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

In the Matter of:)
)
2000 Biennial Regulatory Review) WT Docket No. 01-14
Spectrum Aggregation Limits)
for Commercial Mobile Radio Service)

To: The Commission

REPLY COMMENTS

ComSpace Corporation ("ComSpace" or "Corporation"), by its attorneys, and pursuant to Section 1.415 of the Federal Communications Commission ("FCC" or "Commission") Rules and Regulations, respectfully submits its reply comments in the above-entitled proceeding.¹ ComSpace applauds the Commission's recognition of the vital role advanced technologies must play in meeting ever-expanding demands on the nation's limited spectrum resources. The appropriate balance of spectrum availability and improved technical efficiencies will be needed to accommodate the public's communications requirements in this new century.

I. INTRODUCTION

ComSpace is a technology development, licensing and manufacturing company which has developed a highly efficient air-interface technology that is potentially usable by virtually all segments of the mobile wireless industry. The Corporation's initial product is a licensable technology called Digital Channel Multicarrier Architecture ("DC/MA"®). The product unites numerous individual pieces of IPR into a system that provides spectrum-efficient air-interface

¹ 2000 Biennial Regulatory Review, Spectrum Aggregation Limits for Commercial Mobile Radio Services, WT Docket No. 01-14, *Notice of Proposed Rulemaking*, FCC 01-28 (rel. Jan 23, 2001) ("Notice" or "NPR").

technology, which increases traffic-carrying capacity of wireless communications, channels regardless of frequency or bandwidth. With DC/MA, ComSpace has combined and optimized digital channel splitting and compression methods in a unique fashion, while adding groundbreaking filtering and frequency management methods to ensure no sub-channel interference.

Licensees in the 800 MHz Part 90 services already are deploying DC/MA to increase by eight times the number of voice/data paths on a 25 kHz channel. However, as detailed *infra*, the DC/MA architecture has broad applicability for all wireless operators who need to derive more intensive use of finite spectrum resources. The Company is pleased that this Notice reaffirms the FCC's commitment to spectrum efficiency as an integral tool in satisfying the agency's statutory mandate to promote the broad availability of communications services for the public.

II. BACKGROUND

The instant proceeding investigates whether two regulations that currently limit the amount of broadband Commercial Mobile Radio Service ("CMRS") spectrum in which an entity may hold an attributable interest, the CMRS spectrum cap and the cellular cross-interest rule, remain necessary or appropriate regulatory mechanisms for ensuring publicly beneficial levels of competition in the CMRS marketplace. The inquiry is premised on the proposition that the public interest is served if there is no harmful concentration of CMRS spectrum ownership and there are meaningful opportunities for broadband CMRS market entry.² The Notice poses a series of questions intended to elicit information that will assist the FCC in evaluating the continued utility of these rules, either in their current or some modified form. Among other matters, the

² Notice at & 12.

Commission has sought comment on the status of competition in this marketplace, the relationship of these two regulations to the agency's competitive objectives, the role the FCC should assume in competitive marketplace analyses, and the interrelationship of these spectrum aggregation rules with the Commission's spectrum management responsibilities.

III. DISCUSSION

ComSpace takes no position on the continued need for the CMRS spectrum cap or cellular cross-ownership rules. While it believes the public benefits when competitive forces drive marketplace activities, it must leave to parties more directly impacted by these FCC regulations whether those rules or other means will best serve the Commission's objectives.

However, the Corporation does concur with the FCC's conclusion that spectrum aggregation rules must not be considered in a vacuum, but as part of the Commission's overall spectrum management responsibilities.³ The agency is, of course, correct that "...there is a limited amount of spectrum available that, as a practical matter, is suitable for the provision of broadband CMRS within the foreseeable future."⁴ The Order details an increase in the number of Americans using mobile wireless devices, an increase in the minutes each of them uses, and an increase in the applications, and attendant spectrum requirements, they are expected to demand from those devices in the near-term future.⁵ These consistent, indeed escalating trends confirm the FCC's assessment that improved technology is a necessary corollary to any spectrum ownership regulations.

3 Notice at & 26.

4 Id.

5 Notice at ¶ 15.

ComSpace agrees with the Commission that spectrum availability and spectrum efficiency are complementary aspects of a sound spectrum management approach.⁶ In a world of finite spectrum resources, some CMRS operators will find themselves at a competitive disadvantage if capacity increases are achievable only through spectrum infusions since, even if these two rules are eliminated, there is not likely to be enough usable spectrum to satisfy all demands, at least in more urban markets. If the industry is to avoid this result, it is evident that the deployment of more efficient technologies must be a cornerstone of the FCC's determinations regarding whether increased aggregation is consistent with the public interest.

ComSpace anticipated this spectrum supply/demand imbalance and, thus, the need for technology that delivers improved spectrum efficiency. It is pleased to be able to confirm the FCC's expectation that these inherent spectrum limitations have resulted in the development of commercially available technologies, including the Corporation's DC/MA technology, that will permit operators to derive more intensive use of the spectrum they do control. DC/MA's unique capabilities permit the subdivision of channels, irrespective of frequency band or bandwidth, into multiple communications paths, with the number of such sub-channels dependent on the bandwidth of the channel from they were derived. For example, DC/MA can divide a 25 kHz channel (voice/data path) into four, relatively closely packed 4 kHz sub-channels. It then applies time division multiplexing (TDM) to multiply each of the four independent sub-channels into two individual time spots, thereby creating eight separate transmission paths out of a single 25 kHz channel.

⁶ While ComSpace appreciates Leap Wireless International, Inc.'s emphasis on the current availability of more efficient technologies, the optimal regulatory framework will balance access to additional spectrum with incentives to invest in improved technology.

Digital channel-splitting and time slot compression techniques already are widely used throughout the wireless industry. Cellular technology standards such as GSM and TDMA use TDM to divide cellular channels into multiple time slots, while Motorola's iDEN technology uses channel-splitting techniques to create non-independent sub-channels. ComSpace has integrated and optimized these approaches such that, when combined with the Corporation's patented filtering, frequency management, and subscriber unit power density techniques, it has devised a technology that has proven highly resistant to the sub-channel interference that has affected other techniques.

All of these techniques and technology advances developed by ComSpace enable it to utilize a unique modulation scheme that allows a data transmission rate of 4 bits per Hertz. The Corporation uses a differential star quadrature amplitude modulation (QAM) constellation to provide 4 bits/Hertz modulation. Using the previous example of a 25 kHz channel split into four 4 kHz channels, a 4 bits/Hertz data transmission rate equals a 16 Kbps sub-channel data rate, or a 64 Kbps data rate over a 25 kHz channel. By comparison, 3 G GSM currently anticipates a 3 bits/Hertz modulation.

While ComSpace expects its DC/MA technology to prove highly spectrum-efficient and cost-effective for many CMRS applications, it also recognizes that its approach is one of a number of promising techniques that will enable operators to satisfy ever-expanding subscriber requirements in a world of limited, increasingly scarce, spectrum resources. Importantly, DC/MA is complementary to many of the other emerging spectrum efficiency technologies, rather than an either/or competing technology. Thus, ComSpace expects to work cooperatively both with the Commission and with the CMRS industry, including other equipment suppliers, to meet

this critical spectrum management objective.

IV. CONCLUSION

For the reasons described above, ComSpace urges the Commission to proceed promptly to act in a manner consistent with the positions expressed herein.

Respectfully submitted,

COMSPACE CORPORATION

A handwritten signature in black ink, appearing to read "Elizabeth R. Sachs", written over a horizontal line.

By its attorney:
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May 14, 2001

CERTIFICATE OF SERVICE

I, Janelle Wood, a secretary in the law office of Lukas, Nace, Gutierrez & Sachs, hereby certify that I have, on this 14th day of May, 2001 hand delivered a copy of the foregoing Reply Comments to the following:

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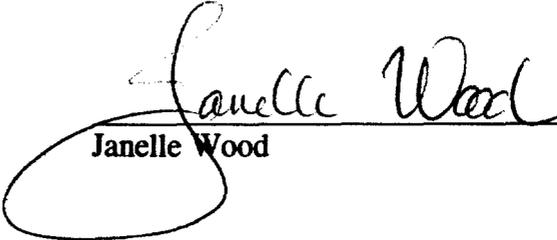
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