

MEMO TO        FEDERAL COMMUNICATIONS COMMISSION  
FROM            MICHAEL TOIA, K3MT  
SUBJECT        COMMENTS: GN DOCKET No. 12-91

The Docket asks questions in its paragraphs 1 (a) through 1 (j) related to the "Importance of emergency Amateur Radio Service communications," and in its paragraphs 2 (a) through (f) related to "Impediments to enhanced Amateur Radio Service communications." I respond to selected subparagraphs, using the term "Amateur" to mean the "Amateur Radio Service," or a radio amateur operator.

1 (a) - History is resplendent with examples of Amateur emergency communications. A complete catalog likely would require a several volume set: I mention but a few.

- i. The Michigan / Ohio snowstorm event of 1913 isolated large areas of those two states. Amateurs came into action and provided much needed disaster communications to ameliorate the storm's effects.
- ii. The great Northeast floods of 1936 inundated many parts of Ohio through Connecticut: it saw amateurs providing emergency communications for assistance to local government agencies to effect disaster relief.
- iii. Hurricane Marilyn, 1995, caused severe damage in the US Virgin Islands. First reports of damage reached FEMA by relay from amateurs on St. Thomas, and amateur communication assisted in recovery efforts for several weeks.
- iv. Amateurs operate the "Hurricane Watch Network" on 14325 kHz. The network assesses and provides reports of western Atlantic storm progression and damage estimates, and assists relief agencies / federal and local governments in restoring normality to affected areas.
- v. Amateur public service for emergency or disaster relief occurs daily. A complete compendium would likely require a multi-volume set of books.

1 (b) - Amateurs differ from other emergency communications systems in several interesting ways.

- i. Avocation vs. vocation: Amateurs are keenly interested in their art, self-train, and constantly practice their skills.
- ii. Availability: Amateurs are "on the air" 'round the clock, every day. They are immediately available when called upon.
- iii. Survivability: Amateurs are diffused throughout the population. A "cockroach" survivability model is likely the best description - the amateur service cannot be destroyed completely without destroying virtually all of the population.
- iv. Cost: Amateur communication is available at no cost to the government or the people, as amateurs purchase their equipment from their own pocketbooks.
- v. Range: Amateurs move message traffic across local links of a few miles, or over repeater links across tens of miles. They can transfer traffic to HF networks and move it cross country, or internationally if the need arises, with need of no other infrastructure.
- vi. Scale: Amateurs can quickly establish multiple emergency networks as needed. They have ample spectrum space and almost unlimited, trained manpower to do so.

There are many comments possible for 1(c) though (f), I do not respond to those questions.

1 (g) - Amateurs use, and provide, voice, data, digital file transfer, video, and fax services over their networks. Many technical innovations developed, and will develop, by amateurs, and/or were early accepted by amateurs. Low bandwidth, low power, world-circling PSK 31 teleprinter is one example, as is minimum-bandwidth digital voice transmission.

1 (i) - Interconnection between amateur and non-amateur systems could be fraught with problems if not done properly. Were it to be done, I suggest a joint amateur/industry/government standards committee to oversee the process and recommend interconnect procedures and standards. I note that the FCC has convened and conducted similar committees over the past many years.

2 (a) - Deed restrictions and HOA rules often limit or prohibit amateur antenna installations. This induces the sequence, "no antenna, no amateur station, no emergency communications node, loss of avocational interest, loss of an emergency communications volunteer." Many of these restrictions seek to limit amateur antennas because they are thought to be aesthetically unsightly, and / or their emanations may cause interference to electronic devices. The interference problem is due to non-consideration of radiofrequency interference effects in consumer electronics. This difficult situation can be ameliorated by low power, low bandwidth modes such as PSK31 on HF, or external antennas on VHF/UHF.

2 (c) - A large percentage of amateurs are content with fairly simple antenna systems, often consisting of an wire that, in trees or up the side of a building, cannot be seen from more than several tens of feet.

2 (d) - Commission rules that create impediments to amateur communications are not unknown, the BPL rules being a most notorious example. In addition, the ever-expanding use of digital electronics in appliances, switch-mode power supplies, personal computers, etc. raises the general noise level that makes radio communication in general more difficult.

I offer two personal notes of the latter type problem personally encountered:

- i. A new dishwasher generates radio frequency noise precluding operation on HF bands during its daily one-hour cycle time
- i.
- ii. A personal computer radiated interference from its switching power supply, preventing use of HF bands.

As an accredited RF Interference engineer \* I looked into the latter. Its power supply was made in China, and had all necessary EMI certifications, including that of the FCC. I bought another power supply, replaced the original, and the problem was resolved.

I contacted the company who built and sold the computer. Their response was, "computer speeds are increasing, and this causes the interference," notwithstanding the Commission's part B rules regulating such devices. The Commission simply has not the manpower to enforce import restrictions on this power supply and similar items: this contributes to the noise environment.

2 (e) - Many amateurs use mobile FM transceivers, often on 2 meters or 70 cm. Amateur groups maintain a nationwide network of VHF / UHF repeaters granting their mobile units considerable utility for emergency communications. Local governments pass laws prohibiting the use of *all* radio communications devices in moving vehicles, casting amateurs into the ranks of lawbreakers in some jurisdictions. This can have a dampening effect on amateurs installing mobile equipment, lessening the available pool of readily-equipped and instantly available emergency communications stations. One would think Federal preemption for federally licensed communicators, including amateurs, would bypass the problem.

Respectfully submitted,  
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First licensed 4/15/1952

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- \* Engineering Branch Chief, FCC Regional Office, Park Ridge, IL 1971-74
- Deputy chief, FCC Laboratory, Columbia MD 1974-78
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- Professor [ appointed as such by Chairman Richard Wiley ], "Engineering for non-Engineers,"  
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