Straight Path Communications, Inc.
600 Sylvan Ave. Suite 402
Englewood Cliffs, NJ 07632

June 16, 2016

VIA ELECTRONIC FILING

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

Re: Notice of *Ex Parte* Presentation

GN Docket No. 14-177, ***Use of Spectrum Bands Above 24 GHz for Mobile Radio Services***

On June 14, 2016, Jerry Pi, Chief Technology Officer of Straight Path Communications, Inc. ("Straight Path"), Russell Fox of Mintz Levin and I conducted separate meetings with each of the following: Edward Smith, Legal Advisor to Chairman Wheeler; Daudeline Meme, Legal Advisor to Commissioner Clyburn (along with David Nayer, Legal Intern to Commissioner Clyburn); Johanna Thomas, Legal Advisor to Commissioner Rosenworcel; Brendan Carr, Legal Advisor to Commissioner Pai; and Erin McGrath, Legal Advisor to Commissioner O'Rielly. In addition, we conducted a single meeting with the following members of the Commission's staff:

Wireless Telecommunications Bureau:

- Blaise Scinto
- Brian Regan
- Catherine Schroeder
- Charles Oliver
- John Schauble
- Simon Banyai (by phone)
- Stephen Buenzow (by phone)
- Tim Hilfiger (by phone)

Office of Engineering and Technology:

- Martin Doczkat
- Ed Mantiply
- Michael Ha

International Bureau:

- Jose Albuquerque

Each meeting related to the above-referenced proceeding. At each meeting, we distributed the attached material and showed a prototype of a 39 GHz transceiver that Straight Path is developing. Consistent with our other submissions in this proceeding, we urged the Commission to grant flexible use rights to incumbent licensees; permit rebanding (with channels 200 megahertz wide) and repacking of the 39 GHz band; issue licenses covering larger geographic areas to support wide-area mobile operations,

particularly at 39 GHz where there is likely to be multiple licensees per market area; and adjust performance requirements for incumbent licensees to promote early introduction of 5G technologies.

We also reminded Commission staff that the primary purpose of this proceeding is to facilitate the introduction of mobile broadband technologies in the millimeter wave bands, and that the Commission should not be distracted by the last-minute attempts by the satellite industry to delay or hobble the Commission's efforts. We observed that in order for wireless providers to offer ***fixed and mobile gigabit broadband services***, they must not be restricted by regulations to protect satellite operations at the expense of terrestrial operations. Allowing satellite licensees the rights they request at 37/39 GHz will defeat the Commission's goals, compromise the United States' position as the leader in millimeter wave mobile technology, and disserve the public interest. In contrast, particularly at 39 GHz, there have been no material efforts by the satellite industry to use spectrum dedicated for its use for over a decade. We urge the Commission—if it seeks to allow greater flexibility for satellite operations than exist today—to adopt the approach that Straight Path has suggested.[1/]

Pursuant to Section 1.1206(b)(2) of the Commission's rules, an electronic copy of this letter is being filed for inclusion in the above-referenced docket and sent to each member of the Commission's staff with whom we met. Please direct any questions regarding this filing to the undersigned.

Respectfully submitted,

/s/ Davidi Jonas

Davidi Jonas
CEO and President
Straight Path Communications, Inc.

Attachment

cc: (via e-mail, with attachment, to all Commission staff noted above)

[1/] *See* Letter from Davidi Jonas, CEO and President, Straight Path Communications, Inc. to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (filed June 14, 2016).

Straight Path Communications Inc.

FCC MEETINGS

JUNE 14, 2016

Overview of Straight Path Communications

Incumbent operator in the millimeter wave bands

- Extensive spectrum holdings in 39 GHz and 28 GHz bands
- Average more than 800 MHz in top 25 cities in the U.S. in the 39 GHz band

Business and technology innovator

- **Investing** in 39 GHz point-to-multi-point (PtMP) technology (to be available in 4Q 2016)
- **Developing** 5G transceiver prototype for 39 GHz (to be available in 4Q 2016)
- **Participating** in 5G NPRM to effectuate regulations enabling 5G in mmWave bands
- **Engaging** regulators in other nations to facilitate global harmonization of 39 GHz for 5G
- **Contributing** to 3GPP 5G standardization process
- **Collaborating** with industry partners to develop 5G ecosystem at 39 GHz
- **Supporting** academic research in 5G via NYU Wireless membership

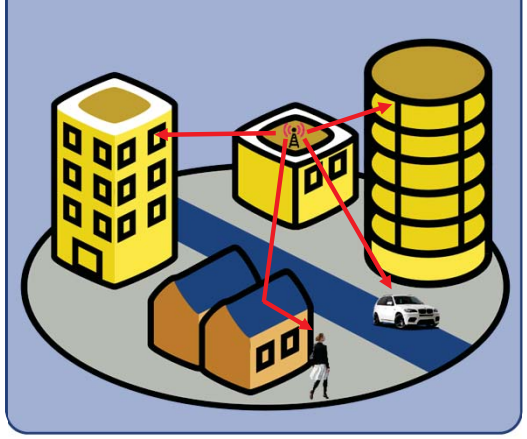
Topics for discussion

- Flexible Rights For Incumbents Encourages Innovation
- Re-banding and Re-packing Achieve Greater Use of 39 GHz Band
- Large Geographic Service Areas Facilitate Wide Area 5G Coverage
- Progressive Substantial Service Requirements Support Smooth 5G Takeoff
- Accommodation to Satellite Must Not Derail 5G

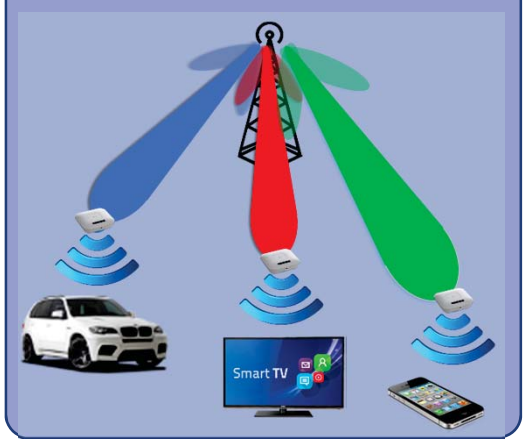
Flexible Rights For Incumbents Encourages Innovation

Innovative and Diverse 5G Use Cases Call For Flexible Rights for Incumbents

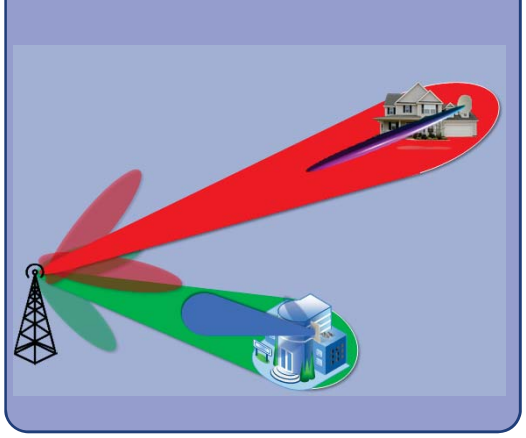
Mobile Access



Backhaul



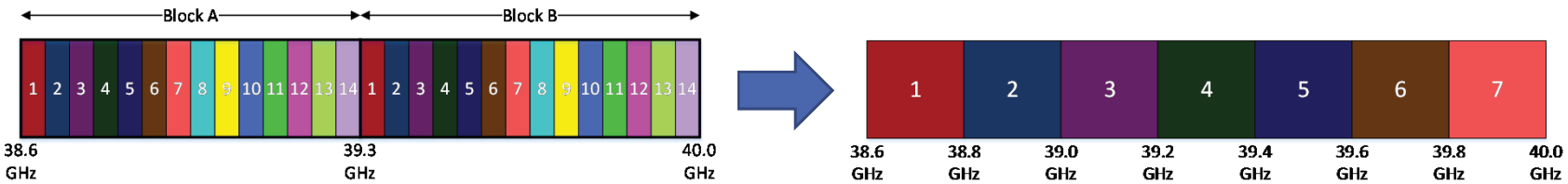
Fixed Broadband



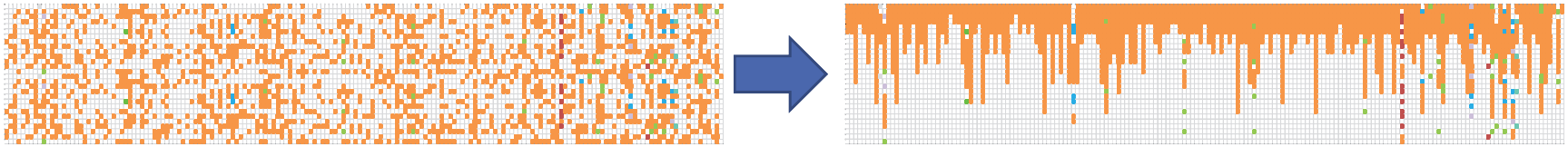
Flexibility to transmit with high EIRP and in any spatial direction is crucial to the success of 5G in mmWave bands

Re-banding and Re-packing Achieve Greater Use of 39 GHz Band

Re-banding to wider channels for larger capacity and higher throughput in 5G



Re-packing to minimize fragmentation and enable rapid wide-area 5G rollout



Large Geographic Service Areas Facilitate Wide Area 5G Coverage

Wide area coverage of gigabit mobility/access is THE most important value proposition of 5G

5G can achieve the same nationwide coverage as 4G, if enabled by regulation

County based GSAs will make it harder for operators to achieve wide area coverage

- Administrative burden (176 EAs, 493 BTAs, and 3144 counties, multiplied by the number of channels)
- Auction complexity and uncertainty (large number of fragmented licenses encourages gamesmanship tactics and speculative bidding that may significantly and artificially increase the price of some channels)
- Increased difficulties in interference coordination (more boundaries, more coordination)
- Deployment can be significantly constrained due to co-channel interference limit
- More cell sites with smaller coverage may be needed to fit into the contour of county based GSAs
- Cell site selection may be limited by boundaries of county based GSAs
- Spectrum utilization may have to be reduced at or near boundaries of county based GSAs

Proposal

- Maintain EAs in 39 GHz
- PEAs could be acceptable compromise

Progressive Substantial Service Requirements Support Smooth 5G Takeoff

STRAIGHTPATH.

Option A – Incumbents to exchange existing licenses to UMFUS licenses before renewal of current licenses (and in exchange to deploy UMFUS services quickly)

- No performance requirement under current rules.
- Ample time (*e.g.*, 5 years) should be provided to allow incumbents to demonstrate substantial service under the new (and to-be-determined) requirements for UMFUS licenses

Option B – Incumbents to demonstrate substantial service for renewal before the end of current term (and convert the licenses to UMFUS licenses upon renewal)

- The current performance requirement should apply
- The renewal should include the remainder of the current license term plus the additional ten-year renewal term
- Allows incumbents to make spectrum "5G ready" as soon as the licenses are renewed
- Ensures U.S. operators have the spectrum needed in time to lead the world in 5G

Allow incumbents to choose either option depending on markets and existing businesses

Accommodation to Satellite Must Not Delay or Derail 5G

Background

- Rapid 5G technology and ecosystem development in parallel with the Spectrum Frontier NOI and NPRM
  - Major operators, vendors, standard bodies, research communities, and governments are strongly behind FCC's 5G plans
  - U.S. has early lead in the global race to 5G deployment (Verizon, AT&T, T-Mobile, and Sprint have all started/announced 5G trials in 2016/2017)

Discussion

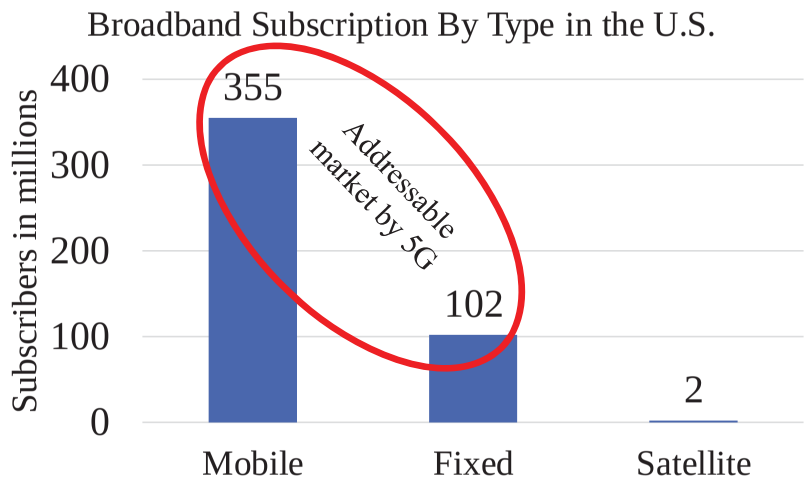
- The future of the nation's mobile broadband infrastructure is at stake (and associated opportunities to drive economic growth that depends on it)
  - Supportive rules enabling 5G in the 28, 37, and 39 GHz band is the critical first step for the U.S. to succeed in 5G
- Commission must stay focused on the primary objective of this proceeding despite distractions and challenges

Proposal

- The Commission MUST NOT permit delaying tactics to derail its plans and MUST develop rules to enable 5G in 28, 37, and 39 GHz bands in this proceeding
- Support NPRM proposal of requiring terrestrial license for FSS ground stations
- Maintain the current Part 25 rule of only allowing FSS gateway stations in the 37/39 GHz band and limit to one station per EA
- Keep FSS PFD limit in the 37 and 39 GHz at -117 dBW/m^2/MHz (no provision of 12 dB power boosting for FSS)

Appendix

Don’t Let the Tail Wag the Dog



	Spectrum Used (gigahertz)	# of cell sites / spot beams	Total capacity (Gbps)	Spectral efficiency (bps per MHz POP)
O3b	4.3	70	168*	0.12
ViaSat-1	3.0	72	140	0.14
A 5G system (example)	0.5	300,000	3,000,000	18,000

* Assume all 16 satellites will be launched and operational

5G

- Serve ~200x more subscribers
- Utilize spectrum ~100,000x more efficiently

Satellite Broadband

- Serve areas terrestrial services cannot reach
- Complement terrestrial broadband