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By Electronic Filing
Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

Ex Parte Communication

Re: WT Docket No. 06-150; PS Docket No. 06-229; GN Docket No. 09-51; RM Docket No. 11592

Dear Ms. Dortch:

AT&T Inc. ("AT&T") submits this letter in response to a white paper by the consulting group Wireless Strategy ("Wireless Strategy Paper"), which is attached to the May 10, 2010 *ex parte* letter submitted by Sprint, T-Mobile, several 700 MHz A Block licensees, and associations with members that hold A Block licenses (the "A Block Group").[1] The Wireless Strategy Paper is the latest attempt to defend the A Block Group's remarkable proposal to override the 4G standards-setting process and mandate a new band plan for 700 MHz that would harm consumers and set the National Broadband Plan back years, delaying both roll-out and adoption of 4G services, raising carrier costs and consumer prices, degrading service quality, and relegating consumers to clunkier, costlier, and less feature-rich 4G devices. There would be corresponding harms to public safety providers, which are counting on expeditious, ubiquitous and cost-effective deployment of 4G networks and require backward compatibility to ensure universal geographic coverage in the meantime. Moreover, it would be patently arbitrary and unlawful to engage in this post-auction bait-and-switch merely to give a leg up to the A Block bidders that fully understood the challenges of providing service using A Block spectrum and that obtained that spectrum at much lower prices as a result.

Nearly two years ago, the independent 3rd Generation Partnership Project ("3GPP") standards-setting process, relying on the advice of numerous technical engineers and other industry experts, developed a band plan for this spectrum that has been thoroughly vetted and offers multiple options for dealing with the unique interference and other challenges faced by carriers seeking to develop 4G service in the 700 MHz blocks. In particular, the spectrum at

[1] *See* Letter from the A Block Group to Marlene H. Dortch (FCC), WT Docket No. 06-150; PS Docket No. 06-229; GN Docket No. 09-51; RM Docket No. 11592 (dated May 10, 2010). The "A Block Group" consists of MetroPCS Communications, Inc., Sprint Nextel Corporation, T-Mobile USA, Inc., the Rural Telecommunications Group, Inc., the Rural Cellular Association, United States Cellular Corporation, Cellular South, Xanadoo Company, Access Spectrum, LLC, and Triad 700, LLC (the "A Block Group").

issue is sandwiched between extremely high-powered broadcast services and is also in close proximity to important public safety bands. To address these challenges, the band plan gives license holders and device makers four options when choosing the bands in which they will operate: Band 12 (the lower 700 MHz A, B, and C blocks), Band 17 (the lower 700 MHz B and C blocks), Band 13 (the upper 700 MHz C block), and Band 14 (the upper 700 MHz D, and PSBB blocks). This band plan has broad industry support, including carriers, handset manufacturers, chipset manufacturers and the Consumer Electronics Association, and the entire industry has been designing networks and devices to these standards for quite some time.

The A Block Group, however, wants the Commission to slam on the brakes, insert itself at this late date into the standards-setting process, and pre-empt the 3GPP's band plan in favor of a more rigid plan designed to boost the competitive prospects of certain A Block licensees. The A Block Group claims that the interference concerns identified by the 3GPP technical experts are overblown and can be solved through the same run-of-the-mill base-station coordination that carriers engage in every day. In fact, the A Block Group's plan would be an unmitigated disaster for 4G, and would result in substantial public interest harm.

- *It would delay 4G roll-out*: AT&T and Verizon are testing and trialing devices and networks that will use Bands 17 and 13, respectively. The A Block Group's plan, if adopted, would force those carriers and their manufacturing partners to start over and switch to the new bands proposed by the A Block Group, which would require substantial additional development, testing and trials.[2]

- *It would slow consumer adoption of 4G*: Modern chipsets can support only two bands under 1 GHz for broadband. Forcing carriers to incorporate the two 4G bands proposed by the A Block Group into all 700 MHz devices would foreclose backward-compatibility with legacy mobile broadband networks.[3] Forcing carriers to use devices that devote both chipset bands to 700 MHz bands, as the A Block Group proposes, would mean that the devices would work only where LTE service has been deployed, and given that it will take years to achieve ubiquitous coverage in LTE networks, consumers would be reluctant to purchase LTE devices that work only in a few places.[4] The only way to

[2] *See, e.g.,* Verizon Comments, RM No. 11492, at ii (March 31, 2010) ("Verizon") ("There would be no better way to frustrate and delay the development of wireless broadband, and drive up costs of devices to consumers, than by taking up the Alliance's Petition."); AT&T Comments, RM No. 11492, at 10 (March 31, 2010) ("AT&T") ("AT&T, Verizon and other 700 MHz licensees have been diligently developing and initiating their business plans for 700 MHz LTE network deployment and working with manufacturers to develop handsets for those networks that are compatible with each carrier's existing spectrum holdings and business plans. Injecting an artificial requirement that 700 MHz licensee's deploy only handsets that operate in all paired 700 MHz bands will squander all of these efforts").

[3] *See, e.g.,* Verizon Comments, at 10-11; Qualcomm Comments, RM No. 11492, at 4-5 (March 31, 2010) ("Qualcomm"); Motorola Comments, RM No. 11492, at 6-9 (March 31, 2010) ("Motorola").

[4] *See, e.g.,* Verizon, at 10-11; Qualcomm, at 4-5; Motorola, at 6-9.

address this backward compatibility problem would be to add additional chipsets to handsets, but that would increase handset costs, increase handset size, and leave less room for components that support other services which consumers and public safety officials actually desire and would use (*e.g.*, GPS, Bluetooth, graphics cards, and Wi-Fi).[5]

- *It would increase the cost of 4G networks and the prices consumers pay for 4G services and reduce the quality of those services*: As Wireless Strategy concedes, to even partially address the significant interference caused by the proposed band plans, carriers would be forced to deploy extra base stations – increasing costs and delay – and even then base stations and devices would be subject to additional interference, causing lower quality, coverage gaps and higher cost services.

- *It would severely impact the Commission's public safety goals*: All of these problems – delayed deployment, lack of backwards compatibility, increased cost, costlier and less feature-rich 4G devices – would have significant impacts on public safety, which would frustrate the Commission's goals for the deployment of nationwide, interoperable public safety broadband networks.[6]

So, the choice is clear. The Commission can either (1) defer to the technical experts as to what will work best for this vitally important spectrum, or (2) accept the A Block Group's self-serving proposal and saddle consumers with delayed deployment of 4G networks, lower quality service, and devices that either will only work where 4G happens to be deployed or that are bigger, heavier, costlier, and lacking the features consumers have come to expect – with corresponding harms to public safety.[7]

[5] *See, e.g.*, Verizon, at 10-11; Qualcomm, at 4-5; Motorola, at 6-9.

[6] Notably, the National Public Safety Communications Council ("NPSTC") has made clear that public safety requires support for only Band 14 and that operations in the other 700 MHz blocks are to be considered optional. Report and Recommendations, NPSTC 700 MHz Public Safety Broadband Task Force, at 10-13 (Sep. 4, 2009).

[7] *See, e.g.*, Verizon, at ii (March 31, 2010) ("Even beginning the rulemaking the Alliance seeks, let alone adopting the rules it requests, would impede the deployment of broadband mobile devices for 4G services and impair the delivery of the benefits of 4G technology for consumers-all in direct conflict with Congress's and the Commission's objectives of promoting advanced broadband services. In any event, the Alliance has offered no credible basis for beginning the rulemaking it seeks."); Motorola, at 1 ("Motorola urges the Commission to dismiss the petition as the requested relief would unnecessarily delay the deployment of 700 MHz mobile broadband devices, including those designed to operate on public safety broadband spectrum."); Qualcomm, at 1-2 ("a grant of the relief requested in the Petition would: (1) delay any mobile broadband deployments at 700 MHz for an unspecified period of time; (2) drive up the costs of devices supporting the Lower and Upper 700 MHz bands by an unspecified amount; (3) imperil Qualcomm's ongoing development of chipsets for the Lower and Upper 700 MHz bands; and, above all, (4) unnecessarily deprive American consumers of new mobile broadband networks and devices.").

These public interest harms – none of which are or could be addressed by the proposals in the Wireless Strategy Paper – provide more than enough reason to reject the A Block Group's proposals. In fact, even the claims in the Wireless Strategy Paper that interference issues can be adequately addressed through routine base station coordination are pie-in-the-sky nonsense. The Commission has never before attempted to sandwich commercial wireless services between multiple high-powered broadcasts, and the resulting interference concerns are unprecedented. In a next-generation 4G network, there will be tens of thousands of base stations, and to rely on base station coordination to eliminate interference in the face of ever-changing, adjacent, and high-powered broadcast sources in such a complex and dynamic environment would be impossible. It would also further raise the cost of providing 4G service, because carriers like AT&T would have to build base stations in ways that seek to minimize the harms of the A Block Group's alternative band plan, rather than using their best engineering judgment to maximize efficiency and quality of service.

Equally important, the A Block Group's proposals would be unlawful. As the D.C Circuit has noted, "we start from the intuitive premise that an agency cannot, in fairness, radically change the terms of an auction after the fact." *U.S. Airwaves, Inc.* v. *FCC*, 232 F.3d 227, 235 (D.C. Cir. 2000). Here, the Commission and the standards setting bodies made clear before the auction that the A Block spectrum posed particular difficulties with respect to interference, and those difficulties are fully reflected in the fact that the A Block Group carriers won licenses in that spectrum at considerably lower winning bids. It would be patently arbitrary if the Commission were to pull a bait-and-switch on the industry now, radically altering the band plan upon which the auction was based and reducing the value of B and C Block licenses. Under the auction system established by Congress in Section 309(j), the Commission cannot accept the billions of dollars into the United States Treasury and then, after the auction, materially reduce the value of the licenses for which the carrier paid. Neither the Administrative Procedure Act nor the statutory auction scheme permits the Commission to announce an auction of Cadillacs, and then deliver Yugos – with a shrug and a "Sorry, no refunds." The Congressional scheme requires the Commission to maintain bidders' trust – otherwise, the Treasury will not capture the full value of the spectrum in future auctions, as bidders reduce their bids to account for the Commission's inconstancy.

Finally, it is now clear that this 11th hour proposal to mandate new band plans is really just an attempt to stall AT&T's and Verizon's 4G rollout plans. The A Block Group has known about all of these issues for years, and yet only now, as AT&T and Verizon finalize plans to roll out 4G networks, have the A Block Group members suddenly raised supposed "concerns" with the 3GPP band plans. The addition of Sprint and T-Mobile in the A Block Group is particularly telling, because they do not (by their own choice) hold 700 MHz licenses and they therefore have no other apparent stake in this issue other than to delay their competitors' 4G roll out plans. The A Block Group's proposals have nothing to commend them and should be promptly rejected.

The Wireless Strategy Proposal Does Not Fix The Lower 700 MHz Interference Concerns. The interference issues here are novel and require novel solutions. The 3GPP – the independent body that sets standards for broadband wireless networks and devices[8] – long

[8] The 3GPP is comprised of engineers and technical experts, representing carriers and developers of devices, chip sets, routers, and other products used in wireless broadband networks, as well as

wrestled with the 700 MHz interference issues and ultimately developed a solution that it determined could best address the issues for the technologies developed within 3GPP. For the lower 700 MHz spectrum, it adopted Motorola's April 2008 proposal to create a new band "to address possible co-existence issues with High Power TV broadcast transmission in the Channel 51 and other broadcast transmission in channel 55 (Block D) and channel 56 (Block E)."[9] The 3GPP thus created Band 17 as an alternative to Band 12, which includes the lower 700 MHz Blocks A, B, and C, to support devices operating in the lower 700 MHz B Block and C Block only.

Wireless Strategy agrees that the A Block Group's proposal to force all carriers to support Band 12 devices that accommodate the A Block would require carriers to contend with significant interference issues from all directions.[10] Channel 51, a 1 MW digital television broadcast, borders on the portion of the A Block that is designated by the 3GPP for Frequency Division Duplex ("FDD") Band 12 base station reception (698-704 MHz), and thus can cause significant interference to Band 12 base stations. The D Block (716-722 MHz) and the E Block (722-728 MHz) – two 50 kW broadcasts – border on the portion of the A Block that is designated by the 3GPP for FDD mobile device reception (728-734 MHz), and Wireless Strategy concedes that these D and E Block transmissions can result in Band 12 "receiver overload."[11] The D and E Block transmissions can also produce out of band emissions ("OOBE") that interfere with Band 12 base stations, and the D Block and E Block also border on the portion of the C Block designated by the 3GPP for FDD Band 12 base station reception (710-716 MHz), resulting in further potential base station interference.[12] Each of these sources of interference can result in blocked, dropped, and degraded transmissions.

Wireless Strategy's answer to all of these significant interference concerns is that they can be solved through run-of-the-mill base station coordination, such as "base station location, sector orientation, antenna downtilt, and base station filtering."[13] But this is pure speculation. The interference issues here are completely unprecedented. Never before has licensed mobile spectrum been directly adjacent to high-powered broadcast sources, let alone sandwiched between multiple high-powered broadcasts. To be sure, coordination will always play an

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regulators from around the world. The purpose of the 3GPP is to set industry standards to facilitate the necessary coordination among the myriad industry participants in the development of broadband wireless services.

[9] Motorola, TS36.101: Lower 700 MHz Band 15 (now Band 17), 3GPP TSG RAN WG4 Meeting #47, RA 081108 (April 5-9, 2008) ("This document is presented as a discussion paper to evaluate the need for a new operating band to support block B and block C in the lower 700 MHz band.").

[10] *See, e.g.,* Wireless Strategy Paper, at 7 ("The lower band [proposed by the A Block Group] has three potential sources of interference which may impact device filter design: the lower A block boundary with digital television Channel 51 at 698 MHz; the lower C block boundary with the lower D block at 716 MHz; and the lower E block with the lower A block at 728 MHz").

[11] *Id.,* at 9.

[12] *Id.,* at 8-9.

[13] *Id.,* at 9.

important part in addressing interference concerns, and AT&T engages in significant coordination in siting and placement of transmitters to reduce the potential for interference. But to suggest, as Wireless Strategy does, that such base station coordination is sufficient by itself to address the unique and quite substantial interference concerns for Band 12 is irresponsible.

Indeed, even if costs, delays and other irreducible consumer harms could be ignored, it is absolutely clear in this case that coordination tactics alone will be unable fully to address the multiple interference concerns, and that sole reliance on such measures would cause significant harm to consumers. First, Band 12 is subject to interference from all sides. Attempting to address all of these sources of interference simultaneously through base station siting, tilts, orientations, and filtering simply will not be possible in many areas, particularly in more urban environments where there are more base stations and more high-powered Channel 51 and D and E Block transmitters – siting a base station to minimize interference from one of these high-power sources may well exacerbate interference from one of the others.

Second, providers face significant limitations on where they can place base stations. There are a very limited number of locations that are suitable for a base station, especially in urban areas like New York and Chicago. In many instances, locations are not suitable for a base station because of community issues (*e.g.*, a residential neighborhood, community resistance). Even where potential sites exist, local authorities often preclude siting, or it will take months or years to obtain approval for such siting. Consequently, while locating or relocating a base station may sound like a simple task, it actually is a multi-year exercise that would not quickly or easily reduce interference problems from high power broadcasts.

Third, Wireless Strategy ignores that the next-generation 4G networks will require tens of thousands of base stations to provide national coverage, and that there are many Channel 51 and D and E Block transmitters already in place or planned, with many more likely as those services continue to develop and expand. Coordinating base station placement among so many providers and so many base stations would be a logistical nightmare even in a static environment. But in the real world, where providers are constantly adding and re-locating base stations to improve service and to provide additional services, such coordination approaches a practical impossibility. Every new or relocated base station would trigger a series of other necessary new base stations or re-locations to avoid interference. This is especially problematic given today's spectrum shortages and the need for mobile wireless providers to increase the efficiency with which they use such spectrum, in large part, by adding more base stations.[14]

Fourth, Wireless Strategy fails to consider the impact on *customers* of its proposed coordination approach. Constantly moving and adjusting base stations and seeking new siting approvals is an extremely expensive process. Forcing mobile providers to do so would divert money away from investment in innovation and expansion and could result in higher prices. Further, sole reliance on coordination would result in sub-optimal base station siting, tilt and orientation that will reduce coverage and quality of service. It would also create substantial barriers to entry and expansion, because new providers would not be able simply to locate and position their receivers and transmitters in the most economical manner, but would instead have

[14] To make matters worse, as discussed above, under the A Block Group proposal, providers would have to locate transmitters at or very near to D and E block transmitters, which further limits flexibility to coordinate with Channel 51 transmitters.

to find the gaps left in the existing wireless landscape where their new equipment could operate with minimum interference. All of this would harm consumers through less coverage, lower quality services (more blocked/dropped transmissions and lower throughput), less investment in innovation, and potentially higher prices.

Wireless Strategy contends that its coordination strategy makes sense because, according to Wireless Strategy, in one instance (at the border between the C and D Blocks at 716 MHz), owners of the C and D Block spectrum are relying solely on coordination to address interference with "no guard band."[15] First, that is false. In fact, AT&T has implemented a 1.25 MHz guard band at the top of its lower C Block spectrum to supplement the coordination measures needed to reduce interference to and from the D Block transmissions, and even with that guard band and with base station coordination, AT&T may still experience interference from D Block transmissions and increased costs. Second, the interference issues at the border of the C and D Blocks are not as severe as those that exist at the Channel 51/A Block border (Channel 51 transmits at 1 MW, creating far greater potential for interference with base stations than the D Block's 50kW transmission) and E Block/A Block (where the E Block transmission is also interfering with the mobile devices, not just base stations). Third, even if AT&T relied solely on coordination with D Block providers and the issues at the D Block/C Block border were the same as those at the other borders at issue here, that hardly supports Wireless Strategy's proposal that AT&T and others be forced to rely solely on coordination to address interference concerns with *all* of their spectrum neighbors – a far more complex and costly task – particularly where there are feasible alternatives, such as using Band 17 to reduce such interference.[16]

In all events, even if Wireless Strategy's proposals could address interference between base stations, they would not address the significant concerns with *device* interference. Wireless Strategy acknowledges, for example, that base station transmissions from the D and E Blocks can interfere with Band 12-enabled *devices*: "[i]f an A, B, or C block device closely approaches the D or E block transmitter, and the desired A, B or C block signal is weak, then interference may result."[17]

Wireless Strategy's only answer to this is, again, base station coordination. According to Wireless Strategy, this type of interference is merely a "near-far interference problem" – *i.e.*, interference may exist only where the Band 12 signal is weak, the wireless device increases its

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[15] Wireless Strategy Paper, at 8.

[16] One A Block Group member, US Cellular (together with equipment manufacturer Huawei), recently submitted a contribution to 3GPP on these interference issues. That contribution recognizes that there are still many technical issues and challenges with Band 12, with no suggestion that such issues could be adequately addressed solely through carrier coordination. Huawei/U.S. Cellular, *Band 12: A Discussion on the Issues and the Possible Solutions*, Agenda Item 8.1, 3GPP TSG RAN WG4 Meeting #55, Montreal, Canada (May 10-14, 2010). Moreover, the collaboration between US Cellular and Huaweii undermines the entire premise of the A Block Group proposals that, absent the regulation they propose, A Block licensees will be unable, through 3GPP and other technical collaboration with device manufacturers and market arrangements to design, obtain and deploy handsets that address the unique A Block/Band 12 concerns.

[17] Wireless Strategy Paper, at 9.

efforts to receive it, and then comes into contact with the D or E Block transmission.[18] Wireless Strategy asserts that this issue can be addressed by making sure that there are no weak signals near D and E Block transmitters through placement of Band 12 base stations (transmitters) at or very near existing E and D Block transmitters.[19]

Providers operating in the lower D and E Blocks, however, are authorized to – and do – transmit at much higher power levels than do 4G providers in Band 12. For example, a broadcast system deployed in the lower 700 MHz D and E Blocks typically has Effective Radiated Power ("ERP") transmission levels of about 77 dBm, with towers mounted at 300 meters producing a transmission cell radius of about 15 kilometers, or larger. By contrast, a typical 4G system operating in Band 12 will transmit at only about 55-58 dBm ERP with antennas mounted at about 30 meters resulting in a 5 to 8 kilometer cell radius for two-way mobile services. Therefore, even with 4G base stations located directly at the D and E Block base stations, the 4G signal will become weak relative to the high power D and E Block transmissions well within the 4G transmission radius. Consequently, in those areas, the 4G device will still be subject to significant interference, including degraded throughput and blocked or dropped calls and data transmissions.

The only way for providers using Band 12 to address these significant base station-to-device interference issues would be to add multiple *additional* base stations within the D and E Block transmission radius to ensure that the 4G signal levels remain sufficiently high within the entire D and E Block transmission radius to avoid significant interference. But adding multiple additional Band 12 base stations would be costly, and, as noted above, in many areas – particularly in urban areas – it may not be possible to obtain the required tower siting approvals.

Wireless Strategy also fails to address the substantial potential interference from Band 12 devices to Channel 51 receivers. Channel 51 receivers (*i.e.,* television receivers) are highly susceptible to interference from strong signals and out of band emissions from devices operating in adjacent and nearby spectrum, because television receivers typically lack significant interference protections. This raises significant potential interference from 4G handsets in the A Block operating in close proximity to the Channel 51 television receiver. Wireless Strategy's answer to these interference concerns is that the Commission already requires A Block spectrum users to implement certain minimum safeguards to help protect against interference with televisions.[20] But those are only minimum safeguards. As 4G devices become more prevalent, it will be increasingly important for 4G providers that operate in spectrum adjacent to Channel 51 to implement protections that exceed the minimums required by the Commission's rules to ensure a high quality customer experience. Band 17 devices provide this additional protection by placing additional attenuation to out of band emissions from the bands in which they operate and the bands in which Channel 51 devices receive.

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[18] *Id.*

[19] *Id.,* at 9 ("Co-location or near-location of base stations successfully avoids this interference mechanism by limiting the extremes of signal strengths between the two systems").

[20] *See id.,* at 8 (the Commission's "rules provide for clear options for the A block licensees to protect the channel 51 contour without applying stringent filtering to the device front end.").

Wireless Strategy also overlooks interference that can arise due to intermodulation of Channel 51 and D and E Block transmissions with a Band 12 device's transmitted signal. All of these signals can mix in the Band 12 device receiver and adversely affect its ability to receive its intended signal. Such interference can cause blocked or dropped transmissions, and would very likely require Band 12 devices to operate at higher power, thus raising battery life issues, and creating further potential for interference from the device to Channel 51 receivers.

Finally, Wireless Strategy ignores significant OOBE interference that Channel 51 transmissions can impose on Band 12 devices. Devices operating in Band 12 will transmit in the lower 700 MHz spectrum immediately adjacent to the Channel 51 transmissions. Consequently, out of band emissions from Channel 51 transmissions will necessarily interfere with the reception of the adjacent Band 12 transmissions, requiring the devices to operate at higher power and lower throughput (and may in some instances result in blocked or dropped calls).

The Wireless Strategy Proposal Does Not Fix The Upper 700 MHz Concerns. There are equally insurmountable challenges to the proposal to force carriers to operate in a new upper 700 MHz band supported by Wireless Strategy. First, the new upper 700 MHz band plan would reduce the spacing between up- and down-link bands – called the "duplex gap" – to only 8 MHz. But the surface acoustic wave ("SAW") filters currently used in 3G handsets are designed to require a duplex gap of at least 10 to 12 MHz. Wireless Strategy points to a new type of filter being examined by Avago that may support lower duplex gaps. But to AT&T's knowledge, no such duplexers are currently being marketed by Avago, and it is unclear when or whether it might ever do so, and even then it is unclear how those filters would perform in the real world. Moreover, standards bodies are always reticent to adopt standards that only one manufacturer can meet.

Second, the new upper 700 MHz band plan would create significant concerns with OOBE interference with the public safety narrowband blocks (769-775 MHz and 799-805 MHz). The Commission's rules currently have far more stringent OOBE protections for public safety spectrum than for commercial spectrum (about 14 dB more), and the Commission recently issued a public notice asking whether it should further increase OOBE limits to further protect the public safety narrowband blocks.[21] Under the 3GPP band plan, there is at least 11 MHz separation between Band 13 (C-Block) transmitters and the public safety narrowband blocks, which greatly simplifies C-Block operators' ability to comply with public safety OOBE standards. This is an issue that poses unique challenges in the upper C Block, because operators using that spectrum must support *any* device. But the A Block Group and Wireless Strategy propose to create a new giant upper block that combines Band 13 (Upper C Block) with Band 14 (Upper A, D, and public safety broadband blocks) that has only 1 MHz separation from the public safety narrowband blocks, raising significant questions as to how or whether devices operating in that new band can comply with the OOBE protections for the public safety narrowband spectrum.

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[21] *See* Public Notice, *Public Safety And Homeland Sec. Bureau Seeks Comment On Interoperability, Out Of Band Emissions, And Equip. Certification For 700 MHz Pub. Safety Broadband Networks*, PS Docket No. 06-229, DA 10-884, at 4 (May 18, 2010).

Third, the new upper band would make it difficult, if not impossible, for providers operating in that band to incorporate assisted Global Satellite Positioning system (GPS) receivers into handsets. GPS receivers operate at 1575.42 MHz and are very sensitive to interference. The Commission, therefore, has designated the frequency range 1559-1610 MHz as a "window" needed to protect the sensitive GPS receivers from interference. As part of these protections, the Commission has adopted restrictions on transmitters operating in the 779.5-805 MHz range, because those transmissions radiate second harmonic emissions in the 1550-1610 MHz range.[22]

Providers that seek to provide mobile devices which incorporate voice, data, and GPS services on a single chip must deal not only with *radiated* secondary harmonic interference issues, but also *conducted* second harmonic interference, *i.e.*, second harmonic interference from the 700 MHz chipset that are received by a co-located GPS receiver due to leakage from the shielding and leakage through power and data busses internal to the device. Under the current band plan, Band 13 providers face only a limited problem with conducted second harmonic interference because the potential significant interference exists only within a relatively small portion of Band 13 (the 779.5 MHz to 787 MHz range). But the new upper 700 MHz band proposed by the A Block Group would significantly expand the potential for conducted second harmonic interference to GPS because the new band would allow transmissions in the 788-798 MHz range (the upper D Block), which would also produce conducted secondary harmonic emissions that can interfere with GPS chipsets.

The Proposed Rules Would Be Unlawful In Multiple Respects. To begin with, the rules would be unlawfully retroactive. As the D.C Circuit has explained, "we start from the intuitive premise that an agency cannot, in fairness, radically change the terms of an auction after the fact." *U.S. Airwaves, Inc*, 232 F.3d at 235. The handset rules proposed here would fundamentally change the basis on which the 700 MHz auction was conducted after the fact, and in so doing, would radically alter – and reduce the value of – the licenses that were auctioned. Courts have called this retroactivity "secondary retroactivity" – *i.e.*, although the proposed rules would apply only to future use of handsets on this spectrum, they would nonetheless radically change the expectations on which past actions were taken – and the courts have made clear that secondary retroactivity is reversible error where the agency acts arbitrarily or unreasonably. *See Celtronix Telemetry, Inc.* v. *FCC*, 272 F.3d 585, 589 (D.C. Cir. 2001); *U.S. Airwaves*, 232 F.3d at 233 (reviewing court must review such rules to see whether they are reasonable "both in substance *and* in being made retroactive" (emphasis added)).

The retroactivity proposed here is manifestly unreasonable. The 700 MHz band plan, and the characteristics and challenges of each of the different blocks, were well understood in advance by all bidders. The Commission repeatedly emphasized the particular challenges that would face any bidder that won the A Block spectrum. For example, as early as 2002, the Commission expressly pointed out that it expected "bidders for this [A Block] spectrum" to "take into account" these issues to "develop their business plans, services, and facilities accordingly."[23] Predictably, as a result of these significant interference concerns, lower A Block licenses fetched

[22] *See* 47 C.F.R. § 27.53(f).

[23] Report and Order, *Reallocation and Service Rules for the 698-746 MHz Spectrum Band* (*Television Channels 52-59)*, 17 FCC Rcd 1022, ¶ 23 (2002).

far lower prices than the licenses for other 700 MHz spectrum that were not adjacent to the digital television broadcasts.[24] And all bids were made against the backdrop of the Commission's settled "flexible use" policies that allow winning bidders to design their networks, services, and device offerings in whatever ways they believe will best serve their customers.[25] Accordingly, even if A Block licensees will have greater difficulty, or face higher costs, in developing handsets for use on the A Block, those disadvantages are fully reflected in the sharply lower prices they paid to obtain the A Block licenses. Under these circumstances, it would be obviously arbitrary to promulgate post-auction regulations that are specifically designed to reduce the opportunities and value associated with the B and C Block licenses in a naked effort to increase the value and opportunities associated with the A Block licenses – especially when the Commission and Courts have repeatedly held that the legitimate concern under the Act is to safeguard competition itself, not to help individual competitors at the expense of others.[26] And here, of course, the "others" who would bear that extraordinary expense would include not just B and C Block licensees, but consumers and public safety.

In this regard, a system of auctions is fundamentally different from the prior regime, in which licenses were distributed essentially free of charge through comparative hearings or lotteries. A system of auctions creates vastly greater reliance interests on the part of licensees – and vastly greater Commission responsibility not to pull a bait and switch on auction winners. The Commission cannot reasonably accept billions of dollars into the United States Treasury and

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[24] In Auction 73, A block licenses sold for an average of $1.13 per MHz POP, compared to an average of $2.65 per MHz POP paid for B block spectrum. *See* Blair Levin *et al.*, Stifel Nicolaus, *Special Focus: The Wireless World After 700 MHz*, at 2, 4, Washington Telecom, Media & Tech Insider (Mar. 28, 2008).

[25] In this regard, it is an open question as to what technologies will ultimately be deployed in the 700 MHz bands. Certainly, WiMAX and other standards-based radio technologies could be used under the FCC's rules. Similarly, other propriety technologies could be the choice of other licensees. Furthermore, given that the C Block spectrum in the Lower 700 MHz band is allowed to transmit ERP up to 50 kW, it is also conceivable that both parts of the Lower 700 MHz C Block could be used for broadcast transmissions similar to Media-FLO or DVB-H. All of these options are allowed through the flexibility and technology neutrality afforded by the FCC's rules, but are threatened by the A Block Group's proposals.

[26] *In re Applications of Craig O. McCaw, Transferor, and American Tel. & Tel. Co., Transferee*, 10 FCC Rcd. 11786, ¶ 9 (1995) ("[T]he Communications Act requires [the Commission] to focus on competition that benefits the public interest, not on equalizing competition among competitors"); *SBC* v. *FCC*, 56 F.3d 1484, 1491 (D.C. Cir. 1995) ("[t]he Commission is not at liberty . . . to subordinate the public interest to the interest of equalizing competition among competitors") (internal quotations omitted); *Applications of Motorola, Inc. for Consent to Assign 800 MHz Licenses to Nextel Commc'ns, Inc.*, 10 FCC Rcd. 7783, ¶ 20 n.58 (public interest requires promoting competition, not "equalizing competition among competitors"); *United States* v. *W. Elec. Co.*, 969 F.2d 1231, 1243 (D.C. Cir. 1992) (to the extent that parties contend that communications laws "should be interpreted to aid the minnows against the trout, such as AT&T and MCI (effectively devaluing the investments those companies have made in extending their CCS networks to more LATAs), they are simply wrong").

then act as if it has unfettered freedom to devalue those investments in the name of the "public interest" – or, as here, in the private interests of particular competitors. Here, the Commission and the industry spent years formulating a band plan that the Commission touted as offering varying qualities of 700 MHz spectrum, including "premium" lower B Block spectrum that is far better insulated from high-power broadcast sources than the "basic" lower A Block that is adjacent to those high-power broadcasts. There is no conceivable non-arbitrary basis upon which the Commission could now tell those that paid a premium for the premium blocks that it has decided to degrade them to basic quality – thereby delaying, degrading and increasing the cost of their 4G service offerings.

Such arbitrariness would undermine the entire Congressional scheme, because a system of auctions cannot function properly if licensees bear unbounded risk of subsequent regulatory actions that may radically reduce the value of the licenses. Indeed, Congress expressly required the Commission to ensure, "in the scheduling of any competitive bidding under this subsection, an adequate period is allowed . . . after issuance of bidding rules, to ensure that interested parties have a sufficient time to develop business plans, assess market conditions, and evaluate the availability of equipment for the relevant services." 47 U.S.C. § 309(j)(3)(E) (emphasis added). This provision reflects Congressional understanding that an auction must occur on the basis of expectations concerning the "equipment for the relevant services" that are clear and not subject to material change by the Commission at the behest of disgruntled auction participants that regret their own competitive bidding choices. Moreover, the Treasury would have to accept a systematic "capriciousness discount" in all future auctions if the Commission could force radical, unforeseeable changes on licensees in the value of the licenses they win by commandeering the technical standard-setting processes for (misguided) policy purposes. For these reasons, courts have consistently indicated that post-auction changes that unreasonably reduce the value of the license – as the A Block Group's proposal so clearly would – are arbitrary.[27]

There are at least two additional legal infirmities in the A Block Group's proposal. First, auctions in which carriers pay billions of dollars in consideration for spectrum licenses create contracts with the government, and radical regulatory changes that undermine the value of the licenses would constitute breach of contract. *Winstar* v. *United States*, 518 U.S. 839 (1996) (government may be liable for breach of contract caused by change in law by Congress). Although it is clear that the winning bidder assumes a degree of risk with respect to future regulatory changes that may affect the contract, especially as it relates to changes of general applicability,[28] there is a line the government cannot cross. And post-contract Commission

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[27] *See, e.g., Celtronix Telemetry, Inc.* v. *FCC*, 272 F.3d. 585, 589-90 (D.C. Cir. 2001) (rule change not arbitrary in part because no suggestion "that rule change would inflict material injuries on any set of licensees" or that prior rules "would have induced reliance, either in the form of higher bids by licensees at the bidding stage . . . or of any different conduct thereafter"); *Mobile Relay Associates* v. *FCC*, 457 F.3d 1, 10 (D.C. Cir. 2006) (retroactivity not unreasonable in part because Commission gave special permission for remedial actions that eliminated almost all harm); *U.S. Airwaves*, 232 F.3d at 235 ("the rule might still be arbitrary and capricious if . . . it is sufficiently unfair").

[28] *See Celtronix*, 272 F.3d at 590; *see also In re NextWave Pers. Commc'ns*, 200 F.3d 43, 60-62 (2d Cir. 1999) (acknowledging that wireless auctions do create contracts).

regulations aimed specifically at altering the defining characteristics of the spectrum it auctioned would, under any standard, constitute a material change in the bargain (and, again, would undermine the entire auction scheme as established by Congress in § 309(j)). In this regard, the A-Block Group's proposal is not materially different than the Commission offering clean 700 MHz spectrum at auction and then telling the winning bidders they need to accommodate incumbents in the spectrum, creating interference.[29]

Finally, the proposed regulations would also exceed the Commission's narrow authority relating to handsets for wireless services. It has been settled for decades that handsets are not common carriage and that the Commission has no authority to regulate handset manufacturers.[30] Moreover, although the Act gives the Commission limited authority to manage the spectrum by issuing rules to control interference, those sections expressly provide that the Commission's authority should be used to *reduce* interference.[31] The proposed regulations here would stand the Commission's statutory mandate on its head, because the A Block Group's proposal would consciously produce *increased* interference in the B and C Blocks – and solely for the illegitimate purpose of insulating individual competitors from the pressures of competition and their own spectrum bidding choices.

Pursuant to Section 1.1206 of the Commission's rules, an electronic copy of this letter is being filed for inclusion in the above-referenced docket.

Very truly yours,

/s/ Joseph P. Marx

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[29] Post-auction changes that severely diminish the value of the licenses would also constitute a taking. Although one court has held that the Takings Clause does not apply to auctioned licenses, on the theory that licensees do not "own" the spectrum they hold and thus have no "property interest" at stake, *Mobile Relay Assocs.* v. *FCC*, 457 F.3d 1, 12 (D.C. Cir. 2006) (citing in support two cases decided in 1940 and 1975 – in the era in which licensees paid nothing for the use of the spectrum). The better view, however, is that a leasehold interest in the spectrum does constitute a cognizable "property" interest (as leaseholds in other contexts do). *See Bell Atl. Tel. Cos*. v. *FCC*, 24 F.3d 1441, 1445 (D.C. Cir. 1994) (construing statute to avoid constitutional takings infirmity and vacating physical collocation rules).

[30] *See, e.g.,* Report and Order, *Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Commc'ns Sys.; and Amendment of Parts 2 and 22 of the Comm'n's Rules Relative to Cellular Commc'ns Sys*, 86 F.C.C.2d 469, ¶¶ 58-61 (1981).

[31] 47 U.S.C. §§ 302a & 303(f) (Commission has authority to "make such regulations not inconsistent with law as it may deem necessary to *prevent* interference between stations" (emphasis added)).