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## SUMMARY

Broadcasters support a public interest-based spectrum policy that aims above all to conserve and enhance the invaluable spectrum resource. In response to the *Public Notice*, the Association for Maximum Service Television, Inc. (“MSTV”) and the National Association of Broadcasters (“NAB”), representing the broadcaster community, call on the Spectrum Policy Task Force to endorse the following policies in the first three of its five areas of inquiry:

- **Market-Oriented Allocation and Assignment Policies:** While economic factors play a role in public interest determinations, they must not take the place of such determinations. Allocation by auction is simply impermissible under the Communications Act. Furthermore, allocations that are left ill-defined or undefined create uncertainty and reduce the value of spectrum. These and other considerations weigh in favor of the Commission taking a proactive role in managing spectrum through the exercise of the Commission’s responsibility to assess and protect the public interest. This includes managing relocation of incumbents in reallocated bands, managing spectrum sharing to preserve the value of spectrum for incumbent users, and giving providers of existing services flexibility to offer innovative new services.
- **Interference Protection:** It is vital that the Commission crack down on spectrum resource waste by doing everything in its power to protect spectrum users and the public from interference. The emergence of more and more spectrum-using services has exacerbated the problem of cumulative interference, leading to unprecedented spectrum congestion. Interference poses an imminent threat to the investment-backed expectations of businesses and consumers alike. The solution to this problem lies not just in technical standards, but also in stepped-up enforcement of interference rules by the Commission.
- **Spectral Efficiency:** The Commission should judge efficiency in light of diverse service constraints, including data capacity, interference environment, receivers, and point-to-multipoint architecture. The Commission should also promote efficiency through constructive policies, such as rewarding incumbents who use their spectrum more efficiently and recognizing that receiver standards promote efficient spectrum use.

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Spectrum Policy Task Force	)	DA 02-1311
Seeks Public Comment on Issues	)	ET Docket No. 02-135
Related to Commission's	)	
Spectrum Policies	)	
	)	

To: The Commission

**JOINT COMMENTS OF  
THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION, INC.  
AND THE NATIONAL ASSOCIATION OF BROADCASTERS**

No one can place a dollar value on the benefits of spectrum to the American people. From national defense and public safety to everyday commercial applications, spectrum enhances our lives in countless ways. Among the most prominent public benefits it affords are free-over-the-air radio and television. Television alone provides an always-on, point-to-multipoint service to 98 percent of the American public on less than 1.4% of all spectrum below 3 GHz. Most television broadcasters are now in the process of rolling out mandated digital service, while continuing to provide analog service in the same spectrum band. When the public has migrated to digital service, broadcast television will be the first wireless service ever to substantially reduce its spectrum use while providing additional service, even as approximately 25 percent of broadcast spectrum is cleared nationwide for use by new services.

The Association for Maximum Service Television, Inc. ("MSTV") and the National Association of Broadcasters ("NAB") welcome this opportunity to share the views of the broadcaster community on the issues raised by the Spectrum Policy Task Force in the *Public Notice* of June 6, 2002. MSTV and NAB represent the broadcast industry. Over the years, our

members have consistently supported an approach to spectrum policy that marries innovation with respect for the goals and requirements of both established and emerging services.

As we suggest in these comments, a wise and progressive approach to spectrum management must take into account the peculiar features of different wireless services. For example, the attributes of broadcasting that impact the way broadcast spectrum should be managed include:

- Provision of constant, around-the clock service with local, regional, and national content through a robust, local medium.
- Provision of universal service to some 250,000,000 Americans.
- Reliance on open systems with no broadcast industry control over receivers.
- Reliance on advertiser support to provide free service to everyone, regardless of ability to pay.

Today, most broadcasters are in the unusual position of simultaneously offering both an established analog service and a nascent digital service. As a result, broadcasters share a unique perspective on, and a strong interest in, the issues raised in the *Public Notice*.

## **I. MARKET-ORIENTED ALLOCATION AND ASSIGNMENT POLICIES**

With so many beneficial services vying for blocks of spectrum, hard choices are inevitable. The idea that these broad choices about how to allocate spectrum could be left mostly or entirely to market mechanisms is wishful thinking. There is no *deus ex machina* that can take the place of the Commission in making these major spectrum allocation decisions in a manner that genuinely serves the public interest.

**A. Market-Oriented Allocations Are No Panacea.**

Market mechanisms certainly have a role to play in spectrum policy, but such mechanisms should not govern the process of spectrum allocation – defining particular bands and designating services that may be provided in those bands. If the migration to “market oriented allocations” referenced in the *Public Notice*<sup>1</sup> involves the use of auctions to determine the allocation of spectrum, then MSTV and NAB call on the Task Force to recognize that allocation by auction would violate basic provisions of the Communications Act, and would result in allocations that fail to serve the public interest. We recognize that any well-reasoned public interest analysis necessarily includes economic considerations. Nonetheless, such considerations must not be the exclusive factor governing spectrum allocation.

**1. The Commission has no legal authority to allocate by auction.**

The Communications Act of 1934, as amended, forbids the Commission from allocating spectrum on the basis of revenue maximization. Allocation decisions must be based on findings of “public interest, convenience, or necessity.”<sup>2</sup> The Commission may not base such findings “on the expectation of Federal revenues from the use of a system of competitive bidding.”<sup>3</sup> In other words, the expectation that a particular allocation will maximize the

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<sup>1</sup> *Public Notice* at question 1.

<sup>2</sup> 47 U.S.C. § 303(c). Determinations under this standard encompass a wide range of factors. Traditionally, they have included public demand or potential demand for particular services, the necessity of using spectrum to convey the service, and the effect that introduction of particular services will have on existing investments. The Commission also weighs the possible risks and rewards of the service, including extent to which the public would benefit from successful service and the risk that new services will not succeed. Section 303(y) permits the Commission to make “flexible use” allocations, but these too must be subject to a prior public interest determination. *See* 47 U.S.C. § 303(y).

<sup>3</sup> 47 U.S.C. § 309(j)(7)(a).

perceived value of the spectrum for auction participants cannot form the basis for any allocation by the Commission.

Nor can the Commission substitute the value judgments of auction participants for its own public interest determinations by introducing mechanisms that, in fact or in effect, allocate spectrum to the highest bidder.<sup>4</sup> Under the Communications Act, “value” for purposes of spectrum allocation is a question of public interest maximization to be determined by the Commission, not a question of revenue maximization to be determined by auction. Even when the Commission makes “flexible use” allocations under 47 U.S.C. § 303(y), Congress does not permit the Commission to abdicate its public interest responsibilities in favor of auctions. Section 303(y) requires the Commission to base flexible use allocations on its own, reasoned allocation decision, including finding that the allocation is in the public interest, that it will not deter investment, and that it will not result in harmful interference.<sup>5</sup>

**2. Market mechanisms cannot result in efficient allocations because they inevitably undervalue certain benefits.**

Congress forbade the allocation of spectrum based on revenue expectations because it recognized that such allocation mechanisms would chronically undervalue public and quasi-public goods. In a spectrum allocation auction, who would bid on behalf of public safety, or weather forecasting, or space research? Allocation of spectrum to the highest bidder inevitably ignores these and a host of other generalized public benefits – including many of the public interest benefits of a nationwide system of local, free-over-the-air, broadcast stations.

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<sup>4</sup> *Cf. National Ass’n of Indep. TV Producers & Distributors v. FCC*, 502 F.2d 249, 256-58 (2d Cir. 1974) (in making public interest determinations, FCC must place the public interest above private interests, and may not simply “compromise” among participants in the proceeding.).

<sup>5</sup> 47 U.S.C. § 303(y)(1)-(3).

Public safety communications constitute the clearest case of spectrum used to create a valuable public good that, if allocated by the market, would probably be used for other purposes. Other free services, such as broadcasting, deliver benefits that would not be captured in a spectrum allocation auction. This value can be measured in terms of consumer surplus (the amount consumers would be willing to pay for a good or service above the amount they actually pay). For cable viewers, consumer surplus consists, among other things, of the value broadcast programming adds to cable programming and the restraining effect the existence of a free service has on subscription video prices. For broadcast-only viewers, the consumer surplus is the total benefit to viewers from receiving the signal at no charge, including the value of the pure public goods (*e.g.*, emergency services and political broadcasting) that are not reproduced elsewhere, as well as the perpetual and free availability of a basic service.

Other beneficial commercial services, like those requiring huge capital investments (such as satellite) or those that operate at the local or regional level would likely be grossly undervalued in an allocation-auction for similar reasons. Auctions are blind to the generalized public interest benefits associated with maintaining such services.

**3. The need for essential interference and technical standards makes it impracticable to allocate spectrum by market mechanisms.**

Assuming, for the sake of argument, that a market-based system for allocating blocks of spectrum were somehow permissible under the Communications Act, such a system would be impracticable. A spectrum block is effectively unusable for any purpose unless some authority defines basic technical standards, such as power limits and signal-to-noise ratios, to control interference. This means that the setting of technical standards is itself a form of allocation, because it inevitably excludes some service types. In practice, this allocative effect of technical standards would make it virtually impossible to design an allocation-auction without

severely compromising the value of the spectrum. The only way to open such an auction to a broad cross-section of spectrum users would be to leave the spectrum virtually undefined by technical standards. This would be a mistake, since experience shows that undefined or ill-defined spectrum is unattractive to potential bidders.<sup>6</sup>

#### **4. Poorly-defined allocations create costly uncertainty.**

If allocations are left undefined or minimally defined by the Commission in the name of letting the market decide how spectrum is used, the inevitable result will be less certainty for service providers, investors, equipment manufacturers, and others with investments at stake. Experience shows that some narrowly-defined service categories, such as Part 15 unlicensed services, can tolerate a high degree of uncertainty within defined limits. Without such limits, and with a broader range of services involved, the risks of an undefined or ill-defined allocation would rapidly outweigh the likely rewards. Uncertainty deters investment, innovation, and optimal spectrum use. At a minimum, the increased risk of interference will mean that more spectrum is wasted on internal guard bands, and more money will have to be spent to protect equipment from nearby incompatible services.<sup>7</sup>

One of the Commission's first experiments with an ill-defined allocation bears this out. In a 1995 proceeding allocating 25 MHz of spectrum to unspecified fixed or mobile services, the Commission controversially found that nothing in the Congressional mandate defining its role suggested that it was prohibited from assigning spectrum to licensees for more

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<sup>6</sup> The 4 GHz example in the following section (I.A.4) bears this out.

<sup>7</sup> As former Commissioner Ness has observed, "spectrum bands are generally most efficient when the services within the band are similar." Flexible allocations mean "[m]ore insulation is needed to separate incompatible uses," and "[e]quipment becomes more expensive." Susan Ness, Remarks of Commissioner Susan Ness before CTIA's Wireless '97 (1997).

than one permissible use.<sup>8</sup> The Commission broadly “allocated” released government spectrum in the 4 GHz band at issue in that proceeding (4660–4685 MHz) for fixed and mobile services (including one-way, two-way, mobile, fixed, private, commercial, subscription, and non-subscription uses). The Commission left it to auctions to sort out the composition of the band.

This abdication of the Commission’s responsibility to allocate spectrum in the public interest produced predictably poor results. The market regarded the ill-defined band as all but worthless. The auction for the broadly allocated band (renamed the General Wireless Communications Service) was postponed due to a complete lack of demand for licenses in the band.<sup>9</sup> The lack of demand was evidenced by the fact that the Commission received not a single response to a January 1998 Public Notice seeking comment on specific auction procedures for the May 1998 auction.<sup>10</sup> The Commission itself noted that “[t]his lack of interest may have been due in part to the relatively small size of the spectrum block and to *the potential interference problems in the band.*”<sup>11</sup> Ultimately, the entire GWCS allocation was reclaimed for Federal Government use.<sup>12</sup>

The 4 GHz experience provided an object lesson on the perils of going too far with market-oriented allocations. Other experiments with broad allocations have been equally disappointing. The General Purpose Mobile Service (“GPMS”) was eventually reallocated to

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<sup>8</sup> *Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use*, 10 FCC Rcd 4769, 4791 (1995).

<sup>9</sup> *Wireless Telecommunications Bureau Announces Postponement of General Wireless Communications Service (GWCS) Auction*, Public Notice, Report No. AUC-98-19-B (Auction No. 19), DA 98-162 (rel. Apr. 28, 1998).

<sup>10</sup> *The 4.9 GHz Band Transferred from Federal Government Use*, WT Docket No. 00-32, 15 FCC Rcd 4778, 4782 n.21 (2000).

<sup>11</sup> *Id.* at 4782 (emphasis added).

<sup>12</sup> *Id.* at 4783.

narrowband PCS.<sup>13</sup> And auction participants showed remarkably little enthusiasm for licenses in the even broader Wireless Communications Service (“WCS”).<sup>14</sup>

While allocations should take cognizance of economic factors, failure to make basic “spectrum zoning” decisions about which services should use which spectrum blocks on the basis of interference and service characteristics virtually ensures that spectrum will be over-used in a chaotic fashion or under-used in a wasteful fashion. MSTV and NAB call on the Task Force to recognize the importance of these decisions and recommend that the Commission avoid allocations that group together incompatible services.

**B. Market Mechanisms Are Generally More Appropriate For Spectrum Assignment.**

Broadcasters have long recognized the flaws inherent in traditional strategies for resolving mutually exclusive license applications. The comparative hearing method traditionally used for broadcast licenses typically involved proceedings before an administrative law judge or other official in which parties fought for licenses under the “public interest, convenience, and necessity” standard. This often led to long and costly litigation, draining resources that could have been better spent providing service to the public. The lottery method used by the

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<sup>13</sup> In 1986, the Commission allocated 2 MHz for General Purpose Mobile Service, a flexible allocation that was available for all land mobile, maritime mobile, and aeronautical mobile uses. *Amendment of Parts 2 and 22 of the Commission’s Rules Relative to Cellular Communications System*, 2 FCC Rcd 1825, 1841 (1986), *recon. denied*, 2 FCC Rcd 6830 (1987). However, those frequencies remained fallow and were eventually reallocated to narrowband PCS. *Amendment of the Commission’s Rules to Establish New Narrowband Personal Communications Services*, 8 FCC Rcd 7162, 7164–65 (1993).

<sup>14</sup> In 1997, the Commission allocated 30 MHz for Wireless Communications Service, a flexible allocation that permitted fixed, mobile, and radiolocation services without any further designations. *Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service (“WCS”)*, 12 FCC Rcd 10,785, 10,797 (1997). The auction for the 128 WCS licenses netted less than \$14 million, far lower than the \$173 million netted in the auction of 25 MHz of adjacent spectrum for the more specifically allocated Digital Audio Radio Service.

Commission for a time was much faster, but it provided no way of ensuring that lottery winners actually valued and would fully exploit the spectrum they were obtaining.<sup>15</sup>

Auctions, by contrast, provide a relatively swift and rational solution to the problem of selecting licensees. They are not an ideal solution by any means, however. Among other problems, they demand enormous upfront investments for the right to provide future services – a risky proposition that may backfire, as it has with third-generation wireless auctions in Europe. Accordingly, there may be market-based modifications or alternatives to auctions that should be explored.

### **C. The Commission Should Take A Proactive Role In Spectrum Management.**

MSTV and NAB believe that the Commission must take a more active role in spectrum management. In doing so, its core policy objectives should include service preservation, sound relocation policies, and promoting flexibility within well-defined allocations. Moreover, additional uses of the spectrum must be carefully managed to preserve the value of spectrum with respect to existing services.

#### **1. All new spectrum allocations must include service preservation and relocation plans.**

When the Commission makes new spectrum allocations, no matter how flexible or market oriented, it should also adopt a specific and effective plan to relocate incumbents. Such relocation plans should enable service providers to maintain service to the public without interruption and ensure that incumbents are made whole for loss of spectrum. In some cases, where spectrum can be cleared on a market-by-market basis, or where service operators control both the transmit and receive ends, FCC involvement in relocation may be minimal. In other

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<sup>15</sup> See Congressional Budget Office, *Where Do We Go From Here? The FCC Auctions and the Future of Radio Spectrum Management* 4–5 (1997) (providing further background on traditional assignment mechanisms).

cases, it will have to be more proactive, consistent with the precedent set in the *Emerging Technologies* proceeding.<sup>16</sup>

The Commission should not slough off or short-circuit the responsibility to oversee and ensure effective relocation procedures. This includes responsiveness to changed circumstances. For example, MSTV and NAB have recently pointed out that in the 2 GHz Broadcast Auxiliary Services (“BAS”) band, changed circumstances not only make the existing relocation plan unnecessary, but also render it unworkable.<sup>17</sup> The current BAS relocation plan consists of a complex phased approach that was premised on a slow roll-out of Mobile Satellite Service (“MSS”) and consideration of the financial disadvantages of MSS entrants. But new wireless entrants who are now eager to move into the band face a very different financial picture. Moreover, the uncertainty resulting from their reallocation proposals has already affected negotiations. MSTV and NAB fear that without Commission intervention, the relocation process for broadcasters in the 2 GHz BAS band will become another disappointing case study in ineffective spectrum management. The situation perfectly illustrates the need for the Commission to supervise and adjust the incumbent relocation process to accommodate the needs of a rapidly-changing market.

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<sup>16</sup> New licensees using 220 megahertz of spectrum in the 2 GHz band, identified for reallocation to services using innovative technologies, were allowed to clear their spectrum by relocating incumbent microwave licensees to bands above 4 GHz. The new service providers were required to guarantee payment of all relocation expenses, build new microwave facilities at the relocation frequencies, and show that the new facilities were comparable to the relocated facilities. See *First Report and Order and Third Notice of Proposed Rule Making*, ET Docket No. 92-9, 7 FCC Rcd 6886 at 6890 (1992).

<sup>17</sup> *Joint Comments of the Association for Maximum Service Television, Inc. and the National Association of Broadcasters*, ET Docket No. 00-258 (October 11, 2001).

**2. Incumbents should be given flexibility to offer new services alongside existing services.**

Giving incumbents flexibility to offer new services alongside existing services encourages innovation and intensive use of spectrum. One model for this approach is 47 U.S.C. § 336, which provides for broadcast spectrum flexibility by permitting digital television licensees to offer ancillary and supplementary services that do not derogate from digital television services. As a matter of general spectrum policy, incumbents should be given this kind of flexibility whenever possible, subject to rules that ensure the consistency of new offerings with the particular attributes of existing services. Whether and how incumbents should pay for the right to provide such services is a separate issue to be resolved on a service-by-service basis.

**3. Spectrum sharing must be carefully managed to preserve spectrum's value.**

Spectrum sharing policies must be tailored to preserve the value of spectrum to existing users and respect the future needs of existing services. In theory, the purpose of an “overlay” allocation is to extract more value from spectrum by permitting a second licensee to offer services in the margins of the first licensee’s service. The main problem with blanket overlays is that, by definition, their geographic, temporal, and spectral boundaries overlap those of the underlying service. This tends to diminish the value of spectrum for all users by increasing the risk of interference and dispersing control of the band among two or more users with possibly inconsistent goals. To avoid these hazards of blanket overlays, spectrum sharing should be accomplished primarily through interservice sharing pursuant to interstitial assignments that are subject to clearly defined technical criteria, based on real-world experience, for preventing interference.

Proposals for spectrum sharing must also take into account the developmental stage and future needs of the incumbent service. Services that require intensive upfront

investment, like satellite services, or that require independent consumer purchases, like digital TV, may not use spectrum intensively at the start of their allocation. Premature sharing may prevent these technologies from developing at all if the second service causes interference, and may prevent the first service from acquiring the spectrum rights necessary to provide ancillary services that consumers would desire. The Commission must be very careful with spectrum sharing proposals that threaten the investment-backed expectations associated with existing spectrum services.

Spectrum sharing works only if it is based on real-world experience, not theoretical constructs. Already, viewers in some parts of the country are losing free over-the-air television service in cases where the theoretical models for DTV interference failed to give incumbents enough protection, and experts are predicting more problems as more DTV stations come on the air.<sup>18</sup> This experience demonstrates that overlay allocations based on theoretical propagation models, rather than case-by-case realities, pose a major interference threat to the investments of incumbent service providers and the settled expectations and confidence of their customers and investors.

## II. INTERFERENCE PROTECTION

### A. Cumulative Spectrum Degradation Threatens To Destroy The Value Of The Spectrum Resource.

As the *Public Notice* correctly observes, “the radio spectrum is becoming increasingly congested.”<sup>19</sup> As the wireless communications industry has boomed, new wireless

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<sup>18</sup> See Ken Kerschbaumer, *DTV Interference Issues Loom*, *Broadcasting & Cable*, June 24, 2002 at 30-31. It may be instructive to note that in the case of devastating interference to a Salisbury, Md., station highlighted in this press account, the interfering station defends the real-world interference it is allegedly causing by arguing that the rules, based on theoretical predictions, do not preclude it.

<sup>19</sup> *Public Notice* at 3.

services have been added and existing services have continued to grow. As most clearly evidenced by the 3G proceeding at the Commission, the demand for spectrum far exceeds the supply.<sup>20</sup> The Commission has responded to the increased demand for spectrum by increasingly allowing sharing of spectrum bands and flexible allocation rules for given spectrum bands.<sup>21</sup>

In allowing more and more services and users to operate in the radio spectrum, the Commission has overlooked cumulative interference and resultant spectrum pollution and service degradation. This is due to the fact that in authorizing a new service or user, the Commission typically conducts an *ad hoc*, case-by-case interference analysis and considers the harmful interference caused on an *incremental* basis. Thus, even if each new spectrum use does not cause significant interference to existing spectrum users, the *cumulative* effect of all the new spectrum uses authorized in recent years has degraded the quality of spectrum for all users. Spread spectrum devices, for example, appear as background noise and do not cause harmful interference individually or in small numbers. However, as the number of devices multiplies, the noise floor rises to an objectionable level for the primary user of the band(s) in which the spread spectrum device operates. The failure to prevent such cumulative interference led to the deterioration of AM radio quality and the transformation of the AM band into a dumping ground for electromagnetic “pollution.” In short, the Commission’s proceeding-by-proceeding

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<sup>20</sup> *Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258.

<sup>21</sup> *See, e.g., Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use*, 11 FCC Rcd 624 (1995) (adopting flexible service rules for the General Wireless Communications Service in the 4660–85 MHz band); *Amendment of the Commission’s Rules To Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, 11 FCC Rcd 8965 (1996) (permitting flexible service offerings in already allocated band); *see also Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium*, Policy Statement, 14 FCC Rcd 19868, 19870 (1999) (indicating the FCC’s continued preference for flexibility in allocation).

consideration of interference protection has failed to systematically address the issue of loss and impairment of service caused by cumulative interference to existing services and licensees.<sup>22</sup>

The Commission must be wary of diluting the resource to the point where it is less valuable overall. As an initial matter, degraded spectrum and increased cumulative interference hurts the public that relies on these services, as well as existing licensees and users, many of whom have invested large sums of money over the years to cultivate the spectrum resource. In many cases, manufacturers have invested millions (or even billions) of dollars in the research, development, and marketing of consumer equipment that relies on access to particular spectrum, and this investment is hurt when new sources of spectrum degradation result in impairment or loss of service. And even with respect to future allocations, spectrum use rights, like most resources, are most valuable when they are clearly defined and are “free and clear” of potentially interfering uses.<sup>23</sup> MSTV and NAB urge the Task Force to recognize that clearly defined spectrum use rights give businesses and other entities reasonable assurances that their investments will be secure, thereby encouraging the often large investments required to construct complex and comprehensive communications networks and bring new and improved services to the public. They also provide assurance to consumers that an investment in new technology will

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<sup>22</sup> The pending FCC proceeding that considers proposals from Nextel and the National Association of Manufacturers (NAM) to alleviate the problem of interference experienced by public safety users in the 800 MHz band provides a contemporary example of the Commission’s failure systematically to consider the interference effects of new services. *Improving Public Safety Communications in the 800 MHz Band*, WT Docket No. 02-55, FCC 02-81 (rel. Mar. 15, 2002). Public safety users are increasingly experiencing harmful interference from neighboring cellular/PCS providers, even though all parties are operating within the Commission’s technical limits – an example of the Commission failing to predict accurately harmful interference caused by the growth of new services.

<sup>23</sup> See Thomas W. Hazlett, *The Wireless Craze, The Unlimited Bandwidth Myth, The Spectrum Auction Faux Pas, and the Punchline to Ronald Coase’s “Big Joke”*: An Essay on Airwave Allocation Policy, 14 Harv. J.L. & Tech. 335, 489–509 (2001) (noting that FCC licensees are willing to pay large sums to escape the “spectrum commons” of unlicensed bands because of the certainty associated with a license).

not prove short-lived. We also urge the Task Force to recommend that all spectrum use rights include clearly-defined interference protection rights.

**B. Better Enforcement Is Urgently Needed.**

As the number of spectrum-utilizing devices increases, the number of interference-causing devices also increases. As a result, the need for preventive measures increases. As discussed above, clearly defined spectrum use rights with clear definitions of interference are part of the solution, but they are not sufficient. Protection from interference also requires a stronger FCC enforcement policy to correct and deter violations.

While it is tempting for the Commission simply to define interference and then let private parties resolve interference disputes, that approach will not result in an optimal level of interference protection and will not provide licensees and other spectrum users with the necessary assurances that their investments are secure. As spectrum-utilizing devices proliferate – both in terms of number and variety – it becomes increasingly hard to determine the source of interference. Consumers lack perfect (or often, any) information about sources of interference, regardless of the type of communication device involved, whether to radio, television, cellular telephones, or cordless telephones. Even if consumers were able to correctly detect the sources of interference, there is a collective action problem — the benefit to a single customer in making a consumer complaint is likely to be outweighed by the time and effort involved in doing so, even though the aggregate harm to the public caused by the interference is great. Instead, consumers are likely to look for another station, or turn to alternative services.

The Commission, with its technical expertise and its enforcement powers, should police interference actively, rather than relying principally on individual consumer complaints. As the Commission increasingly permits sharing of spectrum bands and relies on technical limits to prevent interference between the sharing services, the Task Force should encourage it to

enforce interference standards vigorously and impose fines sufficient to deter violations – thereby providing an effective remedy for the violation of a spectrum use right.

**C. Management By Waiver Is No Solution.**

FCC policies that offer liberal interference waivers to facilitate band clearing or other objectives are harmful and short-sighted. The recent legislation barring such waivers to facilitate the clearing of channels 52-69<sup>24</sup> shows that Congress rejects the policy of sacrificing viewers at the margins to achieve short-term goals. The courts have been similarly critical.<sup>25</sup> The Commission should reject management by waiver as well, and instead adopt clear rules that permit companies to structure their conduct based on settled expectations. In a sector currently struggling to raise capital, clear rules – rather than waivers granted on an ad hoc basis – provide the certainty necessary for investors to make informed decisions regarding the future of the spectrum in question.

**D. Unlicensed Devices Should Occupy Defined Spectrum.**

There is a clear and growing need for unlicensed devices. These devices have proven to be well-suited for short-range consumer-oriented applications such as wireless LANs and cordless telephones. However, the success of unlicensed devices has created problems for the other devices that are primary in the bands in which unlicensed devices operate. Even if individual devices do not cause any problems, the cumulative interference caused by the proliferation of unlicensed devices may result in loss or impairment of the primary service.<sup>26</sup>

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<sup>24</sup> Auction Reform Act of 2002, Pub. L. No. 107-195, § 6(a), 116 Stat. 715 (2002).

<sup>25</sup> See *Basic Media, Ltd. v. FCC*, 559 F.2d 830, 833 (1977) (quoting *Safety-Kleen Corp. v. Dresser Industries, Inc.*, 518 F.2d 1399, 1403 (C.C.P.A. 1975) (“Administrative agencies should be bound by their own rules and regulations, so that an agency’s power to suspend its own rules ... must be closely scrutinized ....”).

<sup>26</sup> While the FCC predicts the interference levels in adopting technical limitations on Part 15 devices, there is simply no way it can predict with complete accuracy the effect of hundreds of

Even though unlicensed devices that operate under Part 15 cannot, by rule, cause harmful interference to licensed users and must cease operating if they do, the reality is more complicated. Once unlicensed devices are manufactured and make their way into the hands of consumers, they cannot realistically be tracked down and made to cease operation if they cause harmful interference to a licensed service.<sup>27</sup> Moreover, shutting down unlicensed devices at that late stage will result in tremendous disruption of investments on the part of consumers and industry. To prevent such problems, the Commission should limit unlicensed devices to specific spectrum bands – a move which would ensure that primary services are not interfered with while permitting greater innovation and power levels for unlicensed devices because they will not have to protect against interference to primary users in the same spectrum.

The growth and promise of this field suggest that unlicensed devices continue to need their own designated spectrum, and may indeed need more of it in the future. By the same token, this growth suggests that letting unlicensed devices share bands with licensed services is not a viable long-term, or even short-term, solution. As unlicensed devices proliferate, the level of pollution they cause will increase. By the time this pollution reaches unacceptable levels, it may be too late to restore order without tremendous disruption of investments on the part of consumers and industry, and considerable damage will have occurred in the meantime.

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thousands of devices once they are actually deployed.

<sup>27</sup> For this reason, the Task Force should urge the Commission to proceed with great care before authorizing additional uses of ultra-wideband spectrum devices that, almost by definition, operate in bands assigned to others.

### III. SPECTRAL EFFICIENCY

#### A. Licensees Must Be Allowed To Benefit From Efficiency Advances.

The best way to encourage private actors to be more spectrally efficient is to let them keep a significant part of the rewards of their own spectrum efficiency. If the reward for efficiency were reallocation of the user's recovered spectrum to different users, then incumbent licensees might even have a perverse disincentive to continue inefficient operations. In practice, most service providers, including broadcasters, are eager to be more spectrally efficient because doing so enhances opportunities to provide new or expanded services. In this sense the policy of permitting incumbents to use recovered spectrum nicely complements the policy of incumbent flexibility discussed above.

For example, the Commission did not attempt to reclaim spectrum from the cellular telephone industry when technological advances permitted the industry to convert from analog to digital transmission. Even though the spectrum was not purchased through an auction, the Commission did not penalize the industry for increased efficiency by taking away spectrum simply because it increased capacity through the use of more efficient technology. Instead, the Commission allocated additional bands dedicated to new PCS services, and ultimately permitted cellular licensees to have a major presence in the new PCS market.<sup>28</sup> The resulting growth in availability and decline in price of mobile communications have been notable spectrum policy successes of recent years. It came about in large part because the Commission gave the industry spectral opportunities to benefit from its own efficiency advances.

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<sup>28</sup> For background on the regulatory relationship between cellular and PCS, *see Cincinnati Bell v. FCC*, 69 F.3d 752, 764-65 (1995) (overturning FCC Rules that limited cellular investment in PCS providers).

**B. The Definition Of Spectral Efficiency Must Be Informed By Service Constraints.**

Measures of efficiency must depend on the type of service offered, the level of reliability needed, the robustness of the service, and the public interest served. Whether a particular use of spectrum is efficient depends heavily on the objectives that a particular use seeks to achieve and the technical means required to achieve them. MSTV and NAB propose that any effort to quantify or benchmark spectral efficiency must recognize and adjust for at least the following basic distinctions among services:

- **Data Capacity.** It is a fact of life that robust transmissions that require five million bits of data per second require more spectrum than transmissions that require five thousand bits per second. Data compression can help, but its usefulness depends on the content of the transmission.
- **Interference Environment.** Different services operate in radically different interference environments. For example, terrestrial services must use signals strong enough to navigate mountains, trees and buildings, while satellite services frequently avoid such obstacles. Similarly, some services must withstand interference caused by multiple signals on the same or other nearby channels, while other operate in relatively protected environments.
- **Control Over Receivers.** In closed communications systems, such as cellular and PCS, licensees can upgrade their operations and enhance efficiency by changing receivers and modifying receiver design. In open systems, such as television broadcasting, the transmission industry has no control over signal reception equipment.

- **Point-to-Multipoint Architecture.** Point-to-multipoint services result in intensive use of spectrum on an area-wide basis. At the same time, by their very nature they eliminate possibilities for sharing scenarios available to other services that can operate in shared allocations because of the ability to coordinate the reach of the signal on a defined geographic path.

**C. Quality Receivers Promote Efficient Spectrum Use.**

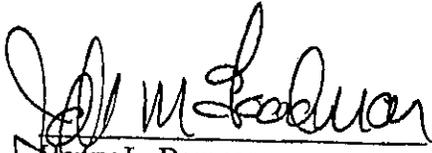
Achieving the goals of any application of allocated spectrum use requires assumptions about receiver performance. If the marketplace responds with products that meet those performance assumptions, a successful service is more likely to develop. For example, the coverage and interference expectations anticipated by the Commission in its development of a DTV channel assignment table require minimum performance from receivers in the areas of receiver noise, adjacent channel/co-channel interference, and taboo D/U ratios. Consumers are unlikely to purchase receivers for digital broadcast use unless they are confident that they in fact will be able to receive over-the-air digital broadcast signals. Moreover, as the Chairman's DTV plan has recognized, the inclusion of DTV receivers in all television sets is critical to the digital transition, and hence to efficient spectrum utilization and recovery.

IV. CONCLUSION

MSTV and NAB encourage the Task Force to incorporate the issues and concerns reflected in these comments into its evaluation and recommendations.

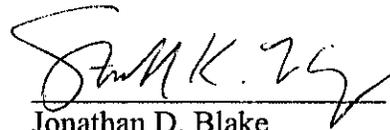
Respectfully submitted,

NATIONAL ASSOCIATION  
OF BROADCASTERS



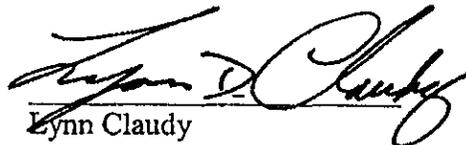
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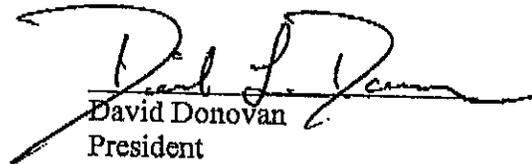


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