I most strongly protest the Mimosa Networks, Inc. proposal to use the 10.0 to 10.5 GHz Band for Wireless Internet Broadband Services.

I have been involved in radio for over 50 years both as an amateur radio operator and working for communications companies (two-way radio manufactures, service organizations and users). I hold both amateur radio extra class and general radio telephone licenses.

The characteristics which make this Band so intriguing to experimenters are those which would prove detrimental to the proposed use. 10 GHz (3cm wave-length) has a very low atmospheric noise-floor, but there can be significant scattering of terrestrial signals from rain and snow storms. In addition, atmospheric conditions can bend or skew the signal path so that high-gain antennas may be out of alignment. These changing propagation modes challenge experimenters, who relish difficult accomplishments. Patient operators can indeed make contacts over hundreds of miles.

Mimosa suggests that 10 GHz ?is only moderately susceptible to attenuation due to rain fading effects?, at least compared to higher frequencies. ?Moderately? is a relative term. A request to overcome this fading with up to +55 dBW EIRP indicates that at times rain fading is anything but moderate. In addition, the rain (or snow) which causes fading also scatters the 10 GHz energy over a wide and shifting geographical area. The signals become distorted and can drown other users in a sea of broad band noise. I have often communicated via rain-scatter up to several hundred miles, with rather raspy-sounding Morse Code.

Note that the proposed + 55 dBW EIRP (316 kilowatts EIRP) is a lot of power, certainly much more than most Amateur operators and experimenters use. For example, a typical weak-signal SSB/CW station might generate + 33 dBW EIRP (1 watt into a 2 ft. diameter dish). Some low-power FM stations are even weaker, and may generate less than 0 dBW EIRP (10 milliwatts into a 17 dBi horn antenna).

There seems to be a lack of detail regarding the production of this + 55 dBW EIRP. One extreme possibility would be to combine a relatively low-powered transmitter with a very large aperture antenna; for example, 2.5 watts (+4 dBW) and a 16 ft. diameter dish (+ 51 dBi). This would result in very critical aiming (within one-tenth of a degree), that would not be stable over long terrestrial paths. At the other extreme, a high-powered transmitter could be combined with a small aperture antenna; for example, 630 watts (+28 dBW) and a one ft. diameter dish (+27 dBi). Aiming would no longer be very critical, but there would be many more potential scatter paths from rain storms, and other particles and objects, resulting in greatly increased interference. There are also environmental concerns about large amounts of power concentrated into such a small area. And if Mimosa should discover that even + 55 dBW EIRP is not enough, will they then petition for a further increase? Any proposal to allow such an invasive use of the 10 GHz Band should adequately address these concerns.

Mimosa's proposed receive sensitivity of -64dbm is several orders of magnitude worse than ours. Weak-signal communications require low-noise pre-amplifiers (under 1 dB noise figure) with capability of extracting information down to the noise-floor (below -140dBm). Clever digital communications systems and protocols developed by Amateurs can decode signals at least 20 dB weaker than this. The proposed guard-band of 10.350 to 10.370 GHz is woefully inadequate to protect weak-signal users at 10.368 GHz, not to mention others in different parts of the Band. Non-terrestrial pursuits (satellites, Earth-Moon-Earth contacts, and radio astronomy) might fare the worst from interference. Note that the U. S. 10 GHz Band Plan is not the same in other countries. The proposed lack of received sensitivity, along with high EIRP transmissions, means that broadband system users would not even be aware of our existence, but we would be painfully aware of theirs.

The proposal of Mimosa?s is woefully lacking in significant technical details and some of the statements made seem to wishful thinking on their behalf. This seems similar to the now discontinued LightSquared operation that caused interference to

the GPS receivers (the frequencies are in different bands but the overgeneralization of the technical information in their proposal ended in a disaster).

The stated lofty goals of Broadband Access to All Americans and benefiting the national economy can best be met by less intrusive means than proposed by Mimosa. Reduced power at lower frequencies would be less problematic.

The 10 GHz Band is indeed a ?valuable but finite national resource?. In fact, it is an international resource. Invading this Band with an incompatible scheme can be likened to letting a bunch of alligators loose in a gold-fish pond. Please don't let this happen.

I respectfully ask that you deny this proposed use of the 10 GHz Band.