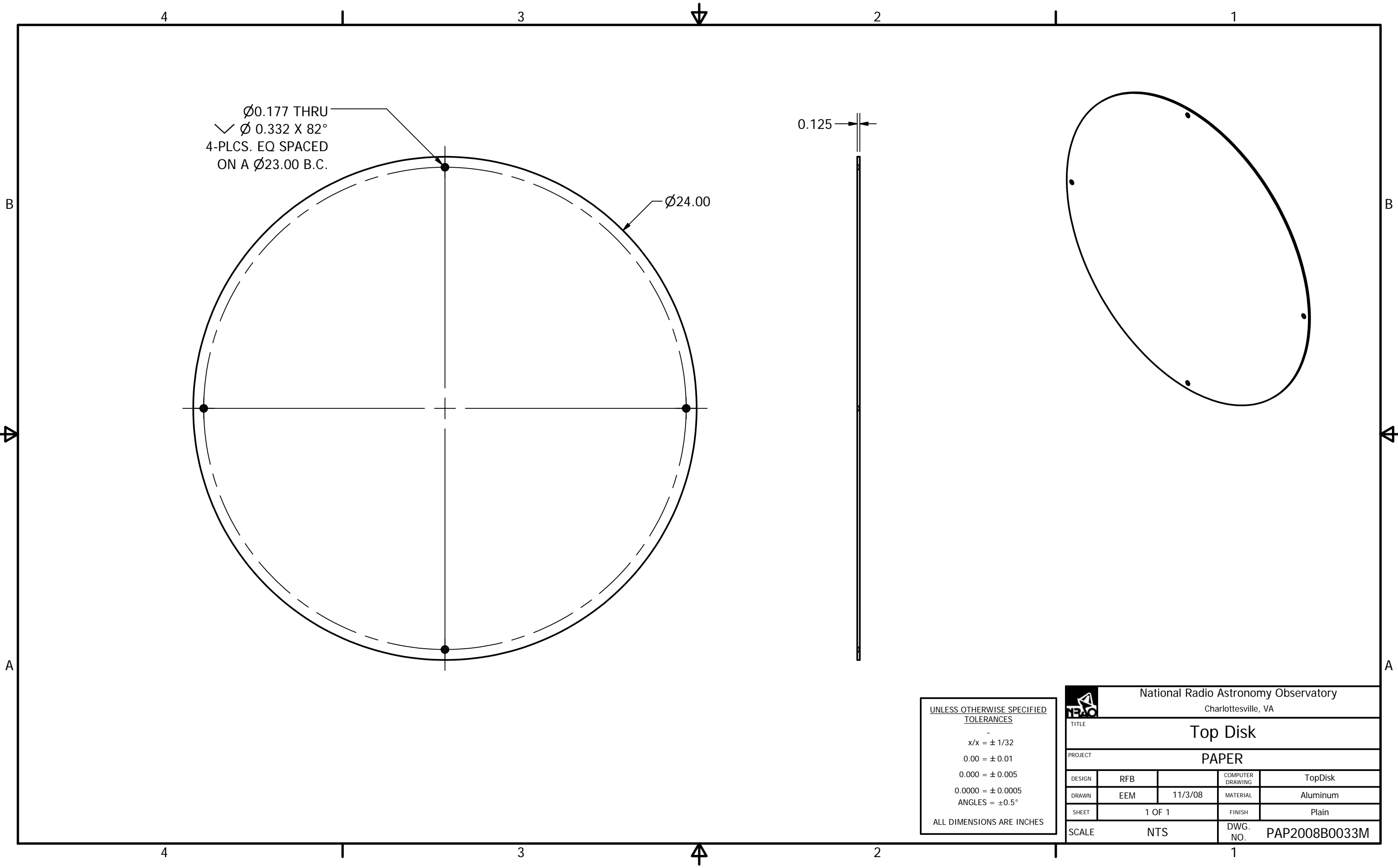


NOTE:
1. BALUN HOUSING ASSEMBLY (PAP2007A0027M) AND ANTENNA MAST (PAP2007A0030M) NOT SHOWN FOR CLARITY
2. ANTENNA MAST SLIP INSERTS INTO MAST COLLAR CAVITY AND IS SECURED WITH THE APPLICATION OF 4 10-32 X 3/16" SST SLOTTED PAN HEAD SCREWS, 3 ACTING AS SET SCREWS AND 1 (ALIGNED WITH ARROW MARK) ACTING AS A ROTATION STOP

UNLESS OTHERWISE SPECIFIED TOLERANCES	
-	x/x = ± 1/32
0.00	= ± 0.01
0.000	= ± 0.005
0.0000	= ± 0.0005
ANGLES	= ± 0.5°
ALL DIMENSIONS ARE INCHES	

National Radio Astronomy Observatory Charlottesville, VA				
Antenna Assembly				
PAPER				
DESIGN	RFB		COMPUTER DRAWING	NewAntenna
DRAWN	EEM	11/24/08	MATERIAL	Various
SHEET	1 OF 1		FINISH	
SCALE	NTS		DWG. NO.	PAP2008B0010A




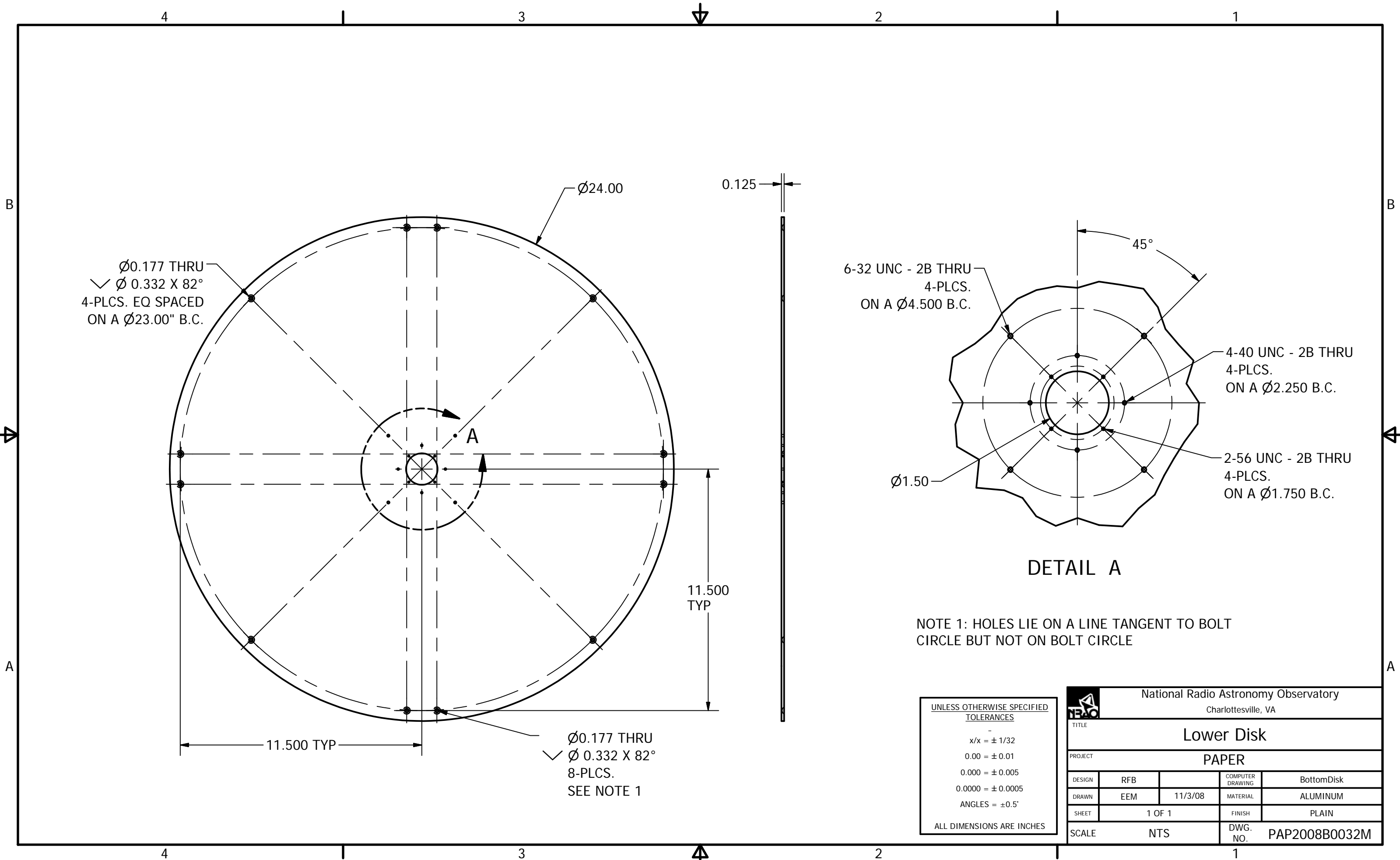
Ø0.177 THRU
✓ Ø 0.332 X 82°
4-PLCS. EQ SPACED
ON A Ø23.00 B.C.

Ø24.00

0.125


UNLESS OTHERWISE SPECIFIED
TOLERANCES
-
x/x = ± 1/32
0.00 = ± 0.01
0.000 = ± 0.005
0.0000 = ± 0.0005
ANGLES = ±0.5°
ALL DIMENSIONS ARE INCHES

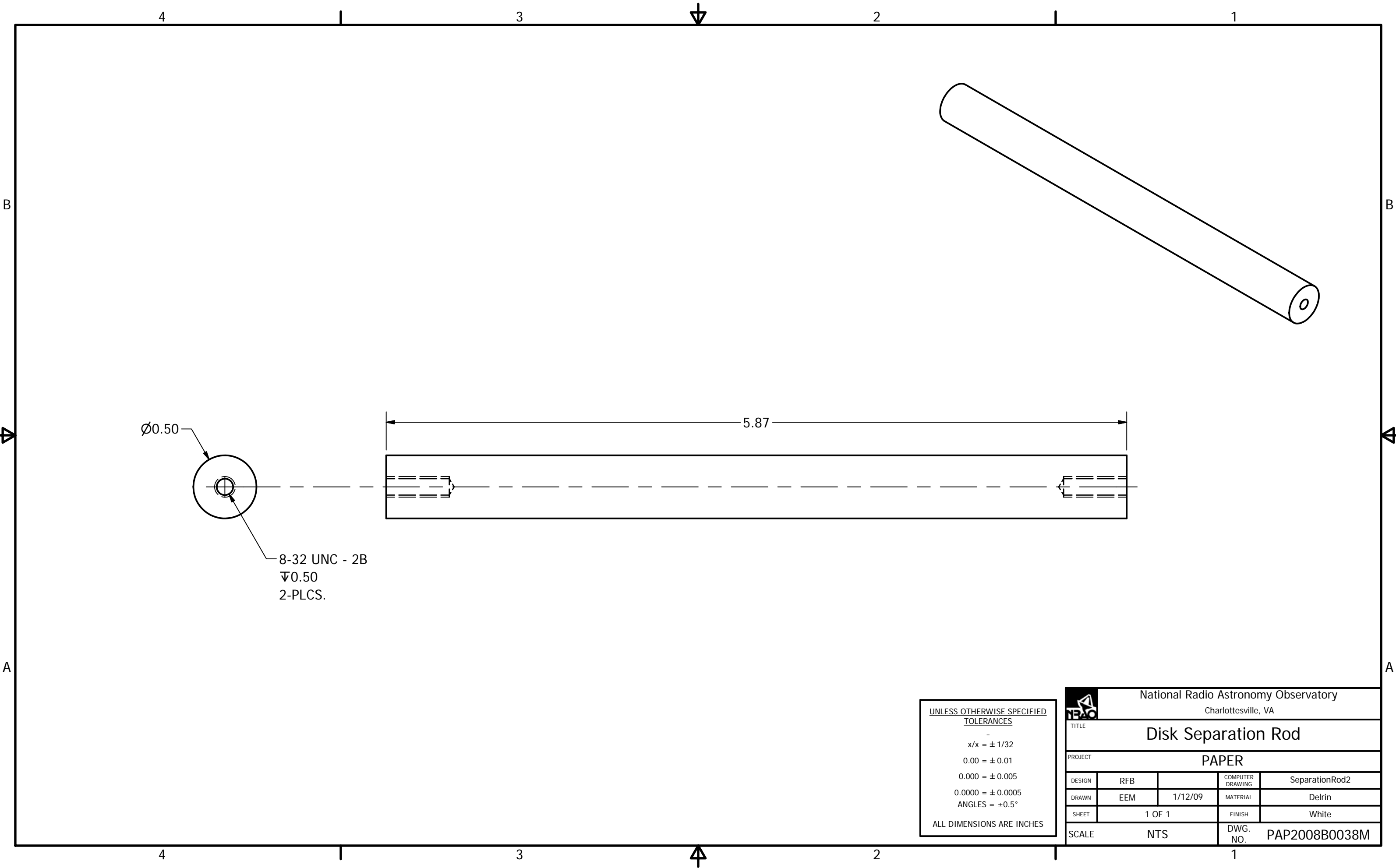
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TITLE Top Disk				
PROJECT PAPER				
DESIGN	RFB		COMPUTER DRAWING	TopDisk
DRAWN	EEM	11/3/08	MATERIAL	Aluminum
SHEET	1 OF 1		FINISH	Plain
SCALE	NTS		DWG. NO.	PAP2008B0033M

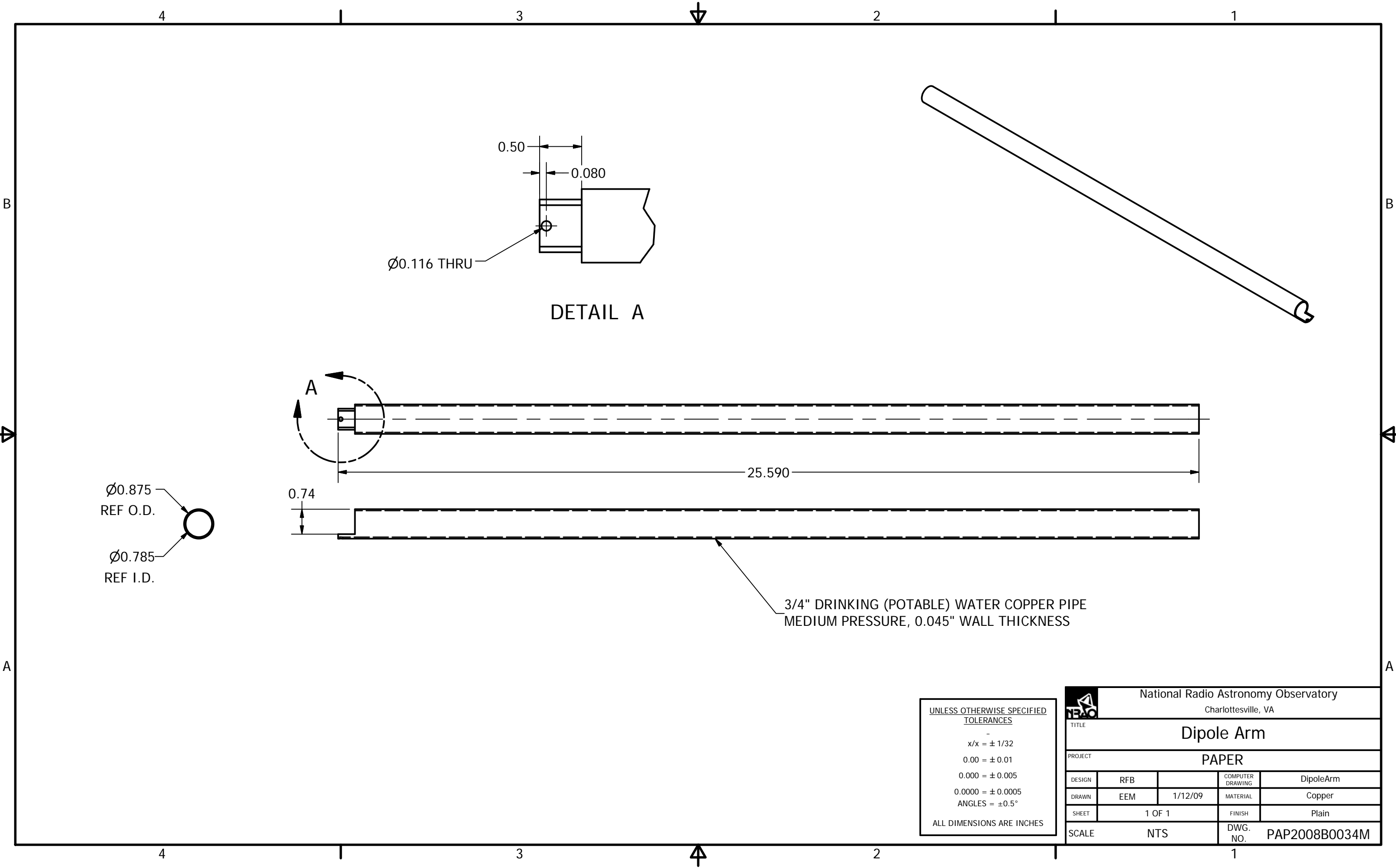


NOTE 1: HOLES LIE ON A LINE TANGENT TO BOLT CIRCLE BUT NOT ON BOLT CIRCLE


UNLESS OTHERWISE SPECIFIED TOLERANCES	
-	x/x = ± 1/32
0.00	= ± 0.01
0.000	= ± 0.005
0.0000	= ± 0.0005
ANGLES	= ± 0.5°
ALL DIMENSIONS ARE INCHES	

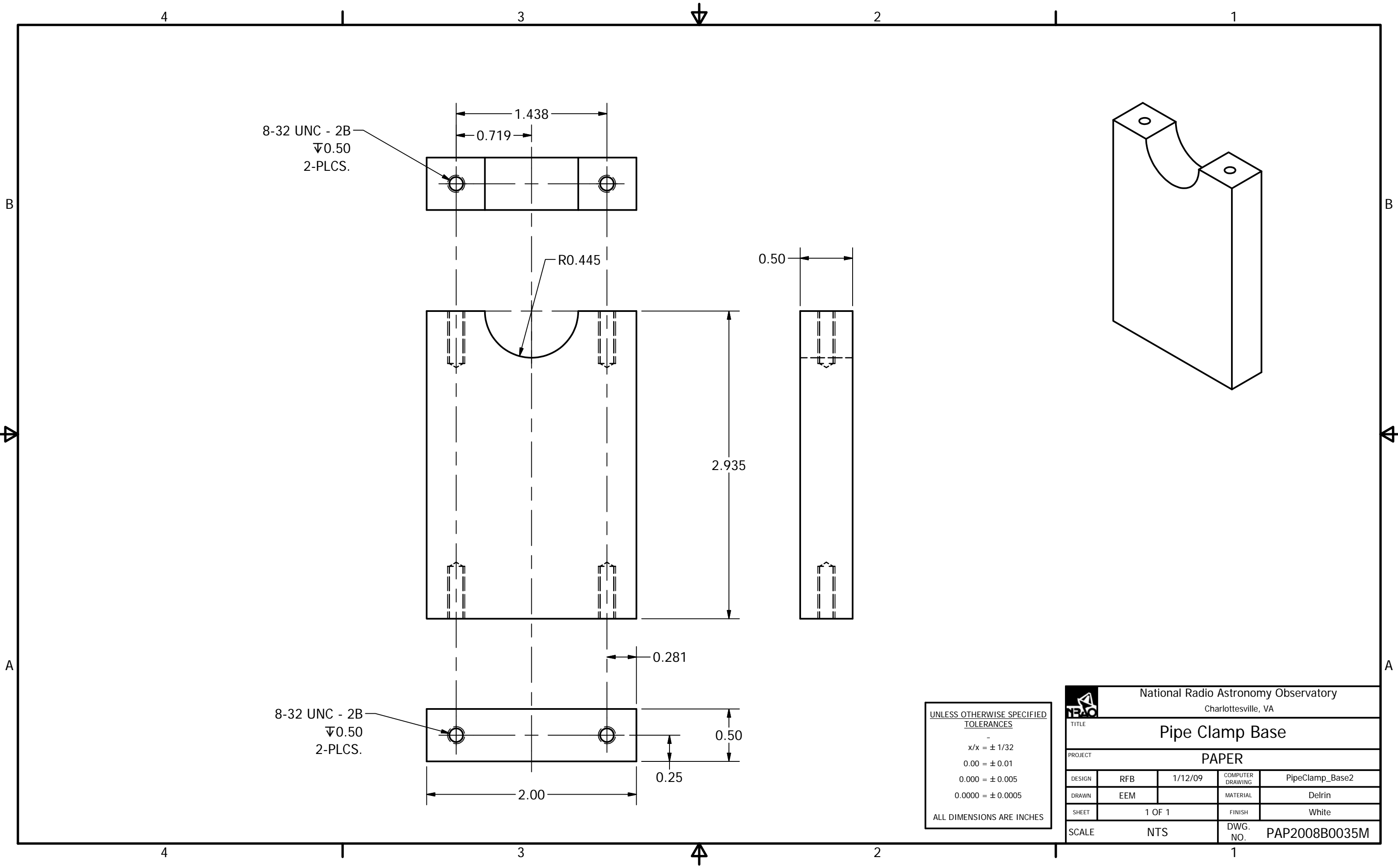
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TITLE Lower Disk				
PROJECT PAPER				
DESIGN	RFB		COMPUTER DRAWING	BottomDisk
DRAWN	EEM	11/3/08	MATERIAL	ALUMINUM
SHEET	1 OF 1		FINISH	PLAIN
SCALE	NTS		DWG. NO.	PAP2008B0032M






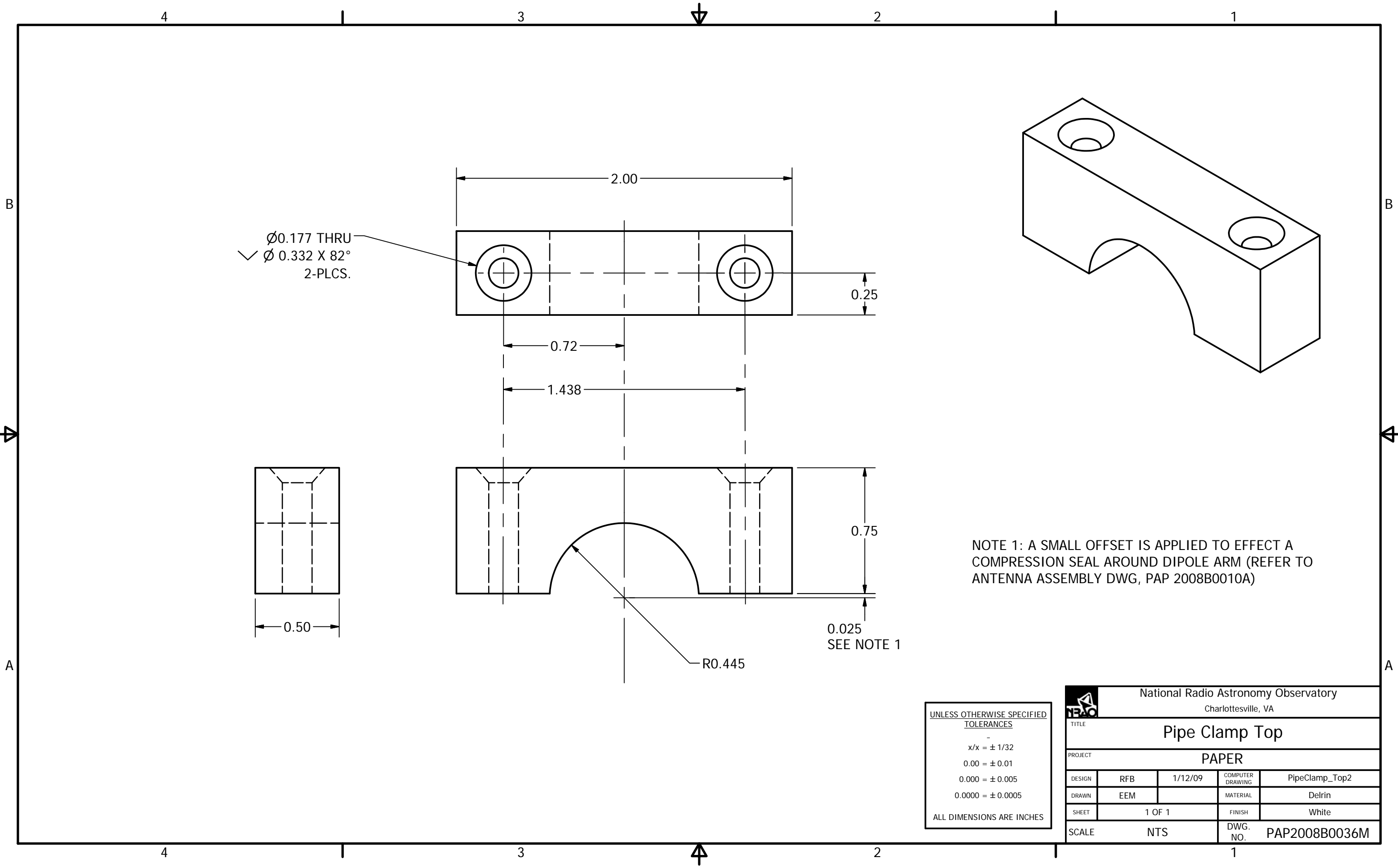
UNLESS OTHERWISE SPECIFIED TOLERANCES	
-	
x/x = ± 1/32	
0.00 = ± 0.01	
0.000 = ± 0.005	
0.0000 = ± 0.0005	
ANGLES = ±0.5°	
ALL DIMENSIONS ARE INCHES	

	National Radio Astronomy Observatory			
	Charlottesville, VA			
TITLE		Dipole Arm		
PROJECT		PAPER		
DESIGN	RFB		COMPUTER DRAWING	DipoleArm
DRAWN	EEM	1/12/09	MATERIAL	Copper
SHEET	1 OF 1		FINISH	Plain
SCALE	NTS		DWG. NO.	PAP2008B0034M




 National Radio Astronomy Observatory Charlottesville, VA				
TITLE Pipe Clamp Base				
PROJECT PAPER				
DESIGN	RFB	1/12/09	COMPUTER DRAWING	PipeClamp_Base2
DRAWN	EEM		MATERIAL	Delrin
SHEET	1 OF 1		FINISH	White
SCALE	NTS		DWG. NO.	PAP2008B0035M

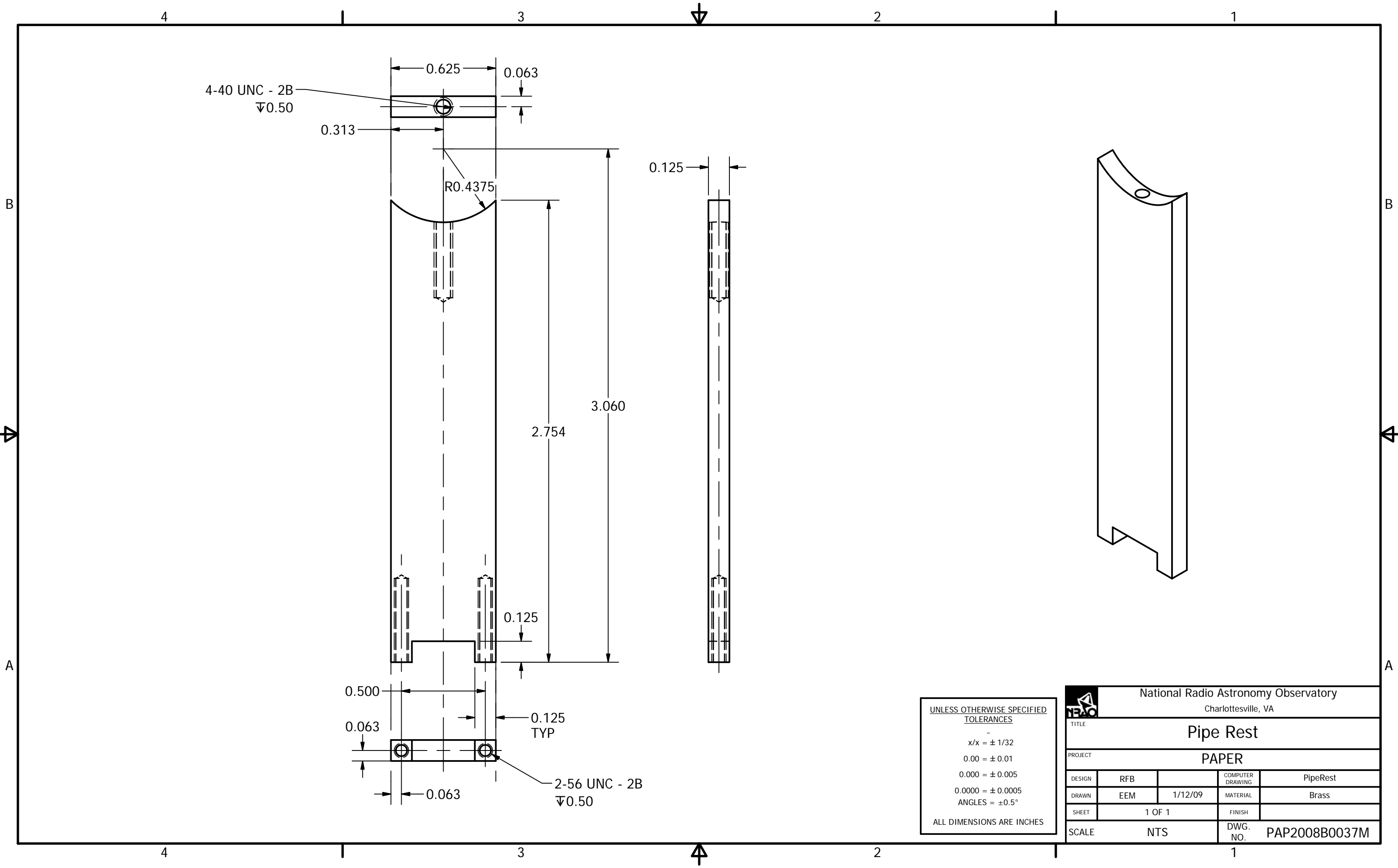
UNLESS OTHERWISE SPECIFIED TOLERANCES
-
x/x = $\pm 1/32$
0.00 = ± 0.01
0.000 = ± 0.005
0.0000 = ± 0.0005
ALL DIMENSIONS ARE INCHES



NOTE 1: A SMALL OFFSET IS APPLIED TO EFFECT A COMPRESSION SEAL AROUND DIPOLE ARM (REFER TO ANTENNA ASSEMBLY DWG, PAP 2008B0010A)

UNLESS OTHERWISE SPECIFIED TOLERANCES				
-				
x/x = ± 1/32				
0.00 = ± 0.01				
0.000 = ± 0.005				
0.0000 = ± 0.0005				
ALL DIMENSIONS ARE INCHES				


 National Radio Astronomy Observatory Charlottesville, VA				
TITLE Pipe Clamp Top				
PROJECT PAPER				
DESIGN	RFB	1/12/09	COMPUTER DRAWING	PipeClamp_Top2
DRAWN	EEM		MATERIAL	Delrin
SHEET	1 OF 1		FINISH	White
SCALE	NTS		DWG. NO.	PAP2008B0036M



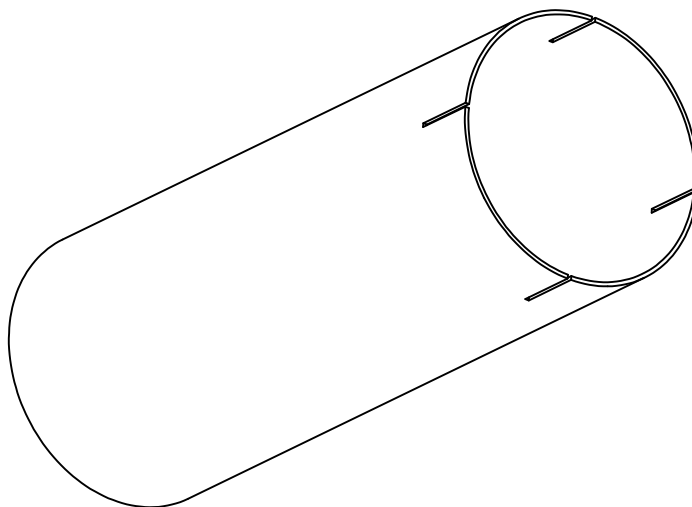
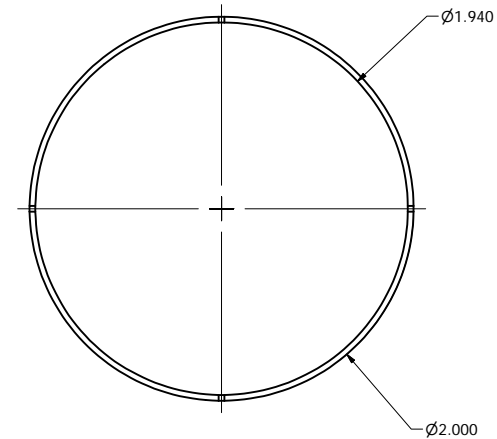
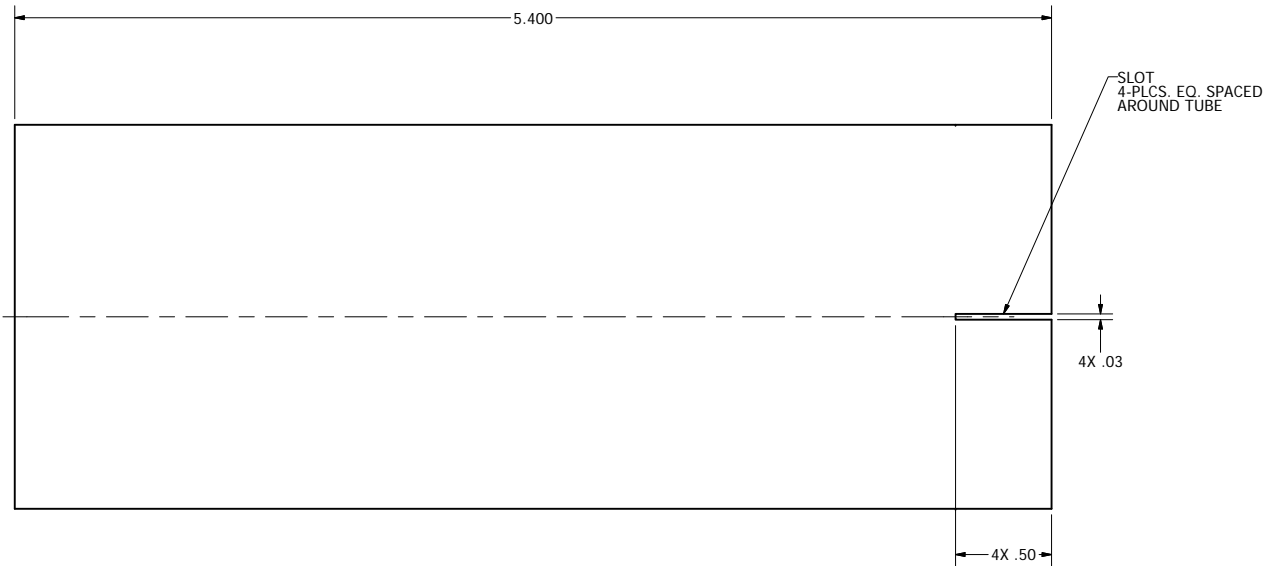
UNLESS OTHERWISE SPECIFIED
TOLERANCES

-
x/x = $\pm 1/32$
0.00 = ± 0.01
0.000 = ± 0.005
0.0000 = ± 0.0005
ANGLES = $\pm 0.5^\circ$

ALL DIMENSIONS ARE INCHES

 National Radio Astronomy Observatory Charlottesville, VA				
TITLE Pipe Rest				
PROJECT PAPER				
DESIGN	RFB		COMPUTER DRAWING	PipeRest
DRAWN	EEM	1/12/09	MATERIAL	Brass
SHEET	1 OF 1		FINISH	
SCALE	NTS		DWG. NO.	PAP2008B0037M

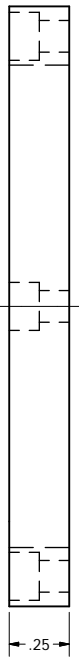
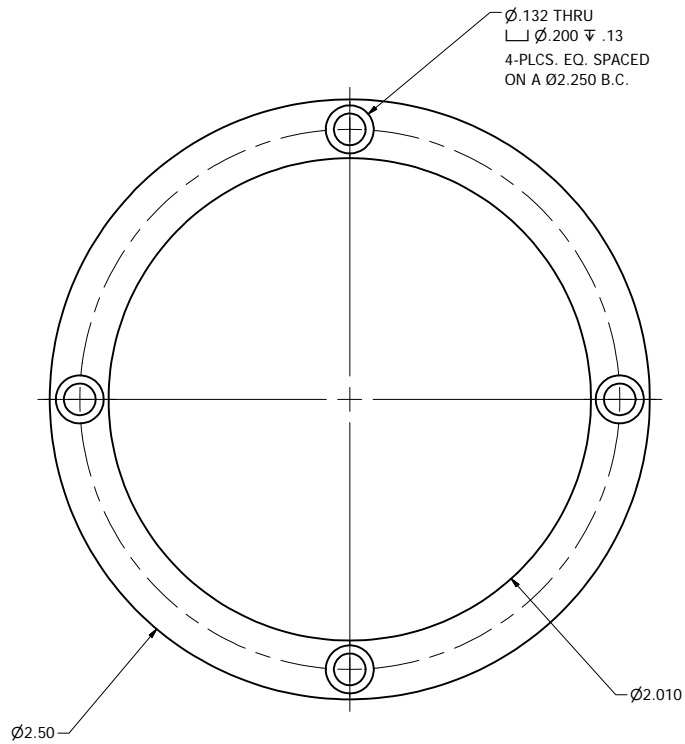
REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	11/13/2007	



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES	
ANGLES: ± .5°	
3 PLACE DECIMALS ± .005	
2 PLACE DECIMALS ± .010	
1 PLACE DECIMAL ± .020	
MATERIAL: COPPER	
FINISH: N/A	

NATIONAL RADIO ASTRONOMY OBSERVATORY					
ASSOCIATED UNIVERSITIES INC. CHARLOTTESVILLE, VIRGINIA					
TITLE PAPER CROSSED DIPOLE ANTENNA BALUN HOUSING TUBE					
DESIGN	DEB	5/16/2007	RECOMMENDED BY		
DRAWN	EEM/MJS	11/13/07	ENGINEER		
CHECKED			APPROVED		
	NAME	DATE	SIGNATURE		DATE
SCALE NTS	SIZE C	SHEET 1 OF 1	DWG. NO. PAP2007A0019M	REV. A	

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	11/13/2007	



NATIONAL RADIO ASTRONOMY OBSERVATORY

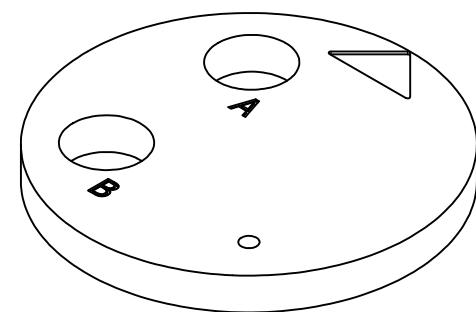
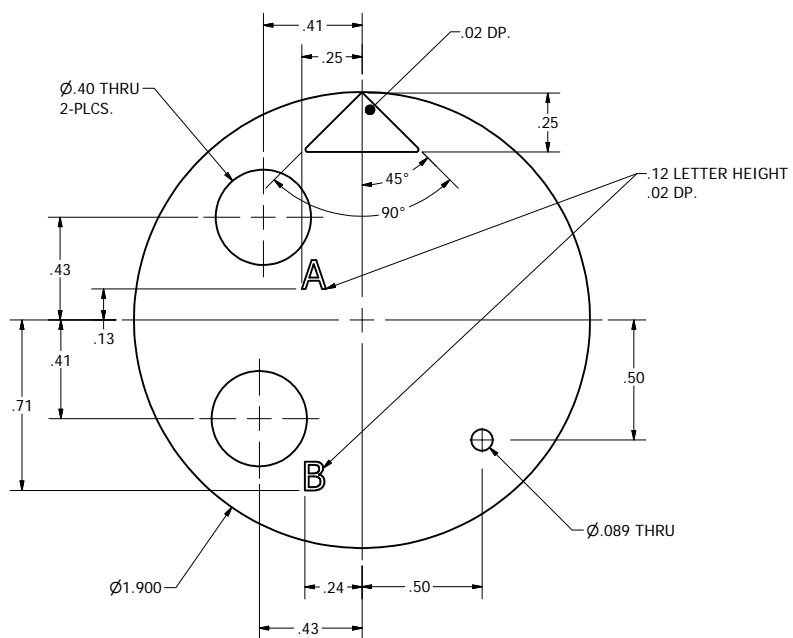
ASSOCIATED UNIVERSITIES INC.
CHARLOTTESVILLE, VIRGINIA

TITLE
PAPER CROSSED DIPOLE ANTENNA

BALUN HOUSING FLANGE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				DESIGN		DEB	5/17/2007	RECOMMENDED BY		
TOLERANCES ANGLES: ± .5° 3 PLACE DECIMALS ± .005 2 PLACE DECIMALS ± .010 1 PLACE DECIMAL ± .020				DRAWN		EEM/MJS	11/13/07	ENGINEER		
				CHECKED				APPROVED		
						NAME	DATE	SIGNATURE		DATE
MATERIAL: COPPER				SCALE	SIZE	SHEET		DWG. NO.		REV.
FINISH: N/A				NTS	C	1 OF 1		PAP2007A0020M		A

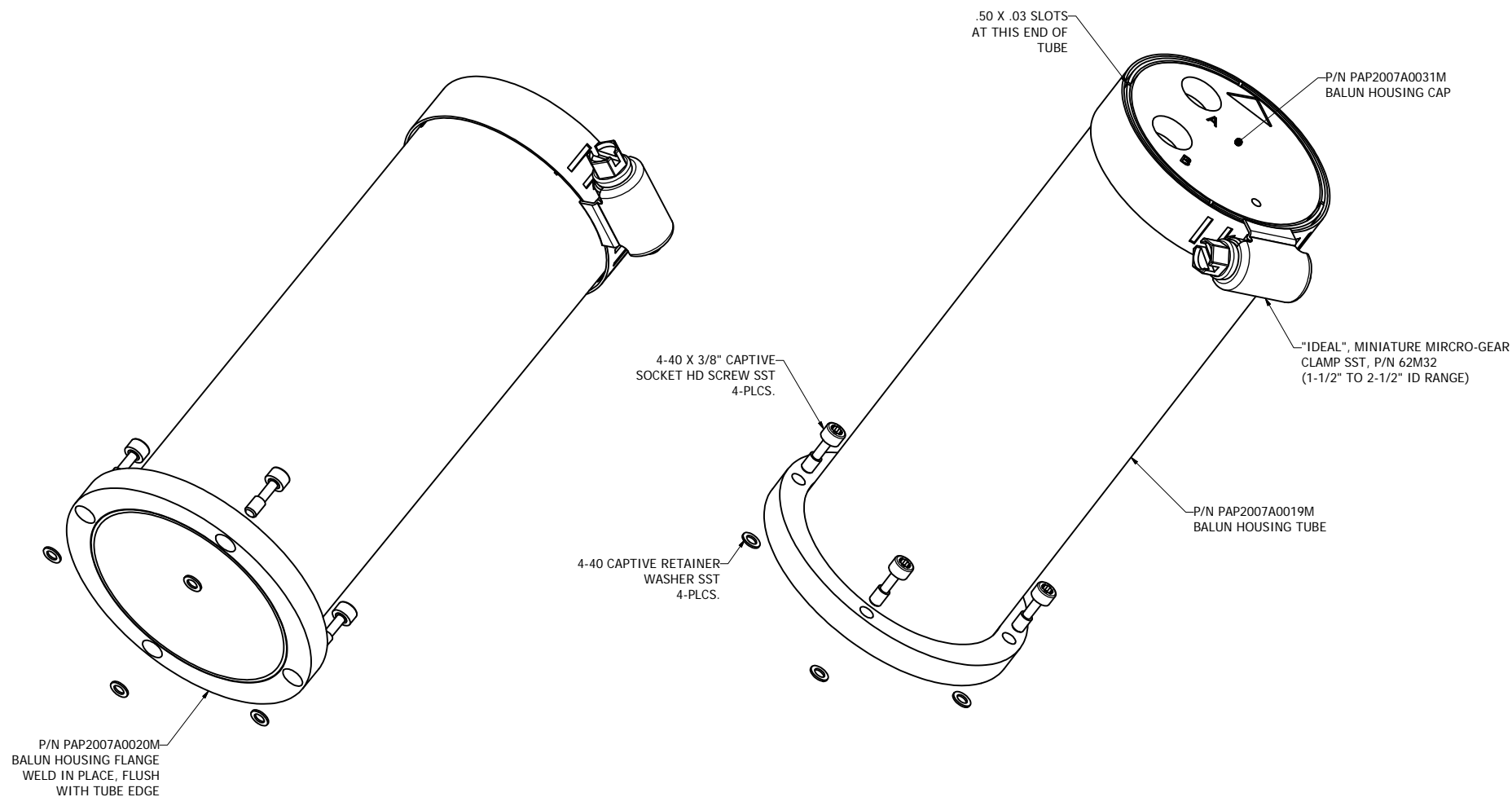
REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	4/9/2008	



NATIONAL RADIO ASTRONOMY OBSERVATORY					
ASSOCIATED UNIVERSITIES INC. CHARLOTTESVILLE, VIRGINIA					
TITLE PAPER CROSSED DIPOLE ANTENNA BALUN HOUSING CAP					
DESIGN	MJS	4/8/2008	RECOMMENDED BY		
DRAWN	MJS	04/09/08	ENGINEER		
CHECKED			APPROVED		
	NAME	DATE	SIGNATURE		DATE
SCALE	SIZE	SHEET	DWG. NO.	REV.	
NTS	C	1 OF 1	PAP2007A0031M	A	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES ANGLES: $\pm .5^\circ$ 3 PLACE DECIMALS $\pm .005$ 2 PLACE DECIMALS $\pm .010$	
MATERIAL: BRASS	
FINISH: N/A	

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	1/25/2008	



NATIONAL RADIO ASTRONOMY OBSERVATORY

ASSOCIATED UNIVERSITIES INC.
CHARLOTTESVILLE, VIRGINIA

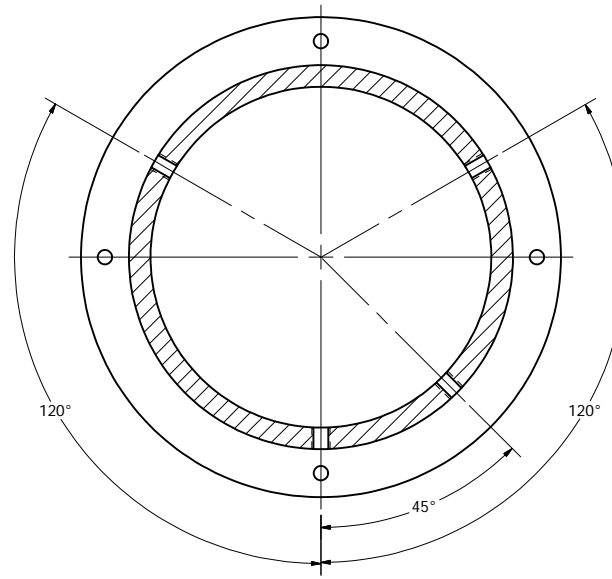
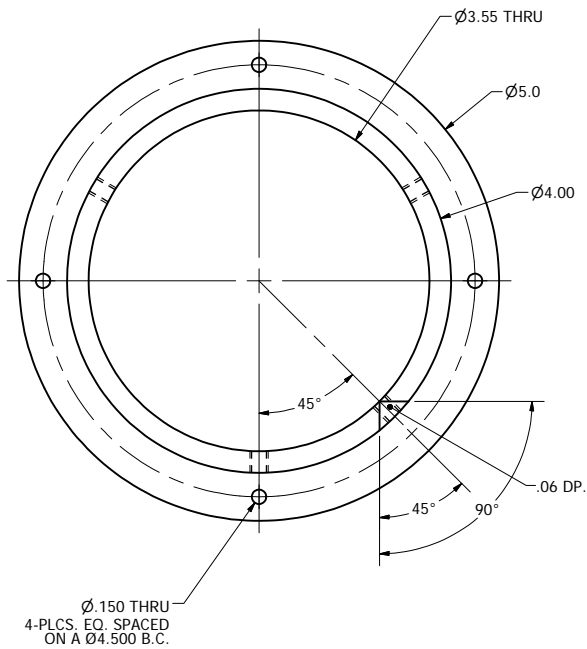
TITLE
PAPER CROSSED DIPOLE ANTENNA

BALUN HOUSING ASSY.

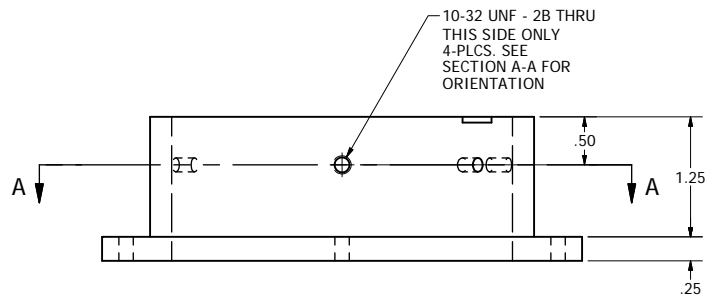
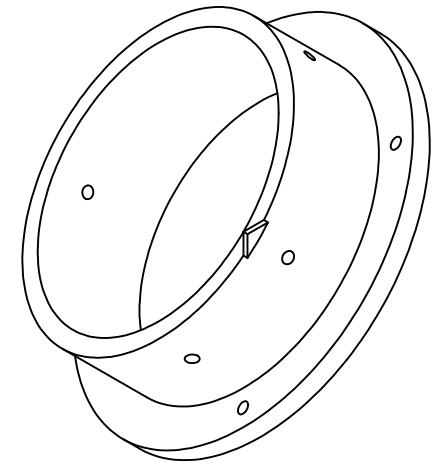
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES	
ANGLES: $\pm .5^\circ$	
3 PLACE DECIMALS $\pm .005$	
2 PLACE DECIMALS $\pm .010$	
1 PLACE DECIMAL $\pm .020$	
MATERIAL: N/A	
FINISH: N/A	

DESIGN	SIZE	SHEET	DWG. NO.	REV.
RFB/DEB	C	1 OF 1	PAP2007A0027M	A
DRAWN	MJS			
CHECKED				
NAME	DATE	SIGNATURE	DATE	
NTS				

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	11/13/2007	



SECTION A-A



NATIONAL RADIO ASTRONOMY OBSERVATORY

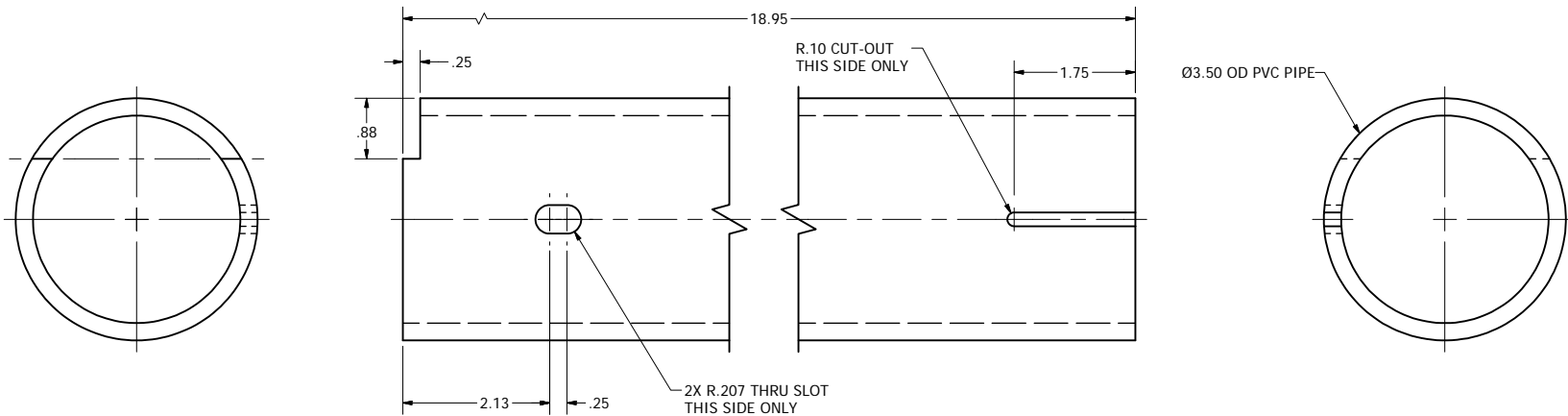
ASSOCIATED UNIVERSITIES INC.
CHARLOTTESVILLE, VIRGINIA

TITLE
PAPER CROSSED DIPOLE ANTENNA

MAST COLLAR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DESIGN	RFB/DEB	5/30/2007	RECOMMENDED BY		
TOLERANCES ANGLES: $\pm .5^\circ$ 3 PLACE DECIMALS $\pm .005$ 2 PLACE DECIMALS $\pm .010$ 1 PLACE DECIMAL $\pm .020$		DRAWN	EEM/MJS	11/13/07	ENGINEER		
MATERIAL: ALUM. 6061-T6		CHECKED			APPROVED		
FINISH: N/A			NAME	DATE	SIGNATURE	DATE	
		SCALE NTS	SIZE C	SHEET 1 OF 1	DWG. NO. PAP2007A0022M	REV. A	

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	3/10/2008	
B	ADDED .207 R. X .664 SLOT AND DIM. .88 WAS 1.00	4/25/2008	



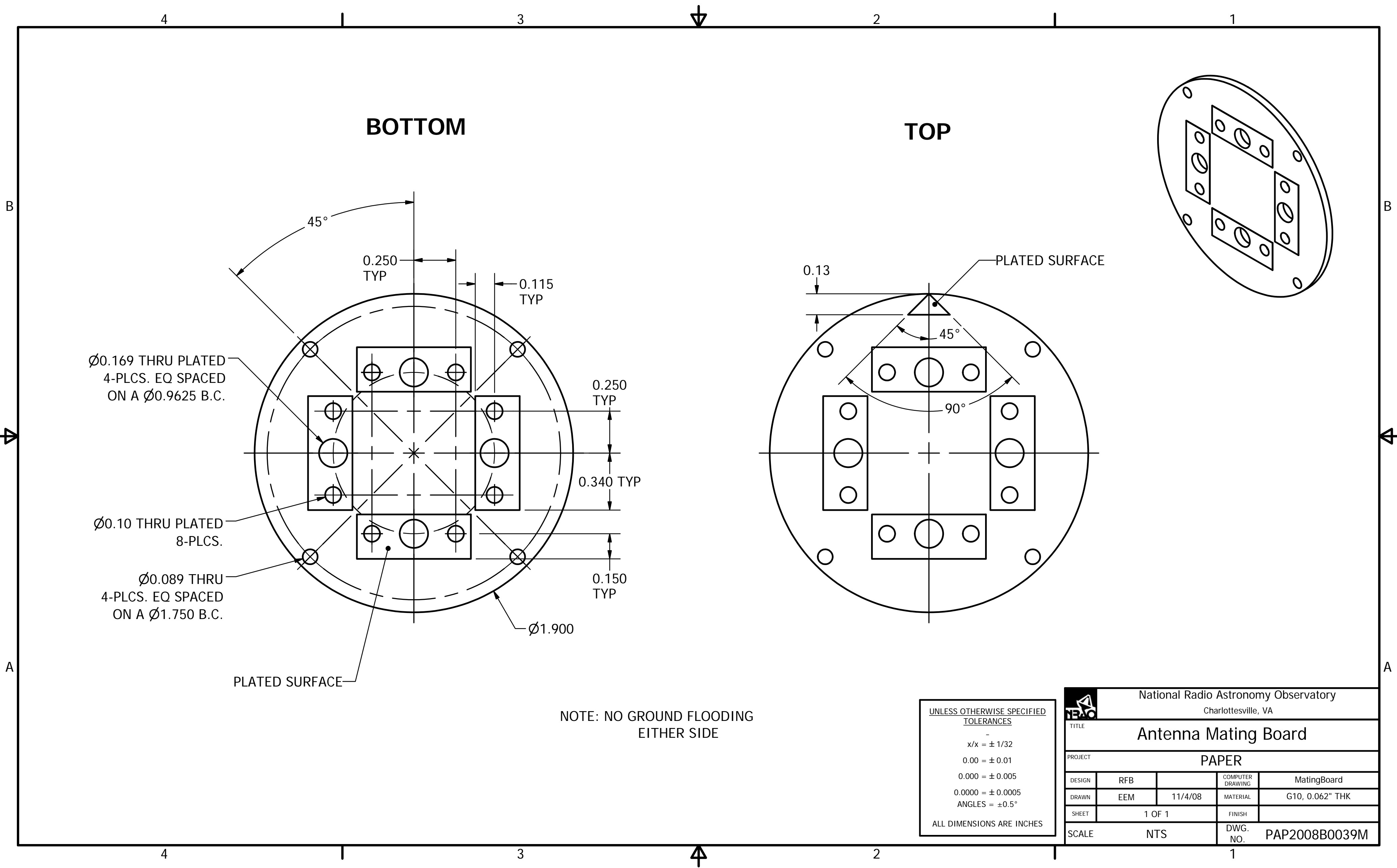
NATIONAL RADIO ASTRONOMY OBSERVATORY

ASSOCIATED UNIVERSITIES INC.
CHARLOTTESVILLE, VIRGINIA

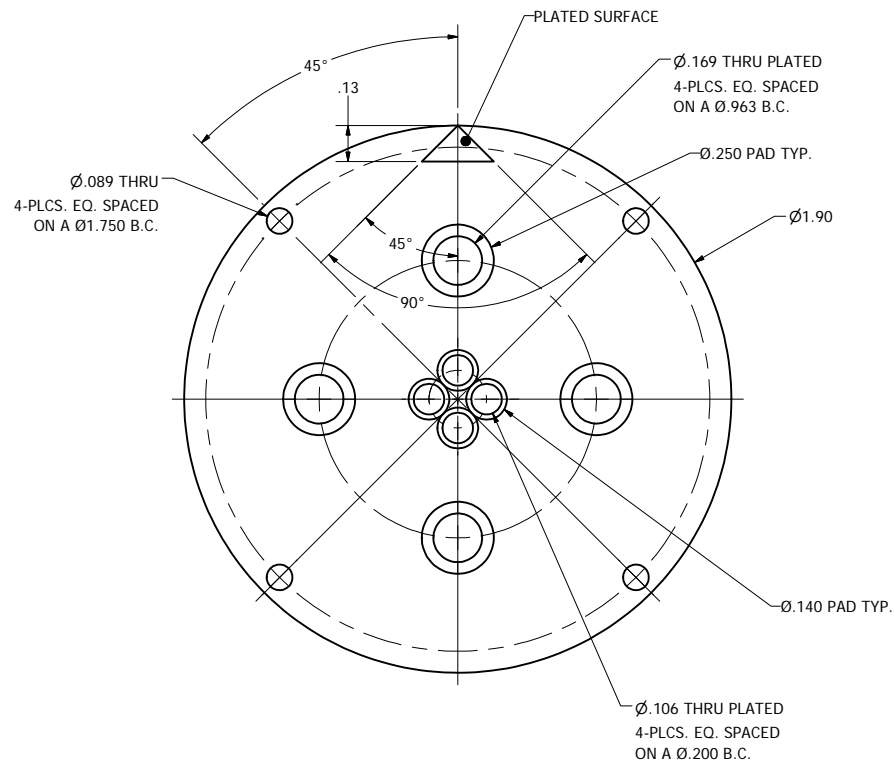
TITLE PAPER CROSSED DIPOLE ANTENNA

ANTENNA MAST

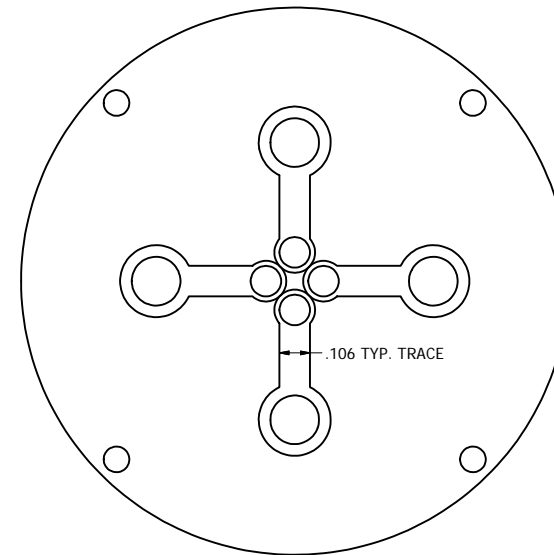
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				DESIGN		DEB	3/10/2008	RECOMMENDED BY		
TOLERANCES ANGLES: $\pm .5^\circ$ 3 PLACE DECIMALS $\pm .005$ 2 PLACE DECIMALS $\pm .010$ 1 PLACE DECIMAL $\pm .020$				DRAWN		EEM/MJS		ENGINEER		
MATERIAL: PVC PIPE SCH 80				CHECKED				APPROVED		
FINISH: N/A						NAME	DATE	SIGNATURE		DATE
SCALE NTS		SIZE C	SHEET 1 OF 1	DWG. NO. PAP2007A0030M				REV. B		



REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	DWG. RELEASE	2/5/2008	



TOP



BOTTOM

NOTE:
1. NO GROUND FLOODING EITHER SIDE



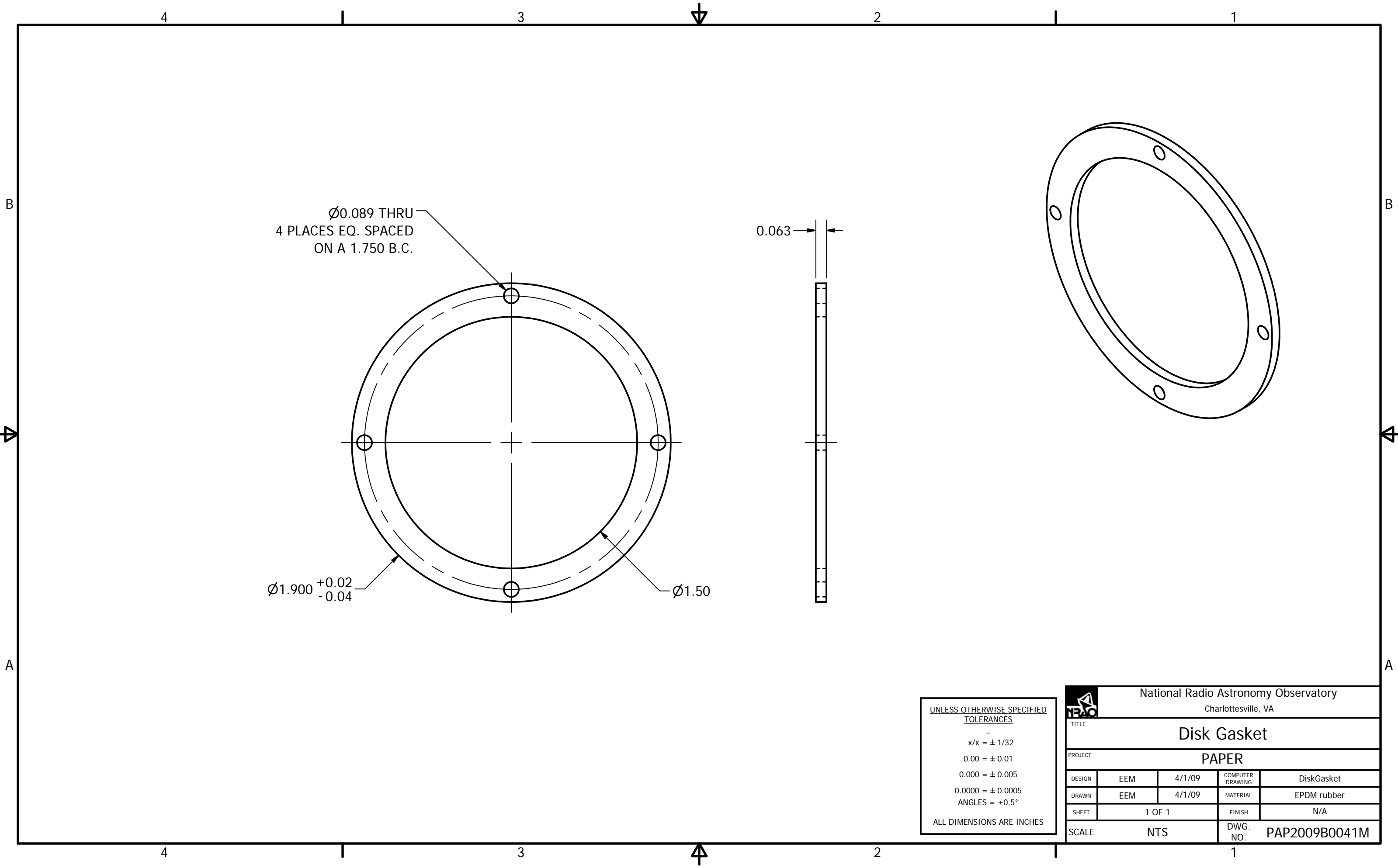
NATIONAL RADIO ASTRONOMY OBSERVATORY

ASSOCIATED UNIVERSITIES INC.
CHARLOTTESVILLE, VIRGINIA


TITLE
PAPER CROSSED DIPOLE ANTENNA

BALUN-MOUNTED MATING BOARD

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DESIGN	RB	2/5/2008	RECOMMENDED BY		
TOLERANCES ANGLES: ± .5° 3 PLACE DECIMALS ± .005 2 PLACE DECIMALS ± .010 1 PLACE DECIMAL ± .020		DRAWN	MJS	02/05/08	ENGINEER		
MATERIAL: G10, .062 THK.		CHECKED			APPROVED		
FINISH:			NAME	DATE		SIGNATURE	DATE
		SCALE NTS	SIZE C	SHEET 1 OF 1	DWG. NO. PAP2007A0029M		REV. A



UNLESS OTHERWISE SPECIFIED TOLERANCES				
-				
x/x = ± 1/32				
0.00 = ± 0.01				
0.000 = ± 0.005				
0.0000 = ± 0.0005				
ANGLES = ± 0.5°				
ALL DIMENSIONS ARE INCHES				

 National Radio Astronomy Observatory Charlottesville, VA				
TITLE Disk Gasket				
PROJECT PAPER				
DESIGN	EEM	4/1/09	COMPUTER DRAWING	DiskGasket
DRAWN	EEM	4/1/09	MATERIAL	EPDM rubber
SHEET	1 OF 1		FINISH	N/A
SCALE	NTS		DWG. NO.	PAP2009B0041M