

Choosing the Best Amplifier

There are several factors to consider when selecting the best amplifier for your application. Fortunately, one of them isn't color. In the best tradition of US manufacturing, I can tell you that you can have any color, as long as it is blue.

The first thing that you need to consider is the frequency range. It is important that you do not select an amplifier with a higher frequency range than you need. If you do, you will be paying more money than you should. The cost of an RF amplifier increases significantly with frequency. E&I specifies the frequency at the range over which the amplifier will produce rated power. So once you have defined the upper end of the frequency that you require, select the series of amplifiers that exceeds that by the smallest margin. Also, ensure that it does not operate too far below what you need as you will be paying for bandwidth that you don't need.

The next thing that you need to consider is the power level. E&I rates all its amplifiers at 1 dB compression. (These are linear amplifiers – why would you rate it anywhere else? I don't know, but people do). Again, you do not want to select an amplifier that has a power level that greatly exceeds your requirements as the cost also increases with power level. When we say that an amplifier is rated at 100 Watts (E&I 2100L for example) that means that you can run it at 100 Watts, 24 hours a day, 7 days a week, in a continuous mode or any other that your application requires.

For many applications, you may be more interested in voltage than power. In such a case we can calculate the voltage from the power level and the impedance. The output impedance of all our amplifiers is 50 Ohms. However, the voltage across your load will depend upon the impedance of your load and must be calculated from that.

The other thing to consider is the class of operation. We offer both Class A and Class AB amplifiers. The Class AB amplifiers are low cost and more efficient, but they do have more harmonic distortion than the Class A amplifiers. For a more in depth explanation on the differences in linearity and classes, you can reference the following article; [Class A vs. Class AB](#)

Finally, if you really do want a different color, or indeed you have any other questions, give us a call at 585-214-0598 – and we can talk!