

High Power CBSD Proposal

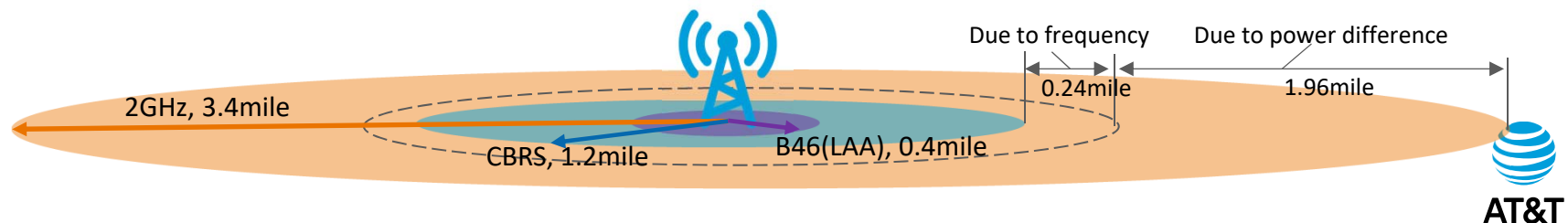
AT&T



Background & Summary

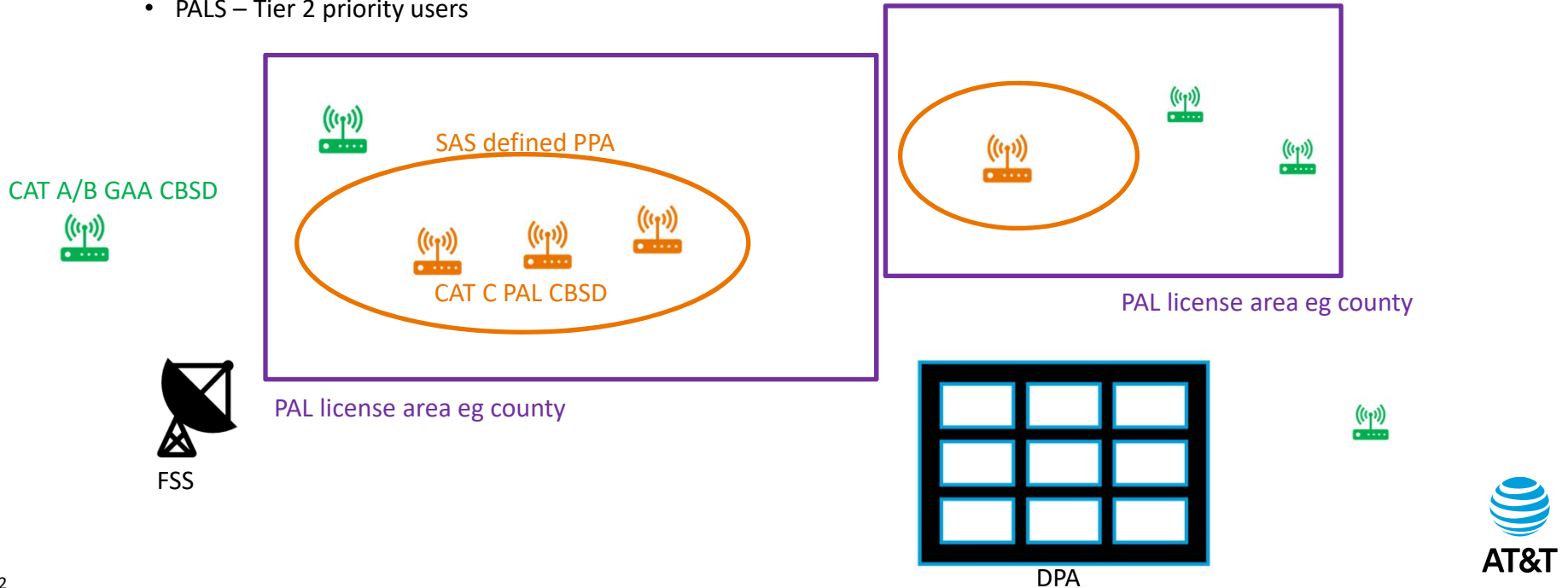
- Current BS EIRP in 2 GHz licensed bands ~60+ dBm range
- 40 MHz CBRS ~ 53 dBm
- **Propagation CBRS vs 2GHz** Up to ~2mi impact due to power differences
- AT&T to advocate a proposal to the FCC to allow a new CAT C CBSD with higher power
- Higher power allows operational ,technical flexibility and enables additional use 5G cases for CBRS as a mid band anchor for NR
- Under appropriate conditions, as determined by the SAS, CAT C devices can take advantage of mid band propagation characteristics
- Current implementation of part 96 standards enables SAS to enforce fair and equal sharing in the CBRS band, even in high power mode
 - AT&T proposal will continue to protect incumbents under current part 96 rules, while allowing for higher power CBSD
 - AT&T proposal will not impact current SAS certifications
 - AT&T proposal will continue to share spectrum fairly with other users as defined in part 96 and WINNF standards
 - High power CBSD will not disadvantage existing CAT A or CAT B CBSD in a shared band.
 - Certified SAS es enables equal sharing irrespective of CBSD power class

CBRS Equipment	EIRP dBm/10 MHz
End User Device	23
CAT A CBSD	30
CAT B CBSD	47



Current FCC part 96 rules

- PPA –
 - Default protection contour determined by the SAS as a -96 dBm/10 MHz contour around each CBSD /CBSD cluster
 - A single combined protection area for multiple overlapping CBSDs operated by the same Priority Access Licensees
 - The PAL Protection Area may not extend beyond the boundaries of the Priority Access Licensee's Service Area.
- In addition part 96 also defines protection thresholds aggregate interference limits to
 - FSS – Tier 1 incumbent
 - DPA – Tier 1 incumbent
 - PALS – Tier 2 priority users



The Proposal

- To add CAT C CBSD to part 96 rules with max allowable EIRP upto 62 dBm/10 MHz
- SAS will ensure CAT C CBSD will conform to
 - -96 dBm/10 MHz for PPA contour threshold for PAL allocations PPA
 - GAA contours will be defined using existing WINNF methods and thresholds adopted for GAA CXM
 - Protection to FSS in accordance with part 96
 - Protection to DPA in accordance to part 96
 - SAS methodology for aggregate interference margin allocation per CAT C CBSD remains the same as with CAT B CBSD
- Proposal strikes to
 - Balance a flexible regime to encompass a wide variety of use cases for 5G NR.
 - No change in protection to incumbents
 - No added complexities for co existence among PAL or GAA users
 - SAS handles CAT C CBSD same as CAT B CBSD for power and channel grant allocation
 - Fair sharing of spectrum among PAL and GAA as SAS will allow the same interference margin to each CBSD regardless of the power level
 - Higher power CBSD is always conditional upon SAS to reallocate to lower power
 - Fewer number of CAT C CBSD would be deployed as compared to CAT B reducing deployment cost
 - Allows flexibility for network planning inside the licensed area



Background From FCC R&O

76. As we stated in the *3.5 GHz R&O*, we are cognizant that the determination of power limits for all categories of CBSD must balance the consideration of several different public interest objectives.¹⁵⁹ On the one hand, higher limits may provide more technical and operational flexibility for users of the band to increase coverage with fewer CBSDs, potentially reducing deployment costs. On the other hand, lower power limits may lead to greater spatial reuse of the band, reduced coexistence challenges, and increased aggregate network capacity. Our determinations herein strive to balance these considerations to create a flexible regime suitable for a wide variety of use cases.

77. With regard to Category B CBSDs, we agree with commenters that higher maximum EIRP may help promote more flexible use and reduce deployment costs in non-rural areas while not significantly increasing coexistence issues.¹⁶⁰ Specifically, we increase the maximum EIRP for Category B CBSDs in non-rural areas to 47 dBm/10 MHz to match the maximum EIRP permitted in rural areas. Petitioners generally argue that higher power is needed to facilitate network deployment and decrease costs. Although we remain concerned about more substantial power increases in more congested areas, we agree that allowing non-rural CBSDs to match the EIRP of rural CBSDs is consistent with the Commission's goals for the Citizens Broadband Radio Service and is a modest increase that will not adversely affect the interference environment in the 3.5 GHz Band.

78. However, we do not agree that the maximum EIRP for Category B CBSDs should be increased to 49 dBm/10 MHz in non-rural areas and 56 dBm/10 MHz in rural areas as requested by several petitioners.¹⁶¹ While we see the merit in increasing the maximum power available to network operators using Category B CBSDs in non-rural areas, we believe that an increase to 47 dBm/10MHz to match the level permitted for rural CBSDs will adequately address the concerns raised by Petitioners without negative effects on the interference environment in the band. This change represents a significant increase in power for non-rural applications with a corresponding potential for more coverage area for each CBSD. This change will also simplify the rules by removing the distinction between rural and non-rural power levels, allowing for uniform development and deployment of Category B CBSDs. We also note that Category B CBSDs will continue to be authorized for use in the 3550-3650 MHz band only after an ESC is approved and commercially deployed consistent with Sections 96.15 and 96.67.

79. We continue to believe that the power limit that we adopted for Category A CBSDs in the *3.5 GHz R&O* is appropriate for the baseline - primarily indoor or at street level - small cell use case in the band.¹⁶² Moreover, the Exclusion Zones protecting federal radar systems that were studied by NTIA and adopted in the *3.5 GHz R&O* are based on a maximum EIRP of 30 dBm/10 MHz.¹⁶³ Any change to the maximum EIRP for Category A CBSDs would require the Exclusion Zones to be reconsidered and expanded, preventing deployment in large portions of the country prior to the development and approval of an ESC.

