Subject: Re: Class A, AB1, B, C Operation/Modes
Posted by positron on Thu, 11 May 2023 05:26:19 GMT
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gofar99 wrote on Tue, 09 May 2023 21:30Hi, There are several ways to make the chassis to signal ground connections. Everything from the old school way of using the chassis as the signal ground (usually too noisy for me) to huge bridge rectifiers. Any of them can comply with the various electrical codes as long as the user is protected from accidental contact with a live chassis. How we all lived through the 2 wire AC mains days with tube gear is a miracle. What I find is there is a sort of sweet spot when using an X2 capacitor and a resistor in the 120 to 150 ohm range. It is not designed to protect from faults like lightning etc or really any external faults. That is why the chassis is AC mains earth grounded. It will provide a path to the earth ground if there is an internal fault but that is not the main purpose. It is not really all that good at that as the impedance is fairly high. Its purpose is generally accepted as two fold. One it acts as a ground loop prevention measure when other gear is connected that passes signals to the subject device. The signal ground on the one will not find an alternate path through the AC mains and cause hum. Second it allows the chassis to act as an EMI shield without being in direct connection. IMO your one ohm resistor will comply with the codes....but may not provide as much ground loop hum rejection as is possible. And as nearly everyone knows...I hate hum and noise with a passion and the higher value resistor helps. BTW wattage is not really critical (I use 1 watt ones) as fault protection is not the primary function...that is what the chassis and three wire mains connection is supposed to do. Even if the resistor failed, the user is still protected. Now to be difficult...I could make a case for if the resistor and X2 fail open and an internal circuit fault energized the signal ground and it was connected to either an input or output cable that had a circuit ground conductor and the user was touching the ground conductor and something else that really was grounded there could be a hazard. Such a failure would almost always manifest itself as an anomaly in the gear and require attention. But then that sequence can happen with anything attached to the AC mains like lights, appliances etc. Opinions anyone?

I worry about jacks becoming hot, then we would have AC voltage between the jacks and chassis ground. It is a long shot to be sure, I have had plenty of shock therapy when I was a kid. Amazingly, we survived those old AC/DC radios. :lol:

There always seems to be a problem with ground loops; it seems the more components, the more difficult the problem. I did not want the hassle, and wanted my ics using 6N copper wire, so I designed a circuit in each monoblock so that I can completely dial out the hum and garbage, works perfectly.

I did need to shield my ic from TT to phono stage as a slight hum occurred with volume cranked way up. (Even ics with 6N wire need to be properly terminated for accuracy. Not a small feat.)

I think we both have systems to be happy with.

cheers

pos

ps. Sometime I want to dig a little more into "Tube Operating Curves" attached below. Right now,

snowed under with responsibilities.

File Attachments

1) 6DJ8 Mu, Gm, Rp, -G1.pdf, downloaded 376 times