Starship Speed Standard

This article presents guidelines for starship speeds (FTL and STL) in the setting.

Explanation

Starships moving at speeds faster than that of light have two commonly used references for their speed. One is *constant*, or *c*, which is the true measurement of the speed of light. It is roughly 186,000 miles per second, or 300,000,000[1)] meters per second in a vacuum.

The other common expression is a measurement in distance over time, the *Lightyear/Minute*, or *ly/m*. Both have their advantages, the *c* being the exact way to measure performance in a technically correct setting (such as the ship submissions which are routinely made) and the *ly/m*, which is best for day-to-day navigation. It is *ly/m* which can be easily used to calculate how long it takes to get from point "A" to point "B".

As such, both are used in the starship submission, usually the *c* measurement first with the *ly/m* immediately afterward in parenthesis. It is standard practice to set a *ly/m* speed first and then derive a *c* speed from it so that the *ly/m* speed is more well rounded. Otherwise, you may wind up with some obscure figure which is harder to calculate when trying to determine IC travel time.

The Golden Number

The golden number; calculated by Fred and Wes, and based on Toshiro's efforts, is 525,960c. 525,960c is equal to 1 ly/m, and can be used to easily translate back and forth between *c* and *ly/m*.

(NOTE: The rest of this part can be skipped if you don't need to understand the reason for the golden number. Click here to move to the next heading.)

The golden number was found by using these basic formulae:

Since physics specifies that Rate is Distance divided by Time (R = d / t), 1 Constant is 1 Lightyear divided by 1 Year. (c = ly / y) (ly/y) / 365.25 = (ly/day) (ly/day) / 24 = (ly/hour) (ly/hour) / 60 = (ly/m)

However, rather than dividing three times, one can do this:

365.25 * 24 * 60 = **525,960**

Hence the golden number. The Golden Number can be used to directly convert between *c* and *ly/m* with one simple division or multiplication operation.

Converting between c and ly/m

The operations for converting between *c* and *ly/m* are simple with the Golden Number.

c to ly/m

c / 525,960 = (ly/m)

ly/m to c

(ly/m) * 525,960 = c

Target Speeds

There is an effort to lessen the top speeds of vessels in the setting, lead by Fred and supported by the admin, Wes. It has a great deal of support by the staff of Star Army and should be observed.

For conventional FTL propulsion systems such as continuum distortion drives, a top speed of roughly 20,000c is recommended. This is roughly 0.0038 ly/m, or 2.3 ly/hour. For fold-based FTL propulsion, the target maximum speed is roughly 315,000c, or 0.6 ly/m. This is also 36 ly/h.

Given that it is easier to give ly/h based speeds for the slower models, ly/h may become a common measurement in the future, derived merely by multiplying the ly/m speed by a factor of 60.

Also, note that these are the higher end speeds. Less developed civilizations will have even slower vessels. Below is a table of Fred's ideal settings.

Sublight Propulsion

	Standard Technology Aptitude	Advanced Technology Aptitude	Very Advanced Technology Aptitude
Slow	0.075c (22,484 km/s)	0.100c (29,979 km/s)	0.125c (37,474 km/s)
Average	0.150c (44,969 km/s)	0.200c (59,958 km/s)	0.250c (74,948 km/s)
Fast	0.225c (67,453 km/s)	0.300c (89,937 km/s)	0.375c (112,422 km/s)

Continuum Distortion Drives

	Standard Technology Aptitude	Advanced Technology Aptitude	Very Advanced Technology Aptitude
Slow	3,750c	5,000c	6,250c
Average	7,500c	10,000c	12,500c

	Standard Technology Aptitude	Advanced Technology Aptitude	Very Advanced Technology Aptitude
Fast	11,250c	15,000c	18,750c

Hyperspace Fold Drives

	Standard Technology Aptitude	Advanced Technology Aptitude	Very Advanced Technology Aptitude
Slow	0.15 ly/m	0.20 ly/m	0.25 ly/m
Average	0.30 ly/m	0.40 ly/m	0.50 ly/m
Fast	0.45 ly/m	0.60 ly/m	0.75 ly/m

Military vessels will usually have better charging times and jumping ranges compared to civilian vessels.

Unarmored Craft

A vessel's armor has an effect on its STL speeds. The below table, taken from the Damage Rating (Version 3) article, covers the adjustments that can be made based on the degree to which a vessel is armored.

Armor Type	Examples	Speed Bonus	Maximum Speed
Unarmored	Xiulurium	+.075c	0.450c
Light	Durandium	+.050c	0.425c
Medium	Yama-Dura, Zanarium	+.025c	0.400c
Heavy	Nerimium, Yamataium, Zesuaium	None	0.375c

Notes

- STL speeds should be posted in the formats listed here: Sublight Speed Conversion[2)]
- STL “doublers” and “boosters” previously allowed in the setting are no longer valid as of January 1st, 2011.
- Missile-based weapon systems such as missiles, rockets, and torpedoes are no longer required to have a listed STL velocity as of January 1st, 2018.
- FTL devices other than teleportation modules cannot be used inside a sun's Hill Sphere.

Being able to convert properly is important, as Wes has indicated a wish to implement both *c* and *ly/m* into submissions in the future. This system will prevent errors from occurring in the future, as the old way of translating between *c* and *ly/m* was incorrect by a factor of 21. If you see an incorrect speed setting, please edit it to the slower value, or report it to the staff.

Examples

- Star Army of Yamatai Starship Speeds
- Star Navy of Nepleslia Starship Speeds

OOC Notes

frostjaeger updated this article on 2018/01/09 18:45 after receiving approval from Wes on 2018/01/08 09:44.

1)

299,792,458 exactly

2)

299,792,458 divided by c divided by 1,000