

Dear Sir,

I am writing to you today to provide the requested comment on the request to the FCC by a number of satellite companies to revise and bring up-to-date its rules relating to out-of-band emissions from satellite networks. Although my employer, the National Radio Astronomy Observatory, is preparing a formal comment to the request, I would like to add my personal comments via this independent correspondence.

I am an Electrical Engineer, with over 22 years of engineering experience, some of it in the fields of radar and communications signals enhancement, analysis, monitoring, and identification. In addition, I have been a communications hobbieist for over 30 years (amateur radio call sign WA0ZFL).

The proposal to revise section 25.202(F) is perhaps a reasonable one, however, I have grave concerns as to the motives of the requesters. I believe that it is important that the FCC consider with heavy weighting the unique requirements of the earth resources scientific community and the radio astronomy community, particularly the passive-only services in any revisions that are decided upon.

Today more than ever, spectrum equates to dollars, and outside of the free market system, it is difficult, perhaps impossible, to determine objectively whether a particular rule or regulation is truly in the "public interest", or only in a particular spectrum user's concept of the public interest. That being said, however, I would still like to make a short "public interest" argument for continuing or tightening the unintended emissions requirements of 25.202(F).

Commercial, active (emitting) users of the radio spectrum provide very valuable services to a very wide range of customers. Their use of the spectrum allocated to them enriches the lives (as well

as the pocket-books) of their customers and their shareholders, and this is a very good thing--Surely an activity which is in the "public interest". It is reasonable for them to request that regulations and allocations which affect their economic performance be kept up-to-date, and applicable to the latest communications, and measurement instrumentation technologies.

However, it is important to recognize further that the percentage of the VHF, UHF, and microwave spectrum allocated to radio astronomy and the other scientific services is only a small fraction of that allocated to the FSS, MSS, and other active users of the VHF, UHF, and microwave spectrum. Yet, radio astronomy and other scientific services provide a useful service in the use of their allocations that goes far beyond the immediate, scientific user community. Unlike the commercial services, radio astronomy benefits the public as a whole, and not only of our nation, but of the entire world. The information generated by radio astronomy and radio science is not restricted to a limited group of customers or shareholders, but is made available to everyone. The results of scientific study via the electro-magnetic spectrum not only enrich the public directly, through the revealing of the mysteries of the universe, but also indirectly (through scientific interpretation), in it's potential to improve weather forecasting, warn of impending cosmic events that could negatively impact the planet, and through the gaining of a deeper understanding of the nature of plasma and electrical and magnetic fields, the result of which understanding can lead to new developments in energy production and medical technology here on earth.

In addition, the low or no active use bands are available to anyone with a desire to explore the cosmos and listen to the free, unique, and

infinitely varied broadcasts of nature, from the auroras, to a distant lightning storm, to the "music from the stars". And unlike the active, commercial use of the spectrum, the passive scientific use of our allocations does not in anyway hinder or prevent the simultaneous passive use of that same spectrum by any other user worldwide. This is truly a wondrous thing--Infinitely, simultaneously, reusable spectrum, the use of which benefits every single member of the public, not just a subset of it.

I hope this comment will help in your investigation into the updating of the unintended emissions requirements of 25.202(F).

I believe that you already clearly know which changes would provide for the best engineering standards in satellite transmission technology and measurement procedures, they are the changes which would result in the reduction in the unintended emissions of each and every modulated carrier. Emissions masks which are cognizant, not only of the requirements of adjacent spectral users, but which recognize the cumulative, total effects of unwanted emissions, from all services, at frequencies far distant from the service's allocation need to be developed. The masks should express measurable, out-of-band emission limitations in rigorous scientific units, such as power flux densities (PFD), or better yet, Spectral Power Flux Densities (SPFD), for each modulated carrier of the service, not a fictional, composite, broadband carrier.

"Dumbing down" the standards, in order to provide a short-term cost benefit for the satellite companies and their customers is without a doubt "in the public interest" of a large subset of the public.

However, requiring satellite service providers to adhere to the highest standards of transmission technology so as to allow the expanded effectiveness of scientific research, is the only

option which is
truly in the interest of all of the public. In the
long run it will
also be in the best interests of the satellite service
providers as well.

Respectively submitted;

Daniel J. Mertely

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