

Because all transmissions under Ericsson's alternative would be isochronous, all devices would have to monitor the spectrum for 10 milliseconds prior to initiating a transmission.<sup>26</sup> Data devices require faster access times. Ericsson's solution would require that every data device continually monitor the spectrum and keep a running record of available spectrum so that it could identify and access clear spectrum in a reasonable period of time when it needs to initiate a transmission.<sup>27</sup>

The continual monitoring requirement would impose significant costs on data devices. In addition to added hardware complexity, the major cost would be the large drain on power. Battery life would be shortened, and larger, heavier, more expensive batteries would be required in data User-PCS devices.<sup>28</sup>

Ericsson's approach would slow down data communication speeds for User-PCS. Where continual spectrum monitoring is not feasible, Ericsson's approach would impose substantial time delays on data transmissions. The link set-up times under Ericsson's approach might be, in some cases, an order of magnitude longer than the transmissions themselves. The result would be slow performance for data-type User-PCS devices.

Ericsson's proposal is also spectrally inefficient. Isochronous operation is connection-oriented and makes sense for voice transmissions, which require continuous access to a link until the communication ends. However, data devices are characterized by brief transmissions which often do not require a continuous connection. Nevertheless, under the Ericsson alternative, a data device may establish and hold a link until an acknowledgment is returned, even if only a short burst of data is sent. Given the lengthy link access times which are likely under the Ericsson proposal, this seems especially probable. As long as the data User-PCS device holds the connection, spectrum is unavailable to other users, which is less efficient than the WINForum Etiquette.

As noted earlier, isochronous devices have not proven themselves to be efficient carriers of high speed, bursty data. In fact, most attempts to provide higher speed data

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<sup>26</sup> Comments of Ericsson, Appendix C at 9.

<sup>27</sup> Comments of Ericsson, Appendix D at vii.

<sup>28</sup> Because they do not require fast access, voice User-PCS devices might not need to continually monitor the spectrum and therefore would not need to bear these additional costs.

rates using isochronous schemes have failed miserably. For example, like the Ericsson proposal, the Digital European Cordless Telephone (DECT) standard also requires data transmissions to be conducted in the isochronous mode. This European standard has been in existence now for several years and has yet to develop any technology suitable to the LAN or WAN community. Because it shares so many similarities with the European standard, WINForum believes that the Ericsson proposal will likewise fail the computer data industry.

Ericsson's alternative precludes wideband data User-PCS by prohibiting any transmission with a data rate greater than 2.5 Mbps<sup>29</sup> or with a bandwidth greater than 5 MHz.<sup>30</sup> Ericsson offers no technical reason for this decision other than its belief that there should be a separate spectrum allocation for wideband data User-PCS.<sup>31</sup> Ironically, while criticizing WINForum for dividing the User-PCS spectrum into voice and data sub-bands, Ericsson would itself divide the spectrum, allocating no spectrum for wideband data from 1910-1930 MHz and instead would relegate wideband data to a separate band at 6 GHz.

Finally, Ericsson's proposal includes other rigid limitations on technologies for User-PCS. Ericsson's proposal runs contrary to the Commission's reasonable requirements to avoid imposition of unnecessary restrictions on the choice of radio access technologies.<sup>32</sup> The Ericsson proposal would mandate time division duplex for all duplex links and would prohibit frequency-hopping spread spectrum techniques.<sup>33</sup>

C. In View Of Its Limitations, Ericsson's Proposal Is Ill-Suited To The

such as data, imaging, and other new services.”<sup>34</sup> Instead, Ericsson expressly states that it would limit all User-PCS devices to three applications: wireless PBX, portable computer data terminals, and cordless phones.<sup>35</sup>

In contrast, the WINForum Spectrum Etiquette reflects a carefully balanced compromise to fairly accommodate the needs of both voice and data PCS services. The WINForum Spectrum Etiquette achieves this by assuring that spectrum is available with sharing rules that are optimized for voice and data PCS. It provides for both isochronous and asynchronous transmissions. At the same time, the WINForum Etiquette allows any device access to the entire User-PCS spectrum through its cross-over provisions. Accordingly, WINForum believes that adoption of its consensus-based Spectrum Etiquette would far better serve the public interest.

## V. Conclusion

WINForum’s Spectrum Etiquette is built upon several basic technical and marketplace realities. First, asynchronous and isochronous capabilities are needed by different parts of the User-PCS industry. Second, asynchronous and isochronous systems or devices cannot effectively or efficiently coexist in the same spectrum bands. Third, fair spectrum access for User-PCS systems and devices warrants equal allocations of available spectrum for the different asynchronous and isochronous needs.

The success of WINForum’s efforts ultimately depends upon the timely availability of adequate spectrum for both asynchronous and isochronous User-PCS needs. In such respects, WINForum believes that 40 MHz of spectrum is required even to meet near term industry and consumer requirements. WINForum strongly urges the Commission to consider seriously all possible approaches that might offer the most expeditious and least disruptive means of reaccommodating 2 GHz microwave licensees to facilitate User-PCS. Without addressing the merits of specific proposals, WINForum notes that Apple Computer, UTAM and others have advanced proposals for achieving these important goals.

The WINForum Spectrum Etiquette represents a consensus-based solution to the difficult problem of achieving the Commission’s public interest goal of permitting

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<sup>34</sup> PCS NPRM at 5680.

<sup>35</sup> Comments of Ericsson, Appendix B at 1.

the coexistence of myriad diverse technologies, applications and equipment in the User-PCS band. The Spectrum Etiquette provides minimal ground rules to maximize the opportunities for manufacturers pursuant to their own visions of User-PCS. Accordingly, the FCC should promptly adopt the WINForum Spectrum Etiquette in its equipment authorization rules in order to promote the delivery of User-PCS to the public.

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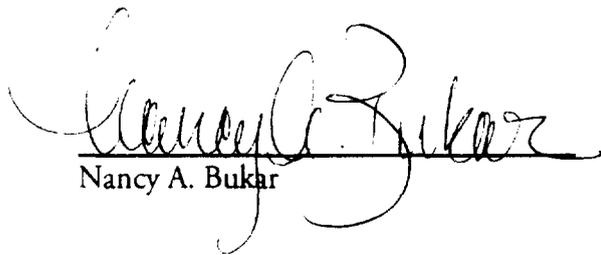
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