

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

In the Matter of)	
)	
Time Domain Corporation)	File No. NUF-200SGT-0702
)	
Application for Equipment Authorization)	
)	
Revision of Part 15 of the Commission's)	
Rules Regarding Ultra-Wideband)	ET Docket No. 98-153
Transmission Systems)	

SPRINT REPLY COMMENTS

Sprint Corporation, on behalf of its local, long distance and wireless divisions (“Sprint”), submits this reply to the Opposition filed by Time Domain Corporation (“Time Domain” or “TDC”) in response to the pending application for review concerning the Commission’s certification of Time Domain’s “TAG device.”¹ While Sprint joins in the arguments made in the reply comments filed by the Coalition, it submits this separate reply to offer its particular perspective on this important subject.

It is important to emphasize at the outset that the issue raised by this proceeding is of critical important to users of the GPS band and to licensees in the 1710-2690 MHz bands, but of only marginal importance to UWB developers. For example, Sprint has demonstrated that the record evidence is uncontroverted that the UWB emissions levels that the Commission has established for the PCS band are not adequate to protect Sprint licensed services from harmful interference.² Among other things, UWB devices operating at the authorized levels will result in a

¹ See Application for Review, File No. NUF-200SGT-0702 (Oct. 18, 2002)(“Coalition AFR”), and Time Domain Opposition, File No. NUF-200SGT-0702 (Nov. 4, 2002)(“TDC Opposition”).

² See Sprint Petition for Reconsideration, ET Docket No. 98-153 (June 17, 2002).

material loss of PCS network coverage and call capacity and will inhibit Sprint from providing to public safety agencies the location accuracy that its network is capable of providing.

In contrast, from the perspective of UWB developers, UWB emissions in the GPS and 1710-2690 MHz bands are spurious emissions only, meaning they are “not required in order for the [UWB] equipment to function” because they contribute “nothing to the transmission of information.”³ As the Commission has correctly recognized, “spurious emissions serve only to pollute the spectrum, reducing its availability to other users.”⁴

Sprint urges the Commission to act promptly on the pending reconsideration petitions of the *UWB Order*.⁵ In this regard, Sprint notes that the enormous effort that wireless carriers and public safety agencies are undertaking to deploy Phase II E911 service will be of little value if UWB interference prevents customers from even originating 911 calls and/or prevents carriers from providing to public safety agencies the location accuracy that their networks are capable of supporting.

I. TIME DOMAIN HAS FAILED TO DEMONSTRATE THAT ITS TAG DEVICE MEETS THE REQUIREMENTS OF RULE 15.521(C)

Time Domain contends that based on a series of tests performed by Intertek,⁶ its TAG device meets the requirements of Rule 15.521(c).⁷ Sprint must respectfully disagree.

³ *Part 15 NPRM*, 2 FCC Rcd 6135, 6137 ¶ 17 (1987). *See also* 47 C.F.R. § 2.1 (Spurious emissions defined as “[e]mission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information.”).

⁴ *First Part 15 Order*, 4 FCC Rcd 3493, 3500 ¶ 46 (1989).

⁵ *See Revision of Part 15 of the Commission’s Rules Regarding Ultra-Wideband Transmission Systems*, ET Docket No. 98-153, *First Report and Order*, FCC 02-48, 17 FCC Rcd 7435 (April 22, 2002) (“*UWB Order*”).

⁶ *See* Intertek Testing Services, Test Report, No. 0227351 uwb.doc, NUF-200SGT-0702 (July 22, 2002).

⁷ *See* TDC Opposition at 6 (“The TAG met the radiated emissions requirements of FCC CFR 47 Section 15.521(c).”).

Rule 15.521(c) permits an applicant to demonstrate that a digital module (or chassis) in its device meets the emissions standards set forth in Rule 15.209 rather than Rule 15.717 if two conditions are satisfied:

If it can be clearly demonstrated that [1] an emission from a UWB transmitter is due solely to emissions from digital circuitry contained within the transmitter and that [2] the emission is not intended to be radiated from the transmitter's antenna, the limits shown in Section 15.209 of this chapter shall apply to that emission rather than the limits specified in this section.⁸

TDC claims that these two criteria are met based on the results Intertek obtained when it replaced the antenna with a dummy load.⁹ No change in the emission profile was observed, and on the basis of this, the Intertek test report concluded: "The spectrum between 960 MHz and 3100 MHz contained no intentional emissions above the measurement noise floor."¹⁰

The flaw in this reasoning is that RF power is radiated by means other than the antenna (*e.g.*, the device chassis, as TDC acknowledges).¹¹ The radiated emissions that remain after the antenna is removed are not necessarily "due solely to emissions from digital circuitry," nor are they necessarily "not intended to be radiated by the transmitter's antenna." In the case of the Intertek test, the transmitter apparently was not turned off, so that both intentional and unintentional emissions from the transmitter could still be radiated *via* other radiation paths. Thus, the test methodology used (substitution of a dummy load for the antenna) satisfies neither of the two criteria contained in Rule 15.521(c). Moreover, since the device is operated with the antenna connected, any radiated emission test performed without the antenna is of little value (because

⁸ 47 C.F.R. § 15.521(c).

⁹ See TDC Opposition at 6 ("[T]here was no change in the emissions profile when the antenna port was terminated in a non-radiating load.").

¹⁰ *Id.*, quoting Intertek Report at 15.

¹¹ See TDC Opposition at 2. This is obvious from the fact that devices without antennas do in fact radiate.

emissions from digital circuitry can be radiated *via* the antenna as well). Thus, the test procedure that Intertek utilized does not logically support the conclusion that it and Time Domain have drawn from the test results.

The flaw in the Intertek test procedure can best be understood with an example. Suppose, for illustrative purposes, that the antenna plus the transmit filter have an idealized rectangular frequency response and pass no emissions whatsoever below 3.1 GHz. Any frequency content of the UWB signal below 3.1 GHz that is radiated is therefore radiated from the chassis.¹² Further suppose that the digital circuitry is perfectly “quiet” and radiates nothing. With these idealized assumptions, the emissions below 3.1 GHz with and without the antenna would be identical, and would all be due to the UWB transmitter. But using the logic employed in the Intertek Report and the TDC Opposition, those emissions would be due to the digital circuitry only – clearly an erroneous conclusion. This simple counterexample demonstrates the flaw in TDC’s (and Intertek’s) reasoning.

Rule 15.521(c) imposes on the applicant the burden to “clearly demonstrate” that the two conditions specified in the Rule are satisfied.¹³ In this instance, Time Domain has not begun to make the necessary demonstration.

II. CONCLUSION

The Commission has adopted rules to protect GPS and licensed bands below 3.1 GHz from harmful interference generated from UWB devices. These UWB emissions levels are meaningful only if they are enforced. While Sprint believes that the Commission’s testing pro-

¹² Clearly, in this idealized example, emissions below 3.1 GHz are not intended to be radiated from the antenna; however, emissions above 3.1 GHz may still be radiated from the chassis if the antenna is removed.

¹³ See 47 C.F.R. § 15.521(c).

cedures for UWB devices could be improved upon, in this instance Time Domain has failed to demonstrate compliance with the existing rules.

For the foregoing reasons, Sprint Corporation respectfully requests that the Commission grant the pending application for review.

Respectfully submitted,

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