ORIGINAL
FILE

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RM7747

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Federal Communications Commission
Office of the Secretary

Secretary
Federal Communications Commission
Washington, D.C. 20554
RE: RM7747
Gentlemen:

The Center for Earthquake Research and Information (CERI) at Memphis State University requests the Commission to consider the following information during its transactions concerning a possible reallocation of the 216 Mhz. to 220 Mhz. band for secondary use by the Amateur Radio Community.

CERI currently operates two radio telemetered seismic networks consisting of 30 permanent stations and, a 40 station portable seismic instrument network. A 20 station rapid deployment, aftershock monitoring network is in the final stages of construction and is due for operation in early 1992. Taken together these networks utilize approximately 100 radio telemetry links. They are licensed under the IB business radio service under call sign KB82881. We are a secondary band user to the IWCS. Currently our area of operation consists mainly of the southeastern United States; however a deployment of the 40 station portable seismic network in Hawaii is planned, and the 20 station aftershock monitoring network could see use in almost any seismic region of the United States in the event of a large damaging earthquake.

PERMANENT SEISMIC NETWORKS

The CERI permanent seismic networks are operated to carry out the experimental provisions of Nuclear Regulatory Commission contracts NRC-04-85-107 and NRC-04-86-120. Funding for these networks will continue until 1992, at which time they will be transferred to U.S. Geological Survey (USGS) sponsor ship as part of contract #14-08-0001 G1923.

The stations that make up these permanent networks have been carefully sited at locations as far as possible from sources of man made vibrations in order to secure the best possible sensitivity to microearthquakes. The remote nature of these sites generally preclude the use of other forms of telemetry such as telephone, and most sites rely on photovoltaic panels for power, thus severely limiting our available power. These stations telemeter earth motion data on a continuous basis, because of the as yet unpredictable nature of earthquakes. Triggered recording at individual

sites is not practical because of the difficulties in differentiating earthquakes from other vibration sources such as quarry and mine blasting. The data streams from the remote sites are relayed to cities where they can be multiplexed together for transmission over leased microwave facilities. Future plans call for the phasing out of leased lines and the substitution of packetized satellite links, as a cost cutting measure.

Many of the U.S. regional seismic networks operate in this manner; however the CERI networks produce some of the highest quality data because they are currently free from the substantial amounts of noise caused by cochannel interference in the more crowded bands such as 165 Mhz..

Currently the permanent seismic networks that provide coverage of the New Madrid seismic zone are undergoing reorganization under USGS auspices to become the next generation regional seismic network. This new network emphasizes a mix of both analog and digital telemetry and will be used as a prototype for all future U.S. seismic network deployments. Reliable, quiet, and interference-free radio telemetry plays an important part in these plans. The portions of the 216 - 220 Mhz. band not used by the IWCS service are essential to the successful completion of this project, and would be heavily utilized. Because of the low power (less than 500mW.) nature of these communication links we would be unable to compete with higher power amateur repeaters, and because of the high usage of amateur equipment during emergencies (such as damaging earthquakes) we would be unable to acquire data during crucial aftershock sequences.

Many of our monitoring stations in the southern Appalachians utilize mountain tops for obvious telemetry path reasons, however this opens us up to the chance for substantial cochannel interference caused by distant higher powered transmitters, especially during periods of ducting.

For the last 13 years these stations have generated much valuable data for those working in the field of earthquake hazard mitigation. However an even larger amount of research remains to be done, and continued data gathering is of the utmost importance to this work.

40 STATION PORTABLE SEISMIC ARRAY

The 40 station portable seismic instrument array (known as PANDA) was created in 1986 using over $ 300,000 in funds provided by the State of Tennessee under its Centers of Excellence program. While the permanent regional seismic networks provide a broad view of the seismicity of the region, PANDA has the capability of focussing in on a fine scale to the tectonics of small areas. Typically 40 stations are deployed in an area of 100-200 square miles. Data derived from this system is essential to delineating the structures

emergency communications during earthquake disaster critical time periods would cause loss of critical information.

We realize that earthquake monitoring is only a small (although important) part of the overall best use of an increasingly rare commodity (radio spectrum), however we hope that our use of it more than outweighs the cost to other potential users. If we can provide further information concerning our plans for spectrum use, or technical details concerning existing use please contact Greg Steiner at 901-678-2007. Thank you for giving us this opportunity to comment on the proposed change in the 216- 220 Mhz band contained in rule making RM 7747

Respectfully Submitted,

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Director, CERI

Gregory C. Steiner
Technical Director, CERI

cc.Dr. V Lane Rawlins
President, Memphis State University