Subject: What happened to standards for advertised power?
Posted by FloydV on Sat, 09 Mar 2013 00:00:29 GMT
View Forum Message <> Reply to Message

I first noticed with the advent of surround receivers and amps, that watts stated were listed into a certain load (ohms), and that the previous standard WATTS RMS had disappeared.

From Wikipedia:

Power handling

Amplifiers are valued in part by their power output capacity. And in the interest of being able to advertise a higher power output number, manufacturers in the US (and elsewhere) began to take advantage of the highly variable nature of most audio signals (especially musical sources) and to cite the peak output (quite brief and rarely sustainable for long) as the amplifier power. There being no standards, imaginative approaches came to be so common that the US Federal Trade Commission intervened in the market and required all amplifier manufacturers to use an engineering based measure (root-mean square) in addition to any other value they might cite.

In its 1974 Amplifier Rule meant to combat the unrealistic power claims made by many hi-fi amplifier manufacturers, the Federal Trade Commission prescribed continuous power measurements performed with sine wave signals on advertising and specification citations for amplifiers sold in the US. Typically, an amplifier's power specifications are calculated by measuring its RMS output voltage, with a continuous sine wave signal, at the onset of clipping--defined arbitrarily as a stated percentage of total harmonic distortion (THD)--into specified load resistances. Typical loads used are 8 and 4 ohms per channel; many amplifiers used in professional audio are also specified at 2 ohms.

Now most manufacturers state an unqualified number of watts for a surround receiver for one channel driven singly, and a much lower one when all channels are driven at the same load. The RMS qualification seems to have vanished, leaving a lot of room for exaggeration, and I wonder why.

Floyd

Subject: Re: What happened to standards for advertised power?
Posted by gofar99 on Sat, 09 Mar 2013 02:32:10 GMT
View Forum Message <> Reply to Message

Hi, It is the old numbers game. Since probably 95% of the population has no clue what a watt is, they just figure that more is better (like everything else). So 100 watts just has be ten times better than 10. Even if you don't say how they were measured. A technique to convince you that one product is better than another. The really excellent companies do specify how the values were determined. I always specify in my projects RMS value at a certain impedance, over what band width and often more importantly what the percentage of distortion is there. You do find the high end companies usually do the same. The big box guys generally have no clue and sell to folks of the same mold. I get a real hoot out of some posted values...especially speaker ratings. I have

seen cheap 5 inchers rated at 1000 watts! They would become incandescent at that level. Equally the 5.1 to 9.1 home theater systems with 100's of watts per channel. Usually with only one driven at a time. Like I only listen to one channel at a time. A good way to get a severely still neck.

I guess in the end it is like a lot of other things that are supposed to be regulated. If no one is enforcing it then it will not be followed. Buyer beware.

Subject: Re: What happened to standards for advertised power?
Posted by FloydV on Sat, 09 Mar 2013 06:30:56 GMT
View Forum Message <> Reply to Message

I'm glad someone agrees. It must be a lack of enforcement as you say. It seems that the FTC has become like the rest. If the companies have enough power in lobbies and so forth, things that should be enforced never get a second look.

It seems like any regulatory agency will look the other way if enough money is put into the hands of the right politicians.

Subject: Re: What happened to standards for advertised power?
Posted by Wayne Parham on Sat, 09 Mar 2013 17:24:33 GMT
View Forum Message <> Reply to Message

You used to see a lot of inflated specs in the 1970s too, but by the 1980s, that practice all but disappeared. I think what has brought it back is all the cheap junk in the big box stores, the "home theater in a box" systems and stuff like that.

Subject: Re: What happened to standards for advertised power?
Posted by FloydV on Sat, 09 Mar 2013 19:30:35 GMT
View Forum Message <> Reply to Message

I guess there has always been a group of people who don't understand what they are buying and who are easily gulled.

I know some of the people here like vinyl, but I was watching a short clip on the news showing manufacturers making vinyl discs that were half red and half green. When they showed a record playing, the cartridge was undulating like a boat at heavy sea. That is how poorly the disc had been pressed.

At the same time they had some person who could have been straight from the sixties saying "Yeah, man, the music is trapped in the vinyl!" I thought "And this is the guy who is holding up 6.1 surround." He probably bought a 5,000 watt amp to go with it.

Subject: Re: What happened to standards for advertised power?
Posted by AudioFred on Thu, 14 Mar 2013 15:09:23 GMT
View Forum Message <> Reply to Message

I've been seeing a new one lately thtat's used for powered speakers, mostly subwoofers. It is "FTC power", and the rating is more conservative than RMS power. Apparently it describes the continuous power that's available from the amp to drive the speaker.

Subject: Re: What happened to standards for advertised power?
Posted by FloydV on Fri, 15 Mar 2013 00:02:26 GMT
View Forum Message <> Reply to Message

I see that you have a lineup of tubes under your post.

I was wondering lately: is it easier to build a high power amp from tubes or transistors?

Another question I had was this. By the time you go from digital recording to digital media, isn't it late in the game to use a tube amp if you think that amp will improve the sound?

Floyd

Subject: Re: What happened to standards for advertised power?
Posted by gofar99 on Fri, 15 Mar 2013 03:08:55 GMT
View Forum Message <> Reply to Message

Hi, Yes I design things with tubes. Without getting into which is better tubes or SS, I will just state that they are different and I personally prefer the sound of tube audio. That all said... It is far easier to build powerful SS amps than tube ones. Also from a diy perspective a lot cheaper. Personally I have never found a need for more than 30-40 watts to drive any reasonable speaker system. So massive amounts of power are a non issue to me. My usual amps (as a designer and co-owner of an audio company I have many choices) are rated at 25 watts per channel. They drive my Martin Logan electrostatics quite well.

If you add a tube stage anywhere in a system it will introduce some "flavor" to the sound reproduction. The opposite is generally true if you add a SS stage to a tube system it will generally flavor it as well. Some designs for preamps with FETs are relatively benign. As you might guess there are no SS stages in my system with the exception of the power amps in a pair of sub woofers I am presently auditioning. They are set for response below 50 HZ and fortunately

any artifacts they produce are largely innocuous. Normally I have more efficient subs and use tube amps on them.

Subject: Re: What happened to standards for advertised power?
Posted by FloydV on Fri, 15 Mar 2013 17:44:38 GMT
View Forum Message <> Reply to Message

gofar99 wrote on Thu, 14 March 2013 22:08Hi, Yes I design things with tubes. Without getting into which is better tubes or SS, I will just state that they are different and I personally prefer the sound of tube audio. That all said... It is far easier to build powerful SS amps than tube ones. Also from a diy perspective a lot cheaper. Personally I have never found a need for more than 30-40 watts to drive any reasonable speaker system. So massive amounts of power are a non issue to me. My usual amps (as a designer and co-owner of an audio company I have many choices) are rated at 25 watts per channel. They drive my Martin Logan electrostatics quite well.

If you add a tube stage anywhere in a system it will introduce some "flavor" to the sound reproduction. The opposite is generally true if you add a SS stage to a tube system it will generally flavor it as well. Some designs for preamps with FETs are relatively benign. As you might guess there are no SS stages in my system with the exception of the power amps in a pair of sub woofers I am presently auditioning. They are set for response below 50 HZ and fortunately any artifacts they produce are largely innocuous. Normally I have more efficient subs and use tube amps on them.

I was thinking that what you are saying about amps is true. First, that you don't need huge amounts of power, and second that SS would be easier to generate huge amounts of power.

If I recall, it takes a doubling of power for every db of increase in sound. I have heard that repeated many times, but it seems kind of overstated. It is difficult for me to hear an increase of 1 db, it generally takes 2 db for me to notice a real change.

I agree about the subs too. I keep seeing expensive SS ab amps for them. In my opinion, when you get to 80 db, you don't really need to spend that much.

Are Martin Logins electrostatic speakers? I'll be they sound nice when paired with subs.

Subject: Re: What happened to standards for advertised power?
Posted by Wayne Parham on Fri, 15 Mar 2013 18:53:52 GMT
View Forum Message <> Reply to Message

Doubling power increases SPL 3dB. That is an audible increase, but most would say it's "just a nudge". To make it sound twice as loud to your ears, you would need a 10dB increase, which is also ten times the power. Twenty decibels is 100x power, and 30dB is 1000x power. So it's easy to get moderately loud, but the transients are surprisingly hard to hit without clipping.

When I was in school, I had a mentor that gave me a gag-gift for one of my birthdays. He glued a TTL chip to a the anode cap on top of a tube the size of a 2A3 and made a little plaque that said "microprocessor controlled tube". It was just a joke to us. Now days, every time I see a DAC with a tube output stage, I think of that gift.

All that said, tubes actually aren't just an old-fashioned throwback. They do some things better than transistors, which kind of surprised me. I can remember a lot of guitar players over the years saying how they liked tube amps better than solid state, and that tube watts were louder than transistor watts. I wrote it off to the gentler clipping of the tubes, and the presumption that they probably smoked a lot of pot too.

But really, after I actually studied it, I found that tubes run single ended are pretty linear devices, and so while they are more delicate and consumed more power, they could be used to make great little high-quality low and medium power amplifiers.
A Taste of Tubes

Subject: Re: What happened to standards for advertised power?
Posted by gofar99 on Fri, 15 Mar 2013 22:25:09 GMT
View Forum Message <> Reply to Message

Hi, Yes the Martin Logans are electrostatics and they do exceptionally well with tube amps. If you can (1) afford the costs (2) have a room large enough (not less than 10 feet wide, 8 tall and say 12-15 deep with about 20wide, 10 tall and 25-30 deep being much better) and (3) are willing to spend a good deal of time finding the perfect locations for them (not easy in many cases) you will be rewarded with a stunning sonic experience. I have been ruined for life by them. The general effects can be reproduced with high quality open back systems, but then you are still faced with at least two of the same problems (room size and finding the correct locations). An unfortunate consequence of the correct locations for the panels is that it can conflict with the best place for bass response. This is indeed the case in my listening room. Room treatments did not resolve the problem. I had a significant drop in response at the listening area from about 65HZ and down. Right now a pair of Martin Logan powered subs sit right next to my chair. They are set for 40HZ crossover and the 12 db/ octave slope is just about right to fill in the bottom end. It is also true if you wander around the room there are a few locations (not good listening ones fortunately) that now have bass bumps because of the subs. I figure that since I don't listen there it is of little consequence. My preferred subs (temporarily in storage are 7.5 cubic foot vented ones with highly sensitive 15 inch drivers. They easily reach to 22HZ. I power them with 25 watt tube amps via a 24 db/octave electronic crossover set for 50 HZ(see everyone I actually admit to having some SS gear available). BTW back to the main topic.... Martin Logan recommends no less than 100 watts RMS for the electrostatics. With only 25 it gets uncomfortably loud before I can cause the amps to audibly distort. So much for ratings. The big subs are rated for up to 300 watts rms...they would be a lot like earth movers at that level.

Subject: Re: What happened to standards for advertised power?
Posted by FloydV on Sat, 16 Mar 2013 06:51:54 GMT
View Forum Message <> Reply to Message

That's a funny story about the TTL tube. Someone out there would probably buy it and swear it made a big difference.

I'm not sure if I had heard 1 db would require doubling the watts, or I just plain remembered wrong. Now days that is a common event for me. But, the numbers you list still require a big increase in power for 3db.

I think that transient 100 + db listening is probably OK, but I like to keep it around 90 max for general listening. I'm living with the effects of ear damage from firearms. It's funny that I did the damage when I was about 16, but I didn't really notice the loss until I was about 35. I kept wondering why the right channel was louder and was investigating all my equipment, except for my ears.

My wife and I are still in love with your 3 pi speakers, btw. There was a post in an AV forum about JBL coming out with a speaker that is balanced in the vertical as well as the horizontal plane. It uses two compression drivers for one wave guide.

They also need matching 1000 watt amps. So, 5000 watts for 5.1 surround. I won't be buying any in this life time

Floyd

Subject: Re: What happened to standards for advertised power?
Posted by FloydV on Sat, 16 Mar 2013 06:54:30 GMT
View Forum Message <> Reply to Message

You seem to have solved the only gripe I had with electrostatics--the bottom end. It was a long time ago, so subs may have been on the horizon.