**FERMILAB Technical Division**

**QUALITY CONTROL REPORT**

DATE=4/23/2008 TIME=1:32:55 PM

PART NAME : PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR
REV NUMBER :
SER NUMBER :
STATS COUNT : 1

440004-n
FNAL 1.3GHZ TESLA
RF CAVITY
ASSEMBLY
'Inspected by' : Robert Riley
'Cavity Number' : ACCEL-TB9ACC015

BEAM PIPE FLANGE NEAR

| MM | DIM LOC1= LOCATION OF PLANE PL-NEAR-END-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Y | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| V | 0.000 | -1.000 | 0.004 | | | |
| FL | 0.000 | 0.015 | 0.015 | 0.200 | 0.000 | 0.000 |

| // MM | DIM PARL1= PARALLEL OF PLANE PL-NEAR-END-FLANGE,RFS TO WORKPLANE YMINUS EXTEND=0.000 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 0.000 | 0.423 | 0.423 | 0.200 | 0.000 | 0.223 |

| DEG | DIM ANGL1= 3D ANGLE (COMPLEMENT) FROM PLANE PL-NEAR-END-FLANGE TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 0.000 | 0.202 | 0.202 | 0.100 | 0.100 | 0.102 |

| MM | DIM LOC2= LOCATION OF CIRCLE CR-NEAR-END-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | -0.001 | -0.001 | 0.200 | 0.200 | 0.000 |
| Z | 0.000 | 0.415 | 0.415 | 0.200 | 0.200 | 0.215 |
| D | 140.000 | 140.083 | 0.083 | 0.300 | 0.300 | 0.000 |
| RN | 0.000 | 0.005 | 0.005 | 0.200 | 0.000 | 0.000 |

| MM | DIM DIST03= 2D DISTANCE FROM PLANE PL-NEAR-END-FLANGE TO PLANE PL-NEAR-END-FLANGE-ORING PAR TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 1.000 | 1.084 | 0.084 | 0.100 | 0.100 | 0.000 |

BEAM PIPE FLANGE FAR

| MM | DIM LOC3= LOCATION OF PLANE PL-FAR-END | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Y | 1247.400 | 1243.638 | -3.762 | 3.000 | 3.000 | 0.762 |
| V | 0.004 | 1.000 | 0.002 | | | |
| FL | 0.000 | 0.018 | 0.018 | 0.200 | 0.000 | 0.000 |

| // MM | DIM PARL2= PARALLEL OF PLANE PL-FAR-END,RFS TO WORKPLANE ZPLUS EXTEND=0.000 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 0.000 | 122.619 | 122.619 | 0.200 | 0.000 | 122.419 |

| DEG | DIM ANGL2= 3D ANGLE (COMPLEMENT) FROM PLANE PL-FAR-END TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 0.000 | 0.272 | 0.272 | 0.100 | 0.100 | 0.172 |

| MM | DIM LOC4= LOCATION OF CIRCLE CR-FAR-END | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.115 | 0.115 | 0.200 | 0.200 | 0.000 |
| Z | 0.000 | 0.115 | 0.115 | 0.200 | 0.200 | 0.000 |
| D | 140.000 | 140.076 | 0.076 | 0.300 | 0.300 | 0.000 |
| RN | 0.000 | 0.007 | 0.007 | 0.200 | 0.000 | 0.000 |

| MM | DIM DIST04= 2D DISTANCE FROM PLANE PL-FAR-END TO PLANE PL-FAR-END-FLANGE-ORING PAR TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 1.000 | 1.082 | 0.082 | 0.100 | 0.100 | 0.000 |

DATUM-1-PLANE

| MM | DIM LOC-DATUM-1-PLANE= LOCATION OF PLANE PLC-DAT-1 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Y | 92.840 | 93.025 | 0.185 | 0.200 | 0.200 | 0.000 |
| V | 0.000 | -1.000 | 0.004 | | | |
| FL | 0.000 | 0.039 | 0.039 | 0.200 | 0.000 | 0.000 |

| // MM | DIM PARL5= PARALLEL OF PLANE PLC-DAT-1,RFS TO WORKPLANE ZPLUS EXTEND=0.000 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 0.000 | 106.453 | 106.453 | 0.200 | 0.000 | 106.253 |

| DEG | DIM ANGL7= 3D ANGLE (TRUE) FROM PLANE PLC-DAT-1 TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 0.000 | 0.256 | 0.256 | 0.100 | 0.100 | 0.156 |

DATUM-2-PLANE

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MM DIM LOC-DATUM-2-PLANE= LOCATION OF PLANE PLC-DAT-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| Y | 1154.560 | 1149.952 | -4.608 | 0.200 | 0.200 | 4.408 |
| V | -0.002 | 1.000 | 0.002 | | | |
| FL | 0.000 | 0.026 | 0.026 | 0.200 | 0.000 | 0.000 |

// MM DIM PARL6= PARALLEL OF PLANE PLC-DAT-2,RFS TO WORKPLANE ZPLUS EXTEND=0.000

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| M | 0.000 | 107.365 | 107.365 | 0.200 | 0.000 | 107.165 |

DEG DIM ANGL8= 3D ANGLE (TRUE) FROM PLANE PLC-DAT-2 TO YAXIS

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| A | 0.000 | 0.140 | 0.140 | 0.100 | 0.100 | 0.040 |

MM DIM DIST3= 2D DISTANCE FROM PLANE PLC-DAT-1 TO PLANE PLC-DAT-2 PAR TO YAXIS

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| M | 1061.060 | 1056.928 | -4.132 | 0.200 | 0.200 | 3.932 |

MM DIM DIST4= 2D DISTANCE FROM PLANE PLC-DAT-2 TO PLANE PL-FAR-END PAR TO YAXIS

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| M | 93.500 | 93.686 | 0.186 | 0.200 | 0.200 | 0.000 |

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PICKUP ANTENNA FLANGE NW8

| MM | DIM LOC5= LOCATION OF PLANE PL-NW8-ANTENNA-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | -53.800 | -53.844 | -0.044 | 0.200 | 0.200 | 0.000 |
| V | -1.000 | 0.001 | 0.003 | | | |
| FL | 0.000 | 0.135 | 0.135 | 0.200 | 0.000 | 0.000 |

| // MM | DIM PARL3= PARALLEL OF PLANE PL-NW8-ANTENNA-FLANGE,RFS TO WORKPLANE XMINUS EXTEND=0.000 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 0.000 | 0.156 | 0.156 | 0.200 | 0.000 | 0.000 |

| DEG | DIM ANGL3= 3D ANGLE (TRUE) FROM PLANE PL-NW8-ANTENNA-FLANGE TO XAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 0.000 | 0.193 | 0.193 | 0.100 | 0.100 | 0.093 |

| MM | DIM LOC6= LOCATION OF CIRCLE CR_NW8_ANTENNA_FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Y | 60.600 | 60.532 | -0.068 | 0.200 | 0.200 | 0.000 |
| Z | 0.000 | 0.803 | 0.803 | 0.200 | 0.200 | 0.603 |
| D | 33.800 | 33.827 | 0.027 | 0.150 | 0.000 | 0.000 |
| RN | 0.000 | 0.009 | 0.009 | 0.150 | 0.000 | 0.000 |

MAIN COUPLER FLANGE NW40

| MM | DIM LOC7= LOCATION OF PLANE PL-NW-40-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 88.000 | 87.902 | -0.098 | 0.200 | 0.200 | 0.000 |
| V | 1.000 | 0.002 | -0.001 | | | |
| FL | 0.000 | 0.034 | 0.034 | 0.200 | 0.000 | 0.000 |

| // MM | DIM PARL4= PARALLEL OF PLANE PL-NW-40-FLANGE,RFS TO WORKPLANE XMINUS EXTEND=0.000 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 0.000 | 0.168 | 0.168 | 0.200 | 0.000 | 0.000 |

| DEG | DIM ANGL4= 3D ANGLE (TRUE) FROM PLANE PL-NW-40-FLANGE TO XAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 0.000 | 0.149 | 0.149 | 0.100 | 0.100 | 0.049 |

| MM | DIM LOC8= LOCATION OF CIRCLE CR_NW_40_FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Y | 1186.800 | 1183.201 | -3.599 | 0.200 | 0.200 | 3.399 |
| Z | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| D | 76.000 | 75.989 | -0.011 | 0.200 | 0.000 | 0.011 |
| RN | 0.000 | 0.012 | 0.012 | 0.200 | 0.000 | 0.000 |

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| MM | DIM DIST1= 2D DISTANCE FROM CIRCLE CR_NW_40_FLANGE TO PLANE PL-FAR-END PAR TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 60.600 | 60.438 | -0.162 | 0.200 | 0.200 | 0.000 |

HOM-2 FLANGE NW12

| MM | DIM FLAT4= FLATNESS OF PLANE PL-NW12-HOM-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 0.000 | 0.004 | 0.004 | 0.200 | 0.000 | 0.000 |

| DEG | DIM ANGL5= 2D ANGLE (COMPLEMENT) FROM PLANE PL-NW12-HOM-FLANGE TO ZAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 15.000 | 18.441 | 3.441 | 0.500 | 0.500 | 2.941 |

| DEG | DIM ANGL6= 2D ANGLE (TRUE) FROM PLANE PL-NW12-HOM-FLANGE TO ZAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 35.000 | 35.218 | 0.218 | 0.500 | 0.500 | 0.000 |

| MM | DIM LOC9= LOCATION OF CIRCLE CR-NW12-HOM-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | -72.448 | -72.448 | 100.000 | 100.000 | 0.000 |
| Y | 0.000 | 1187.166 | 1187.166 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -7.947 | -7.947 | 100.000 | 100.000 | 0.000 |
| D | 33.800 | 33.780 | -0.020 | 0.150 | 0.000 | 0.020 |
| RN | 0.000 | 0.025 | 0.025 | 0.150 | 0.000 | 0.000 |

| MM | DIM DIST FORMTEIL2 POINT= 2D DISTANCE FROM POINT PT-FORMTEIL2 TO PLANE PL-NW12-HOM-FLANGE PERP TO PLANE PL-NW12-HOM-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 28.420 | 28.483 | 0.063 | 0.100 | 0.100 | 0.000 |

| MM | DIM DIST FORMTEIL2 TAIL= 2D DISTANCE FROM PLANE PL-FORMTEIL2 TO PLANE PL-NW12-HOM-FLANGE PERP TO PLANE PL-NW12-HOM-FLANGE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 28.420 | 28.483 | 0.063 | 0.100 | 0.100 | 0.000 |

HOM 1 LOCATION

| MM | DIM LOC-HOM1= LOCATION OF CYLINDER CY-HOM-1 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 69.114 | 69.114 | 100.000 | 100.000 | 0.000 |
| Y | 60.600 | 60.252 | -0.348 | 0.200 | 0.200 | 0.148 |
| Z | 0.000 | -40.429 | -40.429 | 100.000 | 100.000 | 0.000 |
| D | 44.000 | 43.767 | -0.233 | 0.000 | 0.100 | 0.133 |
| RN | 0.000 | 0.174 | 0.174 | 0.100 | 0.000 | 0.074 |
| V | -0.863 | 0.004 | 0.506 | | | |

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| DEG | DIM ANGL9= 2D ANGLE (COMPLEMENT) FROM CYLINDER CY-HOM-1 TO XAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 30.000 | 30.390 | 0.390 | 0.500 | 0.500 | 0.000 |

| DEG | DIM ANGL10= 3D ANGLE (TRUE) FROM CYLINDER CY-HOM-1 TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 90.000 | 89.762 | -0.238 | 0.500 | 0.500 | 0.000 |

| DEG | DIM ANGL11= 2D ANGLE (TRUE) FROM CYLINDER CY-HOM-1 TO ZAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 60.000 | 59.610 | -0.390 | 0.500 | 0.500 | 0.000 |

| MM | DIM LOC-HOM3= LOCATION OF POINT PT-RT-HOM-1 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| PR | 116.000 | 116.004 | 0.004 | 0.200 | 0.200 | 0.000 |

| MM | DIM HOM1 POINT= LOCATION OF POINT PT-RT-HOM-1 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| PR | 116.000 | 116.004 | 0.004 | 0.200 | 0.200 | 0.000 |

| MM | DIM HOME1 PLANE= LOCATION OF PLANE PL HOM-1 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| PR | 111.000 | 110.965 | -0.035 | 0.200 | 0.200 | 0.000 |

INTERSECTION OF HOM1 & YZ PLANE

| MM | DIM LOC-HOM1 X PLANE= LOCATION OF POINT PTC-HOM1 X YZ PLANE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| Y | 60.600 | 60.584 | -0.016 | 0.200 | 0.200 | 0.000 |
| Z | 0.000 | 0.104 | 0.104 | 0.200 | 0.200 | 0.000 |

HOM 2 LOCATION

| MM | DIM LOC-HOM2= LOCATION OF CYLINDER CY-HOM-2 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | -64.462 | -64.462 | 100.000 | 100.000 | 0.000 |
| Y | 1186.800 | 1183.039 | -3.761 | 3.000 | 3.000 | 0.761 |
| Z | 0.000 | -45.604 | -45.604 | 100.000 | 100.000 | 0.000 |
| D | 44.000 | 43.840 | -0.160 | 0.000 | 0.100 | 0.060 |
| RN | 0.000 | 0.102 | 0.102 | 0.100 | 0.000 | 0.002 |
| V | -0.820 | 0.002 | -0.573 | | | |

| MM | DIM DIST2= 2D DISTANCE FROM CYLINDER CY-HOM-2 TO PLANE PL-FAR-END PAR TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| M | 60.600 | 60.599 | -0.001 | 0.200 | 0.200 | 0.000 |

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| DEG | DIM ANGL12= 2D ANGLE (TRUE) FROM CYLINDER CY-HOM-2 TO XAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 35.000 | 34.930 | -0.070 | 0.500 | 0.500 | 0.000 |

| DEG | DIM ANGL13= 3D ANGLE (COMPLEMENT) FROM CYLINDER CY-HOM-2 TO YAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 90.000 | 90.089 | 0.089 | 0.500 | 0.500 | 0.000 |

| DEG | DIM ANGL14= 2D ANGLE (TRUE) FROM CYLINDER CY-HOM-2 TO ZAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 55.000 | 55.070 | 0.070 | 0.500 | 0.500 | 0.000 |

| MM | DIM HOM2 POINT= LOCATION OF POINT PT-HOM-2 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| PR | 116.000 | 115.882 | -0.118 | 0.200 | 0.200 | 0.000 |

| MM | DIM HOM2 PLANE= LOCATION OF PLANE PL HOM-2 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| PR | 111.000 | 110.892 | -0.108 | 0.200 | 0.200 | 0.000 |

INTERSECTION OF HOM2 & YZ PLANE

| MM | DIM LOC-HOM2 X PLANE= LOCATION OF POINT PTC-HOM2 X YZ PLANE | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| Y | 1186.800 | 1182.916 | -3.884 | 3.000 | 3.000 | 0.884 |
| Z | 0.000 | -0.584 | -0.584 | 0.200 | 0.200 | 0.384 |

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LOCATIONS OF CONSTRUCTED CIRCLES
ON 18 HALF CELLS & 2 DATUM SURFACES & 2 VACUUM SURFACES

MM DIM LOC-CC1= LOCATION OF CIRCLE CRC-DAT-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 95.044 | 95.044 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| D | 111.000 | 110.905 | -0.094 | 0.050 | 0.050 | 0.044 |
| RN | 0.000 | 0.019 | 0.019 | 0.050 | 0.000 | 0.000 |

MM DIM LOC-CC2= LOCATION OF CIRCLE CRC-VAC-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.009 | -0.009 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 122.788 | 122.788 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.131 | -0.131 | 0.200 | 0.200 | 0.000 |
| D | 191.200 | 191.217 | 0.016 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.026 | 0.026 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC3= LOCATION OF CIRCLE CRC-CAV-1-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.026 | -0.026 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 155.770 | 155.770 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.050 | -0.051 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.680 | 0.380 | 0.200 | 0.200 | 0.180 |
| RN | 0.000 | 0.179 | 0.179 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC4= LOCATION OF CIRCLE CRC-CAV-1-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.061 | -0.062 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 167.989 | 167.989 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.042 | -0.042 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.532 | 0.232 | 0.200 | 0.200 | 0.032 |
| RN | 0.000 | 0.182 | 0.182 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC5= LOCATION OF CIRCLE CRC-CAV-2-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.313 | -0.313 | 0.200 | 0.200 | 0.113 |
| Y | 0.000 | 270.210 | 270.210 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.079 | -0.079 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.679 | 0.379 | 0.200 | 0.200 | 0.179 |
| RN | 0.000 | 0.222 | 0.222 | 0.200 | 0.000 | 0.022 |

MM DIM LOC-CC6= LOCATION OF CIRCLE CRC-CAV-2-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.285 | -0.286 | 0.200 | 0.200 | 0.086 |
| Y | 0.000 | 282.564 | 282.564 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.044 | -0.045 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.543 | 0.243 | 0.200 | 0.200 | 0.043 |
| RN | 0.000 | 0.171 | 0.171 | 0.200 | 0.000 | 0.000 |

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MM DIM LOC-CC7= LOCATION OF CIRCLE CRC-CAV-3-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.461 | -0.462 | 0.200 | 0.200 | 0.262 |
| Y | 0.000 | 385.655 | 385.655 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.090 | -0.090 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.564 | 0.264 | 0.200 | 0.200 | 0.064 |
| RN | 0.000 | 0.274 | 0.274 | 0.200 | 0.000 | 0.074 |

MM DIM LOC-CC8= LOCATION OF CIRCLE CRC-CAV-3-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.505 | -0.505 | 0.200 | 0.200 | 0.305 |
| Y | 0.000 | 397.836 | 397.836 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.083 | -0.083 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.531 | 0.231 | 0.200 | 0.200 | 0.031 |
| RN | 0.000 | 0.206 | 0.206 | 0.200 | 0.000 | 0.006 |

MM DIM LOC-CC9= LOCATION OF CIRCLE CRC-CAV-4-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.521 | -0.521 | 0.200 | 0.200 | 0.321 |
| Y | 0.000 | 500.385 | 500.385 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.149 | -0.149 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.613 | 0.313 | 0.200 | 0.200 | 0.113 |
| RN | 0.000 | 0.226 | 0.226 | 0.200 | 0.000 | 0.026 |

MM DIM LOC-CC10= LOCATION OF CIRCLE CRC-CAV-4-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.494 | -0.494 | 0.200 | 0.200 | 0.294 |
| Y | 0.000 | 512.408 | 512.408 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.209 | -0.209 | 0.200 | 0.200 | 0.009 |
| D | 210.300 | 210.511 | 0.211 | 0.200 | 0.200 | 0.011 |
| RN | 0.000 | 0.257 | 0.257 | 0.200 | 0.000 | 0.057 |

MM DIM LOC-CC11= LOCATION OF CIRCLE CRC-CAV-5-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.438 | -0.438 | 0.200 | 0.200 | 0.238 |
| Y | 0.000 | 615.792 | 615.792 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.308 | -0.308 | 0.200 | 0.200 | 0.108 |
| D | 210.300 | 210.586 | 0.286 | 0.200 | 0.200 | 0.086 |
| RN | 0.000 | 0.211 | 0.211 | 0.200 | 0.000 | 0.011 |

MM DIM LOC-CC12= LOCATION OF CIRCLE CRC-CAV-5-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.436 | -0.436 | 0.200 | 0.200 | 0.236 |
| Y | 0.000 | 627.940 | 627.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.332 | -0.332 | 0.200 | 0.200 | 0.132 |
| D | 210.300 | 210.523 | 0.223 | 0.200 | 0.200 | 0.023 |
| RN | 0.000 | 0.173 | 0.173 | 0.200 | 0.000 | 0.000 |

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MM DIM LOC-CC13= LOCATION OF CIRCLE CRC-CAV-6-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.358 | -0.358 | 0.200 | 0.200 | 0.158 |
| Y | 0.000 | 730.848 | 730.848 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.339 | -0.339 | 0.200 | 0.200 | 0.139 |
| D | 210.300 | 210.576 | 0.276 | 0.200 | 0.200 | 0.076 |
| RN | 0.000 | 0.166 | 0.166 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC14= LOCATION OF CIRCLE CRC-CAV-6-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.351 | -0.351 | 0.200 | 0.200 | 0.151 |
| Y | 0.000 | 743.161 | 743.161 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.318 | -0.318 | 0.200 | 0.200 | 0.118 |
| D | 210.300 | 210.491 | 0.190 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.193 | 0.193 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC15= LOCATION OF CIRCLE CRC-CAV-7-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.294 | -0.294 | 0.200 | 0.200 | 0.094 |
| Y | 0.000 | 845.445 | 845.445 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.299 | -0.299 | 0.200 | 0.200 | 0.099 |
| D | 210.300 | 210.593 | 0.293 | 0.200 | 0.200 | 0.093 |
| RN | 0.000 | 0.198 | 0.198 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC16= LOCATION OF CIRCLE CRC-CAV-7-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.243 | -0.243 | 0.200 | 0.200 | 0.043 |
| Y | 0.000 | 858.454 | 858.454 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.315 | -0.315 | 0.200 | 0.200 | 0.115 |
| D | 210.300 | 210.583 | 0.283 | 0.200 | 0.200 | 0.083 |
| RN | 0.000 | 0.178 | 0.178 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC17= LOCATION OF CIRCLE CRC-CAV-8-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.139 | -0.139 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 960.757 | 960.757 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.220 | -0.220 | 0.200 | 0.200 | 0.020 |
| D | 210.300 | 210.705 | 0.405 | 0.200 | 0.200 | 0.205 |
| RN | 0.000 | 0.082 | 0.082 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC18= LOCATION OF CIRCLE CRC-CAV-8-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.155 | -0.155 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 972.910 | 972.910 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.233 | -0.233 | 0.200 | 0.200 | 0.033 |
| D | 210.300 | 210.645 | 0.345 | 0.200 | 0.200 | 0.145 |
| RN | 0.000 | 0.096 | 0.096 | 0.200 | 0.000 | 0.000 |

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MM DIM LOC-CC19= LOCATION OF CIRCLE CRC-CAV-9-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | 0.016 | 0.016 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 1075.322 | 1075.322 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.130 | -0.130 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.681 | 0.381 | 0.200 | 0.200 | 0.181 |
| RN | 0.000 | 0.068 | 0.068 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC20= LOCATION OF CIRCLE CRC-CAV-9-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.023 | -0.023 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 1088.228 | 1088.228 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.089 | -0.089 | 0.200 | 0.200 | 0.000 |
| D | 210.300 | 210.672 | 0.371 | 0.200 | 0.200 | 0.171 |
| RN | 0.000 | 0.061 | 0.061 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC21= LOCATION OF CIRCLE CRC-VAC-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | 0.057 | 0.057 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 1117.506 | 1117.506 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.057 | -0.057 | 0.200 | 0.200 | 0.000 |
| D | 200.000 | 200.084 | 0.084 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.047 | 0.047 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-CC22= LOCATION OF CIRCLE CRC-DAT-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 1148.134 | 1148.134 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | 0.000 | 0.000 | 0.200 | 0.200 | 0.000 |
| D | 111.000 | 110.960 | -0.040 | 0.050 | 0.050 | 0.000 |
| RN | 0.000 | 0.022 | 0.022 | 0.050 | 0.000 | 0.000 |

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TRUE POSITIONS OF CONSTRUCTED CIRCLES
ON 18 HALF CELLS & 2 DATUM SURFACES & 2 VACUUM SURFACES

| ⊕ MM | DIM LOC-TP-CC1= TRUE POSITION OF CIRCLE CRC-DAT-1 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | 0.000 | 0.000 | | | | |
| Z | 0.000 | 0.000 | 0.000 | | | | |
| TP | RFS | | 0.000 | 0.200 | | 0.000 | 0.000 |

| ⊕ MM | DIM LOC-TP-CC2= TRUE POSITION OF CIRCLE CRC-VAC-1 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | -0.009 | -0.009 | | | | |
| Z | 0.000 | -0.131 | -0.131 | | | | |
| TP | RFS | | 0.263 | 0.200 | | 0.000 | 0.063 |

| ⊕ MM | DIM LOC-TP-CC3= TRUE POSITION OF CIRCLE CRC-CAV-1-1 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | -0.026 | -0.026 | | | | |
| Z | 0.000 | -0.050 | -0.051 | | | | |
| TP | RFS | | 0.114 | 0.200 | | 0.000 | 0.000 |

| ⊕ MM | DIM LOC-TP-CC4= TRUE POSITION OF CIRCLE CRC-CAV-1-2 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | -0.061 | -0.062 | | | | |
| Z | 0.000 | -0.042 | -0.042 | | | | |
| TP | RFS | | 0.149 | 0.200 | | 0.000 | 0.000 |

| ⊕ MM | DIM LOC-TP-CC5= TRUE POSITION OF CIRCLE CRC-CAV-2-1 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | -0.313 | -0.313 | | | | |
| Z | 0.000 | -0.079 | -0.079 | | | | |
| TP | RFS | | 0.646 | 0.200 | | 0.000 | 0.446 |

| ⊕ MM | DIM LOC-TP-CC6= TRUE POSITION OF CIRCLE CRC-CAV-2-2 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | -0.285 | -0.286 | | | | |
| Z | 0.000 | -0.044 | -0.045 | | | | |
| TP | RFS | | 0.578 | 0.200 | | 0.000 | 0.378 |

| ⊕ MM | DIM LOC-TP-CC7= TRUE POSITION OF CIRCLE CRC-CAV-3-1 | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
| X | 0.000 | -0.461 | -0.462 | | | | |
| Z | 0.000 | -0.090 | -0.090 | | | | |
| TP | RFS | | 0.940 | 0.200 | | 0.000 | 0.740 |

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⊕ MM DIM LOC-TP-CC8= TRUE POSITION OF CIRCLE CRC-CAV-3-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.505 | -0.505 | | | | |
| Z | 0.000 | -0.083 | -0.083 | | | | |
| TP | RFS | | 1.024 | 0.200 | | 0.000 | 0.824 |

⊕ MM DIM LOC-TP-CC9= TRUE POSITION OF CIRCLE CRC-CAV-4-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.521 | -0.521 | | | | |
| Z | 0.000 | -0.149 | -0.149 | | | | |
| TP | RFS | | 1.085 | 0.200 | | 0.000 | 0.885 |

⊕ MM DIM LOC-TP-CC10= TRUE POSITION OF CIRCLE CRC-CAV-4-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.494 | -0.494 | | | | |
| Z | 0.000 | -0.209 | -0.209 | | | | |
| TP | RFS | | 1.073 | 0.200 | | 0.000 | 0.873 |

⊕ MM DIM LOC-TP-CC11= TRUE POSITION OF CIRCLE CRC-CAV-5-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.438 | -0.438 | | | | |
| Z | 0.000 | -0.308 | -0.308 | | | | |
| TP | RFS | | 1.070 | 0.200 | | 0.000 | 0.870 |

⊕ MM DIM LOC-TP-CC12= TRUE POSITION OF CIRCLE CRC-CAV-5-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.436 | -0.436 | | | | |
| Z | 0.000 | -0.332 | -0.332 | | | | |
| TP | RFS | | 1.095 | 0.200 | | 0.000 | 0.895 |

⊕ MM DIM LOC-TP-CC13= TRUE POSITION OF CIRCLE CRC-CAV-6-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.358 | -0.358 | | | | |
| Z | 0.000 | -0.339 | -0.339 | | | | |
| TP | RFS | | 0.987 | 0.200 | | 0.000 | 0.787 |

⊕ MM DIM LOC-TP-CC14= TRUE POSITION OF CIRCLE CRC-CAV-6-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.351 | -0.351 | | | | |
| Z | 0.000 | -0.318 | -0.318 | | | | |
| TP | RFS | | 0.946 | 0.200 | | 0.000 | 0.746 |

⊕ MM DIM LOC-TP-CC15= TRUE POSITION OF CIRCLE CRC-CAV-7-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.294 | -0.294 | | | | |
| Z | 0.000 | -0.299 | -0.299 | | | | |
| TP | RFS | | 0.839 | 0.200 | | 0.000 | 0.639 |

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⊕ MM DIM LOC-TP-CC16= TRUE POSITION OF CIRCLE CRC-CAV-7-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.243 | -0.243 | | | | |
| Z | 0.000 | -0.315 | -0.315 | | | | |
| TP | RFS | | 0.797 | 0.200 | | 0.000 | 0.597 |

⊕ MM DIM LOC-TP-CC17= TRUE POSITION OF CIRCLE CRC-CAV-8-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.139 | -0.139 | | | | |
| Z | 0.000 | -0.220 | -0.220 | | | | |
| TP | RFS | | 0.520 | 0.200 | | 0.000 | 0.320 |

⊕ MM DIM LOC-TP-CC18= TRUE POSITION OF CIRCLE CRC-CAV-8-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.155 | -0.155 | | | | |
| Z | 0.000 | -0.233 | -0.233 | | | | |
| TP | RFS | | 0.560 | 0.200 | | 0.000 | 0.360 |

⊕ MM DIM LOC-TP-CC19= TRUE POSITION OF CIRCLE CRC-CAV-9-1

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | 0.016 | 0.016 | | | | |
| Z | 0.000 | -0.130 | -0.130 | | | | |
| TP | RFS | | 0.263 | 0.200 | | 0.000 | 0.063 |

⊕ MM DIM LOC-TP-CC20= TRUE POSITION OF CIRCLE CRC-CAV-9-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | -0.023 | -0.023 | | | | |
| Z | 0.000 | -0.089 | -0.089 | | | | |
| TP | RFS | | 0.184 | 0.200 | | 0.000 | 0.000 |

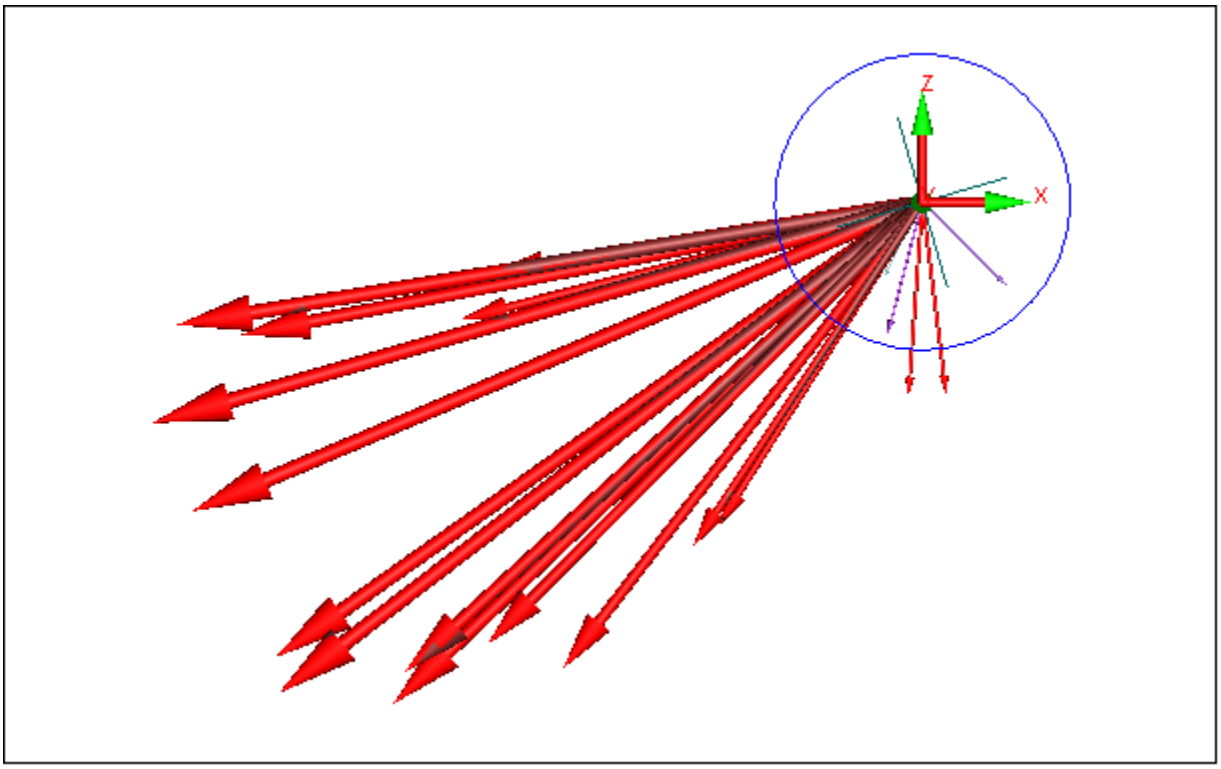
⊕ MM DIM LOC-TP-CC21= TRUE POSITION OF CIRCLE CRC-VAC-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | 0.057 | 0.057 | | | | |
| Z | 0.000 | -0.057 | -0.057 | | | | |
| TP | RFS | | 0.161 | 0.200 | | 0.000 | 0.000 |

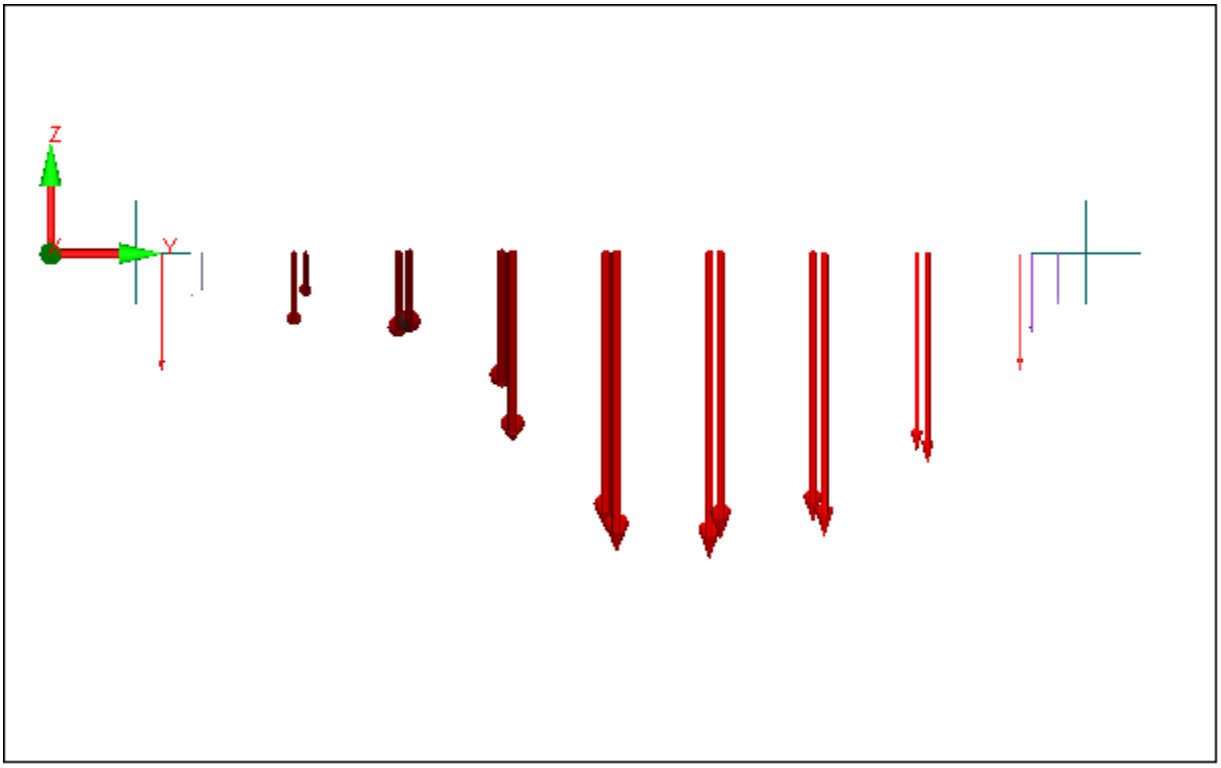
⊕ MM DIM LOC-TP-CC22= TRUE POSITION OF CIRCLE CRC-DAT-2

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | BONUS | OUTTOL |
|---|---|---|---|---|---|---|---|
| X | 0.000 | 0.000 | 0.000 | | | | |
| Z | 0.000 | 0.000 | 0.000 | | | | |
| TP | RFS | | 0.000 | 0.200 | | 0.000 | 0.000 |

True Position plots from 3 views
x1000




-Y View
x1000




+X View
x1000

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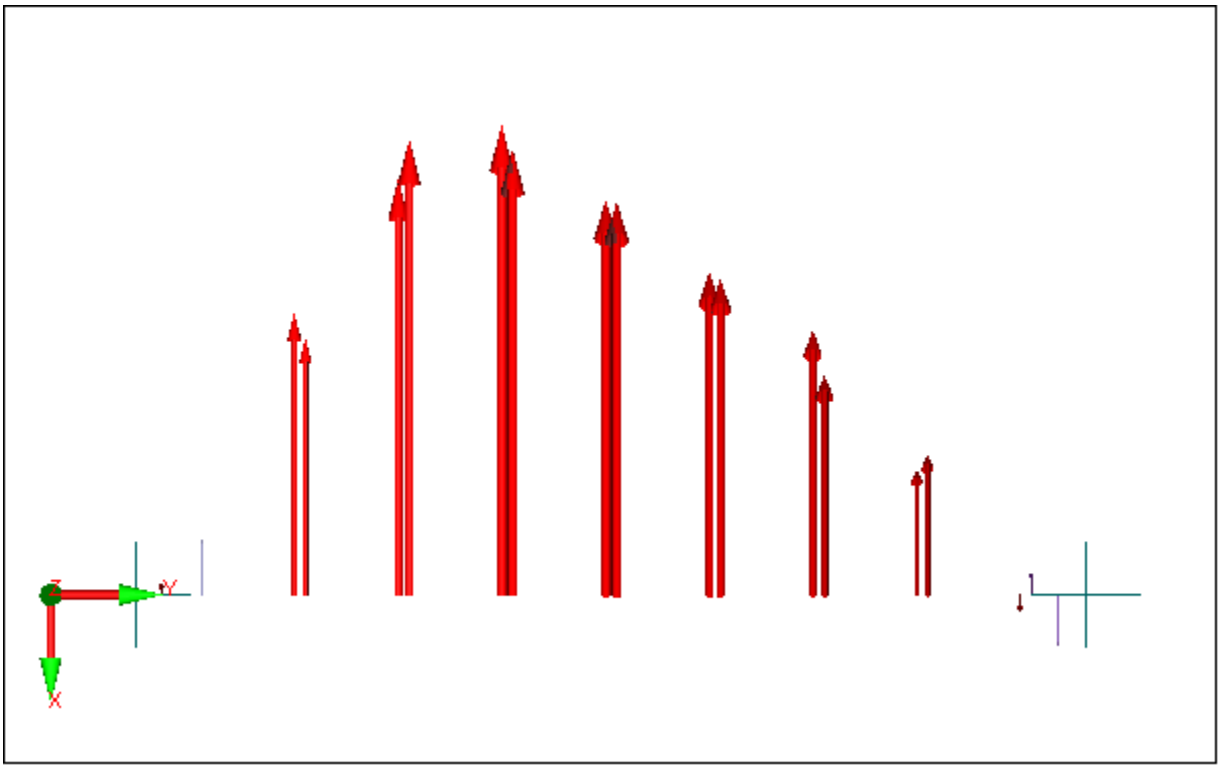


+Z View
x1000

| MM | DIM LOC-BEST FIT CONSTRUCTED LINE= LOCATION OF LINE LNC-BEST-FIT | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | -0.229 | -0.229 | 0.200 | 0.200 | 0.029 |
| Y | 0.000 | 621.597 | 621.597 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.160 | -0.160 | 0.200 | 0.200 | 0.000 |
| ST | 0.000 | 0.579 | 0.579 | 0.200 | 0.000 | 0.379 |

SUPPORT RING CIRCLE LOCATIONS

| MM | DIM LOC-SUPPORT RING-1= LOCATION OF CIRCLE CR-SUPPORT-RING-T12 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | -0.168 | -0.168 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 219.219 | 219.219 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.053 | -0.054 | 0.200 | 0.200 | 0.000 |
| R | 56.500 | 56.397 | -0.103 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.003 | 0.003 | 0.200 | 0.000 | 0.000 |

| MM | DIM LOC-SUPPORT RING-2= LOCATION OF CIRCLE CR-SUPPORT-RING-T23 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | -0.408 | -0.408 | 0.200 | 0.200 | 0.208 |
| Y | 0.000 | 334.218 | 334.218 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.029 | -0.029 | 0.200 | 0.200 | 0.000 |
| R | 56.500 | 56.409 | -0.091 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.035 | 0.035 | 0.200 | 0.000 | 0.000 |

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MM DIM LOC-SUPPORT RING-3= LOCATION OF CIRCLE CR-SUPPORT-RING-T34

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.556 | -0.556 | 0.200 | 0.200 | 0.356 |
| Y | 0.000 | 449.220 | 449.220 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.084 | -0.084 | 0.200 | 0.200 | 0.000 |
| R | 56.500 | 56.410 | -0.090 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.020 | 0.020 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-SUPPORT RING-4= LOCATION OF CIRCLE CR-SUPPORT-RING-T45

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.523 | -0.523 | 0.200 | 0.200 | 0.323 |
| Y | 0.000 | 565.218 | 565.218 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.287 | -0.288 | 0.200 | 0.200 | 0.088 |
| R | 56.500 | 56.409 | -0.091 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.019 | 0.019 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-SUPPORT RING-5= LOCATION OF CIRCLE CR-SUPPORT-RING-T56

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.389 | -0.390 | 0.200 | 0.200 | 0.190 |
| Y | 0.000 | 680.219 | 680.219 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.260 | -0.260 | 0.200 | 0.200 | 0.060 |
| R | 56.500 | 56.362 | -0.138 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.012 | 0.012 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-SUPPORT RING-6= LOCATION OF CIRCLE CR-SUPPORT-RING-T67

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.325 | -0.325 | 0.200 | 0.200 | 0.125 |
| Y | 0.000 | 795.218 | 795.218 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.319 | -0.319 | 0.200 | 0.200 | 0.119 |
| R | 56.500 | 56.408 | -0.092 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.005 | 0.005 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-SUPPORT RING-7= LOCATION OF CIRCLE CR-SUPPORT-RING-T78

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.194 | -0.195 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 910.218 | 910.218 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.145 | -0.145 | 0.200 | 0.200 | 0.000 |
| R | 56.500 | 56.390 | -0.110 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.016 | 0.016 | 0.200 | 0.000 | 0.000 |

MM DIM LOC-SUPPORT RING-8= LOCATION OF CIRCLE CR-SUPPORT-RING-T89

| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
|---|---|---|---|---|---|---|
| X | 0.000 | -0.068 | -0.069 | 0.200 | 0.200 | 0.000 |
| Y | 0.000 | 1026.219 | 1026.219 | 2000.000 | 2000.000 | 0.000 |
| Z | 0.000 | -0.255 | -0.255 | 0.200 | 0.200 | 0.055 |
| R | 56.500 | 56.424 | -0.076 | 0.200 | 0.200 | 0.000 |
| RN | 0.000 | 0.012 | 0.012 | 0.200 | 0.000 | 0.000 |

SUPPORT RING POINT LOCATIONS

PART NUMBER=PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR DATE=4/23/2008

| MM | DIM LOC-SUPPORT RING-PT1= LOCATION OF POINT PT-SUPPORT-RING-T12 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.655 | 0.655 | 0.200 | 0.200 | 0.455 |
| Y | 0.000 | 213.030 | 213.030 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.318 | -0.182 | 0.200 | 0.200 | 0.000 |

| MM | DIM LOC-SUPPORT RING-PT2= LOCATION OF POINT PT-SUPPORT-RING-T23 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.656 | 0.656 | 0.200 | 0.200 | 0.456 |
| Y | 363.957 | 328.017 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.331 | -0.169 | 0.200 | 0.200 | 0.000 |

| MM | DIM LOC-SUPPORT RING-PT3= LOCATION OF POINT PT-SUPPORT-RING-T34 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.656 | 0.656 | 0.200 | 0.200 | 0.456 |
| Y | 479.057 | 443.117 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.241 | -0.259 | 0.200 | 0.200 | 0.059 |

| MM | DIM LOC-SUPPORT RING-PT4= LOCATION OF POINT PT-SUPPORT-RING-T45 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.654 | 0.654 | 0.200 | 0.200 | 0.454 |
| Y | 594.357 | 558.417 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.091 | -0.409 | 0.200 | 0.200 | 0.209 |

| MM | DIM LOC-SUPPORT RING-PT5= LOCATION OF POINT PT-SUPPORT-RING-T56 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.655 | 0.655 | 0.200 | 0.200 | 0.455 |
| Y | 709.407 | 673.467 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.088 | -0.412 | 0.200 | 0.200 | 0.212 |

| MM | DIM LOC-SUPPORT RING-PT6= LOCATION OF POINT PT-SUPPORT-RING-T67 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.656 | 0.656 | 0.200 | 0.200 | 0.456 |
| Y | 824.157 | 788.217 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.099 | -0.401 | 0.200 | 0.200 | 0.201 |

| MM | DIM LOC-SUPPORT RING-PT7= LOCATION OF POINT PT-SUPPORT-RING-T78 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.657 | 0.657 | 0.200 | 0.200 | 0.457 |
| Y | 939.257 | 903.317 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.208 | -0.292 | 0.200 | 0.200 | 0.092 |

| MM | DIM LOC-SUPPORT RING-PT8= LOCATION OF POINT PT-SUPPORT-RING-T89 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.657 | 0.657 | 0.200 | 0.200 | 0.457 |
| Y | 1054.257 | 1018.317 | -35.940 | 2000.000 | 2000.000 | 0.000 |
| Z | 56.500 | 56.161 | -0.339 | 0.200 | 0.200 | 0.139 |

SUPPORT RING CIRCLES IN Z

PART NUMBER=PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR DATE=4/23/2008

| MM | DIM LOC Z SUPPORT RING CIRCLES 1= LOCATION OF CIRCLE CR-SUPPORT-RING-T1 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.053 | -0.054 | 0.200 | 0.200 | 0.000 |

| MM | DIM LOC Z SUPPORT RING CIRCLES 2= LOCATION OF CIRCLE CR-SUPPORT-RING-T2 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.029 | -0.029 | 0.200 | 0.200 | 0.000 |

| MM | DIM LOC Z SUPPORT RING CIRCLES 3= LOCATION OF CIRCLE CR-SUPPORT-RING-T3 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.084 | -0.084 | 0.200 | 0.200 | 0.000 |

| MM | DIM LOC Z SUPPORT RING CIRCLES 4= LOCATION OF CIRCLE CR-SUPPORT-RING-T4 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.287 | -0.288 | 0.200 | 0.200 | 0.088 |

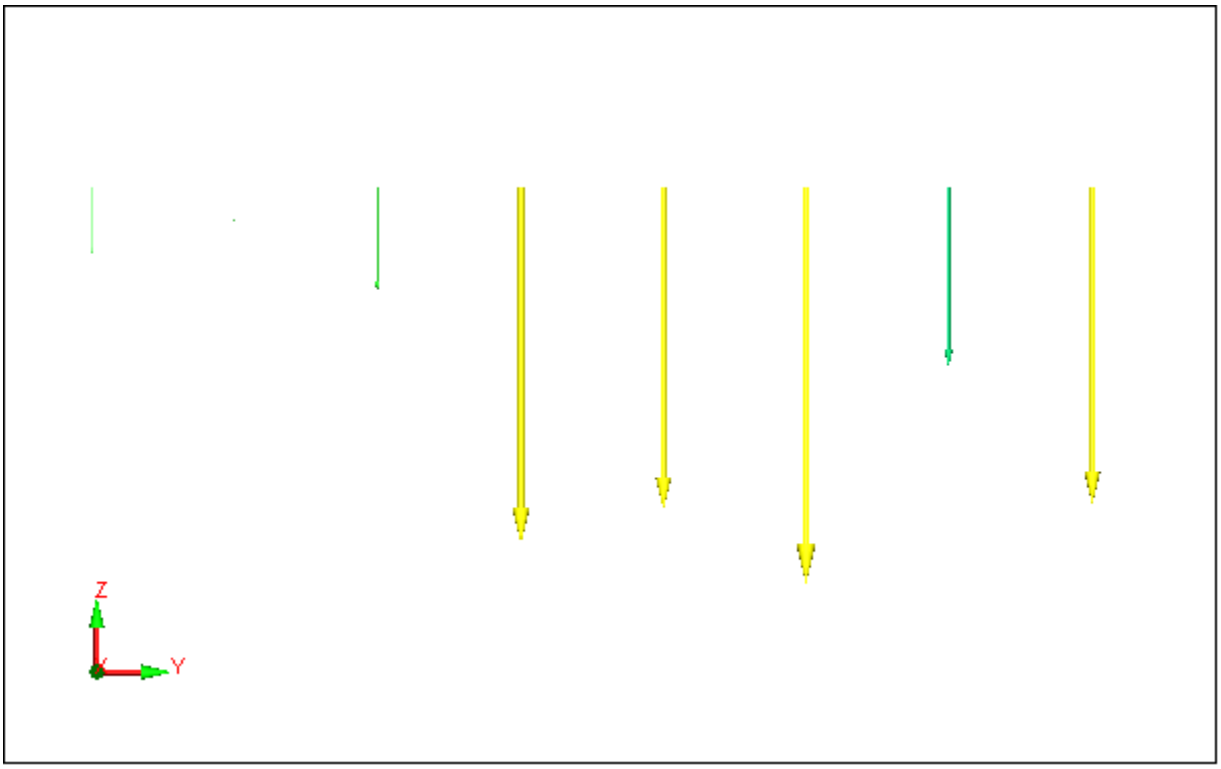
| MM | DIM LOC Z SUPPORT RING CIRCLES 5= LOCATION OF CIRCLE CR-SUPPORT-RING-T5 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.260 | -0.260 | 0.200 | 0.200 | 0.060 |

| MM | DIM LOC Z SUPPORT RING CIRCLES 6= LOCATION OF CIRCLE CR-SUPPORT-RING-T6 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.319 | -0.319 | 0.200 | 0.200 | 0.119 |

| MM | DIM LOC Z SUPPORT RING CIRCLES 7= LOCATION OF CIRCLE CR-SUPPORT-RING-T7 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.145 | -0.145 | 0.200 | 0.200 | 0.000 |

| MM | DIM LOC Z SUPPORT RING CIRCLES 8= LOCATION OF CIRCLE CR-SUPPORT-RING-T8 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| Z | 0.000 | -0.255 | -0.255 | 0.200 | 0.200 | 0.055 |

PART NUMBER=PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR DATE=4/23/2008




SUPPORT RING CIRCLES IN Z
x1000

SUPPORT RING POINTS IN X

| MM | DIM LOC Z SUPPORT RING POINTS 1= LOCATION OF POINT PT-SUPPORT-RING-T12 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.655 | 0.655 | 0.200 | 0.200 | 0.455 |

| MM | DIM LOC Z SUPPORT RING POINTS 2= LOCATION OF POINT PT-SUPPORT-RING-T23 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.656 | 0.656 | 0.200 | 0.200 | 0.456 |

| MM | DIM LOC Z SUPPORT RING POINTS 3= LOCATION OF POINT PT-SUPPORT-RING-T34 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.656 | 0.656 | 0.200 | 0.200 | 0.456 |

| MM | DIM LOC Z SUPPORT RING POINTS 4= LOCATION OF POINT PT-SUPPORT-RING-T45 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.654 | 0.654 | 0.200 | 0.200 | 0.454 |

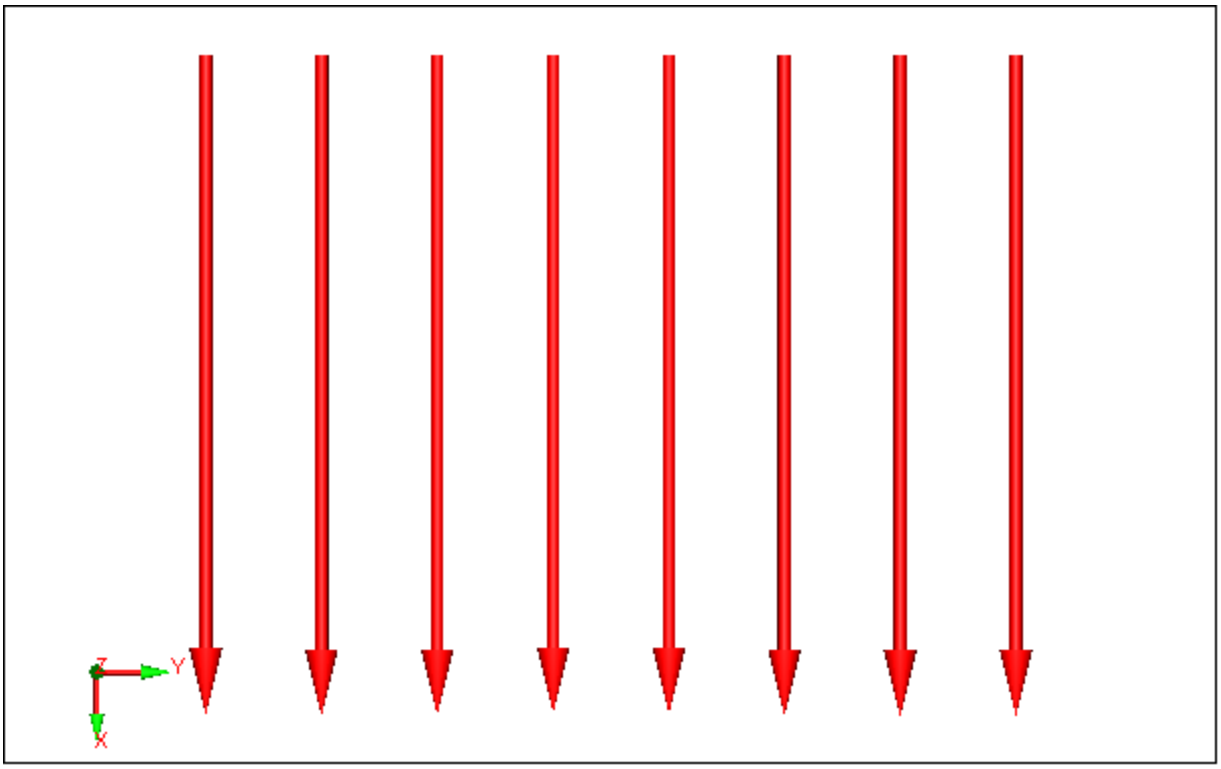
| MM | DIM LOC Z SUPPORT RING POINTS 5= LOCATION OF POINT PT-SUPPORT-RING-T56 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.655 | 0.655 | 0.200 | 0.200 | 0.455 |

PART NUMBER=PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR DATE=4/23/2008

| MM | DIM LOC Z SUPPORT RING POINTS 6= LOCATION OF POINT PT-SUPPORT-RING-T67 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.656 | 0.656 | 0.200 | 0.200 | 0.456 |

| MM | DIM LOC Z SUPPORT RING POINTS 7= LOCATION OF POINT PT-SUPPORT-RING-T78 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.657 | 0.657 | 0.200 | 0.200 | 0.457 |

| MM | DIM LOC Z SUPPORT RING POINTS 8= LOCATION OF POINT PT-SUPPORT-RING-T89 | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| X | 0.000 | 0.657 | 0.657 | 0.200 | 0.200 | 0.457 |




SUPPORT RING POINTS IN X
x1000

| DEG | DIM ANGL15= 2D ANGLE (TRUE) FROM LINE LNC-FOR 180 OFFSET TO ZAXIS | | | | | |
|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL |
| A | 15.000 | 15.318 | 0.318 | 0.500 | 0.500 | 0.000 |

| POINTDATA | HIT# | MEAS X | Y | Z | VEC I | J | K | DEVIATION |
|---|---|---|---|---|---|---|---|---|
| LNC-FOR 180 OFFSET | | | | | | | | |
| | 0 | 627.750 | 1167.200 | -7.034 | 0.264 | -0.000 | 0.964 | 1325.321 |
| AX | 0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 |

PART NUMBER=PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR DATE=4/23/2008

(4) ANGLE I: 0.2593126 - 15.02927818
ANGLE K: 0.9657934
(9) ANGLE I: 0.2631146 - 15.25495207
ANGLE K: 0.9647646
(7) ANGLE I: 0.2588121 - 14.99958804
ANGLE K: 0.9659277
(6) ANGLE I: 0.2439225 - 14.11816578
ANGLE K: 0.9697947

| DEG | DIM ANGL16= 2D ANGLE (TRUE) FROM LINE LINC2 FOR 180 OFFSET TO ZAXIS | | | | | | |
|---|---|---|---|---|---|---|---|
| AX | NOMINAL | MEAS | DEV | +TOL | -TOL | OUTTOL | |
| A | 15.00000 | 15.66178 | 0.66178 | 0.00000 | 0.00000 | 0.66178 | |

ACCEL TB9ACC015
ANGLE I: 0.2699370 - 15.66051802 - ANGLE K: 0.9628780

END OF MEASUREMENT FOR
PN=PN440004-n ILC 1p3GHZ RF CAVITY ASSEMBLY v1 TB9ACC015-000 IR D
WG= SN=
TOTAL # OF MEAS =301 # OUT OF TOL =126