Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices	)	**ET Docket No. 99-231**
	)	
	)	

COMMENTS OF ADTRAN, INC.

Adtran, Inc. ("Adtran"), by its attorneys and pursuant to the provisions of section 1.415 of the rules and regulations of the Federal Communications Commission ("FCC" or "Commission"), 47 C.F.R. § 1.415 (2000), hereby submits its Comments in the above-captioned rule making proceeding.[1/] As set forth more fully below, Adtran generally supports the proposals contained in the *Notice*, as described herein.

Adtran Background. Adtran (NASDAQ: ADTN) is an established supplier of advanced transmission products for today's expansive telecommunications networks. Widely deployed in carrier, CLEC, enterprise and global networks worldwide, Adtran products support all major digital transmission technologies, including fiber, T3, T1, E1, wireless T1/E1, ATM, Frame Relay, VPN, SHDSL, SDSL, HDSL, HDSL2, ISDN, and DDS. With respect to the 2400-2483.5 MHz frequency band ("2.4 GHz Band") under consideration in this proceeding, Adtran recently announced the availability of its TRACER 4103 radio model. The 4103 is a competitively priced (<$6,000), license-free digital microwave radio that combines baseband processing and radio frequency conversion in a one chassis. The 4103 delivers two T-1 signals up to 30 miles.

[1/] *Amendment of Part 15 of the Commission's Rules Regarding Spread Spectrum Devices*, ET Docket No. 99-231, Further Notice of Proposed Rule Making and Order, rel. May 11, 2001 ("*Notice*")

Accordingly, based on the foregoing, Adtran is vitally interested in the outcome of this proceeding.

Reduction of Hopping Channels. The FCC's current regulations require 2.4 GHz systems with bandwidths of 1 MHz or less to use at least 75 hopping frequencies. 47 C.F.R. § 15.247(a)(1)(ii) (2000). The FCC proposes to permit such systems to employ as few as 15 hopping frequencies, provided that (i) the device's output power does not exceed 125 mW and (ii) the device employs adaptive hopping techniques. *Notice* at ¶ 13. Adtran agrees with the Commission's proposal that the number of hopping frequencies should be reduced, and that the power limitation specified in the *Notice* is appropriate. However, the FCC's proposal to require adaptive hopping techniques is overly-protective and not necessary to mitigate interference in the 2.4 GHz Band.

The Commission's well-established policy is generally to refrain from establishing technical regulations that promote "quality of service" for end users in situations where there is a natural marketplace incentive for a provider or supplier to deliver a particular level of quality.[2/] Adaptive hopping techniques, which generally increase the sophistication of a receiver to protect it from experiencing harmful interference, however, are like quality of service regulations. By contrast, power limitations -- already existing in the FCC's regulations -- will ensure maximum channel reuse while at the same time limiting interference. Every supplier of Part 15 devices has a strong incentive to offer products that are not easily degraded; therefore, the adaptive hopping techniques requirement is not necessary and counterproductive.

[2/] See *Reallocation Of The 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, AND 2385-2390 MHz Government Transfer Bands*, Notice of Proposed Rule Making, FCC 00-395, ¶ 45 (2000) ("The Commission has generally refrained from imposing receiver standards, preferring to let market forces determine equipment specifications.").

Other Digital Transmission Systems. The *Notice* suggests that the FCC's current regulations cannot be interpreted to permit the operation of non-spread spectrum devices in the 902-928 MHz Band ("915 MHz Band"), 2.4 GHz Band and the 5725-5850 MHz Band ("5.7 GHz Band"). *Notice* at ¶ 16. Thus, the Commission proposes to permit the operation of non-spread spectrum devices in these frequency bands, provided that they comply with current technical regulations, which limit peak output power to 1 Watt, and limit peak power spectral density conducted to the antenna to 8 dBm in any 3 kHz band. *Notice* at ¶¶ 16-17. Adtran supports the Commission's proposal, but urges the Commission to adopt a peak power limit of 100 mW instead of 1 Watt. It is Adtran's experience that most devices in this band are point-to-point devices with directional antennas -- a 100 mW peak power limit is more than adequate to ensure proper operation.

By way of example, Adtran's systems are capable of delivering a high-quality RF signal as far as 30 miles in certain cases -- with a power level that is one-tenth the FCC's rules currently permit. In fact, Adtran has found that other propagation limiting factors, such as the curvature of the earth, or vegetation, etc., are more problematical than any FCC-imposed power limits. Adtran has never encountered a situation where its systems' link performance would be enhanced by increasing its systems' output power level above 100 mW. Accordingly, because the FCC's policy for the unlicensed bands is clearly designed to promote minimal operating power to ensure as much efficiency and re-use as possible, 47 C.F.R. § 15.15(a) (2000), the Commission should mandate lower peak output power levels.

Elimination of Processing Gain. Direct sequence spread spectrum systems are required to adhere to a 10 dB processing gain requirement. 47 C.F.R. § 15.247(e) (2000). In the *Notice*, the Commission questions whether the requirement remains useful, and whether compliance with

the requirement can be accurately measured. *Notice* at ¶ 22. The processing gain requirement is the FCC's attempt to ensure that direct sequence systems function as "true" spread spectrum systems and actually improve the signal-to-noise ratio by a particular margin, rather than simply spread energy to take advantage of the 1 Watt power limit.[3/] Adtran supports the FCC's proposal and agrees that the requirement is not necessary in light of marketplace conditions. Further, other FCC regulations governing unlicensed operations ensure that power is limited in a manner that accommodates other users in the same geographic area. For example, section 15.247(b)(3) of the agency's rules provides that peak output power must be reduced where antenna gain exceeds a specified limit. 47 C.F.R. § 15.247(b)(3) (2000).

Reduction of Peak Output Power Levels. As indicated above, Adtran urges the Commission to require non-spread spectrum systems in the 2.4 GHz Band (and other bands) to adhere to a 100 mW peak output power limit. Adtran also believes that such a power limit would serve the public interest if it were applied to all new equipment approved for the 2.4 GHz and 5.7 GHz Bands, whether they use spread spectrum technology or not.

Conclusion. Based on the foregoing, Adtran urges the Commission to adopt rules and policies in this proceeding consistent with the views expressed herein.

[3/] See *Amendment of Parts 2 and 15 of the Rules with Regard to the Operation of Spread Spectrum Systems*, Report and Order, 5 FCC Rcd 4123 (1990).

Respectfully submitted,

ADTRAN, INC.

By: / s /

Russell H. Fox
Russ Taylor
Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, P.C.
701 Pennsylvania Avenue, NW
Suite 900
Washington, DC 20004
202-434-7300

August 17, 2001