

# Verizon Comments on AFC for 6 GHz Sharing

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# High Density 6 GHz Usage:

**Spectrum sharing paradigm requires positive, fail-safe, centralized control mechanisms to avoid generating interference to protected users**



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# AFC Spectrum Sharing is a mechanism of last resort

Previous Part 15 efforts to protect incumbents have failed.

- **TVWS database methods using self registration:**
  - false locations
  - false identities
  - stale copies of database
- **Doppler Weather Radar detection (DFS) running autonomously in radio devices:**
  - updated device firmware version(s) not compliant
  - users erroneously (unauthorized) updated internal channel-use tables
  - unauthorized firmware versions without firmware control mechanisms
- **Need for fail-safe architecture of AFC that do not rely an autonomous behaviors of devices or users.**

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# SAS complexity driven by complex nature of Part 96 Rules

**6 GHz scenario is not at all as complex as SAS for AFC protection of 6 GHz.**

**All 6 GHz protected incumbents are 'informing:'**

- Registered
- At static locations

**There are only two tiers for 6 GHz:**

- protected incumbents and
- unlicensed new entrants not deserving protection

**There is no dynamic nature for the existing incumbents:**

- stationary in location
- static channel assignments

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# AFC can make use of many SAS developed mechanisms

**Licensed incumbents must be fully protected from interference in all scenarios.**

- Risk of interference is too costly to incumbents
- All use cases must be considered for AFC [ outdoor & indoor, LPI, and no unknown location roaming hotspots ]
- Interference must be 'zero' percent (protect 99.999% availability statistics), not just majority of use cases

**This requires many AFC features that are already implemented in the Part 96 SAS implementations:**

- Device Registration with AFC [ known entity, location, parameters, traceability, responsibility ]
- Positive (closed loop) AFC control [ fail safe, conformance ]
- Centralized AFC control [ testability, version control, aggregate mechanisms, algorithm upgradability, not burden the radio device nor the user ]
- Standardized, secure protocol from AFC to/from radio device [ testability, conformance, fail-safe ]
- Standardized algorithms for propagation analysis based upon distance and other factors
- AFC is more flexible: can support different power levels, antenna gains, aggregate methodologies
- AFC can be developed fairly quickly building on top of SAS learnings