Abstract,
According to Einstein’s relativity theory, is the speed of light for every observer the same in all reference frames. However, there seem to be tiny differences in the lightspeed if we observe the outliers of satellite to satellite distance measurements.
At the same time we found tiny structural irregularities in Planetary radar-pulse reflection measurements, made by I.I. Shapiro in 1964, between the Earth and Venus and Mercury. Both observations support the idea of the existence of ellipsoidal lightspeed extinction volumes around massive objects like the earth.
As a consequence we propose new lightspeed experiments between the earth and dual satellites or dual balloons and even in the laboratory to support these lightspeed extinction ideas.

Experiment 1:
GPS failure for low elevation satellite-satellite signals at higher altitudes, is in addition to the second radar-pulse experiment, reason to suggest that the lightspeed is related to the masses (gravity) of objects like the earth and the sun, over long distances.
A closer look of those Sat-Sat outliers is needed, to support the mass /gravity relation of the lightspeed postulate and to get more certainty about the length of the minor axis of the LASOF ellipsoid around the earth.
LASOF= Local Anti-Symmetrical Oscillating Vacuum Frame.
Described in my book: The New God Particle and Free Will.
The determination of the major axis of the LASOF ellipsoid around the earth is described here in the second radar-pulse reflection experiment.
A clear example of GPS failure for sat-sat signals at higher altitudes (CHAMP: 430 km, GPS: 20.000km) Kinematic orbit solution comparison showing GPS data outliers up to 180 meters, (2x) during a CHAMP flight long 24 hours with 15 earth revolutions in 2003.

Figure 1. Outlier comparison of the absolute kinematic orbit solution, w.r.t. RSO.
by: Tae Suk Bae, 2003, Ohio State university.

Figure 2. Calculation for the lightspeed drag extinction volume (LASOF) around the earth based on results mentioned in figure 1. (180 meter GPS outliers)
Experiment 2.

Figure 3, Arrows are pointing to the tiny irregularities or radar residuals. Figure from I.I. Shapiro, in “Radar Astronomy” p. 171. by Evans and Hagfors, 1968.

About the Time delay residuals in figure 3, I.I. Shapiro wrote:
“Preceding inferior conjunction, the residuals are negative, whereas following they become positive.
This behaviour is readily explained by Venus being ahead of its orbit relative to earth, since in that case, it would be closer to earth than predicted before conjunction and further away (from earth) afterwards in agreement with figure 3-4.
Quantitatively too, the amount seems to be in accord with the earlier determinations.
Remarkably although the residuals shown are enormous relative to errors associated with some of the more accurate measurements.”

My conclusion: Shapiro did NOT account for the possibility that he measured the mutual influences of the both LASOF lightspeed ellipsoids of the Earth and Venus, as we do in figure 4.
In figure 4, calculations are made which tell us that the major axes of the LASOF ellipsoids for the Earth and Venus are estimated to be respectively 70 and 54 million kilometres.
Future measurements however will be able to give these numbers a more accurate foundation, because only then we are perhaps able to calculate more intensely focussed on this subject.
Figure 4, Major ellipsoidal axis calculation for the Earth and Venus LASOF bubble, based on I.I. Shapiro’s radar residuals, see figure 3.

Figure 5, Major ellipsoidal axis calculation for the Earth and Mercury LASOF bubble, based on I.I. Shapiro’s radar residuals, see figure 3.
Experiment 3,
Opposite running (laser) signal interference experiment between earth and two satellites, to measure the LASOF influence and ether wind on the lightspeed.

Only the signals A and B are assumed to be influenced by the ether wind, induced by the earth rotation of 30 km/sec around the sun.
Signals A1 and B1 are not influenced as we know from the accuracy of the GPS system, if the GPS signals are directed to the Earth surface and influenced by gravity dragging.
This experiment could even be able to measure tiny lightspeed influences of the Galaxy.

Figure 6. Orbital speed of the earth around the sun is 30 km/sec.
**Experiment 4,**
Opposite running (laser) signal interference variation, between a fast rotating mirror cylinder and one coaxial mirror cylinder that is in fixed position to the laboratory.

![Diagram of Opposite travelling signal interference variation inside two mirror cylinders.](image)

**Figure 7.** Opposite travelling signal interference variation inside two mirror cylinders.

If the Local Oscillating Vacuum Frame is influenced by the cylinder mass, even over short distances, (e.g. 1 cm) then we may expect a so called LASOF interference effect over short distances (Local Anti Symmetrical Oscillating Vacuum Frame) related to fast rotating cylinders.

The interference pattern variation produced inside the telescope, (figure 7) should have a direct relation to the speed of the rotating cylinder.

In 1964, Babcock and Bergman published a comparable experiment with promising results, in J.O.S.A Vol.54, nr.2.
References,


2. Near real-time precise orbit determination of low earth orbit satellites using an optimal GPS triple-difference technique. Dissertation. School of The Ohio State University By Tae-Suk Bae, M.S., B.S. http://etd.ohiolink.edu/send-pdf.cgi?Bae%20TaeSuk.pdf?osu1158333065