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

In the Matter of	)	
	)	
Flexibility for Delivery of Communications By Mobile-Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band	)	IB Docket No. 01-185
	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use By the Mobile-Satellite Service	)	ET Docket No. 95-18

OPPOSITION OF THE BOEING COMPANY

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To: The Commission

OPPOSITION OF THE BOEING COMPANY

The Boeing Company ("Boeing"), by its attorneys and pursuant to section 1.429 of the Commission's rules, 47 C.F.R. § 1.429, hereby opposes the petitions for reconsideration filed in the above-captioned proceeding by Cingular Wireless LLC ("Cingular") and the Cellular Telecommunications & Internet Association ("CTIA").

I. INTRODUCTION

In their petitions, Cingular and CTIA repeat the identical arguments that they made throughout this proceeding in an effort to forestall mobile-satellite service ("MSS") licensees from supplementing their satellite services with an ancillary terrestrial component ("ATC") to provide new and improved services to consumers. Both petitioners argue in favor of additional and arbitrary restrictions on the use of ATC in a transparent attempt to prevent MSS operators from successfully employing this new technology.

Cingular and CTIA argue that the Commission's decision to permit MSS ATC likely will "lead to a *reduction* in the availability of satellite services" to underserved markets.[1] Such an argument ignores the economics of the MSS industry, which demonstrate that MSS network operators may be unable to continue to provide ubiquitous service to rural and remote areas unless they can identify better ways to serve customers in urban and enclosed locations.[2] Furthermore, the use of mass-produced, dual-mode handsets will inevitably permit MSS operators to reduce the cost of such handsets for consumers, further increasing the accessibility of MSS services in rural and remote communities.[3]

The Commission's *Flexibility Order* thoroughly addressed each of the arguments advanced by Cingular and CTIA in their petitions for reconsideration. The Commission should therefore dismiss the petitions and reaffirm its conclusion that allowing MSS licensees to employ ATC on an ancillary basis will promote the public interest by making new and better mobile services available to consumers, law enforcement, government, transportation and business users.[4]

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[1] *Petition for Reconsideration of Cingular Wireless* LLC, IB Docket Nos. 01-185 & 02-264, at 16 (July 7, 2003) ("*Cingular Petition*"); *see also Petition for Reconsideration of Cellular Telecommunications & Internet Association*, IB Docket Nos. 01-185 & 02-264, at 5 (July 7, 2003) ("*CTIA Petition*") (arguing that MSS licensees may provide only a "token level" of satellite service).

[2] *See, e.g., Flexibility for Delivery of Communications By Mobile-Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band*, FCC 03-15, ¶ 35 (Feb. 10, 2003) ("*Flexibility Order*") (noting that "we believe that ATC, instead of acting as a deterrent to satellite investment, will increase the likelihood that MSS operators will provide efficient satellite service to consumers").

[3] *See id.*, ¶ 24 (concluding that the larger consumer market that would result from use of MSS ATC in urban areas will allow providers to order larger production volumes of handsets, which would further reduce the costs of producing phones).

[4] *See id.*, ¶¶ 23, 45 (observing that "we expect, at a minimum, that the expanded coverage and improved efficiency resulting from MSS ATC may enhance competition in some of the important niche markets that MSS serves, including the maritime, aeronautical, commercial-transportation and public-safety markets that rely on MSS for service to more remote and underserved locations").

II. THE COMMISSION'S RULES FULLY ENSURE THAT MSS LICENSEES EMPLOYING ATC WILL CONTINUE TO PROVIDE SUBSTANTIAL SATELLITE SERVICE TO CONSUMERS

In its *Flexibility Order*, the Commission adopted gating requirements to ensure that MSS licensees that secure authority to incorporate ATC will continue to provide "substantial satellite service" to the public. The Commission made it abundantly clear that it will strictly enforce its substantial satellite service requirement[5] and impose fines and revoke licenses if necessary[6] to "ensure that MSS remains first and foremost a satellite service."[7]

Notwithstanding the clarity of the Commission's decision, Cingular argues that the gating requirements adopted by the Commission "are cosmetic at best." It claims that

> If the MSS operator reduces the satellite communications capacity by dedicating nearly all of its spectrum to ATC, the satellite system would still be in compliance with the gating criteria to maintain its ATC eligibility.[8]

In making this argument, Cingular ignores other requirements that the Commission imposed on MSS licensees using ATC. Among other things, the Commission's rules require MSS services to be "commercially available."[9] They also require MSS licensees to "demonstrate[] that their ATC service offering is truly integrated with their MSS offering," such as through the use of dual-mode handsets.[10]

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[5] *See id.*, ¶¶ 3, 34, 41, 66, 72-86.

[6] *See id.* ¶ 34 (observing that, if a MSS licensee using ATC were to disregard the Commission's rules and conditions, the Commission could cancel its ATC authorization and possibly cancel its MSS license as well, in addition to imposing fines and other penalties).

[7] *Id.*, ¶ 3.

[8] *Cingular Petition* at 4 (*citing* 47 C.F.R. §§ 25.149(b)(1), 25.143(b)(2)) (*emphasis in original*).

[9] *Flexibility Order*, ¶¶ 85-86.

[10] *Id.*, ¶ 87.

Cingular claims that, despite these requirements, a MSS licensee could have a commercially available MSS service, but no paying satellite service customers.[11] It is inconceivable, however, that a MSS operator would construct and operate a MSS network without also attempting to attract customers for the service. Any such MSS network would be in clear violation of the Commission's "truly integrated" requirement.[12] Moreover, any customer using a dual-mode handset as a part of an integrated MSS ATC service offering will automatically be a customer of both the satellite service and any ancillary terrestrial base stations that are used to support the MSS network.

Cingular also argues that, despite the Commission's conclusions to the contrary, MSS operators will have "strong incentives" to dedicate 99 percent of their spectrum capacity to terrestrial services.[13] Cingular's argument not only defies the unambiguous requirements of the Commission's rules, it also defies logic.

The goal of any rational MSS operator planning to incorporate ATC is not to compete head-to-head with large established wireless operators. The Commission acknowledged the inherent shortcomings of such a business plan, observing

> MSS licensees, most of which have limited customer bases and capitalization, would appear unwise to abandon satellite services merely for the opportunity to compete only in the market for terrestrial mobile services where much larger, better financed competitors already engage in "competitive, intense [and] aggressive" price competition.[14]

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[11] *See Cingular Petition* at 4.

[12] *See, e.g., Flexibility Order*, ¶ 1 (warning that "[w]e do not intend, nor will we permit, the terrestrial component to become a stand-alone service").

[13] *Cingular Petition* at 5.

[14] *Flexibility Order*, ¶ 35 (*citing Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993,* Seventh Report, FCC 02-179, 17 FCC Rcd 12985, 13012 (2002)).

Instead, the only rational business plan for MSS operators is to provide the marketplace with service offerings that satisfy needs that are currently unmet by existing providers – namely, mobile telephony and data services that are truly available in every location in the United States, including farm lands, waterways, forests, as well as in airplanes and urban centers, with equally reliable service inside of buildings and subway stations and outside in sparsely inhabited plains.[15]

As Cingular is well aware, the cost of building such a network relying solely on terrestrial base stations would be enormous. Even the most successful, well-financed, RBOC-backed wireless carriers have not succeeded in providing service in every location in the country because of the costs involved. No MSS operator would attempt to do that which the established wireless carriers have failed to do – construct a nationwide, terrestrial-only wireless network. Indeed, MSS operators will have every incentive to use the *least expensive* approach available to develop a truly unique, ubiquitous service offering.

There can be no doubt as to the most cost effective approach to building a ubiquitous and always available nationwide wireless service. Even if MSS operators were not required by the Commission to operate and maintain their licensed satellite networks, it would be in their economic self-interests to use their satellite capacity to provide wireless services in *every location* where the satellite signal is available.[16] MSS operators will invest in the additional cost of constructing terrestrial transmitters only in those locations where the MSS signal is not available, or in heavily populated bottlenecks where the satellite signal is available, but the satellite beam provides insufficient capacity to accommodate peak-hour traffic demands.

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[15] *See id.* (concluding that "even if MSS licensees were under no obligation to maintain their MSS systems, providing ubiquitous MSS would help distinguish their service offerings from larger, more established terrestrial CMRS incumbents").

[16] *See id.*, ¶ 74 (observing that MSS operators are unlikely to construct ATC facilities in areas served by satellites because deployment in those areas would only duplicate existing infrastructure investment).

Cingular attempts to discount the economic incentives of MSS operators by arguing that historic and sunk costs – such as the cost of constructing and launching a satellite – do not affect a licensee's subsequent behavior.[17] Cingular misses the point. MSS operators will use their satellite networks to the maximum extent possible to provide service to consumers not because of the large sums invested in launching the networks; rather, MSS operators will use their satellite networks to provide service to consumers whenever and wherever possible to *avoid* the additional costs of constructing terrestrial base stations. The Commission was therefore correct in concluding that the gating requirements adopted in its *Flexibility Order* are adequate to ensure that MSS licensees continue to provide substantial satellite service to the public.

III. NO JUSTIFICATION EXISTS FOR IMPOSING ARBITRARY AND SPECTRALLY INEFFICIENT LIMITS ON MSS SPECTRUM CAPACITY USED FOR ATC IN ANY SINGLE LOCATION

In the *Flexibility Order*, the Commission rejected arguments that arbitrary limits should be placed on the amount of spectrum capacity used by MSS licensees for terrestrial base stations. In their petitions, Cingular and CTIA restate their demands for strict limits on the spectrum capacity used for ATC. Cingular calls for a 50 percent limit;[18] CTIA demands a 20 percent limit.[19] In repeating these arguments, neither petitioner disputes the Commission's conclusion that arbitrary limits would be spectrally inefficient.[20] As the Commission previously explained:

> The proposal to require "predominant" satellite use would limit the MSS provider's flexibility and its concomitant spectrum efficiencies, *e.g.*, by requiring

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[17] *See Cingular Petition* at 6 (*citing Flexibility Order*, ¶ 39).

[18] *See id.* at 9-10.

[19] *See CTIA Petition* at 4.

[20] *See Flexibility Order*, ¶ 99.

> predominant satellite coverage in geographic areas that can be more efficiently served by ATC, such as large cities.[21]

In practice, of course, MSS operators will use 100 percent of their assigned spectrum to provide satellite-delivered communication services to consumers in the vast majority of geographic locations in the United States. MSS operators will rely on ancillary terrestrial base stations in those locations where satellite signals cannot penetrate, or where traffic demands overwhelm the satellite beam. For example, a MSS operator would probably prefer to use all or most of its assigned spectrum to operate terrestrial transmitters in enclosed areas such as subway stations.[22] This reliance on ATC in limited locations, however, will not undermine the provision of satellite services. As the Commission observed:

> If a preponderance of terrestrial traffic were to occur on an integrated MSS ATC system, however, it could simply reflect various factors, such as higher population densities in urban areas or differences between satellite and terrestrial technologies, and the concentration of users need not imply that provision of satellite service is being degraded or diminished.[23]

Given the dynamic nature of spectrum usage by MSS operators, the Commission was correct in refraining from imposing an arbitrary limit on the amount of spectrum capacity that can be used for satellite and terrestrial services in any particular location. Any such limit would only disserve consumers by forcing MSS operators to block calls and data transmissions in certain circumstances simply to comply with the regulatory restrictions.[24]

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[21] *Id.*

[22] Although a MSS operator may prefer to use all of its spectrum capacity for ATC base station operators in locations were satellite signals cannot penetrate, Boeing acknowledges that the Commission is prohibiting the use of all available frequencies for terrestrial base stations where such use would exclude otherwise available signals from MSS space-stations in order to ensure that the terrestrial signal does not interfere with satellite signals in adjacent areas. *See id.* ¶ 74; *see also* 47 C.F.R. § 25.149(a)(6).

[23] *See id.* ¶ 36.

[24] Furthermore, any arbitrary limit might force MSS operators to employ expensive monitoring and record keeping programs in order to document that the restrictions are being met.

IV. PROPOSALS FOR A "LOOK FIRST" GATING REQUIREMENT CONFLICT WITH THE TECHNICAL REALITIES OF WIRELESS NETWORK MANAGEMENT

In the *Flexibility Order*, the Commission considered and rejected suggestions that dual-mode MSS terminals be required to look first for a satellite signal prior to initiating a transmission through an ATC base station.[25] The Commission should once again reject such suggestions here.[26]

In any modern wireless communications network, user terminals continuously receive instructions from network operators regarding the location and type (*i.e.*, analog or digital) of base station to which it is assigned for purposes of communications and network management. Thus, when a call is initiated, the user terminal already "knows" the transmission path.

This same approach will almost certainly be used for MSS networks incorporating ATC. In the vast majority of geographic locations, handsets will be within range of a satellite signal and will utilize the satellite for transmission links. In those few locations where a satellite signal is not available, the handset will be instructed by the network prior to the initiation of any call to look for access to a terrestrial communications path. The dynamic nature of this approach ensures that calls are connected quickly and efficiently, without the use of arbitrary routing detours that degrade the quality, efficiency and reliability of the network.

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[25] *See id.* ¶ 100. Cingular claims incorrectly in its petition that the Commission's *Flexibility Order* did not address proposals for a "first look" requirement. *See Cingular Petition* at 11 n.35. In reality, the Commission's order specifically rejects proposals "to further restrict MSS operators to offering only dual-mode phones that defaulted to the satellite transmission path" because they would "defeat most of the benefits of authorizing ATC in the first instance." *Flexibility Order*, ¶ 100.

[26] *See Cingular Petition* at 10-11 (arguing that handsets should be required to "look first" for a satellite).

V. THE COMMISSION APPROPRIATELY CONCLUDED THAT THIRD PARTY USE OF MSS SPECTRUM CAPACITY WOULD NOT BE TECHNICALLY FEASIBLE OR SPECTRALLY EFFICIENT

Cingular's petition also opposes the Commission's decision in the *Flexibility Order* to reject proposals for third party sharing of MSS spectrum. As explained below, however, Cingular's arguments lend support, rather than discredit, the Commission's conclusions.

Cingular claims that its Telcordia study demonstrated that dynamic spectrum management between a MSS network and terrestrial base stations will be difficult and "complex."[27] Thus, even if the findings of the Telcordia study were to be accepted, the appropriate conclusion would be that such dynamic spectrum management should not be attempted by independent, competing operators, but rather performed by a single operator – a MSS licensee using ATC to correct for satellite signal attenuation.

Cingular, however, attempts to draw a different conclusion from its Telcordia study, arguing that the study demonstrates that dynamic spectrum management should be abandoned in place of spectrum segmentation.[28] In this regard, Cingular argues that if MSS operators are going to segment their assigned spectrum, there is no reason why the Commission should refrain from reallocating the segmented spectrum to different operators pursuant to auction.[29]

Contrary to Cingular's claims, MSS operators such as Boeing do not plan to segment their spectrum. Rather, they will employ dynamic spectrum management techniques, which can incorporate ancillary base stations as a supplement to MSS services. Such an approach is far more efficient than spectrum segmentation because MSS operators will rely entirely on satellite

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[27] *Id.* at 19.

[28] *See id.* at 18.

[29] *See id.*

services in most locations in the country and will employ ancillary terrestrial base stations only in those locations where the satellite service requires additional support.[30] A dynamic approach will permit MSS operators to accommodate the varying nature of spectrum capacity use between different locations and time periods, maximizing the availability and reliability of service to consumers. The Commission was therefore correct in concluding that third party use of MSS spectrum is neither technically feasible nor spectrally efficient with respect to the provision of service to consumers.[31]

VI. CONCLUSION

For the reasons set forth above, the Commission should deny the petitions filed by Cingular and CTIA seeking reconsideration of the Commission's decision to permit MSS licensees to use ATC to supplement and enhance the satellite services provided to consumers.

Respectfully submitted,

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[30] Even if a MSS network functions in partnership with an existing terrestrial network, the operation of the interrelated portions of the network could still be managed by the MSS operator pursuant to contract.

[31] *See Flexibility Order*, ¶¶ 2, 18, 49-55 (concluding that third party use of MSS spectrum would likely compromise the effectiveness of both systems, would not serve the public interest and "would pose an unacceptable risk of harmful interference" to the existing and planned MSS networks).

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing **Opposition of The Boeing Company** has been served this 20th day of August 2003 via U.S. First Class Mail on the following:

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