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December 13, 2019

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Notice of *Ex Parte* Presentation, IB Docket No. 11-109; IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091, SAT-AMD-20180531-00044, SAT-AMD-20180531-00045, SES-AMD-20180531-00856

Dear Ms. Dortch:

On December 11, 2019, Valerie Green, executive vice president and general counsel of Ligado Networks, and the undersigned met with Michael Scurato, acting legal advisor to Commissioner Starks. We reviewed the attached document and discussed how this 40 megahertz of lower mid-band spectrum can advance the transition to 5G. In addition, we discussed how the FCC record has been complete for years, that the recent submission from the NTIA does not add any new information to the FCC record, and how the review process of the Modification Applications is also complete. We discussed that thus this item is ready for Commission action. In addition, on December 13, the same parties met via telephone with Umair Javed, legal advisor to Commissioner Rosenworcel, and we discussed many of the same points. In both meetings, we stressed that after nearly four years the Commission should end the unreasonable delay that has marked this proceeding and schedule a vote on an order approving the Applications right away.

Please direct any questions to the undersigned.

Sincerely,

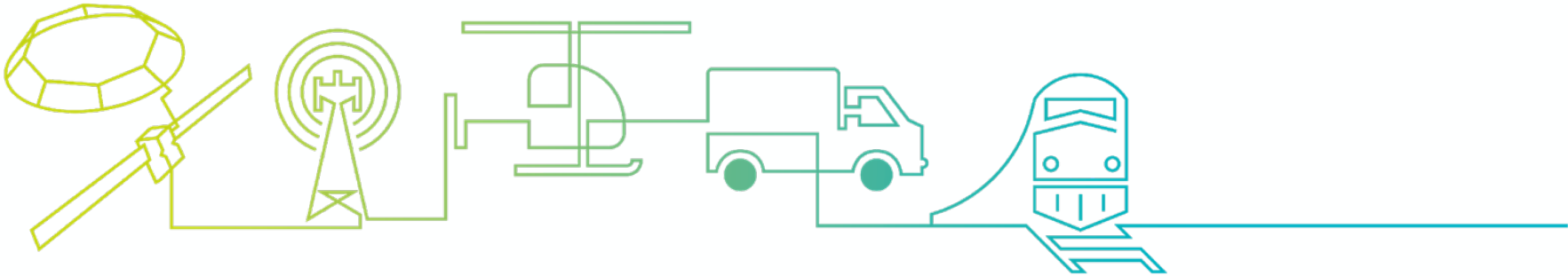
_____/s/_____
Gerard J. Waldron

cc: Mr. Michael Scurato
Mr. Umair Javed

Attachment

Ligado Networks Role in the 5G Future

DECEMBER 2019



ligado NETWORKS | Making Stronger Connections

Ligado Networks Opportunity Overview

Ligado Is A Unique Opportunity to Deliver Lower Mid-Band Spectrum Now

Advances the critical need for mid-band spectrum to accelerate new 5G deployments

FCC Action on Ligado's Proposals Represents 40 MHz of Greenfield Spectrum

20 MHz uplink, 10 MHz downlink and two 5 MHz channels for flexible uplink or downlink

Ligado Spectrum Has Significant Near-Term Utility in Both 4G / 5G Networks

Flexible implementation path for increased 4G capacity and overall 5G performance

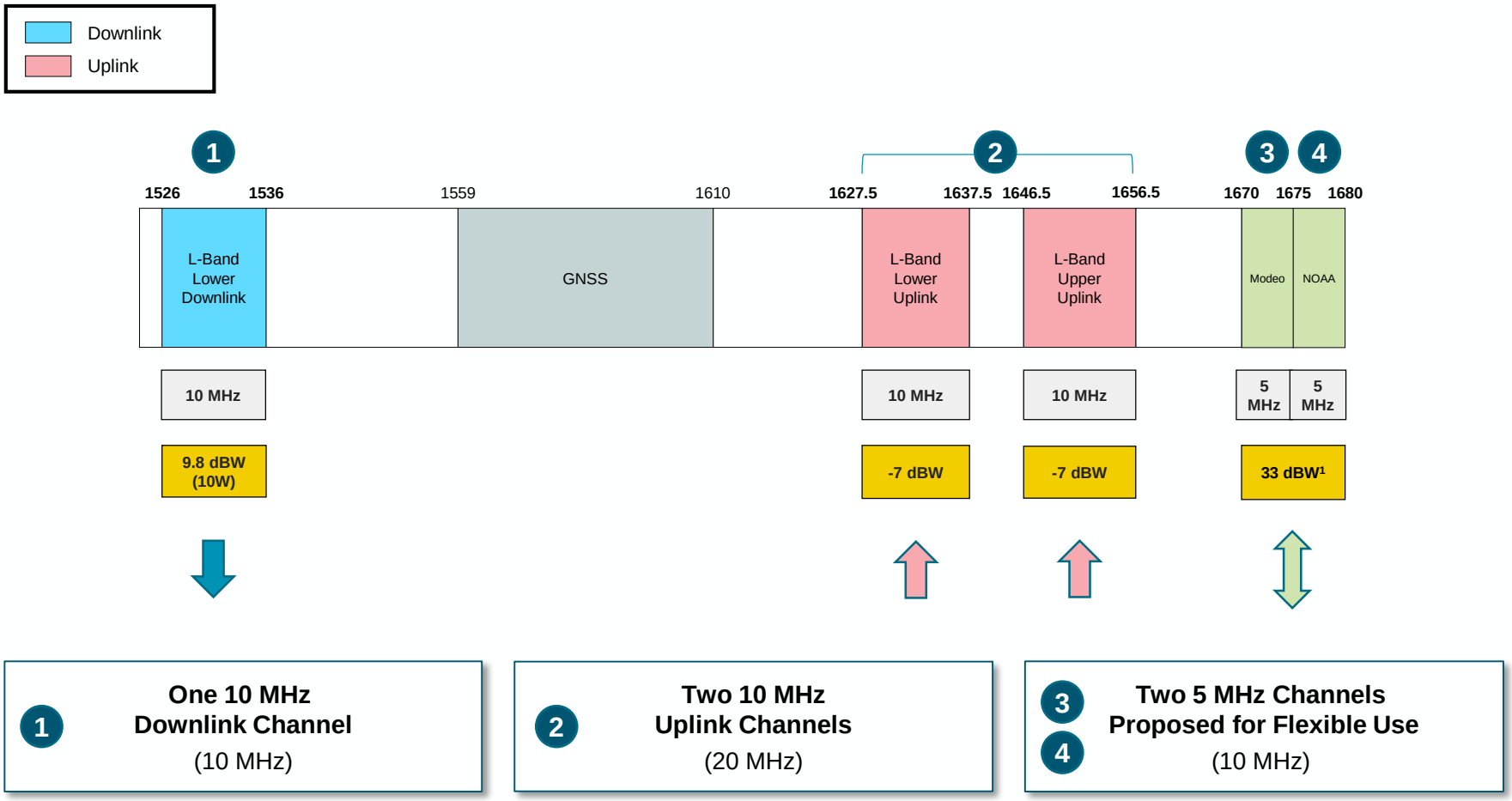
Ericsson and Nokia Technical Studies Validate Ligado Spectrum for 4G / 5G

Greenfield Lower Mid-Band Spectrum = Increased Coverage + More Capacity + Lower Latency + Better Mobility at Lower Cost and Faster Deployment

U.S. Leadership in 5G is Essential for a Secure and Sound Wireless Supply Chain

Trusted global equipment suppliers benefit the most from early 5G deployments in the U.S.

Four Individual Blocks of Lower Mid-Band Spectrum That Make Up a Highly Flexible 40 MHz



[1] ***1670-1675 MHz:*** *33 dBW peak EIRP nationwide, higher EIRP allowed in 30 CMAs;* ***1675-1680 MHz****: Rules not finalized yet, 33 dBW peak EIRP as per NOAA NPRM*

L-Band is Integral to the Mid-Band Spectrum Solution for 5G Networks

	Mobile Wireless			Fixed Wireless
	Low-Band (< 1 GHz)	**Lower Mid-Band** (1 – 2 GHz)	**Higher Mid-Band** (2 – 6 GHz)	**High-Band** (Above 6 GHz & mmWave)
Description	Used for nationwide coverage; inter-site interference challenges	Supports versatile deployment for coverage and capacity	Deployed for localized capacity; in-building and propagation issues	Supports select outdoor / indoor applications; no broad-based mobility
Macro	●	●	◑	○
Micro	●	●	●	○
Small / Indoor	○	●	●	●
Broad-Based Mobility	●	●	◑	○
In-Building Penetration	Effective	Effective	Limited	None

Lower Mid-Band

- Work-horse spectrum due to flexibility in providing coverage and capacity
- Significantly better propagation characteristics than higher mid-band
- Ideal overlay onto existing 1-2 GHz networks grids

Higher Mid-Band

- Offers wide channels that facilitate higher data speeds / bandwidth for targeted capacity in 5G
- Propagation and in-building penetration limitations restrict its broad-based deployment on existing 1-2 GHz network grids

Ligado's Lower Mid-Band Spectrum is Among the Key Bands in the Near-Term U.S. Pipeline

Nokia and Ericsson Technical Evaluation of the Ligado Spectrum

Nokia evaluation of capacity benefits of Ligado spectrum

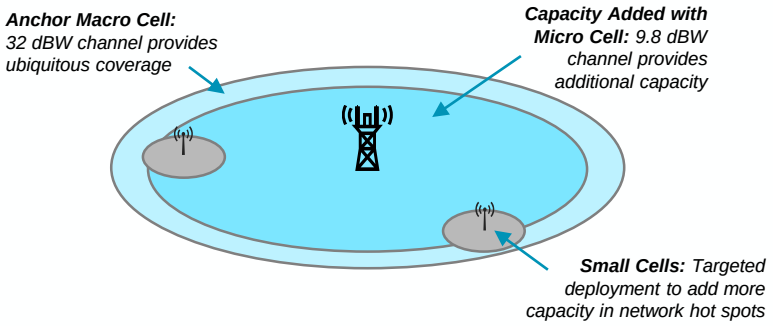
Existing 4G Networks

Adds Immediate 4G Capacity

Greenfield, lower mid-band spectrum

Rapid deployment on existing infrastructure
1.5 / 1.6 GHz fits neatly on existing mid-band, cellular grids

At very low cost
Adds capacity without incremental site build out



Ericsson and Nokia evaluation of Ligado + higher mid-band

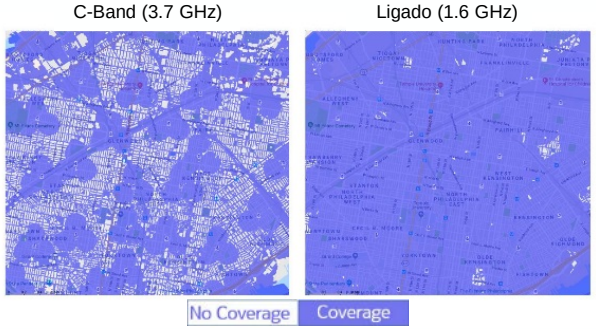
New 5G Rollouts

Boosts Overall 5G Performance

Ligado spectrum enhances other bands (e.g. other mid band and high band spectrum)

Expands 5G coverage
A 5G cell site utilizing Ligado uplink band can cover an area at least 4.8 times greater than C-band

Boosts capacity and reduces latency
Delivered thru greenfield "always-on" channels



Ligado offers wireless carriers greenfield spectrum that can be flexibly deployed across 4G and 5G networks to address their most pressing network demands

Supply Chain Integrity Is Essential to U.S. 5G Leadership and Security

- An “all of the above” spectrum policy will enable U.S. carriers to accelerate broad-based network deployments and make the U.S. an early global leader in 5G
- Early 5G equipment orders from U.S. carriers will confer first mover advantage for trusted global infrastructure vendors giving them a scaled cost curve and technical leadership
- It is in the U.S. national interest to maintain supply chain integrity which can only be assured if the U.S market takes the lead in 5G deployments using trusted infrastructure vendors

Spectrum is not only the lifeblood of the wireless industry but also influences 5G supply chain integrity, economic growth and national security