ACCOMMODATING INBOARD RF

NCSX PROJECT MEETING

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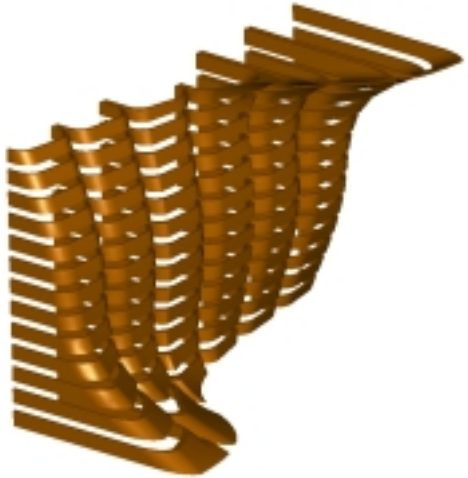
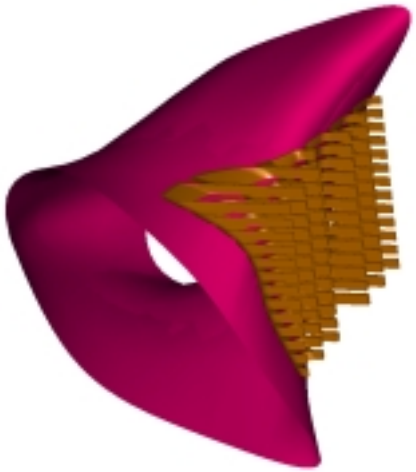
ORNL/PPPL

TOPICS

- Several concepts for the RF Antenna have been created.
- General dimensions of antenna defined
- Inboard surface of vessel modified to better fit antenna.

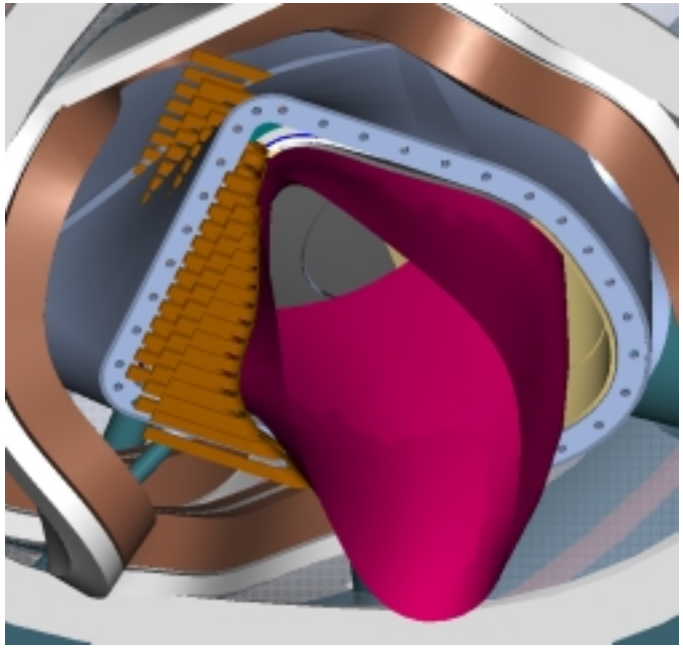
First attempt to define RF antenna



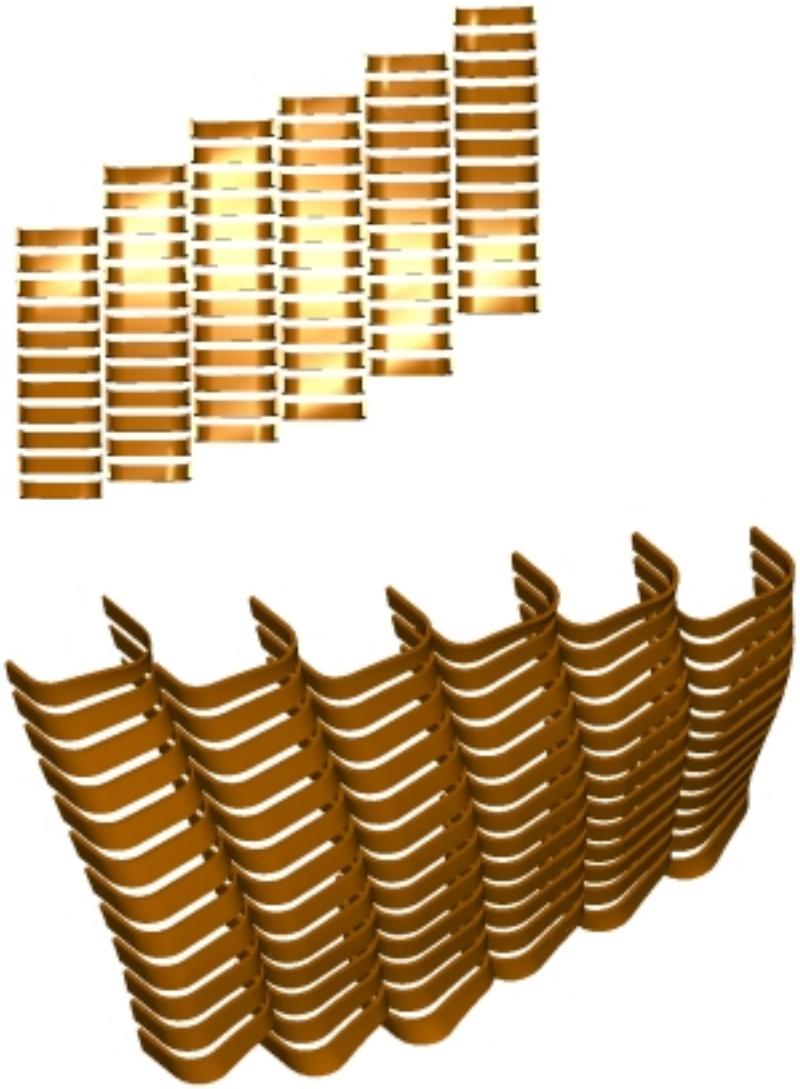


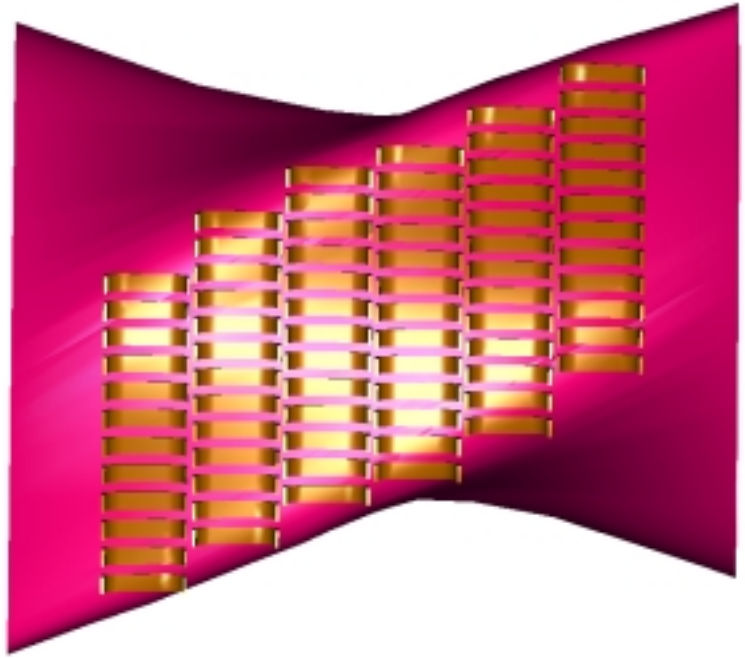
Basic dimensions are:

.75 m wide X .48 m tall

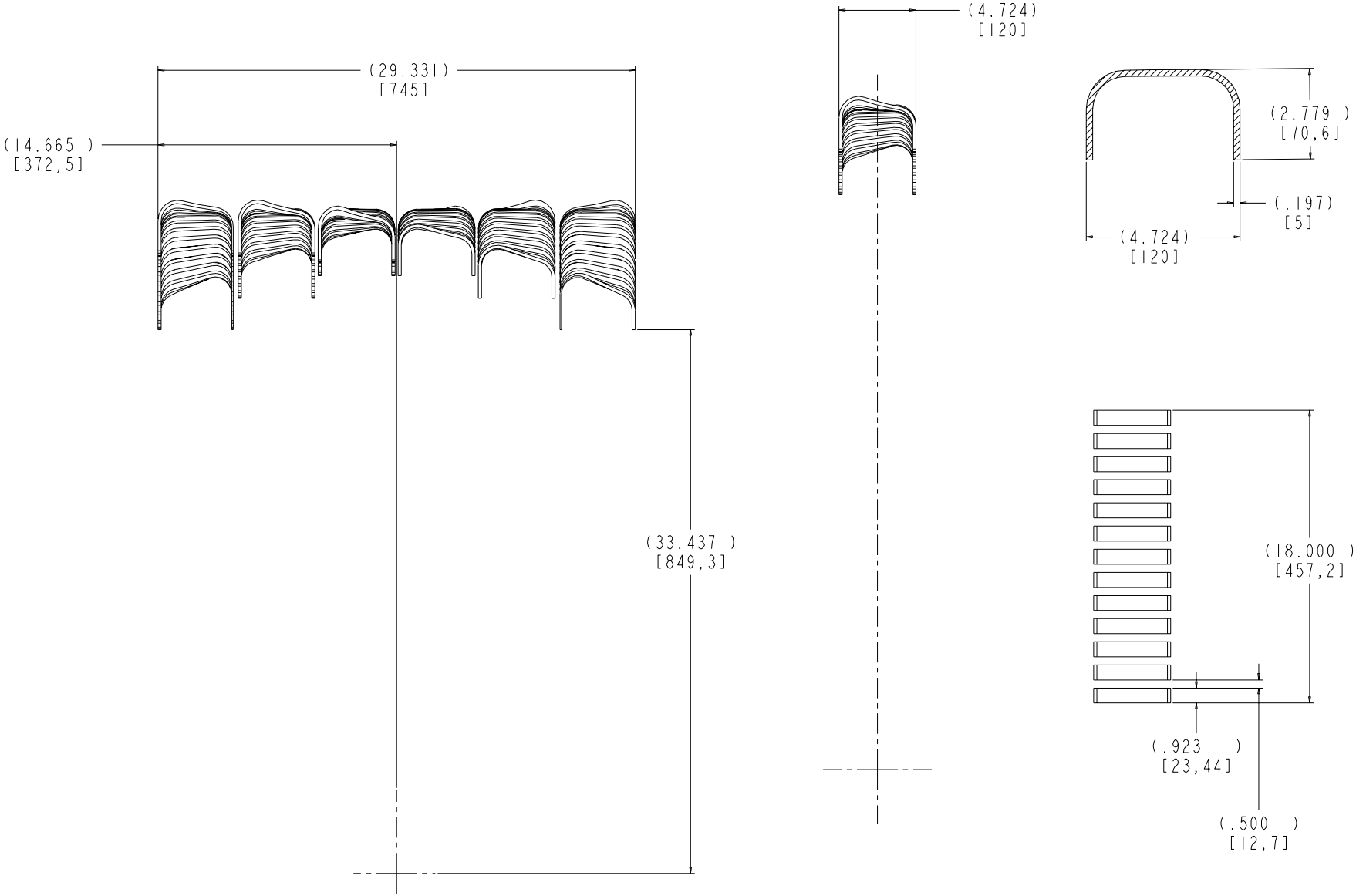


Following the Plasma inside surface created an RF Antenna that was not as step near the ends

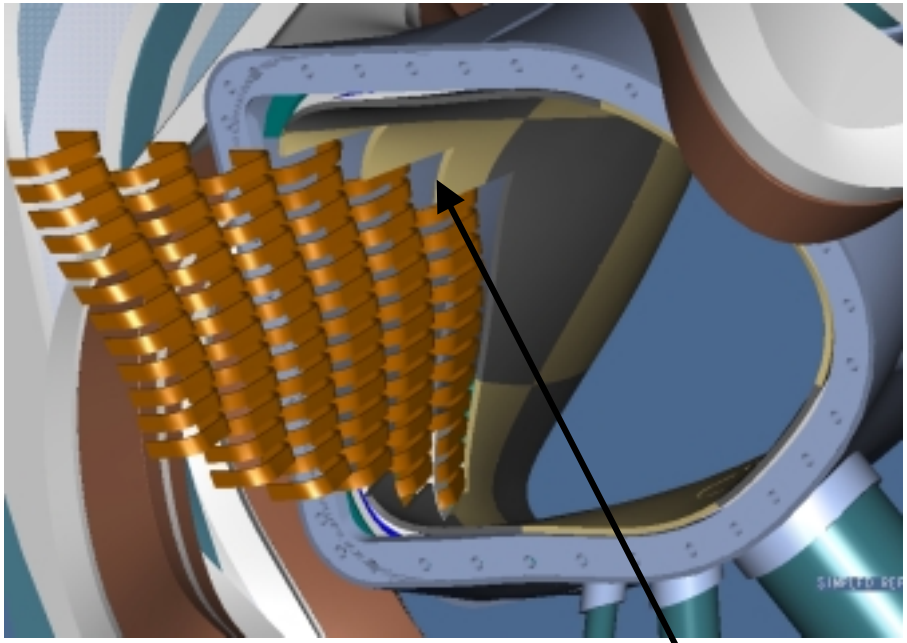




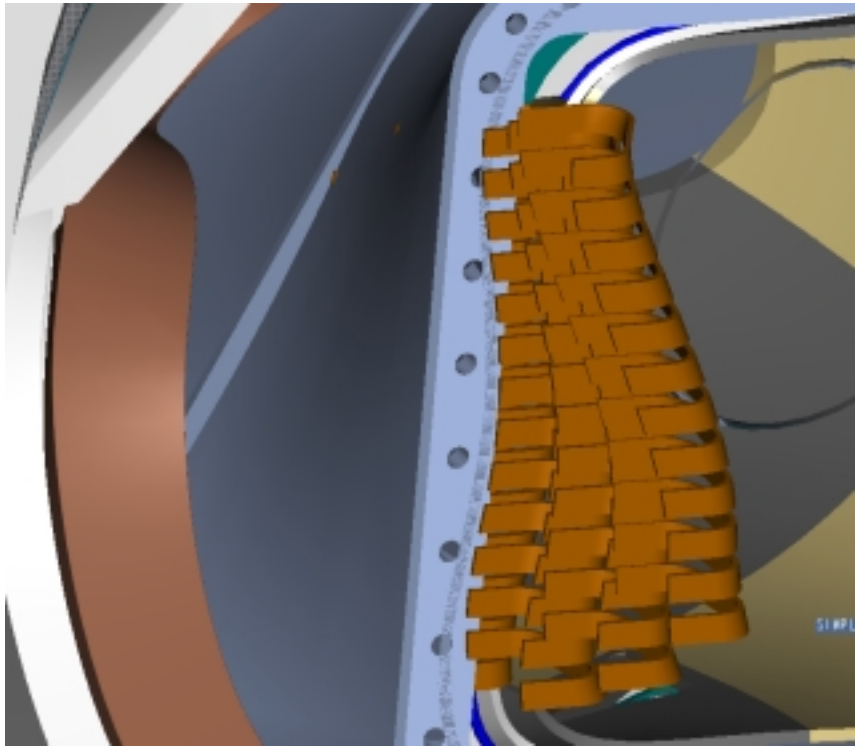
General RF Antenna Dimensions



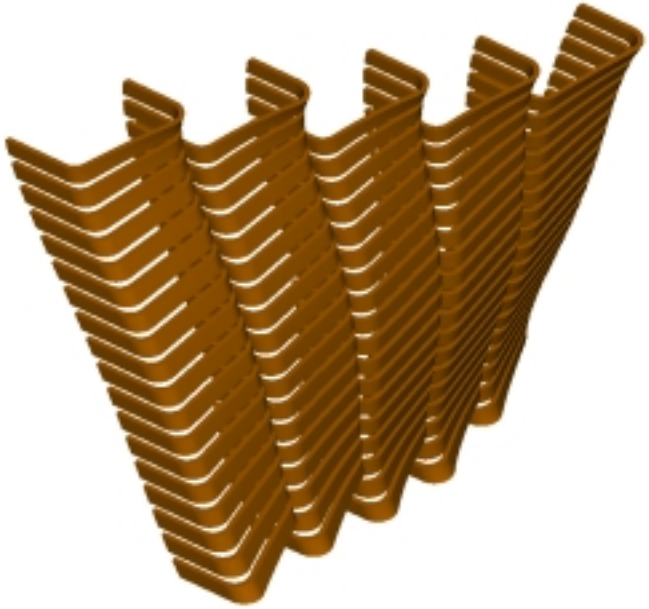
RF Antenna assembled into the vessel

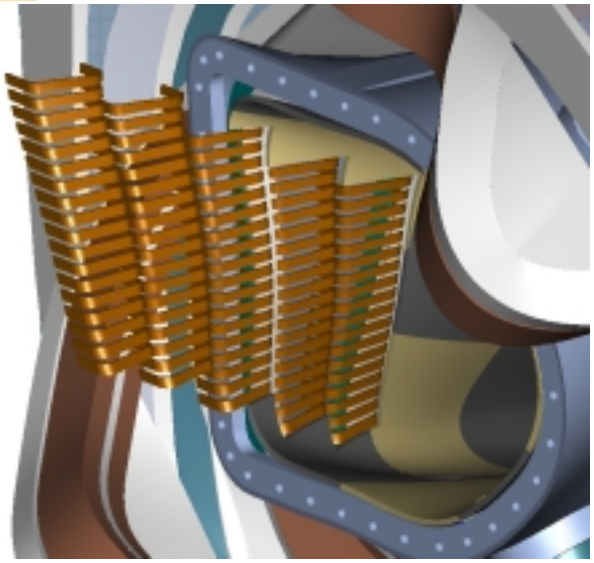


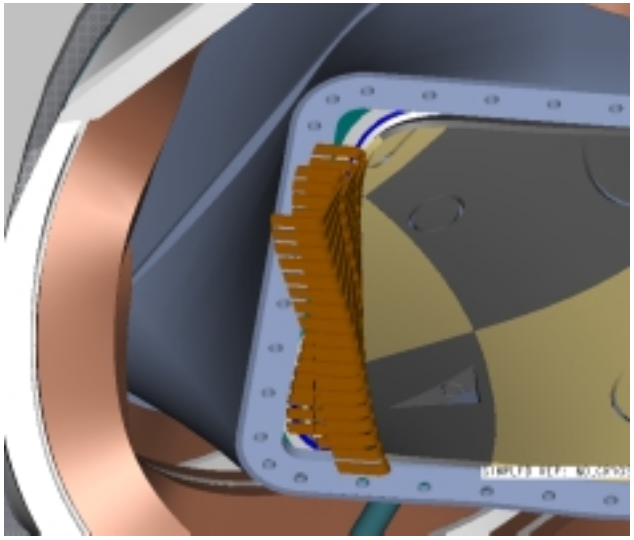
PFC's will be shaped to fit the contour of the Antenna



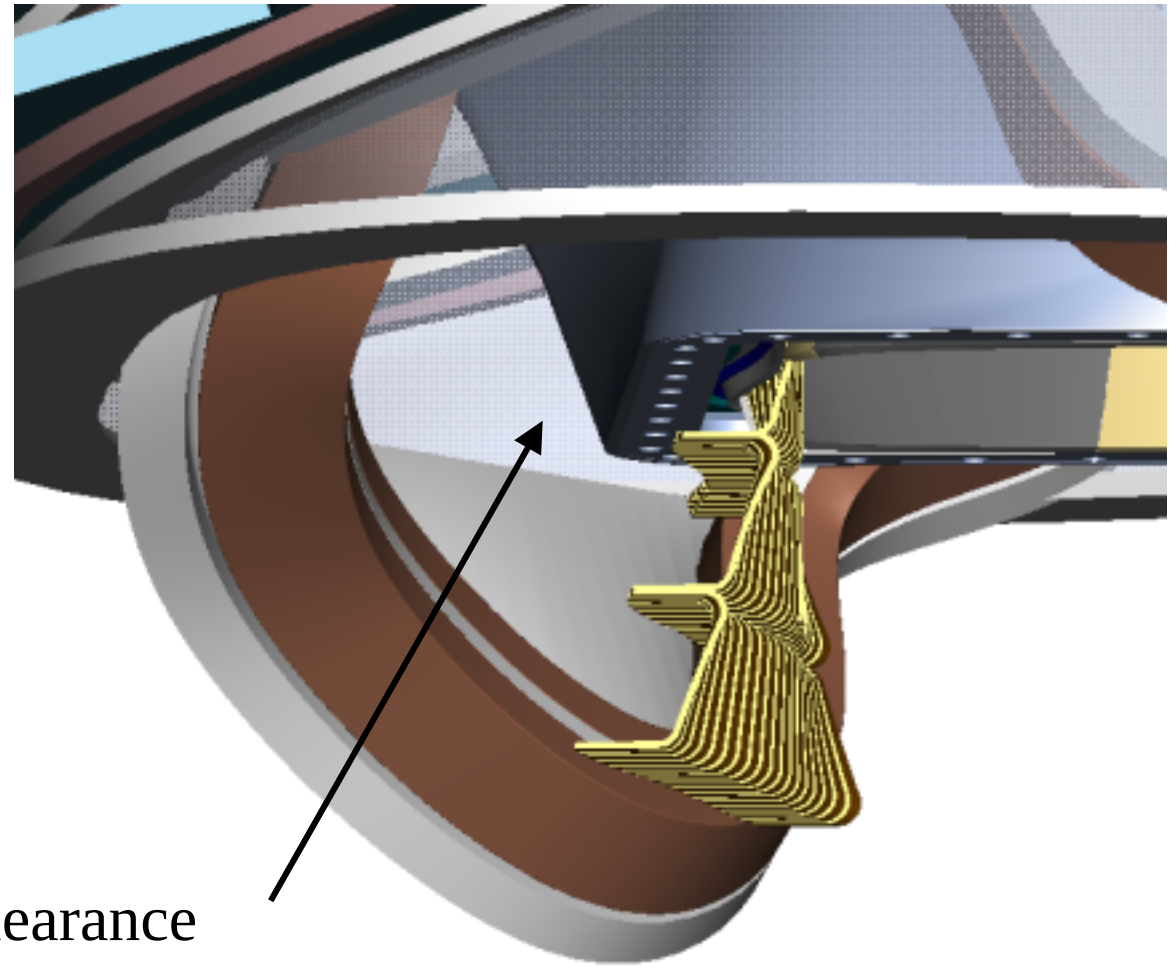
Tried different configurations to reduce impact on vessel





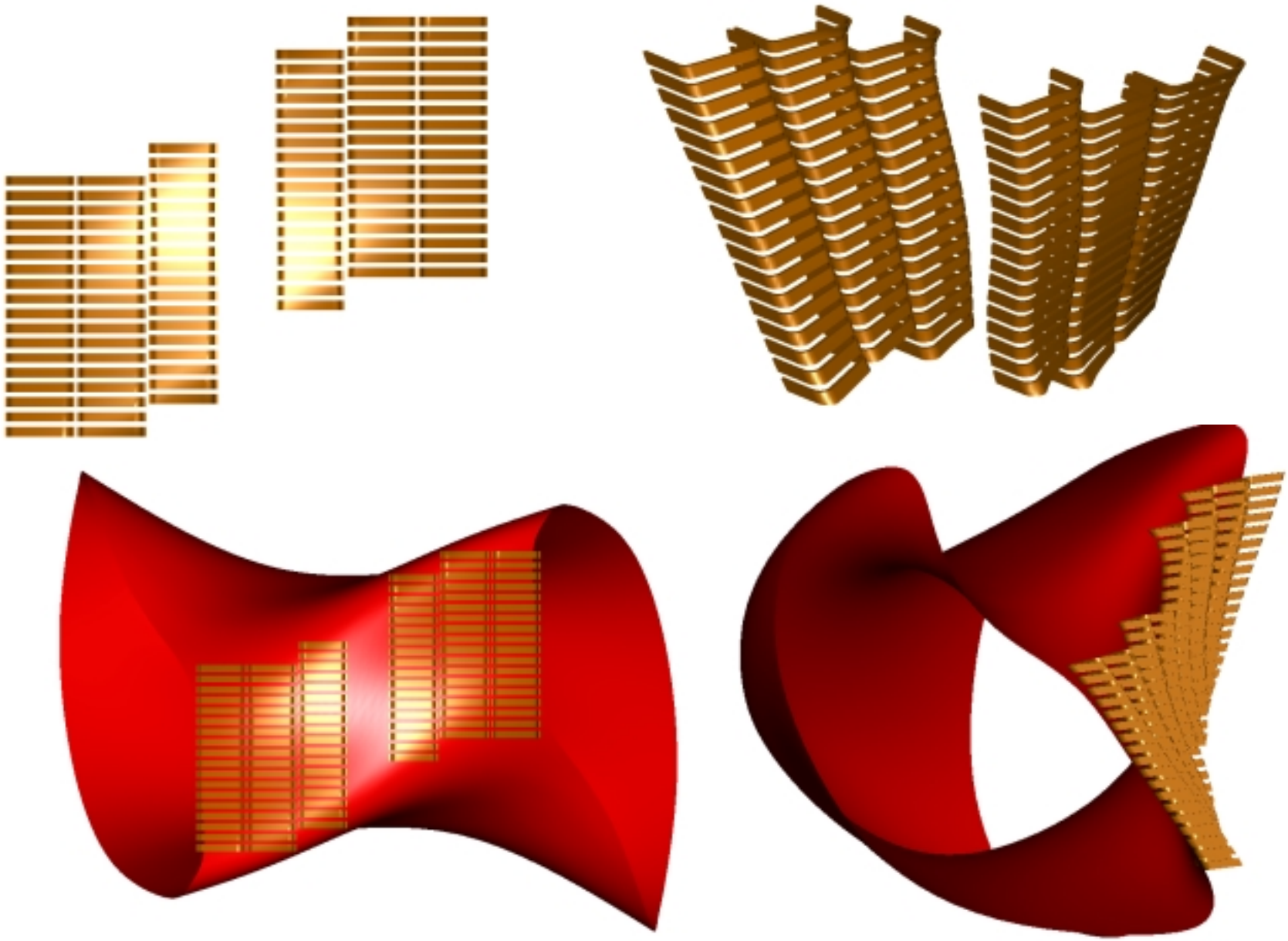


Plan view of Antenna installed in period



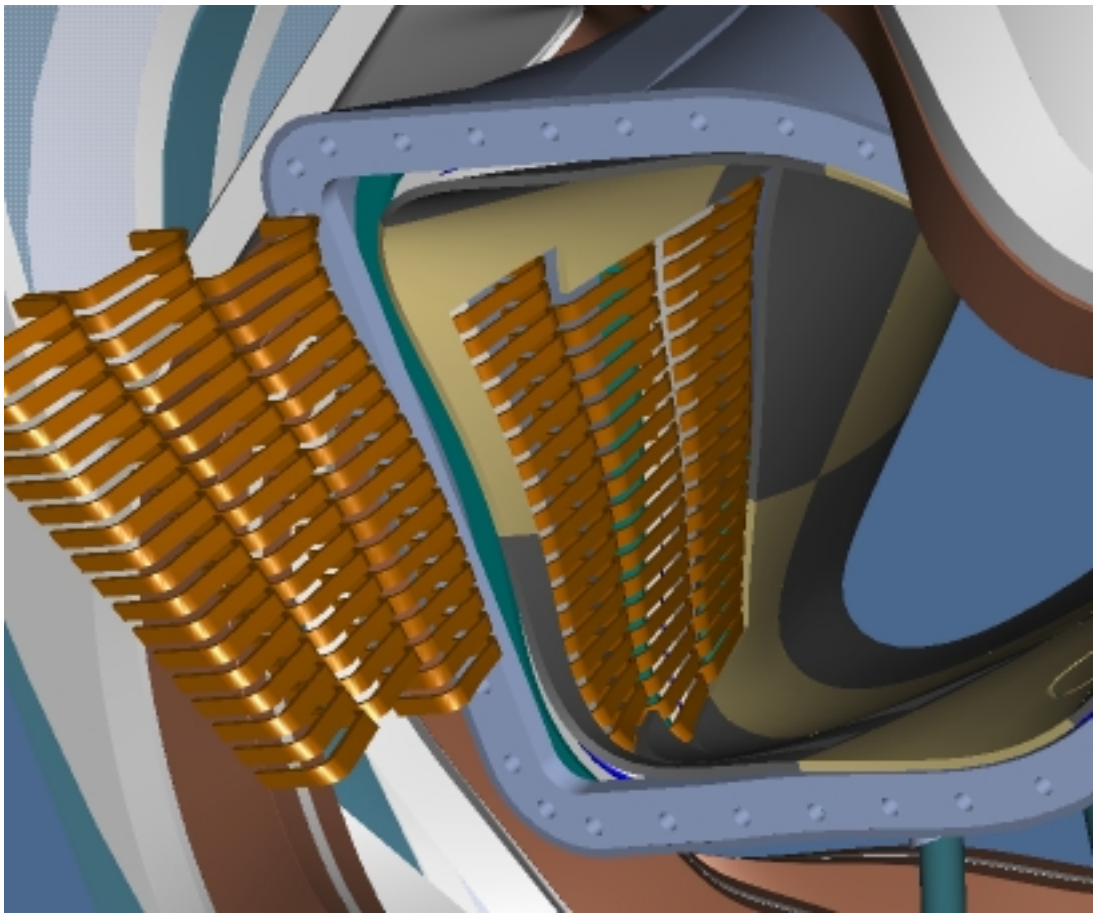
Additional clearance available if needed

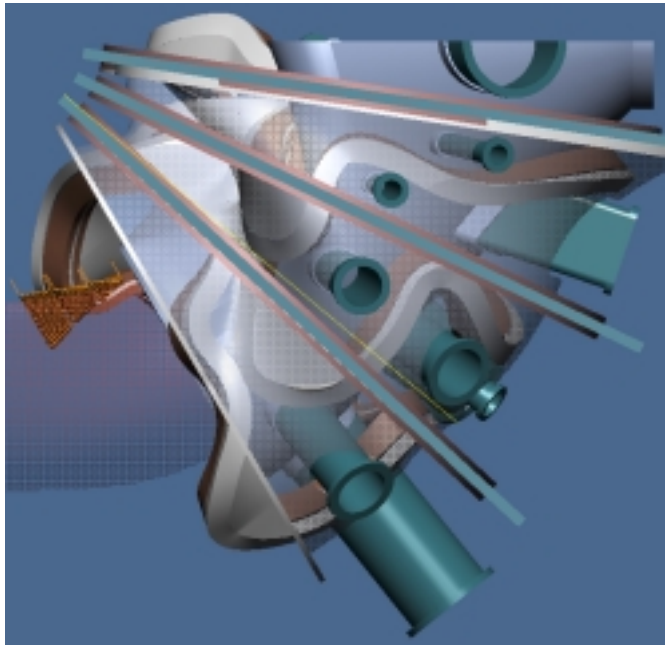
Antenna configuration on either side of vac vessel flange

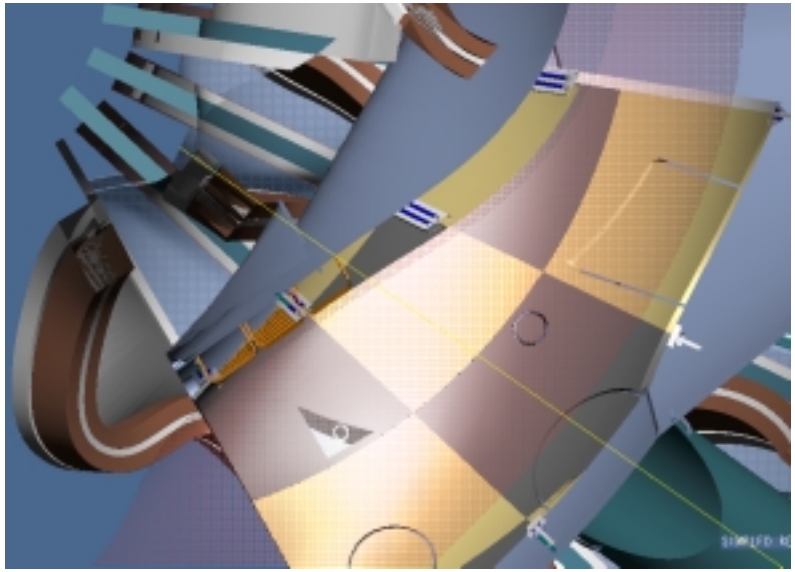


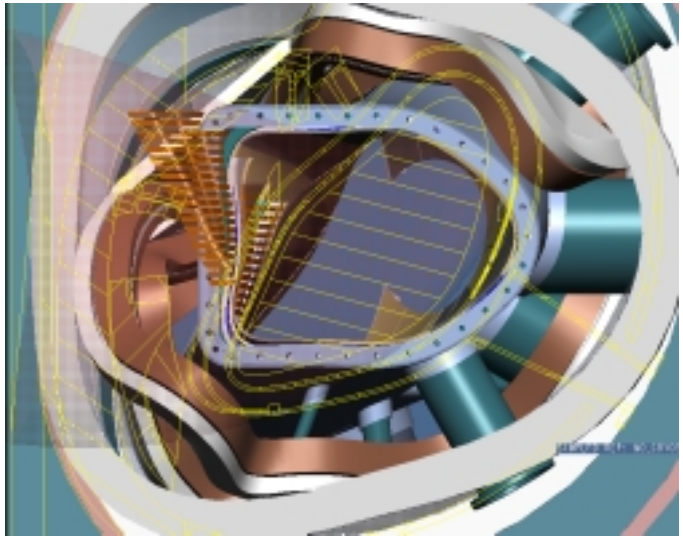
Antenna configuration shown in vessel

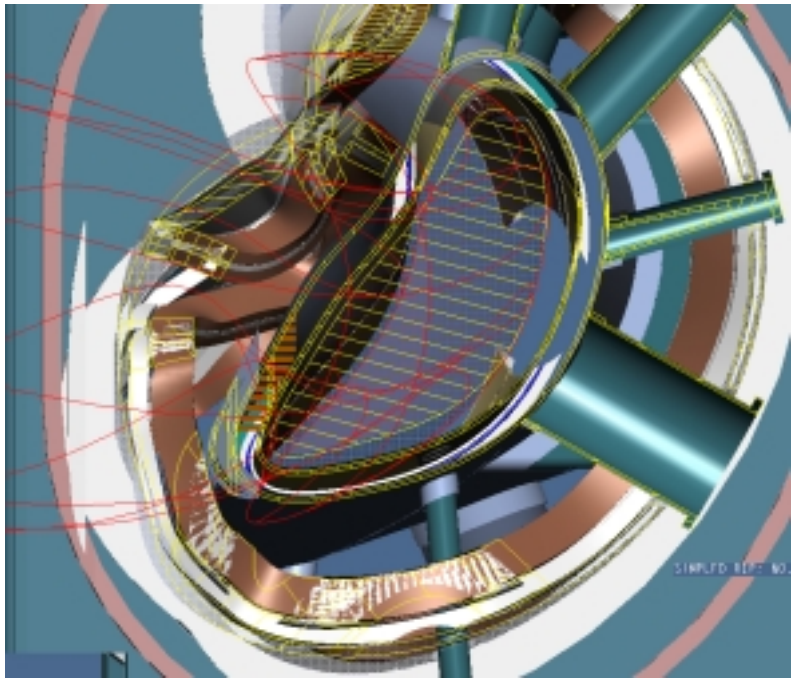
This configuration begins to push the limits on how far the antenna can extend in the toroidal direction. The limit is the vessel and the modular coil.



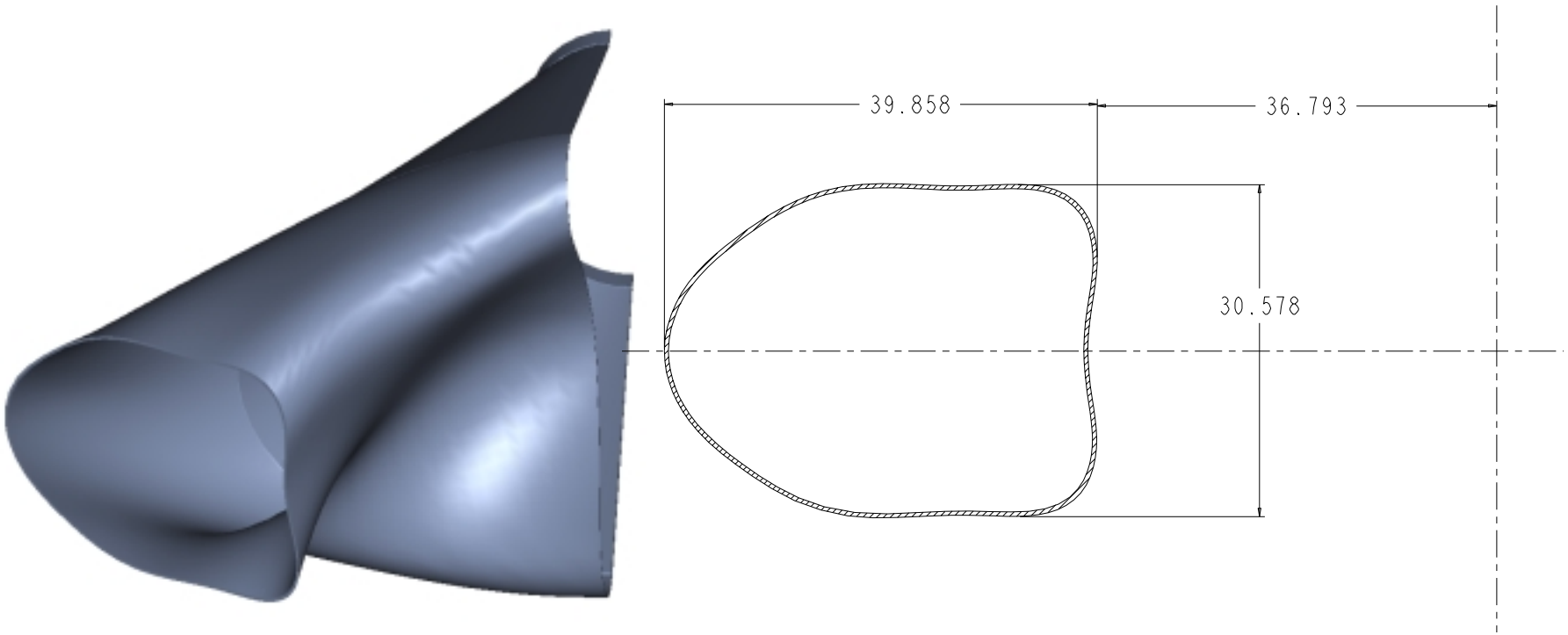




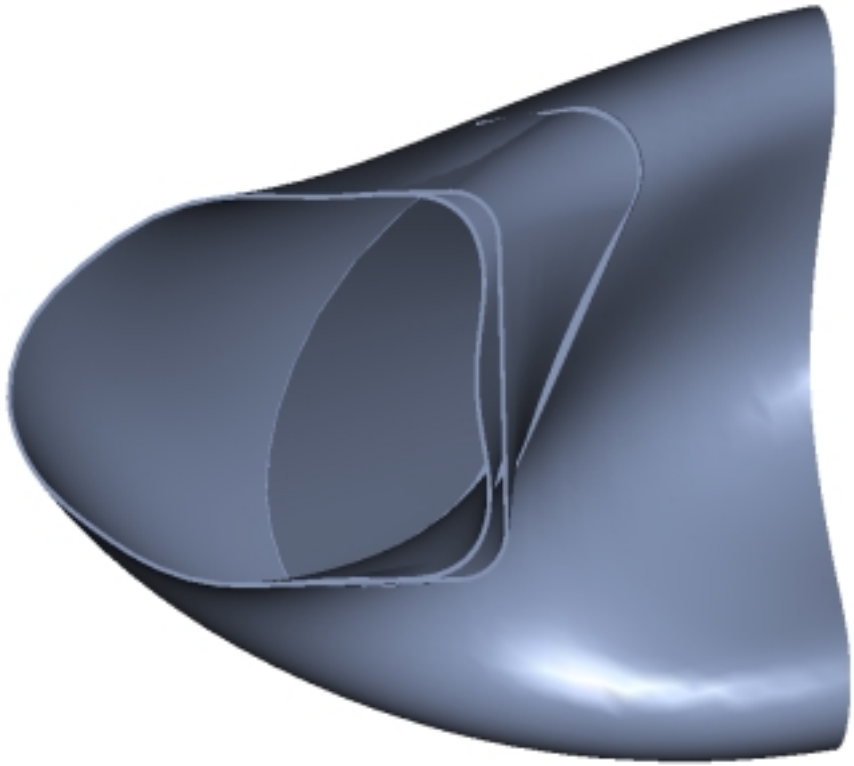


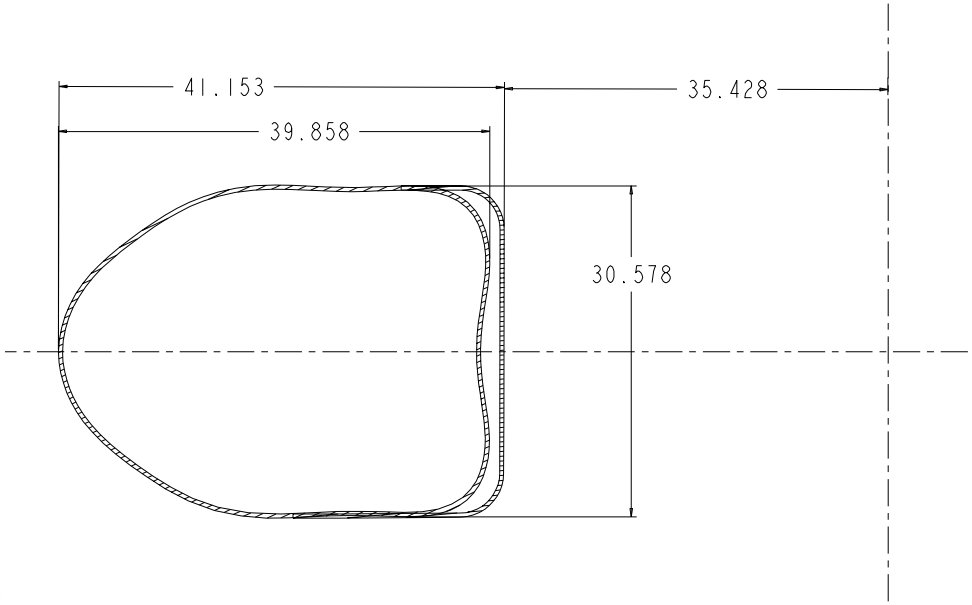


Original Vacuum Vessel Configuration

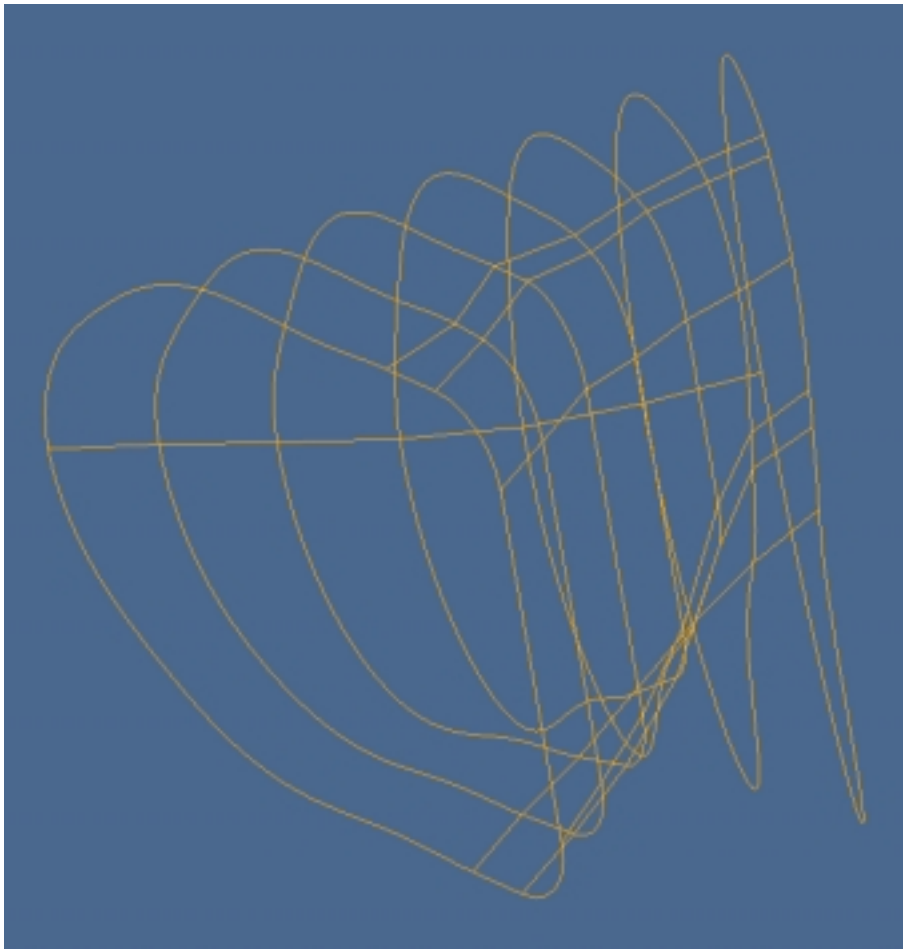


Tom Brown's Vessel Configuration

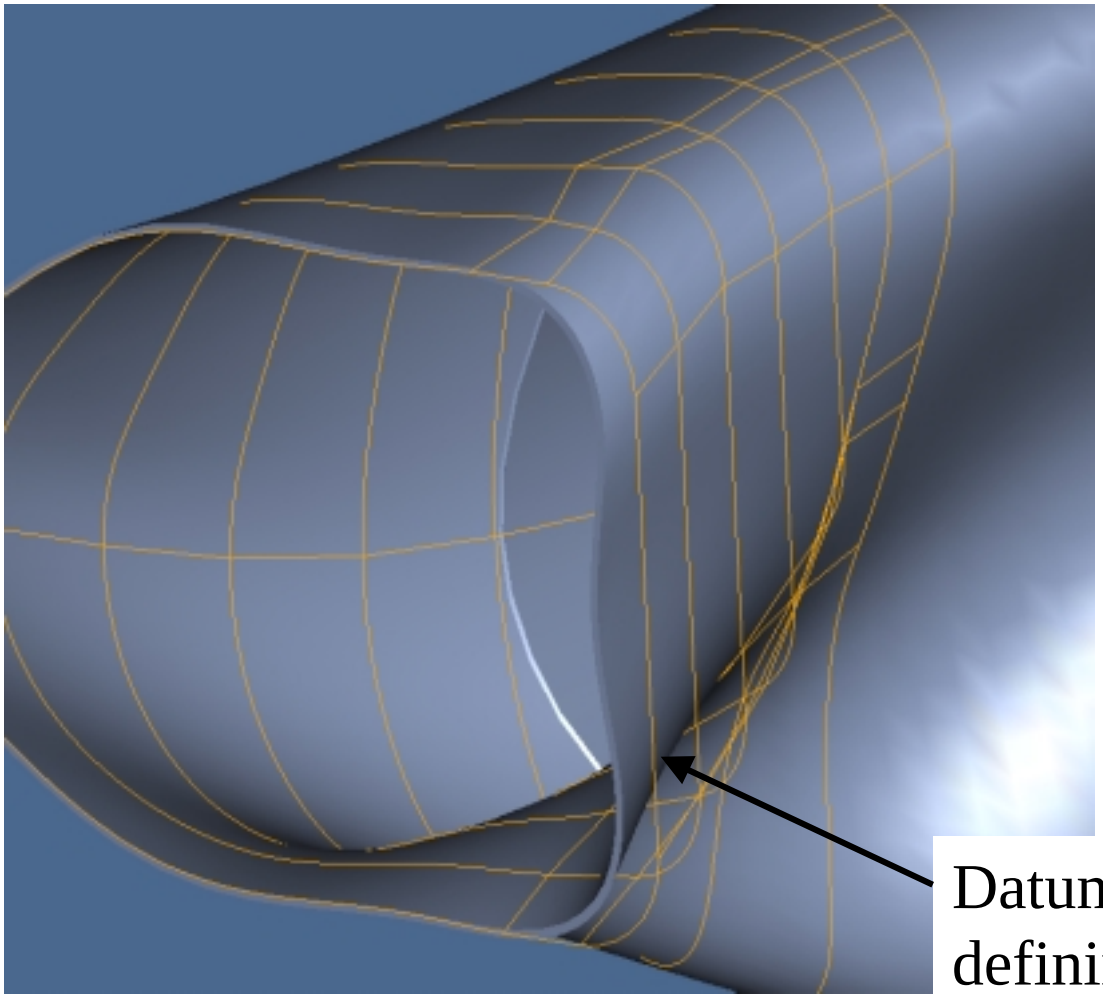




A technique for creating a new surface starts with defining a set of datum curves

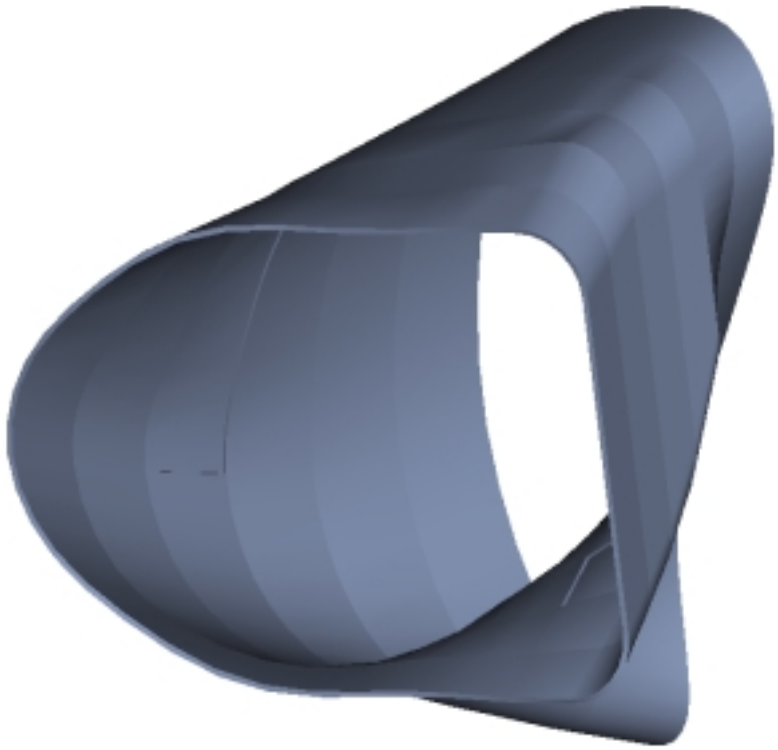


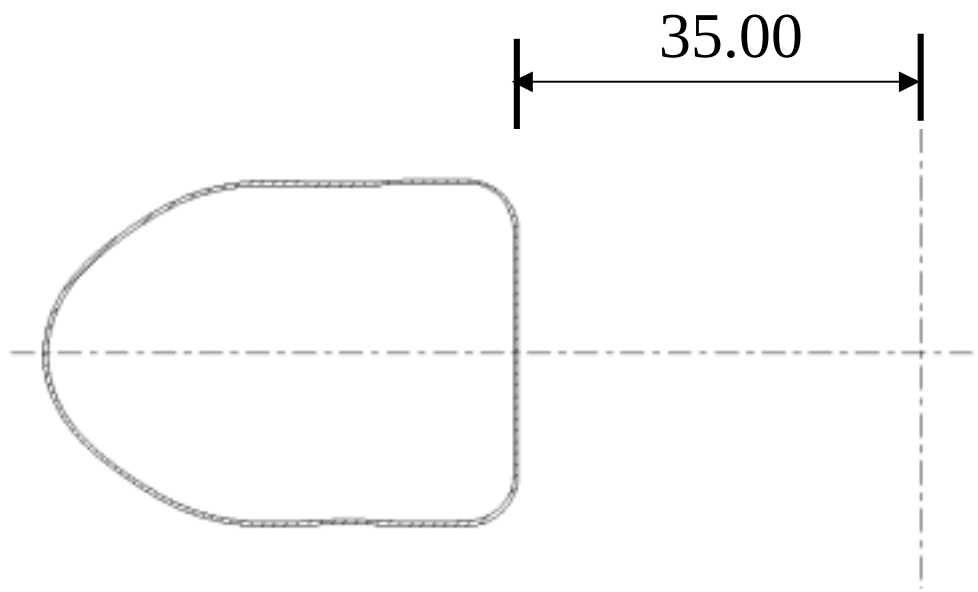
Datum curves represent new surface



Datum curves defining new surface for vessel

Proposed Vessel Configuration





- Configuration changed to better fit antenna
- Assumed better fabrication

Summary / Conclusions

- Placing the RF antenna on the inboard surface of the vessel appears possible.
- Conflicts may exist with the inboard limiter and the RF antenna.
- Depending on the final configuration of the RF antenna space may not be available for diagnostics (laser beam dump for Thompson Scattering).
- Biggest impact to current design is the vacuum vessel. Finding a cost effective design that does not adversely impact the fabrication is still evolving.
- Assembly of the coils over the vessel is in progress to determine impact on assembly.