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Before the Federal Communications Commission

Petition for a Microstation Radio Broadcasting Service

RM-9208

June 26, 1997

1.1 Introduction

This petition proposes the establishment of an affordable microstation radio broadcasting service that will provide additional outlets of broadcast information, services, and entertainment. Each microstation is a very low power amplitude modulation (AM) or frequency modulation (FM) radio station that would transmit in the appropriate broadcast band. A microstation would serve an area of one to several square miles, making it ideal for coverage of a single small municipality or even a small neighborhood of a larger municipality.

1.2 Purpose of the Service

The microstation radio broadcasting service would provide the opportunity for individual citizens and small groups of citizens to operate radio broadcast services. This would expand the variety of subjects presented and types of entertainment presented. New musical groups could present their products to society and new social and political options could be discussed. Specialized stations would arise addressing specific subjects and activities such as golfing, flying, archery, energy conservation, ecology, animal rights, etc. The ties of community identity would be fostered in urban neighborhoods, rural towns and other communities which are currently too small to win much attention from "mainstream", ratings-driven media.

The microstation broadcasting service would also provide direct opportunity for citizen involvement in broadcasting. This is a contrast to the current situation where broadcasting is limited to wealthy corporations. The only direct citizen access provided currently on broadcast radio is an occasional minute or two on talk radio. No mainstream media would be displaced by

microstations, but such media would be supplemented. Further, through competition from microstations, mainstream media might have an incentive to become more responsive to new ideas.

Microstations will be shaped by two forces which will drive them in new directions. First, because microstations serve areas which range in size from small to tiny, they must be highly responsive to the specific communities in which they are located. They cannot chase after mass markets because they lack the legal or technological resources to capture such markets. They must chase after "niche markets" in their communities.

There is only one exception to the general inability of microstations to compete for mass markets. The exception is this: microstations may be able to enter mass markets by growing their own. If they can find a "niche market" with potential for mass appeal, but which is too risky or controversial or experimental to attract conventional radio stations, microstations can prosper through such innovation.

Second, because microstations have small service areas and very modest equipment requirements, they will have correspondingly small operating revenue requirements. As a result, they will not require a large and steady flow of advertising dollars. Microstations will be free to experiment with new ideas, and expanded community dialogue, without running the financial risks that a larger station might incur.

In short, survival for microstations will require attentiveness to "niche markets" and community concerns. Survival will not, however, require large advertising revenues and a "lowest common denominator" approach to programming.

The incentives and disincentives which govern conventional media will be reversed.

This proposal is made based on our own direct experience with the conventional media having little interest or openness to the discussion of new topics, the needs of neighborhoods and other small communities, or the presentation of music and drama from new artists.

1.3 Urgent Need for the Service

There are at least three reasons why the Commission should treat this proposal as an urgent matter.

(a) Under its basic governing statute, the Commission has a legal obligation to preserve national security and protect the national interest. With this mandate, the Commission cannot "put on blinders" and focus solely upon a narrow range of concerns. It must also be aware of - and be responsive to - trends which endanger the larger society that the Commission serves.

Three such converging trends are now clearly evident. First, many families and neighborhoods are in a state of deterioration or collapse, especially (but not exclusively) in urban areas with low per capita incomes. Second, due to changes ranging from "welfare reform" to cutbacks in mass transit funding to the relocation of businesses from cities to the suburbs, fewer dollars are flowing into struggling communities from the outside world. Third, there is a growing consensus that many damaged families and communities cannot recover, and in some cases may not even survive, without a strengthening of community ties and a rebirth of community values.

Our nation's First Lady has given new prominence to an old African proverb: "It takes a village to raise a child." In modern America, however, many of our "villages" are lost in the demographic "background noise" at conventional media outlets. Some of these "villages" are geographical, such as a ghetto or a barrio or a college town with tree-lined streets. Other

"villages" are bounded not by geography but by a common culture or common interests. Examples include "Trekkies", Alcoholics Anonymous, fans of light jazz, and 4-H Clubs.

Whether their nature is geopolitical or cultural, or both, such small communities can help individuals, families and neighborhoods to survive and prosper. The Commission can, and should, use microstations to energize them.

(b) Commission action on microstations would serve the national interest in another way as well. For better or worse, America is currently being integrated into the much-discussed "global economy". One clear consequence is a need for American companies, and their workers, to become more competitive than they were before. For this reason, and others, the gap between rich and poor has steadily widened in recent decades. Many individual Americans have faced declining incomes, or declining opportunities for advancement, or both.

Microstations can help, in a small way, to reverse this situation by creating opportunities for upward mobility. Microstations can be established with relatively inexpensive equipment, other minimal capital requirements and a level of technological expertise that is fairly easy for most people to acquire. As noted earlier, such stations can then be kept on the air with very modest operating revenues. Therefore, the barriers to market entry are extremely low - which means that the opportunities for motivated entrepreneurs are extremely high. People with low incomes can have a shot at the "the American Dream", particularly if they pool their resources. Even teenagers with high school educations could find that operation of a microstation is within their financial and educational reach.

Thus, microstations can advance the national interest by promoting upward mobility, even among groups who have been finding it difficult to obtain, and by increasing the pool of American workers who have entrepreneurial and technological experience. In addition, there

would surely be "ripple effects" in fields such as music and the arts, where writers and performers who previously lacked an audience might suddenly find one.

Microstations also provide technical radio and electronics training to those who build and operate them. New technicians will grow in their knowledge of broadcasting and will implement new technical solutions for broadcasting. For example, the increasing availability of large cheap random access memories (RAMs) will encourage some microstation operators to set up all-digital sound systems for their stations. In these all-digital systems, CD or tape recordings will be replaced by digital files in RAM. Innovations in the radio frequency (RF) stages of the transmitters will be tried as well. Many licensees will use digital signal processing (DSP) techniques throughout their stations to replace many of the conventional analog circuits.

(c) While advancing the national interest, microstations would also advance the interests of commercial radio as an industry. Even "mainstream" radio stations would benefit in the long run.

To borrow an example from television, radio's sister industry, consider the case of the children's character Big Bird. Critics of Federal funding for public television have made the point that Big Bird, and other popular figures on public television, could surely migrate to commercial television networks if necessary. This observation is correct but misses the point. Would one or more commercial networks offer a home to a program with a proven record of sustained success? Yes, almost certainly they would. But would they invest in an experiment like Big Bird before a record of success had been demonstrated? Would they risk a string of mediocre public responses, and perhaps a few dismal failures, in order to find the one new idea in five or 10 or 20 that will take off like a skyrocket? It seems very doubtful that they would - and neither would their large, established counterparts in the radio industry.

But microstations could. They would be lean enough to endure a series of misfires in their search for the equivalent of Big Bird. In the process, they could serve as a proving ground for potentially popular characters, art forms and/or ideas that are too experimental to attract much attention from conventional radio stations.

In short, we anticipate that most microstation programming would remain oriented to "niche markets" - but we also expect that some "niche market" programming would turn out, when given half a chance, to be mass market programming after all.

In addition, microstations will provide a technical environment for inventing and demonstrating inventions that will benefit all of broadcast radio. Many of the technicians in microstation broadcasting will be radio amateurs and other experimenters who will be eager to apply their inventive skills to broadcasting. New technologies for recording, studio operations, and transmitting will be demonstrated for the broadcast industry. Some of the programming and technological innovation may prove to be exportable, thereby helping the U.S. to compete in the global marketplace.

Without microstations, and/or similar engines of innovation, much of the nation's creative energy will continue to be concentrated on the Internet while commercial radio remains sluggish and predictable by comparison.

1.4 Proposed Radio Frequency Allocations

We propose assigning one AM broadcast and one FM broadcast channel to the microstation radio broadcasting service. These channels would be shared by the licensed microstations. Each microstation would be licensed to operate in a specific geographic location (cell). Only one microstation would be licensed for each cell.

This assignment system would result with each cell being served by a single microstation. These

cells would not guarantee lack of interference between the microstations. However, if the output power is sufficiently low, most of each cell area would be served by a single station. In the case of FM broadcast, the strongest microstation would block out any competing microstations.

The use of single channels would also limit any negative impacts on the existing radio broadcasting stations, radio markets and invested resources.

The best situation would be to assign the same two channels to microstations across the country. This would allow travelers to hear a variety of microstations as they move down the highway. However, in some urban areas this may not be possible and differing channel assignments may be required.

To increase the access to the microstation radio service, only one AM or FM license should be provided to each licensee. Thus, each licensee would only be broadcasting to a single geographic cell using AM or FM. In order to maintain diversity, a licensee, individual or organization should only be able to purchase microstations that are located more than 50 miles from each other. In addition, to maximize the distribution of upward mobility opportunities and encourage wide diversity in programming, one entity should be limited to owning a maximum of five (5) microstations. We recommend this number of microstations as an ownership ceiling because this number is: (a) enough microstations to allow entrepreneurs to be motivated by the prospect of genuine wealth; but (b) not enough microstations to constitute concentrated market power.

A license should be assigned to the first applicant subject to the restrictions defined above. No license auctions should be used. We do not want to favor the big boys of industry here. If the Commission is swamped with license applications, the licenses can be awarded by a random selection process. We expect that there will be a large number of license applications.

The Commission may wish to give priority to high schools and universities in assigning microstation licenses for cells containing these institutions of learning. These school microstations will have great educational value, much like the old 10 watt educational FM broadcast stations had. Two of the petitioners graduated from Wesleyan University (Middletown, CT) which had WESU, a 10 watt FM station. Many students learned and grew in many fields by operating this radio station and similar ones across the country.

1.5 Proposed Radio Transmitter Characteristics

Each microstation radio transmitter would be a crystal-controlled low-power unit designed to transmit a high-quality signal with a minimum of harmonics and spurious emissions. The output power of each transmitter would be one watt or less. This would adequately serve a cell ranging in size from a square mile to several square miles. In some urban or mountainous areas, the power limits and cell sizes may need to be adjusted due to local variations in radio propagation. However, **fixed size cells** should be used as much as possible to minimize usage of FCC staff resources.

The licensees should be allowed to establish, build, and maintain their own transmitters. We would prefer to avoid the transmitter type approval process that increases the price of transmitters excessively. Again a key benefit of microstations would be minimal barriers to market entry and resulting maximization of upward mobility opportunities for all Americans, including those at or near the lowest rungs of the socio-economic ladder. This benefit should not be diluted by costly regulatory requirements.

The licensees would be responsible for the correct operation of the station and its compliance with the signal purity standards. Each station would be installed at a single fixed location.

Each microstation should be required to have a frequency counter to confirm its operation in the channel and a monitor receiver to listen to the quality of the station signal.

1.6 Proposed Antenna Characteristics

Each microstation transmitting antenna should be omnidirectional with vertical polarization. This polarization is most compatible with vertical whip or ground plane antennas.

Each antenna should be limited in height to 50 feet above the ground or supporting building structure. Towers should not be allowable as supporting building structures. We propose this rule in order to limit the ability of one microstation to dominate another microstation's cell by its antenna height.

1.7 Proposed License Term and Fee

Each microstation station license should be issued for a term of five years with a non-refundable fee of fifty dollars ($50.00). Renewal would be for the same term and fee. We recommend a low annual fee in order to provide the greatest possible opportunities for involvement, and possible upward mobility, by those with low incomes and/or assets. The benefits of microstations will be maximized by encouraging all segments of American society to participate as owners and operators.

1.8 Proposed Penalties

Violations of the FCC rules and regulations would be subject to fines and other penalties similar to those imposed on the Citizens Radio Service or the Amateur Radio Service. Massive penalties and draconian punishments are not appropriate in such a limited coverage radio service. In addition, draconian punishment would be unnecessary because other legal remedies, such as the libel laws, would apply as strongly to this type of broadcasting as they do to conventional broadcasting.

There should be a requirement that the station should broadcast at least a minimum number of hours per year for the license to continue in effect. Failure to meet this requirement should result in license revocation and loss of the license fee paid. In addition, new stations should be required to begin broadcasting within 90 days of the issue of their license or face the penalty of having their licenses revoked. The goal of these restrictions is to make sure that every licensed cell is filled with an active station.

If a station licensee loses his license because of lack of activity, he should be allowed to apply for the license again. However, there should be a limit to the number of such loss of license and reapplication cycles a person can carry out. We propose a limit of three times for this. If you cannot make a working station in three attempts, perhaps you should try something other than broadcasting.

1.9 Requested Action from the Commission

We request that the Federal Communications Commission propose the establishment of microbroadcasting in a Notice of Proposed Rulemaking (NPRM). This NPRM should specify the rules for microbroadcasting in detail and invite public comment on the details of these rules. The citizens should have a direct say in the structuring of the regulations for microbroadcasting, along with maximized opportunities to operate microbroadcast stations themselves.

If the Commission is uncomfortable with the idea of a NPRM at this time, it can choose to issue a Notice of Inquiry (NOI), inviting comments and suggestions about the concept of a microbroadcasting service.

Respectfully submitted,

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