

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the Matter of )  
Spectrum Policy Task Force Seeks ) ET Docket No. 02-135  
Public Comment on Issues Related )  
To Commission's Spectrum Policies )

**COMMENTS OF ERICSSON INC**

Ericsson Inc ("Ericsson") hereby submits comments in response to the Public Notice, released June 6, 2002, by the Spectrum Policy Task Force ("Task Force") of the Federal Communications Commission ("Commission"), to assist with the review of current spectrum policies and to promote discussion across a range of spectrum-related issues. The Task Force seeks comments on a broad range of spectrum issues that fall within five general categories: (1) Market-Oriented Allocation and Assignment Policies; (2) Interference Protection; (3) Spectral Efficiency; (4) Public Safety Communications; and (5) International Issues. As a principal, global manufacturer and developer of both fixed and mobile products, also involving new advanced communications technologies, Ericsson supports the Commission's efforts to open a dialog on U.S. spectrum policy and appreciates the opportunity to contribute to this process.

**Market-Oriented Allocation and Assignment Policies**

Over the last 10 years, the telecommunications industry has witnessed a growing trend towards convergence of technologies, applications, services, and markets. Industry is adapting to this convergence through the creation of network architectures and technologies that are capable of supporting multiple application capabilities, services and functions within existing regulatory and technical constraints. This convergence has brought advantages to consumers as well as to other branches of the media and communications industries because market participants enjoy

increasing openness and sharing of technologies, systems, and knowledge across different networks.

Convergence has been driven, in large part, by the phenomenal growth of mobile telephony. There are now more than one billion users on a global basis. Internet services and applications have experienced extraordinary growth and new technologies, and standards have enabled affordable broadband access and multi-service networking. Network convergence has caused a move from vertically integrated "single"-service networks to more open, horizontally layered, multi-service networks. Thus, convergence has and will continue to significantly change the fundamental technologies and design of the entire telecommunications systems.

Convergence has also radically altered telecommunications markets. New technologies spawned by convergence have opened entirely new business opportunities and consumer uses of previously undeveloped applications and services. As innovations have driven the development of novel markets and services, industry has struggled to keep pace and meet growing demand within the context of existing spectrum allocations and uses. At times, industry has experienced difficulty balancing the need for business predictability and stability with existing spectrum policy and regulatory uncertainty. Market-driven usage and service expansion continues to create a strong need for allocation of additional spectrum for commercial use throughout the current decade and beyond. Therefore, future spectrum allocations must follow a coordinated, predictable path to facilitate product, service, and market investments.

The Task Force identifies two particular policies that are aimed at fostering more flexible use of the radio spectrum: (1) granting existing licensees additional flexibility so that incumbents can migrate spectrum to its highest value use (*i.e.* to optimize spectrum use in relation to various business-oriented goals); and (2) reallocating bands for flexible use with geographic service

areas and auctioning “overlay licenses” and unassigned “white space” spectrum to new and existing licensees. Ericsson does not view these two models as mutually exclusive and generally supports the Commission’s efforts to ensure that spectrum policy is more responsive to market forces and market needs, particularly with regard to new licenses and new allocations. In addition to the foregoing policies, Ericsson urges the Commission to explore ways to improve flexibility in spectrum allocations and licenses to allow for secondary trading of licenses and/or spectrum.

In determining appropriate spectrum policy and regulation, the Task Force must be mindful of the negative effects of mid-stream changes in licensing requirements, technical or service specifications and/or allocations. Rather than facilitate the development of new markets, spectrum policies that do not take the need for business stability into account can actually be more disruptive to developing and existing markets than anticipated. Spectrum policy and regulations should be developed with an eye toward promoting business stability, predictability, transparency, and business fairness. Specifically, businesses must be able to plan current and future use of their licensed spectrum and should not be deprived of a reasonable opportunity to develop their spectrum for novel uses. A relatively stable horizon allows businesses to maximize capital investment, coordinate service expansion, and innovate. Therefore, a distinction should be made between changes in rules for already licensed spectrum and rules created for “new” spectrum to be allocated, by taking current commercial uses into consideration.

The Commission has also previously recognized that, in some instances, the decision to *not* require individual licenses for certain operations or devices is the best regulatory option. Unlicensed devices can contribute significantly to the ease of use and ubiquity of telecommunications services for consumers. Ericsson supports the continued authorization of

unlicensed devices but suggests that any new spectrum allocation for unlicensed use be reserved for communications services and devices, as this constitutes the highest value use of such spectrum. All use of unlicensed spectrum should be regulated to provide clear rules regarding an access etiquette, maximum power levels, and/or duty cycle restrictions, among other technical considerations. In the context of unlicensed spectrum, as well as other spectrum, the Task Force and Commission should also consider that spectrum sharing could be accomplished in the space, time, and code domains.

The advantages of spectrum management policies that promote spectrum efficiency cannot be understated and are a laudable goal for the Task Force and Commission. Again, Ericsson encourages the Task Force and the Commission to consider policies that encourage a more transparent, coordinated, and harmonized regulatory regime both domestically and internationally. In this way, spectrum policy can enhance access to spectrum by a range of users, services, and applications. Consumers can then realize service and device mobility on a regional, as well as global roaming, basis and increased personalized services. Moreover, consumers and industry alike will benefit from the economies of scale that such policies encourage.

In order to make any competitive spectrum assignment process fair, the “packaging” of spectrum blocks and other auction parameters should not be designed to increase auction revenue by creating artificial scarcity and artificial deadlines. Rather, new spectrum allocations should be analyzed from a business perspective and offered in a manner that creates a level playing field for different market actors. Before any auction process is executed, agreements or processes should also be in place to ensure that relocation costs for incumbent users are covered from the auction proceeds.

Further, the Task Force and Commission should endeavor to determine the true value of spectrum. This is particularly important for spectrum that is not used for commercial purposes and for which users have not paid. In such instances, because a capital investment was not made for the spectrum, users may have little incentive to maximize efficient use of their assigned spectrum. If a market value is identified for and attributed to such spectrum, however, it will ensure that spectrum is used more efficiently. This is especially true if incumbent users are authorized to lease, sell, or turn back to the Commission spectrum that is underutilized. Moreover, major improvements in spectrum utilization will only be realized for this category of spectrum through the consistent impact of spectrum pricing on long-term decisions about equipment design, procurement, and deployment.

#### Interference Protection

Ericsson does not propose any specific definition for “harmful interference” or any specific change in the Commission’s current approach to mitigating the potential for and remedying occurrences of interference. However, Ericsson encourages the Commission and Task Force to consider any changes to existing Commission policy on “harmful interference” from many different angles. Ericsson encourages a balanced approach to “harmful interference” analyses that recognizes that interference sources that do not create harmful interference in the short term may, in fact, do so in the future. Commercial licensees must be able to rely on protection for their current operations as well as for their opportunity to develop future uses of their licensed spectrum. Therefore, Commission policy must be respectful of potential future interference issues for licensed commercial services.

Instead of, or in addition to, revising present interference policies, the Commission may wish to construct another, less regulated process for mitigating interference that could be utilized

in appropriate instances. The Commission could explore spectrum management policies that capitalize on existing market forces, such as deregulation and the globalization of technologies, that have spawned intense competition in and specialization of telecommunications. If the Commission were to allow the market to function more freely to address and remedy interference issues between spectrum users, less regulatory intervention in markets, generally, would be necessary. In a market-oriented model, there is a built in incentive for industry to control and “self regulate” appropriate spectrum uses to ensure reliability and quality of service.

For example, even if there were few regulations related to equipment siting and signal transmission, operators would still engage in high level site engineering activities (and likely technical innovation) to ensure the reliability and quality of the services offered. This is particularly true in urban and congested areas. The reason for this is simple. Operators *must* ensure that their services are reliable and high quality in order to attract and retain customers. Therefore, there is a market-oriented incentive, independent of any regulatory mandate, for commercial operators to use their spectrum efficiently and to minimize the interference they receive from and cause adjacent users.

The Task Force and Commission should explore policies that capitalize on existing market forces that motivate commercial entities to act responsibly in their use of allocated spectrum. For instance, the Task Force and Commission should endorse conflict resolution schemes that operate outside of existing administrative procedures and allow commercial entities, that occupy adjacent spectrum blocks, to negotiate, among themselves, appropriate mitigation measures for unacceptable interference.

The Task Force and Commission should also consider establishing interference limits for such conflict resolution processes. These limits could be based on aggregated system-wide

parameters rather than on individual equipment characteristics. In this way, the Commission could grade the probability of interference according to the possible harm this interference may cause. This approach for mitigating interference has advantages over the current administrative procedures because it allows affected entities to devise solutions cooperatively and ensures that mitigation measures are suitable for the affected entities and the type of interference experienced.

Further, an alternative approach to interference mitigation by geographical service area separation could be to base spectrum sharing on technical considerations. This approach could be especially useful where basic technical parameters of radio signals, rather than the specific applications or services deployed in certain spectrum, are used as the basis for sharing. Such an approach would define sharing conditions in terms of clearly defined acceptable and unacceptable signal levels at the input of proposed or existing receivers.

The foregoing approach has several potential benefits. For instance, this approach establishes defined models for spectrum sharing. In addition, there is no need for restriction on the types of systems involved, *i.e.* there is flexibility of use within the interference equations defined in this approach. Moreover, all available spectrum space can be put to use under this approach, provided that the interference performance criteria are met.

As noted above, in addressing any interference concerns, regulatory consistency and clarity over time must be of primary importance in the Commission's spectrum management policies. Business stability is a key driving force in service expansion and improvement as well as innovation. Therefore, the Commission's treatment of interference issues should take this into account.

## Spectral Efficiency

The ever-increasing consumer demand for enhanced services and technologies is a significant force that drives spectral efficiency. The market creates a positive incentive for businesses to make efficient use of their spectrum. Very simply, a business that does not maximize its use of allocated spectrum will not survive. The high cost of licensed spectrum prohibits businesses from holding large amounts of spectrum hostage to inefficient use. While some measure of reserve spectrum is imperative for service and customer growth and innovation, business cannot hold large blocks of unused spectrum. Such action is unsustainable in an industry as highly competitive and sensitive to market influences as the telecommunications industry.

Because the market incentive for spectral efficiency is so strong for commercial operators, it may be unnecessary for the Commission to take regulatory action in this market sector. In addition, because the true effect of regulation cannot always be foreseen, the Commission should proceed cautiously in any endeavor to regulate more efficient uses of spectrum. Instead, the Commission should develop spectrum management policies that allow the market to drive the efficient use of spectrum through competition and innovation. Indeed, commercial entities are uniquely well positioned to respond to consumer demands and influences for efficient products and services. Accordingly, the Commission should carefully implement its mandate to regulate spectrum uses and moderate any attempt to develop regulatory measures intended to force commercial operators to use spectrum more efficiently.

### Public Safety Communications

Spectrum used for public safety communications has evolved under a separate regulatory scheme than spectrum used for commercial purposes. The application of different regulatory controls and policies to public safety spectrum has led to use of that spectrum which does not maximize its value or efficiency. The Task Force and Commission should endeavor to manage public safety spectrum in a manner that mitigates instances of interference and maximizes the opportunity to realize the best and highest value use of this spectrum to the benefit of the general public.

The difficulty of managing public safety spectrum cannot be overstated. The Task Force and the Commission are in the untenable position of trying to balance the need for maximum capacity use at unspecified times in the future with present relatively low or intermittent use. As a complicating factor to the foregoing, the way in which the public safety communication system is constructed makes it susceptible to interference and unreliable when users attempt to access it on the fringe of their established service area. Furthermore, emergency communication outside of the normal service area may be severely restricted due to lack of interoperability between systems from different jurisdictions or emergency response entities.

In order to ensure reliable public safety communications, these difficulties should be addressed in national spectrum policy. Ericsson does not advocate any particular remedy to public safety communications reliability and interference issues. However, among the options the Task Force and Commission could consider to mitigate interference issues is a structure which permits use, on a negotiated priority basis, of commercial systems for non-urgent or non-emergency public safety communications. Because of the ubiquity of commercial systems, this

would give public safety users the ability to communicate within their normal service area as well as enhanced interoperability elsewhere. Increased use of commercial services, possibly with public safety specific enhancements, can also provide lower costs by taking advantage of economies of scale in commercial equipment and services.

Ericsson believes that current commercial mobile systems already satisfy the majority of the requirements of advanced national and international disaster relief capabilities identified for an effective emergency public safety communications system. In addition, the ongoing development of third generation mobile systems will likely meet a majority of existing and future needs for a national and international emergency public safety communications systems. If additional functionality for public safety systems is needed, Ericsson believes that the incorporation of these needs into current and future commercial mobile systems is the most expeditious and cost effective approach. In summary, Ericsson suggests that introduction of enhanced public safety services on a commercial basis is a superior alternative to the development of a separate or new system for emergency communications.

Another option is to utilize band managers, for auction-assigned spectrum, as a tool to increase spectrum utilization and efficiency. Band managers could be made responsible for efficient use of their assigned spectrum. Thus, band managers could work in concert with the Commission to facilitate the introduction of new technologies.

Lastly, where spectrum bands allocated and assigned for public safety use are not fully utilized, the Commission could provide positive financial incentives for spectrum sharing arrangements with commercial users or for clearing underutilized spectrum for commercial use. In this way, the Commission could develop a comprehensive policy directed at providing for the needs of public safety users while increasing the efficient use of this spectrum.

## International Issues

U.S. spectrum policy necessarily exists in a broader global context. There are nearly 200 independent countries and territories utilizing radio spectrum and participating in the ITU and other fora. Each has its own policies, legal systems, laws, technology "standards," and national spectrum management systems. Spectrum policies often vary dramatically from country to country. For businesses with a global presence, like Ericsson, it is often extremely challenging to navigate through inconsistent regulations, standards, and practices that are often unpublished and/or difficult to access. The lack of global uniformity or harmonization in even some key areas, such as spectrum allocation for advanced wireless services, ultimately injures consumers because it increases the price of goods and services, and decreases the availability of enhanced technologies.

U.S. spectrum policy affects spectrum use worldwide. The global effect of some U.S. spectrum policy may be intended. However, U.S. spectrum policy can also have unintended negative effects on global spectrum allocations and use. Therefore, while the Task Force and Commission must be primarily concerned with the need to create U.S. spectrum policy and manage U.S. spectrum use, the Task Force and Commission should not disregard the role that U.S. policy plays in regional and global markets.

It is indisputable that a degree of regional and global consistency in spectrum policy is imperative for regional and global commercial business operations. Regulatory consistency encourages economies of scale, capital investment, and enhanced services. Consequently, it is important that the Task Force and the Commission fully analyze the implications of its spectrum management policies on regional and global policies. One way to achieve this goal is to continue to participate in international spectrum management efforts, like the WRC and other

ITU activities. Involvement in international regulatory initiatives will ensure that the Commission has the broadest understanding of the impacts of a particular U.S. regulation and can increase global harmonization and economies of scale, to the greatest extent possible.

Continued involvement in the international arena will also allow the Commission to influence future, global spectrum management decisions. At present, the international spectrum management process is overly complex and expensive, and involves too many unnecessary regulations. Although these policies directly affect industry, self-reliant industry players are uniformly underrepresented in the processes that create and enforce spectrum policies. The Commission should strive to include all affected entities in the various spectrum management processes in order to minimize differences in and to simplify, to the extent possible, global regulations. Further, in formulating national spectrum policy, as well as when participating in formulating regional and global spectrum policy, the Commission should focus on: (1) safeguarding competition; (2) encouraging the efficient use of spectrum and frequencies; (3) ensuring safety and security in operation; and (4) enhancing the quality of service offerings. The foregoing will promote business stability and encourage service enhancements for consumers.

### Conclusion

The Commission's decision to create a Spectrum Policy Task Force is a positive step toward creating (and refining existing) telecommunications regulations that are rational, reasonable and, most importantly, effective. As set forth above, Ericsson encourages the Task Force and Commission to analyze various spectrum management proposals and policies from a business perspective to ensure that regulations encourage business stability and predictability, and to ensure that they are fundamentally fair. In this way, the Commission will also achieve its

public interest mandate because the benefits of stability and predictability, such as increased capital investment, service expansion and enhancement, and innovation, inure directly to consumers.

DATED this 8<sup>th</sup> day of July, 2002.

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