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 vaccuum.

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 an *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. Move to the next heading.)

The golden number was found by using these basic formulae:

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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)
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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 SARP, lead by Fred and supported by the admin, Wes. It has a great deal of support by the staff of the SARP and should be observed.

For conventional FTL propulsion systems, 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**
Slow	0.075c (22,484 km/s)	0.1c (29,979 km/s)	0.125c (37,474 km/s)
Average	0.150c (44,969 km/s)	0.2c (59,958 km/s)	0.25c (74,948 km/s)
Fast	0.225c (67,453 km/s)	0.3c (89,937 km/s)	0.375c (112,422 km/s)

Intra-system FTL propulsion	**Standard technology aptitude**	**Advanced technology aptitude**	**Very Advanced technology**
Slow	3,750c	5,000c	6,250c
Average	7,500c	10,000c	12,500c
Fast	11,250c	15,000c	18,750c

Intra-stellar Fold propulsion	**Standard technology aptitude**	**Advanced technology aptitude**	**Very Advanced technology**
Slow	0.15 ly/m	0.2 ly/m	0.25 ly/m
Average	0.3 ly/m	0.4 ly/m	0.5 ly/m

Intra-stellar Fold propulsion	**Standard technology aptitude**	**Advanced technology aptitude**	**Very Advanced technology**
Fast	0.45 ly/m	0.6 ly/m	0.75 ly/m

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

STL speeds should be posted in the formats listed here Sublight Speed Conversion.[2)]

Anti-FTL

Some conditions can affect FTL availability and speeds. See: Anti-FTL Field

Other Notes

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
- starship_speeds

1)
299,792,458 exactly
2)
299,792,458 divided by c divided by 1000