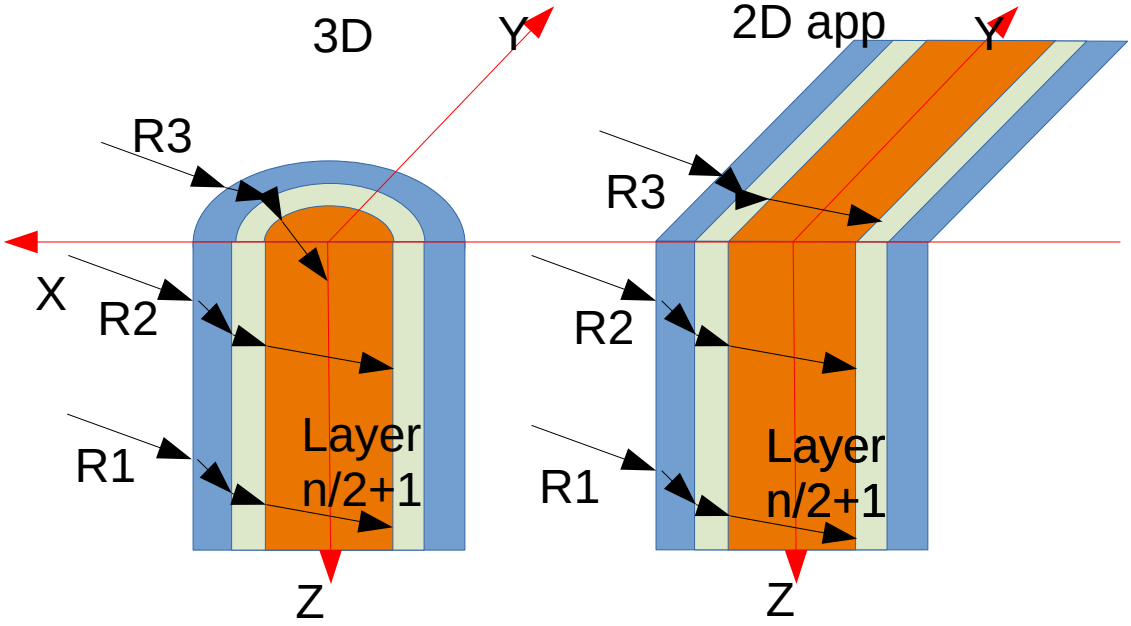
Dear Mostafa, dear authors,

Please apologies for too long process in managing your manuscript. This is indeed hard time to find referee willing reviewing. Therefore, as we need to progress and take a decision, and as I did not read the manuscript for some time, I reread it as if I was reading first time.

I am sorry to say, there is still one major issue which must be modified or clearly mentioned as a strong limitation in the approach, as the problem modeled is different, and this must be said. In short, the 2D approximation for a 3D helicoidal cable is simply wrong, or not justified enough. The issue is in the appendix A, where all the modeling development is performed. At line 507, you mention that “because the plane wave incident upon layer 1 is assumed to lie in the X-Z plane”, then “the problem becomes 2D”. This is simply wrong. I try to show it in the figure below.



On the left, the 3D real situation is represented, on the right the 2D approximation. In the 3D case, even if the incident plane wave is in the plane XZ, there will be rays (example R3) which will reflect in the layers with a different path as the one in the XZ plane, as they hit the layer one with a different incident angle, and therefore will modify amplitudes of the signal catched by both fibres, linear or helicoidal. In 2D, this is much more simple to evaluate indeed, as R3 will not interact with the plan XZ at the location of the cable, and will behave as R1 and R2, and not interact with R1 and r”, contrary to the 3D situation.

Therefore, the approximation of the 3D into 2D is completely wrong and you cannot claim that the equations you derive are an approximation for the 3D case. As long as I do not see a true comparison between the real situation modeled in 3D and the 2D approximation, I would not agree that the discrepancy is small enough that your results represent an approximation of the 3D.

Now, indeed you can estimate what would be the amplitudes for a 2D case, but the problem addressed is completely different. Actually, even in this 2D approximation, as the fibre is helicoidal, it is really 3D, and therefore you cannot assume everything is happening in 2 dimensions.

Those point have been actually raised by all reviewers, but not properly addressed so far.

In addition, there are minor elements:

line 16 and line 19: you define incident angle and Aftor mine at the wrong place. Those terms are already used earlier in the abstract, spo move the details to the first instance

Line 46: The year of the reference Kuvshinov is not correct

Line 58 why only the latter is dependent on the material around?

Line 136: typo at analytical

Line 184: scenario 5: 2 times cable?

Figure 3. The text are much too small. Please increase the text size.

Line 236. a dot is missing at the end of the sentence.

Line 255. I do not understand the issue with the graphics.

Figure 11: Why the plot is not symetric? What is the reason ? Is there a specificity in this case?

Why do you show only cases where the incident angle is 90°?

Line 380. How more performant HWC systems could be better designed with an approximated modellig? It would be important to mention that a full 3d modeling is required.

References: Daley, 2016; Innanen et al., 2019, Reinsch et al., 2017 are not cited in the text

Line 447: please complete the reference, with all authors.

Line 482: What is " $*$ " is the formulas A.1, A.8, A.9 etc… If simple multiplication, it should be removed, like the product between w and t is written wt and not w*t.

Line 485. Not clear what Nabla is. I guess is it not a collection, but a symbol for an operator. There is also 2 times "is".

Line 419. remove the upper case B at because.

Line 505. Please make clear what are the "multilayered media". I suppose those are the different concentric layers (cement, water, etc.) and not the geological layers.

Line 532. not clear "… and using = n, x= hn, …"

Best regards, Philippe Jousset, 17.06.2022