

Limiter File Structure

General Idea

The limiter description currently consists of a set toroidal regions. Each regions starts with a main polygon that contains the plasma. Inside this polygon additional polygons can be defined that represent obstacles e.g. coils. A track will typically be stopped if it leaves the main polygon or is inside one of the obstacles

The file is a simple ASCII file and should have the following structure:

Line	Content	Example:
1	Some descriptive comment	limiter file for MAST-U
2	N_tor	3

This is followed by N_tor data sets of the form:

Line	Content	Example
3	Some descriptive comment e.g.	-- Region 1 --
4	Toroidal angle (in deg.) of the start of this region	0.
5	Number of polygons Np	5
6	n ₁ n ₂ n ₃ ...n _{Np} : Number of vertices for each polygon	28 4 4 4 4
7	r ₁ z ₁	2.0 -2.00
8	r ₂ z ₂	1.392 -2.00
9
34	r _{Np} z _{Np}	2.0 2.00
35	Blank line	
36	Next polygon: r ₁ z ₁	1.40425 1.195
37	r ₂ z ₂	1.59525 1.195
38	r ₃ z ₃	1.59525 1.005
39	r ₄ z ₄	1.40425 1.005
40	Blank line	
41	Next polygon
42	Etc.	...

Line	Content	Example
3	Some descriptive comment e.g.	-- Region 2 --
4	Toroidal angle of the start of this region	20.
5	Number of polygons Np	5
6	n ₁ n ₂ n ₃ ...n _{Np} : Number of vertices for each polygon	25 4 4 4 4

7	$r_1 z_1$	2.0	-2.00
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Etc. for all toroidal regions.

At the moment all geometric structures are rotational forms around the z-axis. Therefore a Square with an angular range of 2π corresponds to a ring with a square cross section (e.g. for a coil). At the moment irregularly shaped objects need to be approximated with toroidal and radial regions.