I oppose any change to the extant amateur radio linear amplifier gain (RM-11767).

In my opinion there are a few common sense technical reasons for keeping the existing limit on amplifier gain and at least some practical reasons.

PRACTICAL

Amateur radio operators sometimes install their equipment based on limited available time, desiring to spend less money on cabling, and assembling and attaching cables and antennas using less than lab-quality techniques and soldering practices, and using poor grounding practices. This opens up the possibility of having marginal quality in cables and connector installations relative to radio frequency shielding and leakage conditions.

The Commission is likely not going to write new rules forcing all radio amateurs to have their equipment professionally installed and/or certified "clean" by a radio frequency engineer. Therefore regulations can only go so far on preventing radio frequency interference issues caused by an amateur's transmitting equipment cross-coupling into his own or some other radio amateur's cabling.

TECHNICAL

1) Coax cable types commonly used to connect amateur radio equipment vary from high-quality and highly shielded (e.g. LM-400[TM]) to RG-8 types, to RG-8X, and to RG-58, of which some of the types have less than 100% shield coverage. It is often the case where a radio amateur will use inexpensive coaxial cable believing that it is good enough, thereby opening the possibility of inadequate shield coverage.

For examples, the following shield dB isolation and/or shield coverage specifications were taken from various Internet sites. In order of TYPE and Per Cent Shield Coverage; LM-400, greater than 90 dB; Belden 9913 (or equivalent),90% copper braid shield; RG-213, as high as 96%; RG-8U,as high as 95%; RG-8X, as high as 95%; RG-58, as high as 80%. In addition there is common use of "450 ohm transmitting twin lead" which is not shielded at all.

2) A high power amplifier coupled to an antenna via coax or twin-lead has a potential for cross-coupling into his/her own equipment. Too much gain from input to output of a linear amplifier would invite feedback issues and possible instability and oscillations. (In engineering terms the feedback factor would become precariously close to causing trouble.)

3) Radio amateurs living or located in close proximity to each other have a potential for one amateur radio operator running a legal power limit amplifier output causing cross-coupling into the coaxial cable of a second radio amateur's amplifier input via less than 100% coverage on the coaxial cable connecting the exciter (often transceiver) input to the amplifier, and/or other cable(s) that are supplying signal inputs to the exciter.

4) Radio amateurs living or located in close proximity to each other have a potential for one amateur radio operator running a legal power limit amplifier output causing cross-coupling into a poorly attached connector on the coaxial cable of a second radio amateur's amplifier input causing similar effects as in (3).

5) High power RF energy levels can cross-couple into microphone cables or into the wires inside control or audio cables used for amateur radio audio signal generation, such as "digital" signal generation equipment. This RF interference can create miscellaneous noise that is converted to unexpectedly high energy input to a transceiver input, resulting in distorted signals or excessively high level signal levels being coupled back to the input of the amplifier. So limiting the amplifier gain is one way to keep the amplifier output under control. Similar to case (3) above, two radio amateur stations located near each other would invite the radio frequency interference problem from these effects to cross-couple from one station

to another.