

The FCC in Transition: An Update on Spectrum Policies

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WASHINGTON, DC BRUSSELS SAN FRANCISCO SHANGHAI

Introduction and Agenda



- New FCC Leadership and Priorities
- CBRS/3.65 GHz Band Transition
- 6 GHz Expanded Use
- 900 MHz Rebanding
- Quick Hits
 - \diamond T-Band
 - ◊ 800 MHz
 - ♦ 4.9 GHz
 - TV White Spaces
 - ♦ FCC Enforcement

New FCC Leadership



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New Priorities



- Coordinated national planning
 - ◊ Gina Raimondo, newly confirmed Commerce Secretary:
 - "What we need to do is—and the president has been clear—is to step back and have a national strategy on spectrum, and look to make spectrum available from public and commercial uses."
- Spectrum sharing, vs. exclusive licenses
- Greater amounts of spectrum for flexible / unlicensed use



- Tiered Service
 - ◊ Incumbent, PAL, GAA
 - ♦ Requires SAS Connection
 - Manages channel assignments between tiers
 - Amdocs, CommScope, Federated Wireless
 Google, and Sony SASs
 certified for full commercial service





_	3550	MHz									3650 N	MHz	3700	MHz
	Federal			3.	1. In 2. Gener	cumb Priorit al Aut	ent Ac y Acce horize	cess ess d Acce	255			1. Incumbent Use 2. General Authoriz Access	s ed	FSS
١		10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz			

Each PAL is a 10 MHz channel in the 3550-3650 MHz band.

No more than seven PALs will be issued in any county.

A licensee can aggregate up to four PALs channels in one county.



- Priority Access Licenses
 - Sized as Counties
 - License terms set at 10 years
 - Renewal option for PAL licenses with "substantial service" requirement
 - ♦ 40 MHz aggregation limit
 - Partitioning/disaggregating allowed



- GAA Tier Fully Live
- Environmental Sensing Capability (ESC) sensors certified by FCC
- PAL auction held June 25, 2020
 - ◊ 20,625 licenses won (~91% of available licenses)
 - ♦ Auction raised \$4.5B
 - Significant involvement from non-traditional players
 - CII invested ~\$200MM
- First wave of PALs issued March 12, 2021
- SAS providers finalizing PAL channel mapping



- Part 90 3.65 GHz band licenses
 - ♦ Expiring on a rolling basis and will no longer be renewed
 - Convert to CBRS or exit band
 - ◊ Limited number of extension requests granted
 - No new site registrations

C-Band vs. CBRS Auction Rules



	CBRS (3.55-3.70 GHz)	C-Band (3.70-4.20 GHz)
Channel Blocks	10 MHz	20 MHz
Geographic Area	County	Partial Economic Area (PEA)
Incumbent Relocation Payment	No	Yes
SAS Connectivity Requirement	Yes	No
License Term	10 years	15 years

3.45-3.55 GHz Auction



- FCC Auction 110
 - ◊ Tentative Start: Oct. 5, 2021
 - Onique Interim Coverage Benchmarks
 - Mobile or Point-to-Multipoint Service
 - 45% population coverage w/in 8 years
 - 80% population coverage w/in 12 years
 - Fixed Service
 - Population <268,000
 - ♦ 4 links in service w/in 8 years; 8 links in service w/in 12 years
 - Population >268,000
 - ♦ 1 link per 67,000 persons w/in 8 years; 2 links per 67,000 persons w/in 12 years



- October 23, 2018 FCC NPRM studying increased use of 5.925-7.125 GHz Band
 - Proposing to allow Unlicensed use of 6 GHz band
 - ♦ Heavily opposed by 6 GHz users
- API, UTC, EEI, APPA, NRECA, and AWWA Joint Comments
 - Stated FCC should not allow unlicensed use of 6 GHz band
 - If it does, PtP must be protected, including through AFC and professional installation.



- April 24, 2020 Report and Order and Further NPRM
 - Allows unlicensed use of 6 GHz band
 - Two device classes
 - Standard power (36 dBm EIRP) and indoor low-power (30 dBm EIRP)
 - Standard power must use AFC
 - Limited to U-NII 5 and U-NII 7 (PtP bands)
 - AFC not required for low-power
 - May operate across entire 6 GHz band



- Standard power APs must have geolocation
- AFC will be based on ULS
 - ♦ Make sure ULS accurate!
- Low-power APs must be indoors
 - Cannot be weather resistant, may not use battery power, must have integrated antennas
 - Must use contention-based protocol



- Strong objections to decision
- Petitions for Reconsideration filed by APCO, FWCC, Encina
 - Verizon and CTIA wants wider rights for unlicensed devices
- Court appeals filed by UTC, EEI, NAB, AT&T, APCO
- Court rejected call for Stay of rules

- So what's the upside?
 - ◊ WiFi 6e
 - WiFi 6 extended into 6 GHz band
 - ◊ 1,200 MHz of spectrum
 - Access to 80 and 160 MHz channels
 - FCC has begun to certify devices







- 896-901/935-940 MHz
 - ◊ 399 12.5 kHz paired channels
- Anterix purchased large portion for 3x3 MHz LTE service
- May 13, 2020 FCC Report and Order, Order of Proposed Modification, and Orders
 - Creates 897.5-900.5/936.5-939.5 MHz Broadband segment
 - Provides primarily for voluntary, market-based relocations for band realignment
 - Negotiations moving quickly



		Post-Transition Band Plan			
935.0	936.5		939.5		940.0
MAS	Narrowband Segment 1.5 MHz (Channels 1-119)	Broadband Segment* 3 MHz	f	0.5 MHz Channels 361-399)	NBPCS
Air Ground	Narrowband Segment 1.5 MHz (Channels 1-119)	Broadband Segment* 3 MHz	(0.5 MHz Channels 361-399}	NBPCS
896.0	897.5		900.5		901.0
	B/ILT and Relocated SMR Miscellaneous Wireless Communications Service	 *B/ILT and SMR licenses may operate on a protected basis in the broadband segment. 			



- Most relocations likely to be through voluntary, market-based approach
 - Only restriction is that the prospective broadband licensee may offer no more spectrum than the incumbent currently holds, except where doing so is necessary to achieve equivalent coverage and/or capacity.
 - Anterix "confident that it will be able to reach voluntary agreements with the great majority of incumbents in counties where it qualifies as the prospective broadband licensee."



- FCC concerned with hold-out problem
 - Calls approach potentially a first step
 - Will revisit the success of the 900 MHz band realignment and explore whether to adopt an additional mechanism to transition the 900 MHz band to broadband
 - Could consider an auction mechanism; closing the window on filing 900 MHz broadband applications; and/or lifting the application freeze to permit new and expanded use of 900 MHz narrowband operations beyond incumbent relocations
- FCC provides process to trigger mandatory relocations
 - Broadband licensee must pay all reasonable relocation costs, including providing comparable facilities
 - A Mandatory process does not apply to "Complex Systems"



- Broadband license applicant must hold licenses for more than 50% of the total amount of licensed 900 MHz spectrum (whether SMR or B/ILT) in the relevant county, including spectrum included in an application to acquire or relocate a covered incumbent
 - ♦ Likely Anterix throughout the U.S.
- Anterix has announced initial broadband interest from utilities
 - ♦ Signed first long-term lease Ameren
 - ♦ Entered first license purchase agreement SDG&E
 - Initial deployment with Xcel and Motorola Solutions
- More than one agreement structure for access to broadband segment

T-Band



- Section 6103 of the Middle Class Tax Relief and Job Creation Act of 2012
 - Requires FCC to begin T-Band auction for public safety channels by February 22, 2021
 - ♦ PS must relocate within 2 years of auction
- Viewed as impracticable
 - ♦ Too costly, no spectrum for relocations
- 2019 GAO Report found relocations unworkable and recommended Congress change law

T-Band



- July 6, 2020 FCC Issues NRPM proposing T-Band overlay auction
 - Proposes to require relocation only where auction proceeds exceed relocation costs
 - Auction expected to fail
 - \$2B revenue projections vs. >\$6B relocation costs
 - Seeks comment on requiring B/ILT to relocate and whether to require relocation compensation for B/ILT



- December 2020 Legislation passed to preserve T-Band
- March 22, 2021 FCC to begin accepting new applications from incumbents.
 - Pre-coordination began February 18, 2021
 - ♦ Must be narrowband compliant
 - 12.5 kHz or equivalent

4.9 GHz Band



- March 22, 2018 Further Notice of Proposed Rulemaking
 - Interested in increasing use of the band
 - Used by only 3.5% of eligible PS entities
- October 2, 2020 FCC Releases Sixth Report and Order and Seventh Further Notice of Proposed Rulemaking regarding 4940-4950 MHz band
- Delegates license rights to states
- One statewide licensee per State
 - ♦ May lease spectrum to any other entity

4.9 GHz Band



- Removes Public Safety use restriction
- If currently multiple statewide licensees, State must decide which is Lessor
- No leasing in Nevada, New Jersey, New York, Rhode Island, and West Virginia
- NPRM proposes State-based licensing for States without statewide licensee

TV White Spaces



- October 28, 2020 Report and Order and Further NPRM
 - Increases fixed device EIRP to 16
 watts in "Less Congested" areas (4
 watts elsewhere)
 - 1 watt output power
 - ◊ Eliminates 100 meter AGL limit
 - Increases HAAT limit to 500 meters in Less Congested areas
 - Coordination procedure for TV stations



TV White Spaces



- Allows for higher power geo-fenced mobiles
- Promotes narrowband IoT use
 - <100 kHz bandwidth</p>
 - 1% duty cycle
- Less Congested areas = where at least half of the TV channels within a device's particular TV sub-band are available
 - Separate for low VHF band (channels 2-6), high VHF band (channels 7-13) and UHF band (channels 14-36)

FCC Enforcement









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