

Re: SR Postulate on Speed of Light

Source: <http://sci.tech--archive.net/Archive/sci.physics.relativity/2005-05/msg01541.html>

- *From:* "harry" <harald.vanlintel@xxxxxxx>
 - *Date:* 21 May 2005 06:12:20 -0700
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Curious schrieb:

> Harry wrote:

>

>> Quite, the second formulation encompasses the first:

>> If the measured vacuum speed of light is the constant c in any

> inertial

>> frame, it is by definition independent of the motion of objects in

> that

>> frame and that includes light sources.

>

> 'Scuse me for asking dumb questions:

> 1. So the measured vacuum speed of light is a constant in an inertial

> frame independent of the speed of BOTH the source AND the observer,

> correct?

Not dumb at all! According to SRT, yes. And there is a quite some experimental support in forward and backward directions. But be careful with the word "observer", as here you obviously mean detector, while the same label is commonly used in relativity to sloppily mean inertial frame of reference! Thus your correct use of that word can lead to misunderstanding if you don't make sure to be understood.

> 2. Does it follow that the ACTUAL vacuum speed of light in an inertial

> frame is also constant, or can't we tell?

If you mean with "actual" "real", such as in a model of propagation, than you just hit the heart of a century old and never ended debate (meanwhile largely removed from journals) that is still continuing in this group!

The diplomatic answer is that physics is about measurements, it's not intended to cover such "philosophical" matters.

Still, you can find papers in physics journals that cover that subject: some concluded that the answer on your question is Yes, and others such as Ives and Builder concluded that the answer is No.

I also found an example on the web of a reasoning that supports the No:

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<http://www.twow.net/ObjText/OtkCaLbStrC.htm>

No doubt other participants can provide more links that support each pov.

Best regards,
Harald

• *Follow-Ups:*

◆ **Re: SR Postulate on Speed of Light**

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