pc-dmis	PART NAME : PN440004-n-Trans-Rings-000-TB9NR001-v4-IR		April 16, 2010	10:55
	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' : TB9NR001
' ' : 1004160854

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	25.800	0.800	10.000	10.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000
D	111.000	110.768	-0.232	0.050	0.050	0.182
RN	0.000	0.065	0.065	0.050	0.000	0.015

⌖	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	-1033.286	-0.902	10.000	10.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000
D	111.000	111.067	0.067	0.050	0.050	0.017
RN	0.000	0.074	0.074	0.050	0.000	0.024

Datum Disc planes

⌖	MM	LOC3 - PLNC_DD_MC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	27.000	27.891	0.891	10.000	10.000	0.000
FL	0.000	0.043	0.043	0.100	0.000	0.000

⌖	MM	LOC4 - PLNC_DD_FP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1034.384	-1035.404	-1.020	10.000	10.000	0.000
FL	0.000	0.108	0.108	0.100	0.000	0.008

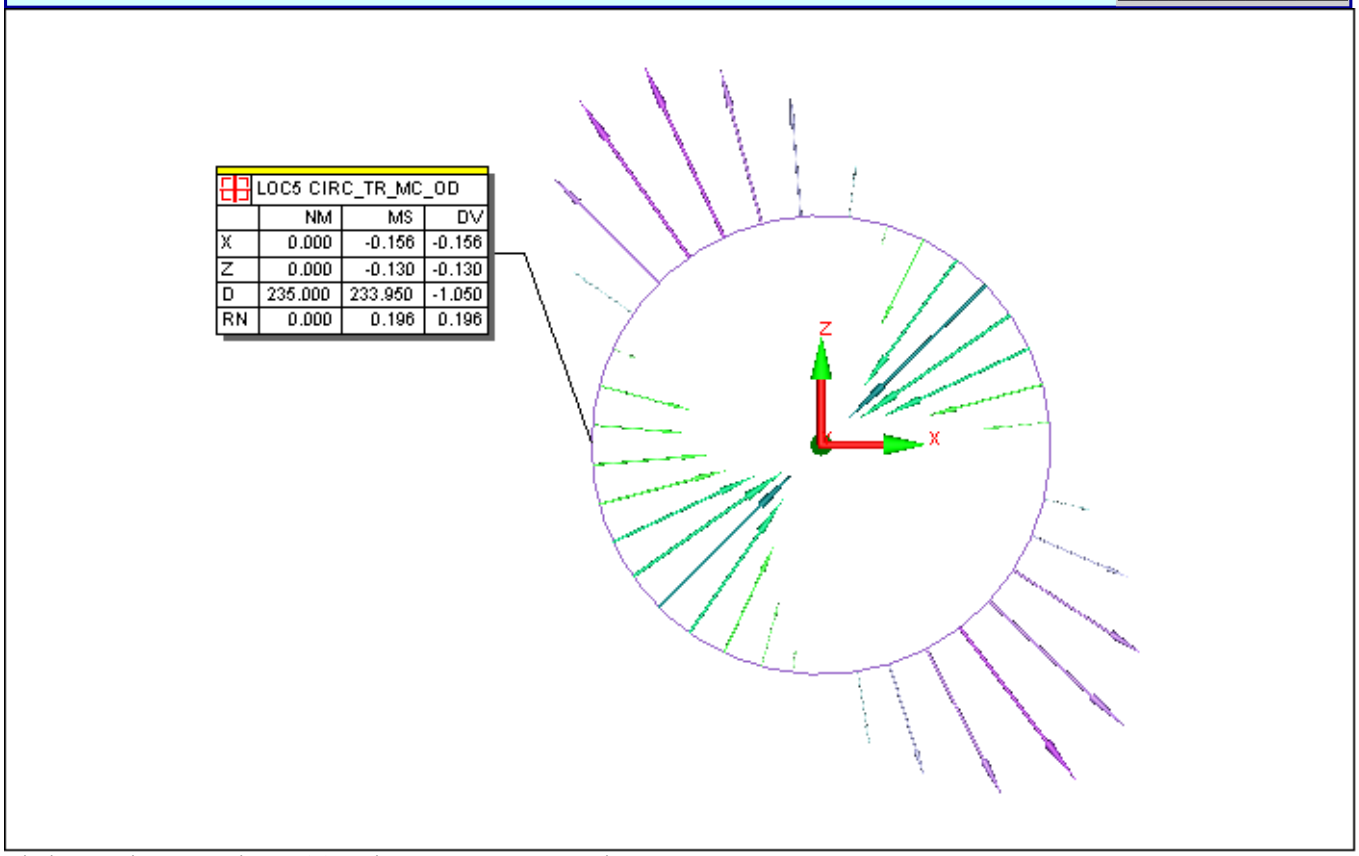
Distance between Datum Disc planes

↔	MM	DIST1 - PLNC_DD_FP TO PLNC_DD_MC (YAXIS)				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1061.060	1063.295	2.235	0.200	0.200	2.035

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	-0.156	-0.156	0.250	0.250	0.000
Z	0.000	-0.130	-0.130	0.250	0.250	0.000
D	235.000	233.950	-1.050	0.250	0.250	0.800
RN	0.000	0.196	0.196	0.250	0.000	0.000

○	MM	RND1 - CIRC_TR_MC_OD				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.196	0.196	0.250	0.000	0.000

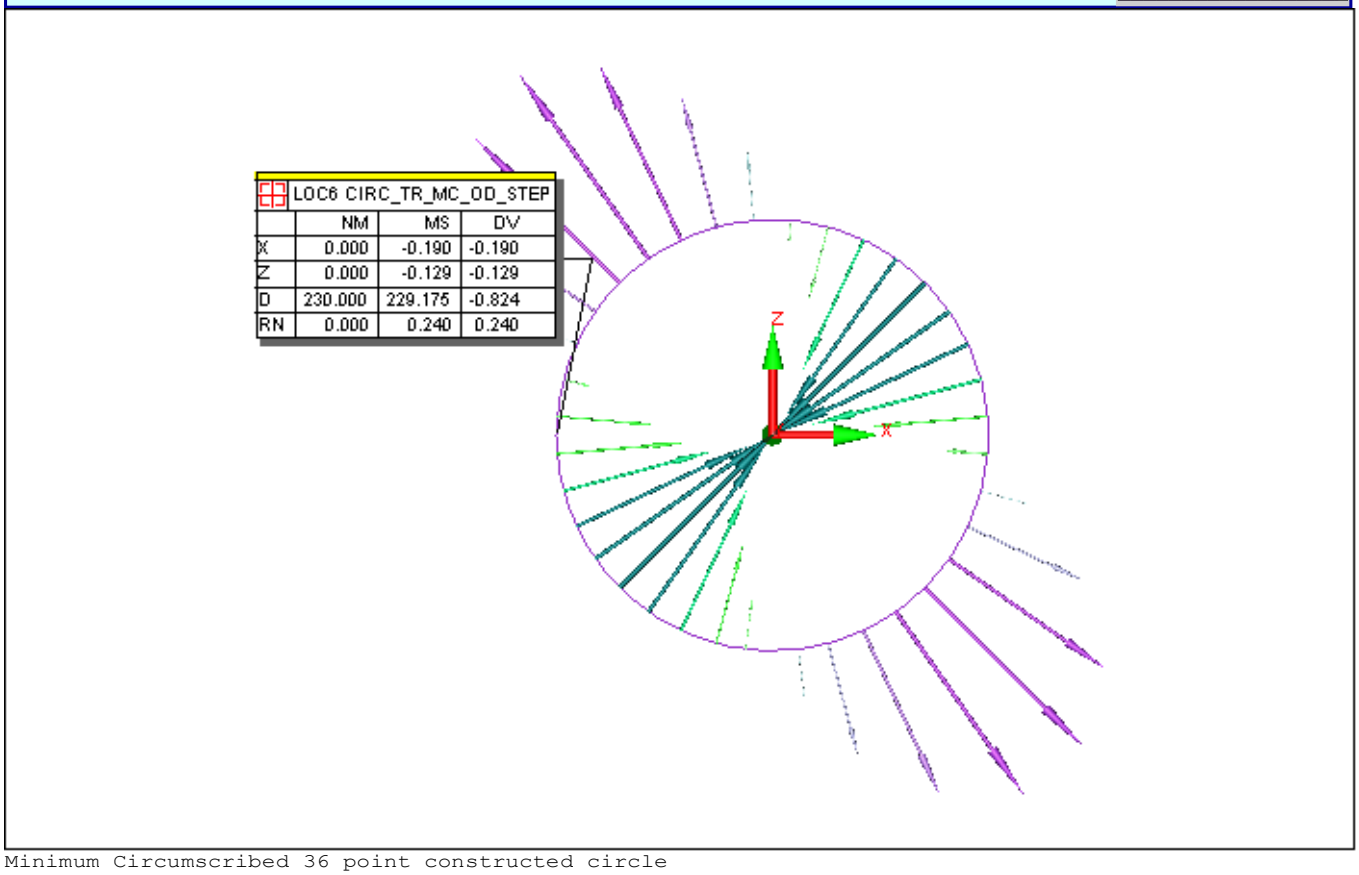


Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
235.0 O.D. x1000

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	-0.190	-0.190	0.250	0.250	0.000	
Z	0.000	-0.129	-0.129	0.250	0.250	0.000	
D	230.000	229.175	-0.824	0.000	0.250	0.574	
RN	0.000	0.240	0.240	0.250	0.000	0.000	

○	MM	RND2 - CIRC_TR_MC_OD_STEP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	0.000	0.240	0.240	0.250	0.000	0.000	

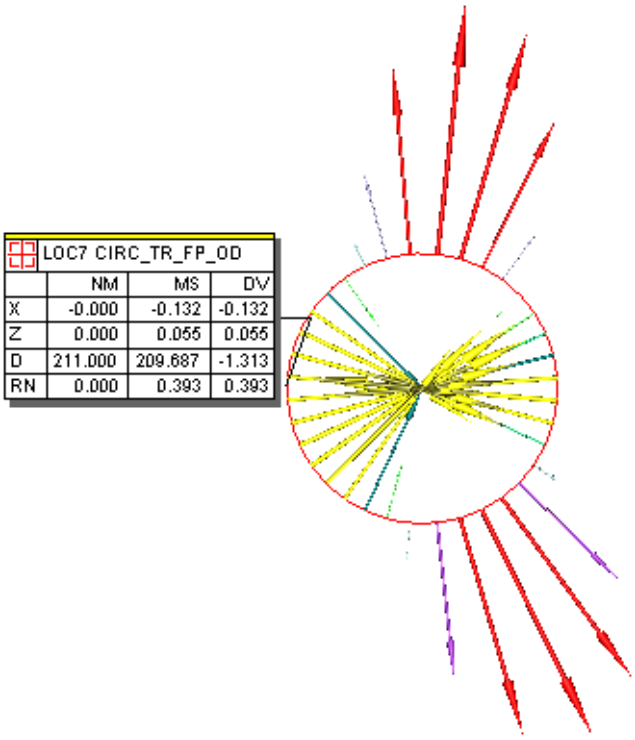


Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
233.00 O.D. step x1000

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	-0.132	-0.132	0.250	0.250	0.000
Z	0.000	0.055	0.055	0.250	0.250	0.000
D	211.000	209.687	-1.313	0.250	0.250	1.063
RN	0.000	0.393	0.393	0.250	0.000	0.143

○	MM	RND3 - CIRC_TR_FP_OD				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.393	0.393	0.250	0.000	0.143

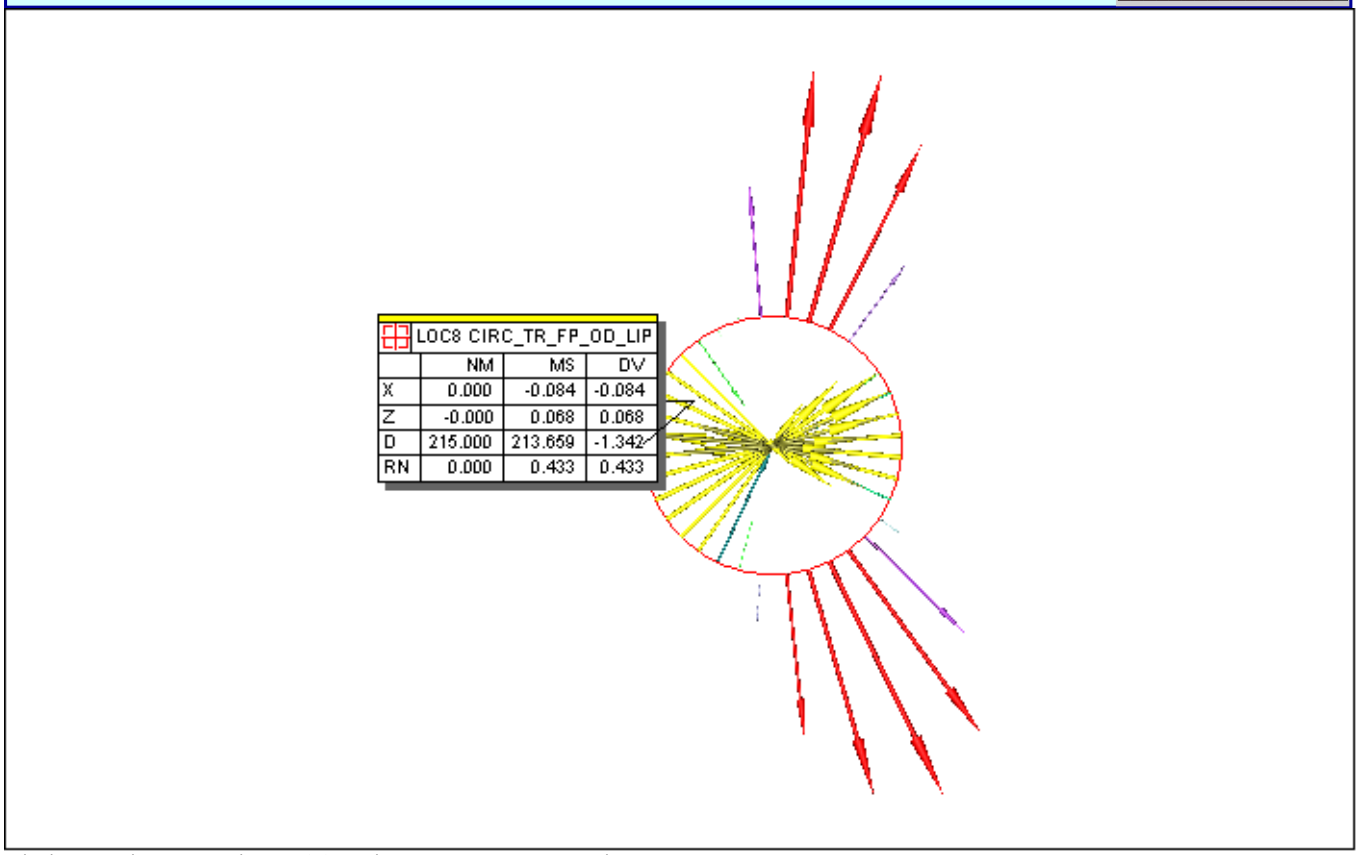


Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
211.0 O.D. x1000

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

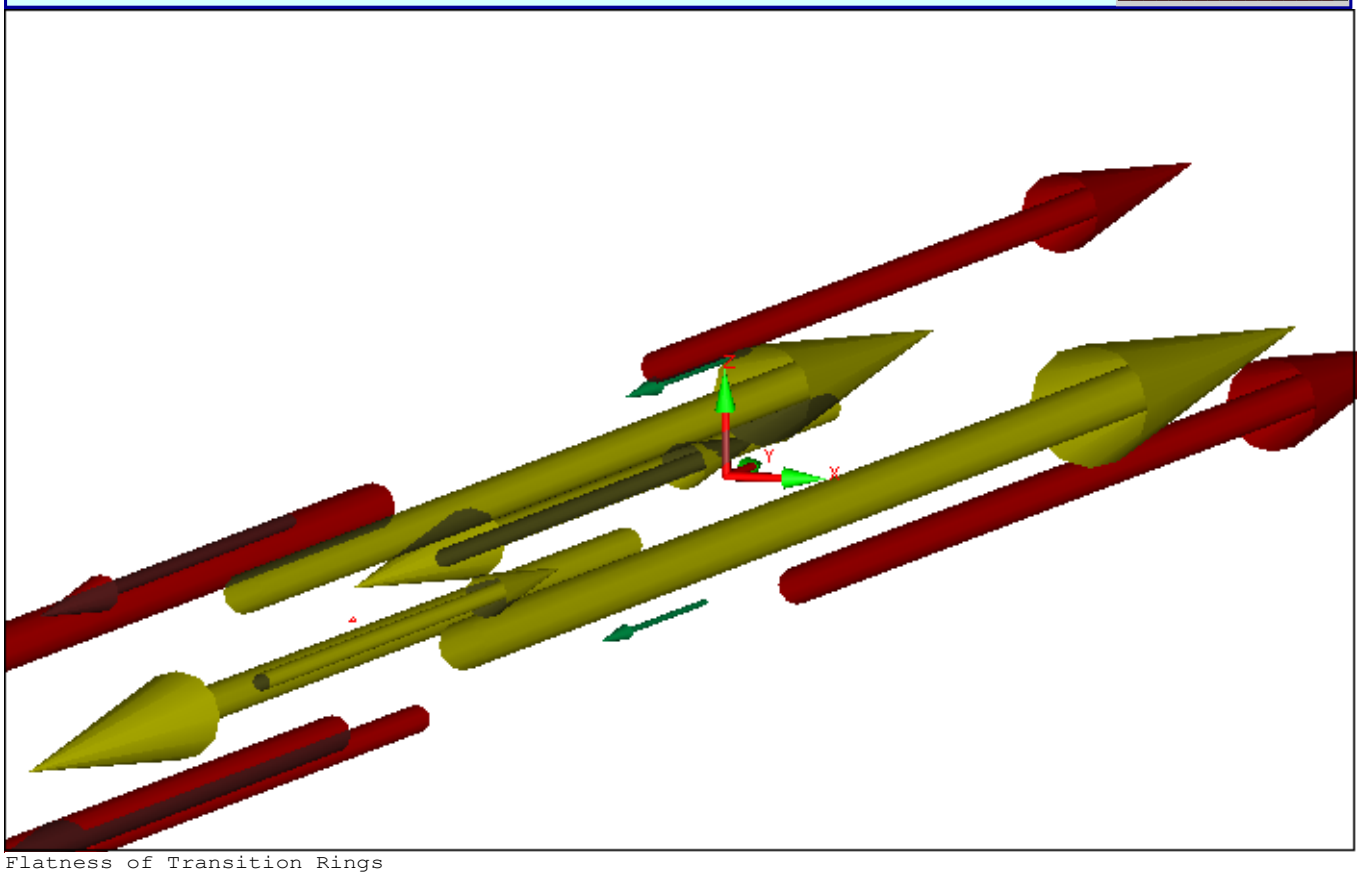
⌗	MM	LOC8 - CIRC_TR_FP_OD_LIP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.084	-0.084	0.250	0.250	0.000
Z	0.000	0.068	0.068	0.250	0.250	0.000
D	215.000	213.659	-1.342	0.250	0.250	1.092
RN	0.000	0.433	0.433	0.250	0.000	0.183

○	MM	RND4 - CIRC_TR_FP_OD_LIP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.433	0.433	0.250	0.000	0.183



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

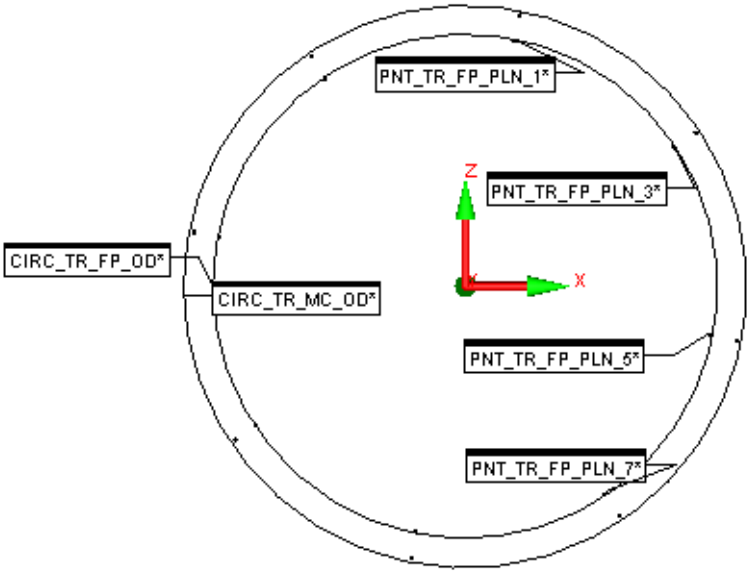
⌖	MM	LOC9 - PLNC_TR_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	0.000	0.000	0.000	0.000	0.000	0.000	
FL	0.000	0.656	0.656	0.200	0.000	0.456	
AX		I		J		K	
V		0.004		1.000		0.000	
⌖	MM	LOC10 - PLNC_TR_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1009.102	-1.602	10.000	10.000	0.000	
FL	0.000	0.865	0.865	0.200	0.000	0.665	
AX		I		J		K	
V		-0.006		-1.000		-0.002	
▱	MM	FLAT3 - PLNC_TR_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	0.000	0.656	0.656	0.200	0.000	0.456	
▱	MM	FLAT4 - PLNC_TR_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	0.000	0.865	0.865	0.200	0.000	0.665	



Flatness of Transition Rings
x5000

⊥	MM	PERP1 - PLNC_TR_MC TO LINC_LEVEL_DCC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0	1.323	1.323	0.200	0	1.123

⊥	MM	PERP2 - PLNC_TR_FP TO LINC_LEVEL_DCC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0	1.788	1.788	0.200	0	1.588



Transition Ring points Main Coupler end

⊕	MM	LOC11 - PNT_TR_MC_PLN_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.225	-0.225	1.000	1.000	0.000
PR	115.000	115.030	0.030	1.000	1.000	0.000
PA	101.250	101.264	0.014	1.000	1.000	0.000

⊕	MM	LOC12 - PNT_TR_MC_PLN_3				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.731	-0.731	1.000	1.000	0.000
PR	115.000	115.008	0.008	1.000	1.000	0.000
PA	146.250	146.257	0.007	1.000	1.000	0.000

⊕	MM	LOC13 - PNT_TR_MC_PLN_5				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.523	-0.522	1.000	1.000	0.000
PR	115.000	114.979	-0.021	1.000	1.000	0.000
PA	-168.750	-168.740	0.010	1.000	1.000	0.000

⌖	MM	LOC14 - PNT_TR_MC_PLN_7				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.085	0.085	1.000	1.000	0.000
PR	115.000	114.968	-0.032	1.000	1.000	0.000
PA	-123.750	-123.724	0.025	1.000	1.000	0.000

⌖	MM	LOC15 - PNT_TR_MC_PLN_9				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.102	0.103	1.000	1.000	0.000
PR	115.000	114.969	-0.031	1.000	1.000	0.000
PA	-78.750	-78.714	0.036	1.000	1.000	0.000

⌖	MM	LOC16 - PNT_TR_MC_PLN_11				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.159	0.159	1.000	1.000	0.000
PR	115.000	114.997	-0.003	1.000	1.000	0.000
PA	-33.750	-33.709	0.041	1.000	1.000	0.000

⌖	MM	LOC17 - PNT_TR_MC_PLN_13				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.592	0.592	1.000	1.000	0.000
PR	115.000	115.023	0.023	1.000	1.000	0.000
PA	11.250	11.288	0.038	1.000	1.000	0.000

⌖	MM	LOC18 - PNT_TR_MC_PLN_15				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.540	0.540	1.000	1.000	0.000
PR	115.000	115.039	0.039	1.000	1.000	0.000
PA	56.250	56.278	0.028	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	-1009.866	-2.366	1.000	1.000	1.366
PR	104.000	104.065	0.065	1.000	1.000	0.000
PA	101.250	101.259	0.009	1.000	1.000	0.000

⌖	MM	LOC20 - PNT_TR_FP_PLN_3				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1009.639	-2.139	1.000	1.000	1.139
PR	104.000	104.029	0.029	1.000	1.000	0.000
PA	146.250	146.240	-0.010	1.000	1.000	0.000

⌖	MM	LOC21 - PNT_TR_FP_PLN_5				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1009.316	-1.816	1.000	1.000	0.816
PR	104.000	103.974	-0.026	1.000	1.000	0.000
PA	-168.750	-168.760	-0.010	1.000	1.000	0.000

⌖	MM	LOC22 - PNT_TR_FP_PLN_7					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1009.576	-2.076	1.000	1.000	1.076	
PR	104.000	103.933	-0.067	1.000	1.000	0.000	
PA	-123.750	-123.737	0.013	1.000	1.000	0.000	
⌖	MM	LOC23 - PNT_TR_FP_PLN_9					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1009.091	-1.591	1.000	1.000	0.591	
PR	104.000	104.047	0.047	1.000	1.000	0.000	
PA	-78.750	-78.425	0.325	1.000	1.000	0.000	
⌖	MM	LOC24 - PNT_TR_FP_PLN_11					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1008.236	-0.736	1.000	1.000	0.000	
PR	104.000	104.421	0.421	1.000	1.000	0.000	
PA	-33.750	-33.532	0.218	1.000	1.000	0.000	
⌖	MM	LOC25 - PNT_TR_FP_PLN_13					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1008.077	-0.577	1.000	1.000	0.000	
PR	104.000	104.545	0.545	1.000	1.000	0.000	
PA	11.250	11.248	-0.002	1.000	1.000	0.000	
⌖	MM	LOC26 - PNT_TR_FP_PLN_15					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
Y	-1007.500	-1009.010	-1.510	1.000	1.000	0.510	
PR	104.000	104.349	0.349	1.000	1.000	0.000	
PA	56.250	56.045	-0.205	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	1008.669	1.169	1.000	1.000	0.169	
↔	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	1009.550	2.050	1.000	1.000	1.050	
↔	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	1009.641	2.141	1.000	1.000	1.141	
↔	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	1008.908	1.408	1.000	1.000	0.408	
↔	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	1008.794	1.294	1.000	1.000	0.294	

↔	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	1009.661	2.161	1.000	1.000	1.161	

↔	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	1009.194	1.694	1.000	1.000	0.694	

↔	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	1008.395	0.895	1.000	1.000	0.000	

↔	MM	DIST_BETWEEN_PLANES - PLNC_TR_MC TO PLNC_TR_FP (YAXIS)					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
M	1007.500	1009.102	1.602	1.000	1.000	0.602	

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	-0.048	-0.048	0.200	0.200	0.000	
Y	0.000	-971.269	-971.269	2000.000	2000.000	0.000	
Z	0.000	-0.178	-0.178	0.200	0.200	0.000	
D	210.300	210.838	0.538	0.200	0.200	0.338	
RN	0.000	0.325	0.325	0.200	0.000	0.125	

⊕	MM	LOC_CC4 - CIRC_CAV_1_2					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
X	0.000	-0.001	-0.001	0.200	0.200	0.000	
Y	0.000	-961.553	-961.553	2000.000	2000.000	0.000	
Z	0.000	-0.327	-0.327	0.200	0.200	0.127	
D	210.300	210.908	0.608	0.200	0.200	0.408	
RN	0.000	0.443	0.443	0.200	0.000	0.243	

⊕	MM	LOC_CC5 - CIRC_CAV_2_1					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL	
X	0.000	0.026	0.026	0.200	0.200	0.000	
Y	0.000	-855.144	-855.144	2000.000	2000.000	0.000	
Z	0.000	-0.527	-0.527	0.200	0.200	0.327	
D	210.300	210.918	0.618	0.200	0.200	0.418	
RN	0.000	0.389	0.389	0.200	0.000	0.189	

⊕	MM	LOC_CC6 - CIRC_CAV_2_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.059	0.059	0.200	0.200	0.000
Y	0.000	-846.092	-846.092	2000.000	2000.000	0.000
Z	0.000	-0.446	-0.446	0.200	0.200	0.246
D	210.300	210.937	0.637	0.200	0.200	0.437
RN	0.000	0.197	0.197	0.200	0.000	0.000

⊕	MM	LOC_CC7 - CIRC_CAV_3_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.100	0.100	0.200	0.200	0.000
Y	0.000	-739.692	-739.692	2000.000	2000.000	0.000
Z	0.000	-0.342	-0.342	0.200	0.200	0.142
D	210.300	210.863	0.563	0.200	0.200	0.363
RN	0.000	0.312	0.312	0.200	0.000	0.112

⊕	MM	LOC_CC8 - CIRC_CAV_3_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.005	0.005	0.200	0.200	0.000
Y	0.000	-731.173	-731.173	2000.000	2000.000	0.000
Z	0.000	-0.329	-0.329	0.200	0.200	0.129
D	210.300	210.925	0.625	0.200	0.200	0.425
RN	0.000	0.376	0.376	0.200	0.000	0.176

⊕	MM	LOC_CC9 - CIRC_CAV_4_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.154	0.154	0.200	0.200	0.000
Y	0.000	-624.291	-624.291	2000.000	2000.000	0.000
Z	0.000	-0.295	-0.295	0.200	0.200	0.095
D	210.300	210.853	0.553	0.200	0.200	0.353
RN	0.000	0.312	0.312	0.200	0.000	0.112

⊕	MM	LOC_CC10 - CIRC_CAV_4_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.247	0.247	0.200	0.200	0.047
Y	0.000	-615.072	-615.072	2000.000	2000.000	0.000
Z	0.000	-0.182	-0.182	0.200	0.200	0.000
D	210.300	210.840	0.540	0.200	0.200	0.340
RN	0.000	0.246	0.246	0.200	0.000	0.046

⊕	MM	LOC_CC11 - CIRC_CAV_5_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.544	0.544	0.200	0.200	0.344
Y	0.000	-508.521	-508.521	2000.000	2000.000	0.000
Z	0.000	-0.165	-0.165	0.200	0.200	0.000
D	210.300	210.785	0.485	0.200	0.200	0.285
RN	0.000	0.509	0.509	0.200	0.000	0.309

⊕	MM	LOC_CC12 - CIRC_CAV_5_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.535	0.535	0.200	0.200	0.335
Y	0.000	-499.532	-499.532	2000.000	2000.000	0.000
Z	0.000	-0.187	-0.187	0.200	0.200	0.000
D	210.300	210.933	0.633	0.200	0.200	0.433
RN	0.000	0.310	0.310	0.200	0.000	0.110

⊕	MM	LOC_CC13 - CIRC_CAV_6_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.588	0.588	0.200	0.200	0.388
Y	0.000	-392.928	-392.928	2000.000	2000.000	0.000
Z	0.000	-0.289	-0.289	0.200	0.200	0.089
D	210.300	210.849	0.549	0.200	0.200	0.349
RN	0.000	0.410	0.410	0.200	0.000	0.210

⊕	MM	LOC_CC14 - CIRC_CAV_6_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.448	0.448	0.200	0.200	0.248
Y	0.000	-383.825	-383.825	2000.000	2000.000	0.000
Z	0.000	-0.328	-0.328	0.200	0.200	0.128
D	210.300	210.909	0.609	0.200	0.200	0.409
RN	0.000	0.267	0.267	0.200	0.000	0.067

⊕	MM	LOC_CC15 - CIRC_CAV_7_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.243	0.243	0.200	0.200	0.043
Y	0.000	-276.729	-276.729	2000.000	2000.000	0.000
Z	0.000	-0.056	-0.056	0.200	0.200	0.000
D	210.300	210.863	0.563	0.200	0.200	0.363
RN	0.000	0.522	0.522	0.200	0.000	0.322

⊕	MM	LOC_CC16 - CIRC_CAV_7_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.250	0.250	0.200	0.200	0.050
Y	0.000	-267.981	-267.981	2000.000	2000.000	0.000
Z	0.000	-0.098	-0.098	0.200	0.200	0.000
D	210.300	210.930	0.630	0.200	0.200	0.430
RN	0.000	0.267	0.267	0.200	0.000	0.067

⊕	MM	LOC_CC17 - CIRC_CAV_8_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.090	-0.090	0.200	0.200	0.000
Y	0.000	-161.524	-161.524	2000.000	2000.000	0.000
Z	0.000	-0.145	-0.145	0.200	0.200	0.000
D	210.300	210.827	0.527	0.200	0.200	0.327
RN	0.000	0.190	0.190	0.200	0.000	0.000

⊕	MM	LOC_CC18 - CIRC_CAV_8_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.013	-0.013	0.200	0.200	0.000
Y	0.000	-152.134	-152.134	2000.000	2000.000	0.000
Z	0.000	-0.203	-0.203	0.200	0.200	0.003
D	210.300	210.906	0.606	0.200	0.200	0.406
RN	0.000	0.308	0.308	0.200	0.000	0.108

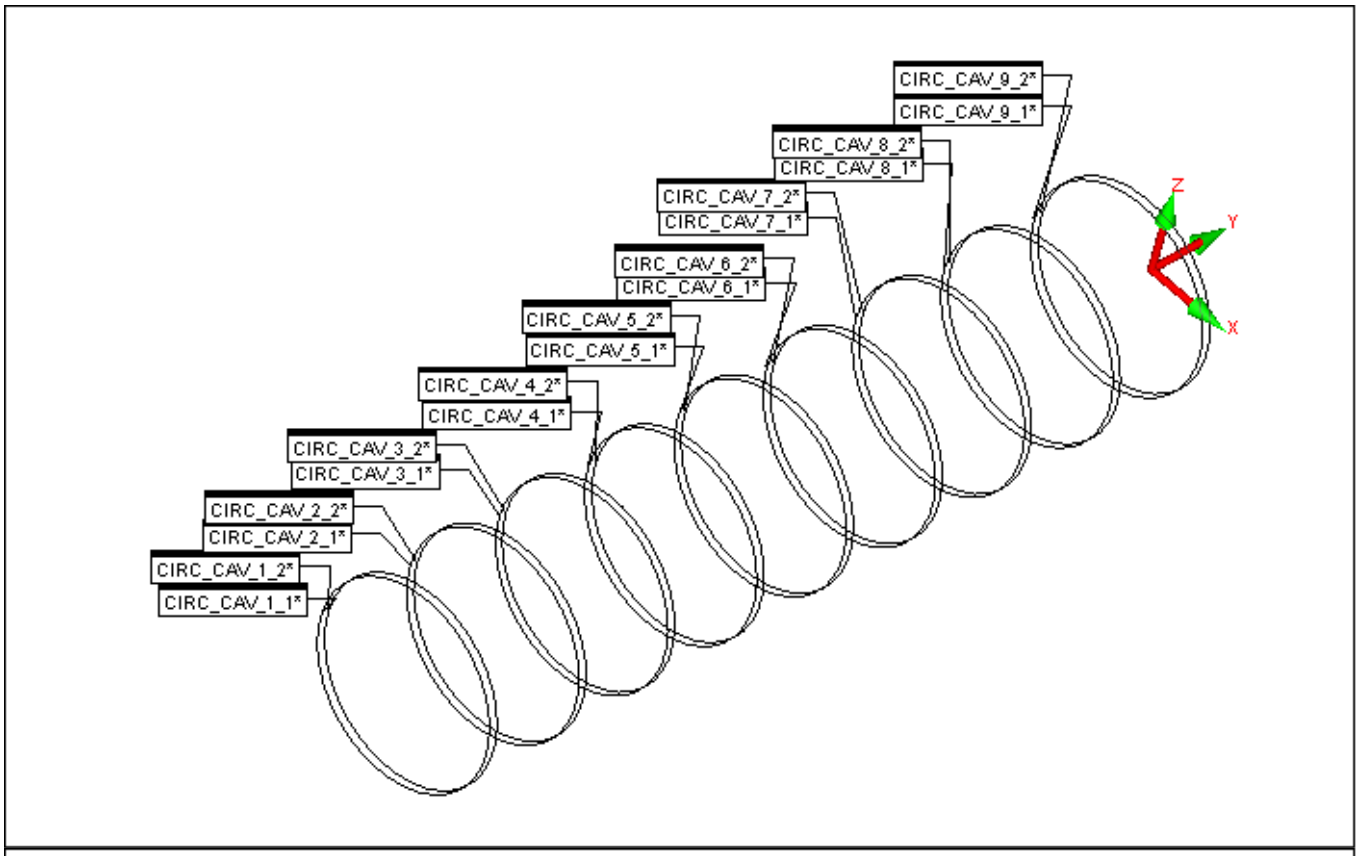
⊕	MM	LOC_CC19 - CIRC_CAV_9_1				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.007	0.007	0.200	0.200	0.000
Y	0.000	-45.309	-45.309	2000.000	2000.000	0.000
Z	0.000	-0.017	-0.017	0.200	0.200	0.000
D	210.300	210.485	0.185	0.200	0.200	0.000
RN	0.000	0.247	0.247	0.200	0.000	0.047

⊕	MM	LOC_CC20 - CIRC_CAV_9_2				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.035	-0.035	0.200	0.200	0.000
Y	0.000	-35.512	-35.512	2000.000	2000.000	0.000
Z	0.000	-0.067	-0.067	0.200	0.200	0.000
D	210.300	210.526	0.226	0.200	0.200	0.026
RN	0.000	0.260	0.260	0.200	0.000	0.060

Location of End Flanges

⊕	MM	LOC_23 - CIR_END_FLANGE_MC				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.282	0.282	0.200	0.200	0.082
Y	0.000	115.614	115.614	2000.000	2000.000	0.000
Z	0.000	0.451	0.451	0.200	0.200	0.251
D	140.000	140.117	0.117	0.300	0.300	0.000
RN	0.000	0.027	0.027	0.200	0.000	0.000

⊕	MM	LOC_24 - CIR_END_FLANGE_FP				
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.471	0.471	0.200	0.200	0.271
Y	-1153.884	-1121.780	32.104	2000.000	2000.000	0.000
Z	0.000	0.418	0.418	0.200	0.200	0.218
D	140.000	139.828	-0.172	0.300	0.300	0.000
RN	0.000	0.025	0.025	0.200	0.000	0.000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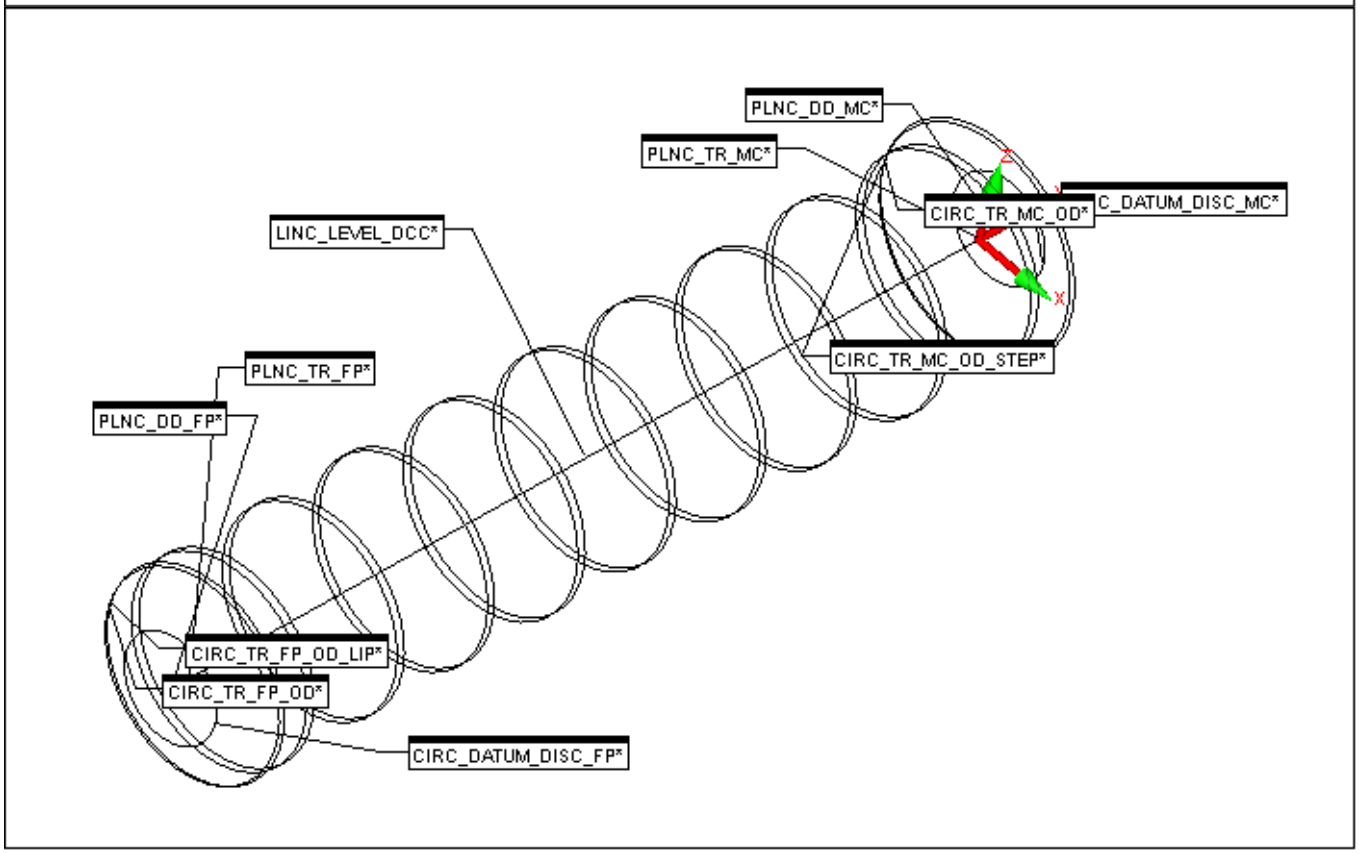
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Z
X