

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Public Safety and Homeland Security)	PS Docket No. 16-32
Bureau Seeks Comment on Ways to)	
Facilitate Earthquake-Related)	
Emergency Alerts)	
)	

To: The Commission:

Comments of Nickolaus E. Leggett, Certified Electronics Technician, Amateur Radio Operator (N3NL), GROL Licensee, Inventor, and Analyst

I am a certified electronics technician (iNARTE and ISCET) and an Extra Class amateur radio operator (call sign N3NL). I also hold an FCC General Radiotelephone Operator License with a Ship Radar Endorsement. I am an inventor holding three U.S. Patents. My latest patent is a wireless bus for digital devices and computers (U.S. Patent # 6,771,935). I have a Master of Arts degree in Political Science from the Johns Hopkins University (1970).

I am one of the original petitioners for the establishment of the Low Power FM (LPFM) radio broadcasting service (RM-9208 July 7, 1997 subsequently included in MM Docket 99-25). I am also one of the petitioners in the docket to establish a low power radio service on the AM broadcast band (RM-11287). I have filed a total of well over 200 formal comments with the FCC over the years since the 1970s. I have filed comments with other Federal agencies as well including the USPTO, NASA, FAA, FERC, EPA, and the TSA.

Human Behavior and Earthquake Early Warning (EEW) systems

The Commission needs to seriously consider the human behavior of the public when they receive earthquake early warnings. Many people will act in an abrupt manner that can cause confusion and chaos. For example, many drivers may suddenly pull off the highway and many office workers may dive under their desks. Drivers on bridges may suddenly accelerate to get off the dangerous bridge. Numerous people will panic, causing other people to panic.

This abrupt behavior is encouraged by the public perception that earthquakes are sudden and rapidly advancing events. Indeed, the one earthquake that I experienced was exactly that.

The quality of the earthquake warnings will greatly influence the public's behavior. If there are a lot of false positives in the warnings, the public will quickly tire of diving under desks and rushing off highways for no reason. They will become hostile to the warning system and will agitate to have it removed from the telecommunications services.

If there are a lot of false negatives (no earthquake detected) they will become intensely angry because they were not warned of a real earthquake and the damage that it caused to their families and property. If family members are lost in this situation, then there will be a lot of major litigation against the operators of the earthquake early warning system (EEW).

In fact, the earthquake early warning system would only be acceptable if it were very accurate over many years of service. I contend the current geological knowledge is inadequate to deliver this high level of warning accuracy.

A Premature Technology

It is too early in the history of technology to work on an earthquake early warning system because of the content problems and human behavior problems discussed above. The EEW

concept does not justify development of a very rapid warning delivery system considered in this docket. However, the very rapid warning system could be used to handle other emergencies such as emerging terrorist attacks, solar geomagnetic storms, or incoming meteors such as the one that exploded over Russia recently.

How Valuable Would an EEW System Actually Be?

If the earthquake warning is only a few seconds before an actual earthquake occurs, it is not much good except for an immediate action such as diving under a desk or table for protection. If the warning is minutes before the actual earthquake, it has greater protective value. People can move to a designated shelter area in a building or get away from trees or tall buildings that can fall on them. However, a very relevant consequence of the longer warning period is that the cell phone system will become jammed with calls to family members and friends. The Commission needs to address this consequence, and work for the use of narrow-bandwidth modes such as text messaging in these emergencies. Very long warning times will lead to traffic gridlock as workers attempt to get home before the earthquake occurs while others attempt to get out of town.

The Commission needs to devote a lot of research effort to the sociology of earthquake warnings before one gets into the details of conveying very rapid warning messages to the public.

Respectfully Submitted,

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United States Patent 6,771,935, Wireless Bus August 3, 2004
United States Patent 3,280,929 Ground-Effect Machine October 25, 1966
United States Patent 3,280,930 Ground-Effect Vehicle October 25, 1966

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