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October 30, 2009

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

Re: WT Docket No. 09-106, Request for Interpretation of Section 101.141(a)(3) to Permit the Use of Adaptive Modulation Systems

WT Docket No. 09-114, Amendment of Part 101 of the Commission's Rules to Accommodate 30 Megahertz Channels in the 6525-6875 MHz Band

Ex Parte Communication

Dear Ms. Dortch:

On behalf of the Fixed Wireless Communications Coalition (FWCC), pursuant to Section 1.1206(b)(2) of the Commission's Rules, I am electronically filing this notice of an oral *ex parte* communication in the above-referenced dockets.

Yesterday, Larrie Sutliff and James Talbot, both of AT&T, Vishnu Sahay of Harris Stratex Networks, and I, jointly representing the FWCC, met with Arnab Das, Kevin Holmes, John Leibovitz, John Schauble, and Blaise Scinto of the Commission staff.

A copy of our presentation outline is attached.

Please do not hesitate to contact me with any questions.

Respectfully submitted

Mitchell Lazarus
Counsel for the Fixed Wireless
Communications Coalition

cc: Meeting participants
Karen Zacharia, Verizon
Katharine R. Saunders, Verizon
Donald C. Brittingham, Verizon Wireless

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Fixed Wireless Communications Coalition

Adaptive Modulation

WT Docket No. 09-106

6 and 23 GHz

WT Docket No. 09-114

October 29, 2009

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About the FWCC

- ❑ We are a coalition of companies, associations, and individuals interested in the Fixed Service (terrestrial fixed microwave communications)
 - formed in 1998
 - speaks for the Fixed Service community
 - active in 40+ FCC proceedings
 - also active at industry forms, NTIA, FAA, courts, etc.
- ❑ More at www.fwcc.us

FWCC Membership

- Microwave equipment manufacturers
- Fixed microwave engineering firms
- Licensees of fixed microwave systems (and associations)
- Communications service providers (and associations)
- Major end users (railroads, public utilities, petroleum and pipeline entities, public safety agencies, cable TV and private cable providers) and/or their respective associations
- Backhaul providers, communications carriers
- Telecommunications attorneys and engineers.

Adaptive Modulation

WT Docket No. 09-106

Request for Rule Interpretation

❑ Filed by:

- Alcatel-Lucent
- Dragonwave Inc.
- Ericsson Inc.
- Exalt Communications
- Fixed Wireless Communications Coalition
- Harris Stratex Networks
- Motorola, Inc.

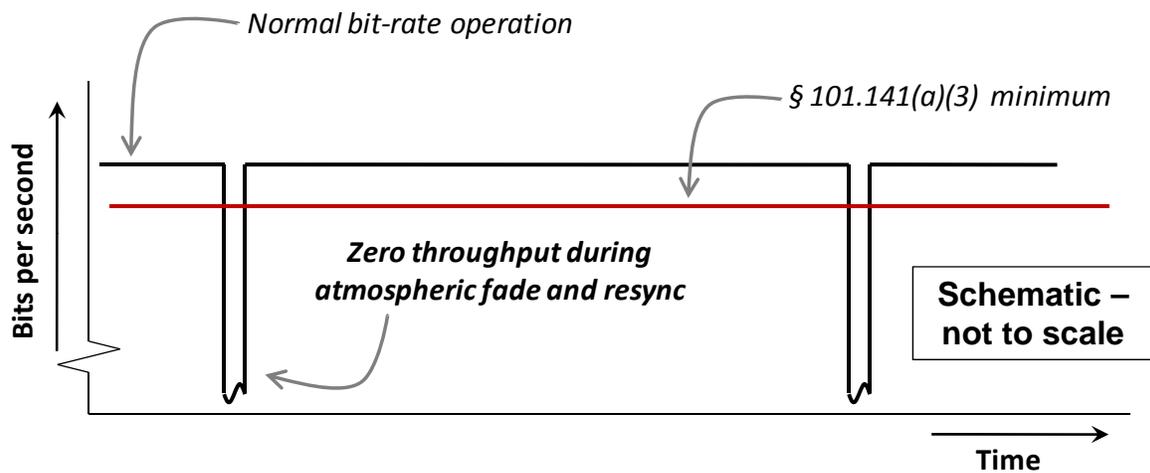
❑ Also supported by:

- AT&T Inc.
- Clearwire Corporation
- United States Cellular Corp.

Adaptive Modulation – Specifics

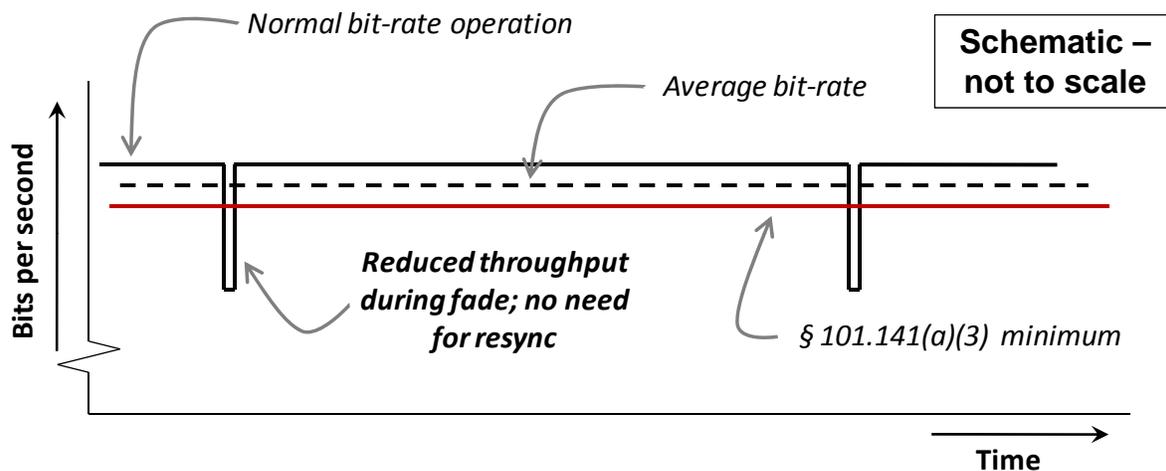
- ❑ Rules require “minimum payload capacity,” § 101.141(a)(3)
 - higher capacities in 4, 6, 10, 11 GHz bands
 - value depends on channel bandwidth
- ❑ All microwave links are subject to occasional fades
 - throughput drops to zero
 - may stay at zero while system resynchronizes after fade
- ❑ Parties request interpretation of § 101.141(a)(3) as **average** value – not instantaneous
 - allows slower modulations for brief periods
 - system always maintains some throughput
 - avoids prolonged outage for resynchronization.

Without Adaptive Modulation



- ❑ Bit rate drops to zero during fade
- ❑ Remains at zero if system must resynchronize.

With Adaptive Modulation



- ❑ Bit rate stays above zero even during fade
- ❑ Full bit rate after fade – no need to resynchronize
- ❑ Average throughput increases.

Proposed Conditions

1. System must comply with § 101.141(a)(3) in normal operation
 - except during short periods of time during adverse propagation conditions
2. System must comply with § 101.141(a)(3) on average.

- Compare to present conditions:
 - no maximum on outage times
 - no minimum throughput
- Proposed conditions would **raise** overall throughput.

Benefits of Adaptive Modulation

- ❑ Better reliability for critical applications
 - higher percentage “on” time
 - some data always gets through
- ❑ Higher throughput overall
 - more data transmitted and received over time
- ❑ Hence, better spectrum efficiency.

Arguments for Rule Interpretation

- ❑ Treating § 101.141(a)(3) as average values complies with both letter and spirit of rule
 - no Commission precedent requires reading as an instantaneous value
- ❑ Wording requires “minimum payload *capacity*”; does not require capacity to be used at every instant
- ❑ Requested interpretation serves purpose of rule
 - yields higher efficiency than current interpretation
- ❑ No possible increase in interference for any user
- ❑ Public interest: higher availability for critical infrastructure and public safety applications.

Opposition

- ❑ Verizon opposes any operation below stated minimum (8/11/2009 at 2)
 - argues that “minimum” means absolute floor (*id.*)
- ❑ Verizon requests “appropriate and enforceable limits or conditions” to meet spectrum efficiency goals (7/27/2009 at 1)
 - says that otherwise users could occupy large bandwidth channels to deliver low capacity payloads (*id.* at 2)
- ❑ Asks Commission to limit operating time in non-compliant modes, impose absolute minimum (*id.* at 3).

Response

- ❑ Verizon focuses on the transmitter – we consider the system end-to-end
 - § 101.141(a)(3) minimum can never be achieved 100% of the time
 - every system drops below the “minimum” – to zero
- ❑ Allowing temporarily slower operation at the transmitter increases throughput at the receiver
- ❑ Proposed conditions would bar the construction and operation of inferior links that concern Verizon.

A temporarily low data rate makes better use of the spectrum than no communications at all.

Compromise Proposal

- ❑ FWCC would support a rulemaking *after* issuance of an interpretation
 - (not necessary, in view of the proposed conditions, but we would participate and not oppose)
 - rulemaking could lay out further specifics as suggested by Verizon
- ❑ Rationale for issuing interpretation first:
 - relief needed urgently
 - interpretation is consistent with wording of rule
 - interpretation supports purpose of rule
 - no possibility of increased interference or other harm.

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6 & 23 GHz
WT Docket No. 09-114

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Upper 6 GHz Band Plan

- ❑ FWCC urges adoption of Upper 6 band plan as proposed
- ❑ We disfavor 20 and 40 MHz channels in Upper 6
 - use 30 MHz in Upper 6 only if not available in Lower 6
 - NPRM ¶ 17; proposed §. 101.147(a)(33)
 - but no 20 or 40 MHz channels in Lower 6
 - result: over-use of Upper 6 for broadband channels
- ❑ We disfavor uniform 170 MHz transmit/receive spacing
 - 6580-6710 / 6740-6870 MHz segments have large installed base with 160 MHz spacing
 - adding 170 MHz spacing would hinder coordination
 - also, manufacturers geared up for 160 MHz spacing.

Thank you!

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