

Written Statement of
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on behalf of
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Before the

COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION

UNITED STATES SENATE

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I. INTRODUCTION AND SUMMARY

Chairman Inouye, Vice Chairman Stevens, and distinguished members of the Committee, thank you for the opportunity to address the vital issue of public safety communications and how the upcoming radio spectrum auction can solve this life-threatening problem. I am a partner in Frontline Wireless, LLC, which was founded by Haynes Griffin (CEO), Janice Obuchowski (Chairman), and Reed Hundt (Vice Chairman). I am pleased that Ram Shriram, who worked with me at Netscape and is now on Google's board, John Doerr, an accomplished Silicon Valley investor whose vision helped make companies like Netscape a reality, and Mark Fowler, Chairman of the FCC during the Reagan Administration, also have joined me as partners in Frontline. Together, we believe the upcoming 700 megahertz auction presents a once-in-a-generation opportunity for building a nationwide, interoperable public safety network while also enhancing competition and innovation in wireless broadband. Haynes Griffin and I were there in the early days of cellular and we both know how to make wireless ventures work. I've known former FCC Chairman Reed Hundt for over fifteen years and most

recently co-chaired with him a study group on the future of public broadcasting for PBS. And I'm delighted to be teamed up with Janice Obuchowski, who has played an important role in tackling public safety's needs as former head of the NTIA and U.S. Ambassador to the World Radiocommunication Conference.

We as a nation are coming to the end of a long road on the transition to digital television ("DTV"). This Committee has taken a leadership role in pushing our country forward to use the precious radio spectrum freed up by the DTV transition more efficiently, and to make that spectrum available for commercial and public safety use. The good news is that now some 60 megahertz of that spectrum can be used to address the vital needs of our country.

I am here today out of frustration, and out of hope. The frustration comes from the fact that six years after 9/11 and nearly two years after Hurricane Katrina, we are no closer to giving our brave first responders the basic communications tools they need to save lives and respond to disasters. In the wake of Katrina, I was honored to serve as chair of Governor Haley Barbour's Commission on Recovery, Rebuilding and Renewal in Mississippi. Through a series of town hall meetings and conferences with government officials immediately in the wake of Katrina, our recovery commission developed a comprehensive list of recommendations for rebuilding the Gulf Coast and better preparing for future hurricanes in that region. My role on the commission exposed me to the shared frustration among police officers, firefighters and search and rescue teams who were forced to resort to using human runners in order to coordinate an emergency response to the largest natural disaster in our nation's history. This frustration runs deep because it was the same problem - the same problem! - that the Nation witnessed in the wake of the 9/11 disaster.

The hope comes because we as a Nation have a tremendous opportunity to solve public safety's needs for a truly interoperable network. The hope comes because for the first time there is a concrete proposal to finance a nationwide, interoperable, broadband network that does not require legislation, does not require a \$30 billion appropriation from the federal or state government, and does not delay the important 700 megahertz auctions. The hope comes from the fact that by working together - the public and private sectors - can solve the problem of public safety interoperability.

After months of careful planning with leaders in the public safety community, I am pleased to tell this Committee that while we have not completely agreed on all details of how the Frontline wireless business can serve public safety, we agree on many of the essential features. I want to give you a real time update on what Frontline has discussed with representatives of the public safety community, which is a heterogeneous group of hundreds of different local and regional police, fire departments and other first responders. Working with their representatives and after spending hundreds of hours in meetings all around the country, we have a Plan that includes the features most important to that community, namely:

- (1) in addition to the 24 megahertz of spectrum already set aside for public safety, a sixth of the spectrum that will be sold for commercial use at auction will be designated as an E Block for both emergency and commercial service;
- (2) the E Block will go to the highest bidder for that block of spectrum;
- (3) the FCC should create a national public safety licensee ("NPSL") to make various decisions on behalf of the larger public safety community, including negotiation of a design and spectrum sharing agreement with the E Block licensee;

(4) the license to use the E Block for commercial purposes will carry certain conditions subsequent that must be performed in an orderly fashion, including the duty to reach an agreement with the NPSL about the design of the network so that it will meet the specifications of the public safety community;

(5) in order to assure that the private sector builds for free a network that can serve public safety all across the country, the E Block license will carry the obligation to build a network that covers at least 99 percent of the U.S. population;

(6) public safety will participate in the design and operation of the network that will provide service across the E Block and the public safety spectrum;

(7) local public safety agencies will have the right to build interim public safety systems while the national shared network is being constructed;

(8) only the E Block licensee will have the duty to negotiate with the NPSL as to the terms discussed above;

(9) the NPSL will be free to decide whether it wants to work with the E Block licensee or seek out a different spectrum licensee or some other firm that lacks spectrum; and

(10) the network for the public safety should be interoperable at the choice of public safety – if public safety users want to connect to each other through this single national network they can. For example, if different units need to work together to respond to a crisis across jurisdictions, they can use the Frontline network to communicate vital information to each other in real time with high speed connectivity.

We have not agreed on certain other provisions. For instance, Frontline does not believe that the FCC can delegate the selection of the auction winner to an outside party, as would happen if the FCC gave the right to the NPSL to veto issuance of the E Block license to

the highest bidder in the auction. The E Block licensee should be bound by an FCC arbitration of any disputes arising from the negotiation of the network sharing agreement, and to charge the arbitrator with the duty to determine what is commercially and technically reasonable. While in my experience all these issues can and should be resolved relatively quickly in the negotiations between the NPSL and the E Block licensee, the help of this Committee, other Members of Congress and the FCC may well be helpful in achieving such resolution. Furthermore, some issues can well be resolved after the Commission reaches its conclusion on the service rules later this month.

Overall, the good news is that Frontline and the public safety community appear to have reached a consensus that a public/private partnership should be part of the 700 megahertz auction. We also note with pleasure that the consensus is reflected in a recent resolution of the Southern Governors' Association, which urged the FCC to "apply specific public safety requirements to at least 10 MHz of the spectrum currently scheduled to be auctioned." The State of Hawaii has perhaps stated it best: "the Frontline proposal seems to be an excellent compromise between various proposals for Commercial/Public Safety sharing of broadband resources."

The upcoming 700 megahertz auction marks an historic moment. If the FCC acts wisely, it can solve public safety's deadly deficit in interoperable and broadband communications. If it adopts the right set of rules, it can achieve, at no cost to taxpayers, the interoperable broadband network that has yet to be delivered after 9/11 and after Katrina. Think about it: fire fighters rushing into a burning building could access a video feed of the inside and share that with the rescue squad as they plan how to save lives - without worrying if their wireless devices were compatible. The FCC also can use this historic opportunity to infuse the

broadband market with a much-needed dose of competition. This hope of finally addressing public safety's needs will not be met, in my opinion, if the FCC simply decides to turn this spectrum over to the national incumbent carriers, who have shown little desire to respond to public safety's dire needs.

Working with the public safety community, high-tech companies and public interest organizations, Frontline has put before the FCC a proposal that would require the winner of one slice of the upcoming 700 MHz auction to build a network that would serve public safety's needs as well as its commercial customers. If the FCC adopts this proposal, whichever company - whether Frontline or someone else - wins this spectrum, it will build for free a nationwide, interoperable broadband network designed to serve public safety while covering an unprecedented 99% of Americans.

The proposal is made economically viable because, outside of critical emergencies, the winning bidder of the E Block will be able to make efficient use of unused capacity on the public safety spectrum. But when an emergency results in high-capacity demands by public safety officials, they will get immediate access to additional spectrum on the commercial system. Before running Netscape, I was President and COO of McCaw Cellular, and built that system into a nationwide network before selling it to AT&T. I know what it takes to build and operate a network that meets customers' needs. The Frontline Plan represents the best in public/private partnerships. It uses the private sector to solve a crucial public need while generating the revenues necessary to attract private capital.

The 700 MHz auction also has tremendous potential to foster competition and innovation in the broadband and wireless market, which is rapidly consolidating. The choice before the Commission is whether it should take all the spectrum being freed-up by the DTV

transition and turn it over to the major incumbents, who have every incentive to simply warehouse their spectrum; or whether it should take a small part of it - we propose just 10 MHz - and use that spectrum to help public safety and create a vitally needed platform for innovation and competition. The Commission can go a long way to lower the significant barriers to competition and innovation in wireless communications by designating the commercial side of the shared E Block network for sale of services to all comers on what is effectively a common carrier basis. We propose, and have asked the FCC to require, the E Block licensee to build a new network with advanced fourth generation capabilities and to sell this network capacity on an open basis. To me, “open” means the following:

- open to all customers, whether end users, device makers, or other service providers;
- open to all communications protocols to the degree technically feasible, and with our software-defined radio plans Frontline intends to advance the limits of technical feasibility beyond anything seen to date in America;
- open to all lawful content, meaning we will not discriminate against music or software just because we do not own or control it;
- open to as many combinations of spectrum as are technically and commercially reasonable, meaning that our customers can use Frontline spectrum as well as any spectrum they may own, just as public safety will we hope agree to use its spectrum in conjunction with us.

Although the E Block represents only one-sixth of the spectrum to be auctioned, it will create a nationwide broadband license holder fully motivated to sell wireless network services to, among others: (a) regional wireless providers until now prevented from offering a

nationwide service, (b) rural wireline providers seeking efficient ways to deliver to their customers the same high-speed broadband options available in urban and suburban communities, (c) public utility companies in need of secure and robust wireless communications, (d) companies needing additional capacity to offer a “third pipe” into the home, and (e) manufacturers of new mobile devices. This business approach overcomes the rational but unhealthy incentive of today’s vertically integrated wireless incumbents to *refuse* such access whenever it could compete with their own (or their wireline affiliates’) myriad retail offerings. This point is developed further in the attached white paper by our distinguished economists from Stanford University.

This Committee should encourage the FCC to take the right steps to put America on a new path, one that delivers to public safety an interoperable network and to consumers multiple choices for broadband service. The large wireless incumbents with an economic interest in the status quo are loudly stating that public safety “has enough spectrum.” That is not true. As our experience during 9/11 and Hurricane Katrina clearly demonstrated, public safety needs more spectrum in time of emergencies, and even Sprint Nextel, a national wireless carrier, stated that in testimony last month. I firmly agree with the Hawaii Firefighters Association, which has supported the essential elements of the Frontline Plan, when they told the Commission that “[t]hose who would rather keep the entire 700 MHz block for their own corporate interests are not focused on doing what is right for public safety.”

It is completely unrealistic to expect, as the incumbents seem to, that public money will pay for a nationwide build-out. Verizon, for example, has stated again and again that the “majority of funds” for a multibillion dollar public safety broadband network - estimated to be in the range of \$15 billion - must “come from public sources.” That is not going to happen. It

did not happen after 9/11, nor after Katrina, and it is not going to happen now. You know that. Public safety knows that. And we know that.

Even worse, Verizon and others who expect taxpayers to pony up for this build-out miss the key point about taxpayer funds. Taxpayers pay taxes locally, and to their states and at the federal level. Wherever taxed, they have to support public safety services. The federal government can provide a great boon to taxpayers everywhere by requiring the E Block licensee to build out for public safety's benefit by using its commercial business to fund that network. Then, taxpayers will know that their funds for public safety can go to hiring more cops on the beat, more fire engines, better equipment for first responders, and choice of any devices for first responders, because the shared network will be open to any and all equipment. Taxpayers will know their money was not wasted, as Verizon suggests, on funding a \$64 billion network that Frontline was willing to build at no cost to the taxpayer.

This national, interoperable network will serve a diverse group of public safety users, including local fire and police departments, county sheriffs, emergency managers, highway patrol, and municipalities. After building a new wireless broadband network according to specifications agreed upon by the NPSL, the new E Block network would be available to each and every public safety entity across the country. Verizon and AT&T, in contrast, do not propose to build anything new or even negotiate with public safety about redesigning commercial networks to make them feasible for public safety use

Another area of great importance to public safety is the scope of coverage. The Washington, D.C. area is fortunate enough to be able to afford an interoperable system. The same is true for New York City and parts of Mississippi. But this is a big country, and you well know that those build-outs simply will not happen in all parts of West Virginia or South Carolina

or Minnesota or North Dakota or almost any other state in the country. The large national carriers tell public safety they should just rely on the wireless retail carriers' spotty commercial networks. In fact, they have not announced any plans to use the 700 MHz spectrum to expand the coverage or reliability of those networks to serve public safety's higher standards. Verizon has told the Commission that *if* it adopts any coverage requirements (and Verizon, of course, opposes *any* requirement to make productive use of a 700 MHz license), the FCC should let carriers leave 25% of the public without coverage. Which one-fourth of America would they leave behind?

We are long past the time to talk about what might happen or should happen for public safety. Any serious proposal must address how this costly network will be funded and built without relying on government funds. Frontline's plan is the only proposal to provide a clear funding mechanism that capitalizes on this crucial opportunity by incorporating a public/private partnership for public safety into the 700 megahertz auction.

II. WE MUST FIX OUR FAILING PUBLIC SAFETY COMMUNICATIONS SYSTEMS.

This Committee has rightly recognized that the public safety communications systems in this country have reached the point of crisis. As Chairman Inouye recently urged, "Congress must act quickly to give our first responders the tools they need to effectively do their jobs."¹ Frontline agrees with the Chairman that we owe our first responders nothing less than the most modern, most reliable, most interoperable, and most flexible communications system available.

¹ Press Release, *Chairman Inouye and Stevens Introduce Measure to Improve Emergency Communications*, Jan. 24, 2007 (quoting Chairman Inouye).

We have seen the results of communications failures all too clearly, most notably on September 11. Thomas Kean, co-chair of the 9/11 Commission, has stated bluntly, “On September 11, people died because police officers couldn’t talk to firemen.” The 9/11 Commission Report elaborated, providing examples of how the lack of interoperable radio frequencies between police and fire department officials hindered evacuation efforts:

At 9:00, the [police department] commanding officer of the World Trade Center ordered an evacuation of all civilians in the World Trade Center complex. . . . This order was given over World Trade Center police radio channel W, which could not be heard by the deputy fire safety director in the South Tower.

As we now know, the South Tower collapsed an hour after this unheard evacuation order was issued.

Four years later, the failures of our public safety communications networks were again on display during Hurricanes Katrina and Rita. Even though our first responders once again showed selfless courage and determination, the communications systems they relied upon failed both them and the public. It is clear that Vice Chairman Stevens was right when he commented shortly after those disasters that they “have shown that many first responders just cannot talk with one another because their radios and communications networks have been inoperable.”² An independent panel appointed by the FCC also documented some of the more disturbing examples of these communications breakdowns:

[C]ommunications between the military and first responders also appeared to suffer from lack of interoperability. In some cases, the military was reduced to using human runners to physically carry messages between deployed units and first responders. In another case, a military helicopter had to drop a message in a bottle to warn first responders about a dangerous gas leak.

² *Hearing on Interoperability*, 109th Cong. (2005) (Statement of Sen. Stevens).

While we have made important progress in some areas, the truth is that our public safety communications systems - and thus the American public - will remain highly vulnerable as long as the networks continue to rely on yesterday's technology. As the Washington State Council of Firefighters told the FCC earlier this month: "We do not have sufficient spectrum and we do not have operable communications, let alone interoperable communications. As a nation we have stood by for too long as our communications system time and again failed our nation's first responders." This is unacceptable. The patience of Congress and the American public is wearing thin. The time has come to ensure that the public safety community has the 21st century communications systems it needs and deserves. This can happen if the FCC, with encouragement from Congress, designs the upcoming 700 MHz auction to ensure the creation of a nationwide, interoperable broadband network, as proposed by Frontline.

III. THE FRONTLINE PLAN PROVIDES THE ANSWER – A NATIONWIDE, INTEROPERABLE NETWORK BUILT AND PAID FOR BY A ROBUST PUBLIC/PRIVATE PARTNERSHIP.

Public safety officials have clearly stated what they need to cure these communications deficiencies: a nationwide, interoperable network. This type of network – with the reliable, secure, diverse capabilities it enables – is the single best way to improve and modernize public safety communications systems. For this reason, the FCC recently designated half of the public safety spectrum set aside by Congress in the 700 MHz band for broadband use, which is key to IP-based interoperability. Interoperability means that persons from different parts of the public safety community can talk or exchange information with one another. But a rule that the network, *if built*, shall be nationwide and interoperable is only the first step. As I said at the outset, I am pleased to report to the Committee on the substantial areas of common ground that we have with public safety going into the 700 MHz auction. Thus, the Frontline Plan proposes service and auction rules to ensure that (1) the public/private partnership will

construct the public safety nationwide network with private sector capital, (2) the public safety network will have access to additional spectrum in time of emergency, (3) the network will be built to standards for coverage, security and local control that are worked out with public safety, and (4) public safety will maintain control over the spectrum allocated to it by Congress.

A. Funding a Multibillion Dollar Network.

The reality public safety confronts is that a nationwide broadband network will be costly to construct, and the funds must be generated up-front. These up-front costs could easily exceed \$15 billion. Thus, while the laudable appropriation of \$1 billion from auction proceeds will improve public safety communications for many agencies, it cannot be relied upon to construct the nationwide network that will be key to solving the interoperability crisis. Given the obstacles that this Committee faced (and overcame) simply in making that \$1 billion appropriation a reality, it would be unrealistic to expect an appropriation of 15 times that amount in the near future. Nor should Congress be expected to do so when a public/private partnership can deliver the same or better results.

Accordingly, Frontline's Plan proposes auction and service rules to ensure that the E Block licensee will fund the buildout of public safety's nationwide, interoperable broadband network – built to a public safety grade of service – at no upfront cost to public safety or taxpayers. That is, the Frontline Plan would require the winning bidder of the E Block, whoever that may be, to build out a network for the public safety community and make commercial spectrum available to public safety in times of emergency. In return, the winning bidder would have preemptible access to the network capacity operating over the unused public safety spectrum, providing it with additional revenues to recoup its investment in the public safety network. There is nothing novel, let alone problematic, about the Commission's requiring the E Block licensee to use the public's spectrum resource to the public's interest. The FCC, as

required by Congress, routinely does so for satellite and broadcast licenses. Indeed, Congress and the FCC have often required private license holders to assist public safety by, for example, imposing emergency warning system requirements on broadcasters and 911 requirements on cellular systems.

Thus, Frontline's Plan maximizes use of spectrum for public safety and commercial uses, makes available extra spectrum in emergency situations, and builds the network for free in state-of-the-art, 4G, IP-level configuration. If the FCC takes the right step and adopts the Frontline Plan, it will solve public safety's funding problem by ensuring that the broadband network infrastructure is built with private capital with public safety only paying for service. It will relieve public safety agencies of both the construction costs and the time-consuming and difficult task of securing investment.

Considering the crucial importance of a broadband public safety network and the lack of sufficient funding in the public sector, Congress and the FCC must disregard calls by the incumbent retail carriers to wait for massive government grants. AT&T, for example, argues that because a select few large cities have built broadband networks, every other town and county can be left to sink or swim on its own - ignoring the lack of sufficient financial resources that many communities face. As the Association for Public Safety Communications Officials ("APCO") explained in roundly denouncing such hollow arguments:

APCO rejects suggestions by some in the wireless industry that public safety's broadband needs can be addressed within current public safety spectrum and that there is no need for conditional auctions. What these and other parties ignore is that public safety alone cannot afford to build a broadband network.

In addition to suggesting that the federal government fund the creation of the public safety network, Verizon and AT&T have also advocated a "go it alone" approach for public safety that relies upon a hope that some retail party may some day decide to create the

network if the price is right. In other words, Verizon and AT&T would “help” public safety if the U.S. government paid them \$15 billion to do so. Congress and the FCC have before them the one and only opportunity to bring about a newly built fourth-generation network on spectrum adjacent to public safety’s spectrum. Relying on incumbents to use existing retail networks to provide public safety with the necessary services would leave public safety with old technology on commercial grade networks. Only a new entrant has the incentive to build a public-safety grade network, and only a new network can offer these fourth-generation services, not only to consumers but also to public safety.

B. Access to Sufficient Spectrum in Times of Emergency.

Public safety must have access to sufficient spectrum for emergency operations, when a public safety network is most necessary and its communications resources most tested. While Congress provided the foundational block of spectrum for public safety ten years ago, the half of that block that can be dedicated to broadband use - 10 MHz exclusive of guard bands - is not sufficient to sustain a nationwide broadband network. As the National Public Safety Telecommunications Council (“NPSTC”) has noted, “assertions that public safety has adequate spectrum are insulated from the reality facing the nation’s emergency services.”³ The State of California echoed this finding and stated that it does not believe this to be “an adequate amount of spectrum to handle the expected load.”⁴

³ Reply Comments of NPSTC, *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, PS Docket No. 06-229, at 3 (Mar. 12, 2007) (“NPSTC Reply Comments”).

⁴ Comments of the State of California, *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, PS Docket No. 06-229, at 2 (Feb. 26, 2007).

Frontline's Plan addresses the clear need for additional spectrum by more than doubling the amount of peak broadband spectrum capacity available to public safety communications under emergency circumstances. It does so by requiring the adjacent, commercial E Block licensee to provide priority access to public safety broadband operations on its own commercial spectrum during emergencies. Consequently, under Frontline's Plan, not only would public safety services have the highest priority access to network capacity operating on the 10 MHz of broadband spectrum allocated to public safety, but when necessary it also would have priority access to the E Block's additional 10 MHz or more of network service capacity. This network capacity will save lives in times of emergency by allowing police, firefighters and other public safety officials and agencies to effectively communicate with one another whether the interoperable communication occurs within the same small town or from Hawaii to Massachusetts.

Although public safety must have access to far more than 10 MHz during emergencies, it will not fully use its own allocated spectrum day-in and day-out and all hours of the day. Thus, Frontline's Plan also makes the most efficient use of spectrum in non-emergency times by allowing the E Block commercial licensee to sell valuable network capacity over the unused public safety spectrum. As the FCC has recognized, commercial use of public safety spectrum on a secondary basis is a viable option. This secondary commercial access will in no way disrupt public safety services, which will always have automatic, instantaneous and unquestioned priority over commercial users with respect to the full capacity of the 20 MHz or more shared network. The beauty of an IP-based network is that such prioritization occurs without "kicking off" the commercial users, as occurs today in the cellular and PCS Wireless Priority Service. Instead, when there is congestion, the public safety traffic is prioritized, and

simply moves to the head of the line and is delivered to its destination prior to the commercial traffic. At its simplest level, this is like an emergency lane for a fire truck. Meanwhile, commercial traffic is not barred. It is just not given priority. Public safety emergency calls will always get through, and commercial users may have to wait their turn. The same thing happens when cars are obliged to pull over to let an ambulance through on a busy street.

Notably, the parties that have opposed the auction and service rules proposed by Frontline have themselves failed to propose alternatives for solving public safety's spectrum shortfall - just as they have failed to address its funding shortfall, as described above. Throughout the course of this proceeding, the largest retail carriers have maintained that public safety "has enough" spectrum and the Commission should ignore public safety's need for more. Indeed, despite clear evidence to the contrary that has been presented by leaders in the public safety community, as recently as last week AT&T told the FCC that "additional spectrum is not needed by public safety at this time." Public safety and Frontline both strongly disagree. Frontline's Plan remains the only viable solution to the capacity crunch faced by public safety.

C. Building to Public Safety Grade Coverage.

The public safety community has made clear that a commercial grade network, built merely to serve population centers and immediately surrounding areas, will fall far short of public safety standards. NPSTC stated that "public safety needs a reliable system that has the best possible coverage. It is not enough to have coverage that merely mirrors traditional cellular coverage."⁵ Based on the needs expressed by public safety, Frontline's proposed rules would require that the nationwide, interoperable, broadband network be built to cover 99% of the

⁵ NPSTC Reply Comments at 12.

population within ten years, with interim milestones of 75% of the population within four years and 95% within seven years. Frontline’s proposal for a very high, population-based coverage requirement serves the essential goal of a public safety network in not merely reaching population centers, but also more sparsely populated areas. Emergencies can and do occur in outlying towns and rural areas, just as they do in urban centers.

In contrast, the entrenched retail carriers, reflecting their equally entrenched business plans that leave little room for innovative public/private partnerships, have steadfastly opposed *any* buildout requirement for the E Block or, for that matter, other 700 MHz spectrum. Verizon begrudgingly has stated that if the FCC imposes a buildout requirement, there should be a carveout of at least *twenty-five percent* of the population that the licensee could leave completely without service. Such proposals should highlight to this Committee the danger of leaving the future of public safety communications in the hands of the retail incumbents.

D. Preserving Public Safety’s Control over the Spectrum Allocated to It.

The Frontline Plan also provides for the public safety community’s full and meaningful participation in administering the nationwide shared public safety network through the NPSL. Relatedly, it guarantees that public safety will maintain control over the spectrum allocated to it by Congress.

Frontline strongly agrees with leading public safety advocates that the public safety community agree upon and publish a “Statement of Requirements” as soon as possible, and hopefully within 30 days after the FCC’s decision on the service rules. This Statement of Requirements would spell out key service requirements such as performance objectives that would inform the architecture of the shared public/private network while leaving details such as specific technology and service decisions to a later network sharing agreement. Issuance of the Statement of Requirements will ensure that all bidders for the E Block license will be fully aware

of public safety's needs prior to bidding on the spectrum. Frontline has also encouraged the FCC to incorporate as many of these requirements into the final rules as appropriate with enough lead time for bidders to take them into account. This also will help to prevent disputes after the auction. Furthermore the E Block licensee should begin to negotiate the details of the network sharing arrangement as soon as the auction is over, and aim to resolve that negotiation with the NPSL within six months at most. In the unlikely event negotiation was not successful, the E Block licensee would be bound by an arbitrator's conclusion as to what is a commercially and technically reasonable network design.

The FCC will not be able to adopt rules that address all potential facets of the shared public/private network relationship, since some details will need to be worked out by the NPSL and the winning E Block bidder after the auction is concluded. The resulting network sharing agreement will determine the design and features of the shared network between the E Block licensee and the NPSL.

IV. THE E BLOCK NETWORK'S COMMERCIAL CAPACITY SHOULD BE MADE AVAILABLE TO ALL CARRIERS AND NETWORK USERS TO CREATE A PLATFORM FOR COMPETITION AND INNOVATION.

At the same time that it makes Americans safer by improving public safety communications, the plan which Frontline and its supporters have put before the FCC will give new and existing smaller wireless companies a future in the increasingly consolidated wireless and broadband markets. The telecommunications marketplace has shown us that when markets are competitive, American consumers win. But the truth is that the wireless industry is not nearly as competitive as it was a few years ago, and as a consequence the two largest national carriers are discouraging innovation by high-tech entrepreneurs. Apple's iPhone is going on sale later this month, but if Steve Jobs wanted to reach critical mass of the population he really could only call two people to offer his phone, the head of Verizon or the head of AT&T, which control

access to more than half of the market. We think that the innovators of new devices should be able to ask more than two people before launching an exciting new product. In fact, in an ideal world, they should have to call no one. That is the way it has worked on the telephone network for thirty years, and that system works well. All we're saying is that the FCC should dedicate a small part of the spectrum, the E Block, for a network to be offered to all innovators and competitors. Such a policy ensures that the wireless industry remains entrepreneurial and open to innovation by Silicon Valley and other high-tech companies. It also ensures that companies serving rural America will have at last a provider of network capacity eager and willing to offer service to enable these smaller carriers to offer their customers nationwide roaming.

Verizon and AT&T, as rational incumbents, presumably want to buy the E Block and all the other spectrum to be sold in this last auction and then warehouse it. While that makes sense for them, it doesn't make sense for public safety or for the American people. The shared network that Frontline proposes will be open to competition and innovation in all the following ways:

- Open to all handsets and devices that do not harm the network;
- Open to any kind of customer, from established retail providers to startups to device manufacturers to end users;
- Open to any kind of lawful content, whether streaming video, VoIP, or the next big thing;
- Open to be used as a complement to any other network, regardless of communications protocols to the degree technically and commercially reasonable, especially including other 700 MHz networks.

The benefits of such openness will be many, but most notably will come in a) the lowering of barriers to entry in the wireless market; b) a loosening of the tight controls that the wireless incumbents have held over the ability of online innovators to make new content and

services available to consumers through wireless devices; and c) a nationwide roaming provider for regional and rural wireless carriers eager to improve coverage for their consumers.

Lowering of Barriers to Entry. The primary goal of Frontline’s proposed commercial service rules is to promote competition by reducing barriers in the wireless market. With a facilities-based provider open to all kinds of customers, both new and existing retail providers will be freed from the often prohibitive costs of purchasing low-frequency spectrum and constructing wireless networks. As a result, these providers - currently under intense pressure to offer their customers nationwide roaming capability - will be able to compete in their local and regional markets against the huge national firms that have their own national networks that enable them to offer national roaming to all customers at no extra charge.

It bears mention that Sprint Nextel currently provides roaming and other services to smaller carriers and so-called “mobile virtual network operators.” But the two largest carriers insist that they do not want to be obliged to provide roaming in the future to small local and regional carriers. And frankly they are entitled not to use their networks to enable their rivals to compete with them. We understand that. But precisely because that is their economic incentive, the FCC needs to address the problem of competition by requiring the E Block licensee to sell service to any and all buyers.

Notably, parties who routinely struggle with such formidable barriers of entry have endorsed such openness for the E Block. A group of mid-sized wireline carriers consisting of Embarq, CenturyTel, and Citizens/Frontier - which each have a significant presence in rural communities - specifically described to the Commission the prohibitive costs of network buildout: “Broadband deployment in rural areas is costly, in significant measure because of the challenges caused by low population densities, which make it difficult to aggregate the customer

demand needed to justify large network investments.” These companies added that there are *no* network operators who simply sell network services and do not choose to compete with their customers.

These comments from mid-size and rural telephone companies demonstrate in concrete detail how and why a network that offers service to all parties can translate into greater broadband deployment, particularly in rural areas. In these areas, it is often economically irrational for providers to build state-of-the-art wireless broadband facilities. (As discussed above, it is this same incentive that makes existing retail networks poor options for public safety communications.) As a result, rural buildout is stymied. Frontline’s service proposal provides a way around this economic reality by making rural wireless service cost-effective for retail service providers.

The open service proposed for the E Block would also encourage and rely on market-based forces, rather than command-and-control regulation, to meet the concerns identified by companies like Embarq, CenturyTel, and Citizens/Frontier. Instead of relying on universal service support, Frontline’s Plan addresses the critical problem of rural broadband deployment with private sector solutions that do not burden taxpayers. Further, a requirement that the E Block licensee sell service to anyone, end users or other companies, will create market-based incentives to complement buildout requirements, which Frontline supports.

Consumer choice. Frontline’s proposed open service rules are also intended to promote competition and innovation by ensuring that service providers (e.g., content companies, applications providers) can freely offer new wireless services to consumers without having to ask permission from Verizon or AT&T.

Several high-tech innovators have confirmed the need for an open service network and provide examples of the benefits that such a network will bring to them and to the state of competition in the broader broadband market. Google, for instance, outlined its critical need for guaranteed access to its customers:

The greater challenge [Google faces] is . . . universal accessibility. Like other Internet-based companies, Google relies on the communications infrastructure provided by underlying carriers in order to reach our ultimate end users. In particular, in the United States, the telephone companies and cable companies control the only means of broadband access to Google's customers.

I already mentioned another example, Apple's iPhone, which had to go through the gates marked AT&T or Verizon if it wanted to bring its exciting new product to market.

Objections to a network that may not act as a gatekeeper between companies and consumers came, predictably, from those powerful incumbents whose retail businesses have the most to lose from competition and innovation. I want to highlight that this is a very modest proposal. We are not proposing to impose this open service requirement on all wireless providers. And we are not proposing to impose this requirement *retroactively* on incumbents. Rather, Frontline's open service proposal simply says on a prospective basis that a fraction of the 700 MHz spectrum should be made available as a platform for competition and innovation. We think that is a small investment that will pay huge dividends for the future of our information technology economy.

Roaming. This Committee has long demonstrated leadership in bringing advanced telecommunications services to rural Americans, who deserve access to the same advanced services as their counterparts in urban centers. Frontline's proposed open service rules will further these goals. By definition, a network making service available to any buyer will serve as a nationwide roaming provider to regional and rural wireless carriers. The emergence of

such a roaming provider would encourage wireless competition in rural areas by freeing existing competitors from the need to construct facilities or purchase access from entrenched national incumbents who offer competing retail services.

Comments filed with the FCC in support of the Frontline Plan confirm the need for competitive roaming arrangements. Cellular South, for example, describes both the lack of existing competitive options for mid-sized carriers and its causes and consequences:

Frontline’s proposal would provide a much-needed broadband roaming partner for small and regional wireless providers. Today, small and regional carriers find it increasingly difficult, if not outright impossible, to negotiate high-speed data roaming agreements with national wireless providers. This hurts the small carriers but, more importantly, it hurts the rural consumer.

The open service requirement will not only help ensure widespread and robust wireless service in rural areas, but will allow smaller and mid-sized carriers to “go national,” and offer additional competitive choices to American consumers. Without the ability to offer national service, these carriers cannot provide a competitive alternative to larger carriers’ service.

* * *

Finally, in terms of *who* can bid on the E Block and thereby make this open service available to the marketplace, it is important to remember that when Congress adopted the law creating auctions in 1993, this Committee recognized that it would be bad policy if the spectrum simply went to large incumbents that have little incentive to innovate and bring new technologies to market. The Committee required that the FCC adopt policies to ensure that small businesses would have a chance to participate in the auctions by giving them bidding credits if they qualify. The FCC recently adopted rules that say these credits would not be available to an entity that leases or resells more than fifty percent of its bare spectrum capacity to entities. The E Block licensee, however, will not be leasing or reselling spectrum. Instead, it will be required

to build facilities and construct a national network over which it will offer services. It will operate thousands of towers and radios and utilize this network as a facilities-based provider. Because these build-out requirements will apply to any E Block licensee (whether Frontline or anyone else), the leasing and resale restrictions are not relevant and the FCC should so clarify. Moreover, the licensee should sell network capacity to anyone including end users. Under these circumstances, an entity is acting as a small business and, if it otherwise qualifies as a small business under the FCC's rules, should get the bidding credit established by Congress.

V. THE FRONTLINE PLAN ENSURES THAT THE COMMERCIAL NETWORK WILL SUSTAIN THE PUBLIC SAFETY NETWORK.

AT&T and Verizon, in a naked effort to keep the E Block free of any obligation to serve public safety, have tried to say that the FCC should not adopt those obligations because the E Block licensee will not succeed as a business. Well, making money, particularly with a wireless business, happens to be a topic my partners and I know something about, so I want to offer a few comments. Of course, like any smart entrepreneur, we are keeping the details of our business model to ourselves, but it has been tested by sophisticated investors and is both viable and distinctive. The need for confidentiality is especially important going into a highly competitive auction. And we are working with Citigroup to arrange financing and additional investment as we look toward the upcoming auction and construction of the network.

In general terms, I can say that we envision a wide range of potential customers for E Block network services. Of course, we all know that public safety and the related critical private sector infrastructure segment is the most important group. But there are many others on the commercial side, and in fact it is these commercial uses that make the economics work for public safety. As any Wall Street analyst or high-tech player can attest, mobile Internet is the next growth frontier in the wireless industry and the potential is simply enormous. Just as the

Internet supplanted voice as the growth engine in wireline telecommunications, the same will happen in wireless. At McCaw Cellular, we recognized early on the demand for ubiquitous mobile communications, and we built a multi-billion dollar business. At Netscape we recognized early on the power of the Internet and we built a multi-billion dollar business. Now I look to the future and see the intersection of these two markets and I expect to be able to build another multi-billion dollar business.

The U.S. wireless market now has over 230 million voice subscribers, but only a small fraction of these have mobile Internet. Over the next decade, many if not most (and perhaps even all) of the people who now use cell phones will come to adopt mobile Internet. That is a huge, disruptive and exciting market opportunity.

The business opportunity for the E Block winner will come from device makers such as Apple that want to launch a new product. Imagine going on vacation and using your camera - not a crude camera phone, but an honest-to-goodness camera - to take pictures and immediately send them to relatives through the air. You get the picture (so to speak). So it's easy to see how one could sell network connectivity not only to service providers but to device makers as well. Google could be a customer, if they want to test a mobile broadband service in a region of the country. Demand could come from a rural telephone company like Embarq, who wants to offer broadband service in high-cost areas, and "triple play" mobility. It could come from Clearwire, who hopes to be the "third pipe" into the home and needs a complementary coverage network. It could come from smaller wireless carriers, like Mississippi's own Cellular South, eager to deliver customers a truly national service through roaming arrangements. Also, there are large enterprise customers who would like to buy wide area, coverage-rich connectivity. My former company FedEx comes to mind. What if FedEx could track every

package in real-time across the entire United States? Not just at hubs or transaction points, but everywhere and for every package? Now extrapolate to the entire logistics sector. This is another big opportunity, and there are many more opportunities out there for a company, like Frontline, willing to take advantage of them. Demand for this service also could come directly from consumers, who do not like the idea of being locked in long-term contracts with expensive termination fees.

In short, I see this as an exciting business opportunity for whatever company wins the E Block auction. That is why I think the E Block auction will attract many bidders. It offers the chance of becoming the wireless version of Level 3, which has built a strong business offering network capacity to a range of buyers.

* * *

The FCC will soon auction what is perhaps the most important piece of spectrum ever allocated by Congress, and it is expected to set the rules for that auction in the next month. It will be decades before such a large amount of versatile spectrum is auctioned again. Thus, it is critical that the FCC use this historic opportunity to improve our public safety communications systems and promote competition within the market. In my opinion, it would be a mistake to construct an auction that will solely serve the interests of the dominant national carriers. When the next emergency strikes, our communications systems must be a tool that saves lives rather than a source of confusion and tragedy.

This Committee has overcome multiple obstacles over the past decade to bring the DTV transition to a successful conclusion so that our nation's first responders can make urgent changes to the way they communicate. Now, all that remains between success and failure are a few, critical last steps which the FCC must take to finish the job. To make sure that happens, I

respectfully urge the members of this Committee make clear their expectation that the FCC adopt the following elements for the upcoming 700 MHz auction:

- Meet the urgent need for a nationwide, public safety wireless broadband network by providing that the E Block licensee must construct that network and design it to public safety grade specifications.
- Meet the needs of rural wireline carriers, smaller wireless companies and online entrepreneurs to access low-frequency networks by requiring the E Block licensee to offer network services to commercial customers, including by offering roaming to requesting carriers.
- Promote competition and innovation by ensuring that the E Block's network service is offered without unreasonable discrimination against particular types of services, applications, and content.
- Clarify that the Designated Entity restrictions on lease or resale of raw spectrum do not apply to the potential E Block licensee given that it is required to construct its own facilities and offer services upon them.

In these first years of the 21st Century, you and I have too many times seen the devastating effects of communications failures. Given the stakes involved, I and my partners at Frontline hope this Committee will urge the Commission take the steps necessary to make this Committee's vision for public safety communications a reality. I thank you again for the opportunity to be here today.

Economic Comments on the Design of the 700 MHz Spectrum Auction

Peter Cramton, Andrzej Skrzypacz, and Robert Wilson ¹

11 June 2007

1 Introduction

Our previous submission in response to the Report and Order and Further Notice of Proposed Rule Making (FCC 07-72, 27 April 2007) presented economic analysis that supports Frontline's proposal that a national license for the E Block of the 700 MHz band should mandate open access. Open access means that

- (1) wholesale contracting is transparent and nondiscriminatory, and
- (2) there is neither exclusion nor discrimination among devices and communications that conform to the licensee's published standards and operating protocols.

The motivation is straightforward. Extending to the wireless sphere the huge gains to communication and commerce of the wireline Internet will greatly benefit the American public. The creation of the Wireless Internet requires an open network comparable to the wireline network that has made the Internet so beneficial. The 700 MHz auction is the Commission's main opportunity to give the public the full benefits of wireless services from competitive providers of digital telephony, internet connections, and broadband.

This paper extends the economic analysis by addressing claims from opponents of this open access proposal. We argue that the current state of the wireless market, and the potential for improving consumer welfare, justify the following conclusions:

- Open access for the E Block is necessary and will improve the efficiency of the auction outcome. Further, it is essential to address open access in this proceeding. The open-access and wholesale provisions for the E Block are narrowly-tailored remedies and fully consistent with the Commission's goals.
- There is an important market failure in auctions with dominant incumbents. Auction rules that level the playing field between incumbents and new entrants are necessary to assure efficient assignment of the licenses. In particular, the previous AWS auction of high-frequency spectrum was not comparable to the upcoming 700 MHz auction of low-frequency spectrum. If the AWS auction rules are used for the 700 MHz auction then incumbents can block entry and consolidate their dominant positions.

In the next section we justify these conclusions in the context of our replies to others' comments.

¹ This paper was funded by Frontline Wireless, LLC. The curriculum vita of Peter Cramton is attached as Exhibit A; Curriculum vitae of Andrzej Skrzypacz and Robert Wilson were attached to our comments, "Report of Andrzej Skrzypacz and Robert Wilson" filed with Comments of Frontline Wireless, 23 May 2007.

2 Responses to open access opponents' claims

This section explains why the points listed in the Introduction are true, contrary to claims made by some opponents of the open access proposal. It also explains why opposition serves the narrow interests of incumbents rather than the public welfare.

2.1 The open-access requirement on the E Block is necessary to obtain an efficient auction outcome

As we explained in detail in our previous comments, the wireless market is highly concentrated and on a path towards even greater concentration that could eventually justify antitrust actions. Indeed, the concentration level is well above levels that normally trigger antitrust scrutiny in merger situations were it not for the FCC's pre-emption of regulation in communication industries. Such concentration can harm consumers in general, and it is especially noxious when incumbent firms can stifle innovative entry straightforwardly in auctions conducted by the FCC. Their exclusions of roaming and selected devices and communications could be interpreted as vertical foreclosure.

Two firms, Verizon and AT&T, now control much of the access to the low-frequency spectrum in the 800 MHz range. Low-frequency spectrum is necessary for low-cost nationwide coverage and robust service. It allows these two firms to charge higher prices and yet have lower churn rates and a higher share of new subscriptions. The financial interests of these two companies are to exclude access by any provider of retail wireless services that might capture market share by competing against their own retail arms and dependent affiliates.

The Wireless Internet can be a source of great benefits to customers. It will greatly improve the efficiency of the markets for communication services, which is the most important policy goal of the Commission. The benefits are likely to accrue mostly to consumers and reduce incumbents' profits. Therefore, the Commission cannot realistically hope that any incumbent will create the Wireless Internet on its own initiative. Hence the Commission must act in the interest of the consumers to designate the E Block for open access and to sell the right to build and operate it to the highest bidder.

Consumer welfare has been enhanced by the introduction and expansion of mobile wireless services. But the absolute level of consumers' gain is not the appropriate metric—instead it should be measured against the gain in consumer welfare that is possible. The introduction of additional competition—competition engendered by an open access E block—can accelerate and magnify the gains in consumer welfare from wireless services. It is this opportunity that the Commission risks missing were it to allow the incumbents to forestall entry in the 700 MHz auction.

2.2 There is an important market failure in spectrum auctions with dominant incumbents

Some opponents of open access argue that selling a license with no restrictions to the highest bidder should result in the most efficient assignment of the spectrum.² Subject to various qualifiers, this view can sometimes be a valid guide when all potential bidders are on equal

² For example, see "Comments of Verizon Wireless" pages 51-53, or "Reply Comments of AT&T Inc." Section IV.

footing. But it is severely wrong when some bidders are new entrants and some are incumbents motivated to protect their market shares.

The reason is that entrants and incumbents have very different motives. A new entrant's incentive is to maximize its profits from the license alone, while an incumbent maximizes the sum of its profits from the combination of its existing licenses and new licenses. When its existing profits would be threatened by a new entrant, an incumbent is willing to pay more for a new license to prevent competition than any entrant would pay for the license.

- To gain market share, an entrant prices services on its newly acquired spectrum to undercut the incumbents' prices. Customers benefit from this downward pressure on prices due to increased competition. To gain further market share, a new entrant also wants to offer technical innovations valued by customers.
- In contrast, an incumbent realizes that any competing service offered on the new spectrum steals business from its existing retail service plans. Hence it has muted incentives to offer lower prices or new technologies that compete with its existing offerings. To prevent losing business to new competitors and being forced to reduce prices, an incumbent is willing to pay a premium to acquire the spectrum—and the larger its current market share, the larger is the premium it is willing to pay. It is crucial to realize that under these circumstances, even though an incumbent values winning the license more than an entrant does, that additional valuation does not represent true value added, but rather the incremental value of thwarting competition from entrants.

This is why allowing bidders with large market shares to compete on equal terms with entrants yields an allocation that is distorted away from an efficient allocation. Equal competition among unequal bidders is biased toward those with market shares to protect. The resulting allocation is inefficient in that it displaces entrants who could otherwise have invigorated competition and thus lowered prices to consumers.

2.3 Auction rules that level the field between incumbents and new entrants are necessary to assure the most efficient assignment of licenses

To enable an efficient assignment of the new spectrum, the Commission cannot take a hands-off approach to the design of the service and auction rules. In the early spectrum auctions a spectrum cap prevented each cellular duopolist from obtaining additional licenses in its cellular regions. Comparable intervention is needed now to prevent the current low-frequency carriers from capturing the 700 MHz spectrum to solidify their dominant positions. Because the spectrum cap that the FCC established before the PCS auctions was removed, the chief remaining instruments available now focus on exclusion of the 800 MHz licensees and/or bidding credits for small businesses. Measures of this kind are necessary lest the 800 MHz duopoly is extended to the 700 MHz spectrum to fully and permanently consolidate their dominance. By enabling entrants to compete effectively in the auction, bidding credits for small businesses encourage an assignment of the licenses that is more efficient and ultimately more beneficial to consumers.

This conclusion accords with the argument for restrictions on the E Block license. Nondiscriminatory wholesale contracts for open access to the E Block licensee's network level the field for regional licensees and retailers who compete in retail markets with the retail arms of the incumbents' nationwide vertically integrated proprietary networks.

2.4 *It is important to create the Wireless Internet now, not in separate proceedings after the auction*

Some parties want the open access and *Carterfone* issues to be addressed in other proceedings, and thus they argue that Commission should not address them separately for this auction.³ We disagree: it is essential to address open access and other provisions of the E Block license in this proceeding.

The Commission cannot readily impose open access on selected licenses after the license assignment and the licenses' prices have been previously determined by an auction process conducted without the bidders' knowing the service rules that will ultimately prevail. A decision before the auction allows the two business models (open-access and proprietary vertically integrated networks) to compete in the auction and subsequently to co-exist and compete for customers. It is better policy to establish the licenses' specifications before the auction, to allow firms competing in the auction to assess their valuations without uncertainty about the future outcomes of additional proceedings.

2.5 *The AWS auction is not an appropriate analogy for the upcoming 700 MHz auction, and it did not perform as well as some commenters argue*

Dr. Hazlett in his paper "Competition, Auction Receipts and Economic Welfare" submitted on behalf of Verizon in response to the Notice states that the recent AWS auction attracted competitive bidding and no anti-competitive behavior by the incumbents. His supposition that there is an analogy between the AWS auction and the 700 MHz auction is incorrect. The AWS auction allocated very different spectrum—high-frequency spectrum that is not economical for development of a robust nationwide network that could compete with the coverage of existing networks in the 800 MHz band. The AWS auction did not allow any entrant to challenge the position of AT&T and Verizon as the two leading firms with the requisite low-frequency spectrum that is necessary for developing nationwide products. Nor did it create a major threat to the duopoly rents that they earn from their exclusive holds on licenses for low-frequency spectrum.

The situation is very different in the upcoming auction of 700 MHz spectrum. The 700 MHz auction is not "just another auction". It will assign spectrum with physical properties greatly superior to the PCS and AWS spectrum, and indeed, directly comparable to the incumbents' 800 MHz spectrum. The 700 MHz auction is a unique opportunity to prevent entrenchment of the dominant positions of the current incumbents. The FCC should ensure that new entrants have a chance to pursue their business plans and that the "incumbent bias" of auctions described in Section 2.2 does not yield an inefficient allocation of this precious spectrum.

Moreover, the view that the AWS auction was a boon for competition is not correct. In reality, the participation of one new entrant with a nationwide strategy was hampered by the auction rules. The DBS bidders dropped out of the auction when the total of the prices for nationwide coverage by aggregating smaller blocks was evidently well below their willingness to pay. We say this based on the DBS bidders' actual bids for large regional licenses, which might also have reflected discounts from their willingness to pay for nationwide coverage because of exposure risk (as we explained in our previous filing). It is impossible to say whether the DBS

³ For example, see "Reply Comments of CTIA—The Wireless Association" (filed on 4 June 2007), Section V.

bidders would have been successful with different auction rules, but one can say that the AWS auction rules frustrated the participation of this potential nationwide entrant.

Given that vastly more is at stake for AT&T and Verizon in the auction of the 700MHz spectrum, it is clear that if the Commission does not level the playing field then these two firms will have both incentive and ability to discourage new competition in wireless markets at the national level.

2.6 *The open access provisions for the E Block are narrowly tailored remedies, fully consistent with the Commission's goals*

Some parties before the Commission argue that the open-access provisions are heavy-handed regulation and contrary to the Commission's goals. We disagree with both parts of this statement. Rather than being heavy-handed, the proposal asks for a modest restriction on a single 10 MHz block out of the 78 MHz of spectrum licensed for commercial use in the 700 MHz band and no restrictions on the other low-frequency CMRS spectrum. This restriction is no more than minimally necessary to assure open access on nondiscriminatory terms. Without it America will likely never see open access.

Any decision the Commission makes about the service and auction rules is ultimately a decision about the structure of the market for decades to come. Extreme concentration of the low-frequency spectrum in the hands of two firms sets the stage for continued domination by these two companies, unless the FCC takes action now.

Imposing modest restrictions on the E Block license is much less intrusive than the two main alternatives: a) endorsing continued domination of the low-frequency spectrum by Verizon and AT&T's vertically integrated proprietary networks, or b) requiring open access on all spectrum by requiring mandatory roaming at regulated rates. The provisions of the E Block license are confined to the minimal requirements for open access on nondiscriminatory terms. This is the least intrusive of the ways the Commission can establish an infrastructure for wireless communication that is not controlled and manipulated by firms with a chokehold on nearly every aspect of America's digital technology.

The Commission's goal is to allocate spectrum, a very scarce and valuable resource, to its highest and best use as measured by the public welfare. This outcome will not be achieved by selling the 700 MHz spectrum without restrictions to the 800 MHz incumbents, whose high valuations stem from their incentives to protect their current profits by stifling competition rather than creating value added for the public.

Lastly, we add that the effect on the Treasury's revenue of the E Block provisions is much less than the incumbents argue in their comments, and under some scenarios may generate higher bids. Establishment of the Wireless Internet will make all the regional licenses more valuable and hence it will increase the revenue from auctioning other blocks. Further, if the Commission chooses to take no action and adopts rules that perpetuate the incumbents' dominant positions, then the auction will likely be over before it starts—if potential bidders expect the incumbents to win then there will be little competition and low revenue for the Treasury. Evidence from many European countries has shown clearly that auction prices were much lower when incumbents could acquire all 3G licenses than when the auction rules guaranteed a level field for new entry.⁴

⁴ See for example Paul Klemperer "Auctions: Theory and Practice" Chapter D, Princeton University Press, 2004.

Given the dramatic evidence from Europe's sad experience, there is no excuse for repeating such a mistake in the upcoming auction of 700 MHz spectrum. Importantly, similar rules worked well in some countries' auctions and terribly in others' auctions—what did matter was the incumbents' ability in the auction to dwarf competition from potential entrants. The erroneous expectation that the same rules—closely comparable to those for the FCC's auction of PCS spectrum—will work well for many different auctions with differing competitive environments, was a major mistake in the designs used in Europe. In several countries the unexpectedly small revenues brought dismay at the relevant Treasury departments.

3 Conclusion

We see the Commission having three main alternatives: a) do nothing and thus continue the dominance of the vertically integrated incumbents, b) enforce open access on all spectrum by imposing service rules requiring nondiscriminatory terms for roaming on all spectrum, or c) establish an open-access license on a slice of the 700 MHz spectrum to create room for both business structures to co-exist and to compete for customers on price, quality and variety.

We stress that the last alternative is available only now, in the band plan, service rules, and auction design for the licenses to be sold in the upcoming auction of 700 MHz spectrum. It is also the propitious moment for extending to wireless services the advantages of the Internet. We believe that the dire situation implied by (a) and the heavy-handed intervention implied by (b) can be avoided with minimal intervention by the Commission. Applying pro-competitive open access rules to just a single slice of the 700 MHz spectrum leaves most of the spectrum available for other business plans. The E Block license provides the nation a minimal public infrastructure for wireless communication, one comparable to the wireline Internet that has yielded vast benefits.

If an open access license is not created then thereafter the FCC will be limited to forcing selected license owners to open access to retail entry. Doubtlessly the vertically integrated networks will offer solutions for many retail customers, but we emphasize that competition from new retail providers using the open access network will force incumbents to improve their services and lower prices.