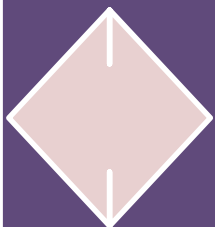
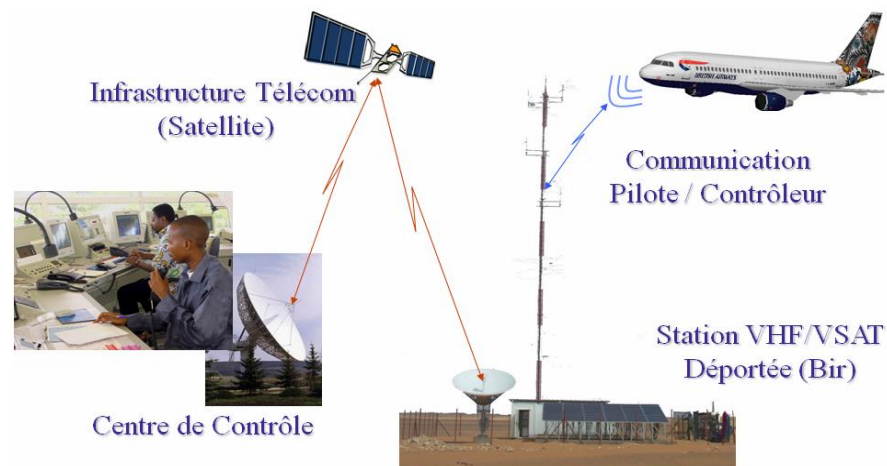




C-Band FREQUENCY SPECTRUM REQUIREMENTS FOR THE SAFE PROVISION OF AIR NAVIGATION SERVICES WITHIN AFRICA





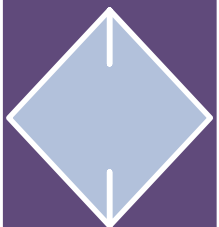
Introduction

RR 4.10

“ITU Member States recognize that the safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference; it is necessary therefore to take this factor into account in the assignment and use of frequencies”

The mission of the Air Navigation Services Providers in AFI region (ANSP) is to ensure the safety of Air Navigation in the fifty-four (54) States of Africa; (Western, Central, Eastern, Northern, southern & Indian Ocean)

The efficient provision of air navigation services relies on the implementation and operation of C-Band infrastructure available, reliable and integrated, to comply to ICAO and WMO requirements





Aviation Safety

Resolution 154 (Rev.WRC-15) supports the safe provision of air navigation services within AFI region

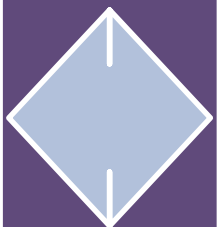
Consideration of technical and regulatory actions in order to support existing and future operation of fixed-satellite service earth stations within the frequency band 3 400-4 200 MHz, as an aid to the safe operation of aircraft and reliable distribution of meteorological information in some countries in Region 1

Aviation safety across the African Continent has been compromised by a lack of reliable fixed aeronautical telecommunications infrastructure used for providing Air Traffic Services

VSAT networks have been established across Africa to resolve the lack of communications

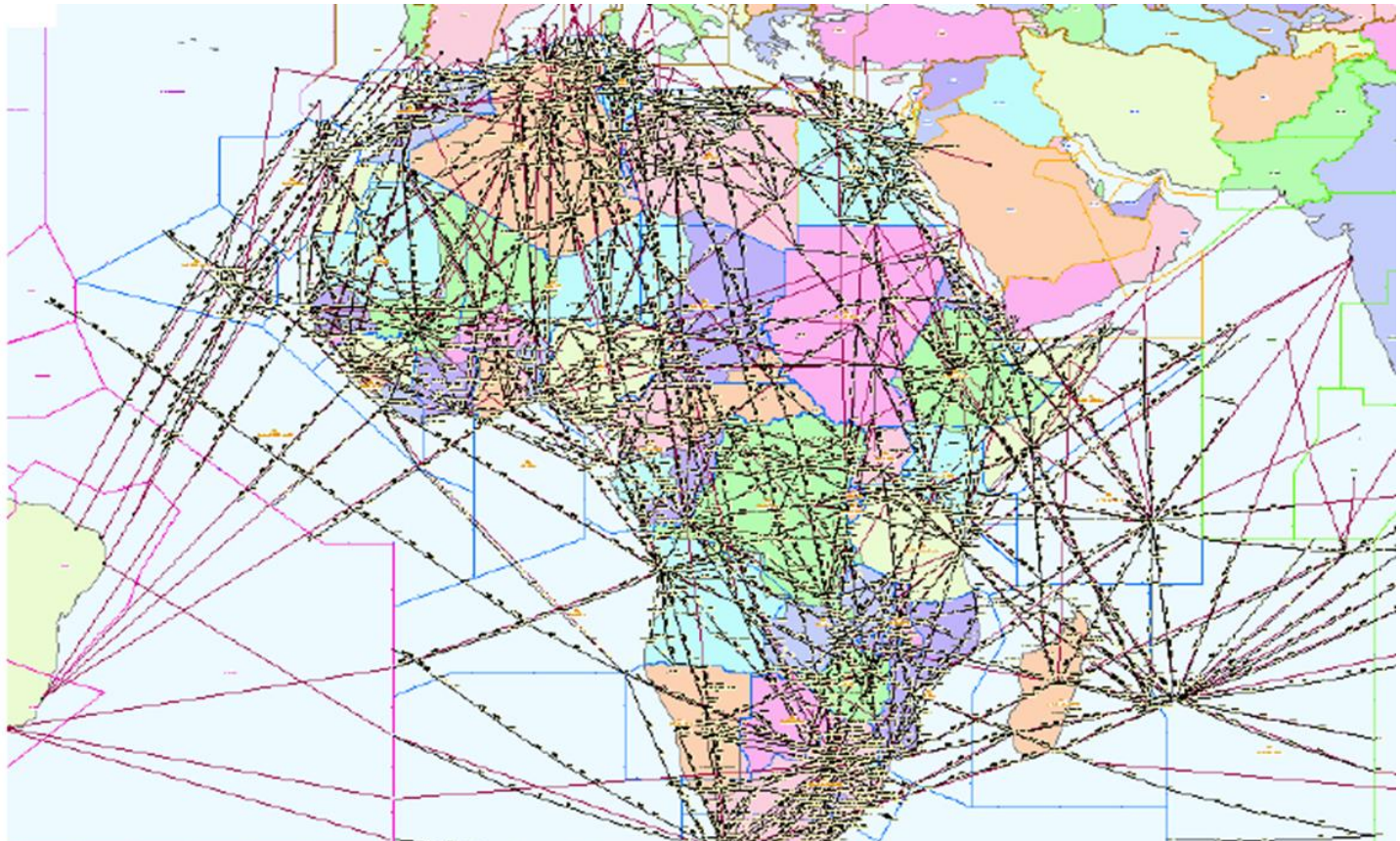
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Air Navigation Services Provision in AFI region

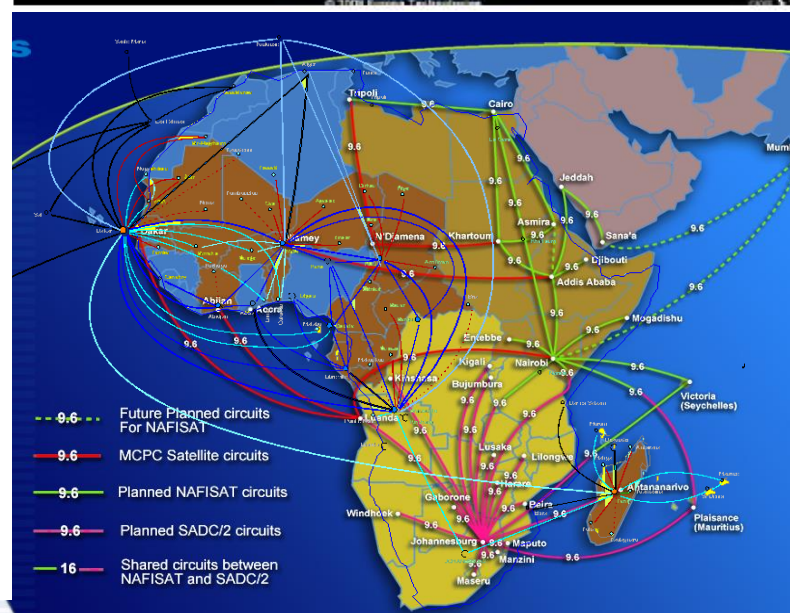
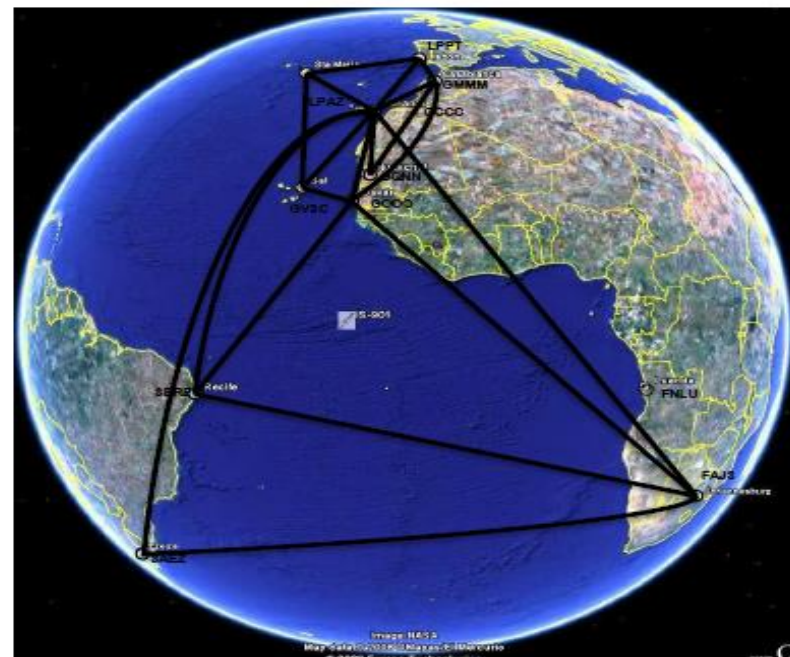
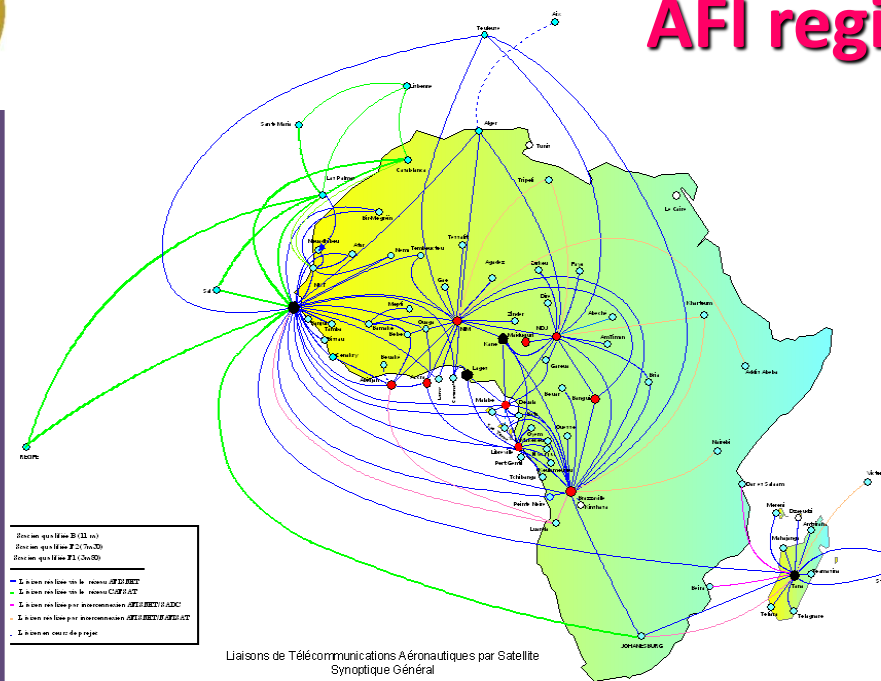


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- 38 Flight Information Regions (**FIR**) covering 54 States
- (04) four aeronautical VSAT networks (**AFISNET, CAFSAT, SADC- 3, NAFISAT**) with almost 150 nodes
- Important Communication , Navigation , Surveillance and Meteorological C-band infrastructure
- Increasing traffic : 5 to 6% per year



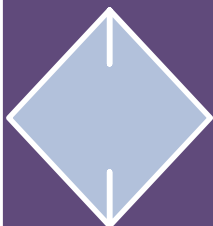
C-band support to Air Navigation Services in AFI region



Four Aeronautical VSAT network operating in C-Band supporting all the Air navigation and meteorological services :

- AM(R)S via VHF
- AFS Aeronautical Fixed Service
- ARNS (via GBAS)
- Meteorological Data exchanges
- Surveillance data exchanges

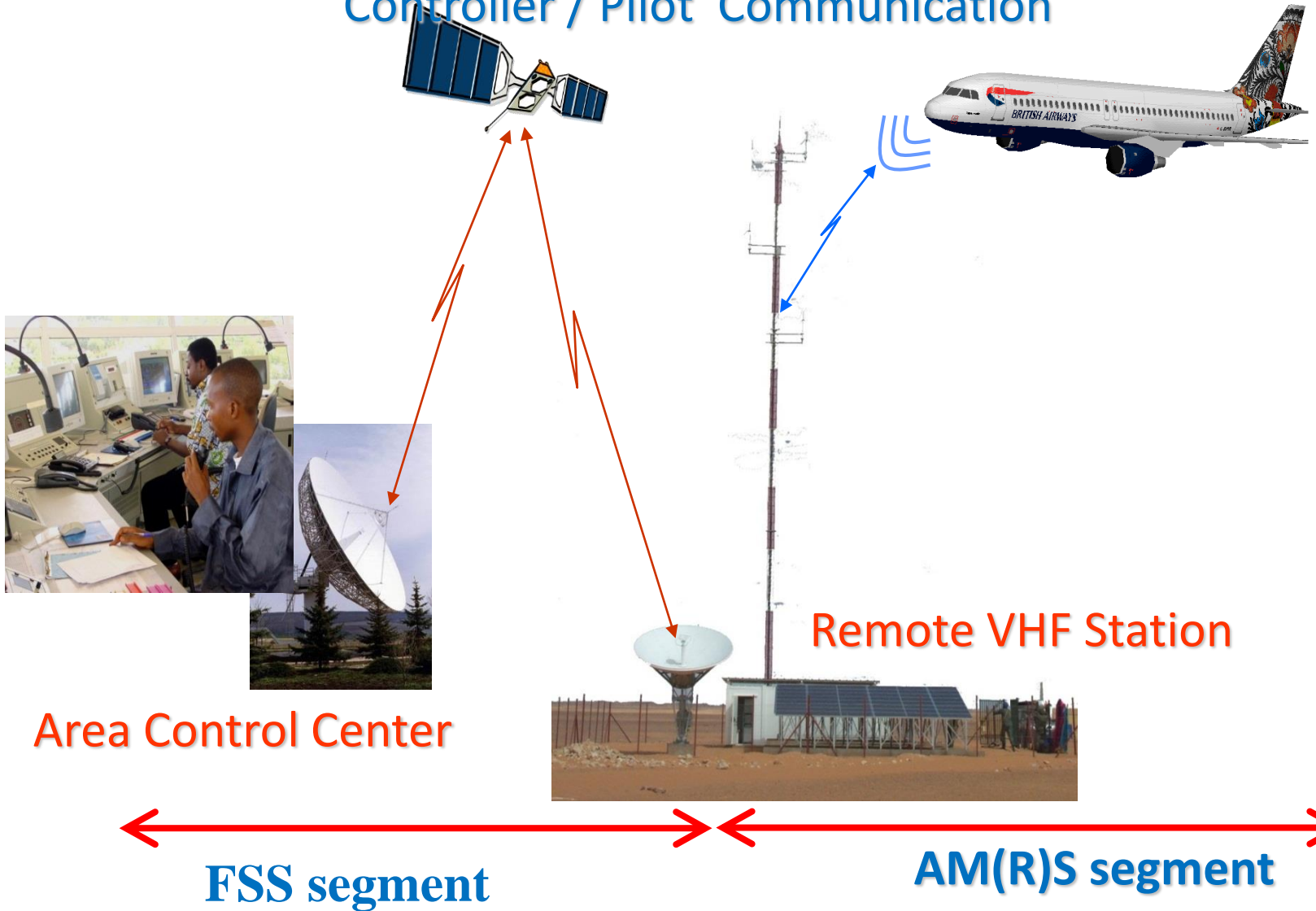
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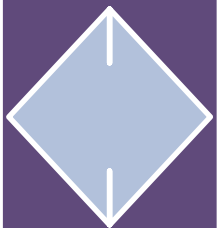


PROVISION OF AERONAUTICAL SAFETY SERVICES

Controller / Pilot Communication



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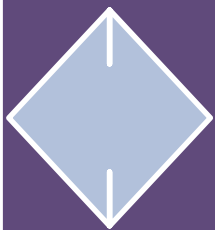


Use of 3 400-3 600 MHz by Mobile Service

RR 5.430A allocates the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service subject to agreement obtained under No. 9.21. This frequency band is identified for IMT

The deployment of mobile service systems in the vicinity of airports has led to an increased number of cases of interference into FSS VSAT receivers

Consequently, some additional measures have had to be adopted to improve the protection of the FSS links supporting aeronautical and meteorological communications





Frequency

Center

Start

Stop

CF Step

CF Step

AUTO MNL

Freq. Offset

OFF ON

More..

Harmful
interferences
affecting
AFISNET VSAT
station



Frequency

Center

Start

Stop

CF Step

CF Step

AUTO MNL

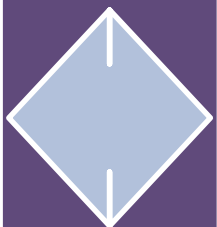
Freq. Offset

OFF ON

More..

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Conclusions

The availability of the C-band (FSS) is crucial for the AFI Region to ensure the continued growth of air traffic while maintaining the required level of safety in this region

Frequencies already in use by 4 FSS Networks across Africa

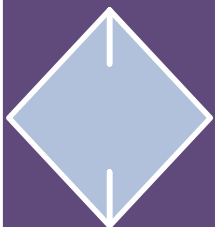
3 650 – 4 200 MHz

5 850 – 6 450 MHz

Regulatory measures are required to ensure protection for the FSS C-band spectrum which is used to augment terrestrial communication networks through the use of VSAT technology

VSAT technology is used to facilitate safety of life CNS services within the aeronautical community

ATU to support the Civil Aviation Industry C-band requirement for the safe provision of Air Navigation Service within AFI Region





Thank you

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