

The road towards WRC-23

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Viasat Ka-band Satellite Fleet. ViaSat-3 to cover APAC

Changing the world with disruptive bandwidth economics

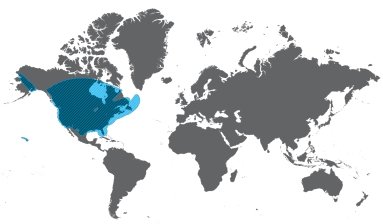
ANIK-F2



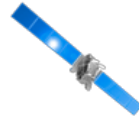
Launched: 2004

Capacity: ~3 Gbps

Coverage: North America



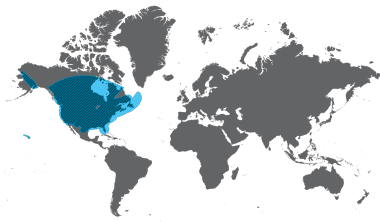
WildBlue-1



Launched: 2006

Capacity: ~7 Gbps

Coverage: North America



ViaSat-1



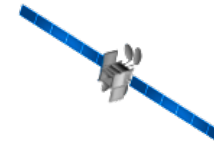
Launched: 2011

Capacity: ~140 Gbps

Coverage: North America



ViaSat-2



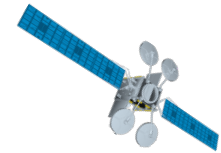
Launched: 2017

Capacity: ~260 Gbps

Coverage: 7x ViaSat-1



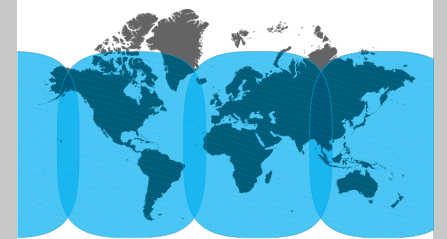
ViaSat-3



Launch: 2022+

Capacity: 1+ Tbps each

Coverage: 1st Global ISP



The road towards WRC-23: satellite items

Agenda Item 1.16

Consider the use of the bands 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (s-E) and 27.5-29.1 GHz and 29.5-30 GHz (E-s) by non-GSO FSS earth stations in motion (ESIM). Res 173 (WRC-19)

Agenda Item 1.17

Consider inter-satellite links in specific frequency bands, or portions thereof, by adding an inter-satellite service allocation where appropriate.
Res. 773 (WRC-19) refers to satellite-to-satellite links in bands: 11.7-12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz.

Agenda Item 9.1.c

Study the use of IMT system for fixed wireless broadband in the frequency bands allocated to the fixed services on primary basis. Res 175 (WRC-19)

Connectivity challenges, importance of Ka band for UHTS satellites

Need Coverage + Ultra-High Speeds

Large rural populations
Large geographical areas
Megacities: high pop density

Island nations, archipelagos,
mountainous regions, vast territories

Example:

India, rural pop 65%

...and ubiquitous mobility across urban
and beyond urban (ESIM)

Need Broadband for all: Ubiquity

Only five APAC countries have levels of
fiber deployment (FTTH) over 40%

Most APAC countries have low levels of
fiber deployment

Terrestrial infrastructure in mmWave
only suitable for hot-spot deployment

National broadband coverage is not
economically/ technically feasible with
only terrestrial mmWave infrastructure

South Asia: extensive **railways** and
inter-regional **transport**, **maritime** routes,
airports, aviation.

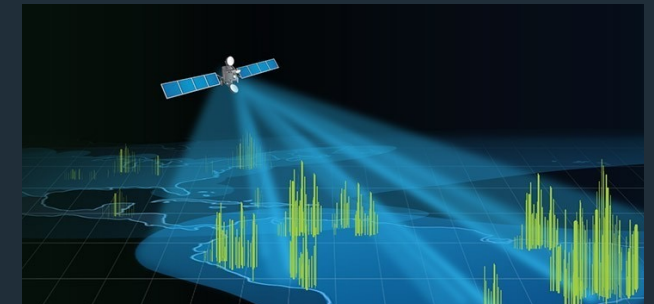
Why 28 GHz (Ka band) ?

Viasat-3: flexible broadband for fixed &
mobile access, rural and urban

Fiber-like capacity & 5G-like speeds

300 Mbps – 1 Gbps speeds
1 Tbps throughput per satellite
FSS & **ESIM**

UHTS: Highly-efficient capacity usage



How to achieve coverage, speed & capacity in India? Mix of technologies

Regulatory/ Policy requirements

Take advantage of satellite services available in the region:
India opening skies to international satellite capacity
Good!

Promising regulatory discussions in India

India is set to be one of the largest digital economies in the world. Will require a mix of technologies for broadband, including satellite

Spectrum requirements

Ultra-High Throughput satellites for both FSS (fixed) and **ESIM (mobile)** require the 28 GHz band (27.5 – 29.5 GHz)

Terrestrial 5G in mmWave is nascent. Investment risk in 26 GHz IMT will depend on global uptake.

28 GHz high-speed satellite broadband already a global investment

Maximum benefit for the use of **28 GHz: ensuring full use by satellite**

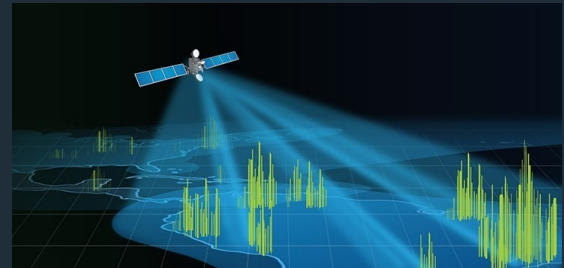
IMT uses can operate in the 26 GHz band globally

India: why 28 GHz?

26 GHz: IMT 5G use, outcome of WRC-19 (+17 GHz of identified spectrum). **Good!**

28 GHz: sole satellite use, Ka UHTS FSS & ESIM. WRC-15 & WRC-19 **Good!**

Costly & complex if 28 GHz is shared. Cost-efficient use for national coverage with satellite high-speed broadband



Fast connections for consumers and businesses anywhere, anytime: challenge accepted. Viasat-3



Unlimited home internet plans mean unlimited possibilities



Business internet and Wi-Fi for hard-to-serve locations



Connecting the unconnected to affordable high-speed internet



The best Wi-Fi in the sky gives every passenger freedom to stream



Stay productive and entertained on private aircraft



Fast, reliable coverage wherever you need it