Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of:	)	
Fostering Innovation and Investment in	)	GN Docket No. 09-157
The Wireless Communications Market	)	
	)	GN Docket No. 09-51
A National Broadband Plan for our Future	)	
	)	
	)	

COMMENTS OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

THE TELECOMMUNICATIONS
INDUSTRY ASSOCIATION

Danielle Coffey
Vice President,
Government Affairs

Patrick Sullivan
Director, Technical and Government Affairs

TELECOMMUNICATIONS INDUSTRY
ASSOCIATION
10 G Street N.E.
Suite 550
Washington, D.C. 20002
(202) 346-3240

September 29, 2009

TABLE OF CONTENTS

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of:	)	
Fostering Innovation and Investment in	)	GN Docket No. 09-157
The Wireless Communications Market	)	
	)	GN Docket No. 09-51
A National Broadband Plan for our Future	)	
	)	
	)	

COMMENTS OF
THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

INTRODUCTION

The Telecommunications Industry Association (TIA) hereby submits comments to the Federal Communications Commission (Commission) in the above-captioned proceeding.[1]

Through the Innovation NOI, the Commission stands to gain vital information of how spectrum availability, pro-competitive policies, effective research and development, and streamlined wireless device approval processes can increase innovation and investment in existing and new wireless sector markets.

The Telecommunications Industry Association (TIA) represents the global information and communications technology (ICT) industry through standards development,

[1] *See* Fostering Innovation and Investment in the Wireless Communications Market, Notice of Inquiry, 09-157 (Aug. 27, 2009) (Innovation NOI).

advocacy, tradeshows, business opportunities, market intelligence and world-wide environmental regulatory analysis. Its 600 member companies manufacture or supply the products and services used in the provision of broadband and broadband-enabled applications. With roots dating back to 1924, TIA enhances the business environment for broadband, mobile wireless, information technology, networks, cable, satellite and unified communications. Members' products and services empower communications in every industry and market, including healthcare, education, security, public safety, transportation, government, the military, the environment and entertainment.

SUMMARY

TIA agrees with the Commission that an innovative, investment-enhancing wireless communications market drives the economy of and public benefits to consumers in this nation.[2] Several factors directly relate to continuing such a market. Spectrum scarcity, if not remedied, poses a significant threat to wireless market innovation and investment. Increased spectrum availability has and will continue to generate incentives to provide consumers and enterprises better wireless products and services that meet increasing needs for cutting-edge wireless technologies. Thus, the Commission should work with other government agencies to identify available methods of providing additional spectrum for commercial use and improve processes to make such spectrum available in an efficient and flexible manner. Further, the Commission should recognize and perpetuate its pro-competitive regulatory approach as a pivotal method of driving wireless innovation and investment. Additionally, the Commission should support government-funded research, which has proven to complement pro-competitive policies

[2] *See id.* at ¶ 1.

in driving innovation and investment in the wireless industry. Finally, a streamlined wireless device approval process will speed new technologies to market. These initiatives stand to further remarkable developments in existing and new wireless markets, benefiting consumers and enhancing our nation's education, public safety, and the environment.

DISCUSSION

I. SPECTRUM AVAILABILITY IS ONE OF THE MOST SIGNIFICANT TRIGGERS OF WIRELESS INNOVATION.

In its Innovation NOI, the Commission seeks to learn of the greatest barriers to continued innovation in the wireless industry.[3] Wireless innovations are deeply impacted by spectrum availability, and without making additional spectrum commercially available, the significant technological progress in wireless services, devices, and applications will slow considerably. The ability of wireless technologies to advance and further benefit all Americans depends on the amount of spectrum that can be deployed for use as a contiguous unit. However, current spectrum allocation is limited and fragmented, severely hampering the evolution of wireless technologies and services. Thus, it is vital that the Commission assess through a spectrum inventory what non-Federal spectrum bands are particularly suitable for repurposing for commercial broadband use. Additionally, the Commission, in coordination with the National Telecommunications and Information Administration (NTIA), should evaluate what Federal spectrum used for terrestrial telecommunications systems may be suitable for allocation for, and sharing

[3] *See id.* at ¶ 11.

with, commercial use.[4] Additionally, the Commission's rules and regulations must encourage both the general and efficient use of existing spectrum assignments.

Complementing this effort, the Commission and the NTIA should improve their spectrum management and the Commercial Spectrum Enhancement Act (CSEA) processes to reallocate spectrum in a predictable and cost-efficient manner. CSEA is extremely important to the future of wireless broadband deployment, as it provides a means to implement spectrum policy decisions and fund efficient Federal spectrum reallocations through the Spectrum Relocation Fund in a manner intended to meet the needs of the affected parties. In order to most effectively make former Federal-use spectrum available to commercial parties in a way that will maximize that spectrum's potential public benefits, the Commission and the NTIA should enhance the CSEA's process with more transparent rules and efficient procedural efforts. Further, it is vital that the Commission and NTIA work with all Federal agencies to educate Federal users about the need for and opportunities inherent in better spectrum management.[5]

The Commission also asks whether it should frequently (i.e., several times per year) announce an inventory of available spectrum licenses (*e.g.*, licenses previously auctioned but unsold), and then proceed to conduct an auction of mutually exclusive applications.[6] TIA believes that innovation and investment would be promoted if such an inventory were updated in real time, or as often as technologically possible.

[4] As this effort proceeds, it is important that spectrum assigned to Federal, state, and local public safety entities not be singled out for repurposing.

[5] In evaluating spectrum availability, the Commission should consider valuable uses of spectrum beyond those of terrestrial wireless.

[6] *See* Innovation NOI at ¶ 31.

Similarly, the Commission seeks comment on how well the secondary market for spectrum access currently is working.[7] Concurrently, the Commission asks whether spectrum user fees would encourage more efficient spectrum use.[8] TIA encourages the Commission to explore innovative mechanisms to facilitate the development of a more robust and efficient secondary market that would increase the availability of unused, underutilized, or unneeded spectrum capacity for prospective users and new wireless technologies. However, TIA does not believe that spectrum user fees would encourage more efficient spectrum use. Rather, the existence of a secondary market is sufficient to force spectrum users to face the opportunity cost of holding a license, since the price for which they can sell a license on the secondary market should reflect its value in an alternative use or by an alternative user. Moreover, spectrum user fees could impact operational expenditures and therefore could raise prices to consumers.

Spectrum sharing between Federal and commercial entities will also facilitate increased commercial spectrum availability. The Commission seeks to learn if there are ways of providing specialized spectrum access, including grants of Special Temporary Authority (STA) or the development of a spectrum sharing innovation "Test-Bed," that can serve as useful models for promoting innovation.[9] TIA supports streamlining the authorization process to enable experimentation and development with respect to innovative wireless technologies and services (*e.g.*, when the authorization process involves the same

[7] *See* Innovation NOI at ¶ 32.

[8] *See* Innovation NOI at ¶ 42.

[9] *See* Innovation NOI at ¶ 30.

applicant applying for authorization of consecutive iterations of the same technology). Further, TIA supports the Commission's decision to designate the 470-512 MHz band as a Test-Bed.[10] Such a Test Bed will enhance wireless innovation by facilitating the testing and evaluation of technologies and methods for improving spectrum sharing between federal government and non-federal government users. As the Commission and NTIA move ahead on this issue, TIA urges that the recent recommendations of the Commerce Spectrum Management Advisory Committee be adopted in order to facilitate Test-Bed implementation.[11] These recommendations include:

a) Focusing the Test-Bed program on studying the feasibility of federal and non-federal users sharing the same spectrum;

b) Assuming sufficient funding, addressing multi-antenna signal processing and mobile satellite service with an ancillary terrestrial component;

c) Evaluating whether staffing and resource issues could be resolved by allowing private sector participants to bear the costs associated with the Test-Bed, allowing testing to occur without federal government staffing, or seeking additional appropriations or reallocating funding to support multiple test beds;

d) Permitting the maximum number of participants possible for monitoring and evaluation with available resources;

e) Locating Test-Bed spectrum below 1 GHz or above 4.9 GHz; and

f) Creating public reports subject to a peer review process.[12]

---

[10] *See* Federal Communications Commission Designates Spectrum and Provides Guidance for Participation in a Spectrum Sharing Innovation Test-Bed, ET Docket No. 06-89, Public Notice, DA 08-295 (rel. Feb. 5, 2008) (also identifying procedures for interested parties to conduct technology tests in that band).

[11] *See* Commerce Spectrum Management Advisory Committee Transition Report, Dec. 13, 2008, 26-27 (Dec. 2008 CSMAC Report) (available at: http://www.ntia.doc.gov/advisory/spectrum/meeting_files/CSMAC_Transition_Report_(121208b_-_CLEAN).pdf (last visited Sept. 27, 2009).

[12] *See id.*

Such efforts, as implemented by the Commission, NTIA, and other federal agencies, can drive spectrum availability and therefore wireless sector innovation and investment.

Additionally, the Commission asks whether there are auction approaches for affording "new" access to previously licensed spectrum that would also address the cost issues; it asks, for example, whether incumbents should be allowed to offer their spectrum rights at an auction in which the Commission also offers new licenses in the same spectrum band (sometimes referred to as a two-sided auction). TIA supports the issuance of technology neutral licenses that enable existing and new licensees more flexibility to use innovative technologies and offer new services subject to appropriate interference regulations. TIA also urges the Commission to consider adopting market-based mechanisms – such as two-sided auctions and auction vouchers – that allow licensees to assign, transfer, or lease spectrum rights based on economic and technical considerations. Additionally, the Commission should consider using combinatorial (package bidding) auctions to facilitate the optimal aggregation of spectrum.

Finally, while some have argued that a spectrum cap on wireless carriers should be imposed,[13] reinstating spectrum caps would constitute a step backward in the Commission's spectrum policies and would negatively affect innovation and investment in the mobile and wireless broadband product markets. Such action would potentially

[13] *See* Public Notice, *WTB Seeks Comment on Petition for Rulemaking of RTG to Impose a Spectrum Aggregation Limit on all Commercial Terrestrial Wireless Spectrum Below 2.3 GHz*, RM No. 11498, DA 08-2279 (WTB, rel. Oct. 10, 2008) (seeking comment on the Rural Telecommunications Group, Inc.'s (RTG) proposal to implement a 110 MHz county-by-county spectrum cap on all commercial terrestrial wireless spectrum below 2.3 GHz) (RTG Petition).

limit carrier flexibility to respond to technical evolutions and to maximize the utility of existing allocations to increase innovative offerings.

Resurrecting a spectrum cap policy that was long ago discarded in favor of a more flexible spectrum screen method, which the Commission uses when reviewing competition in the mobile and now wireless broadband product market, would diminish competition.[14] Such a sweeping and arbitrary policy will ignore the strong competition existing in some markets while not addressing specific needs of non-competitive markets. The Commission stopped using spectrum caps in 2003, based on a 2001 determination that the imposition of spectrum caps was inflexible and failed to address consumer benefits or harms.[15] A spectrum screen approach allows the Commission to implement a more dynamic, less arbitrarily-static spectrum policy. The current screen enables the Commission to look at the collective spectrum holdings in a given market, which reveals a more complete and discrete understanding of its competitiveness. Under the current screen approach, an operator can control between 95 MHz and 145 MHz of CMRS, SMR, PCS, and 700 MHz spectrum (as well as AWS-1 and BRS spectrum) depending upon whether, on a market-by-market basis, the spectrum has transitioned to commercial broadband use.[16] If the screen is triggered, the Commission then undertakes a review of

---

[14] RTG Petition at 20-22.

[15] *See* 2000 Biennial Regulatory Review, Spectrum Aggregation Limits for Commercial Mobile Radio Services, WT Docket No. 01-14, *Report and Order*, 16 FCC Rcd 22668, 22693-94 ¶¶ 49-50 (2001).

[16] *See* Applications of Cellco Partnership d/b/a Verizon Wireless and Atlantis Holdings LLC for Consent to Transfer Control of Licenses, Authorizations, and Spectrum Manager and *De Facto* Transfer Leasing Arrangements and Petition for Declaratory Ruling that the Transaction is Consistent with Section 310(b)(4) of the Communications Act, WT Docket No. 08-95, *Memorandum Opinion and Order and Declaratory Ruling*, FCC 08-258 at ¶ 64 (rel. Nov. 10, 2008) ("*Verizon Wireless/Alltel Order*"); Sprint Nextel Corp. and

the market to determine if the aggregation of spectrum by a licensee would produce anti-consumer results. If the Commission has concerns regarding consumer benefits, it can compel divestitures on a market-by-market basis.[17] Divestitures typically arise in the context of mergers and acquisitions but they have recently been extended to Commission consideration of auction awards.[18] The Commission also periodically adds blocks of spectrum to the screen to take into account new allocations and auctions.[19] Thus, the spectrum screen approach enables the Commission to analyze each market with sensitivity to its particular characteristics; an arbitrary spectrum cap would eliminate this valuable flexibility.

There is no basis for the Commission to conclude that its current approach to enhancing competition, increasing innovation and investment, and protecting the public interest is in some way failing. RTG Petition has not established why a reversal of this policy is either necessary to enhance competition, protect consumers, or be any more effective now than it was prior to its elimination in 2003. On the contrary, the issues raised by the RTG – relative concentration of the market and recent auction results – are irrelevant to the question of whether consumers are benefiting from competition spurred by existing

---

Clearwire Corp., Applications for Consent to Transfer Control of Licenses, Leases, and Authorizations, WT Docket No. 08-94, *Memorandum Opinion and Order*, FCC 08-259 at ¶ 74 (rel. Nov. 7, 2008).

[17] *See, e.g.*, *Verizon Wireless/Alltel Order* at ¶¶ 100-113, 159 (requiring divestiture for five additional markets where the Commission finds upon further review after completing the initial screen that the transaction is "likely to cause significant competitive harm").

[18] *See* Union Telephone Company, Cellco Partnership d/b/a Verizon Wireless Applications for 700 MHz Band Licenses, Auction 73, *Memorandum Opinion and Order*, FCC 08-257 at ¶¶ 8, 26 (rel. Nov. 13, 2008).

[19] Applications of AT&T Inc. and Dobson Communications Corporation for Consent to Transfer Control of Licenses and Authorizations, WT Docket No. 07-153, *Memorandum Opinion and Order*, 22 FCC Rcd 20295, 20312-13 ¶ 30 (2007) (deciding to include 80 MHz of 700 MHz band spectrum to increase the initial spectrum aggregation screen to 95 MHz).

Commission policy with respect to spectrum aggregation. The only indirect consumer harm RTG discusses involves roaming agreements that smaller carriers need to obtain from national carriers, a topic that has been under separate consideration in a different proceeding.[20] Therefore, the RTG Petition makes an unpersuasive case for the Commission to consider resurrecting spectrum caps.

Should the Commission nevertheless choose to reevaluate the merit of its spectrum screen policy, TIA recommends that it first examine the effects of its current policy on consumers to determine whether this policy should be affirmed, modified, or discarded in favor of some other policy. The Commission should not conduct a narrow analysis of the marginal benefit of additional entry that might be achieved if the spectrum cap were reinstated. Instead, the Commission should take a broader view and consider that incumbent carriers are in various stages of moving to deployment of wireless broadband networks.

Unlike the voice networks of the past, the new networks will be built on blocks of spectrum ranging from 1.25 MHz to 20 MHz, or more. These building blocks will support the large networks needed to serve densely populated areas. In addition, these new broadband networks will require more contiguous spectrum than the voice networks that preceded them. A network that is constantly evolving to maximize the value of scarce spectrum resources and bring enhanced communications tools to consumers should not be managed with antiquated policies, like spectrum caps.

---

[20] *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, WT Docket No. 05-265, *Report and Order and Further Notice of Proposed Rulemaking*, 22 FCC Rcd 15817 (2007); Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, WT Docket No. 05-265, Small Entity Compliance Guide, DA 08-1319 (CGB rel. June 6, 2008).

II. FLEXIBILE, PROCOMPETITIVE POLICIES FOSTER INNOVATION AND INVESTMENT.

The Commission had inquired how it can play a role in fostering innovation and investment.[21] Specifically, the Commission seeks identification of policies that have been successful in stimulating and promoting innovation and investment.[22] Further, the Commission seeks comment on the impact of regulatory certainty and regulatory flexibility on innovation and investment, and how the Commission should consider those impacts in crafting regulations.[23]

TIA members, manufacturers of products, devices, and applications which drive wireless innovation, have found that a market-based, pro-competitive, technology neutral regulatory environment has most effectively promoted the rapid development of wireless services and technologies. This environment, which must continue if future innovation and investment are to thrive, reflects Congress' intent in the 1996 Telecommunications Act to ensure that a "pro-competitive, deregulatory national policy framework" was applied to the communications industry.[24] The Commission has responded to Congress' goals by establishing a regulatory framework that has established certainty in the wireless market that has promoted wireless investment and innovation.[25]

---

[21] *See* Innovation NOI at ¶ 11.

[22] *See id.*

[23] *See id.*

[24] Preamble, Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996).

[25] *See, e.g.*, First Report and Order and Further Notice of Proposed Rule Making, *Amendment of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, 11 FCC Rcd 8965, 8966 ¶ 1 (1996) (allowing spectrum licensees to offer all types of fixed, mobile, and hybrid services). The Commission explained this policy was designed to ensure that wireless providers could effectively "respond to market demand…[and] increase competition in the provision of telecommunications

The Commission's shift to a competition-based, technology neutral regulatory structure has resulted in the development of a variety of wireless technologies, platforms, service, applications, and devices available to American consumers. It is forecast that, as consumers increase demand for new wireless broadband applications, sales of smartphones in 2012 will have increased by 23.5 percent over sales in 2008.[26] Additionally, in 2012, annual revenues in the United States from wireless devices in 2012 will have increased by $2.2 billion in 2012, a 2.5 percent increase compared to 2007.[27] With this increase in demand and revenue from wireless device sales comes the need and desire for increased investment in and innovation of wireless devices. However, the promising outlook for wireless investment and innovation will be chilled should the path of reliable, pro-competitive wireless policies be abandoned. Stability in wireless policies will be critical to promoting continued rapid growth in the wireless device market.

III. INNOVATIVE WIRELESS PRODUCTS AND SERVICES WILL DRIVE IMPROVEMENTS IN HEALTH CARE, ENERGY CONSERVATION, EDUCATION, PUBLIC SAFETY, AND OTHER SECTORS OF NATIONAL PRIORITY.

The Commission seeks comment on how wireless services and products are being used in innovative ways to solve problems and provide consumer benefit in both the private and

---

services"); *see also* Report and Order, *Biennial Regulatory Review—Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services*, 13 FCC Rcd 21027, 21031 ¶ 4 (1998) (streamlining licensing rules for all wireless services to "introduce new entrants more quickly into this already competitive industry).

[26] *See* 2009 TIA Market Review & Forecast ("TIA Market Review") at 4-21.

[27] *See id*. at 4-23.

public sectors.[28] Many of our nation's needs may be met in part through the continued development of and investment in wireless products and applications. With continued advancement in broadband technologies (driven in part by advancements in semiconductor technology and multiple wireless integration into systems-on-a-chip),[29] diverse applications and devices will be developed that will benefit the health of our citizens, our nation's education, public safety, and the environment.

The development of innovative wireless technologies and devices has led to revolutionary developments in the medical field. Wireless technologies impact telemedicine and enables doctors to view and send medical images from locations outside their offices or hospitals securely and quickly. This is of particular importance in rural and other areas that do not have access to wireline broadband and cutting-edge health care, and for first responders seeking on-site medical expertise for immediate and life-saving care. TIA urges the Commission to coordinate with other relevant agencies, including the Department of Health and Human Services, to expand wireless healthcare services throughout the country.

Further, innovative wireless technologies and devices are already enhancing our nation's education. Wireless ICT products facilitate distance learning via the Internet, delivering remote access to education resources and services. Moreover, wireless in-course

[28] *See* Innovation NOI at ¶ 15.

[29] The Commission also asks whether there are innovations in chipsets, antennas, batteries, or other physical components of the wireless ecosystem that promise to drive wireless innovation more generally. *See* Innovation NOI at ¶ 12. In this regard, TIA notes that continued reduction in chip size and increase in computing power, coupled with integration of multiple wireless technologies, drives improvements in various sectors and provides consumers with expanded broadband benefits.

management systems are used to ensure quick email and online communications between teachers and students.

The use of mobile wireless broadband technology and devices to support public safety initiatives is essential in light of manmade and natural disasters that have plagued our nation over the past several years. The widespread use of IP-based technologies for public safety broadband services and devices will enable the widespread use of IP based technologies that will allow for expanded interoperability across systems and products. As was demonstrated in the response to Hurricane Katrina, in order for those protecting our citizens to effectively do their job, they must be able to seamlessly and reliably communicate with each other using cutting-edge mobile wireless products. An interoperable public safety network is within our grasp, and can be realized through effective spectrum policy and government support.

Our natural resources will also be preserved and maximized through wireless innovation and investment. Smart grid technology will employ a wide range of wireless products including those embedded in appliances in homes, sensors on transmission lines, and upgrades to substations. These technologies will increase communication to energy resource management systems to monitor activities in real time, exchange data about energy supply and demand, and modify power use during times of high load requirements.

Finally, Intelligent Transportation Systems can offer real-time solutions to transportation-caused environmental concerns. Traffic congestion and inefficient transport of goods can

be improved through wireless car navigation, variable transportation-based information transmissions, and traffic signal control systems.

IV. RESEARCH AND DEVELOPMENT CAN AND SHOULD BE A GENERATOR OF INNOVATION AND INVESTMENT.

The Commission seeks comment on how research and development (R&D) can be a generator of investment and innovation.[30] In the past, government has funded research that has led to investment-generating, cutting-edge wireless technologies that provided low-cost, commercially available ICT products to consumers. Additional government funding needs to be directed towards network-focused research and development to solve some of the problems at the core of next generation wireless networks.

The United States was once an international leader in communications research. Yet growing competition worldwide has reduced our status. The European Union has, through its 7th Framework Programme ("FP7"), committed to spending 50.5 billion Euros for the period of 2007-2013 on research and development in a whole host of technology areas.[31] That amount dwarfs the current level of U.S. government investment. The Recovery Act's $3.6 billion for research activities at the National Science Foundation ("NSF") and the National Institutes of Science & Technology ("NIST") will meet and, in some cases, surpass, the authorization levels for these agencies provided under the America COMPETES Act, which sought to double the

[30] *See id. at* ¶ 14.

[31] MAP-IT!: What is FP7?, http://www.map-it-med.eu/spip.php?article20 (last visited Sept. 4, 2009).

funding for these agencies within ten years.[32] It is this type of funding that will further advance wireless technologies and encourage investment in the wireless sector, which is why the FCC should include support for this effort in the National Broadband Plan.

V. MODIFICATIONS TO EXISTING WIRELESS EQUIPMENT AUTHORIZATION PROCESSES WILL SPUR INNOVATION AND INVESTMENT.

The Commission has asked for proposals to modify or relax the existing equipment authorization process that could minimize burdens on manufacturers and decrease the time to market of innovative wireless products while ensuring that RF equipment complies with the Commission's rules.[33] The Commission has an opportunity to make rule and procedural changes to specific wireless equipment approval processes to achieve this goal.

First, the Commission should make clear that addition of an antenna to a portable radio should not necessarily require a Class II change. Under section 2.1043(b)(3) of the Commission's Rules, a software-based upgrade to an Software Defined Radio (SDR) otherwise consistent with the FCC's SDR technical rules is a Class III change.[34] The Commission expressly "permits combinations of Class III permissive changes and Class I permissive changes to hardware in a single device."[35] Class III changes are permitted, however, only for equipment on which no accompanying Class II change has been made,

[32] America COMPETES Act, Pub. L. No. 110-69 , 121 Stat. 572 (2007).

[33] *See* Innovation NOI at ¶ 56.

[34] 47 C.F.R. § 2.1043(b)(3)

[35] 47 C.F.R. § 2.1043(b)(3) ("Class III changes are permitted only for equipment in which no Class II changes have been made from the originally approved device."); Authorization and Use of Software Defined Radios, First Report and Order, 16 FCC Rcd 17373, ¶ 23 (2001) (SDR Order).

and the Commission declined to "permit Class III changes to be combined with Class II hardware changes that could affect radio frequency emissions."[36] This Rule substantially restricts the SDR authorization holder's flexibility to add and market devices with new antennas under Part 15.[37] While such additions require a Class II change, the operating characteristics of the SDR do not change in most cases. In adopting the restriction on combined Class II and Class III changes, the Commission stated it would "consider revisiting this issue as the Commission and industry gain greater experience with" SDRs.[38] TIA members' experience is that an SDR antenna modification is more akin to a Class I permissive change that does not "have unknown effects on the interference potential and RF safety of a radio."[39] Like a Class II permissive change, moreover, a Class III permissive change requires a filing with the Commission must be accepted by the FCC prior to marketing the changed device, so TIA's proposed rule change would still preserve Commission review.[40]

---

[36] *See id.*

[37] *See* 47 C.F.R. § 15.204(c)(4) ("The marketing or use of a system configuration that employs an antenna of a different type, or that operates at a higher gain, than the antenna authorized with the intentional radiator is not permitted unless the procedures specified in §2.1043 of this chapter are followed).

[38] SDR Order at ¶ 23.

[39] *See id.* Class I permissive changes require no filing with the FCC and allow for modifications that do not degrade the characteristics (including RF emissions) reported to and accepted by the Commission when certification was granted. See 47 C.F.R. § 2.1043(b)(1).

[40] 47 C.F.R § 2.1043(b)(3) ("A Class III permissive change includes modifications to the software of a software defined radio transmitter that change the frequency range, modulation type or maximum output power … outside the parameters previously approved, or that change the circumstances under which the transmitter operates in accordance with Commission rules. When a Class III permissive change is made, the grantee shall supply the Commission with a description of the changes and test results showing that the equipment complies with the applicable rules with the new software loaded…. The modified software shall not be loaded into the equipment, and the equipment shall not be marketed with the modified software under the existing grant of certification, prior to acknowledgement by the Commission that the change is acceptable.")

Additionally, manufacturers should be able to put products into internal pipelines for distribution upon making a Class II change and while awaiting approval. Under Sections 2.1043(a) and (b)(2), when a Class II change is made, a manufacturer must request Commission approval of the change in a filing that includes detailed information and the results of tests of the affected characteristics. Pursuant to Sections 2.1204(a), 2.1043(b)(2), and 2.803(e)(4), a manufacturer may not import or otherwise distribute or market any product awaiting approval of a Class II change, except as permitted under the FCC's general marketing exceptions at Section 2.803.[41] These rules contain restrictions and ambiguities that have significantly delayed bringing innovative products to market and should be changed. Awaiting approval without being able to set up certain market distribution procedures creates significant market entry lag. Manufacturers are willing to take the financial risk of putting products awaiting approval into internal distribution pipelines if it ultimately speeds new products to market.

Application of the limited modular approval (LMA) process used for Part 15 devices[42] and licensed devices should be applied to certify embedded wireless solutions using three module/antenna orientations to represent implementation for a class of netbooks (and similar host devices), mobile Internet devices (MIDs), or ultra-mobile PCs (UMPCs).

[41] 47 C.F.R. § 2.1204(a) (setting import conditions for RF devices); 47 C.F.R. § 2.1043(b)(2) (stating that equipment with a Class II permissive change "shall not be marketed under the existing grant of certification prior to acknowledgement by the Commission that the change is acceptable."); and 47 C.F.R. § 2.803(e)(4) ("Marketing, as used in this section, includes sale or lease, or offering for sale or lease, including advertising for sale or lease, or importation, shipment, or distribution for the purpose of selling or leasing or offering for sale or lease.").

[42] *See* 47 C.F.R. § 15.212(b) ("Limited modular approval also may be granted in those instances where compliance with RF exposure rules is demonstrated only for particular product configurations. The applicant for certification must state how control of the end product into which the module will be installed will be maintained such that full compliance of the end product is always ensured.").

Such an approach would streamline the approval process. Wireless integration into these devices currently requires Specific Absorption Rate (SAR) testing in every system configuration.[43] In order to ensure more rapid development and provision of wireless devices, TIA proposes that the Commission allow testing of embedded wireless modules in devices such as netbooks, MIDs, or UMPCs in three representative systems for both radio radiated spurious emissions and SAR exposure, to demonstrate conformance for that class of systems. Further, conducted spurious emissions should only need to be tested in one representative system. This LMA would be based on compliance with these Radio and Radio Frequency requirements, and should be valid for system integrators who integrate antennas and wireless cards similar to those approved. With this approval change, system integrators would be able to leverage radio approvals without further Radio or RF Safety testing and get new wireless products to market faster, while ensuring conformance with FCC rules.

Furthermore, TIA proposes that the Commission conducts a review of opportunities for limited use of a self-declaration of compliance (DOC) process applicable to SAR testing. Given the fact that the Commission has required the use of IEEE 1528 test standards for several years for SAR evaluation and has adopted additional guidelines for SAR testing of 2G, 3G, and some 802.11 products, the Commission could begin allowing DOC for products that can currently be approved by TCB' s (except those requiring a PBA) and are addressed in the current standards. This would include most VHF, UHF radios, 800MHz mobile phones, 1900 MHz PCS, 2.4 GHz , some 3G systems as well as other

[43] *See* 47 C.F.R. § 2.1093 (subjecting portable devices using Cellular, PCS, or other wireless services, to "routine environmental evaluation for RF exposure prior to equipment authorization or use," and certification by the applicant for equipment authorization that the device complies with the limits set forth in 47 C.F.R. § 2.1093(d)).

radios. Similarly, a change in the requirements to enable the use of a Class I permissive change (essentially a DOC) rather than a Class II permissive change where SAR is very low or the SAR is equal or less then listed on the Grant of Authorization would avoid unnecessary review and delay by the Commission.

TIA further lauds the Commission's efforts to strive for appropriate and efficient regulations in support of innovative emerging technologies such as wireless power. We initially suggest that manufacturers should have the flexibility to apply for approval of a wireless power system under either Part 18 or Part 15 of the FCC's rules.[44] Additionally, the Commission should review whether there is adequate spectrum that could support wireless power applications and should seek further industry involvement as it considers evolving regulations for wireless power.

[44] *See generally* 47 CFR Parts 15 and 18.

CONCLUSION.

For the reasons detailed above, TIA urges the Commission to embrace policies that will make more spectrum available for commercial wireless use, take a pro-competitive regulatory approach to continue the wireless industry's remarkable growth in innovation and investment, strongly support research and development of innovative wireless technologies, and streamline the Commission's wireless equipment authorization processes.

Respectfully submitted,

TELECOMMUNICATIONS
INDUSTRY ASSOCIATION

By: __/s/_____

Danielle Coffey
Vice President,
Government Affairs

Patrick Sullivan
Director, Technical and Government Affairs

TELECOMMUNICATIONS INDUSTRY
ASSOCIATION
10 G Street N.E.
Suite 550
Washington, D.C. 20002
(202) 346-3240

September 29, 2009