

REFORMING THE C-BAND

TRANSITIONING INCUMBENTS TO MAKE 280
MEGAHERTZ OF MID-BAND SPECTRUM
AVAILABLE FOR 5G

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Webinar Structure

- Origins and Overview of the Proceeding
- Big Ticket Elements of the Report and Order
- Space Station Operator Transition
- Deeper Dive into Earth Station Transition
- Fixed Service Transition
- Adjacent Band Issues
- Possible Appeal Issues
- Prospective Legislation
- Questions

Band Incumbents and the Origin of the FCC Proceeding (Docket 18-122)

- The current allocations in the 3700-4200 MHz band are for non-federal use only
- Co-primary allocations to Fixed Satellite Service (FSS) (space-to-Earth) and Fixed Service
 - FSS allocation paired with 5.925-6.425 GHz (E-to-s)
 - FSS entitled to protection under the full-band, full-arc policy
 - Result has been limited fixed service use
- Mid-Band NOI in 2017 prompted a proposal by Intelsat and Intel for market-based transactions to clear spectrum, an approach later joined by SES in February 2018

Proceeding Recap

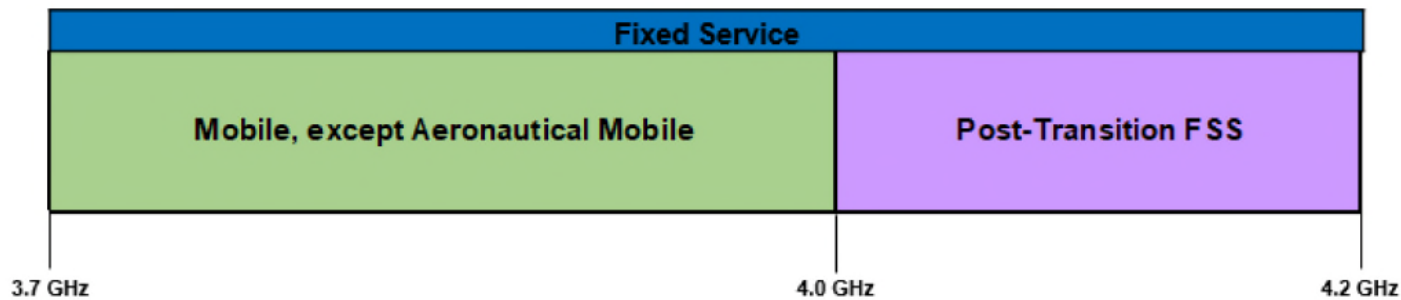
- 2017 Mid-Band NOI (3.7 – 24 GHz)
- Section 605(b) of the MOBILE NOW Act
- April 2018 Public Notice temporary freeze on filing of new or modified applications for earth station licenses, receive-only earth station registrations, and fixed microwave licenses in 3.7-4.2 GHz
- June 2018
 - Window for filing earth station license or registrations before October 17, 2018
 - June 21, 2018 temporary freeze on space station applications

Proceeding Recap cont.

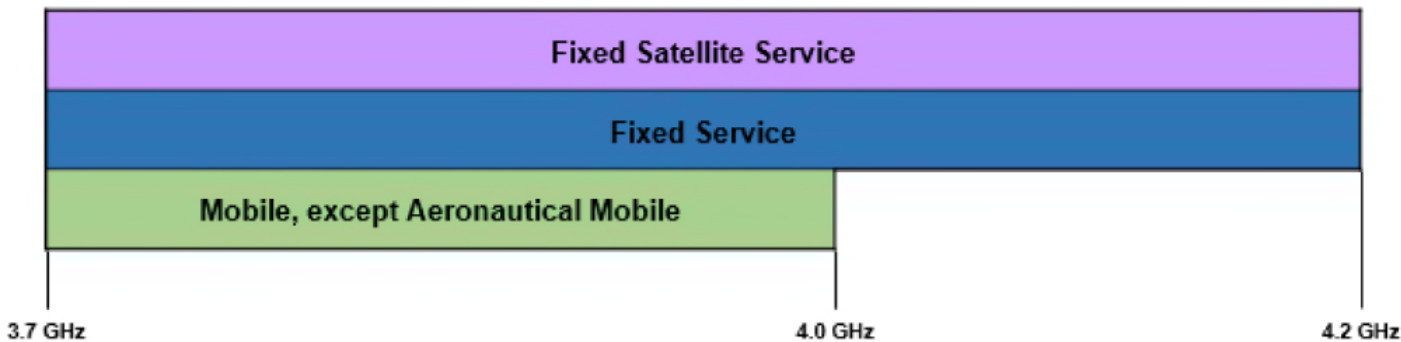
- July 2018 Order and NPRM
- April 2019 Information Collection by May 28, 2019
- May 2019 Public Notice
 - Seeking comment on plans filed by three parties
- July 2019 Public Notice
 - Seeking comment on positions taken by three parties
- Public vs. Private Auction
 - November 2019 Pai letter response to Senator Kennedy

C-Band Order Overview

- Order realigns 3.7-4.2 GHz by adding a mobile allocation
 - Post-Transition in CONUS



- Post-Transition Outside CONUS



C-Band Order Overview (cont'd)

- 280 megahertz of spectrum to be made available for flexible mobile and fixed use overlay licenses in the contiguous United States through public auction
 - Plus a 20 megahertz guard band
 - Mandatory relocation of incumbents from lower 300 megahertz
 - Licenses will be made available through auction of unpaired 20 megahertz sub-blocks in Principal Economic Areas (406 PEAs in CONUS)
- The upper 200 megahertz will remain available for incumbent and transitioned FSS operations

C-Band Order Overview (cont'd)

- Existing Fixed Service operations in the contiguous United States will be transitioned out of the band.
- FCC declined to adopt rules to allow P2MP operations in the upper 200 megahertz on a shared basis with FSS earth stations
- FSS and Fixed Service operations *outside the contiguous United States* may continue to operate throughout the 3.7-4.2 GHz band

Basic Transition Schedule

- Public auction of 3700-3980 MHz to commence December 8, 2020
- Space station operators elect individually whether to clear the 3700-4000 MHz band on one of two schedules
 - Regular or default schedule – the band must be cleared by hard deadline of December 5, 2025
 - Accelerated schedule with not-so-hard deadlines
 - ◆ The bottom 120 megahertz in 46 of 50 largest PEAs must be cleared by December 5, 2021
 - ◆ The entire 300 megahertz must be cleared by December 5, 2023

Basic Transition Schedule (cont'd)

- Provisions for most TT&C operations to continue on a protected basis, but at limited number of consolidated sites, through December 5, 2030
- Fixed Service licensees must vacate the band by December 5, 2023

Transition Details

- Relocation Payments and Compensable Costs
 - Reasonable costs
 - “Soft” costs
 - \$3.3 billion to \$5.2 billion expected
- Acceleration Payments
 - \$9.7 billion

Flexible Use Licensees' Share of Costs

- Flexible use licensees are responsible for costs allocated based on the licensee's *pro rata* share of gross winning bids in the auction
 - Determined nationally for space station operator relocation costs and Relocation Payment Clearinghouse costs
 - Determined on a PEA-specific basis for incumbent earth station and fixed service incumbent licensee transition costs
 - Determined based on 46 PEAs cleared for Phase I accelerated relocation payments and nationally for Phase II payments

Transition Details cont.

Operator	Phase I Payment	Phase II Payment	Total
Intelsat	\$1,197,842,000	\$3,667,524,000	\$4,865,366,000
SES	\$976,945,000	\$2,991,188,000	\$3,968,133,000
Eutelsat	\$124,817,000	\$382,161,000	\$506,978,000
Telesat	\$84,790,000	\$259,610,000	\$344,400,000
Star One	\$3,723,000	\$11,401,000	\$15,124,000

Transition Details cont.

- Accelerated Relocation Election
 - 80% threshold
- Transition Plans
- Relocation Payment Clearinghouse
 - Duties
 - Selection
- Relocation Coordinator
 - Duties
 - Selection

Earth Station Transition Basics

- Incumbent earth stations subject to the relocation obligations are entitled to interference protection and reimbursement for relocation
 - Licensed transmit-receive stations
 - Registered receive-only earth stations
- To qualify as “incumbent,” must be fixed or temporary fixed; have been operational as of April 18, 2018; licensed or registered (or pending) as of Nov. 7, 2018; and have timely certified the accuracy of information on file
- Unregistered earth stations are not entitled to protection or reimbursement for relocation

Earth Station Reimbursement Options

- FCC requires auction winners to pay incumbents' reasonable costs of relocation from the lower 300 megahertz
- Earth stations are entitled for reimbursement of relocation costs in one of two ways
 - (One) Lump-sum payment for an operator's CONUS earth stations (to be determined by Wireless Bureau for different station types) – earth station operator assumes responsibility for the transition – election due within 30 days of Bureau announcement identifying which stations will migrate to 4000-4200 MHz, or
 - (Two) Reimbursement on a per earth station basis based on actual, documented, reasonable relocation costs for stations moving into the upper 200 megahertz
- Other special circumstances will be considered

Responsibilities of Space Station Operators (SSOs) to Incumbent Earth Station Operators

- Eligible SSOs individually responsible for all space station clearing obligations
 - Incumbent SSOs best positioned to know when and how to migrate incumbent earth stations and when filtering is feasible.
- SSO *electing accelerated payments* responsible for relocating earth stations that receive or send signals to SSO by same deadlines – planning, coordination, and performance
 - Earth station operators need to facilitate relocation by helping with scheduling, providing access, and confirming the work performed
- EXCEPTION: Recipients of lump-sum payments

Responsibilities of Space Station Operators to Earth Station Operators (cont'd)

- SSOs encouraged to work with associated incumbent earth station operators to develop Transition Plans (due June 12, 2020)
 - After Plans are submitted, there will be opportunity for public comment (by July 13, 2020)
 - Plans may be updated or cured by August 14, 2020
- Eligible SSOs that do not choose accelerated relocation *may* make clear in its Transition Plan that it will voluntarily assume responsibility for relocating its own associated earth stations
 - Otherwise, responsibility falls on earth station operators to work with flexible use licensees to facilitate transition
- If incumbent earth stations not accounted for in an SSO's Plan, the Relocation Coordinator must prepare an Earth Station Transition Plan.
- SSOs may migrate associated earth stations to different operator's space station

Earth Station Transition Plan

- Prepared by Relocation Coordinator for earth stations not covered by the SSO Transition Plans
 - describe and recommend the respective responsibility of each party for earth station migration and filtering
- Coordinator will assist incumbent earth stations in transitioning including, for example, by installing filters or hiring third parties to do so

Responsibilities of Lump Sum Recipients

- Incumbent earth station operators that elect lump sum payments are responsible for coordinating with the relevant SSO and performing all relocation actions, including filtering, on their own
 - Must inform the appropriate incumbent SSO(s) that relocation services will not be necessary for the relevant earth station site(s)
 - Must coordinate with SSOs to avoid any disruption in service.
- Order not intended to affect or change the terms of any private contractual arrangement.
- NOTE: Incumbent earth station operators lose interference protection once associated SSO meets obligations for accelerated relocation in relevant Phase and band

Earth Station Operators Not Eligible for Accelerated Relocation

- Only eligible SSOs qualify for accelerate relocation payments
- FCC expressly rejected notion that earth station operators also qualify for accelerated payments
- FCC affirmed that eligible SSOs that elect accelerated relocation take responsibility for transitioning all earth station operators that receive their services, including coordination for system mods, repointing, and retuning
- All stakeholders will have chance to review a Certification of Accelerated Relocation and challenge as appropriate
 - Wireless Bureau will act within 60 days of filing of Certification

Covered Actual Earth Station Reimbursement Costs

- Relocation from 3700-4000 MHz to 4000-4200 MHz included
 - Excluded if transition to fiber
 - Excluded if transition to other bands
- Entitlement to earth station filters
 - Clear entitlement for relocated earth stations
 - Less clear for earth stations already in the 4000-4200 MHz
- Covered costs for earth station migration and filters – any necessary changes to receive on new frequencies and from new satellites once space station operators have relocated their services

Submission of Costs to Clearinghouse

- Clearinghouse responsible for collecting from all incumbent SSOs and incumbent earth station operators showings of costs and demonstrations of reasonableness
- Party that performs earth station relocation work (incl. third party surrogates) may submit the showing of costs and receive reimbursement, *provided* duplication avoided
- Clearinghouse determines if reimbursement requests are supported and reasonable and give parties the opportunity to supplement
- Clearinghouse may conduct audits of entities receiving reimbursement

Disputes as to Cost Estimates or Payments

- Clearinghouse will mediate or refer disputes
- Decided within 30 days of submission and response
- May then be submitted to non-binding arbitration by Clearinghouse to be decided within 30 days
- Expedited escalation possible to Wireless Bureau and then to Commission (10-day timeframes for submission)
- Parties may also consider alternative dispute resolution
- Disputes over the transition itself should go to Relocation Coordinator or Wireless Bureau

Room for Negotiated Outcomes

- Flexible-use licensees may begin deploying and constructing their networks before all incumbents have cleared the band, with consent of affected incumbent earth stations
 - Flexible use licensees must make all required payments to the Clearinghouse in a timely manner
 - Otherwise, auction winners must wait until either the filing of a validated Certification of Accelerated Relocation or lapse of Relocation Deadline.
- Order adopts specific technical criteria for the protection of the incumbent earth stations but acknowledges the possibility of private negotiations that depart from these limits

The Fate of the Freeze

- April 18, 2018: FCC froze applications in 3.7-4.2 GHz for new or modified space stations or earth stations
- Order converts the freeze for FSS earth stations in the 3.7-4.0 GHz band in CONUS into an elimination of the application process for registrations and licenses in that range
- Order lifts the freeze for new FSS earth stations in the 3.7-4.2 GHz band outside of CONUS upon publication in the Federal Register
- No new FSS applications in 4.0-4.2 GHz for the time being, in order to facilitate transition, but renewals and mods permitted.
 - Exception: apps by incumbent SSOs to facilitate transition
 - STAs may be available on targeted basis

Fixed Services Relocation and Reimbursement

- In CONUS, incumbent point-to-point Fixed Service use in 3.7-4.2 GHz sunsets as of December 5, 2023
 - FS licensees that timely relocate are eligible for reimbursement of reasonable costs based on the well-established “comparable facilities” standard
 - Parties may negotiate early clearing of FS operations, including through premium payment agreements.
- FCC declines to permit point-to-multipoint Fixed Service use in 4.0-4.2 GHz citing complications to continued FSS use
- Outside CONUS freeze on FS applications lifted as of Federal Register publication of Order

TT&C Transition

- Incumbent SSOs are to consolidate at four sites the TT&C operations above the 3.7 GHz band edge
 - Identification of sites by filing of Transition Plans
 - Transition by Dec. 5, 2021, and protected operation through Dec. 5, 2030 (absent waiver or negotiated agreements with flexible use licensees)
 - Unprotected TT&C-only earth station operation in 3700-4000 MHz if not relocated/consolidated
- Recoverable costs involved with consolidation may include installation of additional antennas at the four sites, procurement of new real estate, and customer migration

Adjacent Band Issues

- Aviation and aerospace interests raised concerns about potential interference to primary safety-of-life radio altimeters operating in the 4.2-4.4 GHz band
 - OET found that the 3.7 GHz technical rules (power and emission limits) and the spectral separation of 220 megahertz offers “all due protection” to altimeters
- Federated Wireless and others sought protections for Citizens Broadband Radio Service operating below 3.7 GHz band edge
 - Order declined to require dynamic spectrum management or coordination requirements

Multi-Stakeholder Group

- Industry encouraged to convene a group of interested stakeholders to develop a framework for interference prevention, detection, mitigation, and enforcement in the 3.7-4.2 GHz band and consider best practices and procedures to address transition issues and any adjacent band issues
 - to include representatives of incumbent earth stations (including MVPDs and broadcasters), incumbent SSOs, wireless network operators, network equipment manufacturers, and aeronautical interests
- OET to act as a liaison for the FCC with any such multi-stakeholder group and provide guidance on useful topics and a sense of the time frames for input

Potential Legal Challenges

- Petitions for reconsideration due within 30 days of Federal Register publication
- Petitions for review to U.S. Court of Appeals due within 60 days of Federal Register publication
- Section 316 authority to modify licenses
 - No “fundamental change”
- Notice of modification by, and protest right within 30 days of, Federal Register publication
- SES and Intelsat filings since order release

C-Band Bills in Congress

- Spectrum Management and Reallocation for Taxpayers Act (SMART Act) (S. 3246)
 - Up to \$6 billion for incumbent relocation costs
 - \$1 billion for incentive payments
 - \$5 billion to the U.S. Treasury
 - Remaining proceeds to NG 911 and broadband projects

C-Band Bills in Congress

- 5G Spectrum Act (S. 2881)
 - Allocate 50% of the proceeds from the C-Band auction to the Treasury
- Clearing Broad Airwaves for New Deployment (C-Band) Act (H.R. 4855)
 - Would allocate most auction proceeds to fund telecom projects
 - Bill is largely a “placeholder” for final legislative language Democrats are negotiating with committee ranking member Greg Walden (R-OR) and others
- Possible rider to an appropriations bill

Questions?

THANK YOU



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