



# WRC

## Agenda Item 1.1

to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution 233 (WRC-12)

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# Requirements



- Meet expected growth that is driven to a large extent by audiovisual content
- Available in a timely manner
- Harmonized worldwide
- Preferably adjacent to existing allocations

# Estimated Spectral Needs



User density settings	Total spectrum requirements (MHz)	Region 1		Region 2		Region 3	
		Already identified (MHz)*	Additional spectrum requirements (MHz)*	Already identified (MHz)	Additional spectrum requirements (MHz)	Already identified (MHz)*	Additional spectrum requirements (MHz)*
Low	1 340	981-1 181	159-359	951	389	885-1 177	163-455
High	1 960	981-1 181	779-979	951	1 009	885-1 177	783-1 075

\* The values in these columns have ranges since some of the frequency bands are identified for IMT only in some countries in Regions 1 and 3



# Expected Benefits

- Multimedia applications
  - Mobile telemedicine
  - Teleworking
  - Distance learning
- Reduce digital divide between urban & rural areas
- Improved RLAN performance/capacity
- Continued growth of the mobile market

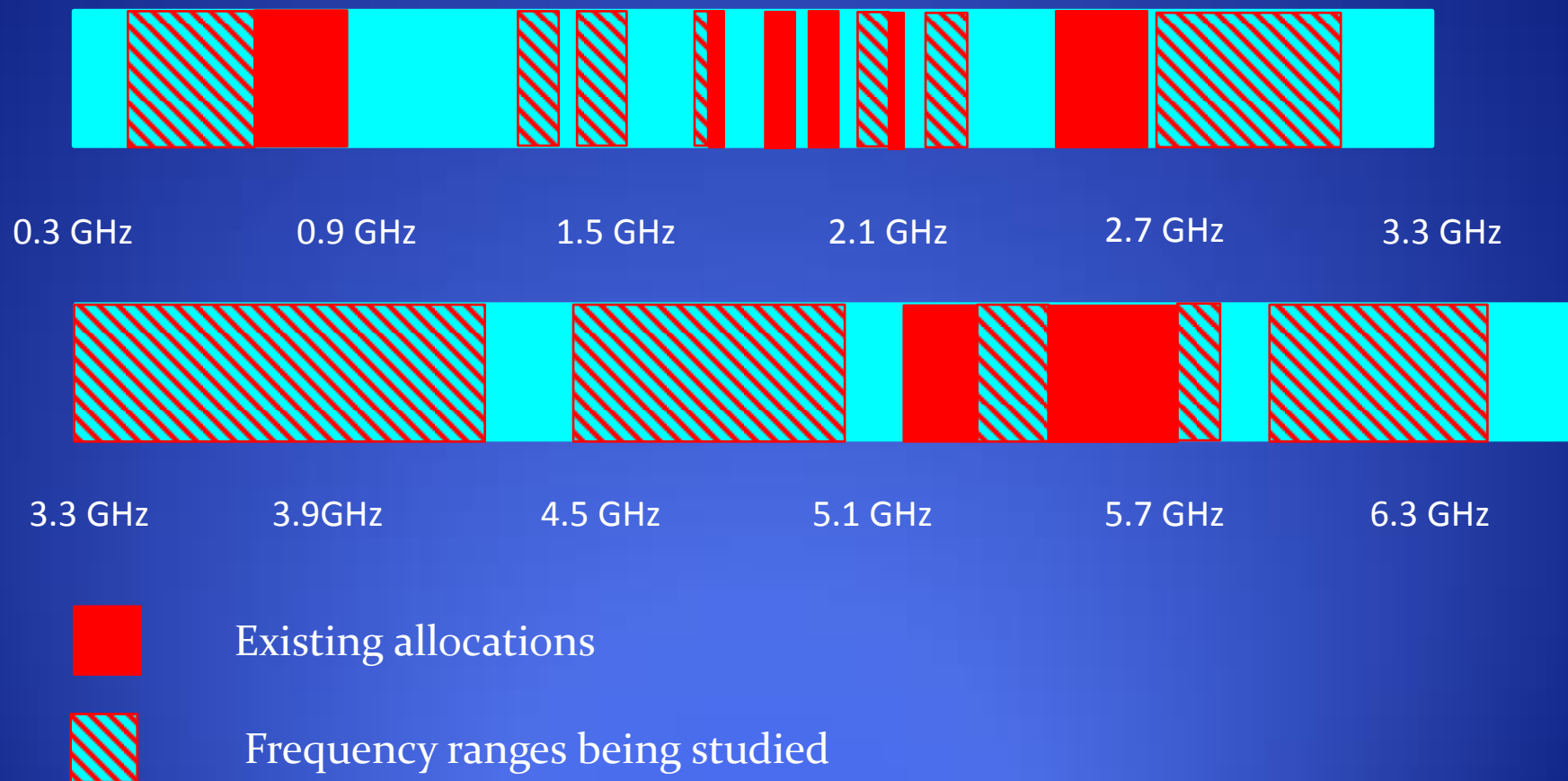
# Frequency Ranges Being Studied



- 470 - 698 MHz (FS, MS, BS & RAS)
- 1 300 – 1 400 MHz (ARNS, RLS, RNSS, MS & FS)
- 1 427 – 1 527 MHz (SOS, FS, MS, BS & BSS)
- 1 695 – 1 710 MHz (Met Aids & Met Satellite)
- 2 025 – 2 110 MHz (EESS, FS, MS, Space Operation & Research)
- 2 200 – 2 290 MHz (EESS, FS, MS, MSS, Space Operation & Research)
- 2 700 – 3 100 MHz (ARNS, RNS, & RLS)
- 3 300 – 4 200 MHz (AS, FS, FSS, MS & RLS)
- 4 400 – 5 000 MHz (FS, FSS, MS, RAS, Space Research)
- 5 350 – 5 470 MHz (EESS, RLS, ARNS & Space Research)
- 5 725 – 5 850 MHz (Amateur, Amateur Satellite, FSS & RLS)
- 5 925 – 6 425 MHz (FS, FSS, MS, RLS & AS)

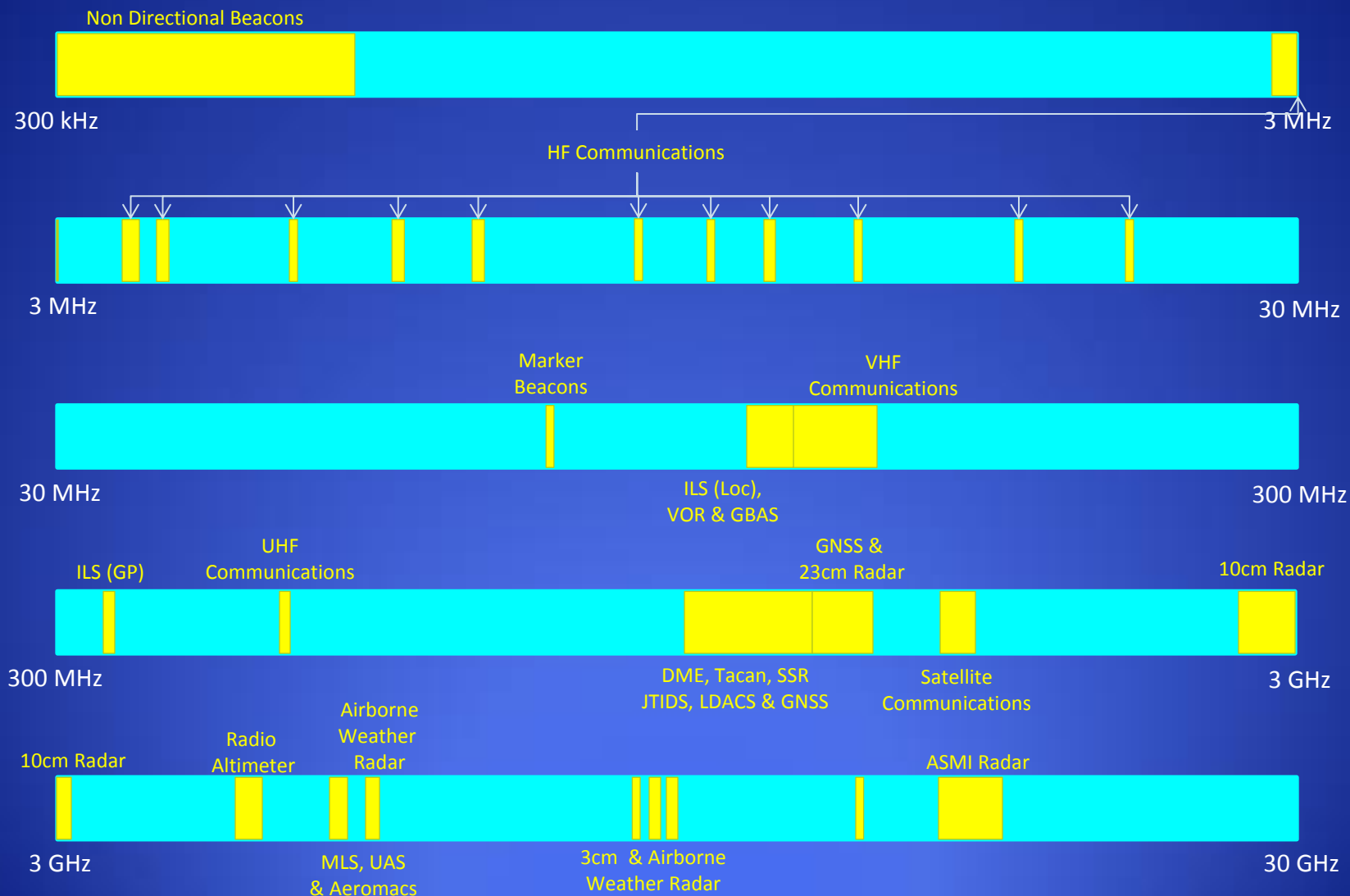


# Existing/Studied Frequency Ranges



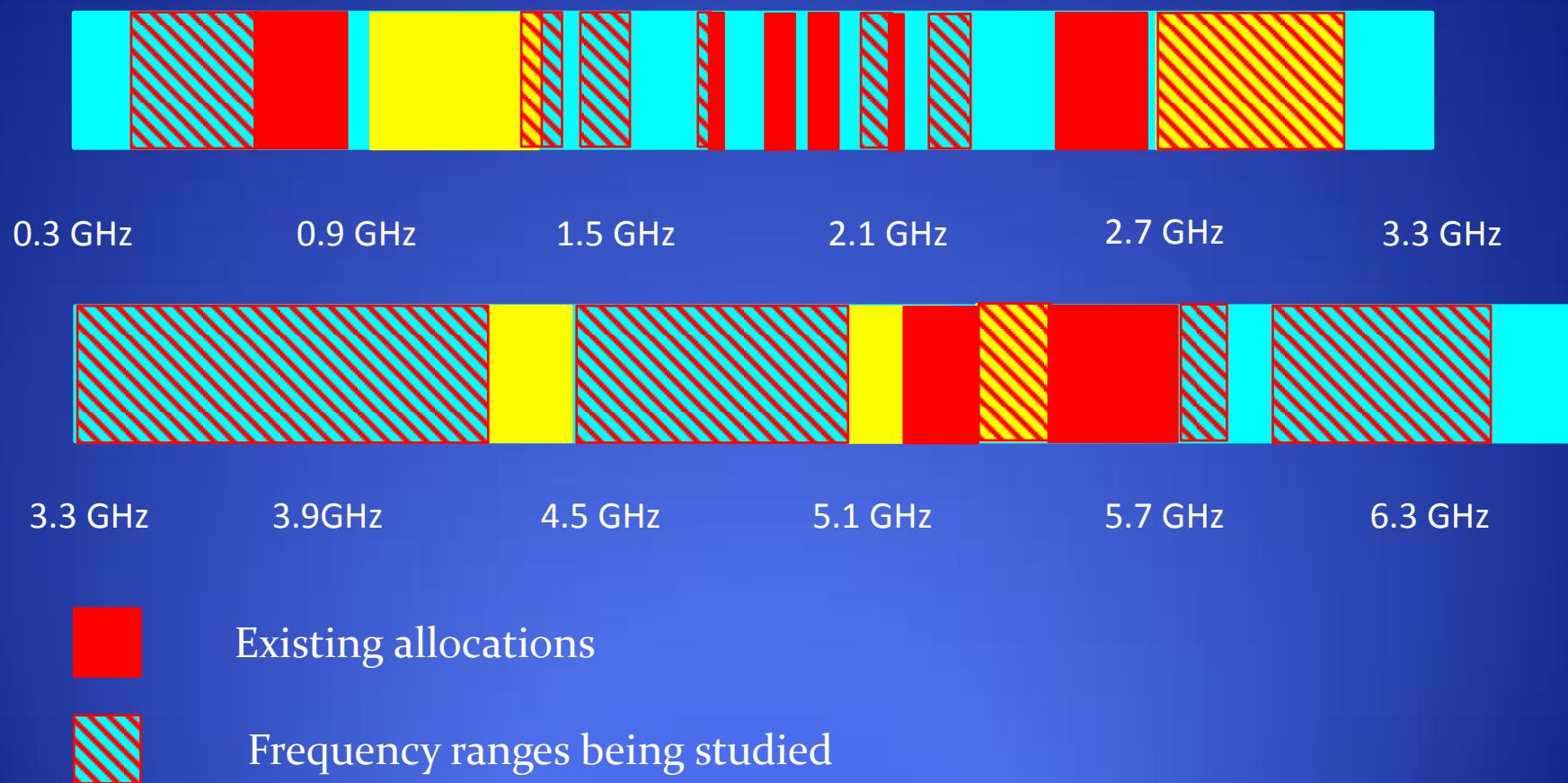


# Aeronautical Spectrum





# Existing/Studied Frequency Ranges Overlaid on Existing Aeronautical Allocations





# Aeronautical Frequency Allocations Potentially Affected/Study Findings (1)



- 1 300 – 1 350 / 2 700 – 2 900 MHz (En-route/Airport Radar)
  - Co frequency sharing not feasible
  - Any sharing of the frequency band would require:-
    - Band segmentation (2 700 – 2 900 MHz only)
    - Introduction of a guard band (approximately 60 MHz)
    - Modification of radar equipment
      - Improved receiver adjacent band rejection
      - Reduced spurious emissions
    - Tighter mobile standards (filtering & spurious)
  - Additional mitigation
    - Reduced mobile transmitter power
    - Mobile sector blanking
    - Frequency/distance separation

# Aeronautical Frequency Allocations Potentially Affected/Study Findings (1)



- 5 350 – 5 470 MHz (Airborne & Ground Weather Radar)
  - Limited known civil aeronautical usage
  - Sharing may be possible with the following mitigation
    - Limitation of the maximum e.i.r.p.
    - Predominately indoor use (95%)
    - Dynamic frequency selection (threshold -64 dBm)
- 4 200 – 4 400 MHz (Radio Altimeters)
  - Not identified specifically
  - Proposal for allocation in adjacent band
  - Compatibility issues with declared radio altimeter performance
    - Poor adjacent band rejection of the radio altimeters
    - Spurious emissions from mobile devices



# Where is the Work Being Done

- Globally
  - Joint Task Force 4-5-6-7
  - Working Party 5D
- Regionally
  - Africa - ATU
  - Americas – CITELE
  - Arab Group – ASMG
  - Asia Pacific – APT
  - Europe – CPG PT-D
  - Russian Commonwealth – RCC
- ICAO
  - ACP WG-F



# Questions