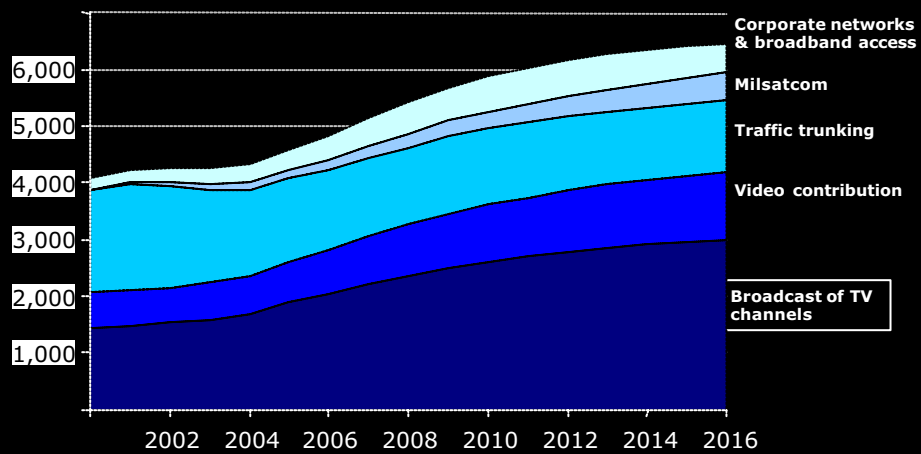


Addressing The Global Threat to Satellite Spectrum

David Hartshorn
Secretary General
Global VSAT Forum

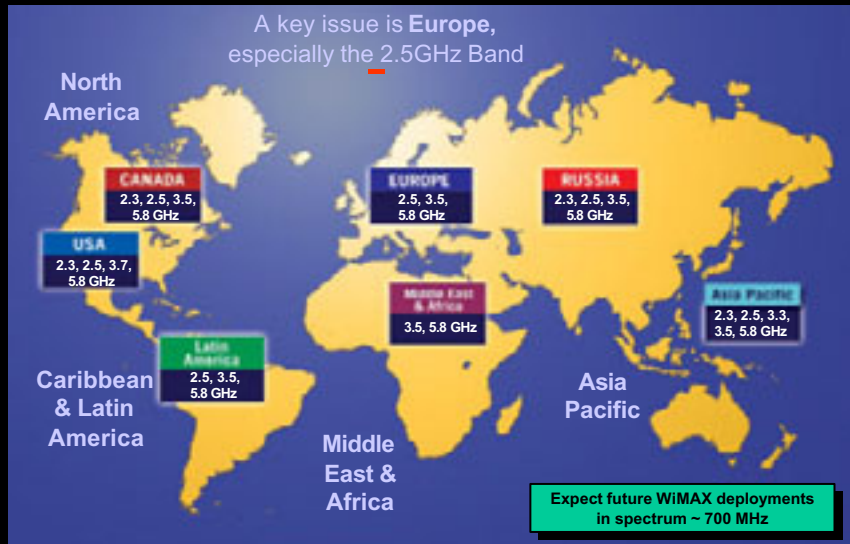
Global Transponder Demand by Application, 2000-16

36 MHz Transponders



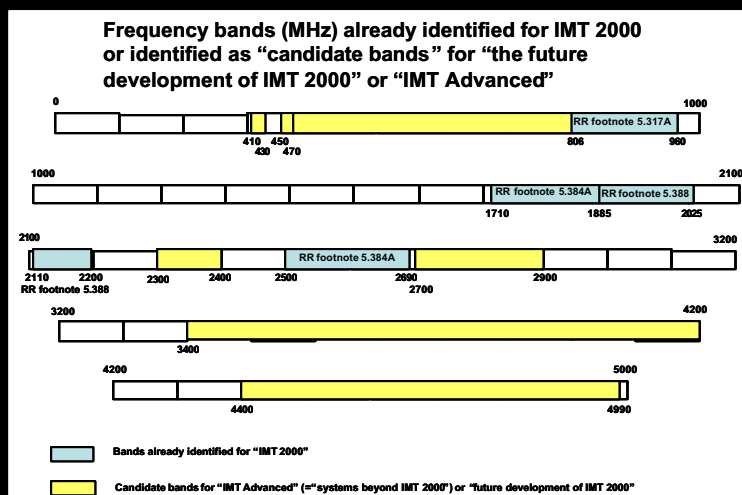
* Direct-To-Users satcom services include corporate networks, Internet access, civilian government and military communications

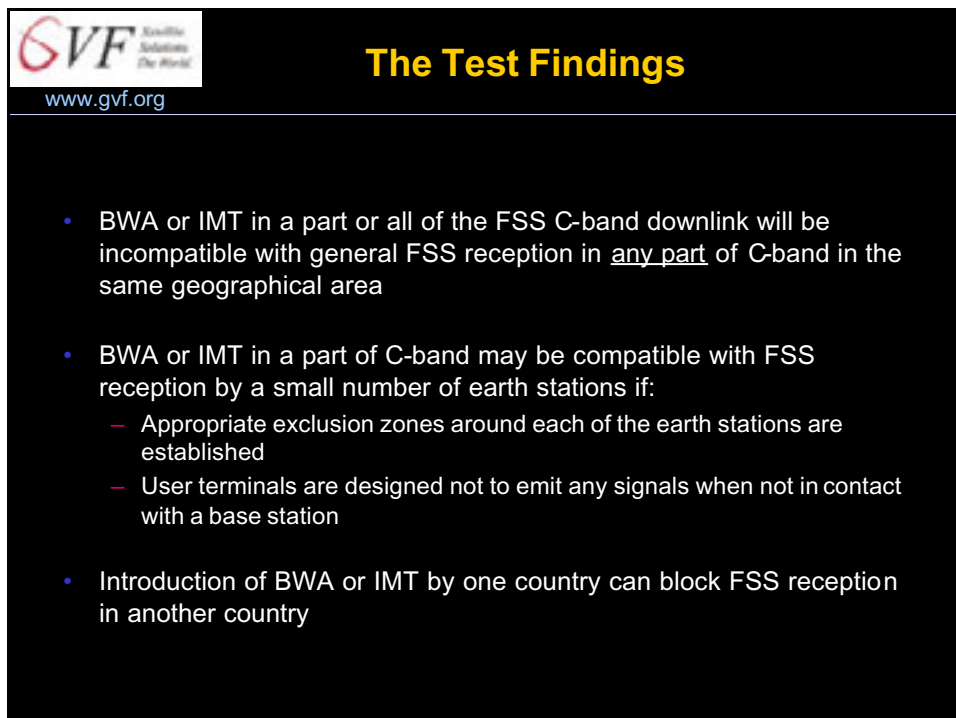
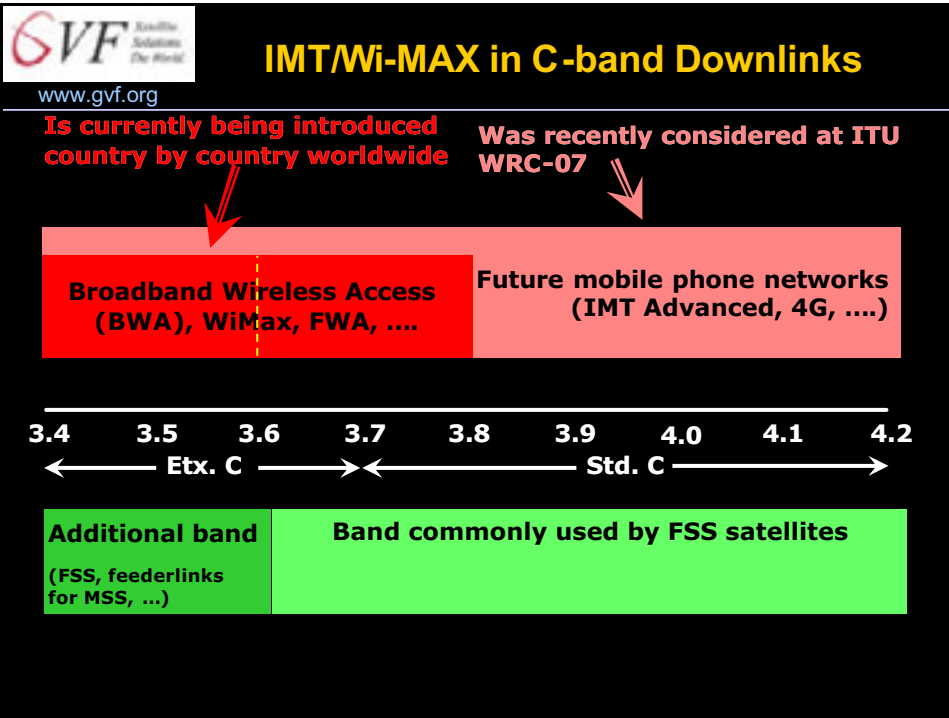
Wi-MAX Spectrum by Region 2005 - 2007 Spectrum Focus



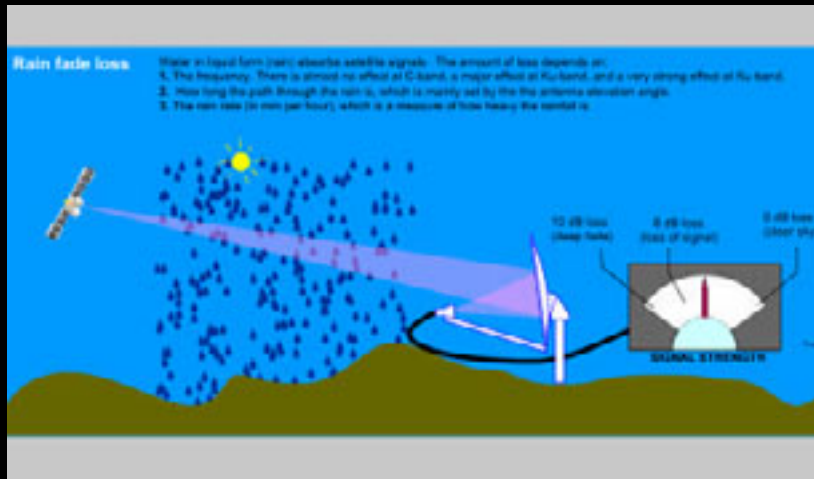
Source: Wi-MAX Forum Presentation Delivered at 2007 GVF C-band Summit

But: The Threat to Satcom Spectrum





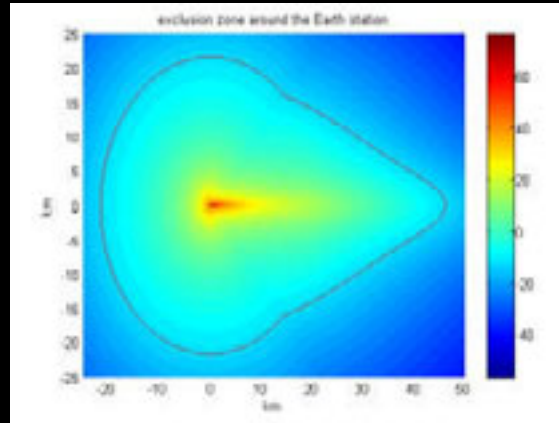
Why Is SatCom Important in C-band?



The Inherent Advantage of C-band Footprints Example: AsiaSat 4 (122.2°E) C & Ku-band

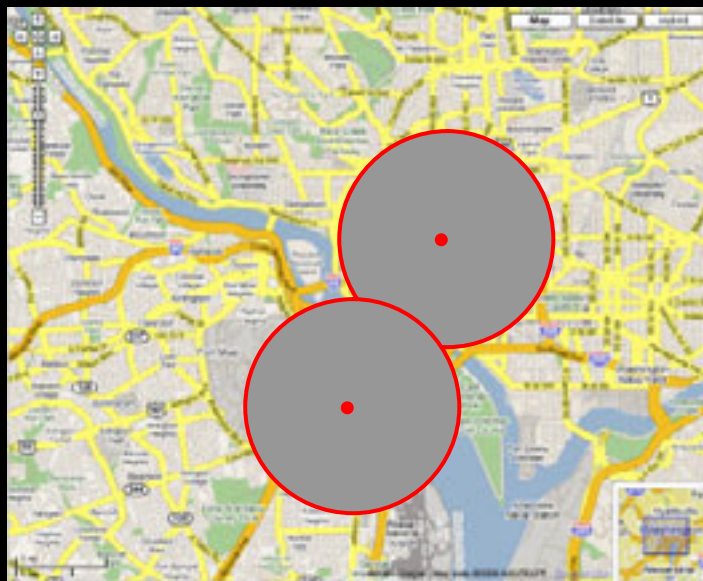


Exclusion Zones: A Viable Solution?



Example of calculated exclusion zone around an earth station to counter interference from a single IMT base station in each cell
(From French study to ITU Working Party 8F
(Document WP 8F/868))

Impact of protection of earth stations in non-overlapping frequency bands (e.g. BWA in 3.5 GHz and FSS in 3.7-4.2 GHz)

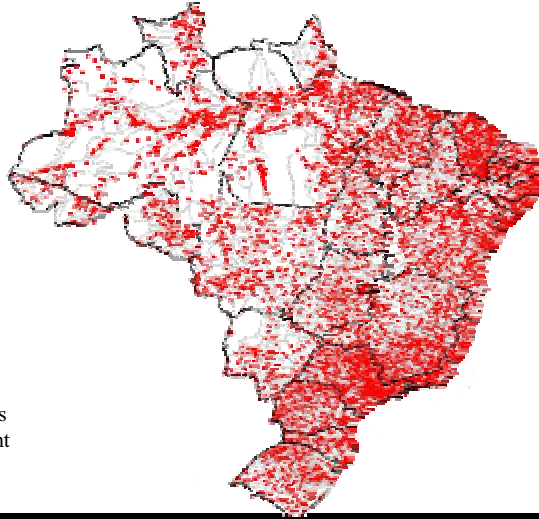


2 km exclusion zones around one earth station at the White House and one earth station at the Pentagon (protection against micro-cell base station used in urban areas)

USE OF 3625 – 4200 MHz BY THE FSS IN BRAZIL

Brazilian Contribution at June CITEI Meeting (OEA/Ser.L/XVII.4.2 CCP.II-RADIO/doc. 974/06):

- No Better Band to Address Rain Attenuation
- Exclusion Zones Unworkable in Nations with High-Density Satcom Deployment
- Developing Countries Can't Afford Equipment Changeout



Conclusion: 3625-4200 & 4500 – 4800 MHz Should Not Be Considered for IMT

C-Band Earth Stations in Africa (3400-4200 MHz) (Incomplete Count from Intelsat)



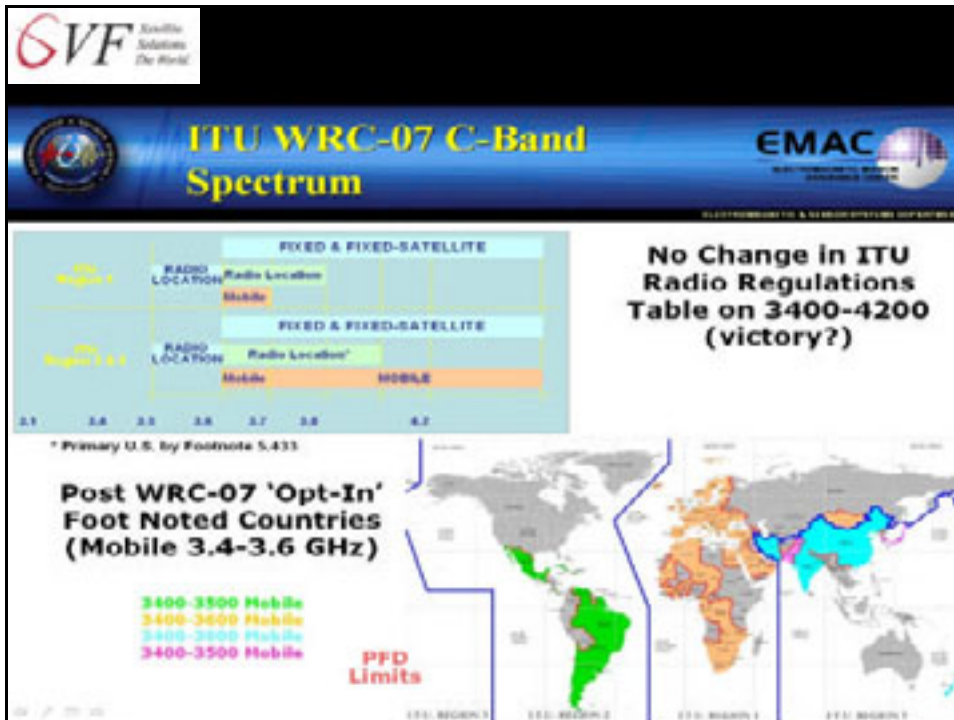
WRC-07: The Global Campaign

- **Established Consensus:**
 - Globally in Co-ordination with Sister Associations:
 - Nationally
 - Regionally
 - Globally
 - Out-Reach to Wi-Max Forum, WBU-ISOG, UN, NGOs, DoD
- **Heightened Awareness:**
 - Newsletters, regional argumentaires
 - Presence at Trade shows & Summits
 - Attendance at Critical ITU meetings
 - Worked with Regional Groups
- **SUIRG Tested Wi-Max and Satellite**



The WRC-07 Outcome: Agenda Item 1.4

- **No global identification for IMT, But...**
- Individual countries can take a different position to the international community and sign up to 'country footnotes' that offer...
 - In Region 1: 3 400 – 3 600 MHz is allocated to mobile services and identified for IMT for some countries
 - In Region 2: 3 400 – 3 500 MHz is allocated to mobile services
 - In Region 3: 3 400 – 3 500 MHz is allocated to mobile services and identified for IMT for some countries, as is 3 500 – 3 600 MHz



How C-band Will be 'Protected'

- Any deployment of IMT services in the C band must fulfil strict criteria laid out in the country footnote:
 - Careful limits are placed on the power flux density allowed at the border between countries that choose to allow the deployment of IMT services and countries that follow the norm
 - Existing rules governing sharing between services are reaffirmed to make sure they are applied when necessary - to help protect both existing and future satellite services
- There are no future agenda items to revisit this issue in the years to come; **case closed...**

... With Some 'Small' Caveats

- WRC-07 Protections Focus on Cross-Border Protections
- National-Level Interference Still Major Issue
- At WRC-07 only 200 MHz allocated to IMT in C-Band
- IMT Sector Wants More...
 - Americas: Brazil at CITELECOM, Mexico, Colombia, others
 - Arab Region: Jordan at ATRN
 - Europe: EC Dismisses Satellite Industry Recommendations
 - Asia: Australia, India, Mongolia, others
 - Africa: More Than 50 Wi-MAX Licenses Issued by 2007; Major Interference Being Reported Across Continent

The "Spectrum Security Initiative"

- Pursuing Enforcement of WRC-07 Decision
- Raising Awareness of Need for Satellite Spectrum
- Extending Effort to **All** Satellite Spectrum
- UTC BWA Proposal at FCC Seeking Ku-band:
 - Insufficient Technical Protection for Satellite Service
 - No Effective Enforcement Mechanism
 - No Demonstrated Need (Seeking 500 MHz, Now Using <50)
 - Satellite Provides Critical Infrastructure, Emergency Coms

Proposed Next Steps

- File WBU Comments at FCC by 26 June
- Oppose UTC Proposal
- Make Recommendation to National Administrations
- Request Preservation of All Satellite Spectrum