pc-dmis	PART NAME : PN440004-n-Trans-Rings-000-TB9RI028-v4-IR		April 14, 2010	11:43
	REV NUMBER :	SER NUMBER :	STATS COUNT :	1

440004-n
FNAL 1.3GHZ TESLA
RF CAVITY
ASSEMBLY
measurement of Transition Rings
@ 000 rotational orientation

'Inspected by ' : Robert Riley
'Cavity Number' : TB9RI028
' ' : 1004141042

Datum Discs

⌖	MM	LOC1 - CIRC_DATUM_DISC_MC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.000	0.000	0.000	0.000	0.000
Y	25.000	26.511	1.511	10.000	10.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000
D	111.000	110.960	-0.040	0.050	0.050	0.000
RN	0.000	0.024	0.024	0.050	0.000	0.000

⌖	MM	LOC2 - CIRC_DATUM_DISC_FP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.000	0.000	0.000	0.000	0.000
Y	-1032.384	-1028.743	3.641	10.000	10.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000
D	111.000	110.915	-0.085	0.050	0.050	0.035
RN	0.000	0.011	0.011	0.050	0.000	0.000

Datum Disc planes

⌖	MM	LOC3 - PLNC_DD_MC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	27.000	28.698	1.698	10.000	10.000	0.000
FL	0.000	0.028	0.028	0.100	0.000	0.000

⌖	MM	LOC4 - PLNC_DD_FP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1034.384	-1030.808	3.577	10.000	10.000	0.000
FL	0.000	0.046	0.046	0.100	0.000	0.000

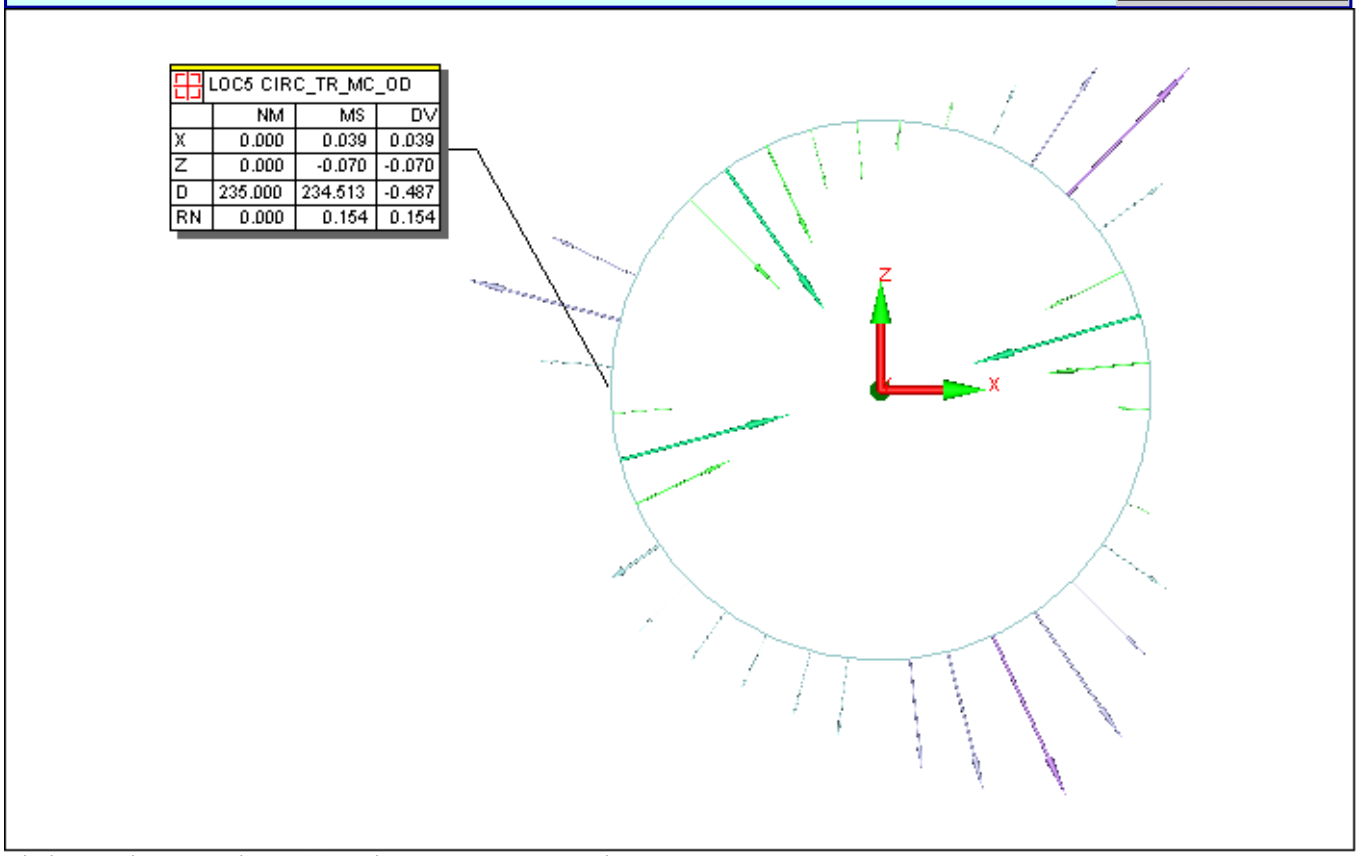
Distance between Datum Disc planes

↔	MM	DIST1 - PLNC_DD_FP TO PLNC_DD_MC (YAXIS)				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1061.060	1059.506	-1.554	0.200	0.200	-1.354

Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
235.0 O.D.

⌖	MM	LOC5 - CIRC_TR_MC_OD				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.039	0.039	0.250	0.250	0.000
Z	0.000	-0.070	-0.070	0.250	0.250	0.000
D	235.000	234.513	-0.487	0.250	0.250	0.237
RN	0.000	0.154	0.154	0.250	0.000	0.000

○	MM	RND1 - CIRC_TR_MC_OD				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.154	0.154	0.250	0.000	0.000

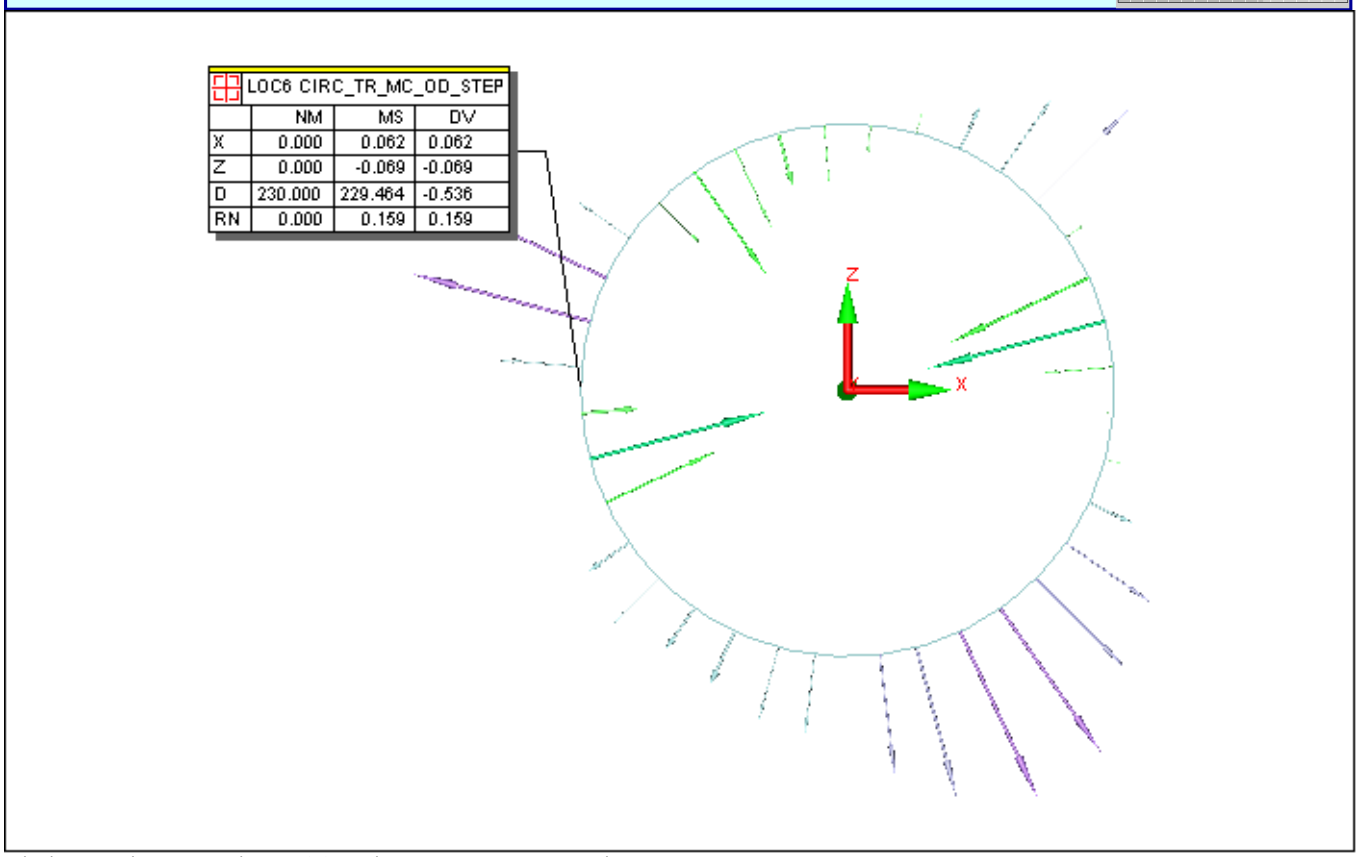


Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
235.0 O.D. x1000

Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
233.00 O.D. step

#	MM	LOC6 - CIRC_TR_MC_OD_STEP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
X	0.000	0.062	0.062	0.250	0.250	0.000	
Z	0.000	-0.069	-0.069	0.250	0.250	0.000	
D	230.000	229.464	-0.536	0.000	0.250	0.286	
RN	0.000	0.159	0.159	0.250	0.000	0.000	

○	MM	RND2 - CIRC_TR_MC_OD_STEP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	0.000	0.159	0.159	0.250	0.000	0.000	

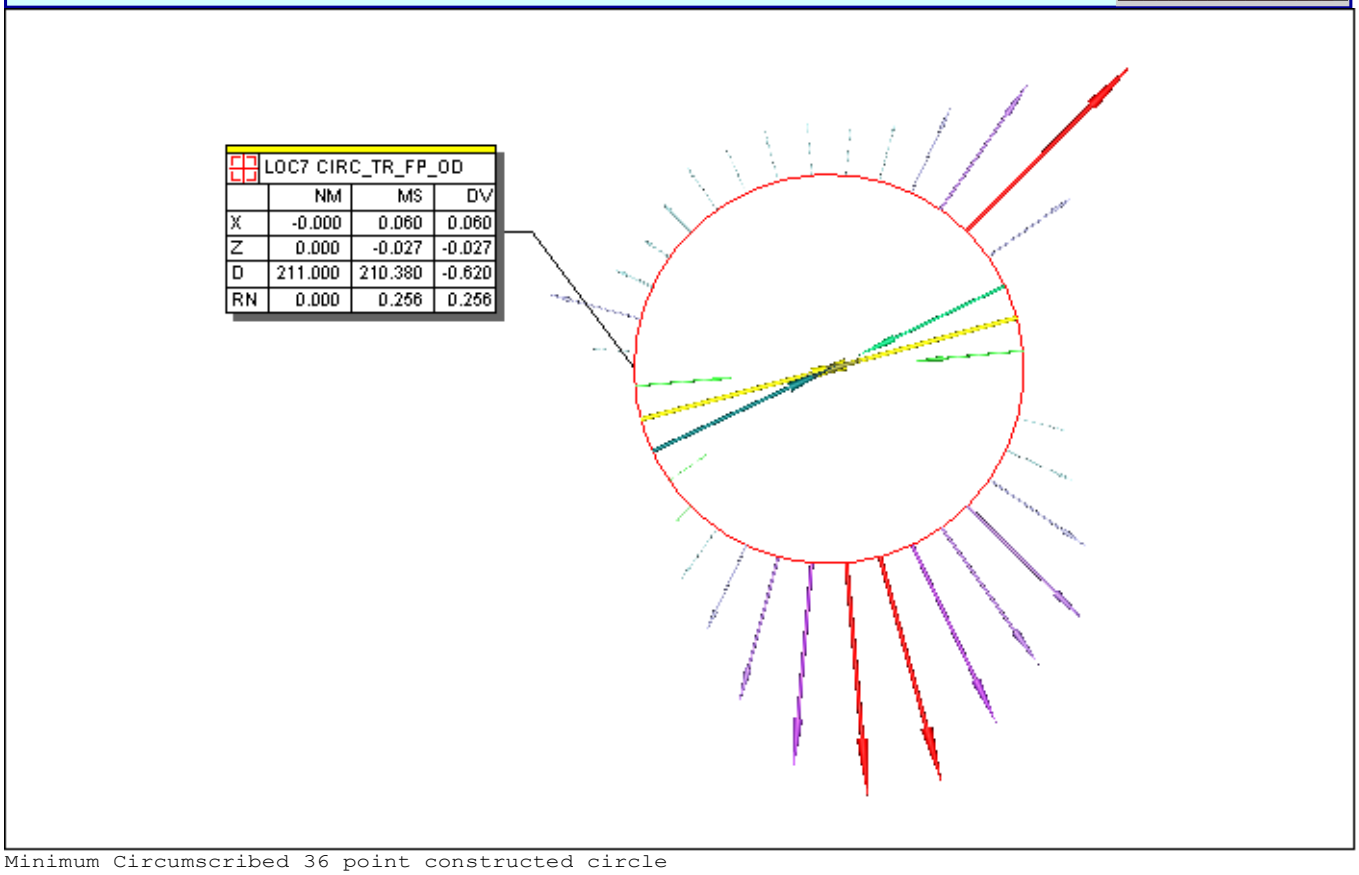


Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
233.00 O.D. step x1000

Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
211.0 O.D.

	MM	LOC7 - CIRC_TR_FP_OD				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.060	0.060	0.250	0.250	0.000
Z	0.000	-0.027	-0.027	0.250	0.250	0.000
D	211.000	210.380	-0.620	0.250	0.250	0.370
RN	0.000	0.256	0.256	0.250	0.000	0.006

	MM	RND3 - CIRC_TR_FP_OD				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.256	0.256	0.250	0.000	0.006

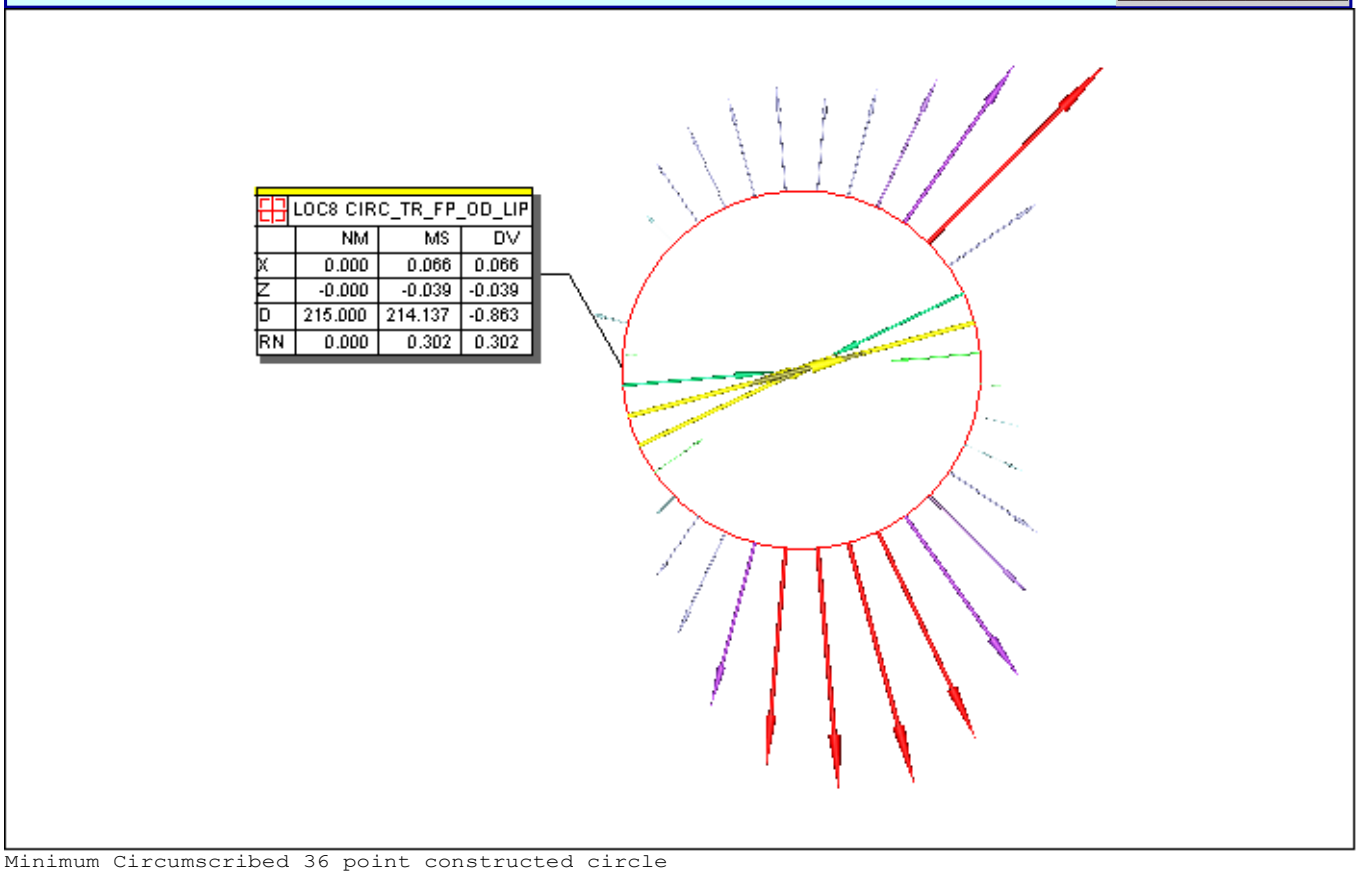


Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
211.0 O.D. x1000

Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
215.0 O.D. lip

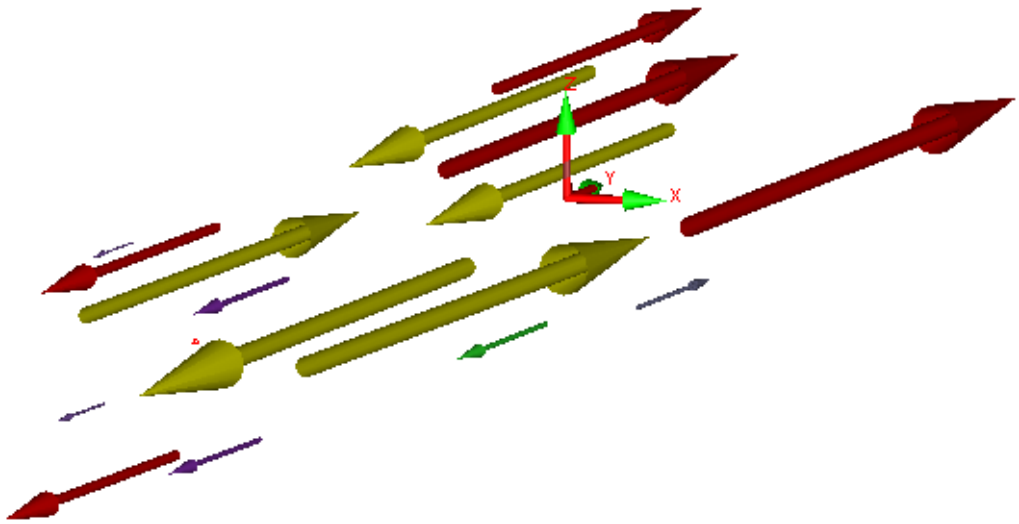
#	MM	LOC8 - CIRC_TR_FP_OD_LIP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.066	0.066	0.250	0.250	0.000
Z	0.000	-0.039	-0.039	0.250	0.250	0.000
D	215.000	214.137	-0.863	0.250	0.250	0.613
RN	0.000	0.302	0.302	0.250	0.000	0.052

○	MM	RND4 - CIRC_TR_FP_OD_LIP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.302	0.302	0.250	0.000	0.052



Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
215.0 O.D. lip x1000

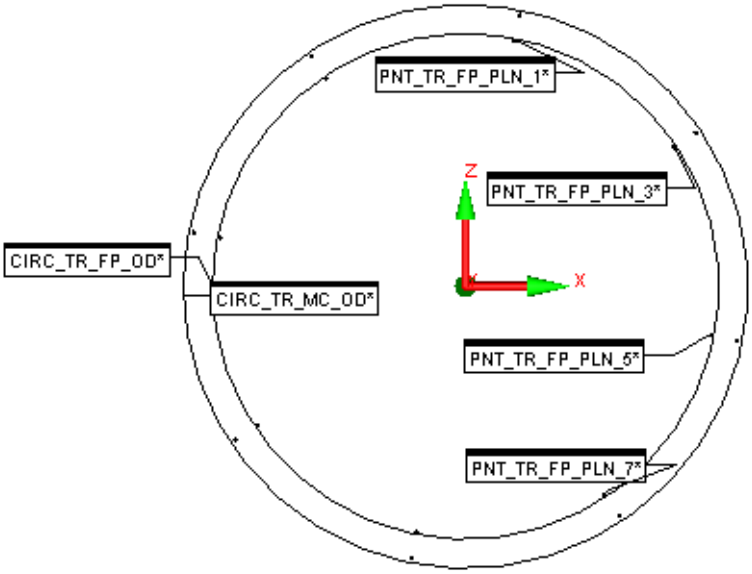
⌖	MM	LOC9 - PLNC_TR_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	0.000	0.000	0.000	0.000	0.000	0.000	
FL	0.000	0.357	0.357	0.200	0.000	0.157	
AX		I		J		K	
V		-0.002		1.000		0.002	
⌖	MM	LOC10 - PLNC_TR_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1004.338	3.162	10.000	10.000	0.000	
FL	0.000	0.279	0.279	0.200	0.000	0.079	
AX		I		J		K	
V		-0.002		-1.000		0.002	
▱	MM	FLAT3 - PLNC_TR_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	0.000	0.357	0.357	0.200	0.000	0.157	
▱	MM	FLAT4 - PLNC_TR_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	0.000	0.279	0.279	0.200	0.000	0.079	



Flatness of Transition Rings
x5000

⊥	MM	PERP1 - PLNC_TR_MC TO LINC_LEVEL_DCC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0	0.831	0.831	0.200	0	0.631

⊥	MM	PERP2 - PLNC_TR_FP TO LINC_LEVEL_DCC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0	0.681	0.681	0.200	0	0.481



Transition Ring points Main Coupler end

⊕	MM	LOC11 - PNT_TR_MC_PLN_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.338	-0.338	1.000	1.000	0.000
PR	115.000	115.007	0.007	1.000	1.000	0.000
PA	101.250	101.251	0.001	1.000	1.000	0.000

⊕	MM	LOC12 - PNT_TR_MC_PLN_3				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.057	-0.057	1.000	1.000	0.000
PR	115.000	115.001	0.001	1.000	1.000	0.000
PA	146.250	146.250	0.000	1.000	1.000	0.000

⊕	MM	LOC13 - PNT_TR_MC_PLN_5				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.493	0.493	1.000	1.000	0.000
PR	115.000	114.997	-0.003	1.000	1.000	0.000
PA	-168.750	-168.746	0.004	1.000	1.000	0.000

⌖	MM	LOC14 - PNT_TR_MC_PLN_7				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.409	0.409	1.000	1.000	0.000
PR	115.000	115.000	0.000	1.000	1.000	0.000
PA	-123.750	-123.743	0.007	1.000	1.000	0.000

⌖	MM	LOC15 - PNT_TR_MC_PLN_9				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.158	0.158	1.000	1.000	0.000
PR	115.000	115.000	0.000	1.000	1.000	0.000
PA	-78.750	-78.744	0.006	1.000	1.000	0.000

⌖	MM	LOC16 - PNT_TR_MC_PLN_11				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.255	-0.255	1.000	1.000	0.000
PR	115.000	114.997	-0.003	1.000	1.000	0.000
PA	-33.750	-33.741	0.009	1.000	1.000	0.000

⌖	MM	LOC17 - PNT_TR_MC_PLN_13				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.155	-0.155	1.000	1.000	0.000
PR	115.000	115.007	0.007	1.000	1.000	0.000
PA	11.250	11.256	0.006	1.000	1.000	0.000

⌖	MM	LOC18 - PNT_TR_MC_PLN_15				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.256	-0.256	1.000	1.000	0.000
PR	115.000	115.011	0.011	1.000	1.000	0.000
PA	56.250	56.254	0.004	1.000	1.000	0.000

Transition Ring points Field Probe end

⌖	MM	LOC19 - PNT_TR_FP_PLN_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1004.319	3.181	1.000	1.000	2.181
PR	104.000	104.001	0.001	1.000	1.000	0.000
PA	101.250	101.248	-0.002	1.000	1.000	0.000

⌖	MM	LOC20 - PNT_TR_FP_PLN_3				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1004.477	3.023	1.000	1.000	2.023
PR	104.000	103.999	-0.001	1.000	1.000	0.000
PA	146.250	146.250	0.000	1.000	1.000	0.000

⌖	MM	LOC21 - PNT_TR_FP_PLN_5				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1004.390	3.110	1.000	1.000	2.110
PR	104.000	103.995	-0.005	1.000	1.000	0.000
PA	-168.750	-168.749	0.001	1.000	1.000	0.000

⌖	MM	LOC22 - PNT_TR_FP_PLN_7					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1004.634	2.866	1.000	1.000	1.866	
PR	104.000	103.991	-0.009	1.000	1.000	0.000	
PA	-123.750	-123.742	0.008	1.000	1.000	0.000	
⌖	MM	LOC23 - PNT_TR_FP_PLN_9					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1004.543	2.957	1.000	1.000	1.957	
PR	104.000	104.052	0.052	1.000	1.000	0.000	
PA	-78.750	-78.710	0.040	1.000	1.000	0.000	
⌖	MM	LOC24 - PNT_TR_FP_PLN_11					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1004.275	3.225	1.000	1.000	2.225	
PR	104.000	104.086	0.086	1.000	1.000	0.000	
PA	-33.750	-33.737	0.014	1.000	1.000	0.000	
⌖	MM	LOC25 - PNT_TR_FP_PLN_13					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1003.953	3.547	1.000	1.000	2.547	
PR	104.000	104.072	0.073	1.000	1.000	0.000	
PA	11.250	11.226	-0.024	1.000	1.000	0.000	
⌖	MM	LOC26 - PNT_TR_FP_PLN_15					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1004.111	3.389	1.000	1.000	2.389	
PR	104.000	104.014	0.014	1.000	1.000	0.000	
PA	56.250	56.209	-0.041	1.000	1.000	0.000	

Distances between matching points on Transition Rings

↔	MM	DIST_PA_11.25 - PNT_TR_MC_PLN_13 TO PNT_TR_FP_PLN_13 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1003.799	-3.701	1.000	1.000	-2.701	
↔	MM	DIST_PA_56.25 - PNT_TR_MC_PLN_15 TO PNT_TR_FP_PLN_15 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1003.855	-3.645	1.000	1.000	-2.645	
↔	MM	DIST_PA_101.25 - PNT_TR_MC_PLN_1 TO PNT_TR_FP_PLN_1 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1003.981	-3.519	1.000	1.000	-2.519	
↔	MM	DIST_PA_146.25 - PNT_TR_MC_PLN_3 TO PNT_TR_FP_PLN_3 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1004.420	-3.080	1.000	1.000	-2.080	
↔	MM	DIST_PA_-168.75 - PNT_TR_MC_PLN_5 TO PNT_TR_FP_PLN_5 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1004.883	-2.617	1.000	1.000	-1.617	

↔	MM	DIST_PA_-123.75 - PNT_TR_MC_PLN_7 TO PNT_TR_FP_PLN_7 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1005.043	-2.457	1.000	1.000	-1.457	

↔	MM	DIST_PA_-78.75 - PNT_TR_MC_PLN_9 TO PNT_TR_FP_PLN_9 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1004.701	-2.799	1.000	1.000	-1.799	

↔	MM	DIST_PA_-33.75 - PNT_TR_MC_PLN_11 TO PNT_TR_FP_PLN_11 (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1004.020	-3.480	1.000	1.000	-2.480	

↔	MM	DIST_BETWEEN_PLANES - PLNC_TR_MC TO PLNC_TR_FP (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1004.338	-3.162	1.000	1.000	-2.162	

LOCATIONS OF CONSTRUCTED CIRCLES
ON 18 HALF CELLS

⊕	MM	LOC_CC3 - CIRC_CAV_1_1					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
X	0.000	0.020	0.020	0.200	0.200	0.000	
Y	0.000	-966.645	-966.645	2000.000	2000.000	0.000	
Z	0.000	-0.085	-0.085	0.200	0.200	0.000	
D	210.300	210.442	0.142	0.200	0.200	0.000	
RN	0.000	0.248	0.248	0.200	0.000	0.048	

⊕	MM	LOC_CC4 - CIRC_CAV_1_2					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
X	0.000	0.008	0.008	0.200	0.200	0.000	
Y	0.000	-956.196	-956.196	2000.000	2000.000	0.000	
Z	0.000	-0.101	-0.101	0.200	0.200	0.000	
D	210.300	210.353	0.053	0.200	0.200	0.000	
RN	0.000	0.137	0.137	0.200	0.000	0.000	

⊕	MM	LOC_CC5 - CIRC_CAV_2_1					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
X	0.000	0.043	0.043	0.200	0.200	0.000	
Y	0.000	-853.111	-853.111	2000.000	2000.000	0.000	
Z	0.000	-0.273	-0.273	0.200	0.200	0.073	
D	210.300	210.296	-0.004	0.200	0.200	0.000	
RN	0.000	0.167	0.167	0.200	0.000	0.000	

⊕	MM	LOC_CC6 - CIRC_CAV_2_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.040	0.040	0.200	0.200	0.000
Y	0.000	-840.306	-840.306	2000.000	2000.000	0.000
Z	0.000	-0.316	-0.316	0.200	0.200	0.116
D	210.300	210.323	0.023	0.200	0.200	0.000
RN	0.000	0.163	0.163	0.200	0.000	0.000

⊕	MM	LOC_CC7 - CIRC_CAV_3_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.036	0.036	0.200	0.200	0.000
Y	0.000	-737.840	-737.840	2000.000	2000.000	0.000
Z	0.000	-0.437	-0.437	0.200	0.200	0.237
D	210.300	210.374	0.074	0.200	0.200	0.000
RN	0.000	0.187	0.187	0.200	0.000	0.000

⊕	MM	LOC_CC8 - CIRC_CAV_3_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.001	-0.001	0.200	0.200	0.000
Y	0.000	-725.182	-725.182	2000.000	2000.000	0.000
Z	0.000	-0.495	-0.495	0.200	0.200	0.295
D	210.300	210.403	0.103	0.200	0.200	0.000
RN	0.000	0.136	0.136	0.200	0.000	0.000

⊕	MM	LOC_CC9 - CIRC_CAV_4_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.011	0.011	0.200	0.200	0.000
Y	0.000	-622.315	-622.315	2000.000	2000.000	0.000
Z	0.000	-0.663	-0.663	0.200	0.200	0.463
D	210.300	210.368	0.068	0.200	0.200	0.000
RN	0.000	0.157	0.157	0.200	0.000	0.000

⊕	MM	LOC_CC10 - CIRC_CAV_4_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.015	0.015	0.200	0.200	0.000
Y	0.000	-609.947	-609.947	2000.000	2000.000	0.000
Z	0.000	-0.697	-0.697	0.200	0.200	0.497
D	210.300	210.343	0.043	0.200	0.200	0.000
RN	0.000	0.119	0.119	0.200	0.000	0.000

⊕	MM	LOC_CC11 - CIRC_CAV_5_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.021	-0.021	0.200	0.200	0.000
Y	0.000	-506.620	-506.620	2000.000	2000.000	0.000
Z	0.000	-0.761	-0.761	0.200	0.200	0.561
D	210.300	210.263	-0.037	0.200	0.200	0.000
RN	0.000	0.184	0.184	0.200	0.000	0.000

⊕	MM	LOC_CC12 - CIRC_CAV_5_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.041	0.041	0.200	0.200	0.000
Y	0.000	-495.345	-495.345	2000.000	2000.000	0.000
Z	0.000	-0.715	-0.715	0.200	0.200	0.515
D	210.300	210.275	-0.025	0.200	0.200	0.000
RN	0.000	0.152	0.152	0.200	0.000	0.000

⊕	MM	LOC_CC13 - CIRC_CAV_6_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.048	0.048	0.200	0.200	0.000
Y	0.000	-391.315	-391.315	2000.000	2000.000	0.000
Z	0.000	-0.732	-0.732	0.200	0.200	0.532
D	210.300	210.274	-0.026	0.200	0.200	0.000
RN	0.000	0.131	0.131	0.200	0.000	0.000

⊕	MM	LOC_CC14 - CIRC_CAV_6_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.068	0.068	0.200	0.200	0.000
Y	0.000	-379.537	-379.537	2000.000	2000.000	0.000
Z	0.000	-0.716	-0.716	0.200	0.200	0.516
D	210.300	210.361	0.061	0.200	0.200	0.000
RN	0.000	0.290	0.290	0.200	0.000	0.090

⊕	MM	LOC_CC15 - CIRC_CAV_7_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.048	0.048	0.200	0.200	0.000
Y	0.000	-276.269	-276.269	2000.000	2000.000	0.000
Z	0.000	-0.629	-0.629	0.200	0.200	0.429
D	210.300	210.364	0.064	0.200	0.200	0.000
RN	0.000	0.122	0.122	0.200	0.000	0.000

⊕	MM	LOC_CC16 - CIRC_CAV_7_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.015	0.015	0.200	0.200	0.000
Y	0.000	-264.308	-264.308	2000.000	2000.000	0.000
Z	0.000	-0.595	-0.595	0.200	0.200	0.395
D	210.300	210.425	0.125	0.200	0.200	0.000
RN	0.000	0.193	0.193	0.200	0.000	0.000

⊕	MM	LOC_CC17 - CIRC_CAV_8_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.103	0.103	0.200	0.200	0.000
Y	0.000	-160.866	-160.866	2000.000	2000.000	0.000
Z	0.000	-0.388	-0.388	0.200	0.200	0.188
D	210.300	210.320	0.020	0.200	0.200	0.000
RN	0.000	0.139	0.139	0.200	0.000	0.000

⊕	MM	LOC_CC18 - CIRC_CAV_8_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.129	0.129	0.200	0.200	0.000
Y	0.000	-148.351	-148.351	2000.000	2000.000	0.000
Z	0.000	-0.328	-0.328	0.200	0.200	0.128
D	210.300	210.297	-0.003	0.200	0.200	0.000
RN	0.000	0.151	0.151	0.200	0.000	0.000

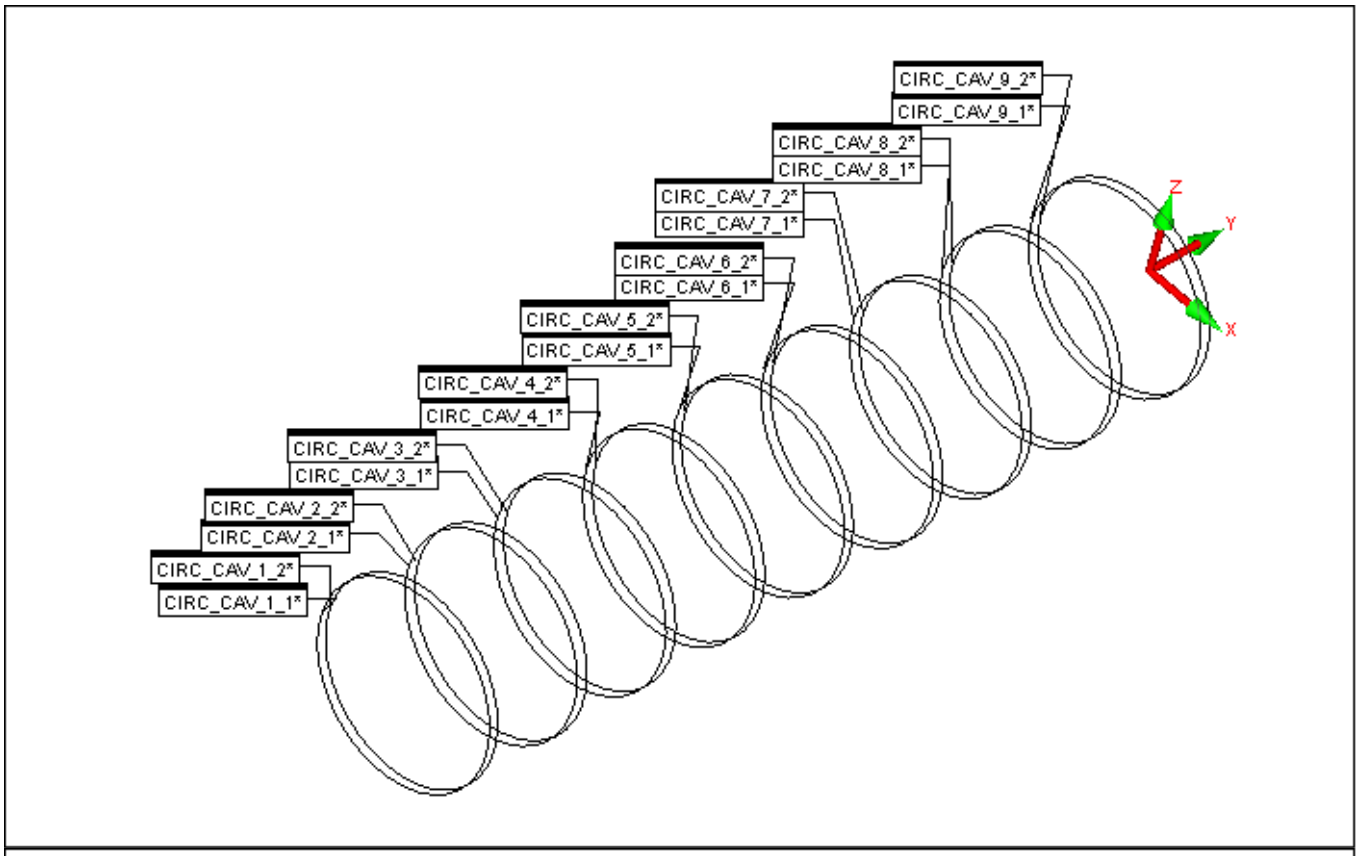
⊕	MM	LOC_CC19 - CIRC_CAV_9_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.139	0.139	0.200	0.200	0.000
Y	0.000	-45.463	-45.463	2000.000	2000.000	0.000
Z	0.000	-0.109	-0.109	0.200	0.200	0.000
D	210.300	210.268	-0.032	0.200	0.200	0.000
RN	0.000	0.139	0.139	0.200	0.000	0.000

⊕	MM	LOC_CC20 - CIRC_CAV_9_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.130	0.130	0.200	0.200	0.000
Y	0.000	-33.471	-33.471	2000.000	2000.000	0.000
Z	0.000	-0.102	-0.102	0.200	0.200	0.000
D	210.300	210.341	0.041	0.200	0.200	0.000
RN	0.000	0.133	0.133	0.200	0.000	0.000

Location of End Flanges

⊕	MM	LOC_23 - CIR_END_FLANGE_MC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.193	0.193	0.200	0.200	0.000
Y	0.000	116.314	116.314	2000.000	2000.000	0.000
Z	0.000	0.203	0.203	0.200	0.200	0.003
D	140.000	140.078	0.078	0.300	0.300	0.000
RN	0.000	0.003	0.003	0.200	0.000	0.000

⊕	MM	LOC_24 - CIR_END_FLANGE_FP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.087	-0.087	0.200	0.200	0.000
Y	-1153.884	-1117.255	36.629	2000.000	2000.000	0.000
Z	0.000	0.217	0.217	0.200	0.200	0.017
D	140.000	140.129	0.129	0.300	0.300	0.000
RN	0.000	0.004	0.004	0.200	0.000	0.000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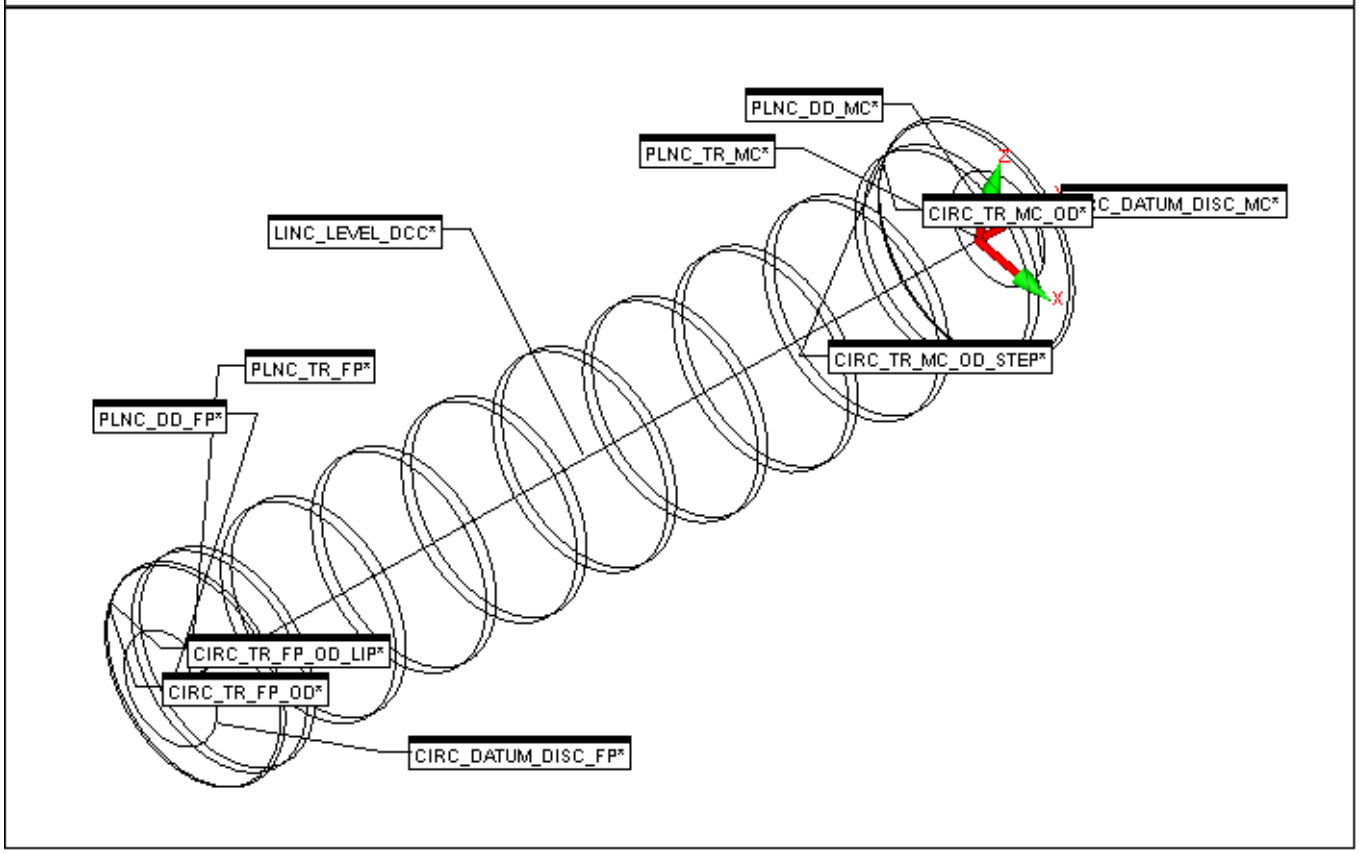
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X