Enabling Access To The Spectrum & Orbit Resources

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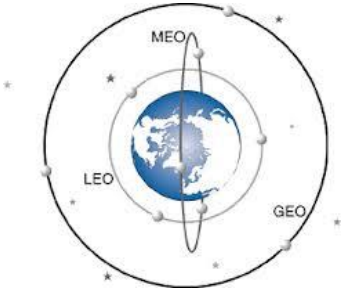
BACKGROUND TO AVANTI - I

- Avanti is a multi-regional UK based Ka-band satellite operator.
- Focus on new innovative approach to delivering affordable broadband communications.
- Avanti has deployed over US$ 850 million capital in its current and planned Ka-band satellite systems.
- HYLAS-1 launched in Q4 2010 to serve nominally Europe / Africa. GEO slot 33.5W.
- HYLAS-2 launched in Q3 2012 to serve nominally Europe, Middle East & Africa (EMEA). GEO slot 31.0E.
- HYLAS-3 will launch in Q1 2016 to serve nominally EMEA region. GEO slot 31.0E.
- ARTEMIS acquired from ESA in Q1 2014 with Ka band & L-band EGNOS/MSS Payloads. GEO slot 21.5E.
- HYLAS-4 in planning stage to cover inter alia EMEA by 2016.
- Avanti uses UK filed Ka-band satellite network filings at 33.5W, 31.0E and 21.5E whose Ka-band frequency assignments are recorded in the ITU MIFR.

EFFICIENT / EQUITABLE USE OF THE SPECTRUM / ORBIT RESOURCE – PERSPECTIVE OF A NEW ENTRANT

- The regulatory procedures for coordination and recording frequency assignments in the ITU MIFR pertaining to space services are enshrined in the Radio Regulations.

- The question arises whether the existing procedures, of the ITU Radio Regulations match requirements of New 'Space' Administrations & New / Emergent Satellite Operators ?



- More specifically, what mechanisms or strategies could be employed to ensure efficient use of the spectrum/orbit resource and to improve the current international system for managing satellite spectrum to enable EQUITABLE ACCESS and promote COMPETITION ?

KEY ACTORS

Existing / BIG Satellite Operator

New / Small Satellite Operator

HURDLES ON EMERGING SATELLITE PROJECTS

Problems

1. Access to satellite spectrum and slots
2.
3.
4.
5.
....

Solutions

1. 
2.
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HURDLES ON EMERGING SATELLITE PROJECTS

Problems

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5.
4.
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2.

Fair

1. Access to satellite spectrum and slots

WRC-2012 Solutions

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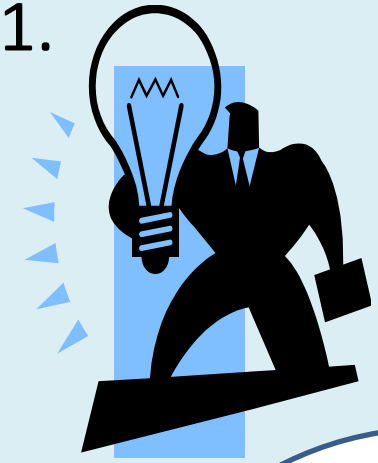
5.
4.
3.
2. The End

1.



SATELLITE SPECTRUM CONGESTION – KA BAND EXAMPLE FACED BY NEW SATELLITE OPERATOR

No. Ka-band GEO Satellite Network Filings	From the ITU Database (April 2014):
Advance Publication Information (API) Stage	> 1700
Request For Coordination Stage (RFC) Stage	> 1000
Notification (NOT) Stage	> 200
Note: Some GEO (e.g. over Europe, Asia) arcs are 'busier' than other GEO arcs.	How many 'paper' satellite systems ?

MAJOR regulatory challenge to develop new Ka-band satellite systems, given above.

How do new entrant satellite operator/developing countries gain viable access to orbit / spectrum resource ?

PROBLEM SOLVED FOLLOWING WRC-2012 ?

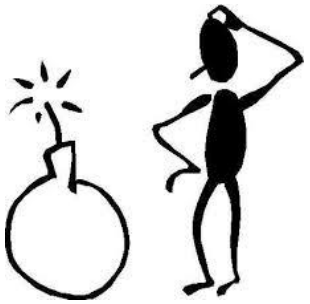
So is the problem solved?
Can we really go and have fun on the nice Luminous beach in Limassol for the rest of the week!

PROBLEM SOLVED FOLLOWING WRC-2012 ?

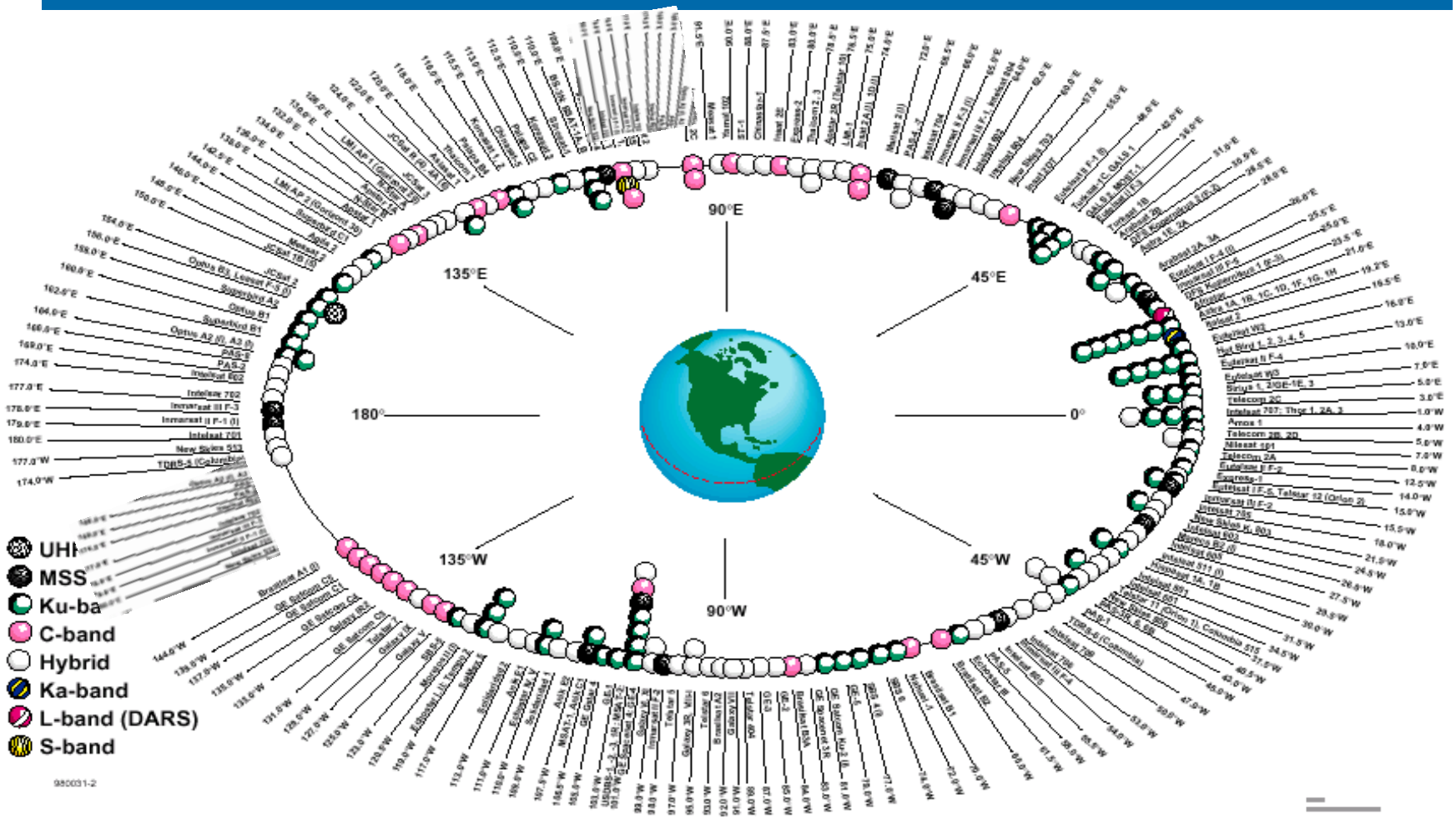
Not Exactly!
Satellite industry fight with IMT terrestrial, …… is still not resolved.

Unless we resolve fair and equitable access to spectrum and orbital resource, we cannot move forward

This is the most critical and fundamental issue!



GEO ORBITAL CONGESTION – TYPICAL VIEW



IMPORTANT QUESTIONS TO CONSIDER

- **Do we know the difference between the number of the real satellites in GEO and the satellite networks recorded in Master International Frequency Register (MIFR)?**

- **Why is it that some satellite operators have far too many satellite network filings?**

- **Can we ask the ITU Bureau (BR) to study and publish a list of satellites in MIFR without real satellites in orbit?**

- **Are we ready to create a "Name and Shame" list?**

ARE WE SERIOUS ABOUT CLEANING THE MIFR ?

Real Satellites In Orbit

Satellites In MIFR

A Fair Regulatory Environment Can Benefit All

THE PRESENT SITUATION - 1

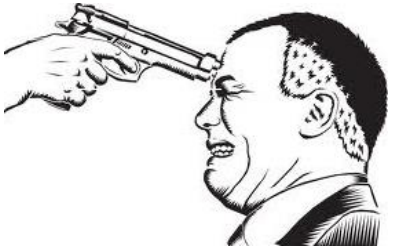
- Entrenched practice of HOARDING spectrum, slots and coverage by especially some parties.
- Excessive and periodic / cyclical satellite network filings by some Satellite Operators / Some Administrations
- FALSE BIU / FALSE Un-suspension
- Severe risks in planning & financing new satellite systems
  - Small / Emergent private satellite operators
  - New satellite operators in developing / emerging Countries

THE PRESENT SITUATION - 2

- WRC-2012 established new RR provisions to define BIU (= 90 day placement of technically capable GEO satellite at a GEO satellite network filing slot).

DISADVANTAGES

- Satellite operators with significant in-orbit satellite assets or just launched satellites can acquire / retain GEO satellite network filings by BIU actions.
- Smaller satellite operators / new emergent national satellite operators are obliged to 'cut unfair or expensive deals' with larger satellite operators for access to orbit/spectrum resource.



THE PRESENT SITUATION - 3

- Some parties have suggested that one should increase at future WRC the BIU period to > 90 days.

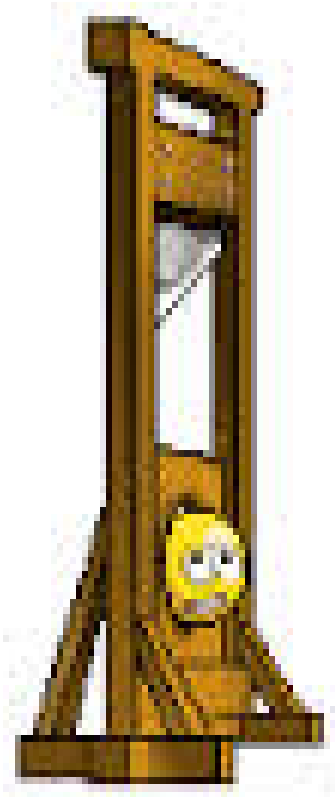
> 90 DAYS

New Emergent Operators & Developing Countries

THE PRESENT SITUATION - 4

- Increasing BIU period will:
  - Enable the larger satellite operators with larger in orbit satellite resources to HOARD satellite spectrum.

- Guillotines smaller satellite operators from entry into and engaging in the ITU frequency coordination process with other satellite operators.



ITU & ADMIN RESPONSIBILITY - REMOVING UNUSED OR VIRTUAL SATELLITE NETWORKS

- The ITU BR has taken initiatives to reduce number of unused networks cluttering the spectrum/orbit

  - In Circular Letter CR/301 May 2009, BR requested Admins to review their recorded networks, and remove unused assignments from the MIFR

- The BR has been carefully scrutinizing all the information available from:

TAKE ACTION!

  - External sources (GSO databases, corporate websites etc.)
  - Internal sources (SNS SPS and SNL databases)
  - correspondence relating to the bringing into use of satellite networks (No. 11.49 suspension, and Resolution 49).

- The BR is concentrating its efforts on the most heavily used frequency bands, namely:

  - 3400–4800MHz, 5725–7075MHz,10.70–13.25GHz,13.75–14.8GHz,17.3–20.2GHz,21.4–22GHz, 24.75–25.25GHz and 27–30GHz
  - the BR identified over 300 satellite networks that don't correspond to any existing satellites.

BUT MORE NEEDS TO BE DONE

SHOULD THE RADIOCOMMUNICATION BUREAU VERIFY THE RELIABILITY OF INFORMATION ?

- The role of the BR is to receive information on satellite networks from notifying Admins, and identify any inconsistencies.

- If there are inconsistencies, the BR then requests clarification. The ITU does not have the tools to corroborate or to invalidate factual information submitted by Admins.

- Provision No. 13.6 of the RR indicates possible actions the BR can take "*whenever it appears from reliable information available that a recorded assignment has not been brought into regular operation*".

- But since all formal information is provided by notifying Admin, the BR may find itself in uncomfortable position of having to challenge such information.

- Given the WRC-12 mandating the BR to continue performing systematic, regular reviews of the MIFR with the aim of removing fictitious recorded frequency assignments.

THE BR SHOULD CONTINUE TO INVESTIGATE !!!

IS RR 11.41 A PARTIAL SOLUTION ?

- In an ideal world, new satellite networks would be fully coordinated with existing networks before being put into operation.

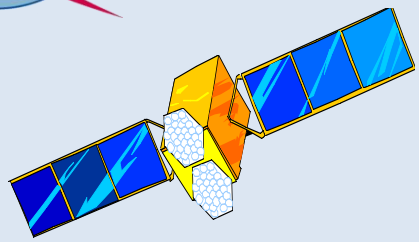
- The reality is, of course, less than perfect, and No. 11.41 of the RR provides some flexibility for a network to be notified and recorded without completing all required coordination.

- To some extent, therefore, No. 11.41 precludes "virtual satellites" (that exist only on paper) from blocking – initially - the recording of real new networks.

THE WAY FORWARD ?

ITU & BR - More Pro-active

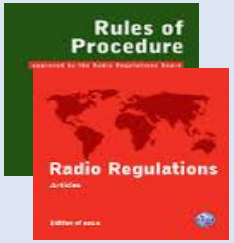
- Satellite monitoring could assist.
- Publishing data on MIFR and reality



Satellite Operators - More Pro-active

- Spectrum, slot and coverage hoarding by

  Bigger Satellite Operators must be STOPPED



Admins - Be More Pro Active

- What is the role of Administrations ?
- ITU RR needs to be straight forward with minimal ambiguity

CLOSING THOUGHT

Efficient / Equitable / Effective use of the spectrum/orbit resource is crucial in efforts to promote worldwide telecommunication development.

The challenge for the ITU, and thus for Administrations and the Satellite Operators, is to ensure that spectrum and orbital resource will be used in a rational, equitable, efficient and effective way.

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