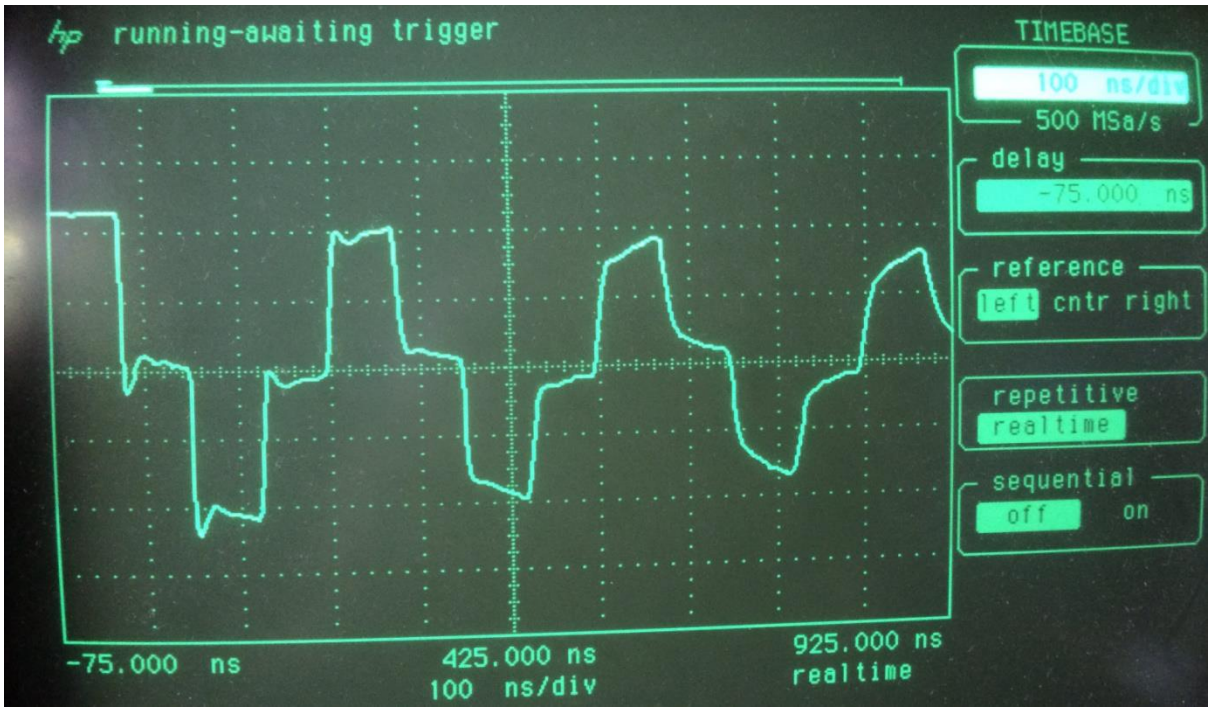
Wakefield 3

I am having trouble with my computer, so cannot send this merely as a www address. Here it is as a Word attachment to an email. I do not want any delay in sending it to you.

Charge a 1 metre coaxial cable up to +8v. Apply a short (0v) to the tight hand end. Monitor the mid (0.5m) point.

Professor Gian-Luca Oppo refused to predict the result. He is now invited to explain the waveform (below) within the framework of classical electromagnetism, (It would be rich if he salted his reply with some of the mathematics he loves so much.)



According to Catt, and now also according to CERN, in a long (supposedly steady) charged capacitor, half of the 8v signal is travelling to the right at the speed of light, and the other half to the left. A charged capacitor does not have a stationary electric field. Here is the proof.

> The easiest way to understand Wakefield 3 is to think of a 2m +4v pulse going round and round, inverting each time it reaches the RH end short, turning into a 2m -4v pulse and following the 2m +4v pulse. Round and round they go, 2m +4v followed by 2m -4v followed by 2m +4v followed by 2m -4v, and so on.

Tony Wakefield pre-triggered the oscilloscope, so at the beginning there is a pause for a short while (half a square). Then there is a delay of t/2 (another half square), the time taken for the inverted 4v (-4v) signal caused by the RH short to travel from the right hand end of the cable to the mid point (. This adds to the +4v travelling to the right to make 0v, as we see (near the end of the first square sq1). The 0v continues at the mid point for a time t (one square to 1½ sq). At this point the -4v has continued to the left and bounced off the left hand end and returned to reach the mid point (1½ sqq). At the mid point there is now -4v (from the left) superposed on -4v (from the right), making -8v, as we see. This -8v continues until the original –ve leading edge which inverted when we applied the short, is now inverted again back to +4v and came back to the middle as +4v (2¼ sqq). This adds to the -4v to create the next period of 0v. This +4v continues on its way, and after one square (3sqq) the mid point has +4v and +4v, giving +8v.

Apart from the mid point, Wakefield has sent to me (from Australia) photos of the ¼ and ¾ points. All of them are in line with the view that before the short was applied, half the energy in the charged capacitor was travelling to the right at the speed of light, and the other half to the left. Each have the amplitude of 4v, giving the appearance of 8v.

Ivor Catt 2 May 2018