The use of DFS in WAS/RLANs in the 5GHz range

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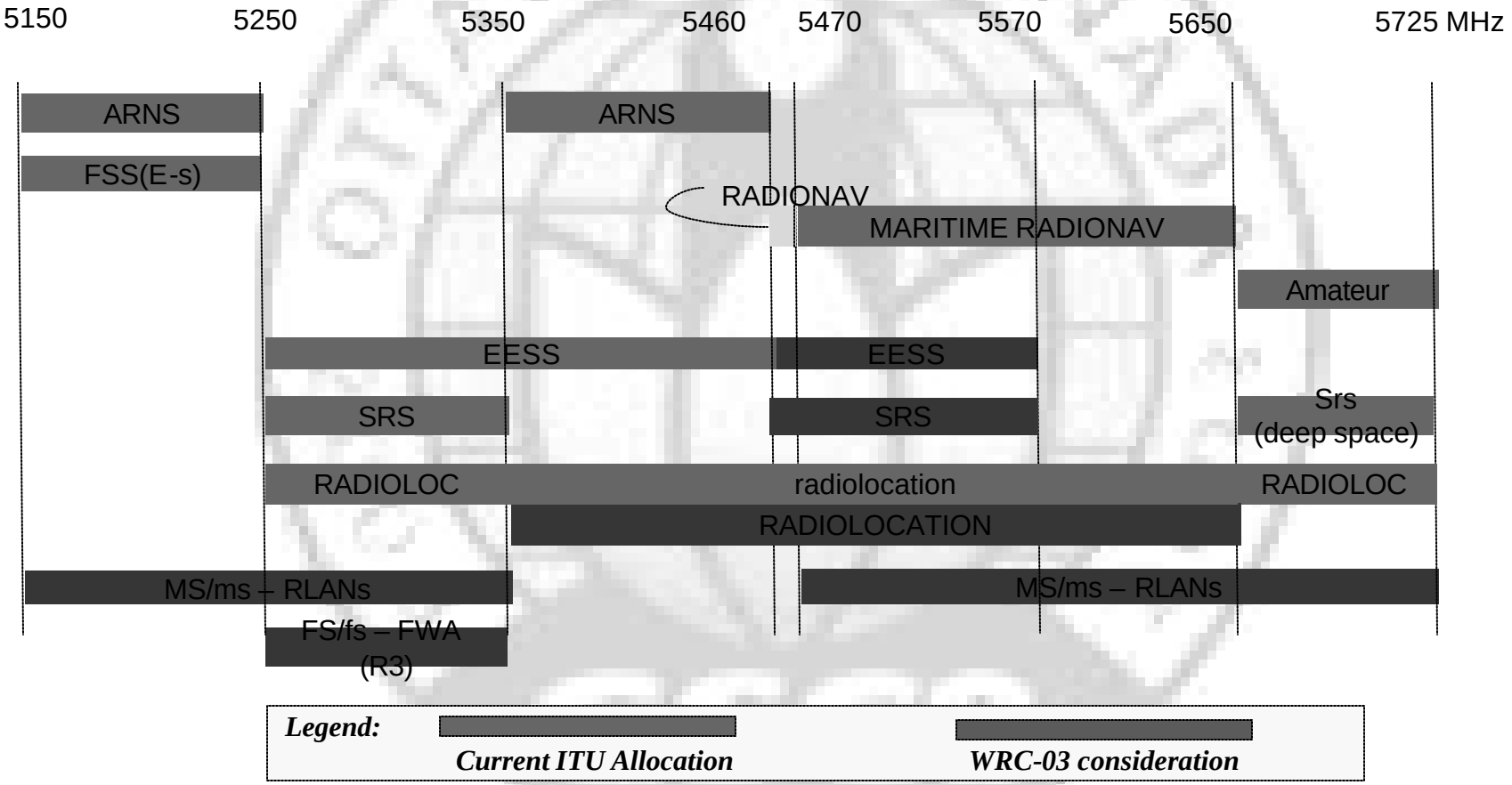
Background

- WRC-03 will consider an allocation to the mobile service in the bands 5150-5350 MHz and 5470-5725 MHz for the implementation of wireless access systems including radio local area networks (WAS/RLANs)
- The bands are shared with other services, e.g. MSS Feederlinks (FSS), Radiolocation, Earth Exploration-satellite Service (Active)

Background

International Table of Allocations in the 5GHz Range



ITU-R Recommendation

- ITU-R addressed a number of sharing issues in the 5GHz band
  - WAS/RLANs vs. MSS feeder links
  - WAS/RLANs vs. EESS (active)
  - WAS/RLANs vs. Radiolocation
- With respect to WAS/RLANs vs. Radiolocation, ITU-R JRG 8A9B recently developed ITU-R Recommendation on the use of DFS in WAS/RLANs to protect radars in the 5GHz band

Dynamic Frequency Selection (DFS)

- WAS/RLANs and radars operating in the 5GHz band will interfere when operating at the same frequencies
- DFS has been envisaged to:
  - Ensure a spread of loading across the available spectrum
  - Avoid co-channel operation with other systems

Objectives of DFS

- Provide adequate protection to radars in the 5GHz band
  - By avoiding the use of or vacating a channel identified as being occupied by a radar based on detection of radar signals

DFS Performance Requirement Detection Requirements

- WAS/RLANs should be able to detect interference signals above a minimum DFS threshold
  - -62 dBm for devices with a maximum eirp of <200 mW
  - -64 dBm for devices with a maximum eirp of 200 mW to 1W

DFS Performance Requirement Operational Requirements

- ***<u>Channel availability check</u>***
  - A check on a particular channel for 60 sec to identify potential radar operation
- ***<u>In-Service monitoring</u>***
  - Monitoring of operating channel to ensure no co-channel radar has started operation within range of the WAS/RLAN
- If a WAS/RLAN device has not previously been in operation or has not continuously monitored the channel with *In-Service monitoring*, it should not start transmission in any channel before completion of a *Channel availability check*

DFS Performance Requirement Response Requirements

- **<u>Non-occupancy period</u>**
  - once a channel has been flagged as containing a radar signal, such channel cannot be used by a WAS/RLAN device for 30 minutes
- **<u>5600-5650 MHz</u>**
  - 10 minute continuous monitoring of a flagged radar channel is required prior to use by a WAS/RLAN device
- **<u>Channel Move time</u>**
  - Maximum of 10 sec for a WAS/RLAN device to cease all transmissions
    - May contain normal traffic and short intermittent management and control signals

Summary

Parameter	Value
DFS Detection threshold	-62 dBm for devices with a maximum eirp of < 200mW -64 dBm for devices with a maximum eirp of 200mW to 1W Averaged over 1 µsec
Channel availability check time	60 Sec
Non-Occupancy period	30 min
Channel Move time	= 10 sec

- 5600 – 5650 MHz, 10 minute continuous monitoring of a flagged radar channel is required prior to use by a WAS/RLAN device

Conclusion

Participating Standards Organizations should consider harmonizing standards with respect to technical and operational requirements including the use of DFS to ensure protection to radars operating in the 5GHz bands.