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Magalie Roman Salas, Secretary  
Federal Communications Commission  
The Portals  
445 12<sup>th</sup> Street, S.W., Room TW-B204  
Washington, D.C. 20554

Re: ***Ex Parte Presentation***  
*Ultra-Wideband Transmission Systems -- ET Docket No. 98-153*

Dear Ms. Salas:

This letter serves as notification that on December 3, 2001, I met (by phone) with Monica Desai (Legal Advisor to Commissioner Martin) to discuss the Sprint PCS position regarding UWB operations in PCS bands and interference concerns. A copy of presentation material discussed during this conversation is attached.

Pursuant to Section 1.1206(a), an original and one copy of this letter are being filed with your office. Please associate this letter with the files in the above-captioned proceeding.

Please contact the undersigned if you have any questions.

Sincerely,

  
Luisa L. Lancetti

Attachment

cc: Monica Desai

Sprint PCS operates a 2G CDMA network (IS-95) and is now deploying Phase I of its 3G network (cdma2000). The analysis below applies to these CDMA air interfaces, as well as to the WCDMA 3G solution that GSM operators intend to implement. (We note that Cingular Wireless, which operates AMPS, TDMA and GSM networks, has expressed concern that UWB devices will also cause harmful interference to its air interfaces as well.)

### ***Summary and Recommendations***

UWB proponents have not met their burden of demonstrating that their devices will not cause harmful interference to PCS licensees. In fact, one major UWB developer, Multispectral Solutions, Inc. (MSSI) recommends that the FCC not approve UWB use below 3.1 GHz because of "significant" harmful interference.

Sprint PCS is not opposed to UWB ground penetrating radar below 1 GHz, nor to unlicensed UWB use in bands above 3.1 GHz – including communications uses. However, Sprint PCS agrees with MSSI that commercial UWB products in the PCS band should not be authorized until significant, real-world test data confirm that UWB will pose no harmful interference.

### ***Sprint PCS/Time Domain Tests and Telcordia Modeling confirm that UWB devices will cause harmful interference to PCS CDMA networks***

Sprint PCS and Time Domain conducted last year joint tests with the independent research firm, Telcordia, to determine the impact that UWB may have on PCS networks. Telcordia also prepared an interference model that Time Domain has said is "an excellent theoretical analysis." TD Reply at 39 (Oct. 27, 2000). (Time Domain has now disavowed joint testing, and Telcordia modeling results.) The model determined that at the -53 dBm emissions level discussed in the NPRM, UWB would harm Sprint PCS in two ways:

1. Loss of existing network capacity. In a medium-sized city, Sprint PCS would serve 250 to 1,000 fewer customers during the busy hour; and
2. Increased call blocking if PCS handset is too close to UWB device, with blockage rates increasing 1.2% to 7.9% depending upon distance.

According to the Telcordia model, FCC would have to establish a -70 dBm emissions level (vs. the proposals of -41 dBm and -53 dBm) before UWB devices would no longer cause harmful interference.

The actual interference would be much worse if, as NTIA and others believe, the cumulative interference impact will be greater if several UWB devices are located in the same area. (Time Domain only made one UWB device available for testing, so the parties could not test the cumulative effect of multiple devices.)

The CDMA patent holder, Qualcomm, has independently confirmed the conclusions reached from the Sprint PCS/Time Domain tests and Telcordia model: "UWB devices would cause harmful interference to wireless phones containing the gpsOne technology." Qualcomm FCC Letter (Sept. 26, 2001).

### ***UWB Developer Response to UWB/PCS interference***

MSSI: UWB devices should not operate in the PCS bands because the “interference effects of UWB transmissions to existing spectrum users has been well documented.” MSSI Reply at 4 (July 31, 2001).

Time Domain: Sprint PCS should install more cell sites to serve the same number customers in order to minimize the new UWB interference. However, TD concedes that additional sites will not eliminate UWB interference, and it does not offer to pay for this significant new non-revenue-generating expense.

XtremeSpectrum: Limit UWB devices to indoor use. But PCS is an “anywhere” service, and people expect the service will work regardless of their location, with a growing number of customers using PCS as their only phone. In addition, if PCS service no longer works, people will assume the problem is a Sprint PCS problem, not a problem with a UWB technology that they do not understand, and may not even be aware of the presence of devices. Further, even if the user was able to make and receive calls on his/her PCS phone, the serving base station would serve fewer other customers (because additional power is needed to overcome the UWB interference).

### ***FCC should not authorize UWB devices in the PCS band***

- UWB developers do not need the PCS band to offer their services, as such services can be provided in bands above 3.1 GHz. If use of PCS band is still considered important, UWB proponents must conduct testing to overcome showing made that harmful interference will result..
- E911 implementation is a major priority. Qualcomm has concluded that UWB will cause harmful interference to handsets containing gpsOne technology.
- FCC wants CMRS to compete with incumbent LEC services. This objective is undermined if blocking rates increase as a result of UWB.
- Wireless service quality is an important issue. FCC should not take steps that will deteriorate PCS service quality.
- 3G services will often use wider channels (3.75 or 5.0 GHz carriers) than 2G networks, increasing susceptibility to UWB interference. Council of Economic Advisors has estimated that public benefits from 3G services will be \$53-\$111 billion annually.
- PCS carriers received exclusive licenses for which the government received valuable consideration (\$3+ billion from Sprint PCS alone). Even if FCC can now modify the licenses to authorize additional use and interference in the PCS band, government may be found in breach of contract and liable for increased costs PCS licensees incur to overcome UWB interference.
- Finally, the need for UWB communications devices may be questionable given the availability of Bluetooth, IEEE 802.11, *etc.*