SES Views on

Frequency Migration Regulation ICASA Hearings

November 2, 2012

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SES Africa

SES – Who we are

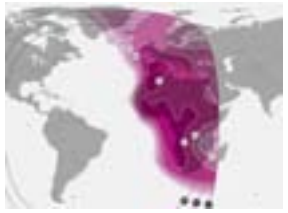
- **A world-leading telecommunications satellite operator**
- **Premier provider of transmission capacity, related platforms and services worldwide for**
  - media
  - enterprise and telcos
  - government and institutions
- **Headquartered in Luxembourg, with 1,200 staff worldwide**
- **Africa presence in Johannesburg and Accra regrouping Sales, Marketing and Business Development functions.**
- **Listed on Euronext Paris and the Luxembourg Stock Exchange**

SES – Focused on Africa

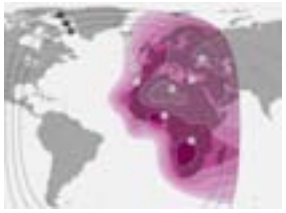
- SES delivers satellite-based solutions to broadcasters, content and internet service providers, mobile and fixed network operators, business and governmental organizations
- Using a global fleet of 52 satellites,
  - 9 of which currently serve the African continent in C- and Ku-band satellites
  - 5 of which provides C band capacity over South Africa and the SADC region namely NSS-10, SES-4, SES-5, NSS-7 and NSS-12
- Strong commitment to Africa with the launch 4 new satellites, 2 of which have C band payload and one relocated satellite supporting Africa in the future
- From our African headquarter in Johannesburg, SES offers most compelling balance of satellite capacity, individualized support and market knowledge to fuel Africa's growing demand for connectivity
- We support C band connectivity requirements for reputable South Africa organizations such as Telkom, Vodacom, MTN, Internet Solutions, Telemedia and so on

SES Fleet – Africa

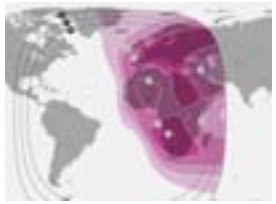
NSS-10 37.5°W

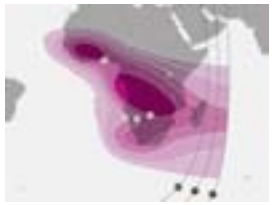


SES-4 22°W



NSS-7 20°W





ASTRA 4A + SES-5 5°E

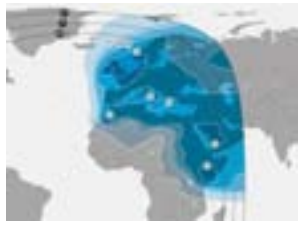
ASTRA 2F/G 28.2°E

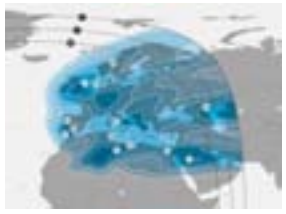
NSS-12 57°E

C band

Ku band

North Africa:





West & Central Africa:

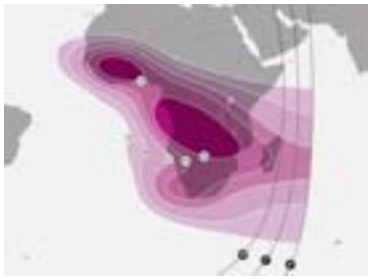
Southern & East Africa:

SES Fleet – South Africa

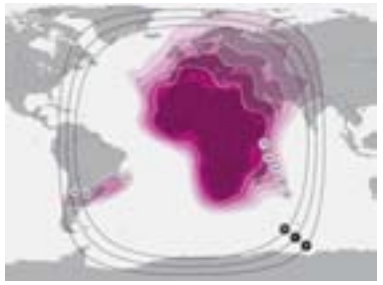
NSS-10
37.5°W

SES-4
22°W

NSS-7
20°W



ASTRA 4A +
SES-5 5°E



NSS-12
57°E

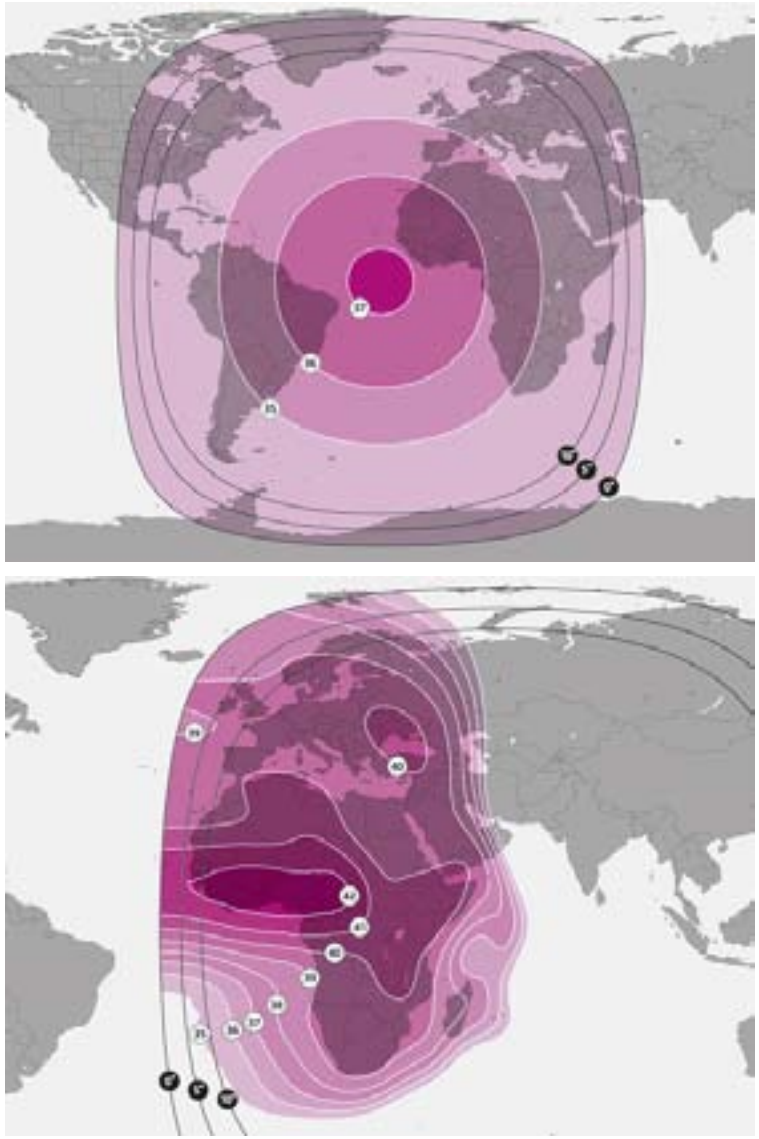
C band

Ku band

Use of C-band

- **C-band usage**
  - satellite communications in C band are extensively used throughout Africa, both for national and international connectivities and are suitable for:
    - Video contribution
    - Trunking
    - Corporate networks
    - Government networks

- **C band unique advantages:**
  - Wider Coverage
  - Higher availability
  - Higher efficiencies
  - Lower cost



C-band versus Ku-band

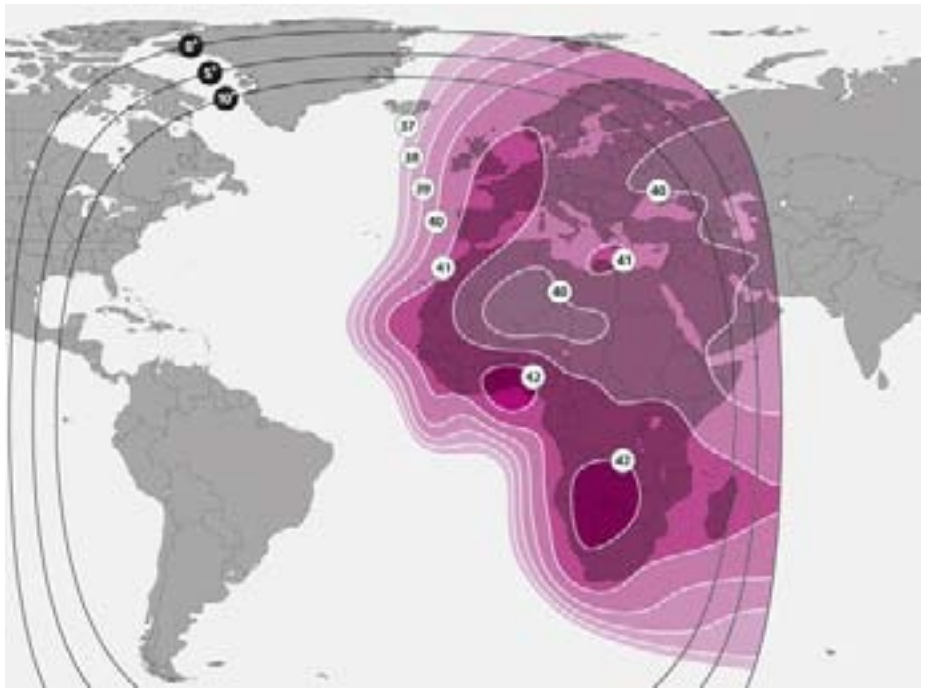
1. C band has a much wider coverage than Ku band and thus enable
   - ❑ Efficient transmission of televised live events where one feed can cover multiple continent.
     - – During the various international sport tournaments, one video feeds could be received simultaneously in Africa, Europe and the Americas.
   - ❑ Global organizations such as the World Bank, the United Nations, the African Union and Ministries of Foreign Affairs uses C band to connect various offices around the world
   - ❑ National organizations such as the South African National Defense force needs C band
   - ❑ Corporate organizations provides expanding the operations globally rely on C band to remain connected to the centralized IT hub

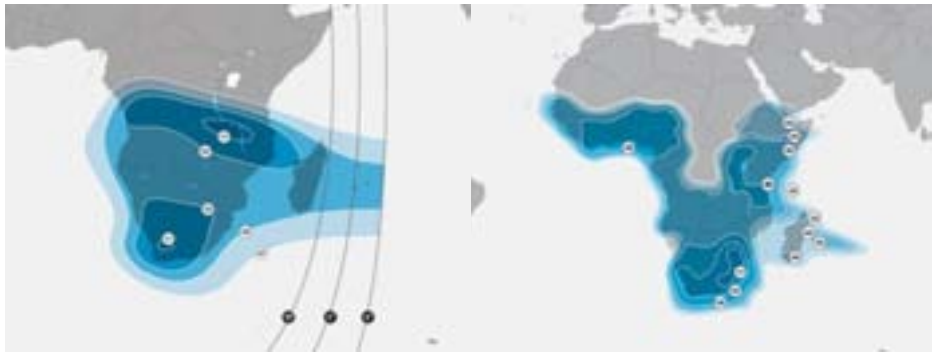
2. C band provides higher signal availability
   - ❑ Given the high rain attenuation, Ku tends to deliver cost-effectively an availability of 99.5% whereas C band can provide availability exceeding 99.99%

3. C band network are cheaper and easier to implement
   - ❑ To replicate a C band network in Ku would increase cost because of need for multiple Ku beams, higher capacity requirement to counter lower availability

Migration from C to Ku is not an option

- The many C- and Ku-band satellites covering Africa are heavily used
- There is scarcity Ku band capacity in South Africa and most are dedicated to broadcast services
- Migrating services out of C-band causes real issues:
  - Given the scarcity of Ku, where would the services migrate?
  - Limited coverage of Ku beam compared to C-band creates potential network problems
  - Lower Ku band availability which will have an impact on critical transmission
  - There are many legacy C band systems out there which cannot be converted





Operational problems with existing use

- Despite the opening of 3400-3600 MHz to Broadband Wireless Access (BWA), there has been little uptake by the terrestrial operators. Is there really a need to open up even more spectrum for BWA?

- BWA operations in 3600-3800 MHz goes into the “core” of the C-band capacity used on many satellites
  - Creates operational capacity planning problems for the operators and their customers
    - C-band transponders are full. Operators can not move carriers around.
  - Creates increased risk for adjacent band interference (even when the filters start at 3700 MHz)

In summary

- SES is committed to the development of communication in South Africa and has significant investment in satellite infrastructure particularly C band and in the establishment of its African headquarter in South Africa
- ICASA proposal to allocate 3600-3800 MHz to BWA would have a major negative impact on our ability to provide services in South Africa
- The proposed migration of VSAT operations to Ku-band is not feasible due to different network architecture, service availability and lack of sufficient capacity
- Migration is not an option, considering the amount of existing links and level of investments in C-band and congestion of Ku-band.
- SES strongly supports views expressed by ESOA and other satellite operators