

**Before the  
Federal Communications Commission  
Washington, D.C. 20054**

**In the Matter of** )  
 )  
**Petitions for Rulemaking** ) **RM-10781 through RM 10787**  
**Against Morse Code Testing In** )  
**Amateur Radio Licensing** )

**To: The Commission**

**Reply to Comments of the United States Members of the  
Potomac Valley Radio Club by Leonard H. Anderson**

On 29 September 2003 the above organization (“PVRC”) submitted a blanket Comment on the Petitions named for retention of the Morse Code test for U.S. amateur radio licensing. I, Leonard H. Anderson, support the elimination of any Morse Code test for any class of U.S. amateur radio licensing and offer the following arguments in rebuttal of the PVRC position statements.

**On PVRC contention that “CW Is a Critical Emergency Communications Skill That Must be Maintained”<sup>1</sup>**

Beyond their general statements of opinion, PVRC has not made their point clear by any specific cases or actions citing actual emergency communications use of “CW” by radio amateurs, either as a mode by itself or in addition to other modes allocated to amateur radio use.

PVRC states: “*more specifically, CW serves as mode of last resort to support emergency communications because it is most copiable under adverse conditions of reception, featuring a benegit of some 12 db over the most efficient voice mode.*” That statement is true **if and only if** the receiver used for

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<sup>1</sup> PVRC uses the colloquialism of “CW” to refer to on-off keyed RF carrier codes which are synonymous with International Morse Code defined in Part 97, Title 47 CFR. Since “CW” is an abbreviation or acronym for Continuous Wave, the use of any codes such as International Morse Code is defined by regulations, not the general term in radio of the action of on-off keying of an RF Carrier. I will continue with PVRC’s use throughout my Comments but refer to it within quotation marks..

reception is equipped with a narrow bandpass filter for “CW” versus a receiving bandpass filter suitable for voice. Typically, modern amateur radio HF transceivers and receivers have “CW” bandpass filters of 500 Hz bandwidth and voice-frequency bandpass filters of 2.5 KHz bandwidth. Since, for a given level of random noise, the signal-to-noise ratio is a function of the square-root of relative bandwidths, the best “improvement” would be equal to 10 times the base-10 logarithm of (2500/500) or approximately 7 decibels.<sup>2</sup>

The claimed efficacy of “CW” is **equipment dependent** rather than “CW” dependent. If equipment dependency is a deciding factor, then any of the TOR (Teleprinter Over Radio) modes using 170 Hz Mark-Space separation in frequency-shift keying or even the PSK31 mode of slower-rate teleprinter using specific coding (innovated by Peter Martinez, G3PLX, in the UK during the late 1990s) can achieve the same signal-to-noise ratio as manual “CW.”

PVRC’ statement of “CW” as “*mode of last resort*” is unsupportable. A “last resort” measure during an emergency cannot be determined with any certainty. It should be pointed out that the other radio services involved in actual emergency work **do not use “CW” for any emergency or disaster communications**. Those other radio services include Public Safety organizations, government agencies such as NOAA, SHARES, or the U.S. military branches plus the National Guards.

Near the bottom of PVRC’ page 2 Comment, they state: “*Absent this requirement [CW cognition] the new amateur would have no knowledge of the benefits or features of CW, which would lead to its ultimate demise and the loss of its use as a critical skill for public safety communications.*”

First of all, it should be pointed out that amateur radio activities are basically an **avocation**, not a public service radio activity. While it is quite true that amateur radio **can** be used in public service, it is not so defined **nor was it defined specifically as a public service radio activity**.

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<sup>2</sup> The presumption is that human psychomotor action is sensitive to power level ratios, not voltage or current ratios which would be twice that value or about 14 decibels.

Secondly, there is nothing in the Communications Act of 1934 that assigns the Commission as a curator or other maintenance agency of specific modes of communication as used in early radio. That task can be accomplished by private membership organizations, not a federal agency whose main task is to regulate all of U.S. civil radio services.

PVRC seems to have the opinion that “CW” mode can only be kept alive by a federal test for such “CW” skills. That is unproven. Individuals have learned “CW” skills on their own volition or had the benefit of early military training.<sup>3</sup> The original purpose of the “CW” test seems to have been long ago when **on-off codes were the only possible means to use radio as a communications medium.** When all radio users used only “CW” it was quite logical that the government standardize and test such means to insure regulation and to mitigate interference. That period was during the first decades of radio following 1895.<sup>4</sup>

Radio as a communications medium has advanced considerably since a century ago. The only radio service in the United States, civil or government, that uses “CW” with any regularity, is amateur radio. Since methods and means of communications from and to the government abound today, there is no need to single out “CW” skill as “necessary” for the Commission to regulate or mitigate interference.

On page 3 of PVRC’ Comments they state: *“It is self-evident that elimination of CW as a testing criterion would serve to remove the training ground for future Amateurs capable of using the mode, a risk to public safety and a degradation of the public interest.”* That is far from “self-evident.”

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<sup>3</sup> The U.S. military no longer requires morse code skill for communications purposes. The only need for such cognition may be for Military Intelligence radio intercept purposes and is taught at the Military Intelligence School at Fort Huachuca, AZ.

<sup>4</sup> Demonstrations in Italy by Marconi and Russia by Popov in 1896 proved the viability of radio communications. The Institute of Electrical and Electronic Engineers recognizes 1895 as a milestone time citing Guglielmo Marconi’s first experiments with radio communication in Switzerland; the IEEE History Center does not indicate that such Swiss-locale experiments by Marconi actually sent any communications, only that the medium would work as such..

A federal “CW” test is simply a test of proficiency **on a skill already acquired**. Except for old military radio operator training, the U.S. government does not engage in teaching amateur radio “CW” skills. Such “CW” skills are successfully learned by thousands on their own volition and through private organization classes. The purpose of any amateur radio license test is for the Commission’s purpose to ascertain whether or not an applicant should be granted an amateur radio license. The Commission is not chartered by law to be an educational institution.

**On the PVRC’ Contention that “Elimination of CW Testing Will Adversely Affect National Emergency Preparedness”**

Observing PVRC’ statements of pages 3 and 4 from a standpoint of a half century in the radio and electronics industry, having started in HF communications during U.S. Army service in 1952 to 1960, their opinions border on fantasy role-playing or just wish-fulfillment daydreaming of amateurs who show no evidence of actually participating in any real emergency or disaster communications.<sup>5</sup>

After the 11 September 2000 terrorist attacks on New York City’s World Trade Center and Washington, D.C.’s Pentagon, the radios used to effect disaster recovery were of the VHF and UHF short-range variety using voice communications, **principally by professional civilian and government personnel**.<sup>6</sup> Such terrible disasters were limited to a relatively small geographical area not requiring the

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<sup>5</sup> This Commenter was assigned to Army radio station ADA in Tokyo, Japan, from 1953 to 1956, a primary long-distance communications facility for the Far East Command Headquarters. ADA had 43 HF transmitters and a 1955 average traffic of 220,000 messages a month and operated 24 hours a day, 7 days a week during the Cold War period commencing in 1948. None of the communications modes used by ADA involved or required any morse code skills. Station ADA continued to operate until 1963 when the USAF was assigned HF communications for the US military in the northwest Asian sector. In 1978 the USAF HF facility was disbanded and facilities returned to the Japanese government. Call sign ADA remains to this day for use by the U.S. Army Pacific (USARPAC) Headquarters at Fort Shafter, Hawaii.

<sup>6</sup> Observation of the broadcast media video-audio coverage of personnel involved, statements in the electronics periodicals such as IEEE Spectrum, EDN, Electronic Design, Microwaves & RF, RF Design, and other radio-electronics trade publications.

long-distance communications capability of the HF spectrum.

During the 14 August 2003 northwestern United States primary electrical power blackout affecting 50 million electrical power users, there is no evidence that either amateur radio or “CW” communications modes were used to aid anyone. Yet, despite a total shutdown of primary electrical power to the northeast USA, the broadcast media continued to operate, hospitals remained open for treating any injured, and the telephone infrastructure remained intact and operating under their own emergency power supplies.<sup>7</sup>

During the 17 January 1994 Northridge Earthquake event in Los Angeles, California, the primary electrical power was shut off entirely for approximately 10 million in the immediate area shortly after 4:30 AM PST.<sup>8</sup> Public safety organizations continued to operate using their own emergency electrical power and police, fire, ambulance, and utility vehicles were able to use their own mobile radios regardless of the primary electrical power failure.

The point of stressing these real examples of emergencies and disasters is that **planning, preparation, and training is essential for emergency communications.** The government and professional organizations do this and they are not concerned with using any “CW” which LOC-US alleges is superior to all other modes. The primary communications mode of the government and professional emergency and disaster organizations is voice, followed by data (teleprinter, paper or electronic). **“CW” is not used by government and professional public safety organizations for emergencies or disasters.**

Emergency and disaster communications was **never the primary focus of U.S. amateur radio**

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<sup>7</sup> Telephone switching centers are not, nor have they ever been designed to handle more than a fraction of any centers' subscriber base. Telephone companies in the USA still maintain communications facilities which are not routed through switching centers and thus are not victim to overload from too many subscribers accessing normal dialing switching.

<sup>8</sup> The cause was a buckled MHV transmission tower that, in turn, caused MHV lines of the Pacific Intertie to cease functioning. As designed, all local power centers shut down electric power distribution within most of the Greater Los Angeles area. Repairs of the tower and lines was quickly done and the area's main electric power control center effected a “Black Start” of bringing up all local power districts that had intact power distribution between early afternoon and midnight of that 17 January 1994 date.

**activities.** U.S. amateur radio as practiced daily is **not a public safety radio service.**

## **Conclusion**

PVRC contentions that the United States needs “CW” skills for the events of national emergencies is found to be without merit or example, based largely on premises that were outdated a half century ago. It is not the lawful purpose of the FCC to maintain a Living Museum of Archaic Radio Modes...just to appease a minority group of special interests trying to hold back the future for all others.

This Commenter finds the remarks of the PVRC to be totally without merit and without evidence and considers their remarks not applicable to the petitions for the removal of the International Morse Code from U. S. amateur radio testing. The “CW” **test** should be eliminated to open up U.S. amateur radio from the myth-based jingoism of long ago. That would enable a better future for those Americans wishing to become licensed radio amateurs.

Respectfully submitted this 6<sup>th</sup> day of October, 2003,

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