ATTACHMENT 2

Proposal for Sharing in the 37 GHz bands

May 3, 2016

Proposal for Sharing in 37 GHz Spectrum

- Scope
- Approach
- Schema

Scope & Users

Scope

- Frequency: 37.0 ~ 38.6 GHz
- Applications: High Bandwidth, Low Latency, Fixed, Mobile and Earth Station
- Duplexing: TDD, FDD, 2 x TDD
- Excluded: peer to peer (e.g. V2V)

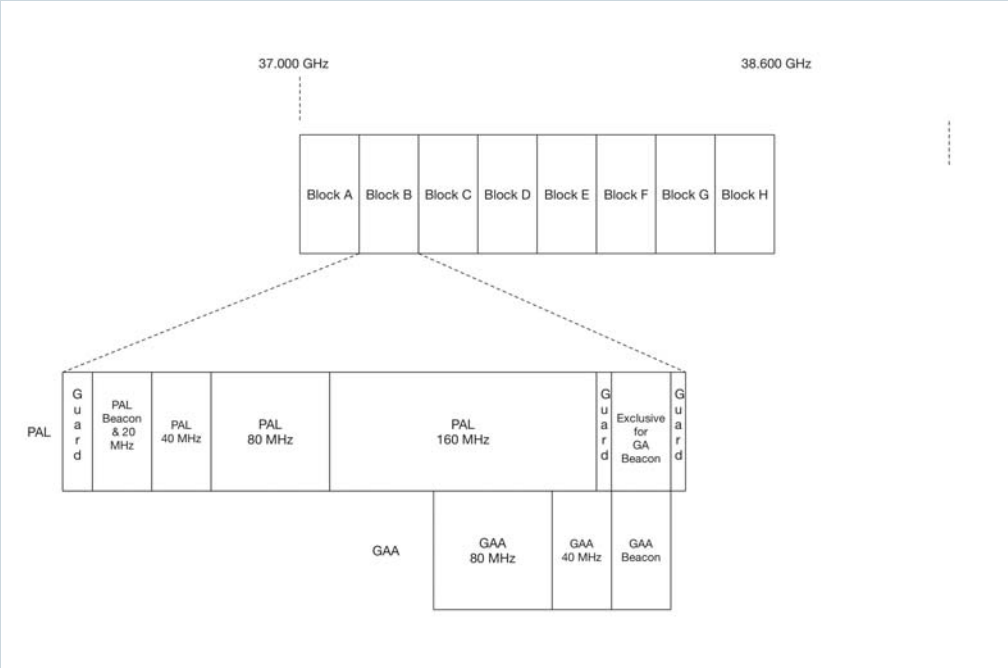
User Tiers

- Government & Legacy Satellite Earth Stations
- Primary Access Licensees (PAL)
- General Authorized Access Users (GAA)

Approach: Extend Citizen Broadband Radio Service (CBRS)

- Adapt most rules from CBRS: establish SAS & PALs & geolocation.
- Extend with real time beacon based prioritized slotted reservation system inspired by 802.11 with control by APs.
- Guarantee some bandwidth to PALs, provide priority to PALs for shared, and permit GAAs to use most, as available.
- PALs could aggregate channels to e.g. 600 MHz / 800 MHz and leaves room for FDD, TDD & 2xTDD.
- Geographic protection for government & legacy Satellite.
- Provides guaranteed PAL bandwidth for low latency.
- Encourages new entrants and competition.
- GAAs able to use about half of spectrum.
- SAS acts to resolve conflicts.

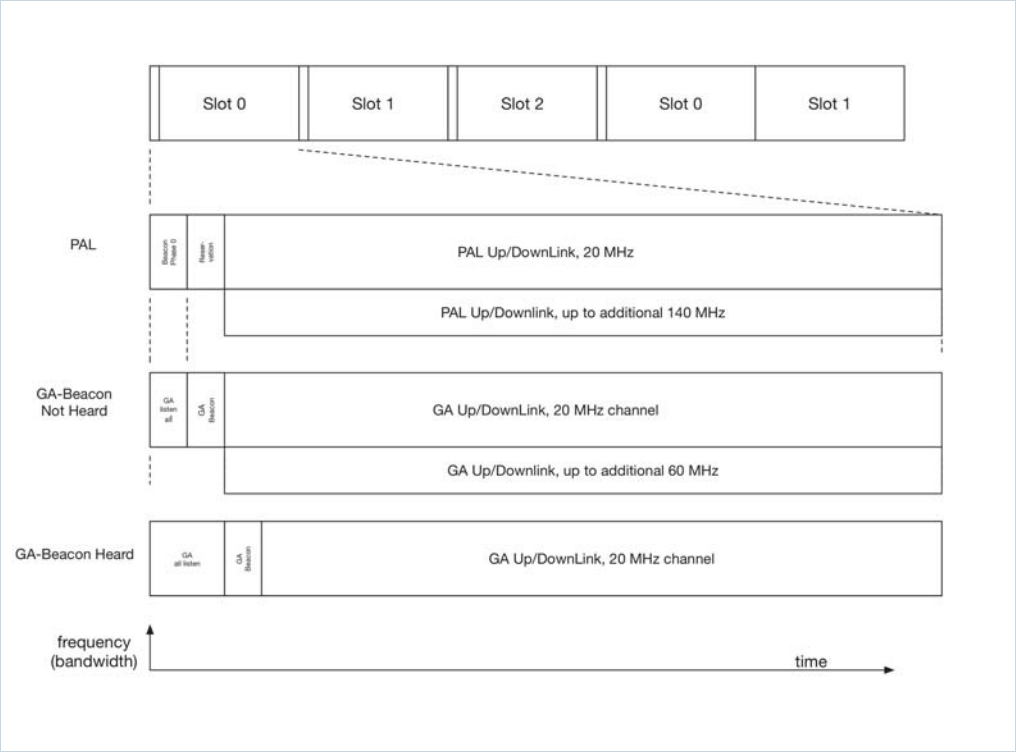
37 ~ 38.6 GHz Band Plan



Principles

- Divide into 200 MHz Blocks
- PAL for each block or sets of blocks
- PAL's APs offer timed beacons based on 802.11, readily decodable
- PALs use up to 160 MHz of the 200 MHz Block
- GAAs allocated 20 MHz but can use up to 80 MHz
- GAAs could be other PALs acting as GAAs in Block

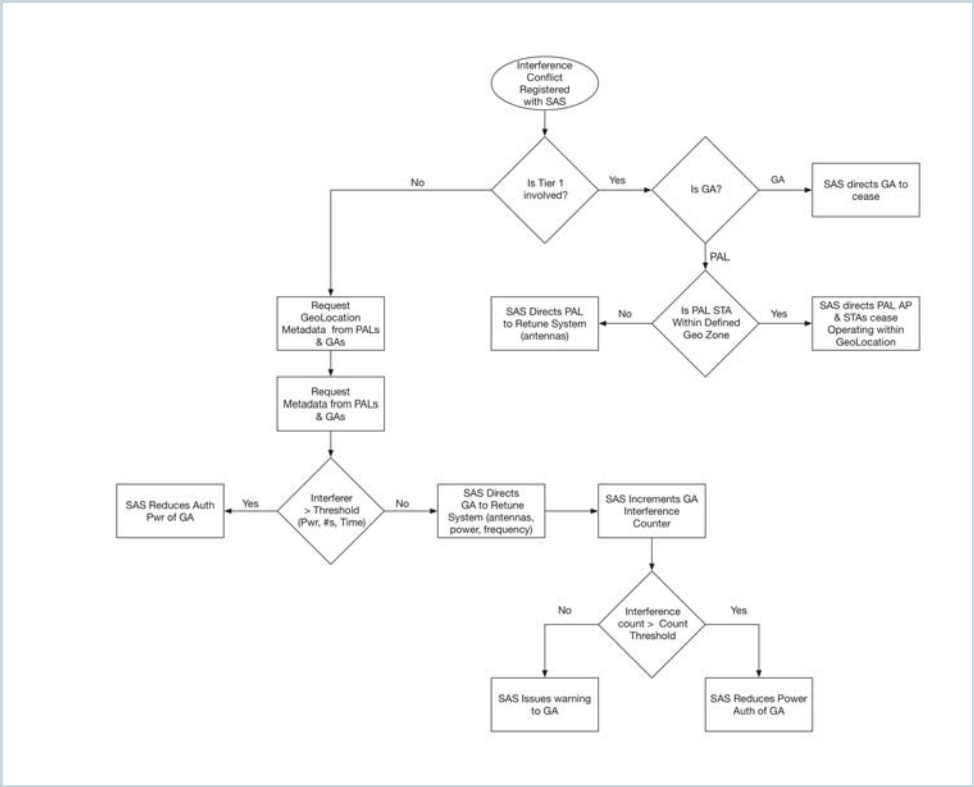
Media Access Control (MAC) Plan



Principles

- Slotted reservation system (3 shown), based on uplink and downlink traffic requests + QoS
- PAL AP Beacon at regular interval
- All STAs and GAA listen for Beacon
- PAL STAs quiet during beacon period and can use CS/CSMA or RTS/DTS slots / Bandwidth under control of AP
- Up to 160 MHz available for PAL
- Unused PAL slots provide up to 80 MHz for GAA
- GAA usage could be full block if PAL not operational in geographic location

Conflict Resolution Plan



Principles

- Use frequency plan to avoid sub millisecond conflict resolution
- SAS established as governing authority
- Entities report conflicts and durations to PAL
- PAL filters and thresholds conflict reports
- All STAs respond to their higher entity
- Conflicts resolution used for tuning overall usage at the Block level by geography, antenna patterns, power, etc.