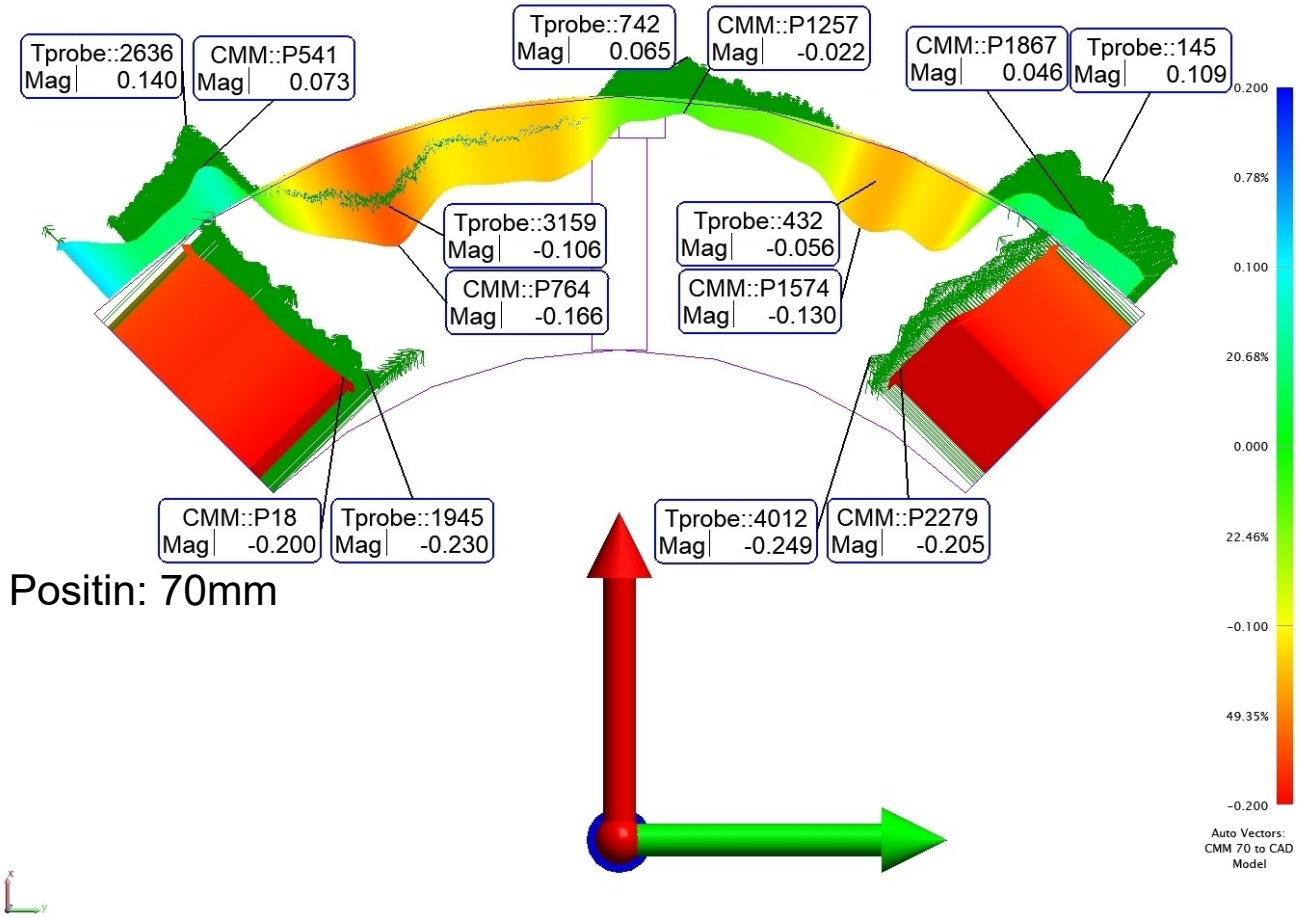
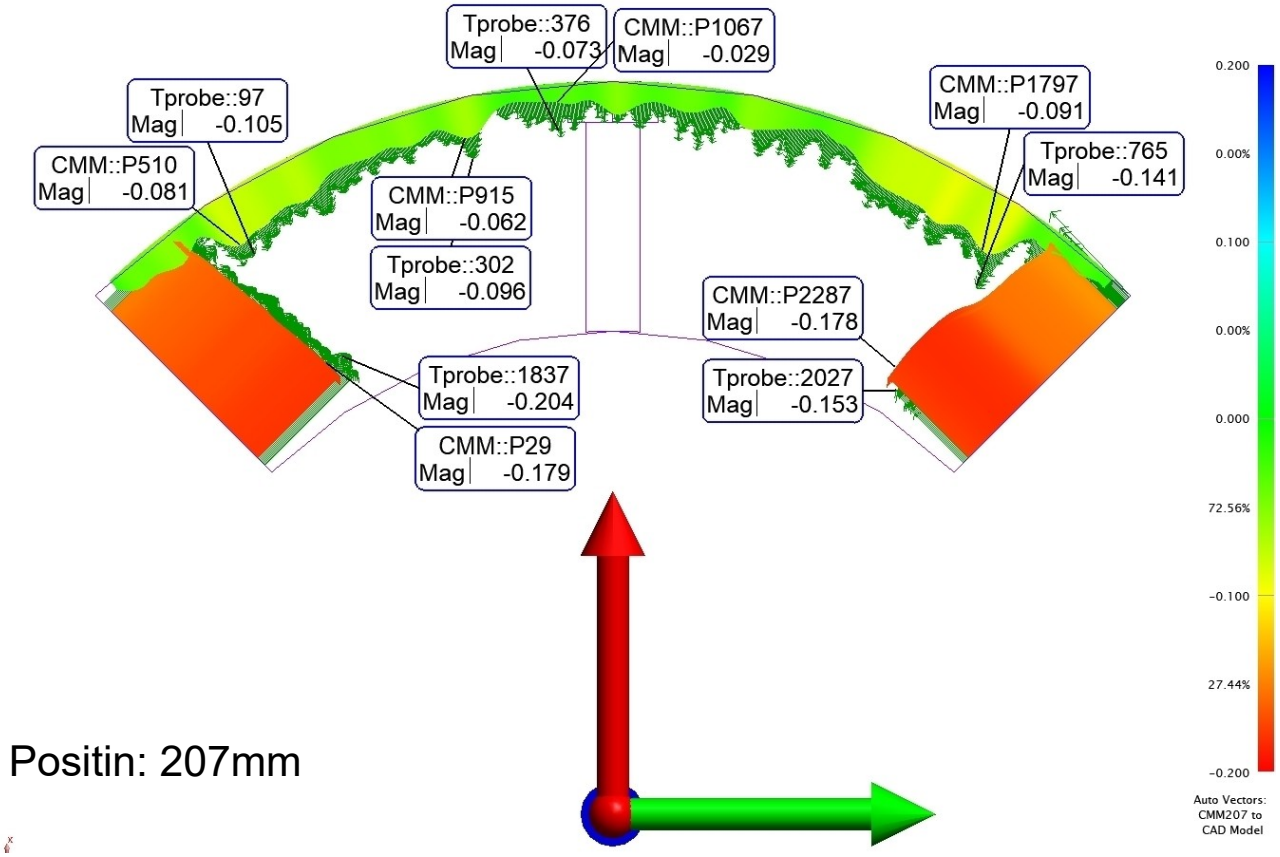
LHC Coil Inspection Report (CMM vs Leica AT960 / T-probe)

Date:	11/21/2019
Job Name:	2019-11-21_LHC Coil inspect-For Dan.xit64
Coordsys:	WORLD
Units:	Millimeters, Degrees
Translation From:	NA
Method:	AT960 T-Probe
Crew:	CH DE HZ
Print #:	NA
Tolerance:	NA
Customer:	LHC

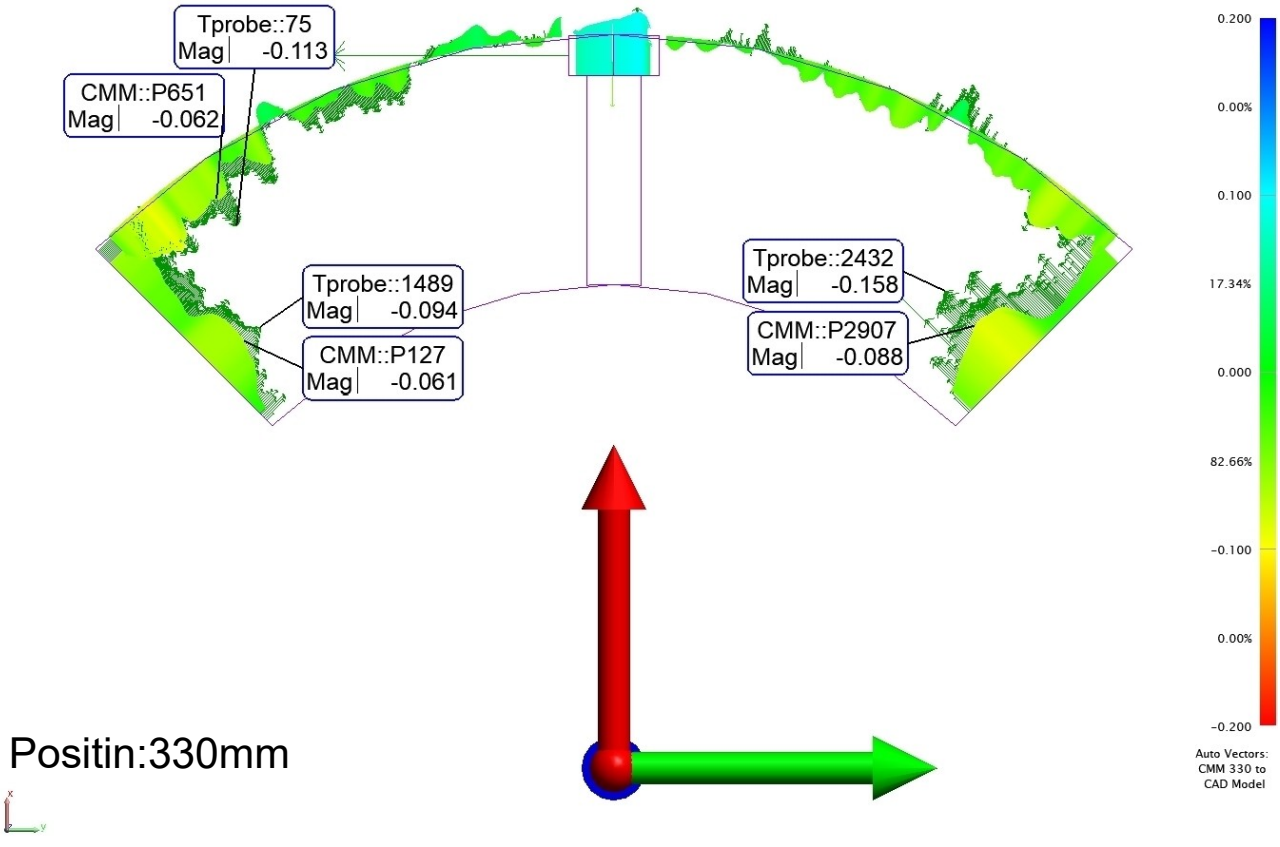
Procedure for comparing AT960 /T-Probe measurements to CMM (Zeiss Accura) measurements:
1. CMM data was collected by David Yeagly. S&A used Spatial Analyzer software to check each cross sections fit to the model. Sections 3150 and 3950 needed to be adjusted as they were missaligned to the model. All other sections were perfectly fit so no adjustment was required.
2. The laser tracker was placed close to the middle of coil in order to maximize the accuracy. A pre-alignment (quick alignment to CAD) of the laser tracker is performed by measuring features of the magnet. It is a basic 3, 2, 1 alignment.
3. The T-Probe with 6mm styli was used to collect all the data for each cross section. To maintain the longitudinal position for each cross section, the styli was referenced up to a guide that was clamped at each of the required measurement intervals.
4. A global fit to the model is performed. This includes all the cross section data. Note: The global fit is not allowed to move along the longitudinal axis because the cross sections do not define that degree of freedom.
5. Comparisons of each cross section data sets are generated. See below images.



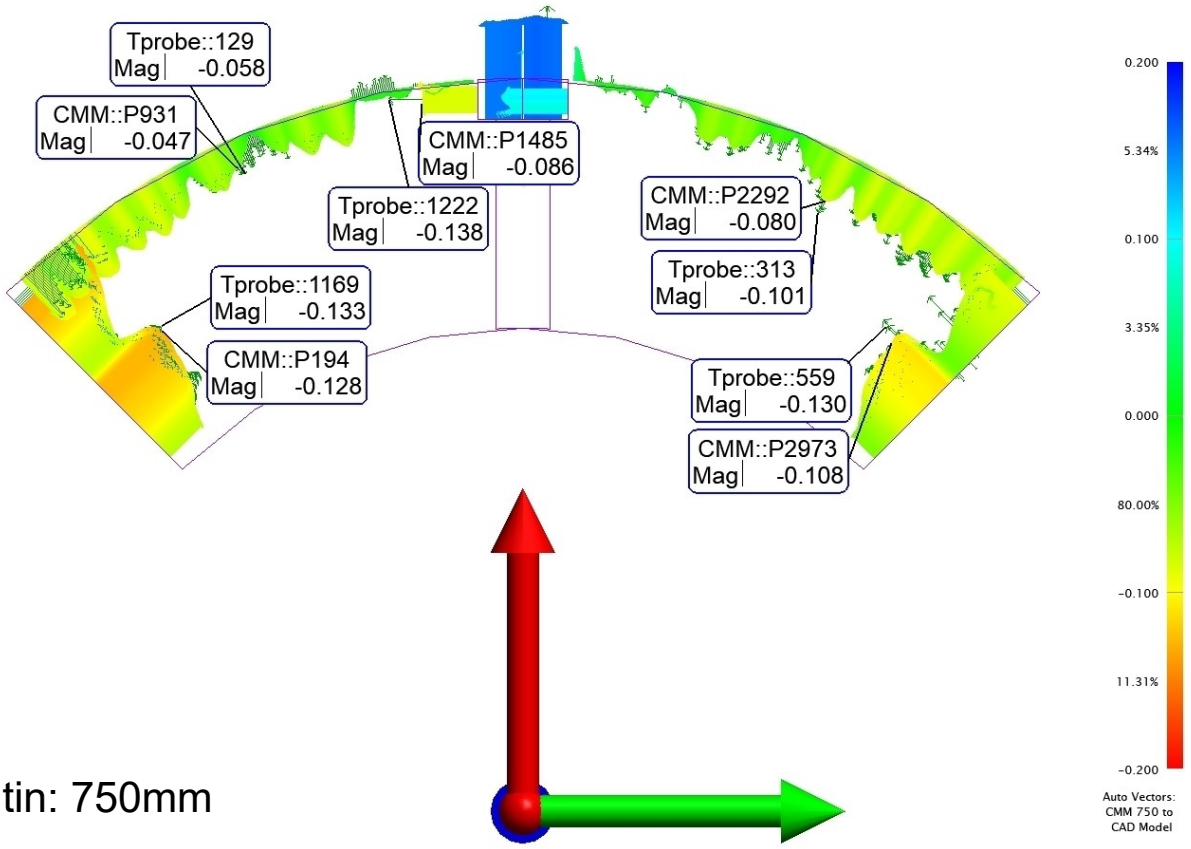
Positin: 70mm



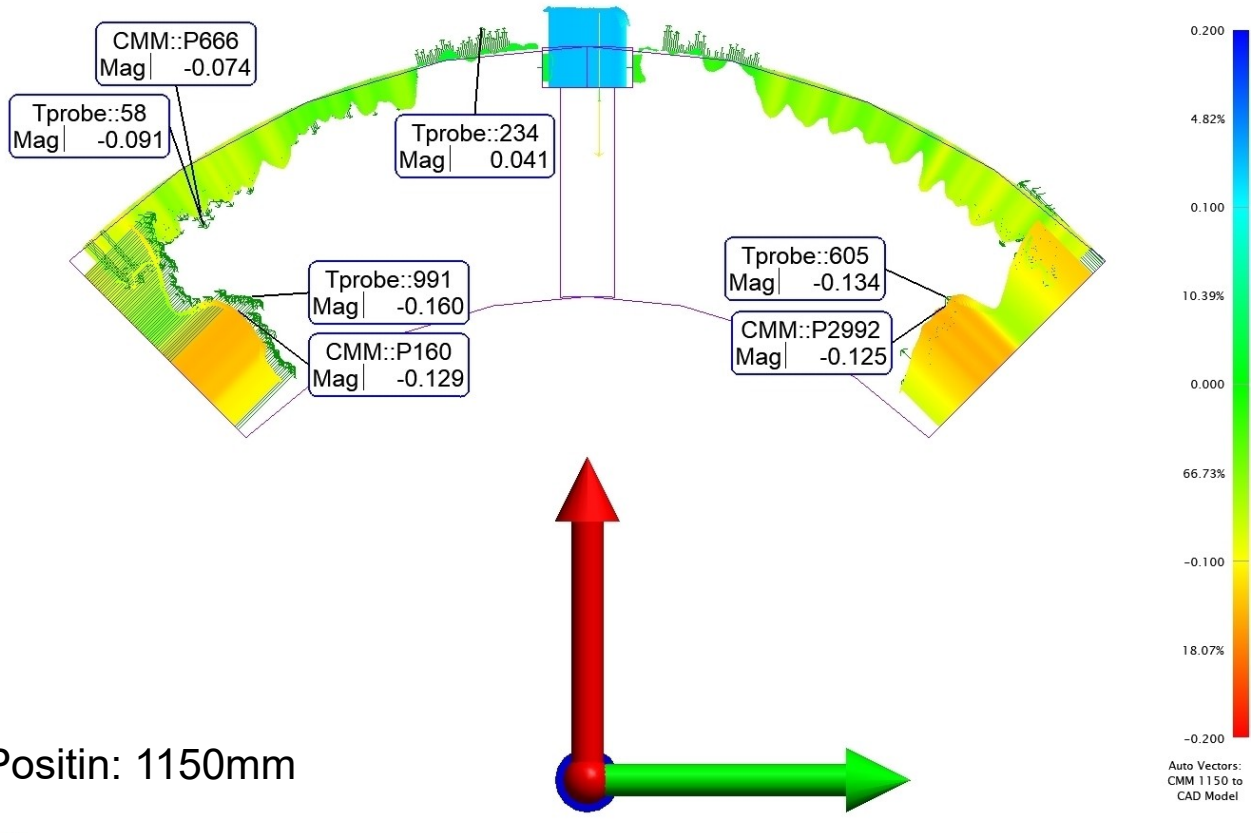
Positin: 207mm



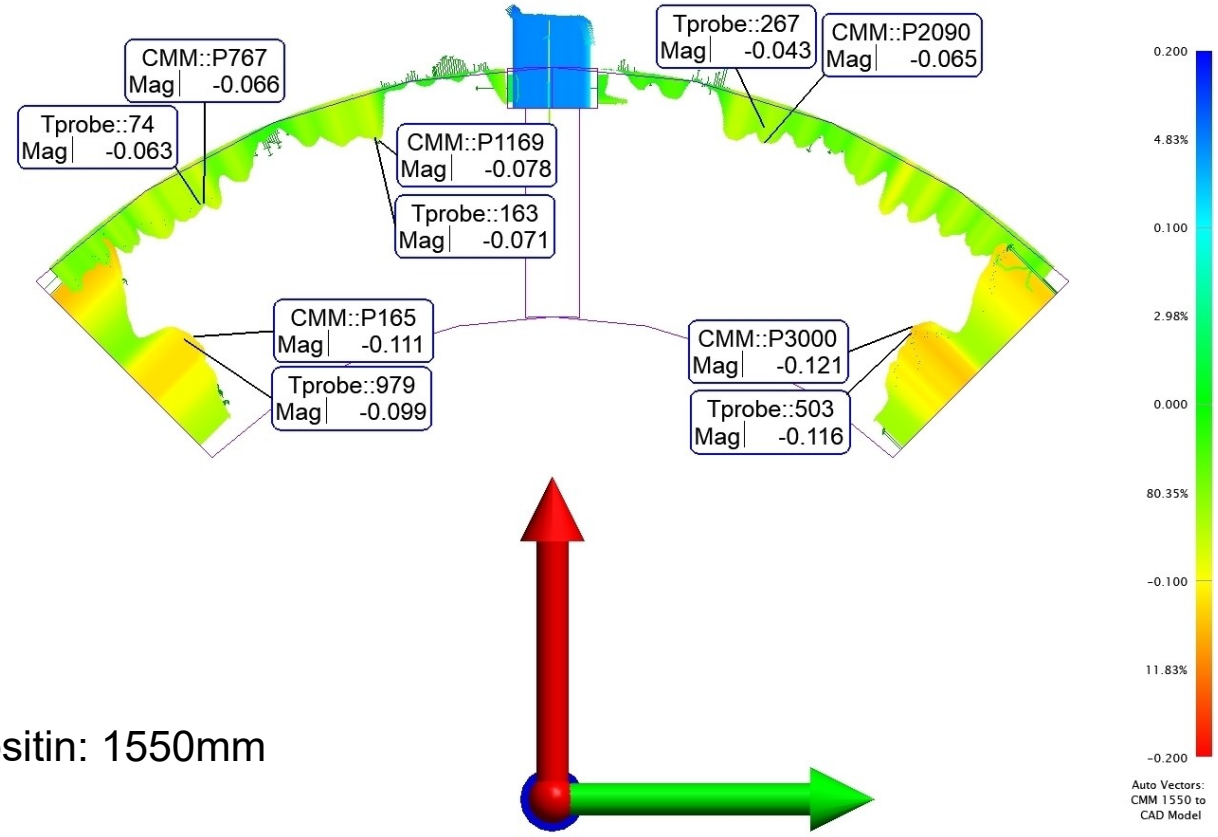
Positin:330mm



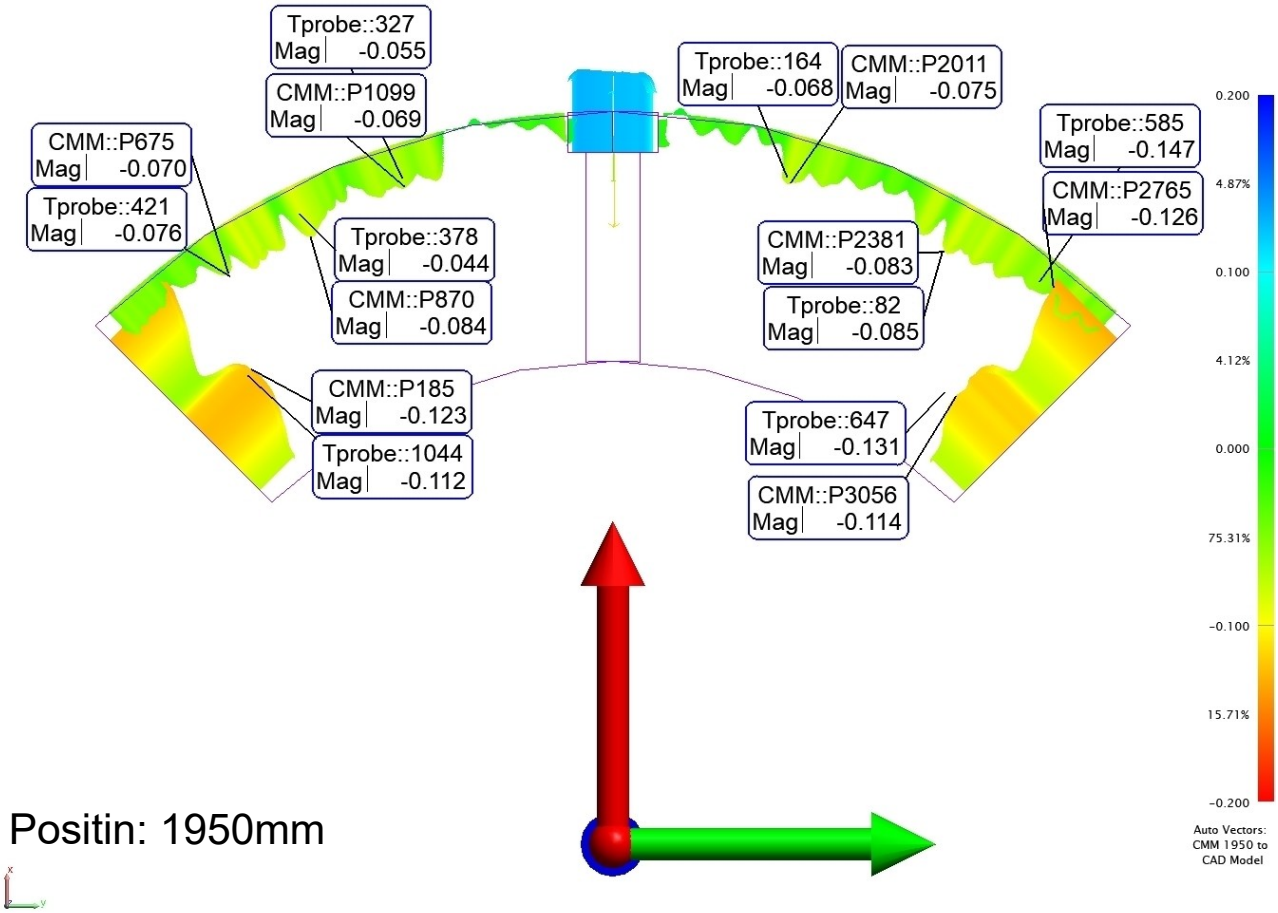
Positin: 750mm



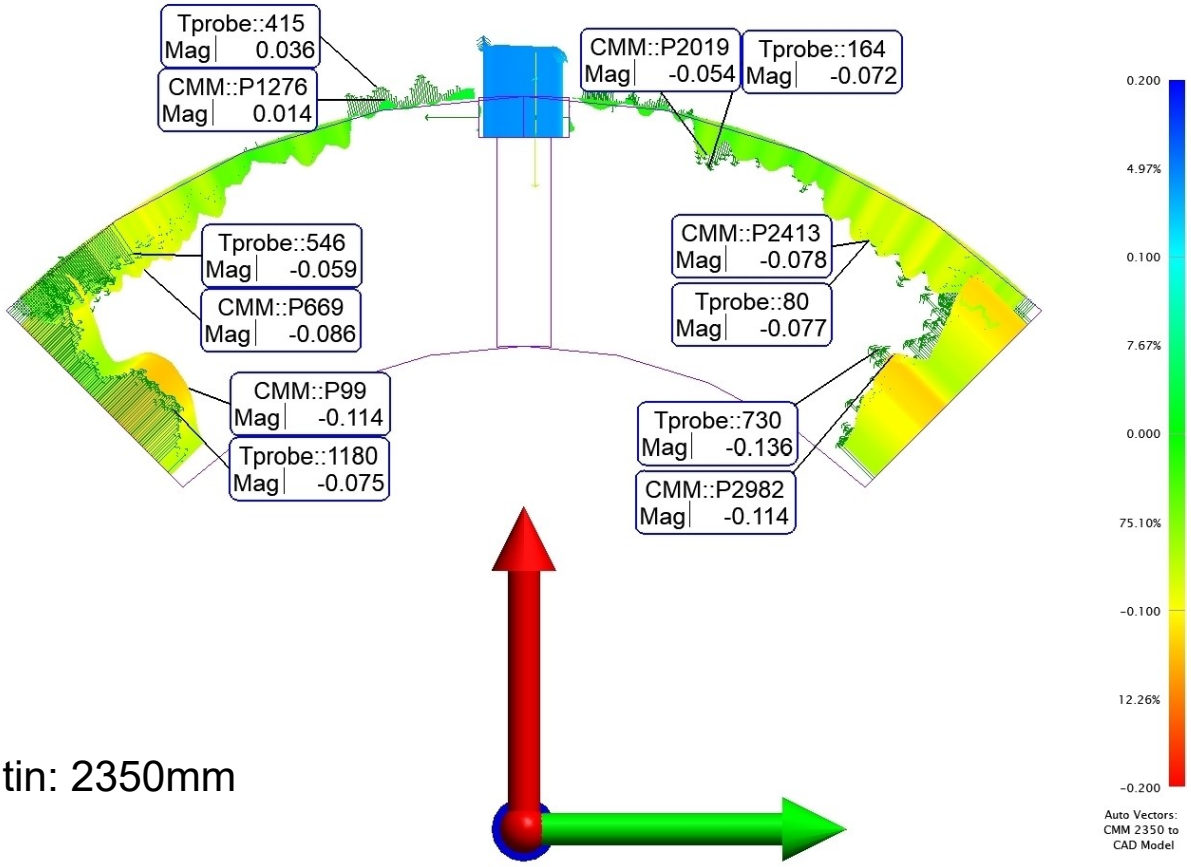
Positin: 1150mm



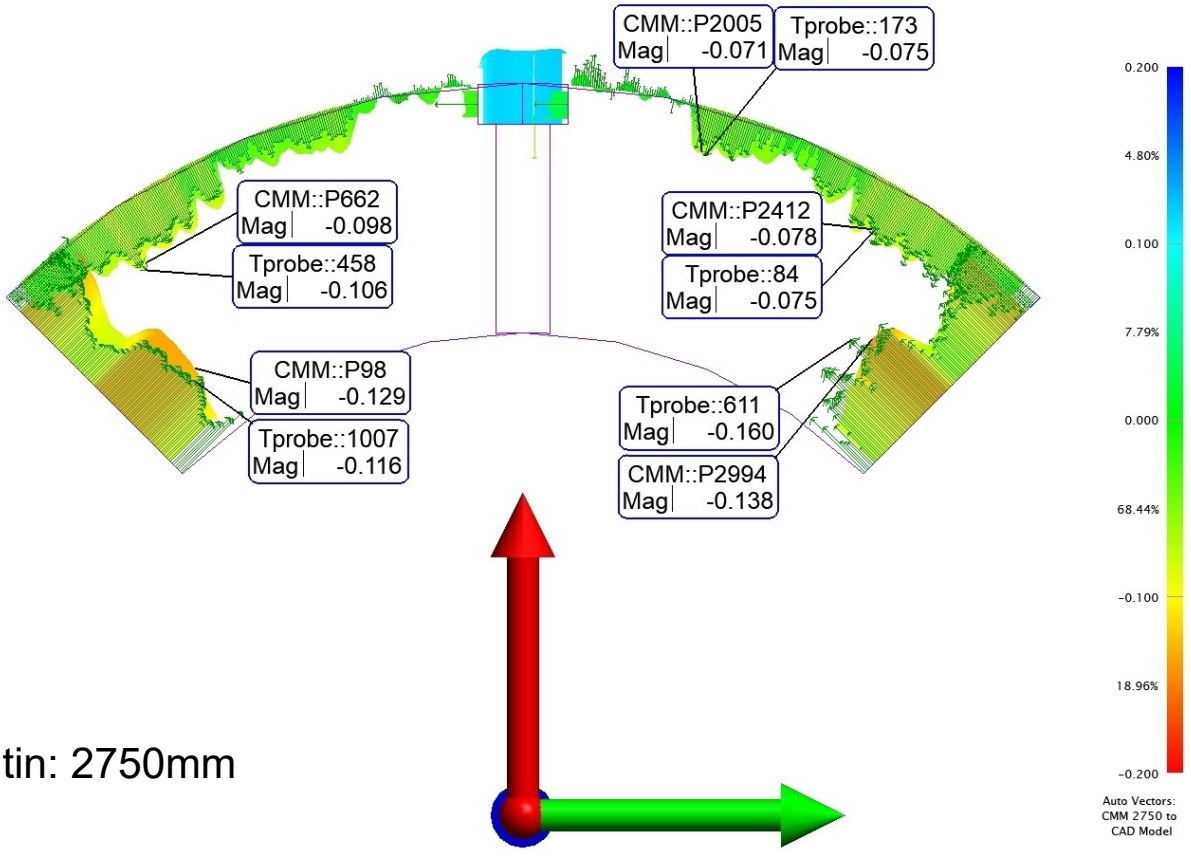
Positin: 1550mm



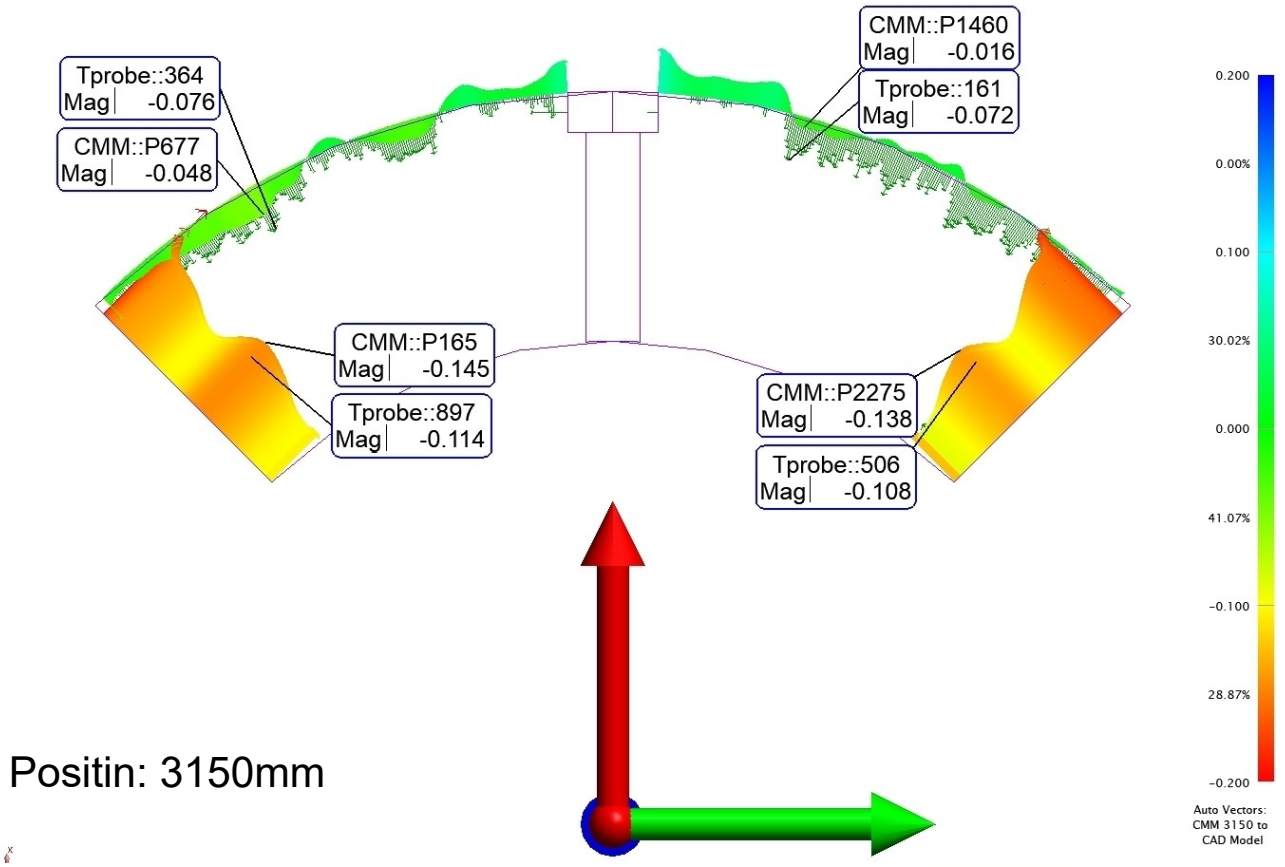
Positin: 1950mm



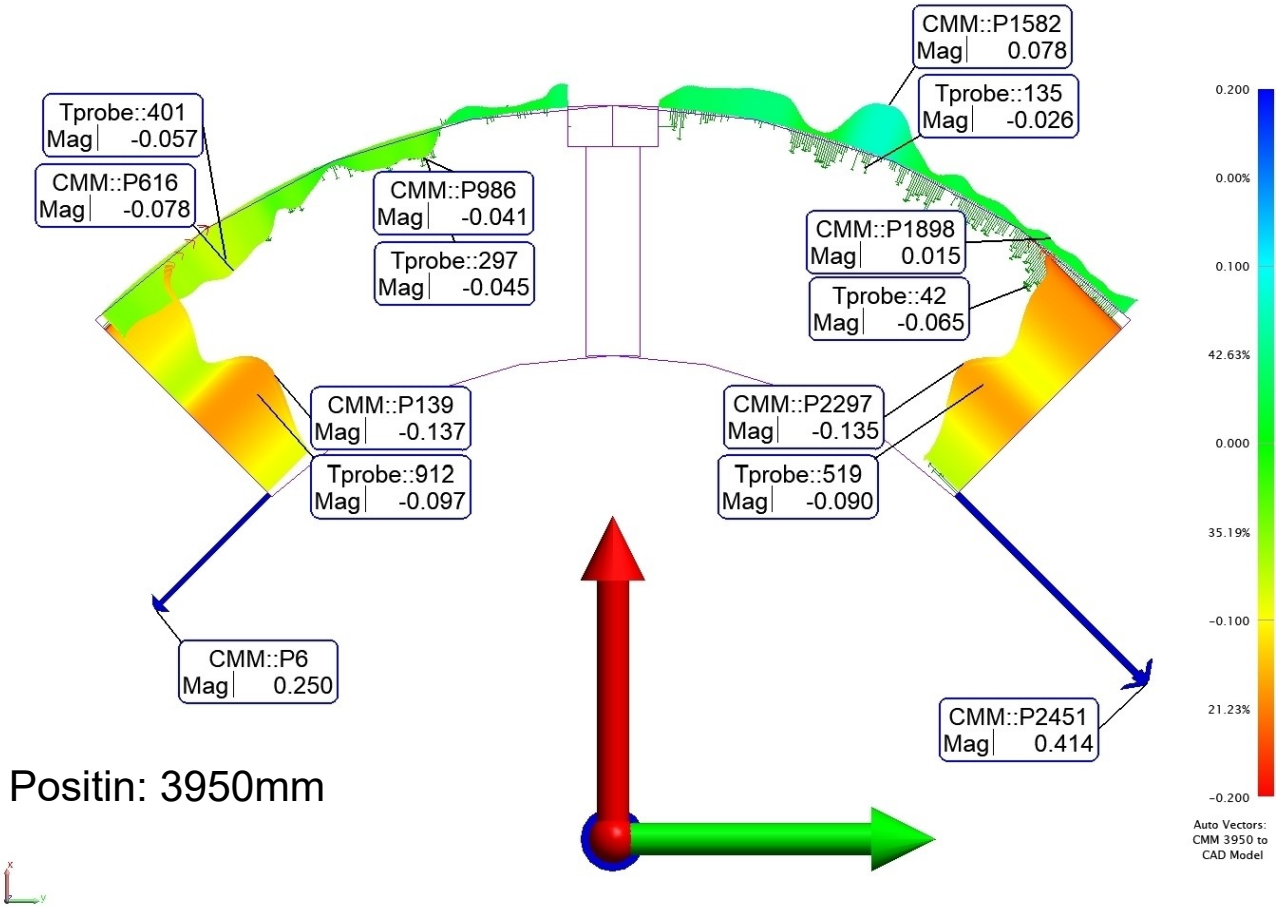
Positin: 2350mm



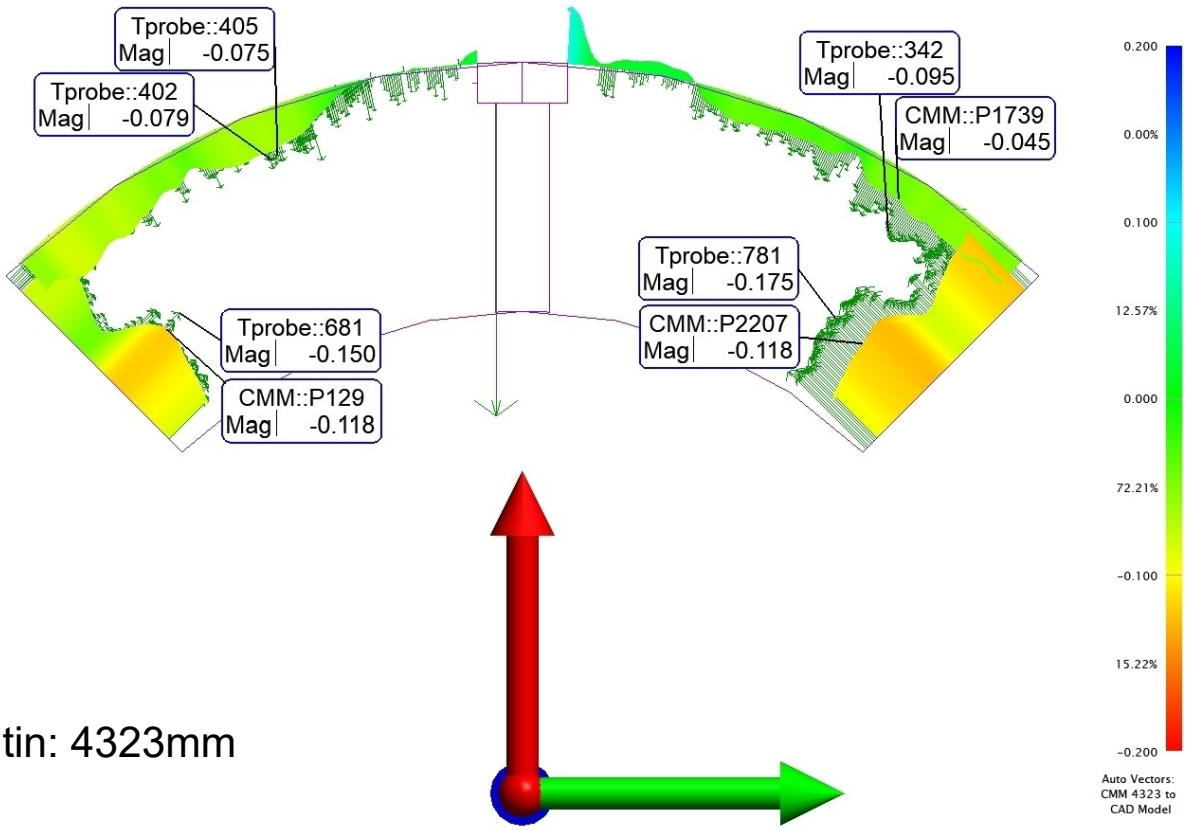
Positin: 2750mm



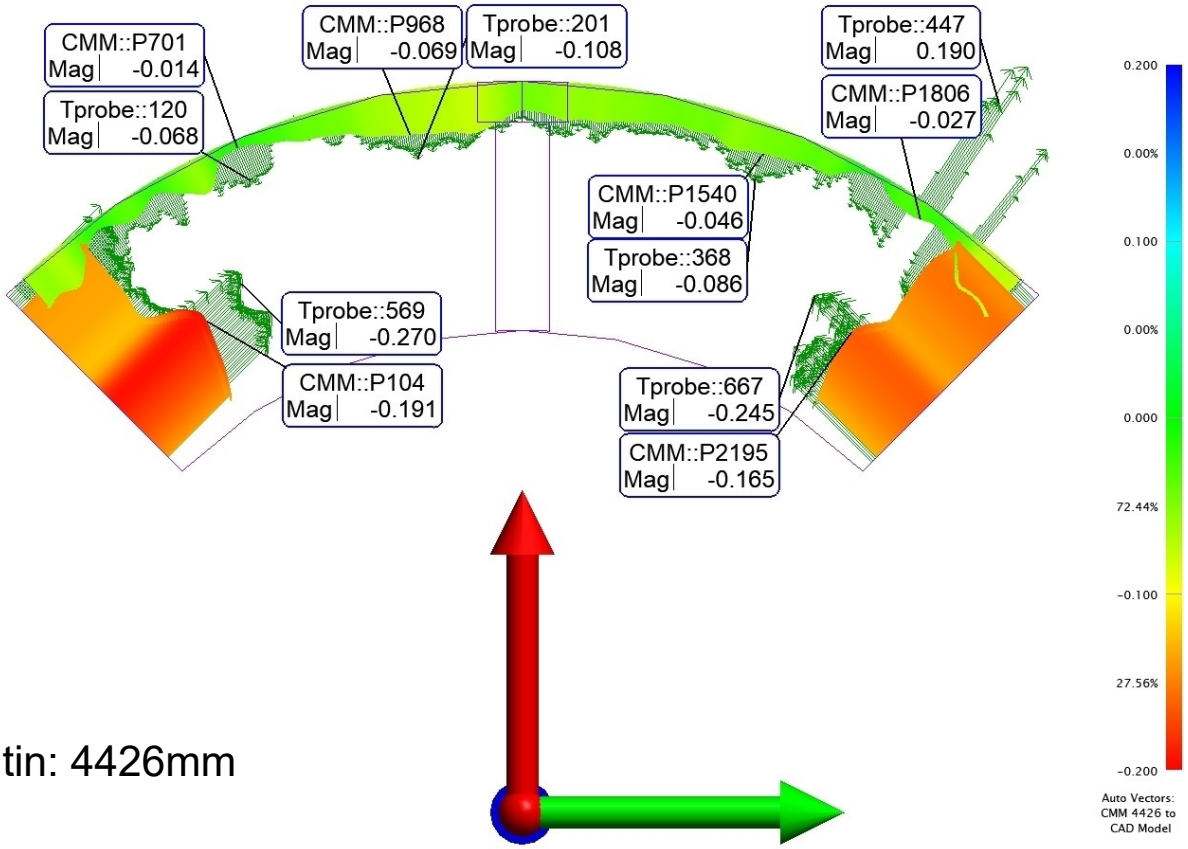
Positin: 3150mm



Positin: 3950mm



Positin: 4323mm



Positin: 4426mm