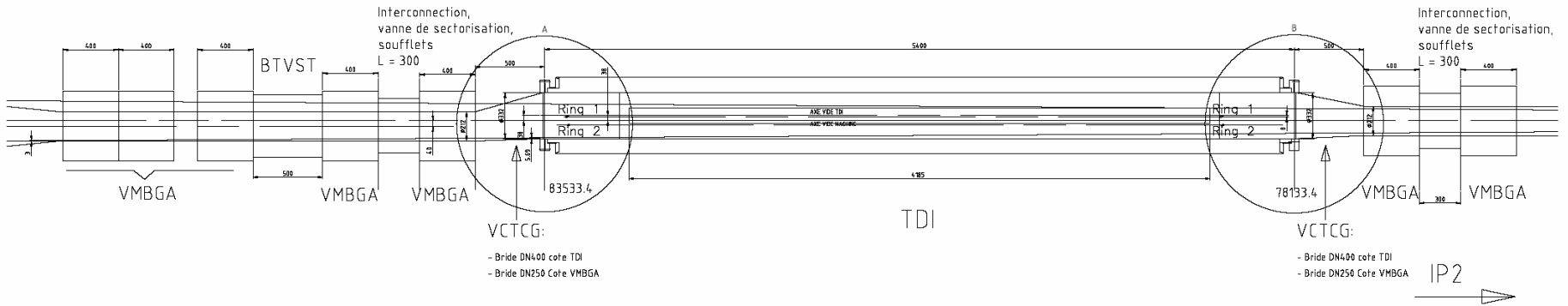
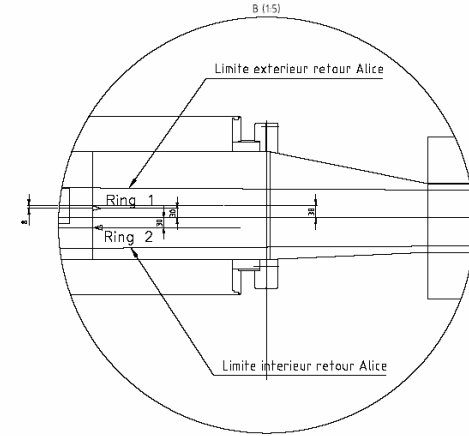
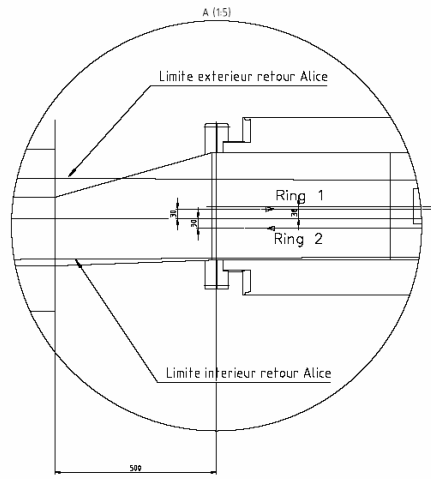
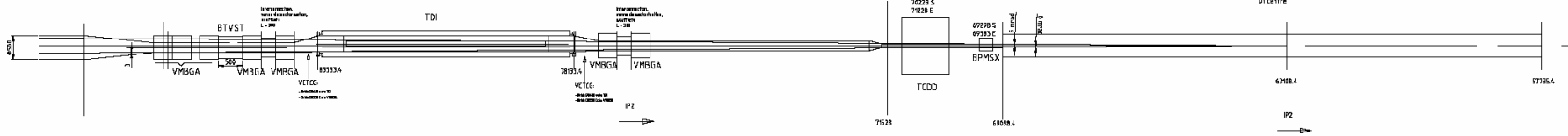


# First results on the simulation of trapped modes in TDI

A.Grudiev  
RLC meeting  
22.04.05

# General layout



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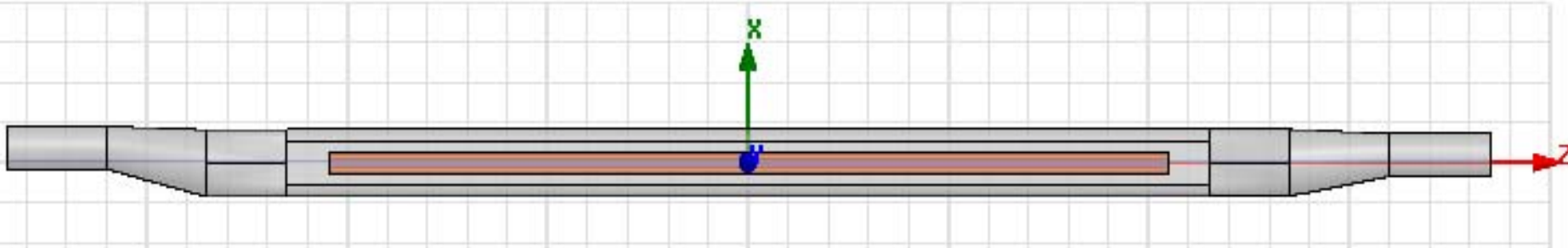
NO.	DATE	REV./NAME	ZONE	MODIFICATION
23				
22				
21				
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19				
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1				

REV.	DATE	DESCRIPTION	BY	CHK
01	2023-04-27	INTEGRATION IR2 FROM IP2 TO TDI	1:30	
02	2023-04-27	INTEGRATION IR2 DE L'IP AU TDI	1:10	

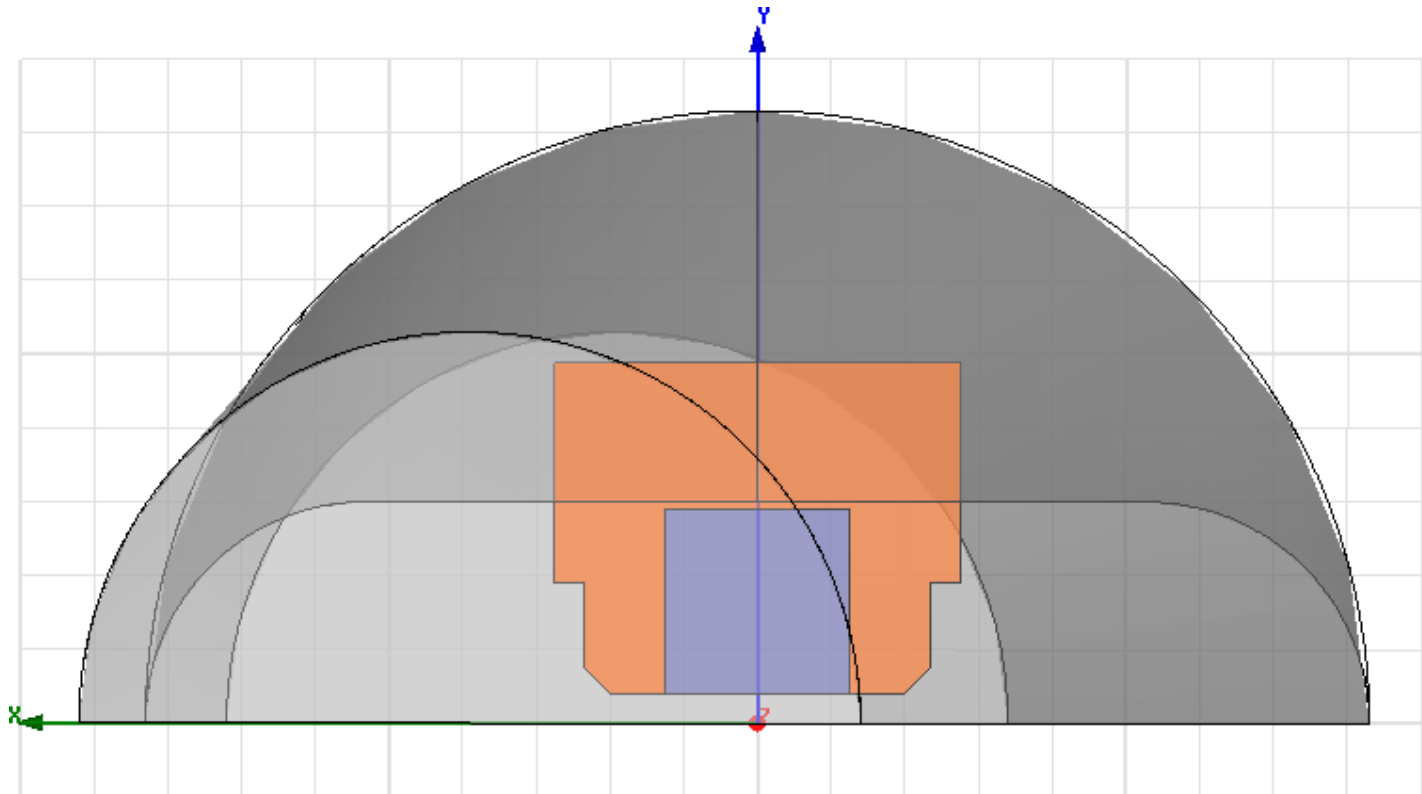
PROJECT ENGINEER INFORMATION - HCTDI - 0121

# HFSS model

Top view

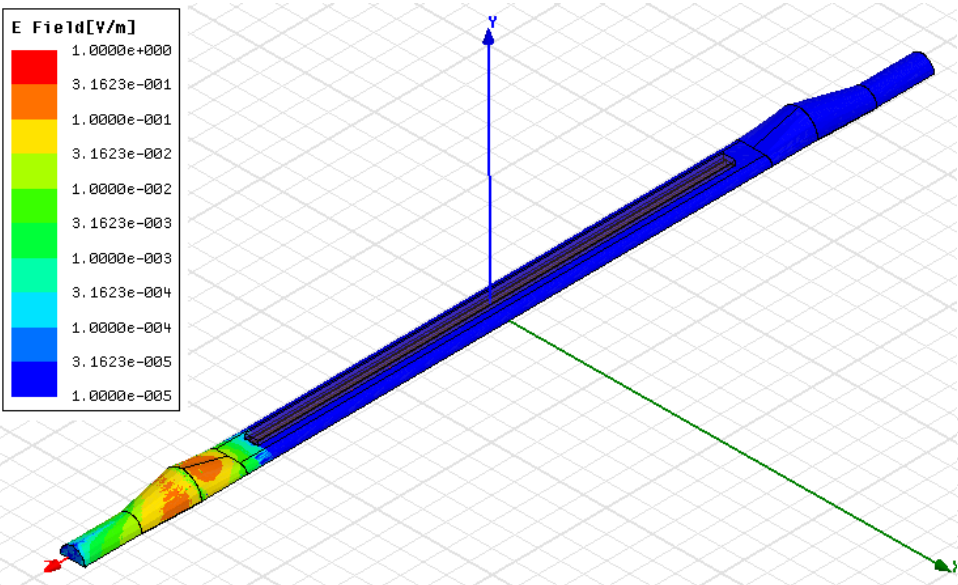


Side view

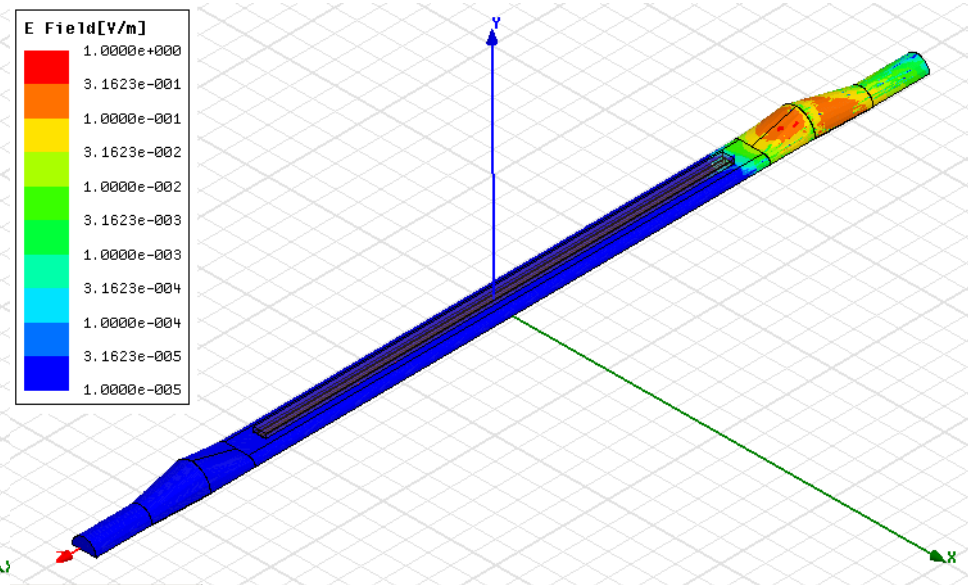


# Transition region trapped modes

Mode 1



Mode 2



$q=16\text{nC}$ ,  $t_b=25\text{ns}$

$f = 0.767 \text{ GHz}$

$Q = 59700$

$r/Q = 1.04 \text{ LinacOhm}$

$K_{\delta} = 1.25 \text{ V/nC}$

If  $f = 0.76 \text{ GHz} = 19/t_b$

$P_{\text{loss}} = (q/t_b)^2 e^{-(\omega\sigma_z/c)^2} r/Q * Q = 5\text{kW}$

$f = 0.769 \text{ GHz}$

$Q = 58800$

$r/Q = 0.77 \text{ LinacOhm}$

$K_{\delta} = 0.93 \text{ V/nC}$

If  $f = 0.76 \text{ GHz} = 19/t_b$

$P_{\text{loss}} = (q/t_b)^2 e^{-(\omega\sigma_z/c)^2} r/Q * Q = 3.7\text{kW}$