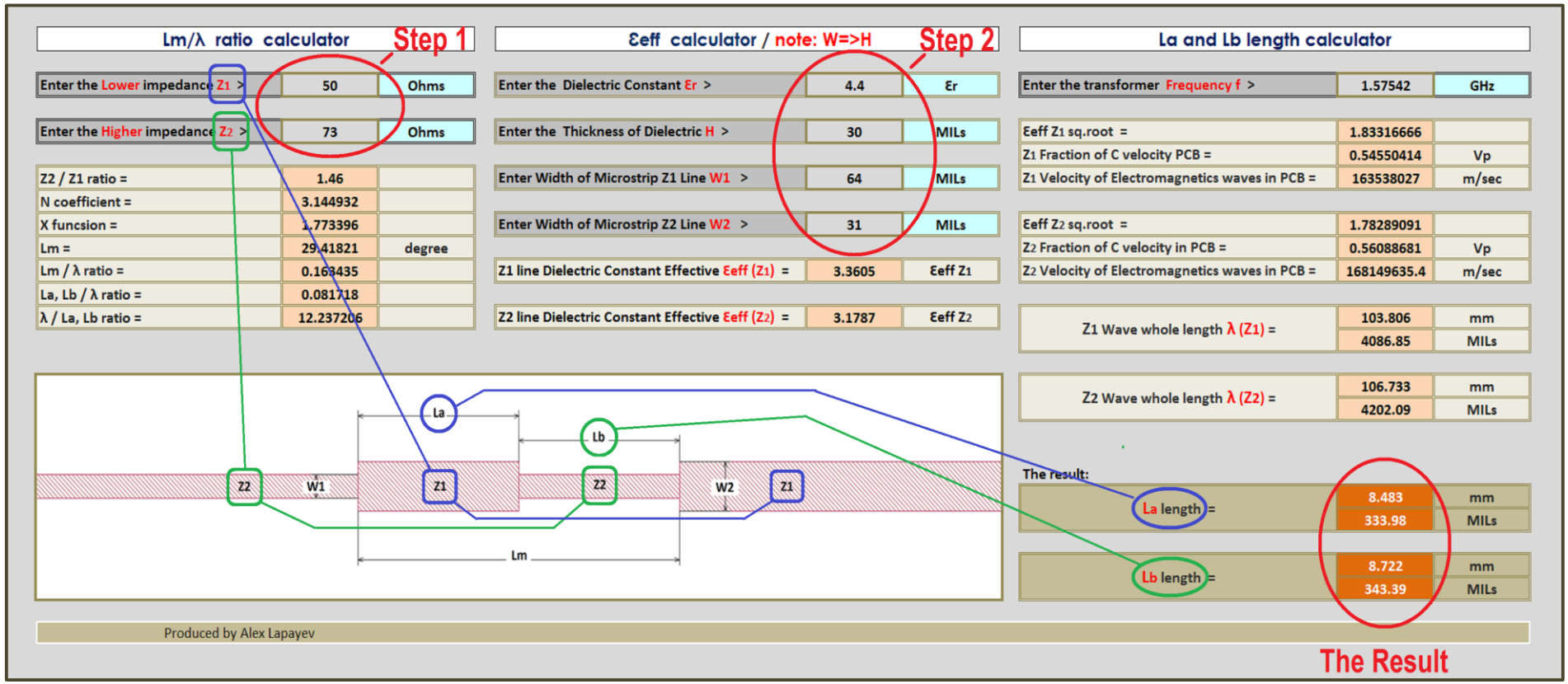
The Twelfth (or Sixth) Wavelength Transformer

With great respect for **Peter (B) Bramham**, inventor of the sixth wavelength transformer**.** www.lapayev.com

Let me introduce to you an old friend – the PCB printed impedance transformer, many designers well know it and use it, it would seem nothing new. But there is one addition clarification: for the calculation of the transformer's circuit we need know a PCB's material Dielectric Constant Ɛr, even more - we should figure out the Ɛ effective parameter. Furthermore it should be noted that the Ɛ dielectric effective depends on the physical dimensions of the transmission line. The Twelfth Wavelength Transformer includes two lines with different width – Z1 and Z2; hence we have two different Ɛ effective parameters. Therefore both of them should be considered to the accurately calculate of the circuit. It results the two different lengths of the Z1 and Z2 lines.
On the other hand the error should be not too significant, you can ignore this, but don't try to make your design worse - it should be itself… beware it.

Somehow my Twelfth Wavelength Calculator should calculate and consider two different Ɛ effective parameters, Useful for the outer layers only, enjoy.



Alex Lapayev, Portland ME, 2014

The Reference: P. Bramham, the convenient transformer for matching co-axial lines, (Nov. 1959), http://doc.cern.ch/yellowrep/1959/1959-037/p1.pdf