



October 16, 2019

Ex Parte

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: Unlicensed Use of the 6 GHz Band, ET Docket No. 18-295;
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket
No. 18-122

Dear Ms. Dortch,

On October 11, Mark Racek, Senior Director of Spectrum Policy, Ericsson, and Jared Carlson, VP of Government Affairs and Public Policy, Ericsson, met with Aaron Goldberger, FCC Chairman Pai's Legal Advisor for wireless and international issues. Ericsson's representatives at the meeting presented the attached presentation, "Balanced Approach to 6 GHz." Ericsson noted that, presently, there is no large swath of mid-band spectrum available for licensed, macro 5G service in the U.S.

Ericsson's representatives stressed the need for speeding mid-band spectrum to market, particularly the C-band (3.7-4.2 GHz). Repurposing the 3.7-4.2 GHz band for mobile broadband use will position the United States within a reasonable tuning range for harmonized mid-band 5G spectrum with much of the rest of the world, as the band overlaps and is adjacent to the mid-band spectrum that many nations are making available.

While Ericsson is hopeful that a significant amount of mid-band spectrum will be made available for mobile use in the C-band, there is currently a large amount of uncertainty as to how much, and when, that will happen. The current 6 GHz Notice of Proposed Rulemaking contemplates 1200 MHz for unlicensed use in the mid-band. As noted in the presentation and in our Comments¹ in this proceeding, to help address the critical need for more mid-band spectrum, we propose that the Commission adopt a more balanced approach in the 6 GHz band by repurposing the 6.425-7.125 GHz band for flexible use licensed service.

Ericsson's representative stressed the need for the U.S. to support studies and possible regulatory action for mid-band spectrum, including band frequencies in the 6 GHz range for mobile use as an agenda item for the World Radio Conference in 2023. As the agenda for the

¹ See Comments of Ericsson, *Unlicensed Use of the 6 GHz Band*, ET Docket No. 18-295, at 13 (Feb. 15, 2019).



2019 WRC comes into clearer focus, we ask that the U.S. to secure leadership in 5G in mid-band frequencies by helping to secure a global ecosystem.

Respectfully submitted,

/s/ Jared M. Carlson

Jared M. Carlson

Vice President,

Government Affairs and Public Policy

Ericsson



Balanced Approach to 6 GHz

Ericsson

Oct 11, 2019

Mid-band Spectrum Pipeline Needed

Presently, there is *no* large swath of mid-band spectrum available for licensed macro 5G service in the U.S.

The 3.7-4.2 GHz band is the only pending opportunity, and only part of that spectrum may be available for repurposing

Limited opportunity for macro 5G in CBRS band: limited capacity from smaller channel sizes and low transmit power

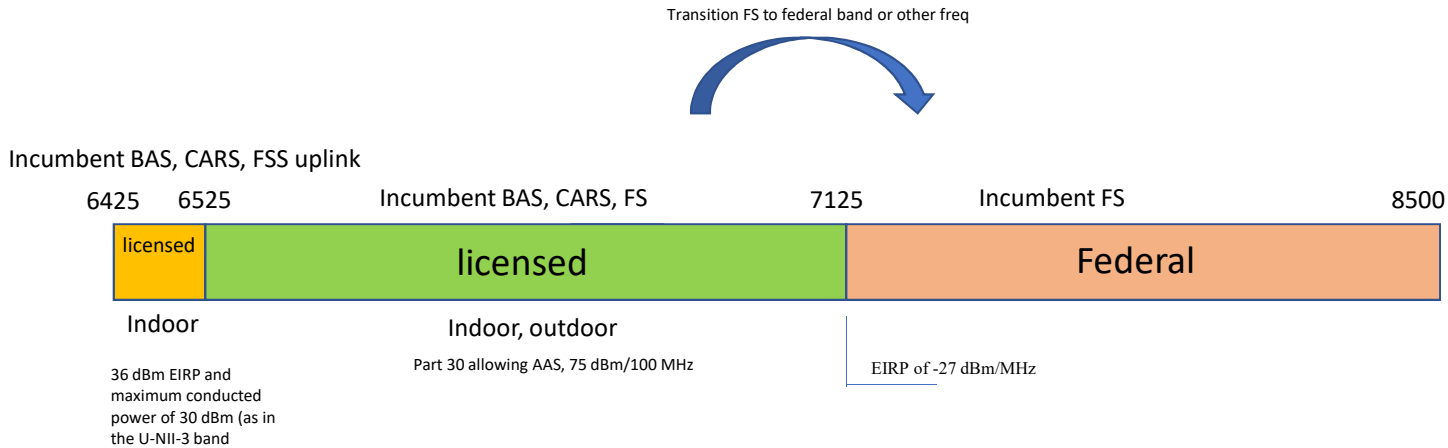
Propose rulemaking to consider repurposing the 6.425-7.125 GHz band for licensed flexible-use service and auctioning the band

Segmentation of 6 GHz band



- Current imbalance in mid-band spectrum expected
 - FCC NPRM proposal 5925-7125 MHz (1200 MHz unlicensed) vs. inevitable C-band partition between mobile services and satellite
 - C-band Alliance proposes 3700-3900 MHz (180 MHz) licensed
 - Very limited opportunity for licensed spectrum between 7-24 GHz
 - No long term pipeline for mid-band spectrum
- Proposal for 6 GHz to be divided into licensed and unlicensed segments
 - IoT expected to also be a 5G use case: reliability, latency, QoS, security, interference protection
 - Rural broadband deployment opportunity in conjunction with low band spectrum, e.g. 600 MHz
 - FCC has already issued substantial unlicensed spectrum

Licensed Segment in 6 GHz

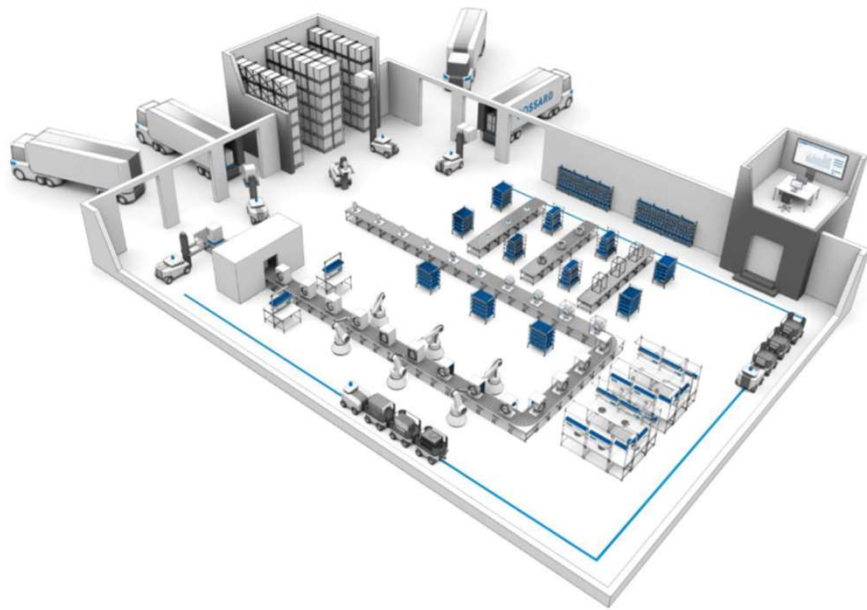


- The consideration to allow licensed in the U6 should not impact the timeline of unlicensed in the L6
- Propose Licensed: 6.425-7.125 GHz
 - Industry support
 - Being considered in the ECC and in the 3GPP
 - Possible WRC agenda item for IMT. U.S. leadership needed

Macro 5G in mid-band

- 6425-7125 MHz
 - Coverage layer that augments the capabilities of UMFUS
 - Utilize the FCC's *Emerging Technologies* approach to require winning bidders to relocate incumbents to comparable facilities (i.e., new spectrum bands, other carriage medium)
 - Propose transition of urban and suburban FS links to comparable facilities including other FS bands and fiber
 - Examine transitioning the 7.125-8.5 GHz band from an exclusive federal band to a shared one, allowing relocation of non-federal FS incumbents to adjacent frequencies with similar propagation characteristics
 - Maintain protection for remaining FS, e.g. rural links, by utilizing an off-line database either on a permanent or temporary basis





Cellular IoT

- 6425-6525 MHz
 - Used extensively by broadcast stations, programming networks, and video production companies for electronic news gathering and wireless video links
 - Unlicensed spectrum may not provide interference protection or a guaranteed quality of service demanded by Industrial IoT use cases
 - Enable Industrial IoT use cases using licensed spectrum
 - Power limitation, combined with indoor-only, licensed use, can protect incumbents
 - Recommends a regulatory framework to make it possible for utilities and enterprises to invest in high performance systems



Image courtesy Wikipedia

Mobile broadcast

6875-7125 MHz

- mmW 5G cellular technology used to demonstrate streaming 4K video for nationwide broadcasts
- Social media outpaces print newspapers in the U.S. as a news source.
- Examination of whether BAS and CARS services are using this spectrum as efficiently as possible.
- In some circumstances it may be most efficient to move BAS and/or CARS facilities to different bands or to transmission mediums, *e.g.*, fiber or 5G.

Fixed Service in 7/8 GHz

Additional 5G Backhaul	Spectrum needed for long-haul backhaul support for gigabit services
Constraints in 6 GHz to support Backhaul	L6 GHz spectrum congested and U6 GHz is limited to 30 MHz channels
Study and NTIA collaboration	Study if the federal band 7.125-8.5 GHz can support non-federal fixed services
International Interest for IMT	GSMA has an information document promoting 7125-8500 MHz among other bands for IMT
Global Fixed/Mobile Allocation in 7/8 GHz	Microwave backhaul in use in a number of markets; Allow 60 MHz channels Allow Cat B1 and B2 antenna sizes when less frequency congestion. Does U6 overlay NTIA bandplan to allow easier migration to 7/8 GHz?



<https://www.Ericsson.com>