In Matter of	)	
	)	
Revision of Part 15 of the Commission's Rules	)	
Regarding Ultra Wideband Transmission	)	**ET Docket No. 98-153**
Systems	)	

COMMENTS

Conexant Systems Inc hereby submits this document in response to the Federal Communications Commission (FCC) public notice soliciting comments to reports that have been submitted to the Commission on the interference potential of ultra-wideband (UWB) transmission systems to the Global Positioning systems (GPS). This is regarding proceeding ET Docket No 98-153 pertaining to " Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems".

The Commission's objective in its NPRM is to ensure protection to GPS as well as other critical systems, before deciding on provisions for the UWB. Conexant is a leading manufacturer of wireless devices including GPS chipsets and it is in our interest to safeguard the frequency bands from harmful interference resulting from UWB transmissions. We are especially concerned with the impact to GPS because of the low signal levels, wide bandwidth, and interference scenarios that could exist. It is in this regard that we make some observations on the report by the John Hopkins University / Applied Physics Laboratory (JHU/APL) where they have performed relevant data analysis on the data generated by the Army Research Laboratories, University of Texas (ARL, UT).

The report makes a conclusion that the interference capabilities of UWB devices are dependant on the characteristics of the UWB signal. The only UWB devices that were used in the test analysis are the two devices provided by Time Domain Corporation: a PulsON Application Developer and a Signal Generator/ Noise Emitter. The signal structure of UWB devices of other corporations differ from those of the devices used in the tests. Since there are presently no guidelines on the specific nature of the UWB pulse and its characteristics in the current Part 15 regulations, it remains to be seen whether results with UWB devices not used in the tests behave in the same manner.

The JHU/APL report states that it is possible to design a properly time-coded UWB waveform that has a white-noise like spectrum. The report also state that improper time coding of the UWB waveform can result in non white-noise characteristics which can cause deleterious influence to GPS systems. However, the report does not provide sufficient information for one to determine if this could actually be accomplished in practice. Current Part 15 rules and constraints specified in the NPRM do not limit the choice of a UWB signal to have a white-noise like characteristic. To ensure proper operation of GPS devices, it is essential to perform further study in the feasibility of providing a waveform that could be realized in practice for various usage scenarios to not

interfere with GPS. Both waveform constraints as well as usage scenarios have not been properly addressed in the current report.

The conclusions that JHU/APL draws by its data analysis of the conducted data says that UWB devices with power levels that are compliant with the current Part 15 regulations can cause sufficient degradation to GPS when within a range of 3 meters or less. However there is a great variation in pattern of interference for the various GPS receivers tested. The range at which the GPS receiver starts having negligible degradation beyond 3 meters changes from one receiver to another. Therefore, a safe margin for operation between the UWB and GPS devices is dependent on a variety of factors, yet to be determined.

The interference effects of UWB are dependent on a number of variables including the type of signal structure, the operating scenarios and the type of receiver. These parameters have not been properly addressed by the report in sufficient depth and detail. It can be concluded that there is insufficient knowledge on the interference capability of UWB systems for the Commission to make provisions on the same at this time. Conexant expects GPS receivers and other network aided navigation technologies to be deployed for enabling many new position location services to the public. Therefore, Conexant recommends further testing/study before the FCC approves the deployment and operation of UWB devices.

Respectfully submitted,

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