Stacey G. Black
Asst. Vice President
Federal Regulatory
External and Legislative Affairs

(202) 457-2290
Stacey.black@att.com
www.att.com

Via Electronic Filing

March 20, 2014

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

Re: **Notice of Ex Parte Communication: Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz and 2155-2180 MHz Bands, GN Docket No. 13-185**

Dear Ms. Dortch:

On March 20, 2014, Joan Marsh and the undersigned met with Nicholas Degani and Brendan Carr, Legal Advisors to Commissioner Pai, to discuss the above-referenced proceeding.

We expressed support of the FCC's overall plan for the AWS-3 auction and discussed the importance of having two 10x10 MHz spectrum blocks as part of the band plan as LTE technology is optimized for, and becomes much more efficient at 20 MHz as described in the attached presentation. We also discussed the use of larger license sizes for the 20 MHz blocks as larger license sizes have historically generated higher value and intensity in an auction.

We discussed performance requirements and license terms. Given the lack of knowledge currently available to the wireless industry and the FCC on the government's 1755 to 1780 transition plans, we argued that any period for build out requirements should commence after government operations have been successfully cleared or coordinated. We further argued that once build out requirements were met, a licensee should have an expectation that its license will be renewed. If build out obligations and license renewal expectancies requirements are not clearly defined and understood by bidders as they approach the auction, the lack of clarity will suppress valuations at auction.

We also discussed the FCC's contingency plan should the auction not attract sufficient bidding to close successfully. We argued that the Commission should not move to auction the 2155 MHz band separately as supplemental downlink. Such an auction would likely undermine any future attempt to successfully pair the band, losing the benefits and efficiencies of paired spectrum and would likely raise greatly reduced revenues auction. We argued that the Commission should instead initiate a new proceeding with notice on comment to consider the best path forward.

Finally, on the inclusion of an interoperability mandate in the item, we noted that AT&T has not officially opposed the requirement that the paired allocations in AWS-1 and AWS-3 interoperate. Such a work effort is already underway in 3GPP. But we noted that 3GPP remains the proper forum for defining band classes and making determinations on

how to most efficiently implement new bands. We also noted that 3GPP has never defined an asymmetric band class before and the Commission should not be requiring one here. Finally we argued that the Commission lack notices from an APA perspective to impose any interoperability requirement. That is especially true given that the *AWS-3 NPRM* did not propose or seek comment on an interoperability requirement between AWS-3 and AWS-4.[1]

Pursuant to the Commission's rules, this notice is being filed in the above-referenced docket for inclusion in the public record. Please contact me should you have any questions.

Respectfully submitted,

Stacey Black

Cc:
Nicholas Degani
Brendan Carr

Attachments:
FCC presentation
AT&T Public Policy Blog Posting
Preliminary DoD Systems Relocation Information (AT&T view)

[1] *See Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands*, GN Docket No. 13-185, Notice of Proposed Rulemaking, 28
FCC Rcd 11479 (2013) ("*AWS-3 NPRM*").

Proposed AWS-3 Band Plan

DL Spectrum (2.1GHz)

AWS-1						AWS – 3 *2155-2180 MHz*		
A	B	C	D	E	F	CMA 5 MHz	EA 10 MHz	EA 10 MHz

A-2x10 CMA
B-2x10 EA
C-2x5 EA
D/E-2x5 REAG
F-2x10 REAG

- 2x10 MHz blocks will support higher LTE throughput and efficiencies
- Proposed package bidding

UL Spectrum (1.7 GHz)

AWS-1						AWS – 3 *1755-1780 MHz*		
A	B	C	D	E	F	CMA 5 MHz	EA 10 MHz	EA 10 MHz

A-2x10 CMA
B-2x10 EA
C-2x5 EA
D/E-2x5 REAG
F-2x10 REAG

- Will not have access to incumbent systems information until late May
- Potential delays if tech panel does not approve transition plans
- Potential 5 yr relo period with some exclusion zones remaining

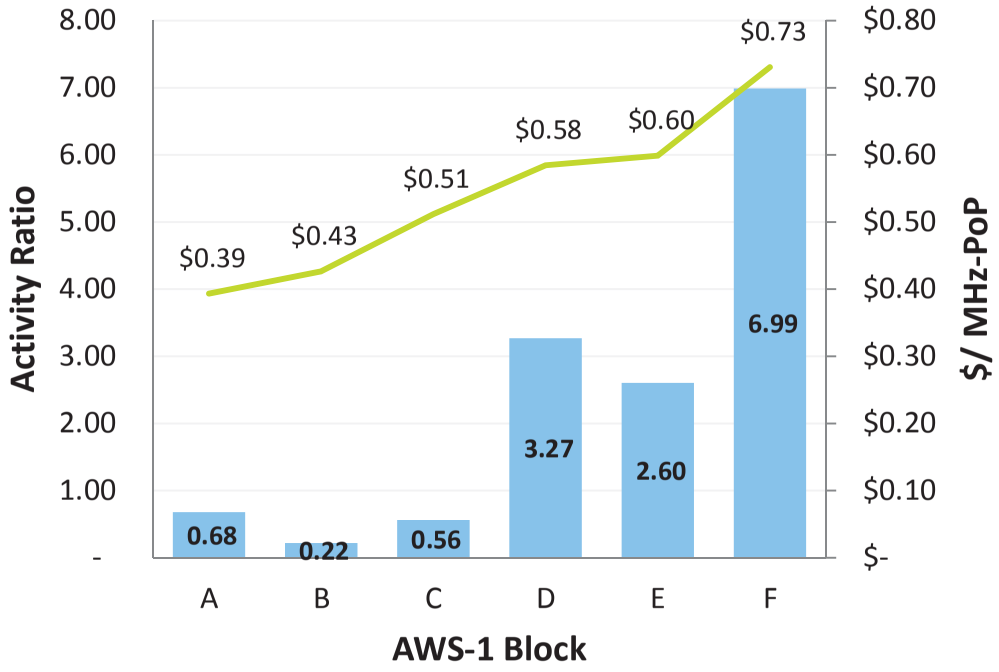
Auction 66 Bid Intensity and Pricing by Block

PWBs (net) – REA licenses:

Northeast 10 x 2: $1.3B
Northeast 5 x 2: $552M
Northeast 5 x 2: $472M

West 10 x 2: $894M
West 5 x 2: $362M
West 5 x 2: $355M

Central 10 x 2: $470M
Central 5 x 2: $134M
Central 5 x 2: $122M



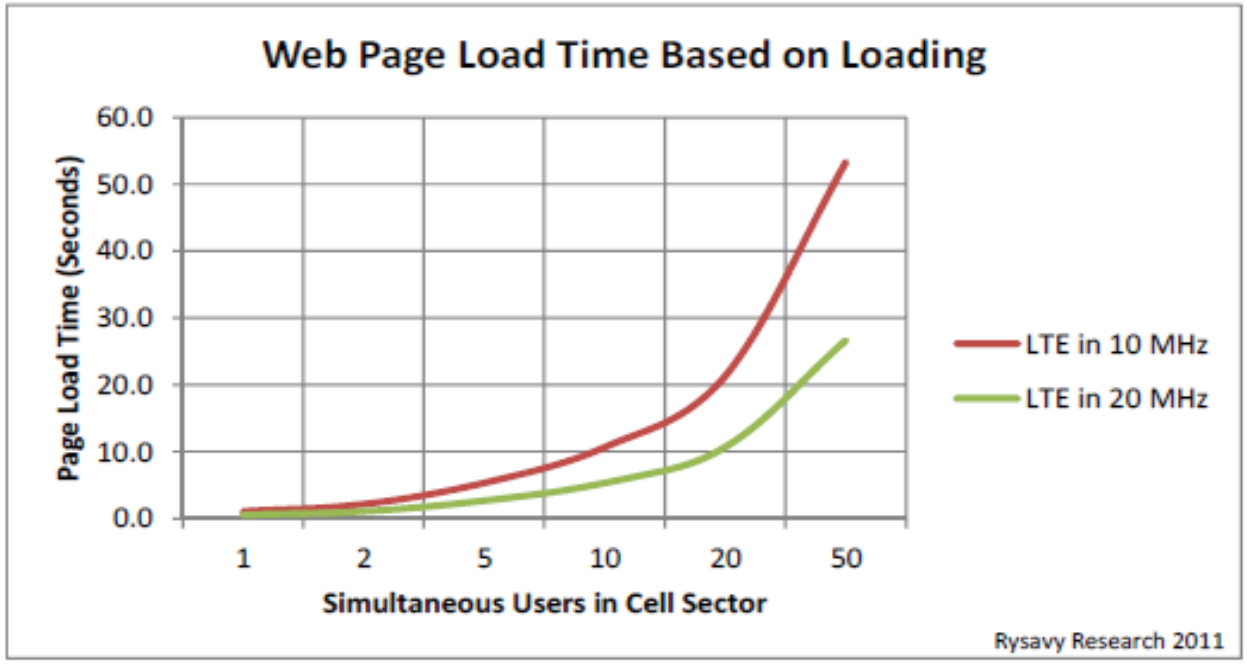
Channel size (MHz)	20	20	10	10	10	20
Market area	CMA	EA	EA	REAG	REAG	REAG

* Activity Ratio derived by dividing total supply (in MHZ-POPs) by total Round 1 demand (in MHz-POPs)

Source: FCC website

2x10 MHz Channel Sizes Are More Efficient

Amount of Spectrum	Downlink Capacity	Uplink Capacity.
10 MHz (5 MHz down, 5 MHz up)	7.5 Mbps	3.25 Mbps
20 MHz (10 MHz down, 10 MHz up)	15 Mbps	6.5 Mbps



Posted by: Joan Marsh on March 17, 2014 at 3:59 pm

A draft order for the AWS-3 auction is circulating for a vote at the FCC, and while I have not seen the item, early reports of its recommendations suggest to me that the Commission staff has got this one exactly right.

Why?

The item proposes a band plan that includes two 10 x 2 MHz EA blocks and one 5 x 2 MHz CMA block. Incorporation of the large block and license sizes will not only ensure that the FCC drives the greatest efficiencies out of this spectrum, but also that it attracts the most revenue at auction. A quick study of the AWS-1 auction is instructive on these points.

Take yourself back to 2006 – the iPhone has not yet been introduced and most of us were sporting Blackberries and pushing maybe 70 MBs of data a month, mostly doing email but little else. No Facebook postings, no Twitter feeds, no app stores chock full of data-hungry apps. Carriers generally entered Auction 66 with very little awareness of the data tsunami headed their way.

Yet the bidding activity even back then clearly favored the larger license sizes and the larger blocks — both from an activity ratio perspective and from revenue received.

Let's look first at the bidding activity ratios — a figure that attempts to capture first round bidding (or demand) against MHz offered (or supply). For example, if you are selling 100 units and have opening demand for only 100 units your activity ratio is flat at 1 and bidding competition is virtually non-existent. On the other hand, if opening bids are for 700 units against your same 100 units available, your activity ratio is 7 – which demonstrates high interest in the units and corresponding high bidding competition.

In the first round of the AWS-1 auction, the highest activity ratio by a long-shot (6.99) was for the 10 x 2 REAG licenses. The large block coupled with the large license size simply attracted the most interest (and dollars) out of the gate. On the other side of the auction, the 5 x 2 CMA licenses had little first round interest with an activity ratio of only 0.68 (which represents more supply than demand in the first round).

Final MHz/POPs revenue figures are also instructive. Again, the 10 x 2 REAG licenses topped the revenue charts at $0.73 MHz/POP, followed by the two smaller REAGs blocks ($.60 and $.58). The CMA-based 5 x 2 licenses anchored the auction at only $0.39 MHz/POP. The value of the larger block size is also apparent in the winning bids for the REAG licenses. In three regions, the 10 x 2 block sold for more than the two 5 x 2 blocks added together.

Given incumbent relocation demands (and the still unfunded FirstNet pot), a robust revenue stream from this auction is as essential as it will be in the 600 MHz auction.

The mid-band EA blocks in Auction 66 are interesting. They started with lower bidding activity than for the CMA licenses but ultimately sold for more, with the higher value attaching to the 5 x 2 block adjacent to the REAG licenses. I suspect as values went higher for the REAG licenses the bidding migrated down band with

the greater value placed on the licenses adjacent to the REAG licenses. Contiguity has value. And we do know that some of the biggest winners of these blocks (SpectrumCo, MetroPCS and T-Mobile) did not bid for them in the opening round.

The only thing that surprises me about any of this is that these patterns emerged even in a pre-iPhone era where the average customer was accommodated with well under 100 MBs/month. Average usage profiles are quickly pushing toward 1 GB and one of AT&T's most popular offers right now is a 10 GB shared bucket for four devices.

And in the broadband world in which we now live, 10 x 2 is now table stakes for an efficient LTE deployment, as a recent Peter Rysavy chart illustrates.

For these reasons, we think the FCC staff got this band plan exactly right. And the proposed 10 x 2 MHz EA licenses may be the last big opportunity for the Commission to drive spectral efficiencies through auction structure, as the 600 MHz auction structure demands 5 MHz fungible blocks.
If I had to quibble with anything, we would have preferred to see package bidding for at least one of the 10 x 2 blocks. We continue to believe package bidding addresses important exposure risks and can drive incremental revenue.

But, hey, life is not a box of chocolates, or something like that.

Appendix – DoD Systems in 1755-1780

System	Proposed Bands	5 Year Status	Completion Date	Completion Status	Notes
Fixed point-to-point	4400 – 4940 MHz 7125 – 8500 MHz	Complete	< 5 years	Relocated from 1755 – 1850 MHz	Per Mar 2012 NTIA Report
TRR	1780 – 1850 MHz 2025 – 2110 MHz 2200 -2290 MHz	Complete	< 5 years	Relocated from 1755 – 1780 MHz	Per Mar 2012 NTIA Report
ACTS	1780 – 1850 MHz 1755 – 1850 MHz	Complete	<5 Years	Sharing (limited) 1755 - 1780 MHz	1755 – 1780 MHz sharing criteria to be developed
PGMs	1435 – 1525 MHz	Complete	< 5 years	Relocated from 1755 – 1850 MHz	Per Mar 2012 NTIA Report
SATOPS, SGLS	1755 – 1850 MHz	Exclusion zones– 14-15 locations	Sharing	Sharing 1755 – 1780 MHz	Sharing IAW CSMAC WG3
AMT	1780 – 1850 MHz	In process	10 years	Relocated from 1755 – 1780 MHz	Issue
Video Surveillance	Multiple Per NTIA Report	complete	< 5 years	Relocated from 1755 – 1780 MHz	
SUAS	1780 – 1850 MHz 2025 – 2110 MHz	Complete	< 5 years	Relocated from 1755 – 1780 MHz	2025 – 2110 MHz sharing criteria to be developed
Other Airborne Systems (TTNT)	1780 – 1850 MHz 2025 – 2110 MHz	Complete	< 5 years	Relocated from 1755 – 1780 MHz	2025 – 2110 MHz sharing criteria to be developed
JTRS	1780 – 1850 MHz 1755 – 1850 MHz	Exclusions remain 6 zones	Sharing	Relocated from 1755 – 1780 MHz Except exclusions	Same exclusions as identified in CSMAC

Preliminary – Plans to be published on May 20, 2014