Why the ES-62T and ES-82T Speakers Have 4-Ohm Switch Positions

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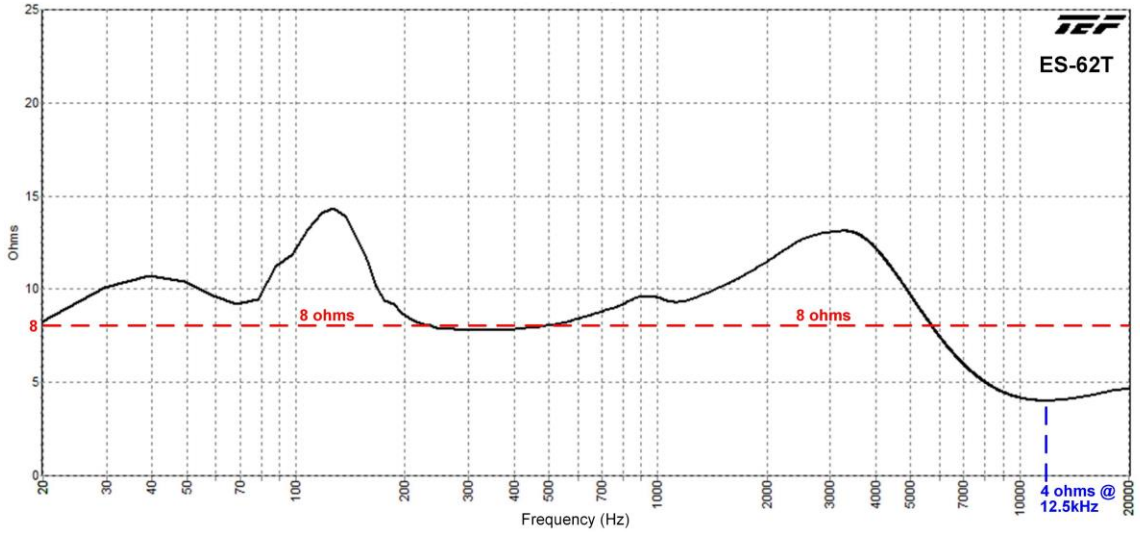
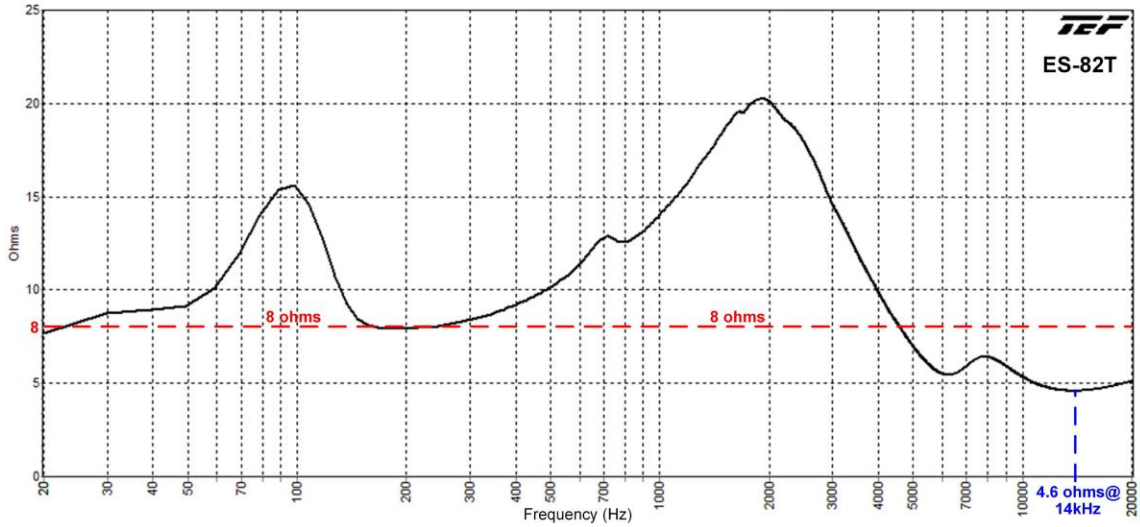
The term "8-Ohm Nominal Speaker", means that the impedance of the speaker is 8-Ohms "In Name Only". The impedance of a typical speaker varies dramatically dependent on the frequency of the input signal. A single voice coil speaker (single or dual cone) will typically have one large mechanical resonant impedance peak at the lower frequencies. A coaxial 2-way speaker (that includes a woofer and tweeter) will typically have two large peaks as shown on the impedance curves below for the ES-62T and ES-82T.





Notice that the impedance curves only rarely pass through the actual 8-Ohm horizontal impedance line. Still for simplicity, the audio industry calls these speakers "Nominal 8-Ohm Speakers". The ES-4T, ES-52T, ES-82CDT, and ES-8TSUB speakers are marked with an 8-Ohm transformer bypass switch position, but the ES-62T and ES-82T speakers are marked with a 4-Ohm transformer bypass switch position. Our customers often ask us WHY? The ES Series speakers are listed for UL1480A. In that UL standard, it states that no 1/3 octave band of a speaker may have an average impedance of less than 80 percent of the marked impedance rating. 80% of 8 ohms is 6.4 ohms. For a span of over 1/3 octave, the impedances of the ES-62T and the ES-82T, dip below 6.4 ohms. Yes, up at 12.5kHz (ES-62T) and 14 kHz (ES-82T), the only power delivered to the unit will be to the tweeter through the crossover so current drawn from the amplifier will be minimal, but to meet the UL1480A standard requirements, Lowell has been forced to mark the transformer bypass switch positions on the ES-62T and ES-82T as 4-Ohms. Note that for all practical purposes, all ES Series speaker models are still "Nominal 8-Ohm Speakers", so the nominal 8-Ohm rating should still be used to calculate the nominal input impedance of speakers that are wired in series/parallel.