FERMILAB Technical Division

QUALITY CONTROL REPORT

DATE=9/22/2009 TIME=3:35:13 PM

PART NAME : PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR
REV NUMBER :
SER NUMBER :
STATS COUNT : 1

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

'Inspected by ' : Robert Riley
'Cavity Number' : TB9ACC013
' ' : 0909221123

Datum Discs

MM	DIM LOC1= LOCATION OF CIRCLE 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	26.666	1.666	10.000	10.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000
D	111.000	110.916	-0.084	0.050	0.050	0.034
RN	0.000	0.013	0.013	0.050	0.000	0.000

MM	DIM LOC2= LOCATION OF CIRCLE 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	-1027.655	4.730	10.000	10.000	0.000
Z	0.000	0.000	0.000	0.000	0.000	0.000
D	111.000	110.942	-0.058	0.050	0.050	0.008
RN	0.000	0.016	0.016	0.050	0.000	0.000

Datum Disc planes

MM	DIM LOC3= LOCATION OF PLANE PLNC_DD_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	27.000	28.803	1.803	10.000	10.000	0.000
FL	0.000	0.013	0.013	0.100	0.000	0.000

MM	DIM LOC4= LOCATION OF PLANE PLNC_DD_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1034.384	-1029.779	4.605	10.000	10.000	0.000
FL	0.000	0.035	0.035	0.100	0.000	0.000

PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:13 PM

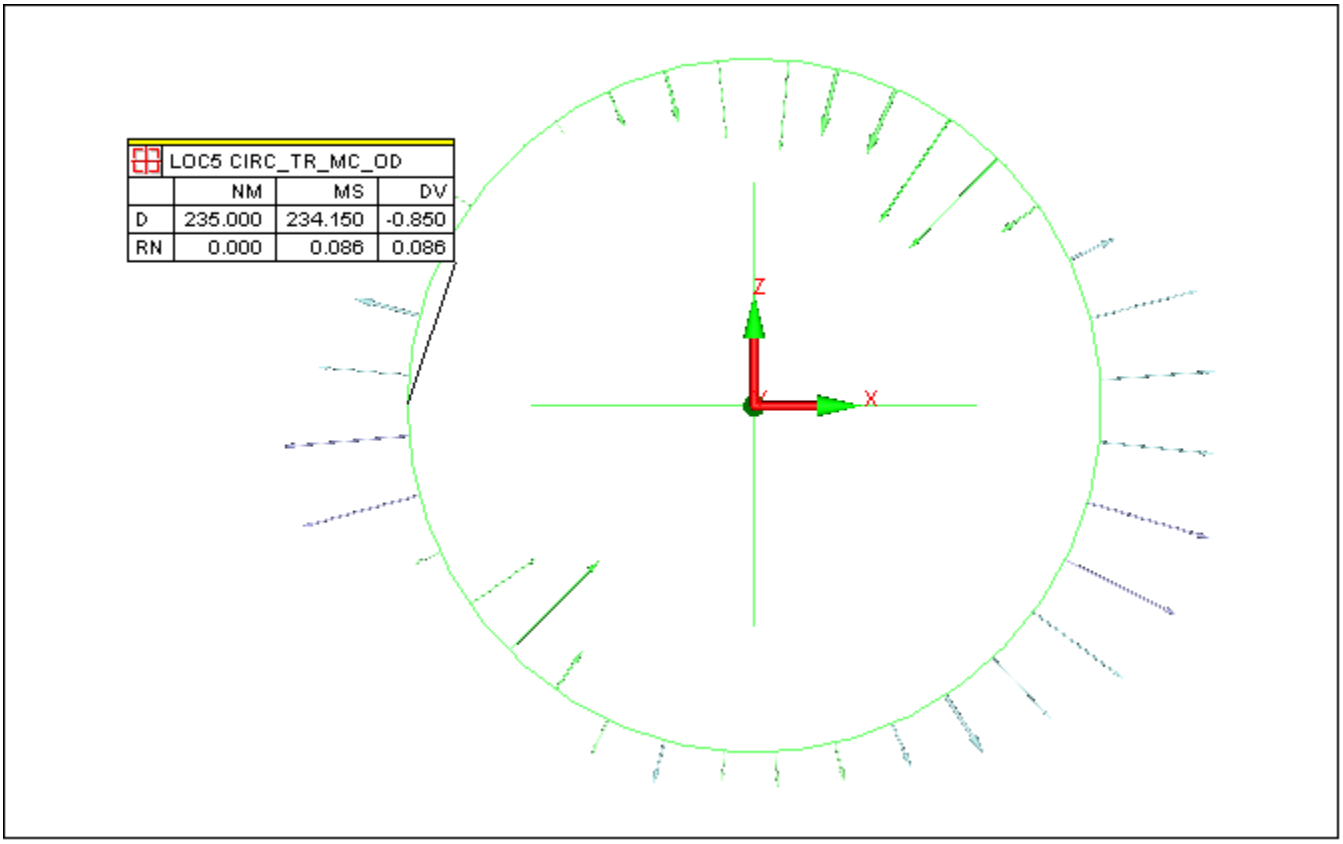
Distance between Datum Disc planes

MM	DIM DIST1= 2D DISTANCE FROM PLANE PLNC_DD_FP TO PLANE PLNC_DD_MC PAR TO YAXIS					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1061.060	1058.582	-2.478	0.200	0.200	2.278

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

MM	DIM LOC5= LOCATION OF CIRCLE CIRC_TR_MC_OD					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.106	0.106	0.250	0.250	0.000
Y	0.000	-1.264	-1.264	2000.000	2000.000	0.000
Z	0.000	0.103	0.103	0.250	0.250	0.000
D	235.000	234.150	-0.850	0.250	0.250	0.600
RN	0.000	0.086	0.086	0.250	0.000	0.000

MM	DIM RND1= ROUNDNESS OF CIRCLE CIRC_TR_MC_OD					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.086	0.086	0.250	0.000	0.000

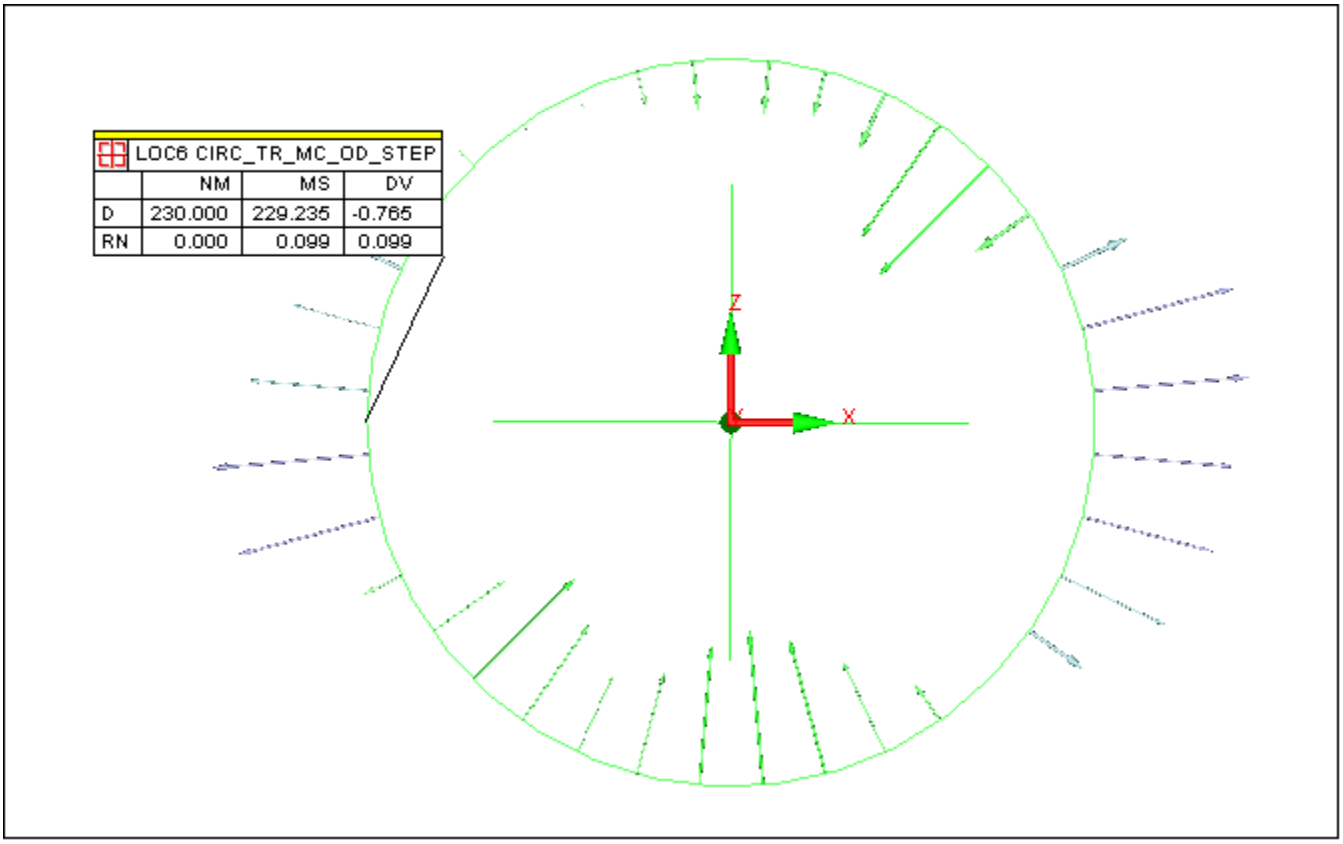


Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
235.0 O.D. x1000

PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:13 PM
Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
233.00 O.D. step

MM	DIM LOC6= LOCATION OF CIRCLE CIRC_TR_MC_OD_STEP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.102	0.102	0.250	0.250	0.000
Y	0.000	-5.211	-5.211	2000.000	2000.000	0.000
Z	0.000	0.085	0.085	0.250	0.250	0.000
D	230.000	229.235	-0.765	0.000	0.250	0.515
RN	0.000	0.099	0.099	0.250	0.000	0.000

MM	DIM RND2= ROUNDNESS OF CIRCLE CIRC_TR_MC_OD_STEP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.099	0.099	0.250	0.000	0.000

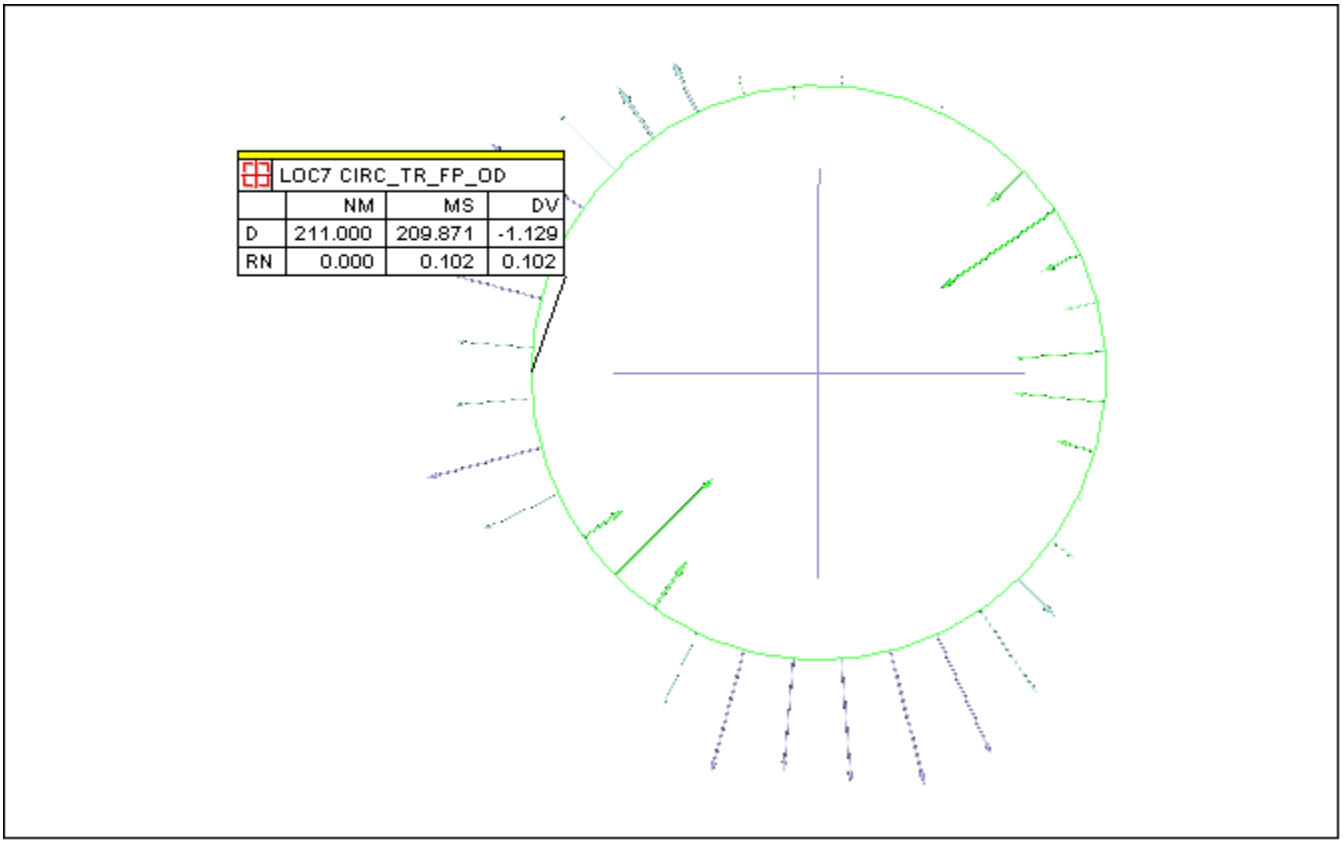


Minimum Circumscribed 36 point constructed circle
Transition Ring Main Coupler end
233.00 O.D. step x1000

PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:13 PM
Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
211.0 O.D.

MM	DIM LOC7= LOCATION OF CIRCLE CIRC_TR_FP_OD					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.020	0.020	0.250	0.250	0.000
Y	0.000	-999.564	-999.564	2000.000	2000.000	0.000
Z	0.000	0.096	0.095	0.250	0.250	0.000
D	211.000	209.871	-1.129	0.250	0.250	0.879
RN	0.000	0.102	0.102	0.250	0.000	0.000

MM	DIM RND3= ROUNDNESS OF CIRCLE CIRC_TR_FP_OD					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.102	0.102	0.250	0.000	0.000



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

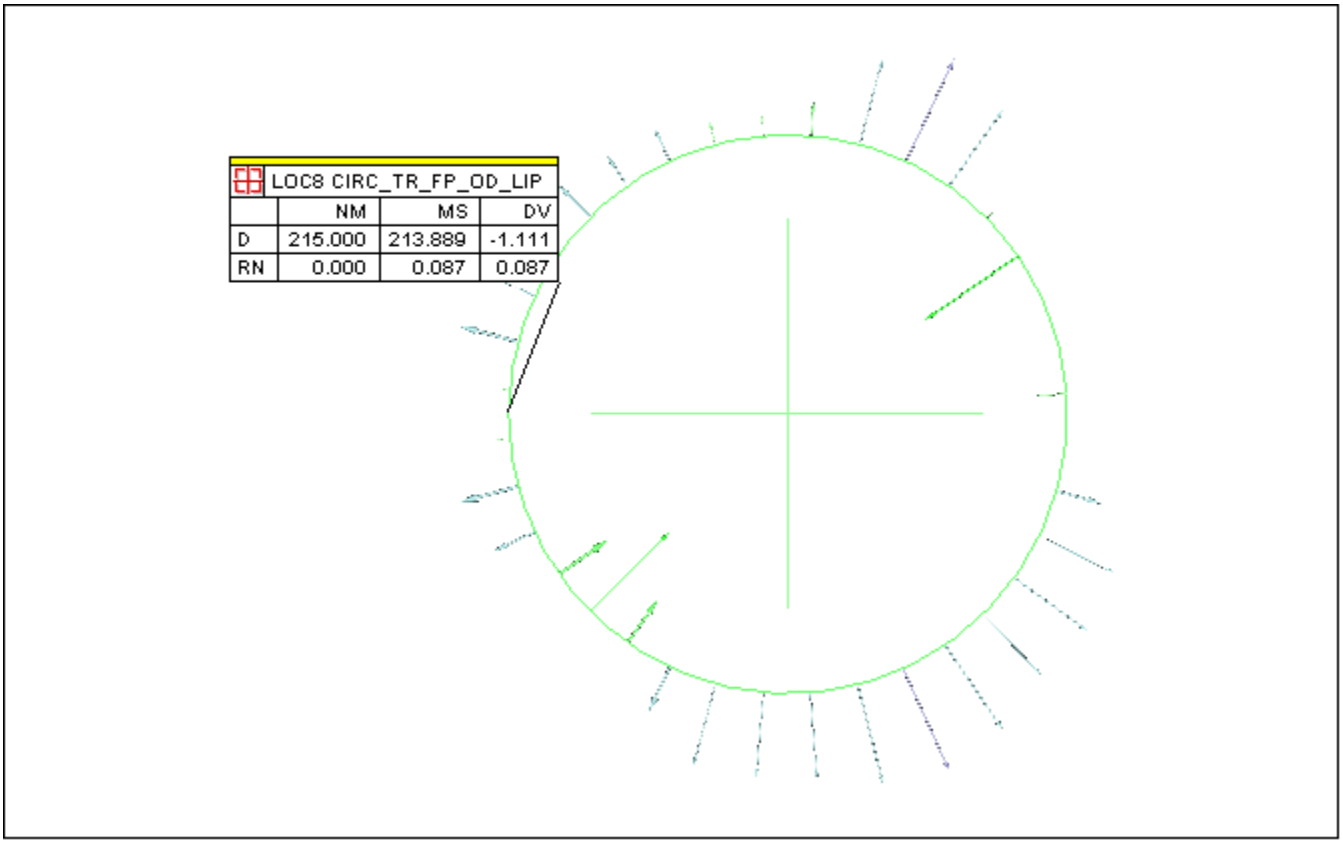
PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:13 PM
Minimum Circumscribed 36 point constructed circle
Transition Ring Field Probe end
215.0 O.D. lip

MM DIM LOC8= LOCATION OF CIRCLE CIRC_TR_FP_OD_LIP

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.012	-0.012	0.250	0.250	0.000
Y	0.000	-995.065	-995.065	2000.000	2000.000	0.000
Z	0.000	0.090	0.090	0.250	0.250	0.000
D	215.000	213.889	-1.111	0.250	0.250	0.861
RN	0.000	0.087	0.087	0.250	0.000	0.000

MM DIM RND4= ROUNDNESS OF CIRCLE CIRC_TR_FP_OD_LIP

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.087	0.087	0.250	0.000	0.000



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

PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:13 PM

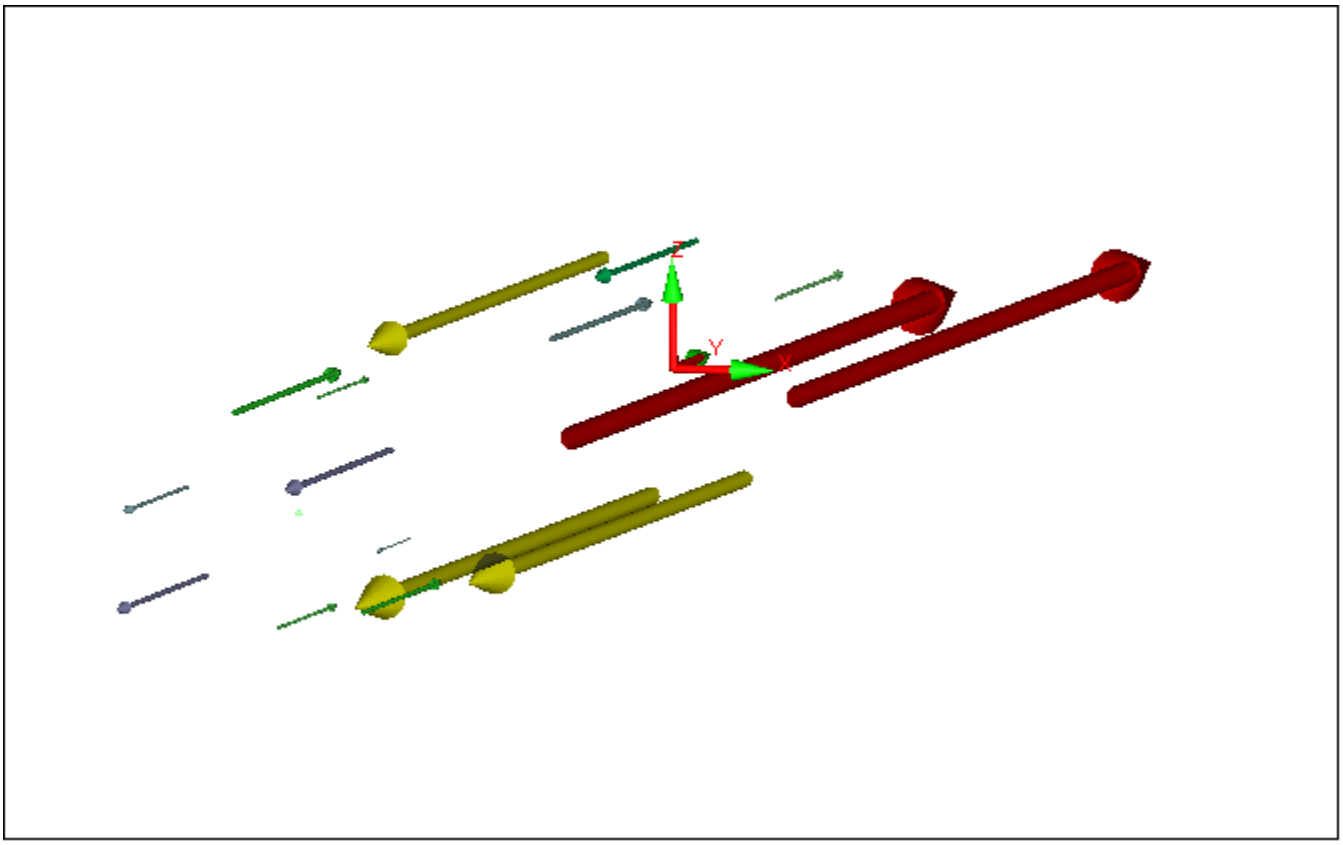
Transition Ring planes

MM	DIM LOC9= LOCATION OF PLANE 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	0.367	0.367	0.200	0.000	0.167

MM	DIM LOC10= LOCATION OF PLANE PLNC_TR_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.314	4.186	10.000	10.000	0.000
FL	0.000	0.115	0.115	0.200	0.000	0.000

MM	DIM FLAT3= FLATNESS OF PLANE PLNC_TR_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.367	0.367	0.250	0.000	0.117

MM	DIM FLAT4= FLATNESS OF PLANE PLNC_TR_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	0.000	0.115	0.115	0.250	0.000	0.000



Flatness of Transition Rings
x5000

PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:14 PM
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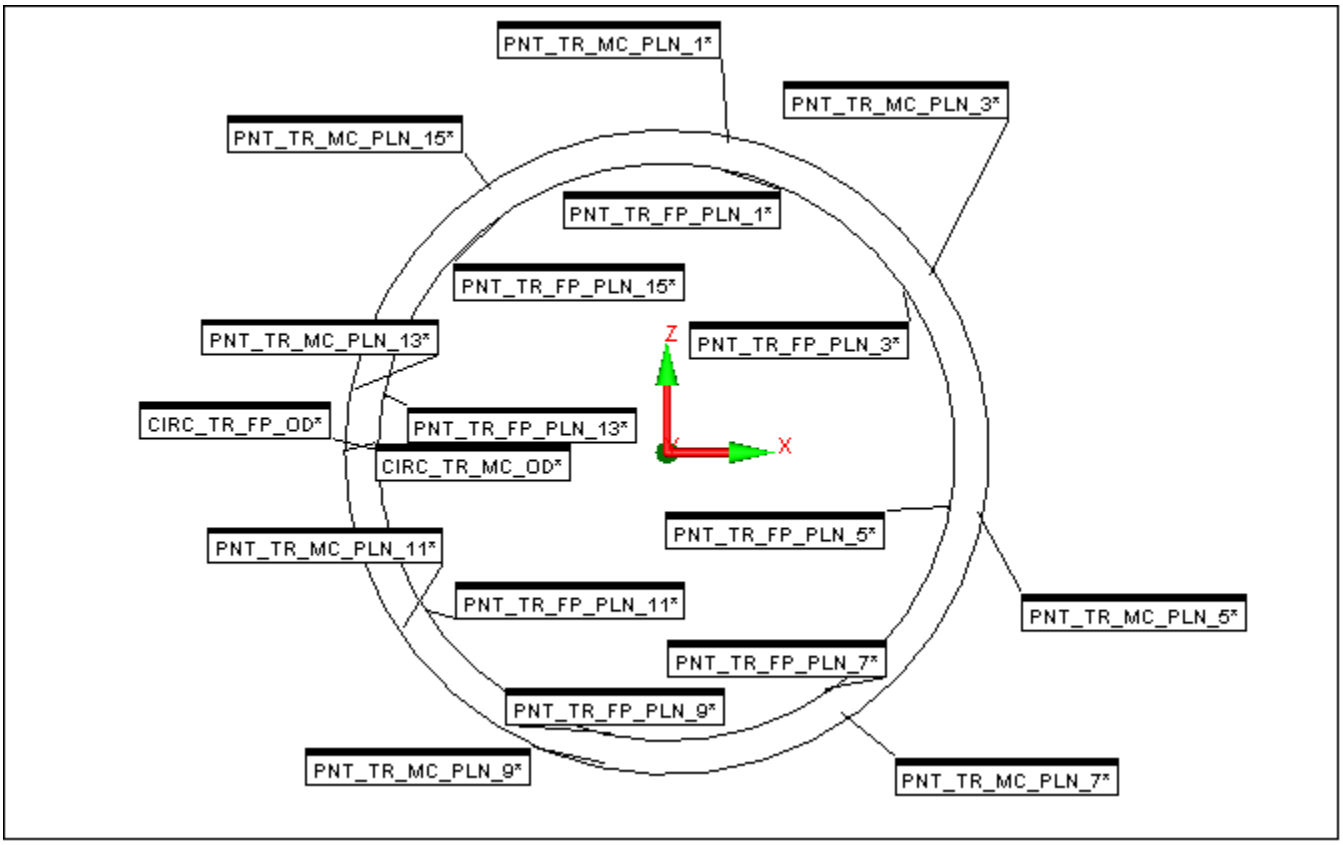

Transition Ring points Main Coupler end

MM	DIM LOC11= LOCATION OF POINT PNT_TR_MC_PLN_1					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.300	0.300	1.000	1.000	0.000
PR	115.000	114.961	-0.039	1.000	1.000	0.000
PA	101.250	101.255	0.005	1.000	1.000	0.000

MM	DIM LOC12= LOCATION OF POINT PNT_TR_MC_PLN_3					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.424	0.424	1.000	1.000	0.000
PR	115.000	114.992	-0.008	1.000	1.000	0.000
PA	146.250	146.262	0.012	1.000	1.000	0.000

MM	DIM LOC13= LOCATION OF POINT PNT_TR_MC_PLN_5					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	0.384	0.385	1.000	1.000	0.000
PR	115.000	115.013	0.013	1.000	1.000	0.000
PA	-168.750	-168.739	0.011	1.000	1.000	0.000

MM	DIM LOC14= LOCATION OF POINT PNT_TR_MC_PLN_7					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.264	-0.263	1.000	1.000	0.000
PR	115.000	115.020	0.020	1.000	1.000	0.000
PA	-123.750	-123.744	0.006	1.000	1.000	0.000

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MM	DIM LOC15= LOCATION OF POINT PNT_TR_MC_PLN_9					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.516	-0.515	1.000	1.000	0.000
PR	115.000	115.022	0.022	1.000	1.000	0.000
PA	-78.750	-78.759	-0.009	1.000	1.000	0.000

MM	DIM LOC16= LOCATION OF POINT PNT_TR_MC_PLN_11					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.181	-0.180	1.000	1.000	0.000
PR	115.000	115.006	0.006	1.000	1.000	0.000
PA	-33.750	-33.764	-0.014	1.000	1.000	0.000

MM	DIM LOC17= LOCATION OF POINT PNT_TR_MC_PLN_13					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.139	-0.139	1.000	1.000	0.000
PR	115.000	114.997	-0.003	1.000	1.000	0.000
PA	11.250	11.240	-0.010	1.000	1.000	0.000

MM	DIM LOC18= LOCATION OF POINT PNT_TR_MC_PLN_15					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	0.000	-0.013	-0.013	1.000	1.000	0.000
PR	115.000	114.980	-0.020	1.000	1.000	0.000
PA	56.250	56.240	-0.010	1.000	1.000	0.000

Transition Ring points Field Probe end

MM	DIM LOC19= LOCATION OF POINT PNT_TR_FP_PLN_1					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.553	3.947	1.000	1.000	2.947
PR	104.000	103.997	-0.003	1.000	1.000	0.000
PA	101.250	101.247	-0.003	1.000	1.000	0.000

MM	DIM LOC20= LOCATION OF POINT PNT_TR_FP_PLN_3					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.539	3.961	1.000	1.000	2.961
PR	104.000	103.996	-0.004	1.000	1.000	0.000
PA	146.250	146.259	0.009	1.000	1.000	0.000

MM	DIM LOC21= LOCATION OF POINT PNT_TR_FP_PLN_5					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.303	4.197	1.000	1.000	3.197
PR	104.000	104.009	0.009	1.000	1.000	0.000
PA	-168.750	-168.749	0.001	1.000	1.000	0.000

MM	DIM LOC22= LOCATION OF POINT PNT_TR_FP_PLN_7					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.063	4.437	1.000	1.000	3.437
PR	104.000	104.003	0.003	1.000	1.000	0.000
PA	-123.750	-123.751	-0.001	1.000	1.000	0.000

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MM DIM LOC23= LOCATION OF POINT PNT_TR_FP_PLN_9

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.016	4.484	1.000	1.000	3.484
PR	104.000	103.916	-0.084	1.000	1.000	0.000
PA	-78.750	-78.723	0.027	1.000	1.000	0.000

MM DIM LOC24= LOCATION OF POINT PNT_TR_FP_PLN_11

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.194	4.306	1.000	1.000	3.306
PR	104.000	103.998	-0.002	1.000	1.000	0.000
PA	-33.750	-33.704	0.047	1.000	1.000	0.000

MM DIM LOC25= LOCATION OF POINT PNT_TR_FP_PLN_13

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.377	4.123	1.000	1.000	3.123
PR	104.000	104.064	0.064	1.000	1.000	0.000
PA	11.250	11.287	0.037	1.000	1.000	0.000

MM DIM LOC26= LOCATION OF POINT PNT_TR_FP_PLN_15

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
Y	-1007.500	-1003.464	4.036	1.000	1.000	3.036
PR	104.000	104.100	0.100	1.000	1.000	0.000
PA	56.250	56.259	0.009	1.000	1.000	0.000

Distances between matching points on Transition Rings

MM DIM DIST_PA_11.25= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_13 TO POINT PNT_TR_FP_PLN_13 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.238	-4.262	1.000	1.000	3.262

MM DIM DIST_PA_56.25= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_15 TO POINT PNT_TR_FP_PLN_15 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.452	-4.048	1.000	1.000	3.048

MM DIM DIST_PA_101.25= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_1 TO POINT PNT_TR_FP_PLN_1 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.853	-3.647	1.000	1.000	2.647

MM DIM DIST_PA_146.25= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_3 TO POINT PNT_TR_FP_PLN_3 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.963	-3.537	1.000	1.000	2.537

MM DIM DIST_PA_-168.75= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_5 TO POINT PNT_TR_FP_PLN_5 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.688	-3.812	1.000	1.000	2.812

MM DIM DIST_PA_-123.75= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_7 TO POINT PNT_TR_FP_PLN_7 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1002.799	-4.701	1.000	1.000	3.701

MM DIM DIST_PA_-78.75= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_9 TO POINT PNT_TR_FP_PLN_9 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1002.500	-5.000	1.000	1.000	4.000

MM DIM DIST_PA_-33.75= 2D DISTANCE FROM POINT PNT_TR_MC_PLN_11 TO POINT PNT_TR_FP_PLN_11 PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.013	-4.487	1.000	1.000	3.487

MM DIM DIST_BETWEEN_PLANES= 2D DISTANCE FROM PLANE PLNC_TR_MC TO PLANE PLNC_TR_FP PAR TO YAXIS

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
M	1007.500	1003.314	-4.186	1.000	1.000	3.186

LOCATIONS OF CONSTRUCTED CIRCLES
ON 18 HALF CELLS

MM DIM LOC_CC3= LOCATION OF CIRCLE CIRC_CAV_1_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.060	-0.060	0.200	0.200	0.000
Y	0.000	-966.472	-966.472	2000.000	2000.000	0.000
Z	0.000	0.339	0.339	0.200	0.200	0.139
D	210.300	210.700	0.400	0.200	0.200	0.200
RN	0.000	0.064	0.064	0.200	0.000	0.000

MM DIM LOC_CC4= LOCATION OF CIRCLE CIRC_CAV_1_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.093	-0.093	0.200	0.200	0.000
Y	0.000	-954.860	-954.860	2000.000	2000.000	0.000
Z	0.000	0.353	0.353	0.200	0.200	0.153
D	210.300	210.532	0.232	0.200	0.200	0.032
RN	0.000	0.053	0.053	0.200	0.000	0.000

MM DIM LOC_CC5= LOCATION OF CIRCLE CIRC_CAV_2_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.347	-0.347	0.200	0.200	0.147
Y	0.000	-852.210	-852.210	2000.000	2000.000	0.000
Z	0.000	0.661	0.661	0.200	0.200	0.461
D	210.300	210.630	0.330	0.200	0.200	0.130
RN	0.000	0.223	0.223	0.200	0.000	0.023

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MM DIM LOC_CC6= LOCATION OF CIRCLE CIRC_CAV_2_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.344	-0.344	0.200	0.200	0.144
Y	0.000	-840.293	-840.293	2000.000	2000.000	0.000
Z	0.000	0.690	0.690	0.200	0.200	0.490
D	210.300	210.547	0.247	0.200	0.200	0.047
RN	0.000	0.178	0.178	0.200	0.000	0.000

MM DIM LOC_CC7= LOCATION OF CIRCLE CIRC_CAV_3_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.421	-0.421	0.200	0.200	0.221
Y	0.000	-736.812	-736.812	2000.000	2000.000	0.000
Z	0.000	0.939	0.939	0.200	0.200	0.739
D	210.300	210.621	0.321	0.200	0.200	0.121
RN	0.000	0.177	0.177	0.200	0.000	0.000

MM DIM LOC_CC8= LOCATION OF CIRCLE CIRC_CAV_3_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.389	-0.389	0.200	0.200	0.189
Y	0.000	-724.369	-724.369	2000.000	2000.000	0.000
Z	0.000	0.917	0.917	0.200	0.200	0.717
D	210.300	210.531	0.231	0.200	0.200	0.031
RN	0.000	0.190	0.190	0.200	0.000	0.000

MM DIM LOC_CC9= LOCATION OF CIRCLE CIRC_CAV_4_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.228	-0.228	0.200	0.200	0.028
Y	0.000	-621.284	-621.284	2000.000	2000.000	0.000
Z	0.000	1.189	1.189	0.200	0.200	0.989
D	210.300	210.655	0.355	0.200	0.200	0.155
RN	0.000	0.141	0.141	0.200	0.000	0.000

MM DIM LOC_CC10= LOCATION OF CIRCLE CIRC_CAV_4_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.212	-0.212	0.200	0.200	0.012
Y	0.000	-609.801	-609.801	2000.000	2000.000	0.000
Z	0.000	1.188	1.188	0.200	0.200	0.988
D	210.300	210.527	0.227	0.200	0.200	0.027
RN	0.000	0.197	0.197	0.200	0.000	0.000

MM DIM LOC_CC11= LOCATION OF CIRCLE CIRC_CAV_5_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.239	-0.239	0.200	0.200	0.039
Y	0.000	-506.459	-506.459	2000.000	2000.000	0.000
Z	0.000	1.370	1.370	0.200	0.200	1.170
D	210.300	210.575	0.275	0.200	0.200	0.075
RN	0.000	0.170	0.170	0.200	0.000	0.000

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MM DIM LOC_CC12= LOCATION OF CIRCLE CIRC_CAV_5_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.220	-0.220	0.200	0.200	0.020
Y	0.000	-494.983	-494.983	2000.000	2000.000	0.000
Z	0.000	1.388	1.388	0.200	0.200	1.188
D	210.300	210.561	0.261	0.200	0.200	0.061
RN	0.000	0.176	0.176	0.200	0.000	0.000

MM DIM LOC_CC13= LOCATION OF CIRCLE CIRC_CAV_6_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.285	-0.285	0.200	0.200	0.085
Y	0.000	-390.933	-390.933	2000.000	2000.000	0.000
Z	0.000	1.346	1.346	0.200	0.200	1.146
D	210.300	210.619	0.319	0.200	0.200	0.119
RN	0.000	0.227	0.227	0.200	0.000	0.027

MM DIM LOC_CC14= LOCATION OF CIRCLE CIRC_CAV_6_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.272	-0.272	0.200	0.200	0.072
Y	0.000	-379.366	-379.366	2000.000	2000.000	0.000
Z	0.000	1.321	1.321	0.200	0.200	1.121
D	210.300	210.492	0.192	0.200	0.200	0.000
RN	0.000	0.147	0.147	0.200	0.000	0.000

MM DIM LOC_CC15= LOCATION OF CIRCLE CIRC_CAV_7_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.301	-0.301	0.200	0.200	0.101
Y	0.000	-275.578	-275.578	2000.000	2000.000	0.000
Z	0.000	1.060	1.060	0.200	0.200	0.860
D	210.300	210.545	0.245	0.200	0.200	0.045
RN	0.000	0.277	0.277	0.200	0.000	0.077

MM DIM LOC_CC16= LOCATION OF CIRCLE CIRC_CAV_7_2

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.298	-0.298	0.200	0.200	0.098
Y	0.000	-264.408	-264.408	2000.000	2000.000	0.000
Z	0.000	1.109	1.109	0.200	0.200	0.909
D	210.300	210.587	0.287	0.200	0.200	0.087
RN	0.000	0.262	0.262	0.200	0.000	0.062

MM DIM LOC_CC17= LOCATION OF CIRCLE CIRC_CAV_8_1

AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.152	-0.152	0.200	0.200	0.000
Y	0.000	-161.323	-161.323	2000.000	2000.000	0.000
Z	0.000	0.707	0.707	0.200	0.200	0.507
D	210.300	210.591	0.291	0.200	0.200	0.091
RN	0.000	0.190	0.190	0.200	0.000	0.000

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MM	DIM LOC_CC18= LOCATION OF CIRCLE CIRC_CAV_8_2					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	-0.198	-0.198	0.200	0.200	0.000
Y	0.000	-148.885	-148.885	2000.000	2000.000	0.000
Z	0.000	0.662	0.662	0.200	0.200	0.462
D	210.300	210.529	0.229	0.200	0.200	0.029
RN	0.000	0.208	0.208	0.200	0.000	0.008

MM	DIM LOC_CC19= LOCATION OF CIRCLE CIRC_CAV_9_1					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.078	0.078	0.200	0.200	0.000
Y	0.000	-45.603	-45.603	2000.000	2000.000	0.000
Z	0.000	0.236	0.236	0.200	0.200	0.036
D	210.300	210.608	0.308	0.200	0.200	0.108
RN	0.000	0.121	0.121	0.200	0.000	0.000

MM	DIM LOC_CC20= LOCATION OF CIRCLE CIRC_CAV_9_2					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.053	0.053	0.200	0.200	0.000
Y	0.000	-33.766	-33.766	2000.000	2000.000	0.000
Z	0.000	0.209	0.209	0.200	0.200	0.009
D	210.300	210.598	0.298	0.200	0.200	0.098
RN	0.000	0.144	0.144	0.200	0.000	0.000

Location of End Flanges

MM	DIM LOC_23= LOCATION OF CIRCLE CIR_END_FLANGE_MC					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.018	0.018	0.200	0.200	0.000
Y	0.000	116.467	116.467	2000.000	2000.000	0.000
Z	0.000	-0.340	-0.340	0.200	0.200	0.140
D	140.000	140.074	0.074	0.300	0.300	0.000
RN	0.000	0.008	0.008	0.200	0.000	0.000

MM	DIM LOC_24= LOCATION OF CIRCLE CIR_END_FLANGE_FP					
AX	NOMINAL	MEAS	DEV	+TOL	-TOL	OUTTOL
X	0.000	0.056	0.056	0.200	0.200	0.000
Y	0.000	-1116.152	-1116.152	2000.000	2000.000	0.000
Z	0.000	-0.053	-0.053	0.200	0.200	0.000
D	140.000	140.067	0.067	0.300	0.300	0.000
RN	0.000	0.010	0.010	0.200	0.000	0.000

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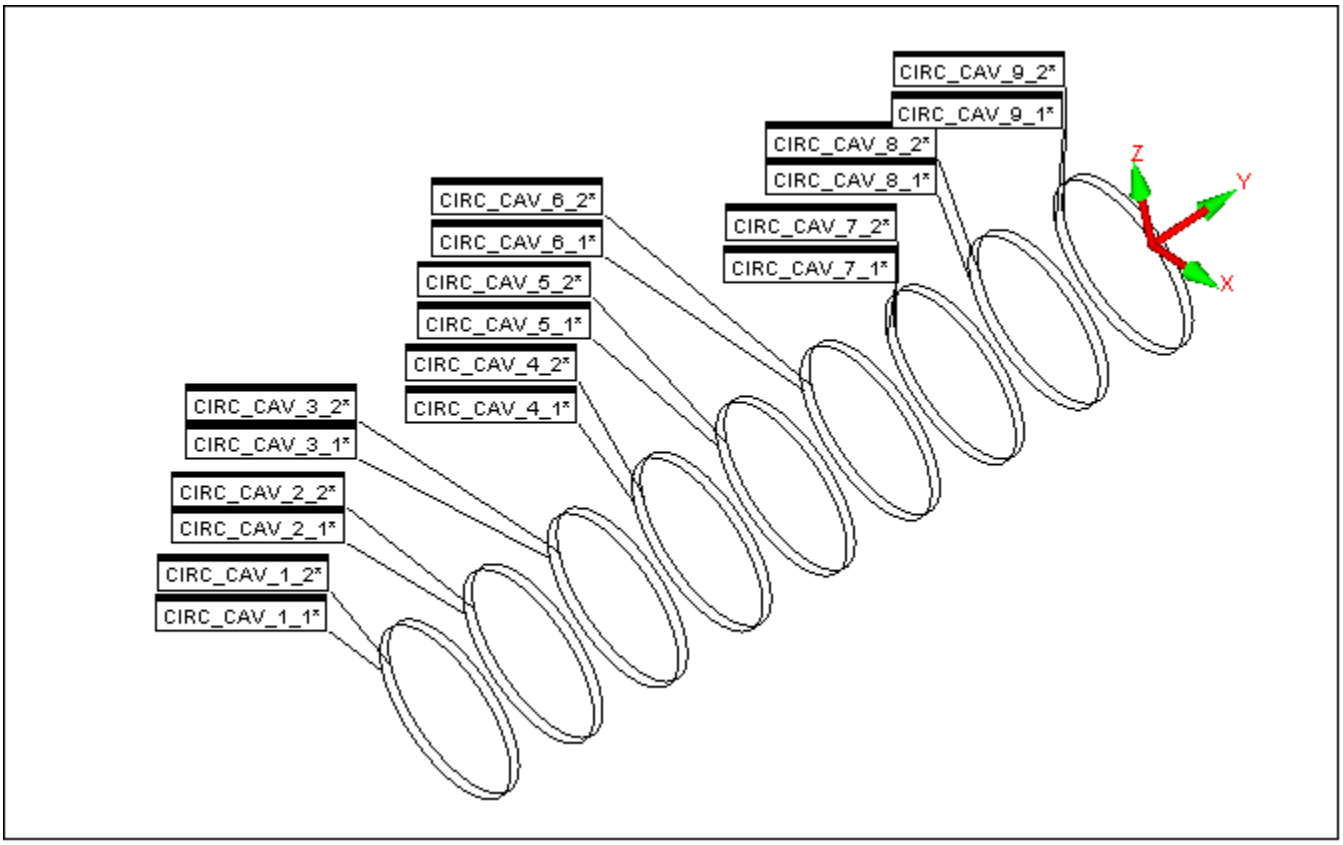

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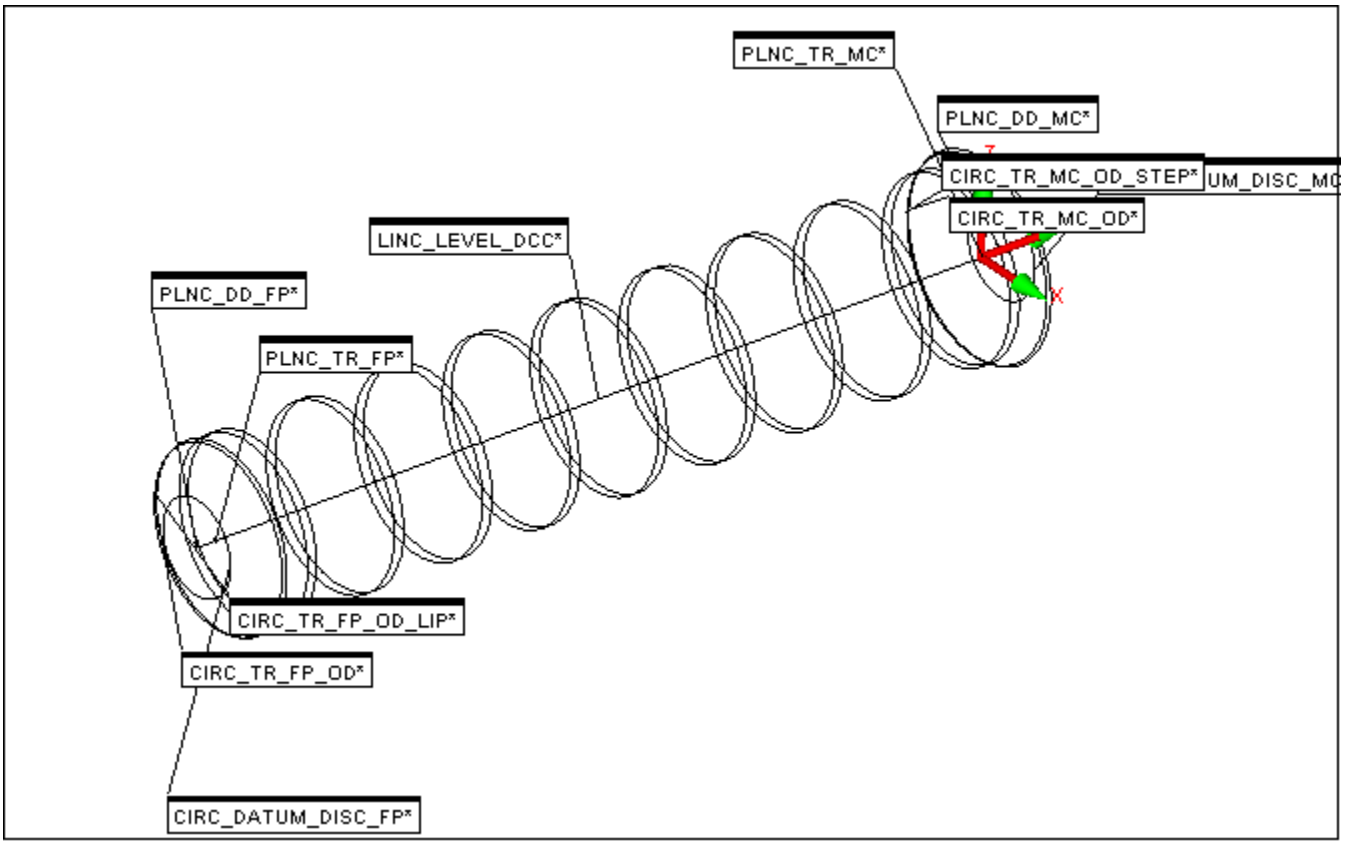

END OF MEASUREMENT FOR
PN=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DWG= SN
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PART NUMBER=PN440004-n-Trans-Rings-180-TB9ACC013-v2-IR DATE=9/22/2009 TIME=3:35:14 PM
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