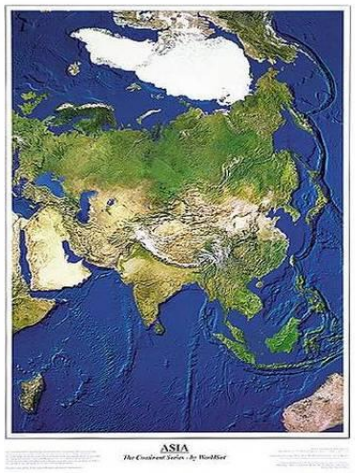


GVF Satellite. Solutions. The World.

Global Industry Perspective

GVF *Views on WRC-19*

Ting Ling Lee
GVF RWG

Spectrum Wars: The Trilogy

WRC-15

- ✓ Satcom Provisions for C, Ku, Ka, Q, V But…
- ✓ IMT In Extended C in Most Countries
- ✓ Threat of IMT (LTE) Interference to 3.4 - 4.2 GHz

WRC-19

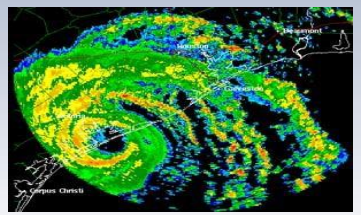
- ✓ IMT Lobbying for C, Ka, Q, V
- ✓ Satcom Interests Responding
- ✓ Huge Stakes… Again

Source: WiMAX Forum

MAJOR INDUSTRIES ASKED ASIAN & OTHER ADMINISTRATIONS

TO SUPPORT "NO CHANGE" FOR 3.4 – 4.2 GHz SATELLITE SERVICES

- Widely used by major user groups
- Provides the wide geographic coverage necessary for hundreds of millions of users
- Numerous cases of harmful interference (and loss of TV signals) have been caused by terrestrial mobile services in C-band
- Extremely reliable, even in rainy regions
- Cannot be replaced by bands with narrower beams and different propagation characteristics such as Ku- and Ka-bands
- Support users' requirement to maintain satellite service availability 3.4 - 4.2 GHz



BROADCASTING

- Hundreds of millions of households depend on C-band for tv programming, including events such as the World Cup and the Olympics
- Billions of dollars invested in by the broadcasting sector

METEOROLOGICAL

- The World Meteorological Organisation uses C-band for vital public safety functions
- Applications support by C-band supported services include disaster relief, water management, and agricultural programmes

AVIATION

- The safety of hundreds of millions of airline passengers is enabled by C-band satellite services
- Civil Aviation networks require the very high reliability provided via C-band satellite

MARITIME

- To ensure the safety of maritime operations, GMDSS distress and safety communications rely on the C-band for Inmarsat feeder links

HUMANITARIAN

- Nearly 50 of the world's largest humanitarian organisations depend on C-band
- Education, health, and disaster response are among the many applications supported by C-band

Support the International Organisations who rely on the use of C-band to support their vital and life-saving operations.

AI 10: Regional Positions During WRC-15

Every world region has indicated candidate bands above 31GHz

31.8 – 33.0 GHz	**At least 1.2 GHz contiguous spectrum available for global harmonization**
66-71 & 71-76 GHz	**Supported by all regions with an established position**
81–86 GHz	**Supported by most regions**

APT

From	To
25.25	25.5
31.8	**33.4**
39	47
47.2	50.2
50.4	52.6
66	**76**
81	**86**

CITEL

From	To
10	10.45
23.15	23.6
24.25	27.5
27.5	29.5
31.8	**33**
37	40.5
45.5	47
47.2	50.2
50.4	52.6
59.3	**76**

CEPT

From	To
24.5	27.5
31.8	**33.4**
40.5	43.5
45.5	48.9
66	**71**
71	**76**
81	**86**

RCC

From	To
25.25	27.5
31.8	**33.4**
39	40.5
40.5	41.5
45.5	47.5
48.5	50.2
50.4	52.6
66	**71**
71	**76**
81	**86**

ASMG

From	To
Above 31GHz	
&	
BY IMPLICATION	
66	**71**
71	**76**
81	**86**

GVF Position

Frequency Bands allocated to Satellite **below** 31GHz

- GVF opposed sharing studies in view of IMT/5G identification in satellite bands below 31GHz allocated to FSS/MSS/BSS. These bands are extensively used by FSS/MSS/BSS satellite services, including high-throughput connectivity and broadband to end user FSS/MSS/BSS satellite services, representing ca. US$100 billion of existing and planned investments

- The 25 GHz range for earth exploration-satellite service and space research must remain available both for present and future deployment

GVF Position (2/3)

Frequency Bands allocated to Satellite **below** 31GHz

- There are a number of bands allocated to FSS above 31 GHz, for which satellite operators are developing future HTS satellites in order to meet ever-increasing demand for broadband satellite services. It is also noted that Radio Regulations No 5.516B identifies a number of bands above 31 GHz for use by high-density applications in the fixed-satellite service, and as such, GVF does not support having these bands identified for studies for 5G/IMT 2020

- Bands above 31 GHz will be needed for satellite systems, but GVF does not oppose ITU-R sharing studies provided:
  - there are alternative candidates,
  - a balance of needs of future terrestrial and satellite systems would be assured, and
  - sustainable and viable access in the long-term to satellite services would be enabled in these frequency bands.

GVF Position (3/3)

Frequency Bands allocated to Satellite **Above** 31GHz continued

- GVF could support proposals to study the bands 59-66 GHz, 66-71 GHz, 71-76 GHz and 81-86 GHz for which it seems to be worldwide agreement to study (these bands have been supported by regional groups) and could provide wide largely unconstrained bandwidth for 5G/IMT
- Furthermore at around 60 GHz (and frequencies above), oxygen absorption is such that it would facilitate the possibility of sharing the same band between services

Non-Satellite Frequency Bands **above** 31GHz

- GVF supports proposals for sharing studies in bands not already allocated to FSS, BSS or MSS and specifically supports the band 31.8-33.4 GHz for which there seems to be worldwide agreement to study as it is currently supported by regional groups