

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)
)
Additional Spectrum for Unlicensed Devices) ET Docket No. 02-380
Below 900 MHz and in the 3 GHz Band)

**JOINT REPLY COMMENTS OF
INTERSIL CORPORATION AND SYMBOL TECHNOLOGIES, INC.**

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May 16, 2003

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Intersil Corporation and Symbol Technologies, Inc. file these Reply Comments in response to the Commission's Notice of Inquiry in the above-captioned proceeding.¹

- ***Intersil Corporation*** is a manufacturer of complete wireless LAN chipsets. Worldwide sales for wireless LAN chipsets in 2002 were 22-24 million radios (most sold in the U.S.), expected to double in 2003.
- ***Symbol Technologies, Inc.*** designs and manufacturers over \$1.4 billion in wireless enabled (unlicensed, Wi-Fi) products.

Intersil and Symbol jointly filed first-round comments supporting the Commission's proposal to allocate 3650-3700 MHz for unlicensed use. We also supported a proposal to allow unlicensed use of TV channels in markets where those channels are not used for TV, subject to safeguards to protect TV viewers from interference.

Intersil and Symbol now respond briefly to certain issues raised in other parties' first-round comments.

¹ *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, 17 FCC Rcd 25632 (2002) (Notice).

A. Cingular's Challenge to the Legality of Unlicensed Operation is Incorrect and Misguided.

Cingular Wireless LLC argues that unlicensed operation violates the Communications Act.²

Cingular overlooks not only 65 years of settled precedent and billions of dollars of economic activity in reliance on that precedent, but also elementary principles of statutory construction.

But the Commission need not consider the argument now. Indeed, it may not do so, for the issue is far outside the scope of the present Notice. For the Commission to rule on this question on the present record would flatly violate the Administrative Procedure Act.³

B. The Satellite Interests Overlook Practical Means of Mitigating Interference from Unlicensed Devices.

The Satellite Industry Association (SIA) and AT&T are concerned about interference from unlicensed users into "extended C-band" earth station downlinks at 3650-3700 MHz.⁴ SIA and a coalition of video satellite users also fear adjacent-band interference into the adjacent "conventional C-band" at 3700-4200 MHz.⁵

² Cingular Wireless LLC at 2-4 (filed April 17, 2003).

³ "General notice of proposed rule making shall be published in the Federal Register The notice shall include . . . (3) either the terms or substance of the proposed rule or a description of the subjects and issues involved. . . ." 5 U.S.C. Sec. 553(b).

⁴ Satellite Industry Association at 4-9; AT&T at 3-4.

⁵ Satellite Industry Association at 10-11; Coalition of Program Networks and Distributors, Broadcast Networks, Satellite Operators and Others at 1-2.

Extended C-band. SIA notes that earlier, never-implemented proposals for fixed service at 3650-3700 MHz considered a 200 km "exclusion zone" around each earth station. SIA argues that mobile unlicensed operation would make exclusion zones infeasible, and that power levels low enough to prevent interference without exclusion zones would have to be so low as to rule out commercially useful devices.⁶

Intersil and Symbol have proposed a practical way to resolve this problem. Our first-round comments noted that radar detection and avoidance capability has already been developed for unlicensed spectrum in Europe.⁷ We suggested this technology be adapted to the 3650-3700 MHz band by protecting each co-channel earth station with a low-power, narrowband beacon transmitter at the earth station. An unlicensed device detecting the beacon signal would reduce its power or turn off entirely, depending on received signal strength, so as to limit emissions received at the earth station to a predetermined power flux density.⁸

We invite representatives of the satellite industry to work with us in developing the details of this proposal, or in considering alternatives.

Conventional C-band. SIA doubts that Part 15 devices can achieve adequate out-of-band suppression to protect conventional C-band operations at 3700-4200 MHz.⁹ Partly on that basis, SIA opposes all unlicensed operation at 3650-3700 MHz.

⁶ Satellite Industry Association at 7-9 & Technical Annex at 14.

⁷ Joint Comments of Intersil Corporation and Symbol Technologies, Inc. at 6.

⁸ Joint Comments of Intersil Corporation and Symbol Technologies, Inc. at 6-7.

⁹ Satellite Industry Association at 11 n.14.

The Commission's Rules already address SIA's objection. Spurious emissions at 3700-4200 MHz from unlicensed devices are limited to the extremely low levels set out in Section 15.209(a).¹⁰ That value has been in effect for many years, as has been the numerically identical limit for ubiquitous digital devices -- including, no doubt, digital devices in service at the earth stations themselves.¹¹ This rule has adequately protected C-band earth stations in the past, and there is no serious reason to doubt it will continue doing so in the future.

And SIA is plainly wrong in doubting the ability of unlicensed devices to suppress out-of-band emissions at reasonable cost.¹² The hugely popular Wi-Fi band at 2400-2483.5 MHz directly adjoins the satellite downlink band at 2483.5-2500 MHz, and is subject to the same out-of-band emissions limits that protect 3700-4200 MHz. The availability of 2400 MHz Wi-Fi devices for a few tens of dollars, and the tens of millions of devices in use, demonstrate that SIA has badly underestimated the capabilities of the unlicensed device industry.¹³

¹⁰ 47 C.F.R. Sec. 15.205(a).

¹¹ 47 C.F.R. Sec. 15.109(a).

¹² In addition to being "prohibitively expensive," SIA believes filtering out-of-band emissions would "impair efficiency," "reduc[e] the utility and marketability of the filtered devices," and undercut the Commission's goal of increasing the operational range of wireless devices. Satellite Industry Association at 11 n.14.

¹³ SIA also states that an allocation at 3650-3700 MHz goes beyond the needs of the unlicensed-device industry, and is therefore premature. Satellite Industry Association at 12. SIA fails to appreciate the explosive growth in these devices over the past few years. The 2.4 GHz band is already crowded, and becoming more so every day with burgeoning sales of IEEE 802.11b (original Wi-Fi) equipment. A similar growth pattern is well underway at 5.8 GHz. By the time this proceeding has matured into effective rules -- which typically takes at least two years, and often longer -- the need for this spectrum will have become acute.

CONCLUSION

Unlicensed devices are both legal and practical in the 3650-3700 MHz band, and can be designed to avoid interference to both extended C-band and conventional C-band earth stations.

The Commission should move expeditiously to a Notice of Proposed Rulemaking.

Respectfully submitted,

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