% of AGR as SUC and 8% as licence fee on satellite players:** TRAI recommended assignment of spectrum to satcom players (like Starlink) for a period of 5 years, (extendable up to 2 years) and suggested DoT to consider assigning spectrum in: **a)** Ku band, Ka band, and Q/V band for user links and feeder links for Non-Geo Stationary Orbit (NGSO)-based Fixed Satellite Service (FSS) for data communication and Internet service; and **b)** L band and S band for user links and C band, Ku band, Ka band and Q/V band for feeder links for Geo Stationary Orbit (GSO) or NGSO-based Mobile Satellite Service (MSS) for providing voice, text, data communication and Internet service. Further, it recommended that there should be no upfront charges on satcom players but they should pay: **a)** 4% of AGR as spectrum charges - this is higher than the rate being lobbied by satcom players (vs. 5% spectrum charge being paid by telcos for earlier spectrum, but brought down to NIL since the 2022 spectrum auction); **b)** 8% licence fee (similar to that paid by telcos); and **c)** an additional INR 500 annually for every subscriber served in urban areas. It is to be noted that these recommendations will now be vetted by the Digital Communications Commission after which they will be put up to the Cabinet for approval.
- **TRAI chairman reiterates satcom and terrestrial connectivity services complementary due to huge difference between their network capacities and scale of operations:** TRAI chairman dismissed concerns over the impact of satcom services on terrestrial connectivity services, saying that both technologies are likely to be complementary services in future due to the huge difference between their network capacities (as capacity ratio ranges from 60:1 to 250:1 in favour of terrestrial network) and scale of operations. Hence, there is no loss to telcos due to TRAI's recommendations for satcom services. Citing a case in point, he added that in Delhi, against a requirement of 5mn broadband connections, a single satellite constellation can offer only 10k-20k connections. Further, he added that the satellite constellation for which Starlink has applied for IN-SPACe permission operates in Ku and Ka bands, which are not supported by mobile phone devices. Hence, it needs to be seen whether Starlink would be able to offer its services direct-to-mobile in India after it pays stipulated spectrum charges. It is to be noted that satcom players globally take the spectrum from their terrestrial counterparts for satellites beaming services directly to mobile phones.



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- **Starlink's satellite broadband services pose limited threat to telcos' home broadband business given its higher pricing (7-18x expensive) and limited speed:** Starlink (and other satcom companies) have globally priced satellite internet plans at USD 10-500 per month excluding one-time cost for hardware (which is ~USD 250-380). This is 7-18 times more expensive than Indian telcos' home broadband plans (i.e., FTTH/FWA) that start from USD 5-7/month, while the higher end plans cost upto USD 47/month and provide speed of upto 1gbps and access to all OTT apps – **Exhibit 2-5**. Further, Starlink (and other satcom companies) offer plans with data caps and limited speed while Jio and Bharti provide unlimited data and higher speed. Hence, pricing remains a challenge for Starlink to become competitive in the price-conscious Indian market. So, Starlink's satellite internet use case is primarily for rural and remote regions. Thus, satellite internet poses limited threat to Bharti/Jio's home broadband segment; home broadband doesn't constitute more than 6-10% of FY30 EBITDA and valuation for Bharti/Jio.
- **Starlink's direct-to-cell satellite broadband services unlikely to disrupt telcos' key wireless business given its dependence on telcos, and inferior performance:** Starlink was the first-mover in testing and developing direct-to-cell technology, which can facilitate provision of satellite broadband services directly to cell phones. It rolled out pilots that support only text messages in late CY24 while voice, data and IoT services are slated to begin in CY25. However, this technology is still at a nascent stage and is currently facing technical constraints: **a)** LEO satellites are not stationary relative to the Earth; hence, circumventing this via beam steering is difficult in case of cell phones; and **b)** cell phones' low antenna gain and power limits their capacity to maintain a reliable line of communication with the satellites. Hence, Starlink (and other satellite players) require tie-ups with telcos to get access to their compatible 4G/LTE spectrum to connect with smartphones. Further, the tie-ups should enable satellite players to authenticate and connect users via SIM cards. Such dependence on telcos' infrastructure could potentially act as a strong barrier for Starlink to independently disrupt the mobile wireless segment in India. Further, direct-to-cell technology delivers inferior performance than traditional wireless connectivity services; hence, it is unlikely to disrupt Indian telcos' wireless business (which contributes 80-90% of valuation for Bharti/Jio).

Exhibit 1. Starlink leads the satellite communication space with its extensive 6,000+ LEO satellite network

	Inmarsat	Intelsat	One Web	Starlink	Iridium	SES	Globalstar	Orbcomm	Viasat	Hughes
Year of incorporation	1979	1964	2019	2020	1998	1985	1991	1993	1986	1971
Major investors/Parent company	Viasat (Acquired in 2021)	BC Partners, To be acquired by SES in 2025	Eutelsat, Bharti Airtel	SpaceX	Blackrock	Government of Luxembourg	Apple	GI Partners	Blackrock	EchoStar
Data speed	500 Kbps	2-5 Mbps	50-100 Mbps	50-200 Mbps	500-700 Kbps	2 Mbps	500 Kbps	N.A.	40 Mbps	15-50 Mbps
Orbit	GEO	GEO	LEO	LEO	LEO	GEO & MEO	LEO	LEO	GEO	GEO
No. of satellites	15	127	648	6426	66	70	25	51	20	3
Transmission frequency	L-Band & Ka-Band	C-Band & Ku-Band	Ku-Band	Ka-Band & Ku-Band	L-Band	Ka-Band	S-Band	VHF-Band	Ka-Band	Ka-Band

Source: ICRA, JM Financial.

Exhibit 2. Indian telcos offers FTTH and FWA plans at very competitive prices

Maximum Speed	Bundled OTTs	Bharti tariff*	Jio tariff*	BSNL tariff*
Fibre Broadband plans (FTTH)				
Monthly plans				
30 Mbps	No	NA	4.7	4.7
40 Mbps	No	5.9	NA	
100 Mbps	No	9.4	8.2	7.0
100 Mbps	Yes	10.6	10.6	8.2
300 Mbps	Yes	18.8	17.6	21.2
1 Gbps	Yes	47.0	47.0	
Standby / Backup plans **				
10 Mbps	Yes	4.7	4.7	
AirFiber plans (5G FWA) ***				
30/40 Mbps	Yes	8.2 (40mbps)	7.0 (30mbps)	
100 Mbps	Yes	10.6	10.6	
1 Gbps	Yes	-	47.0	

Source: Company, JM Financial Note * All Tariffs are on "per month" basis and exclusive of GST ** Standby / Backup Plans are prepaid plans with 5 months validity and are only available to new users *** Bharti's AirFiber services are currently available in select cities only

Exhibit 3. Starlink's satellite broadband plans are available at significantly higher premium to existing FTTH/FWA plans offered by Indian telcos

Fixed Broadband (BB) Plans	Price (USD per month)		Download speed	Entry-level satellite fixed BB plans expensive than FTTH/FWA Plans in India
	Entry-Level Plan	High-End Plan		
Jio FTTH	5	47	30-1000 Mbps	
Bharti FTTH	6	47	40-1000 Mbps	
Jio FWA	7	47	30-1000 Mbps	
Bharti FWA	7	47	40-1000 Mbps	
Starlink (US plans)	120	500	40-220+ Mbps	18.2X
Viasat, Hughesnet	50	115	40-100 Mbps	7X

Source: Company websites

Exhibit 4. Starlink's entry-level broadband plans across countries

Country	Monthly Charges (USD)	Hardware Cost (USD)
US	120	349
Canada	98	244
UK	95	380
Australia	88	346
Mexico	52	N.A.
Japan	43	324
France	42	366
Argentina	37	N.A.
Brazil	29	384
Kenya	10	350*

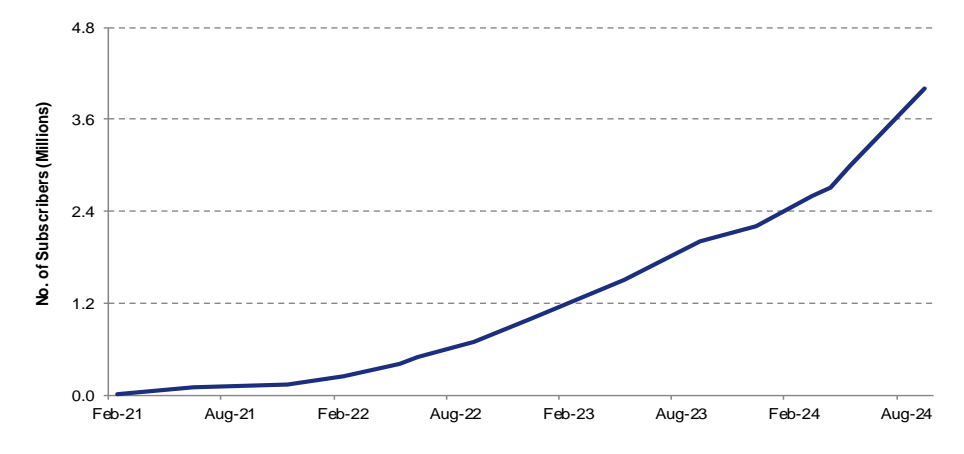
Source: Press reports * Can be rented at USD 15 per month

Exhibit 5. Starlink’s monthly subscription charges in the US have risen slightly while hardware costs have continued to decline gradually

Date	Monthly Charges (USD)	Hardware Cost (USD)
Jun-22	110	599
Dec-22	110	599
Jun-24	120	499
Dec-24	120	349

Source: Press reports

Exhibit 6. Starlink’s subscriber history



Source: Press reports

APPENDIX I

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