DOCKET FILE COPY ORIGINAL

RECEIVED

FEB - 8 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

In the Matter of	)	
	)	
Petition to Authorize Co-Primary Sharing of the 450 MHz Air-to-Ground Radiotelephone Service with BETRS	)	RM-8159

DOCKET FILE COPY ORIGINAL

To: The Commission

STATEMENT IN SUPPORT

ALCATEL NETWORK SYSTEMS, INC.

Robert J. Miller
Marc Berejka
Gardere & Wynne, L.L.P.
A Registered Limited Liability Partnership
1601 Elm Street, Suite 3000
Dallas, Texas 75201
214-999-3000

Its Attorneys

February 5, 1993

No. of Copies rec'd 0+5
List ABCDE

TABLE OF CONTENTS

Page

SUMMARY 1

I. THE PETITION 2

II. ANS' ROLE IN THE DEVELOPMENT OF BETRS TECHNOLOGY . . . 4

III. THE CURRENT STATE OF BETRS DEPLOYMENT REQUIRES THE COMMISSION'S PROMPT ATTENTION 6

A. ANS' Own Experience Confirms that Spectrum Scarcity is Thwarting the Deployment of BETRS 6

B. Additional Spectrum in the 450 MHz Band is the Only Viable Solution to the BETRS Spectrum Shortage . . 8

C. Technical Considerations 11

CONCLUSION 12

RECEIVED

FEB - 8 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

In the Matter of	)	
	)	
Petition to Authorize Co-Primary Sharing of the 450 MHz Air-to-Ground Radiotelephone Service with BETRS	)	RM-8159

STATEMENT IN SUPPORT

Pursuant to Section 1.405 of the Commission's Rules, Alcatel Network Systems, Inc. ("ANS"), by its attorneys, hereby supports, reallocation of the 450 MHz Air-to-Ground ("ATG") spectrum to Basic Exchange Radio Telephone Service ("BETRS"), consistent with the above-captioned Petition for Rule Making ("Petition").[1]

SUMMARY

Future availability of BETRS is threatened by lack of adequate spectrum. To ensure relief from such debilitating frequency congestion, the ATG spectrum should be reallocated exclusively to BETRS, instead of on a co-primary basis as Petitioners propose. Disruption to ATG users would be minimal, since advanced ATG services are readily available in the 800 MHz band. ANS also

[1]Public Notice, Report No. 1923 (released Jan. 8, 1993). The Petition was filed jointly by the National Rural Telecom Association, National Telephone Cooperative Association, Organization for the Protection and Advancement of Small Telephone Companies, Rural Electrification Administration, and the U.S. Telephone Association (hereinafter "Petitioners").

recommends that the Commission propose specific technical and operational standards to maximize efficient use of all BETRS spectrum.

I. THE PETITION

The Petitioners collectively represent the interests of those Local Exchange Carriers ("LECs") charged with providing basic telephone service to rural America. In 1986, on the LECs' behalf, the Petitioners sought the original BETRS spectrum allocation. In 1989, the Commission granted their request in part, allocating spectrum for BETRS in the 150, 450, and 800 MHz bands.[2] However, the Commission denied Petitioners' plea for access to two (2) MHz of reserve cellular spectrum.[3]

On reconsideration, the Petitioners argued that the newly allocated BETRS spectrum, while helpful, was insufficient to satisfy all anticipated needs. They maintained that then-existing congestion in the 150 MHz band, as well as the Commission's constraints on use of the 800 MHz BETRS frequencies, would discourage the development of systems in those bands, leaving only the limited number of 450 MHz frequencies to support extensive demand for BETRS.[4] Although the Commission denied reconsideration,

---

[2]See Report and Order, CC Docket No. 86-495, 3 FCC Rcd 214 (1988).

[3]Id.

[4]The 150 MHz band was congested at the time of the original BETRS allocation. Petition at 3. Since then, the situation has not improved. The Commission's BETRS rules restrict use of the allocated 800 MHz frequencies to areas more than 100 miles outside

it pledged to revisit the spectrum issue if the initial allocations proved to be insufficient.[5]

Now it is time for the Commission to keep this promise. The Petitioners' fears have come true. Inadequate spectrum is stifling provision of BETRS. To redress this problem, Petitioners request that the 450 MHz ATG frequencies be allocated to BETRS on a co-primary basis. In support, they note that:

- over 99 per cent of existing BETRS systems operate on the 450 MHz BETRS frequencies;
- the constraints on the 150 and 800 MHz BETRS frequencies, in fact, have discouraged manufacturers and users from developing systems in those bands;
- congestion on the 450 MHz BETRS frequencies has prevented many LECs from installing or expanding BETRS systems; and
- the adjacent 450 MHz ATG frequencies would be well-suited for BETRS expansion, since current use of the ATG spectrum likely will decline over time.[6]

ANS, a principle manufacturer of 450 MHz BETRS equipment, wholeheartedly agrees and encourages the Commission to initiate a reallocation proceeding promptly. Based upon the Petition and upon its own market experience, ANS also urges the Commission to

---

the top 54 SMSAs and to areas beyond the so-called Canadian and Mexican border regions. 47 C.F.R. Section 22.601.

[5]See Memorandum Opinion and Order on Reconsideration, CC Docket No. 86-495, 4 FCC Rcd 5017, 5019 (1989).

[6]Petition at note 11, at 7, at 12, and at 13, respectively. Petitioners also note that, originally, the 450 MHz ATG allocation was seen as an interim measure, aimed at addressing the aviation industry's short term ATG needs while more sophisticated ATG systems were being developed for other spectrum. Id. at 4 citing Report and Order, Docket No. 16073, 22 F.C.C.2d 716 (1969).

propose:

- reallocating the 450 MHz ATG spectrum exclusively to BETRS so that the relief is real and longstanding;

- incorporating into the BETRS regulations the traffic engineering standard which the vast majority of LECs must meet -- namely, the P.01 standard which limits signal blockage to less than one per cent of all attempted calls;

- making BETRS antenna standards more flexible so that manufacturers can enhance the efficiency of BETRS systems;

- enhancing spectrum efficiency further by requiring BETRS operations, to the extent feasible, to limit signal propagation to the confines of each user's exchange area; and

- requiring prior coordination of new BETRS systems and system expansions to facilitate spectrum efficient decisionmaking on the part of both applicants and existing licensees.

These changes will provide licensees the firm regulatory foundation they need in order to fully exploit the public benefits of BETRS technology.

II. ANS' ROLE IN THE DEVELOPMENT OF BETRS TECHNOLOGY

ANS is a wholly-owned subsidiary of Alcatel Alsthom ("Alcatel"), one of the world's largest corporations (with annual sales in excess of $30 billion) and the world's largest manufacturer and supplier of telecommunications equipment. ANS was formed in 1991 following Alcatel's acquisition of Rockwell International Corporation's Network Transmission Systems Division, which, in turn, was a successor to the Collins Radio Company, a pioneer in the development and production of radio equipment. This

organization, which started with eight employees in 1933, now employs approximately 5,000 people in the United States and has over $500 million in annual sales.[7]

Among ANS' many advanced products is the Collins Exchange Radio, CXR-424.[8] The CXR-424 was designed specifically for the 450 MHz BETRS market in response to the Commission's 1988 allocation of spectrum to BETRS.

ANS' CXR-424 unit, along with its accompanying hardware and software, is state-of-the-art. The system can provide service to subscribers as far as 50 miles from the BETRS base station. The unit is durable, capable of withstanding temperatures from -20° to 50° C, and with its "Arctic" option, it can withstand temperatures from -40° to 50° C. The all-digital system not only offers rural and remote communities reliable and cost-effective means for handling present basic telecommunications requirements, but it also is adaptable for future services.[9]

ANS' BETRS unit has found widespread acceptance in the marketplace. Customers for ANS' BETRS unit include Bell Operating Companies, the nation's largest independent telephone companies,

---

[7]ANS, with its Collins Radio and Rockwell International heritage, has more than 30 years experience as a leading U.S. supplier of turnkey telecommunications systems. Any reference to ANS' experiences herein includes the experiences of its predecessors.

[8]Petitioners refer to ANS' unit as the "Rockwell" system. Petition at note 12.

[9]ANS' CXR-424 unit currently supports all special telephone service requirements, including coin box service. The unit also can support 56 kb Digital Data Service and the future 64 kb "clear channel" service.

and numerous small independents.

III. THE CURRENT STATE OF BETRS DEPLOYMENT REQUIRES THE COMMISSION'S PROMPT ATTENTION

As Petitioners indicate, demand for BETRS remains strong. LECs desire to provide the types of basic telephone services to their rural customers which have been available to suburban and urban customers for some time. BETRS technology is the obvious, if not the only, economical choice for attaining this end. Yet, too often, preliminary studies reveal insufficient spectrum to support a proposed system, and the idea is shelved.

Indeed, despite ANS' successful development and deployment of its CXR-424 unit, spectrum congestion precludes many of its existing customers from expanding their BETRS systems and many of its prospective customers from installing <u>any</u> BETRS technology.

A. ANS' Own Experience Confirms that Spectrum Scarcity is Thwarting the Deployment of BETRS

The evidence that spectrum scarcity is thwarting BETRS development is clear. Petitioners cite 22 instances where systems were not installed and 10 instances where systems were not expanded due to lack of adequate spectrum.[10] These data were compiled by and drawn from the experience of International Mobile Machines, ANS' principle competitor in the provision of BETRS equipment.

ANS has had the same experience. ANS has discussed system deployment and expansion with various LECs which ultimately have

---

[10]Petition at Appendix B.

decided not to pursue their plans because of spectrum congestion.

The evidence of suppressed demand is not only anecdotal. ANS' staff recently reviewed a nationwide data base of licensees on the existing 450 MHz BETRS frequencies. This review revealed only a limited number of LEC central offices -- across the entire nation -- where there were more than one or two 450 MHz frequencies. In most circumstances, one- or two-channel BETRS systems are not economically viable, because their cost per subscriber is so high. ANS' review also revealed numerous areas where no 450 MHz BETRS frequencies were available.

The 150 and 800 MHz BETRS frequencies are not realistic alternatives.[11] Prior to entering the BETRS market, ANS carefully considered developing equipment for these other two bands. Development of state-of-the-art radio equipment requires substantial capital investment. Before entering a market, equipment manufacturers must find that sufficient product likely can be sold to recoup R&D costs and to provide a reasonable return. ANS' studies demonstrated that then-existing congestion in the 150 MHz band and the constraints on use of the 800 MHz BETRS frequencies would limit these markets to the point where the company could not justify developing BETRS equipment for them.[12]

---

[11] Id. at 5-6.

[12] Petitioners argue that unfavorable economics also preclude the provision of BETRS on cellular frequencies. Petition at 7-11. While ANS has not studied the possibility in detail, it finds Petitioners' reasoning compelling.

B. Additional Spectrum in the 450 MHz Band is the Only Viable Solution to the BETRS Spectrum Shortage

Like the Petitioners, ANS believes that the only way to prevent BETRS from suffocating is to allocate it additional 450 MHz spectrum. While the 450 MHz ATG spectrum is ideal for expanding BETRS, true relief only can be achieved if this band is reallocated on an exclusive basis to BETRS.

Market growth for BETRS has been stifled. This problem is not caused by system or equipment design problems. Rather, as Petitioners point out, and as ANS' study of spectrum usage demonstrates, the root cause is the extensive use of the current 450 MHz BETRS frequencies -- both for BETRS and for Public Land Mobile Services. ANS already has invested substantial funds in developing its state-of-the-art BETRS product. The CXR-424 is as spectrum efficient and as versatile as any radio product on the market. To facilitate deployment of new systems, ANS and LECs have made every effort to engineer "around" existing systems. There simply is not enough usable spectrum available to support available technology and to meet demand for BETRS.

The proposed, co-primary sharing of ATG spectrum with BETRS will help solve this problem in some areas. However, ANS is concerned that, while Petitioners' proposal will afford some relief, co-primary sharing in the 450 MHz band still will leave vast areas without adequate BETRS frequencies.[13] The 450 MHz ATG

---

[13]ANS appreciates Petitioners' desire not to interrupt operations on existing 450 MHz ATG systems. Nevertheless, ANS

frequencies presently are allocated in patchwork fashion, with each frequency being re-used repeatedly, across the nation.[14] Under Petitioners' sharing proposal, new BETRS systems will be placed at least 640 miles from co-channel ATG systems.[15] Some BETRS systems undoubtedly can be "engineered-in" among existing ATG systems, as Petitioners suggest. Nevertheless, system engineers likely will find that those opportunities are not extensive. These problems can be solved, and LECs can be given sufficient spectrum, only if the current 450 MHz ATG frequencies are reallocated exclusively to BETRS.

Merely reallocating the 450 MHz band so that BETRS is co-primary with ATG service is not enough. Such limited response to the spectrum congestion problem risks creating the perception of relief, but not the reality. The Commission already has seen that simply adding spectrum to the BETRS allocation is unacceptable if, in the end, users' real-world access to that spectrum is extremely restricted. Making BETRS operate co-primary with ATG on the 450 MHz band would result in such restricted access.

Limited spectrum availability not only deters system planners, but it has marginal economic appeal for equipment manufacturers. Consequently, for the public interest benefits of BETRS, which

---

users migrate to the 800 MHz band. There is ample spectrum and advanced technology available to support ATG operations at 800 MHz. Relocating ATG operations, therefore, will give BETRS the growth room it needs, while maintaining the integrity of ATG communications.

[14] See 47 C.F.R. Section 22.521.

[15] Petition at 13.

prompted establishment of the service, to be realized fully, the service must have exclusive access to the 450 MHz band.

On the other hand, an exclusive allocation in the 450 MHz band to BETRS would impose minimal harm on existing 450 MHz ATG users. The four (4) MHz of ATG spectrum above 800 MHz provides more than adequate spectrum for ATG operations. Moreover, in many respects, the 800 MHz band is more appropriate than the 450 MHz band for ATG, because advanced ATG equipment already is installed in that band in many markets. Indeed, in certain markets, 450 MHz ATG systems are being abandoned in favor of modern 800 MHz systems.

Reallocation of the 450 MHz ATG frequencies for exclusive BETRS use must be accomplished expeditiously, but with minimal disruption to existing users. Given the acute need for BETRS frequencies and the availability of 800 MHz band ATG frequencies, the Commission must establish a reasonable, but short, timetable for existing 450 MHz ATG users to migrate to the 800 MHz band.

Prompt transition to an exclusive BETRS allocation will move the Commission a long way towards fulfilling its pledge to support the development of BETRS.[16] It will provide much-needed spectrum relief for those who need to expand existing systems; it will ensure a spectrum home for those who want to install new systems; and it will provide equipment manufacturers the incentives they need to justify developing a new generation of BETRS equipment. Of equal importance, necessary ATG service would not be compromised

---

[16]See Memorandum Opinion and Order on Reconsideration, 4 FCC Rcd at 5019.

because availability of 800 MHz channels endures a seamless transition from the 450 MHz band for these users.

C. Technical Considerations

While the need for additional BETRS spectrum is manifest and critical, the Commission can advance the public interest further by developing technical parameters more closely tailored to BETRS users' actual operations and needs than the existing rules. Towards this end, ANS suggests that BETRS either be regulated under its own subpart in Part 22 or that the BETRS technical criteria be segregated from the other fixed services authorized within the Part 22 Rural Radio Service. At a minimum, BETRS operations would benefit from service-specific traffic engineering standards, antenna standards, and coverage limitations. Imposing such requirements, as set forth below, is necessary to ensure spectrally efficient provisions of BETRS.

Traffic engineering -- State regulations require the vast majority of LECs to provide basic telephone service which is blocked (by traffic congestion) less than one per cent of the time (the P.01 standard). Inasmuch as LECs are the primary BETRS providers, it is crucial that the Commission expressly impose this same traffic standard for BETRS. Moreover, sufficient BETRS frequencies must be made available to accommodate this industry-wide standard of service.

Antenna standards and coverage limitations -- By specifically addressing BETRS antenna standards and coverage limitations, the

Commission can enhance the spectrum efficiency of existing and future BETRS systems. For example, manufacturers could improve efficiency if they were given greater flexibility in designing BETRS antennas. In addition, if all users of BETRS spectrum were required to limit, to the extent feasible, coverage beyond their exchange boundaries, more systems could be engineered in a given area.

Application coordination -- To further assist the Commission in maximizing spectrum efficiency, applications for BETRS spectrum also should be coordinated as point-to-point systems are coordinated under Part 21.[17] Prior consultation with existing licensees facilitates spectrum efficient decisionmaking on the part of both the applicant and existing licensees. It allows all involved to consider the most effective way of engineering their respective systems.

CONCLUSION

LECs throughout the country have found it impossible to engineer viable BETRS systems because of spectrum congestion. Without the relief proposed in the Petition, as modified herein, the use of BETRS will remain quite limited, depriving many of the nation's rural citizens the inexpensive, reliable telephone service

[17] See 47 C.F.R. Section 21.100(d).

which BETRS promises. The Commission should act promptly to prevent such an eventuality.

Respectfully submitted,

ALCATEL NETWORK SYSTEMS, INC.

Robert J. Miller
Marc Berejka
Gardere & Wynne, L.L.P.
A Registered Limited Liability Partnership
1601 Elm Street, Suite 3000
Dallas, Texas 75201
214-999-3000

Its Attorneys

February 5, 1993

CERTIFICATE OF SERVICE

I, Marc Berejka, do hereby certify that copies of the foregoing Statement in Support will be served by first class mail, postage paid, on the following parties on the 8th day of February, 1993:

John O'Neal
National Rural Telecom Association
1455 Pennsylvania Avenue, N.W.
Suite 1200
Washington, D.C. 20004

David Cosson
National Telephone Cooperative Association
2626 Pennsylvania Avenue, N.W.
Washington, D.C. 20036

Lisa Zaina
Organization for the Protection and
Advancement of Small Telephone Companies
2000 K Street, N.W.
Suite 205
Washington, D.C. 20037

James Huff
Rural Electrification Administration
14th & Independence Avenue, S.W.
Room 4051 - South
Washington, D.C. 20250

Martin T. McCue
Vice President and General Counsel
U.S. Telephone Association
900 19th Street, N.W.
Suite 800
Washington, D.C. 20006-2105

Marc Berejka

GW03/0135368