



**INTELSAT.**

*Envision. Connect. Transform.*

12 October 2018

To: The Independent Communications Authority of South Africa  
Pinmill Farm Block A  
164 Katherine Street  
Sandton  
South Africa

Attention: Mr. Manyapelo Richard Makgotlho ([rmakgotlho@icasa.org.za](mailto:rmakgotlho@icasa.org.za))

**Subject: Draft Radio Frequency Migration Plan 2018**

Dear Sir,

Intelsat welcomes the opportunity to provide comments regarding the Draft Radio Frequency Migration Plan 2018 published by the Independent Communications Authority of South Africa ("ICASA").

#### **About Intelsat**

Intelsat operates the world's first Globalized Network, delivering high-quality, cost-effective video and broadband services anywhere in the world. Intelsat's Globalized Network combines the world's largest satellite backbone with terrestrial infrastructure, managed services and an open, interoperable architecture to enable customers to drive revenue and reach through a new generation of network services. Thousands of organizations serving billions of people worldwide rely on Intelsat to provide ubiquitous broadband connectivity, multi-format video broadcasting, secure satellite communications and seamless mobility services.

#### **Intelsat in South Africa:**

- Intelsat has its main Africa office in South Africa.
- It has over 14 Intelsat satellites covering fully South Africa, including 3 Intelsat Epic<sup>NG</sup> (next generation high throughput satellites).
- Intelsat's network enables South Africa to solve 100% of the broadband connectivity issues facing communities and businesses across the country.
- Intelsat has invested US\$4.4 million in infrastructure and platforms in South Africa over the past two years alone and this investment is set to continue to grow.
- Intelsat is a founding partner of Mindset Network NPC, and together they developed a partnership designed to support increased access to education via satellite. Mindset delivers educational materials to over 1,600 schools in South Africa and 1,025 health care facilities in South Africa.
- Intelsat is the leading provider of DTH, cellular backhaul and broadband solutions in South Africa:
  - o Intelsat satellites serve more than 12 million TV homes in South Africa, the vast majority being fed directly by Intelsat satellite (IS-20).

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- Intelsat supports Sentech (South Africa's premier provider of electronic communications network services in the broadcasting and communications industry) to distribute all the SABC channels to terrestrial towers across South Africa.
- Thousands of ATMs (from South Africa's four major banks) are serviced by Intelsat fleet.
- DSTV, the leading pay-TV provider in Africa, is using Intelsat satellite to distribute content to more than 6 million homes in South Africa.
- Intelsat supported the Department of Defense with communications for its missions between 2008-2012.
- Intelsat provided global transmission services of the 2010 FIFA World Cup in South Africa via 9 of its satellites.
- Intelsat is empowering South Africa with high reliable connectivity to top providers such as Telkom, Sentech, the South Africa Defense Force, MTN, Vodacom, Multichoice, Liquid Telecom, ATNS, Gondwana, Q-Kon, KweseTV...

### **C-band (3600-4200 MHz)**

It is proposed in the Draft Radio Frequency Migration Plan 2018 to migrate VSAT systems operating in the 3600-4200 MHz band to the Ku-band.

We would like to emphasize that C-band has been a cornerstone of many satellite services for decades. In addition to its key function in providing connectivity within and to areas of high rain fall, where other available bands are inappropriate, C-band is used for a number of other critical functions.

Intelsat provides an extensive C-band satellite capacity over South Africa, playing a key role in the global telecommunication infrastructure in the following key areas: DTT, video signal contribution and distribution, VSAT networks (ATM, corporate networks), cellular backhaul, disaster recovery, network restoration.

The 3600 - 4200 MHz band is currently used by several services including the Fixed Satellite Service (FSS). FSS earth stations are bringing significant economic benefit to South Africa, as explained above. In a world powered by demand for information, and advances in access technology with High Throughput Satellites (HTS), accessing data communication over satellite services is becoming a much cost-effective reality, resulting in further growth in data traffic using especially in the 3600-4200 MHz spectrum due to the coverage attributes that C-band provides today.

Most of the world's coverage via C-band is anchored through FSS earth stations that heavily use the 3600-4200 MHz, and is used for intercontinental links and links with high reliability requirements (including broadcast distribution and TT&C). Satellite operators rely heavily on this band because it has a number of advantages over other frequency bands. These advantages include:

- Reach. The large geographic coverage area of C-band satellite beams allows for whole regions or continents to be connected – resulting in a very cost-effective communications network.
- Resilience. C-band is resistant to rain fade. While services in higher frequencies sometimes experience degradation of their signal, services provided in C-band offer extremely high reliability, even during heavy rain.

For satellite communications to play their critical and vital role in the telecommunications landscape of South Africa and globally, they need continued, sustainable and harmonized access to spectrum.

### **Importance of international harmonization**

The decisions taken at the 2015 World Radiocommunications Conference (WRC-15) with respect to the identification of spectrum for IMT in the 3400-4200 MHz band<sup>1</sup> provide evidence that C-band is considered as critical for fixed satellite services and must be protected:

- The 3400-3600 MHz band was given a nearly global identification for IMT in all ITU Regions.
- The 3600-3700 MHz band has been identified for IMT only in four (4) countries in ITU Region 2 (Americas).
- **The 3700-4200 MHz band was preserved for FSS globally** in all ITU Regions and Mobile services remained secondary in the band 3600 - 4200 MHz.

WRC-15 further decided not to include frequency bands in the 3600-4200 MHz range on the agenda of WRC-19 for possible identification for mobile services. The African Telecommunication Union (ATU) decision not to have a primary mobile allocation in the band 3600 – 4200 MHz, whereby ICASA aligned their position with other ATU countries, contributed to this ITU decision. The “No Change” decision both for South Africa and SADC recognized the importance of the band, and this decision was carried at WRC-15.

Today, there are more than 170 geostationary satellites operating in the C-band providing essential services to a multitude of consumers around the world and new C-band FSS earth stations are continually being deployed on a regular basis, not to mention the countless number of receive only earth station antennas used for TV reception that are distributed globally. Migration of such services to Ku-band is impossible given the properties of C-band that Ku-band is lacking.

Nevertheless, we appreciate that the 3600 – 3800 MHz band is proposed to be opened to Broadband Fixed Wireless Access (BFWA). However we believe that measures to protect satellite networks from the resulting interference and critical coordination, including geographical separation, is possible. Furthermore, without internationally agreed framework for introducing BFWA in the C-band, lack of economies of scale will limit the availability of the devices and therefore severely hindrance benefits gained from the introduction of BFWA in this band. The benefits of BFWA over existing VSAT systems should be carefully assessed in light of this.

### **Feasibility of the VSAT migration to Ku-band**

Intelsat also would like to outline that in practice, migration would not be possible for the following reasons:

- It would require existing satellite service providers to revisit and renegotiate long-term commercial arrangements with Earth Station operators;
- Earth Station operators currently using frequencies in the 3600-4200 MHz band have limited scope to transition to other bands, due to usage by other services;

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<sup>1</sup> See Resolution 223 (WRC-15).

- A large proportion of the capacity of the existing Intelsat satellites is provided using the C-band, the capacity of the Ku-band would not be enough to cater for additional new comers and the service providers would not be able to maintain current services;
- Earth Station operators rely on existing licenses in the 3600-4200 MHz and would need to enter a new coordination process to obtain new licenses;
- There are no guarantees that this time-consuming and costly process will identify an alternative to the C-band capacity. This may result in lapses in, or full termination of, services to customers in South Africa and beyond.

We therefore urge ICASA to keep the current allocation of the 3600 – 4200 MHz band to FSS and in particular VSAT services; and to adopt measures that adequately protect existing and future satellite services in C-band, including services in the bands above 3800 MHz that could be impacted by out-of-band emissions from BFWA.

#### **Section 4.10.36 10.7-11.7 GHz (Page 59)**

The prevailing national conditions in the band, as per the National Radio Frequency Plan (NRFP 2018), in line with ITU Region 1 allocations, this band is allocated to “FIXED”, “FIXED-SATELLITE” and “MOBILE except aeronautical mobile.” Note 4 of the NRFP 2018 further states:

*“This band is used on a national basis for fixed services links under the fixed service. The bands 10.95 – 11.2 GHz and 11.45 – 11.7 GHz are also shared with FSS (space-to-Earth) systems (typically VSAT/SNG and PTP links). The sub-bands 10.95 – 11.2 GHz and 11.45 – 11.7 GHz is also used for DTH satellite broadcasting services on a secondary basis to the FS and FSS services.”*

The DTH service was introduced in this band in 1998 as a secondary service. In view of the potential interference between fixed links and the DTH service at the time, Government Gazette **GG19343** of 9 October 1998 included the obligation for telecommunications operators to communicate their planned roll-out of FS to broadcasters at least quarterly.

At the time, FS was mainly operated by Telkom, which cooperated with Orbicom and Sentech on a feasibility study to determine possible implications of FS on the DTH service. This study resulted in a number of technical criteria that had to be adhered to, to ensure co-existence in the band. Recently, ICASA has licensed a number of FS operators in this band, who have deployed fixed links, mainly in urban areas, with no consideration to DTH services that exist in the band, leading subscribers of DTH services to losing some channels, based on transponder frequencies that are interfered with.

Three key DTH services operate in this band within the country, provided through the IS20 satellite system. These services are DStv, OpenView HD and the DTT Gap Filler, which when combined, provide audio-visual services to between 8 and 9 Million households.

#### **Proposed solution to the current situation**

The interference cases caused by the number of FS assignments in this band, which were not coordinated with broadcasters, could get even worse should more licensees be assigned spectrum in the band.

Furthermore, there is an increasing demand for DTH services and other related broadcasting services in South Africa (as acknowledged by the ICASA notice 1871 of 1998). It is of great importance to exercise flexibility in catering for such services and recognizing future demand for DTH services across Southern Africa. Therefore, a high number of FSS and BSS user terminals are already in use in this frequency range and this is of vital importance to provide South African's telecommunication infrastructure.

Noting the above, Intelsat therefore recommends freezing of any FS license renewal and that no new FS assignments be made in this band. As a consequence, this band would not become a high density FS band and in the long term the number of FS links would stabilise or even decrease as some FS operators move to fibre optic. Intelsat further recommends that existing assignments be migrated to any of the following candidate bands, which are also allocated to FS:

- 5.925 - 7.125 GHz
- 7.425 - 7.900 GHz
- 12.75 - 13.25 GHz
- 17.7 - 19.7 GHz
- 17.7 - 19.7 GHz

Intelsat is of the view that migrating fixed links to the above recommended bands will ensure continuity of DTH services to the up to 9 Million viewers.

Sincerely,



Marie-Amandine Bhika  
Assistant General Counsel