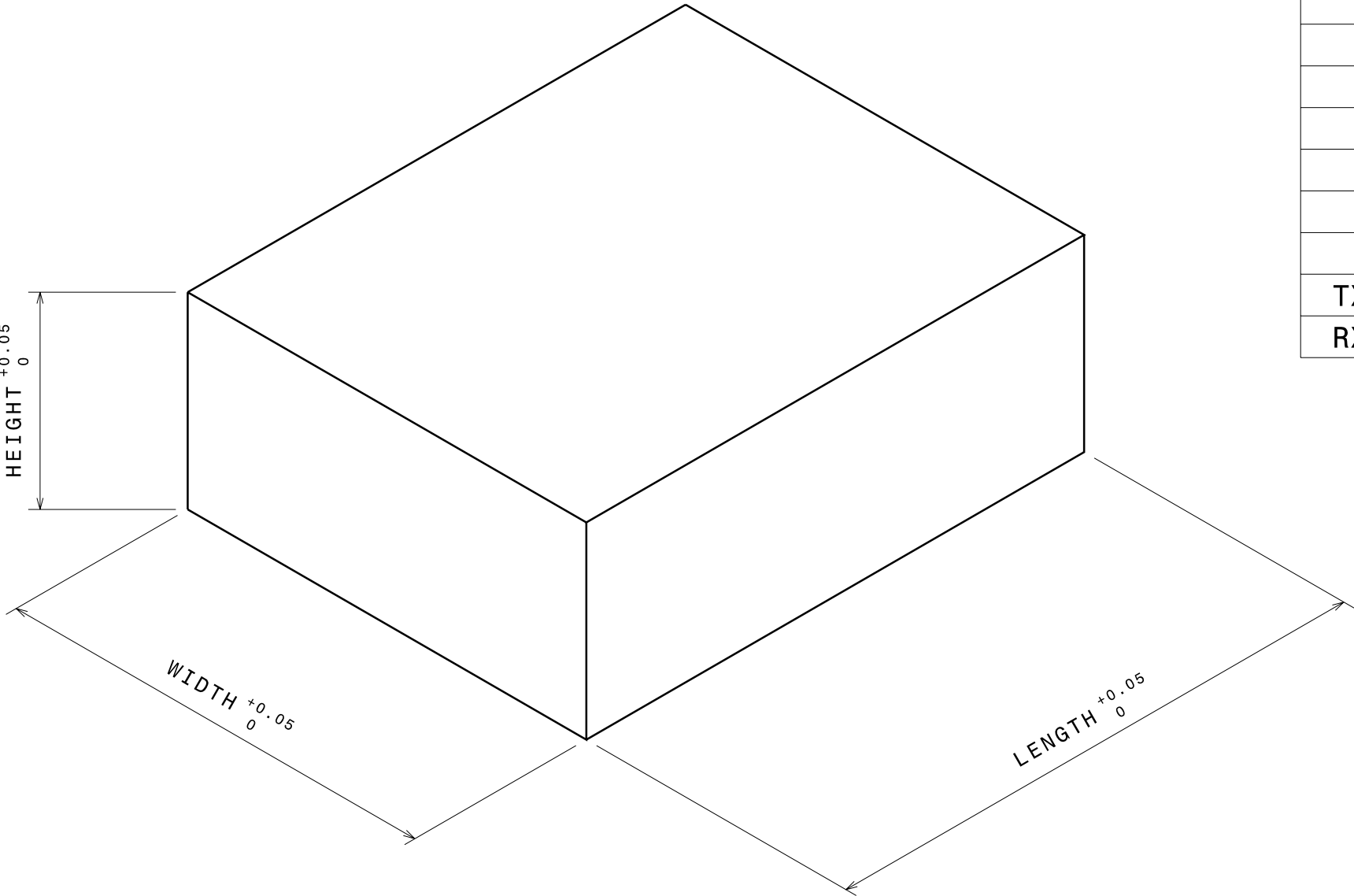



NO.	REVISION	DATE	APP.



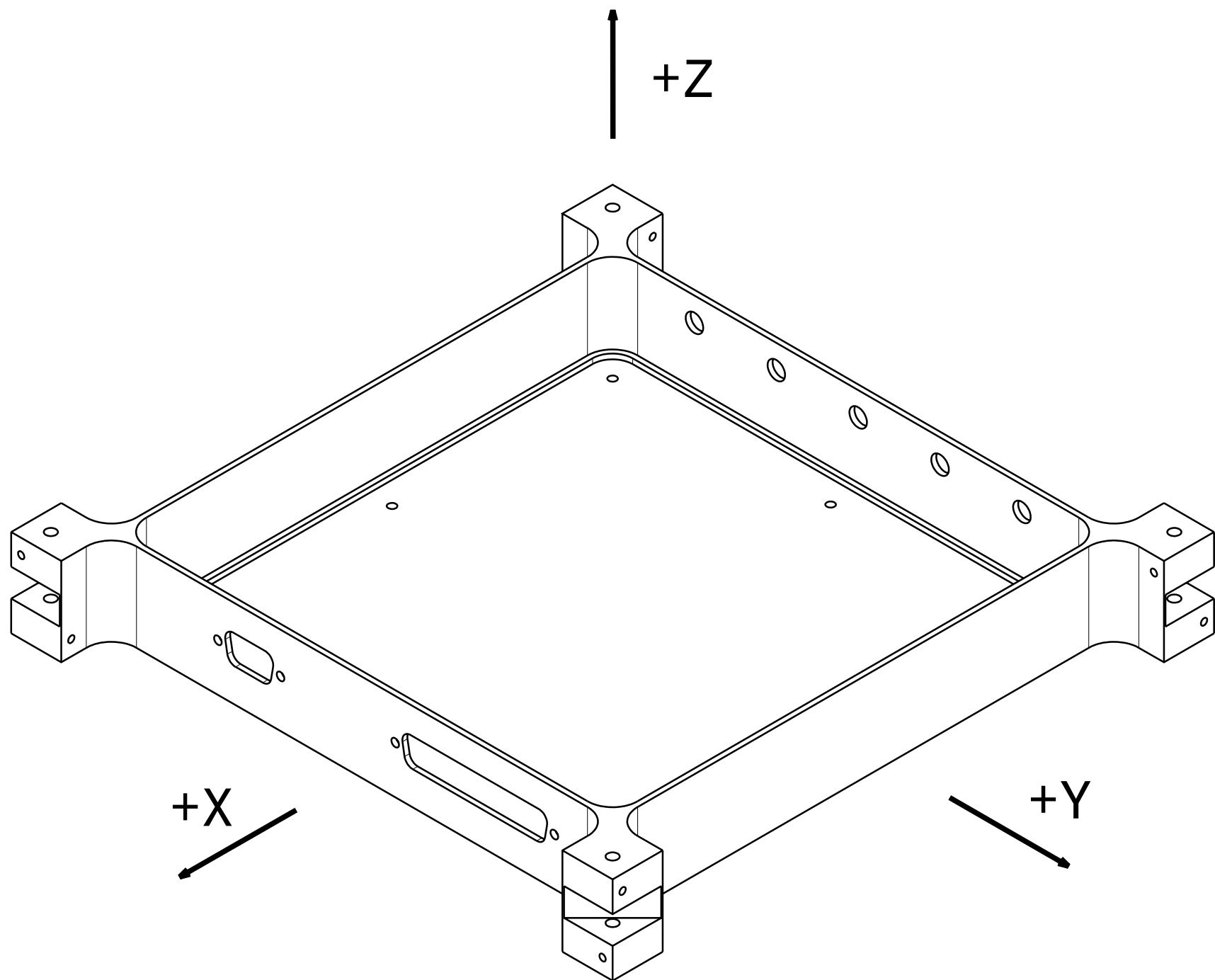
PART	HEIGHT	WIDTH	LENGTH	NO. REQUIRED
Tray 0	10	250	250	1
Tray 1	57	240	240	1
Tray 2	37	240	240	1
Tray 3	52	240	240	1
Tray 4	37	240	240	1
Tray 5	57	240	240	1
TX Housing	37	84	159	2
RX Housing	37	93	134	2

NOTES: 1) ALL sides are to be machined
2) Please contact me once billets have been sized so I can mark axes on them before CNC milling begins

CONTACT: Chris Hales
0409 718 568
chales@bluesat.unsw.edu.au

ALL DIMENSIONS ARE IN MM				TITLE <div>REQUIRED BILLET SIZES</div>									
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ±.025 ANGLES = ±1°													
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		All dimensions are in mm						SIZE A3		DWG. NO. MECH-0200-23May08		REV. 1.0	
		DRAWN <i>Christopher Hale</i>						DATE 29/4/2008		SCALE - :-		RELEASED 05/05/2008	
		MATERIAL Aluminium 6061-T6		WEIGHT -- kg		This drawing is the property of BLUESAT. It may not be reproduced or communicated without our written agreement.							

NO.	REVISION	DATE	APP.



NOTES: 1) The tray on the left is representative of the general layout of all trays T1-T5, with D-connectors on the +X face, the upright tray pointing in the +Z direction, and the +Y axis forming a right-handed co-ordinate system.

2) The tools to be used are:

- T1 = End Mill D20
- T2 = Ball Nose End Mill D12
- T3 = End Mill D10
- T4 = Center Drill D2
- T5 = Drill D2.5
- T6 = Drill D3.1
- T7 = Drill D10
- T8 = End Mill D4
- T9 = Drill D7
- T10 = End Mill D12
- T11 = Drill D3
- T12 = Drill D4 (long series)
- T13 = Drill D8
- T14 = End Mill D2
- T15 = Conical Mill D0.1
- T16 = Drill D8.75
- T17 = Ball Nose End Mill D8

ALL DIMENSIONS ARE IN MM
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS

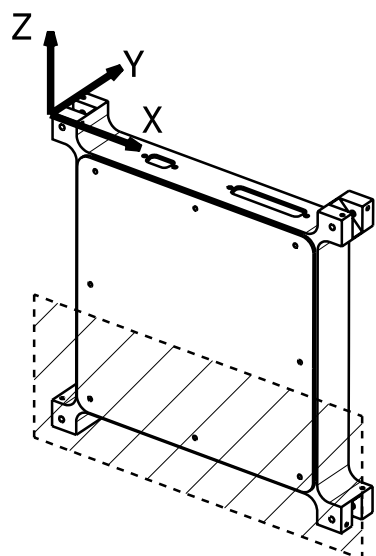
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 9/5/2008
MATERIAL Aluminium 6061-T6	WEIGHT ---

TITLE

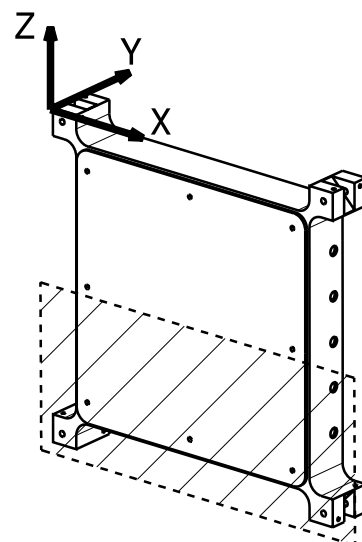
MACHINING INFO
FOR TRAYS T1 - T5

SIZE	A3	DWG. NO.	MECH-0205-23May08	REV.	1.0
SCALE	- - -	RELEASED	09/05/2008	SHEET	1 / 2
at. It may not be reproduced or communicated without our written agreement.					

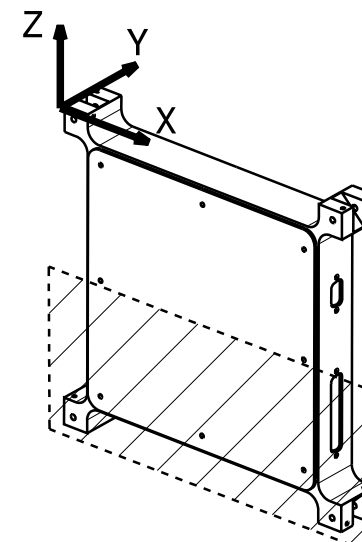
NO.	REVISION	DATE	APP.



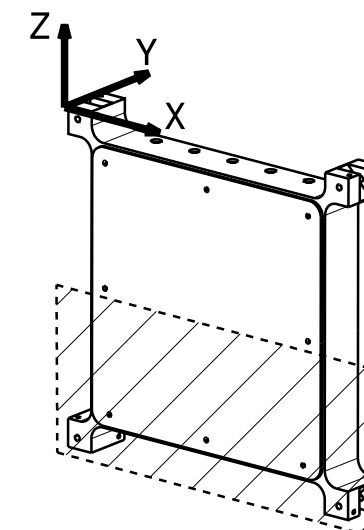
PROCESS 1 - POSX



PROCESS 2 - POSY

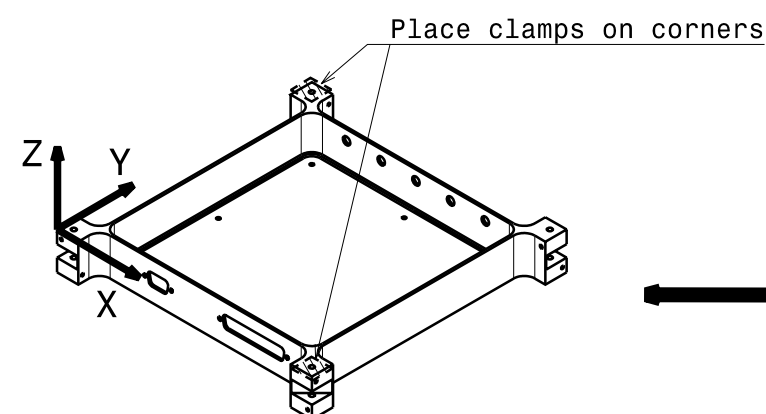


PROCESS 3 - NEGY

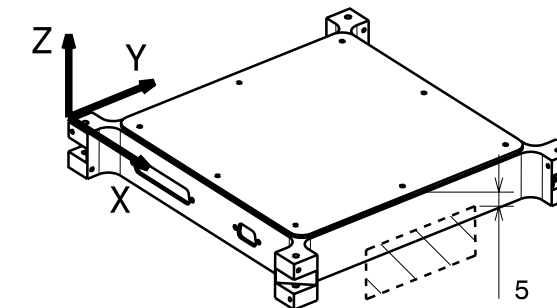


PROCESS 4 - NEGX

- NOTES: 1) The name of each process refers to the face of the tray being machined
- 2) The machining axes for each process, as shown, have been placed according to the original stock material. ALWAYS use the outermost dimensions for setting up the machining axes
- 3) The machining axes align the Z-axis with the tool axis, and the X-axis along the longest dimension for the process face. Also note the location of the D-connectors when positioning for processes 5 and 6
- 4) All but process 6 use a vice grip to hold the stock material. The shaded areas indicate the placement for one side of this symmetric clamp. For process 6, small clamps should be used to hold down the corners of the tray



PROCESS 6 - POSZ




PROCESS 5 - NEGZ

ALL DIMENSIONS ARE IN MM

TOLERANCES (UNLESS OTHERWISE SPECIFIED):
DIMENSIONS = ± 0.025
ANGLES = $\pm 1^\circ$

CATIA DRAWING - TO BE MANUFACTURED USING
CNC MILL, NOT MANUALLY
USE SYMMETRY TO CALCULATE DIMENSIONS

	
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 9/5/2008
MATERIAL Aluminium 6061-T6	WEIGHT ---

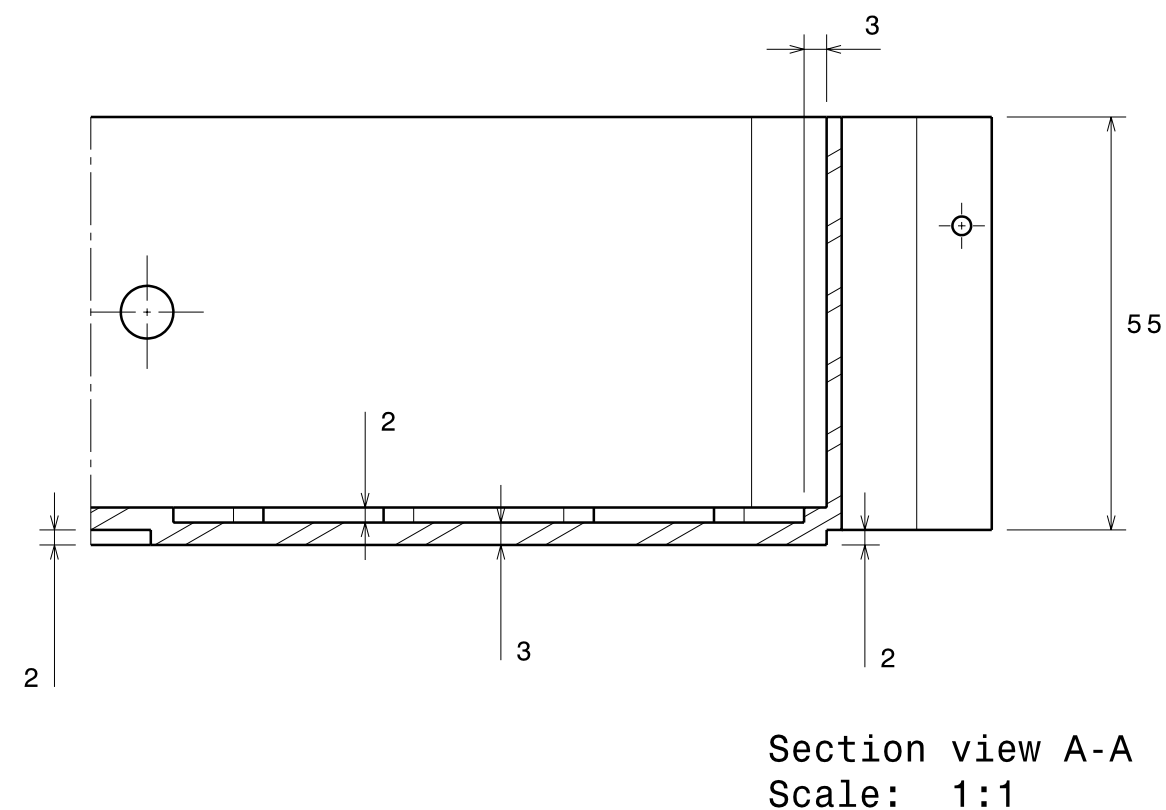
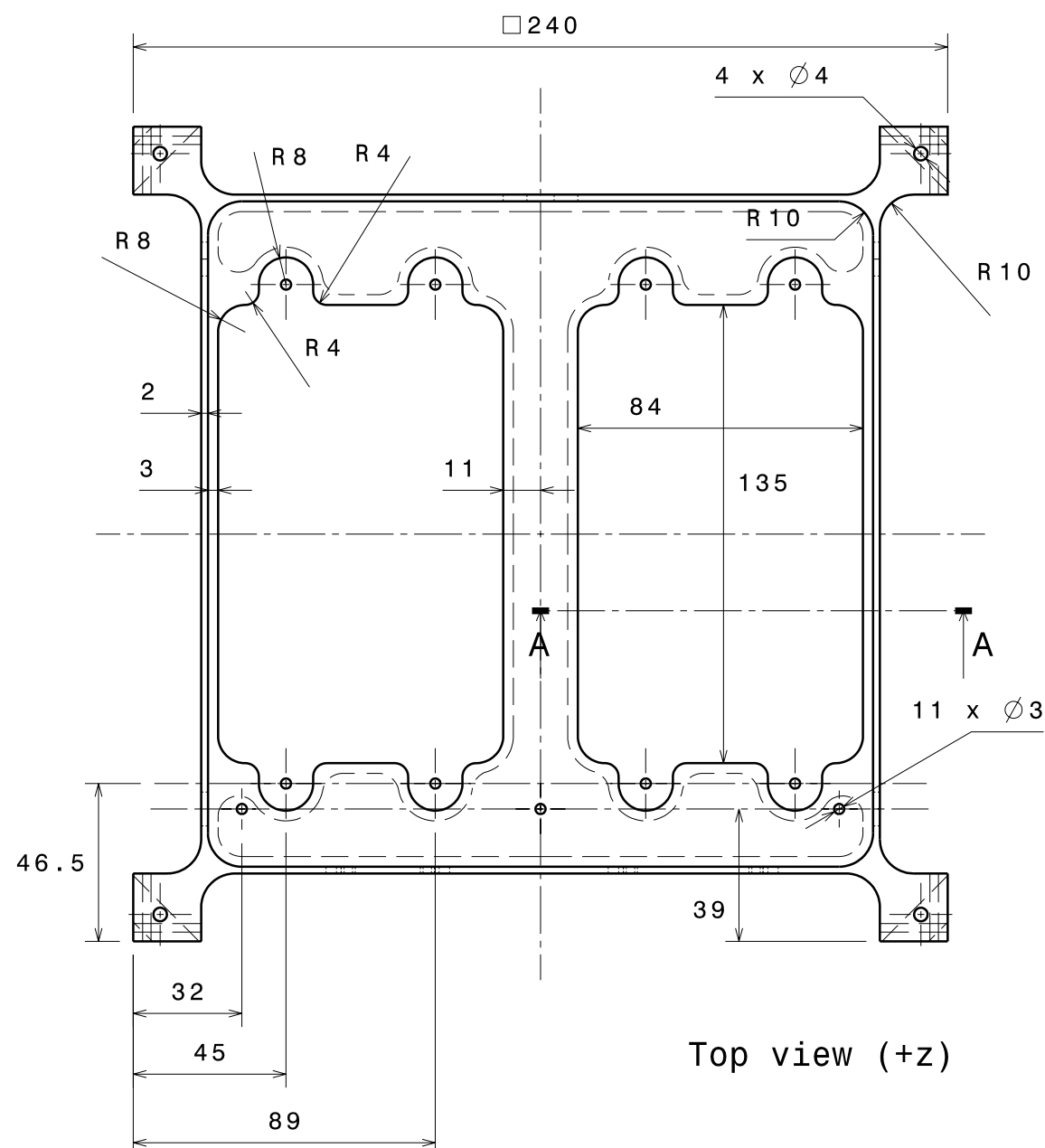
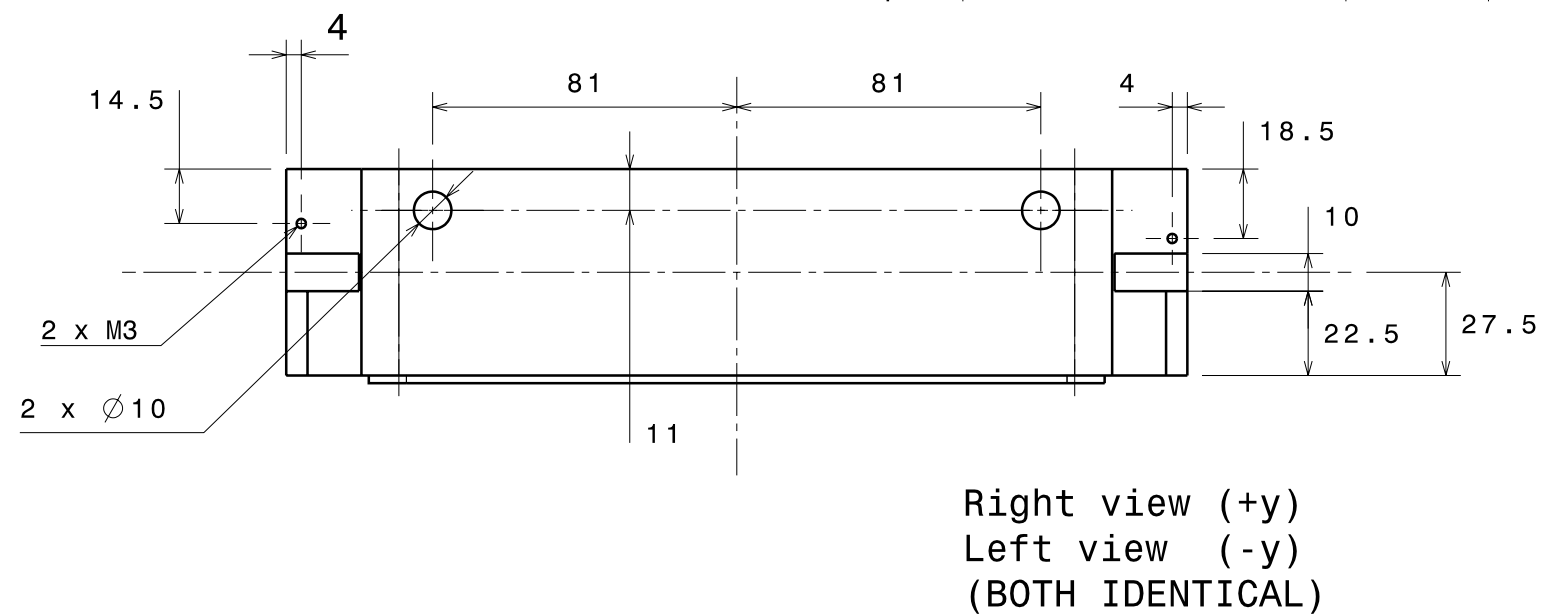
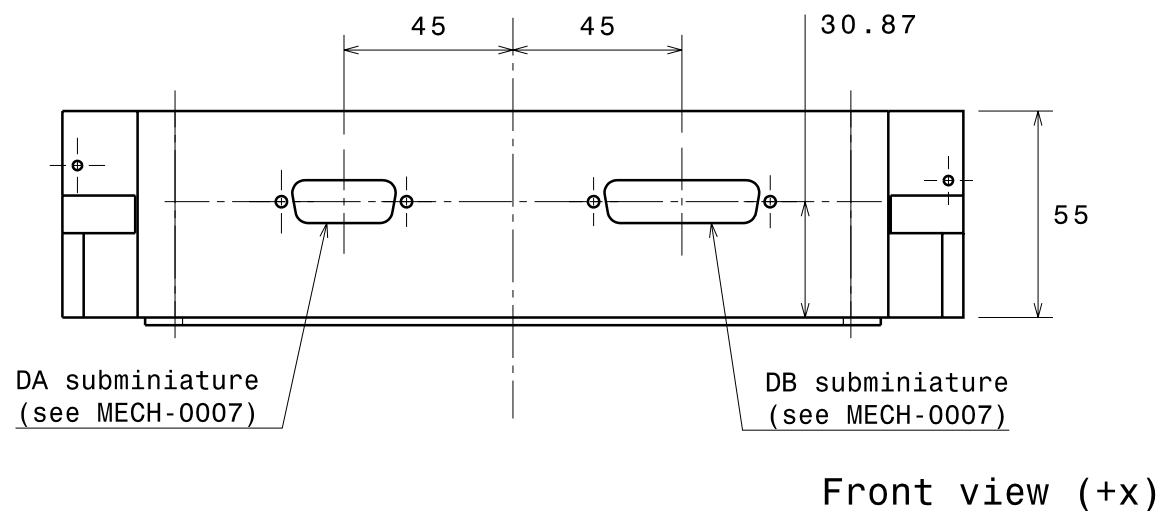
TITLE


MACHINING INFO FOR TRAYS T1-T5

SIZE A3	DWG. NO. MECH-0205-23May08	REV. 1.0
SCALE ---	RELEASED 09/05/2008	SHEET 2/2

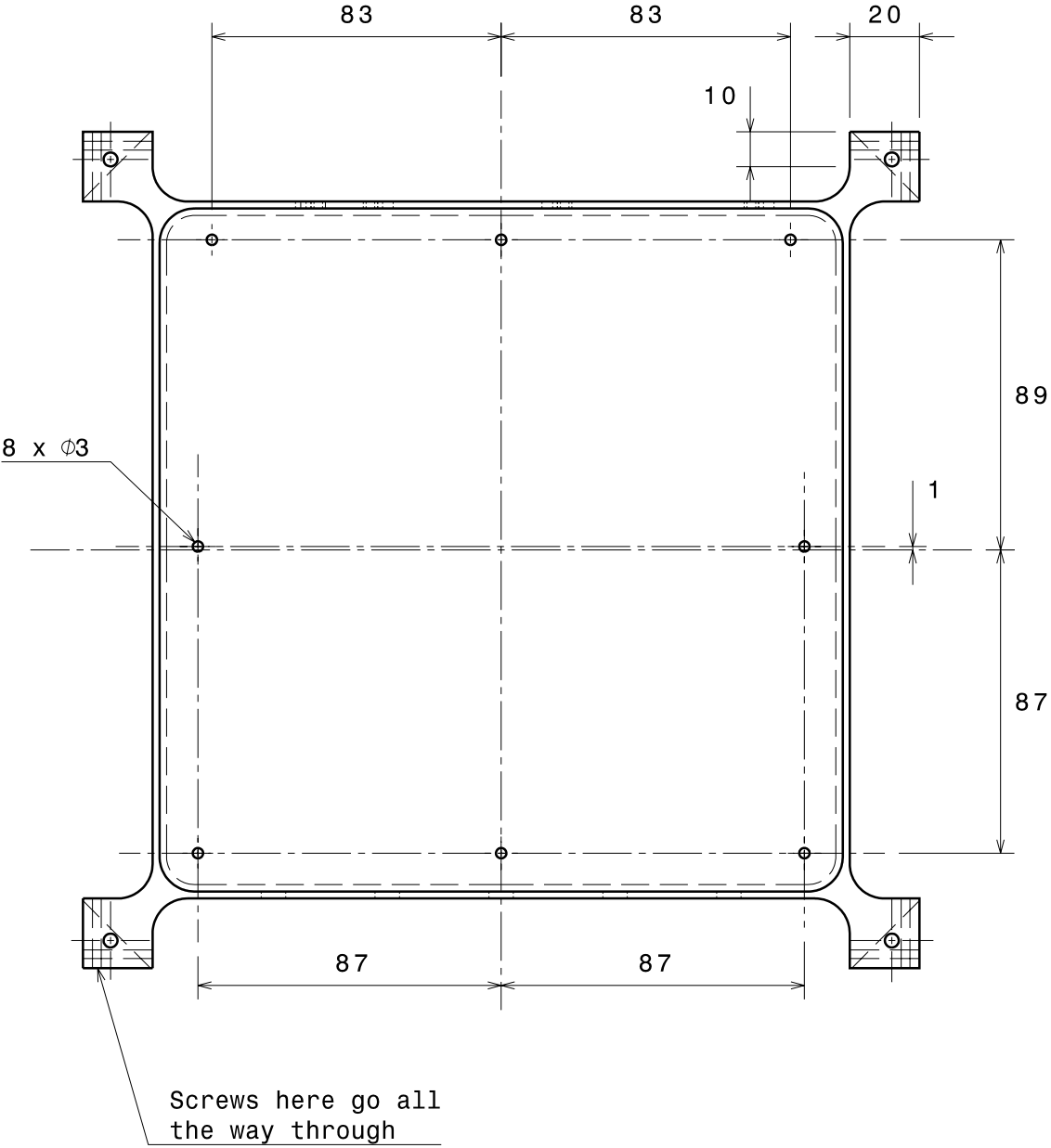
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NO.	REVISION	DATE	APP.

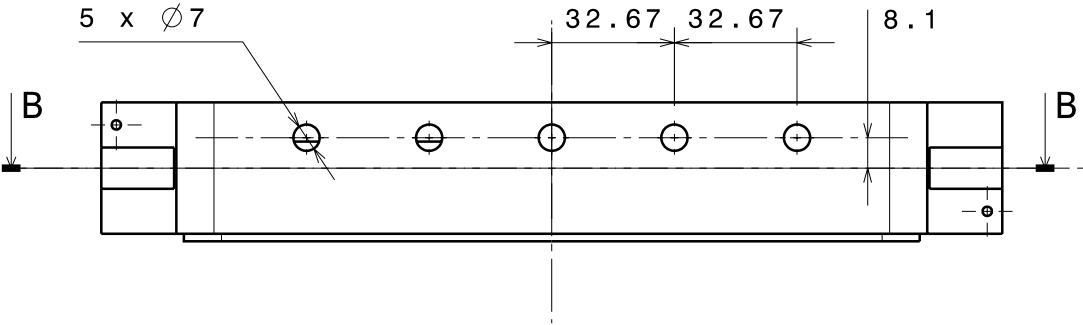


ALL DIMENSIONS ARE IN MM			TRAY 1: TRANSMITTERS						
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = $\pm .025$ ANGLES = $\pm 1^\circ$									
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		All dimensions are in mm		SIZE A3		DWG. NO. MECH-0009-24April08		REV. 1.0	
		DRAWN Christopher Hale	DATE 24/04/2008						
		MATERIAL Aluminium 6061-T6	WEIGHT 0.81 kg	SCALE 1:2		RELEASED 05/05/2008		SHEET 1/2	
This drawing is the property of BLUESat. It may not be reproduced or communicated without our written agreement.									

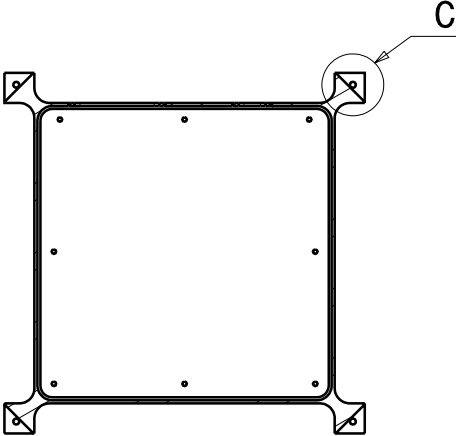
NO.	REVISION	DATE	APP.



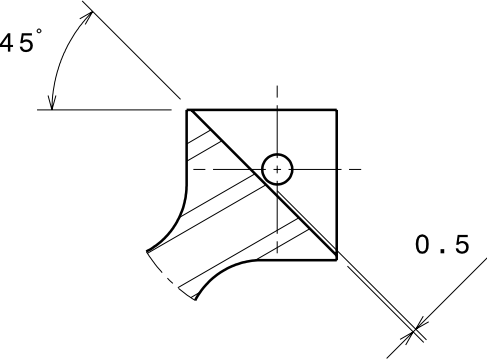
Bottom view (-z)



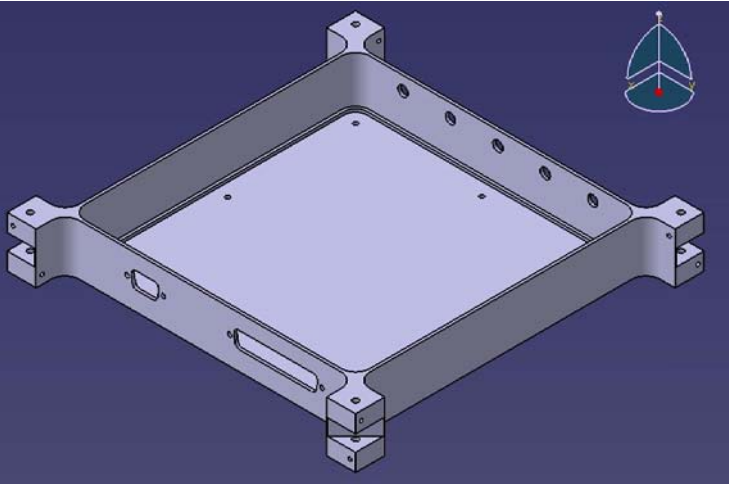
Rear view (-x)




Section view B-B
Scale: 1:5

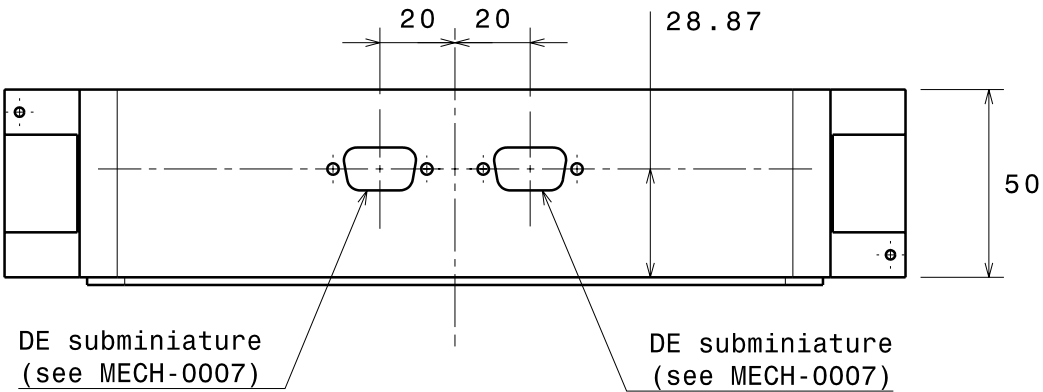


Detail C
Scale: 1:1

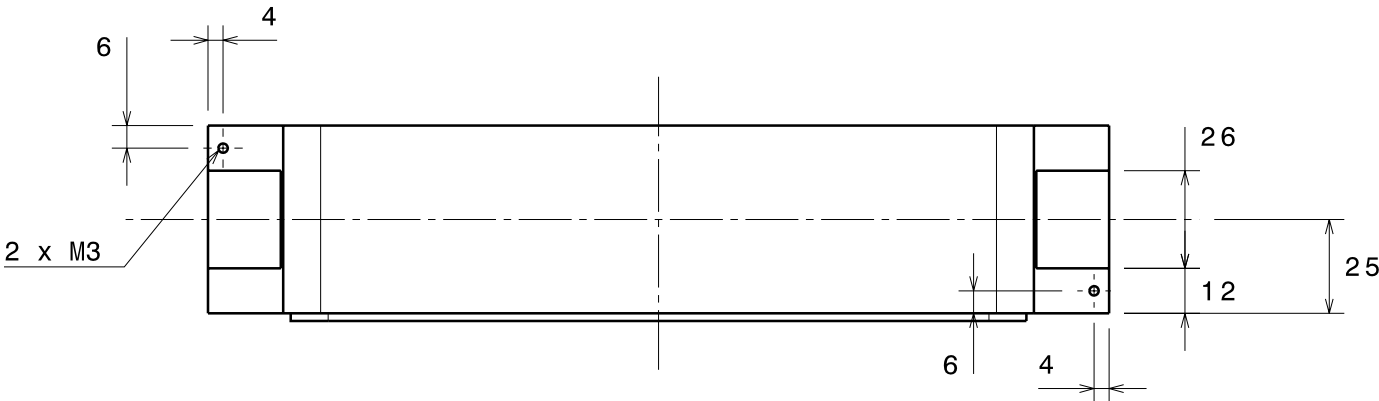


ALL DIMENSIONS ARE IN MM			TITLE <div>TRAY 2:</div> <div>FLIGHT COMPUTER</div>				
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$							
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		All dimensions are in mm					
DRAWN <i>Christopher Hale</i>		DATE 28/4/2008					
MATERIAL Aluminium 6061-T6		WEIGHT 0.61 kg		SIZE A3	DWG. NO. MECH-0010-28April08		REV. 1.0
				SCALE 1:2	RELEASED 05/05/2008	SHEET 2/2	
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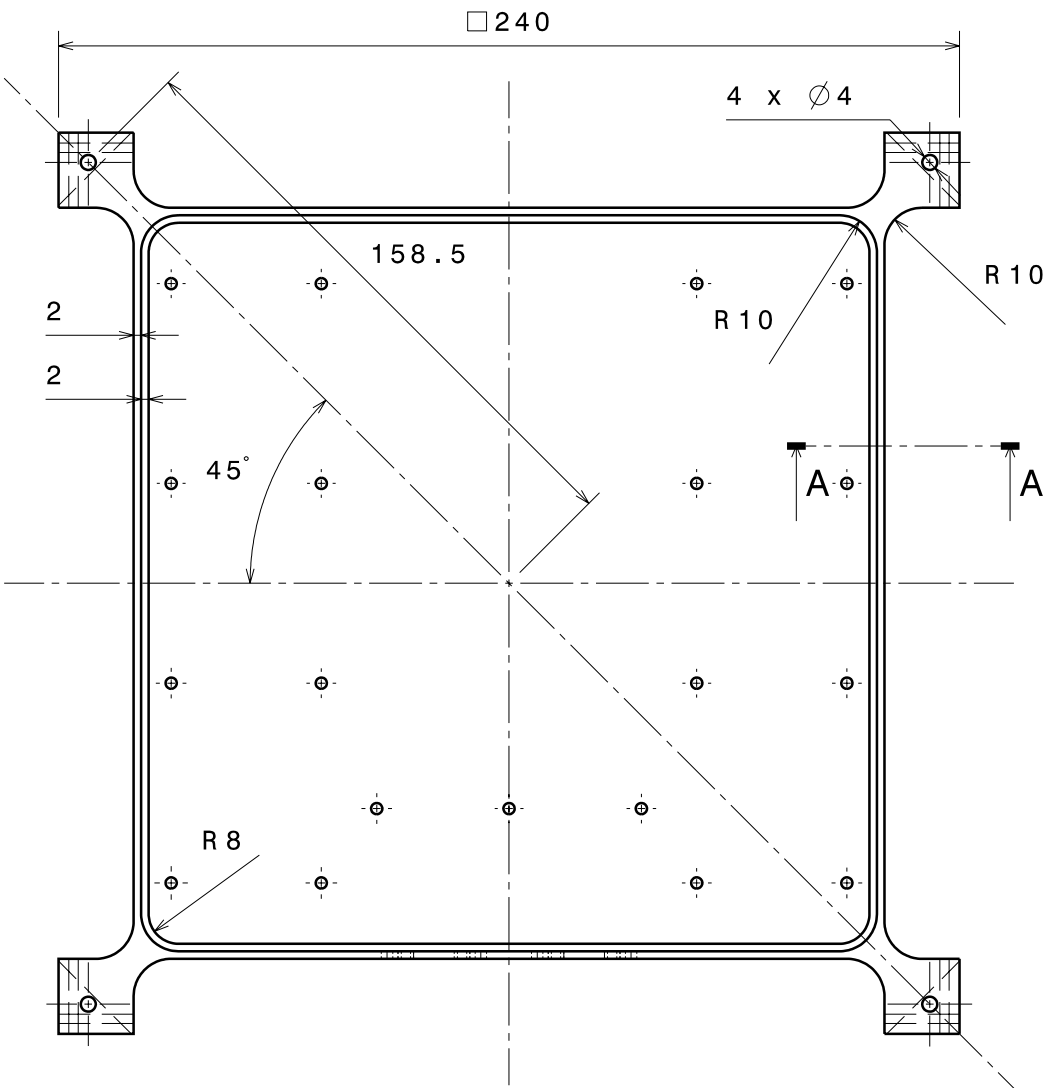
NO.	REVISION	DATE	APP.



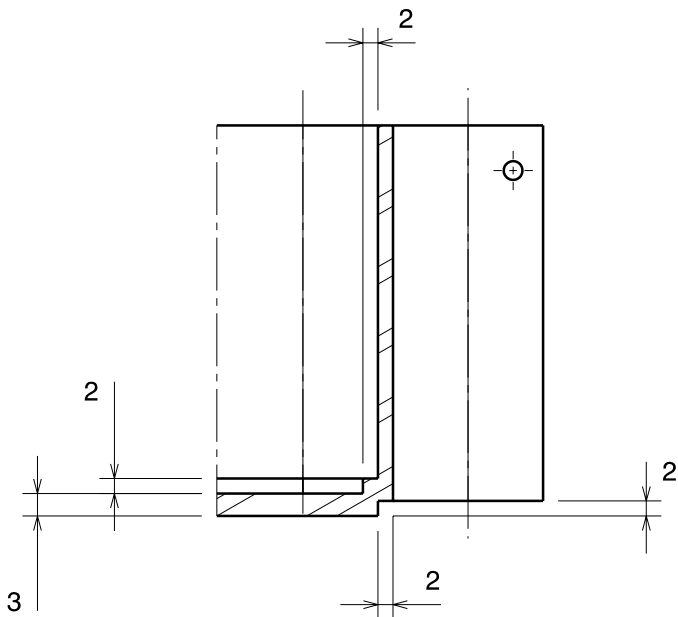
Front view (+x)





Right view (+y)
Left view (-y)
(BOTH IDENTICAL)



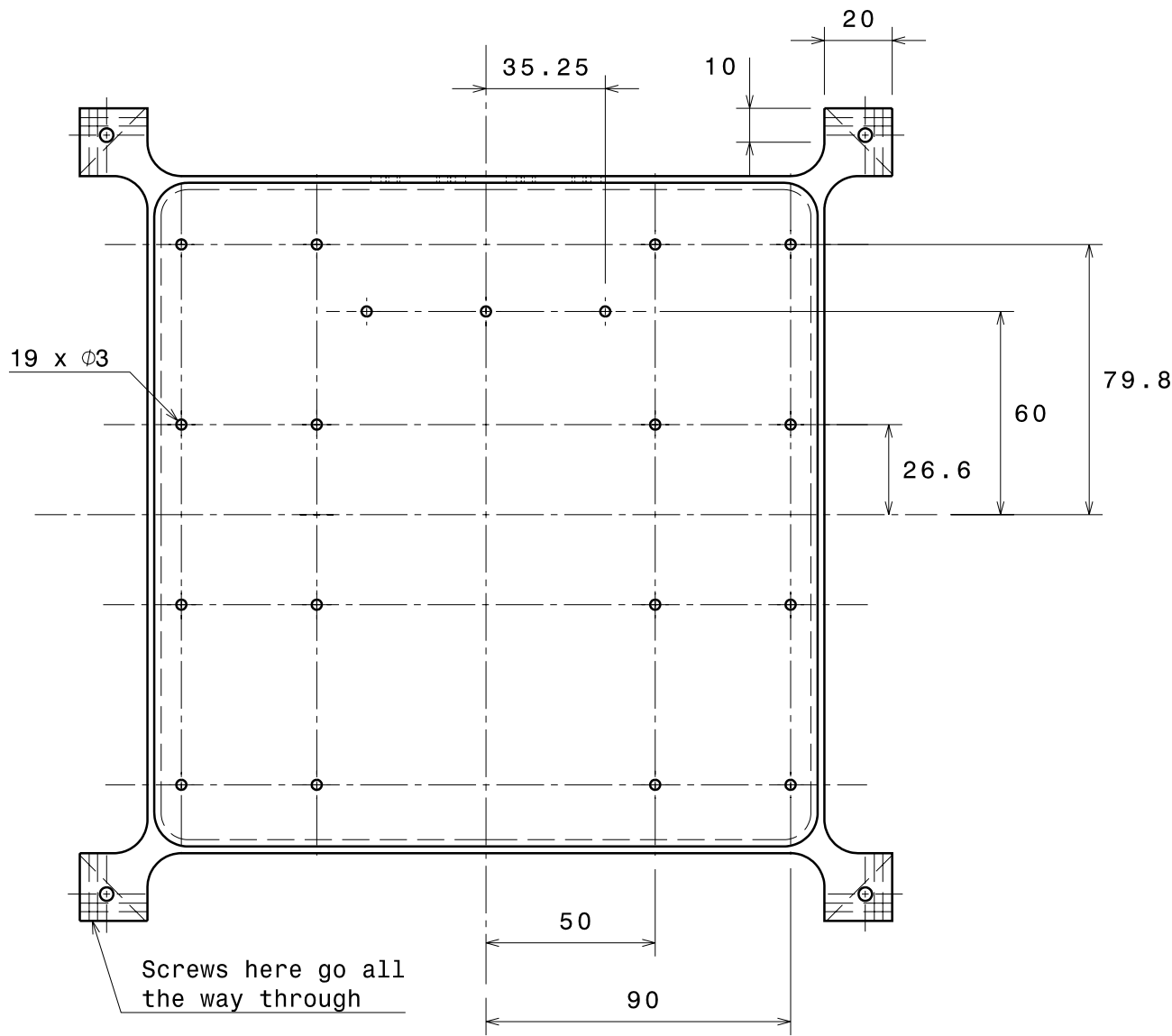
Top view (+z)



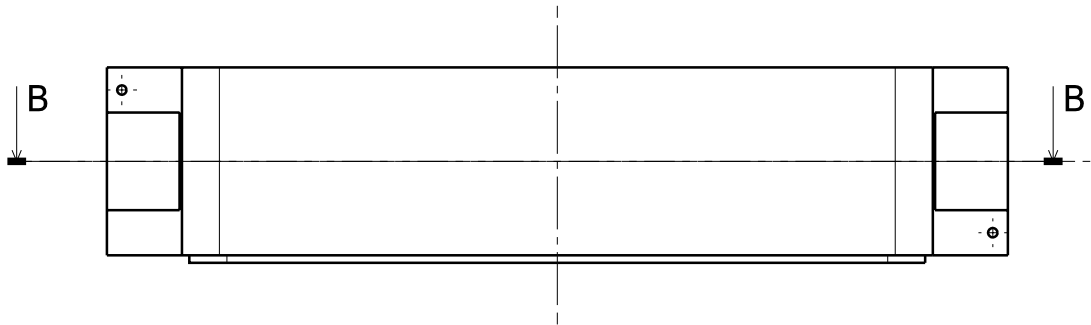
Section view A-A
Scale: 1:1

ALL DIMENSIONS ARE IN MM		<div>  </div>	TITLE	
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$		All dimensions are in mm		<div> <div>TRAY 3: BATTERIES</div> </div>
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		<div> <div>DRAWN</div> <div>  </div> </div>	<div> <div>DATE</div> <div>28/4/2008</div> </div>	
		<div> <div>MATERIAL</div> <div>Aluminium 6061-T6</div> </div>	<div> <div>WEIGHT</div> <div>0.72 kg</div> </div>	
		<div> <div>SIZE</div> <div>A3</div> </div>	<div> <div>DWG. NO.</div> <div>MECH-0011-28April08</div> </div>	<div> <div>REV.</div> <div>1.0</div> </div>
		<div> <div>SCALE</div> <div>1:2</div> </div>	<div> <div>RELEASED</div> <div>05/05/2008</div> </div>	<div> <div>SHEET</div> <div>1/2</div> </div>
This drawing is the property of BLUEsat. It may not be reproduced or communicated without our written agreement.				

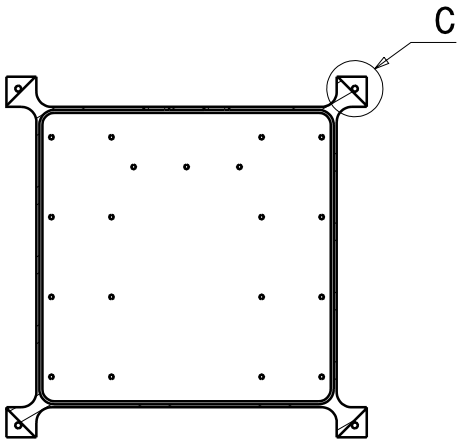
NO.	REVISION	DATE	APP.



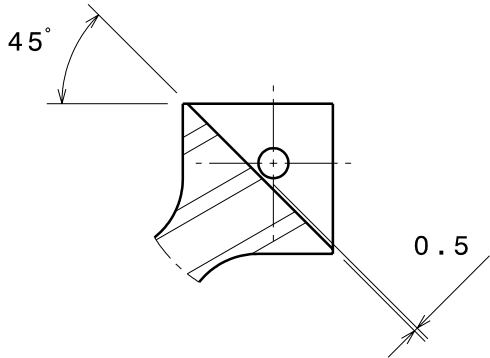
Bottom view (-z)



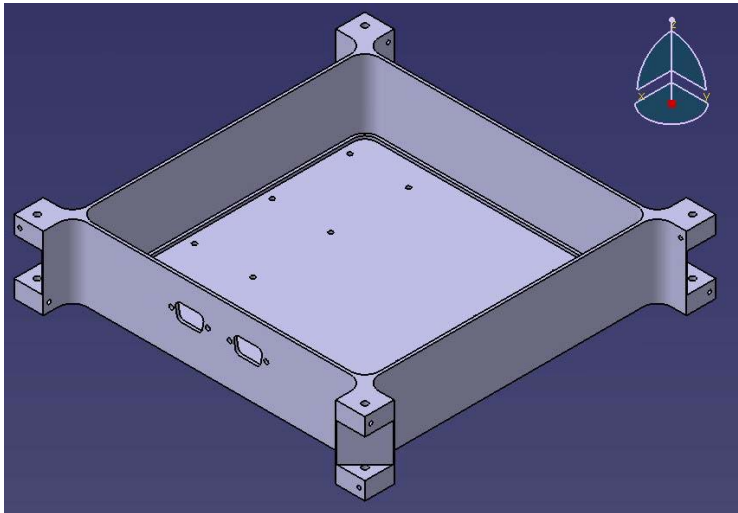
Rear view (-x)




Section view B-B
Scale: 1:5

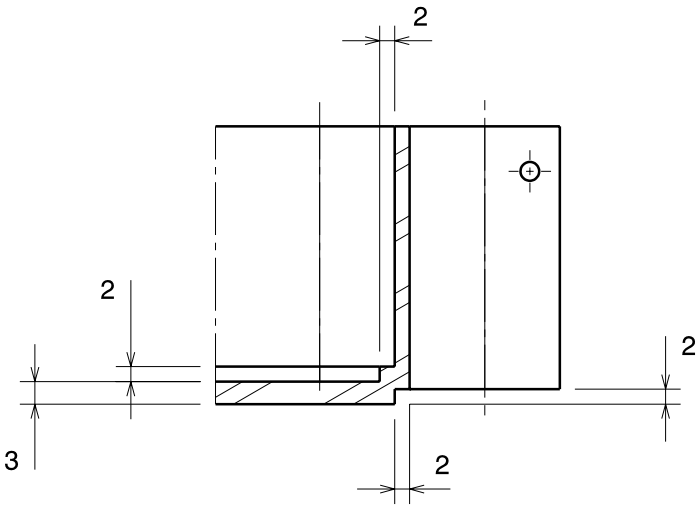
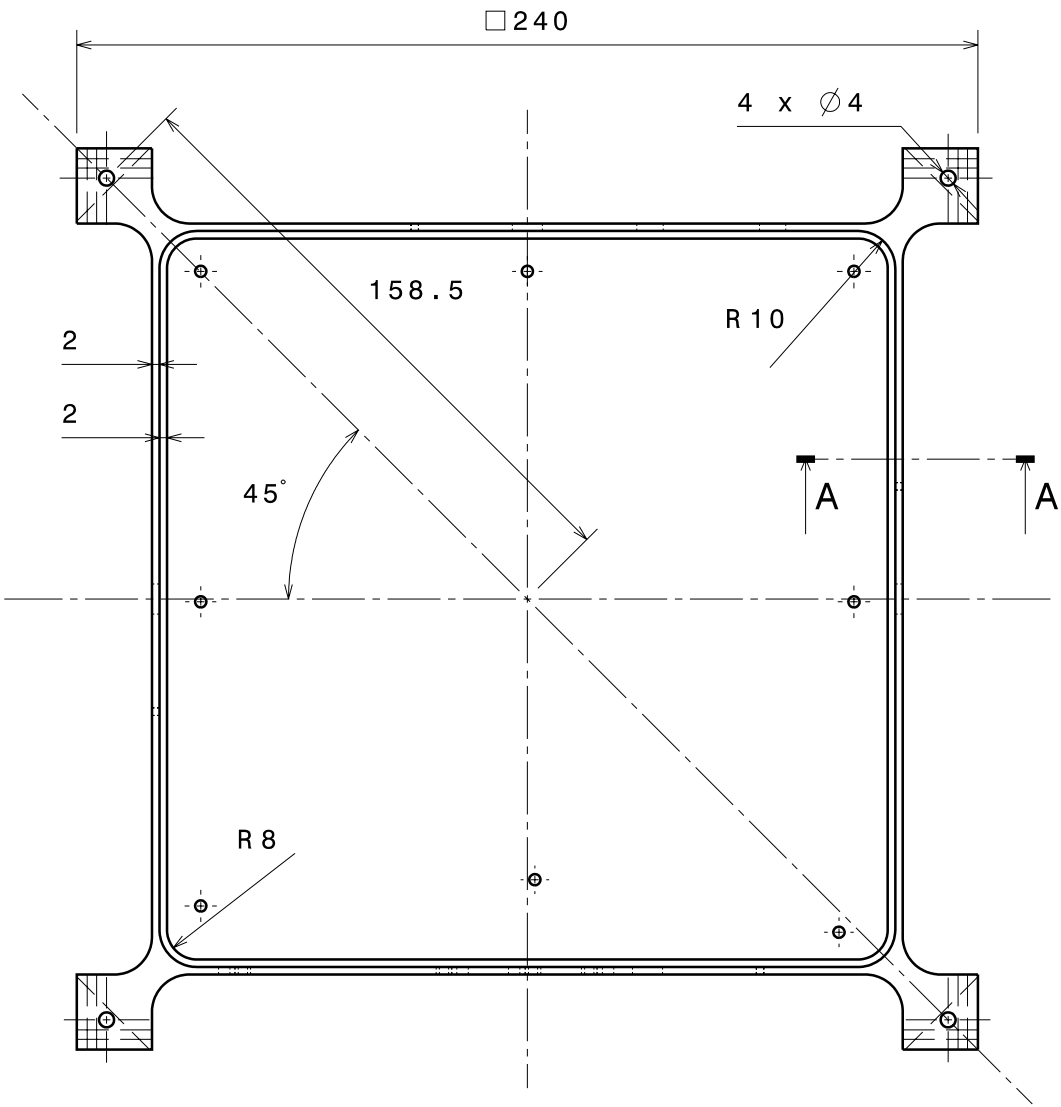
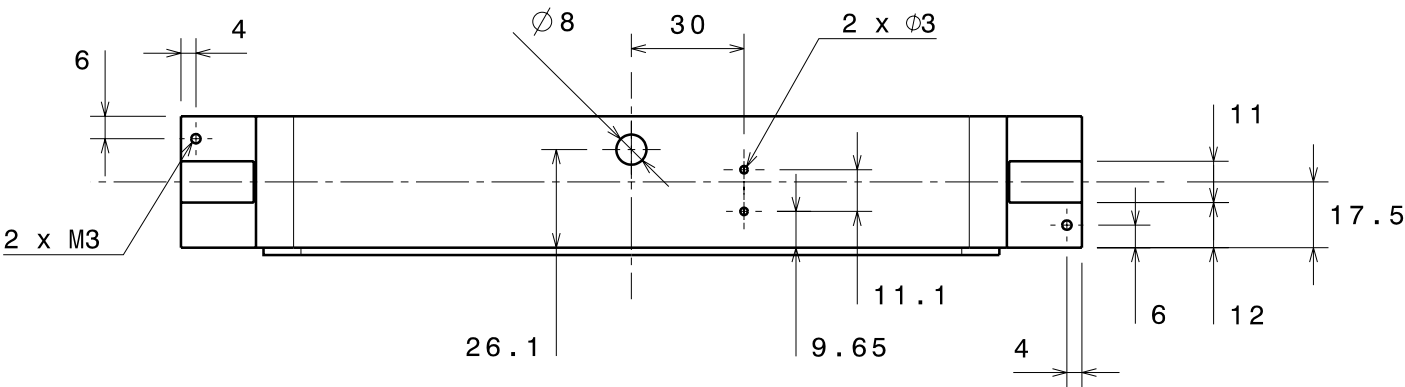
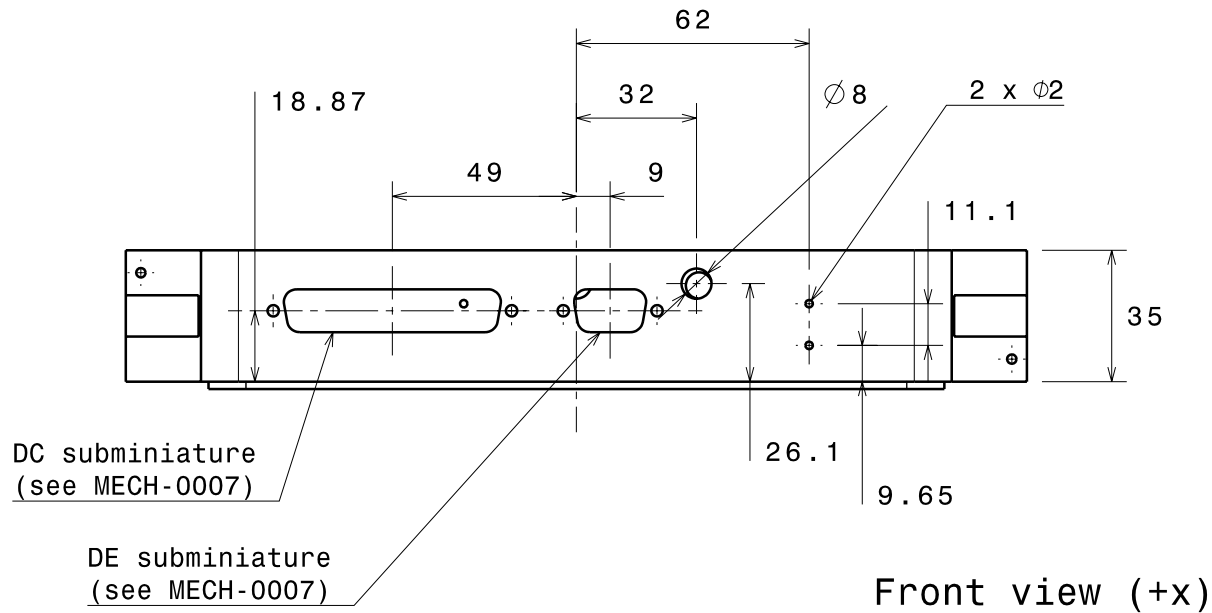


Detail C
Scale: 1:1




ALL DIMENSIONS ARE IN MM		<div><div>ULSSD BLUESAT UNSW STUDENT SATELLITE PROJECT</div></div>		TITLE <div>TRAY 3: BATTERIES</div>						
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ±.025 ANGLES = ±1°								All dimensions are in mm		
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		DRAWN <i>Christopher Hale</i>	DATE 28/4/2008					SIZE A3	DWG. NO. MECH-0011-28April08	REV. 1.0
		MATERIAL Aluminium 6061-T6	WEIGHT 0.72 kg					SCALE 1:2	RELEASED 05/05/2008	SHEET 2/2
This drawing is the property of BLUESAT. It may not be reproduced or communicated without our written agreement.										

NO.	REVISION	DATE	APP.

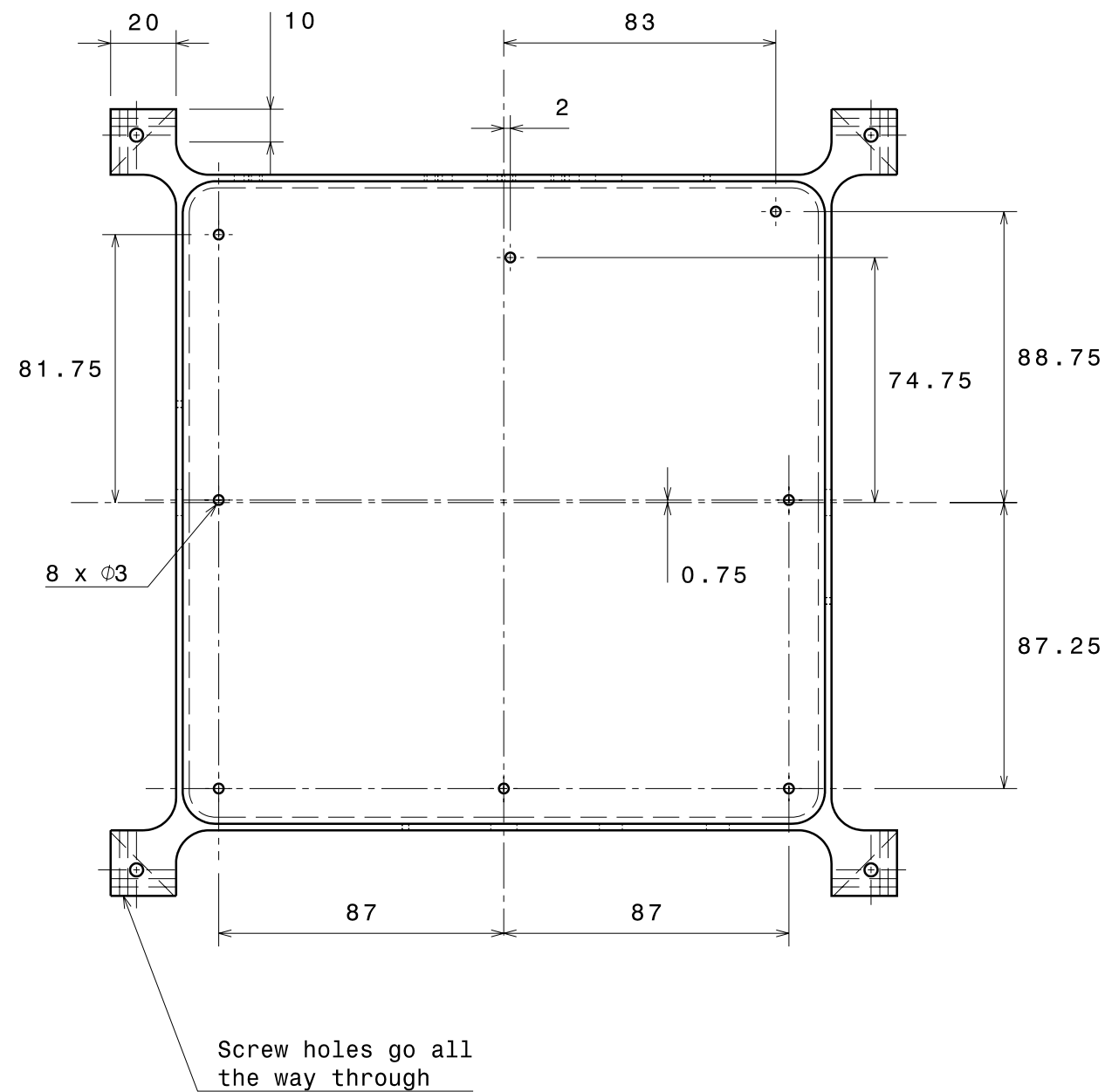


ALL DIMENSIONS ARE IN MM
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS

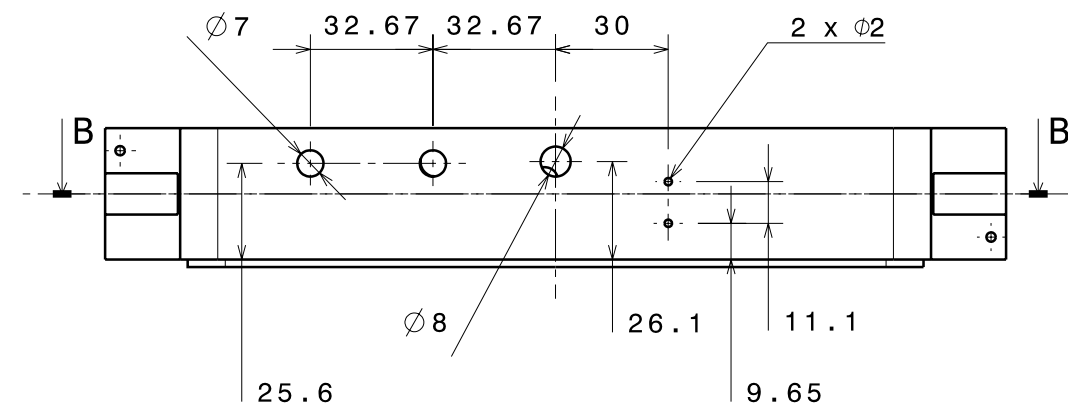
	
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 28/4/2008
MATERIAL Aluminium 6061-T6	WEIGHT 0.61 kg
This drawing is the property of BLUESat. It may not be reproduced or communicated without our written agreement.	

TITLE TRAY 4: POWER CONTROL			
SIZE A3	DWG. NO. MECH-0012-28April08	REV. 1.0	
SCALE 1:2	RELEASED 05/05/2008	SHEET 1/2	

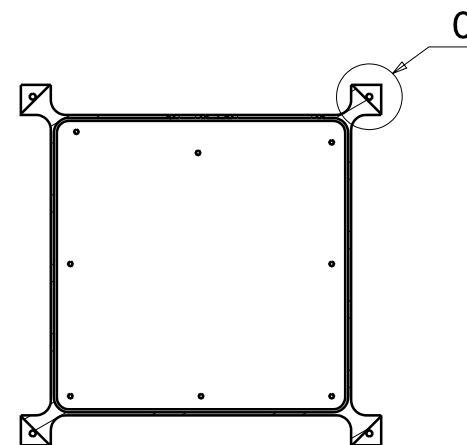
NO.	REVISION	DATE	APP.



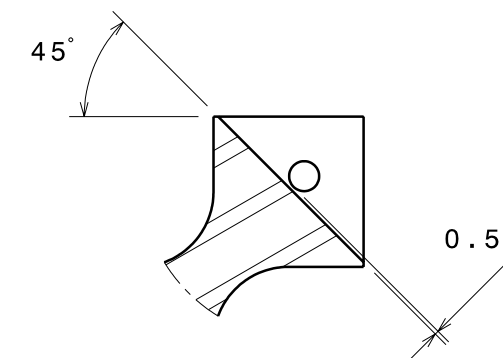
Bottom view (-z)



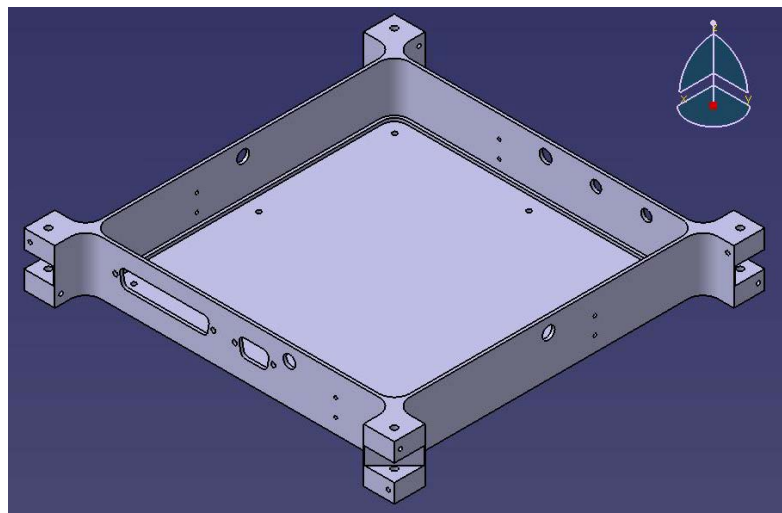
Rear view (-x)




Section view B-B
Scale: 1:5



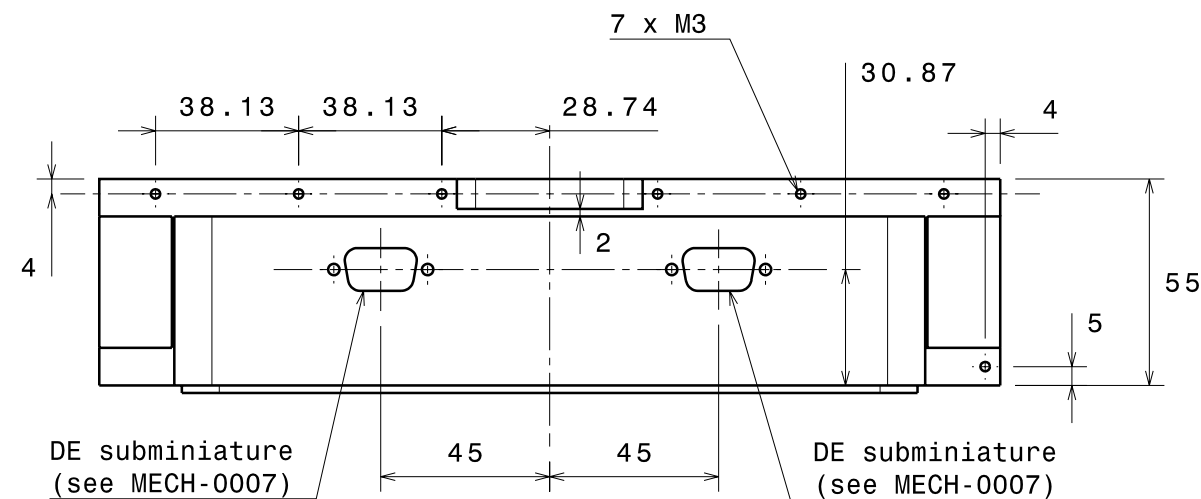
Detail C
Scale: 1:1



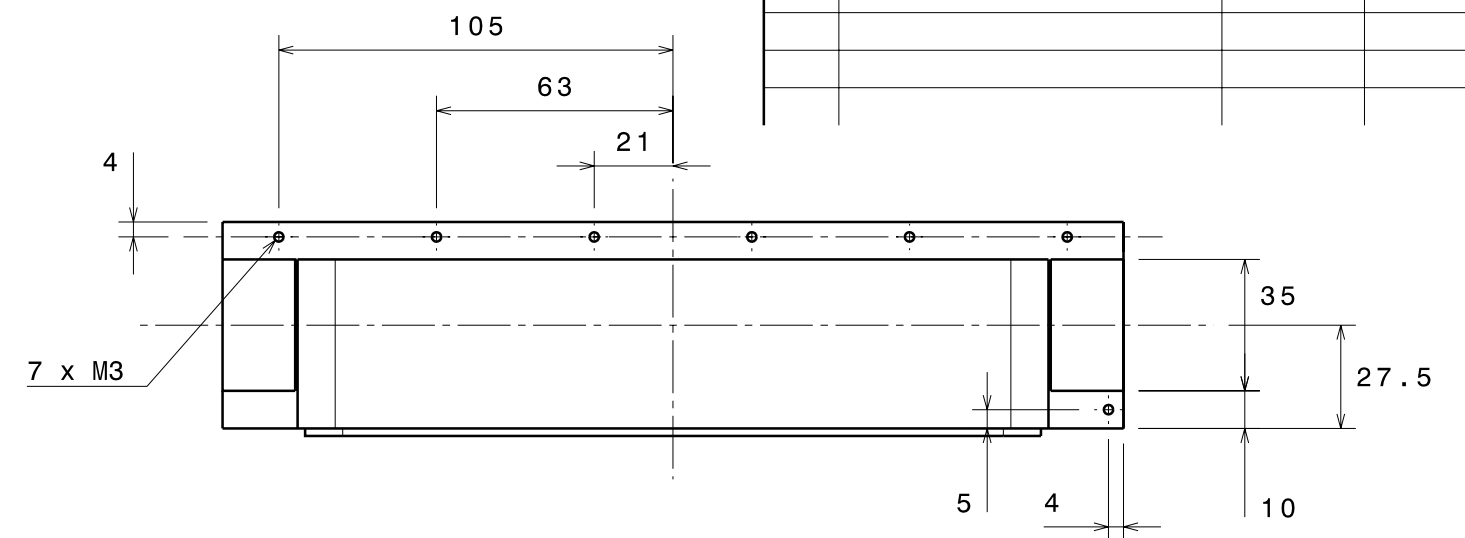
ALL DIMENSIONS ARE IN MM	
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$	
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS	

		TITLE	
All dimensions are in mm		TRAY 4: POWER CONTROL	
DRAWN <i>Christopher Hale</i>	DATE 28/4/2008	SIZE A3	REV. 1.0
MATERIAL Aluminium 6061-T6	WEIGHT 0.61 kg	DWG. NO. MECH-0012-28April08	SHEET 2/2
This drawing is the property of BLUESat. It may not be reproduced or communicated without our written agreement.			

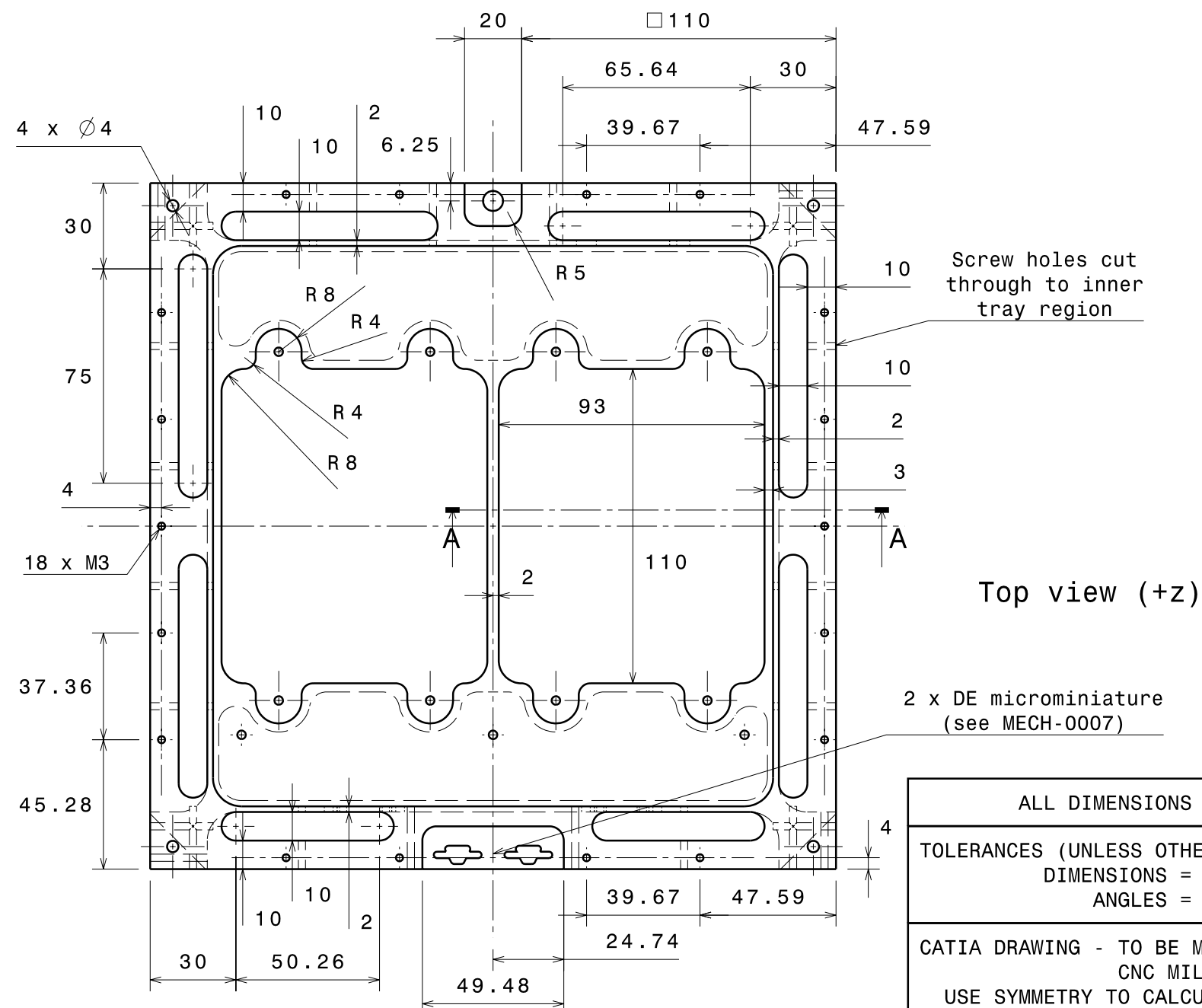
NO.	REVISION	DATE	APP.



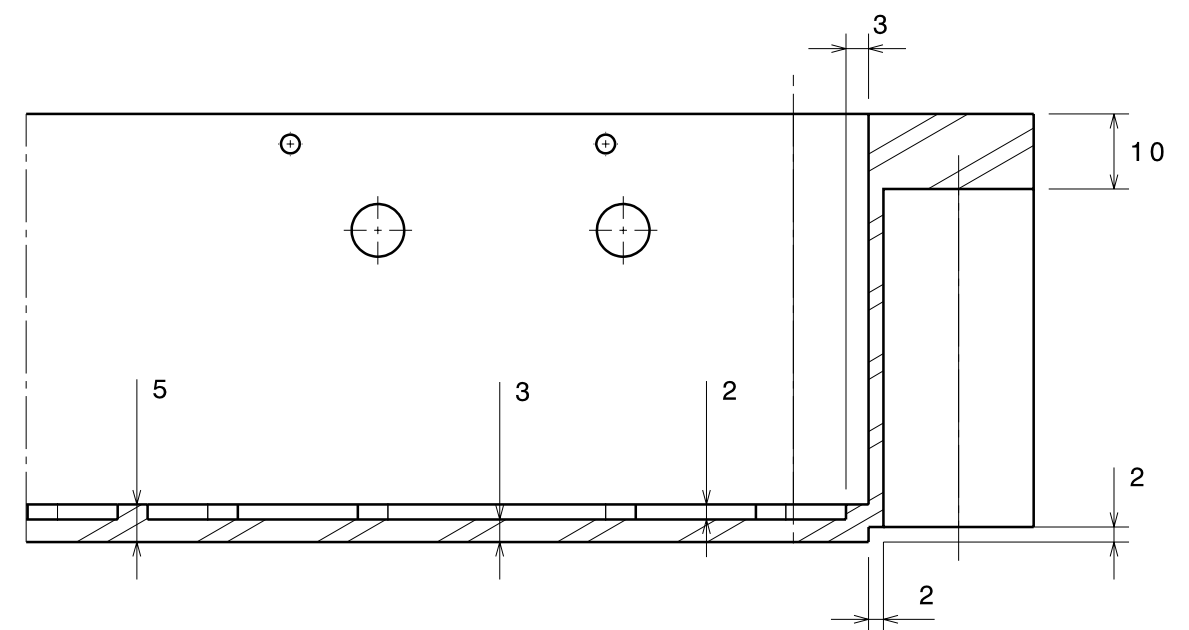
Front view (+z)



Right view (+y)
Left view (-y)
(BOTH IDENTICAL)




Top view (+z)



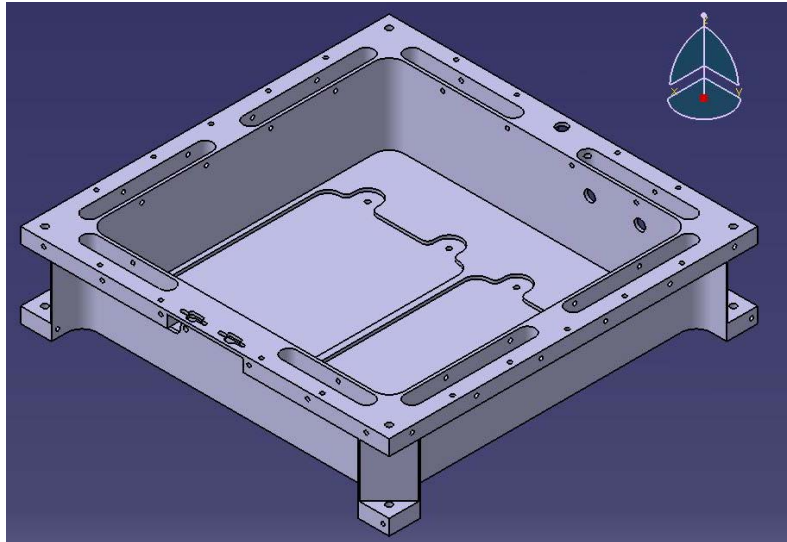
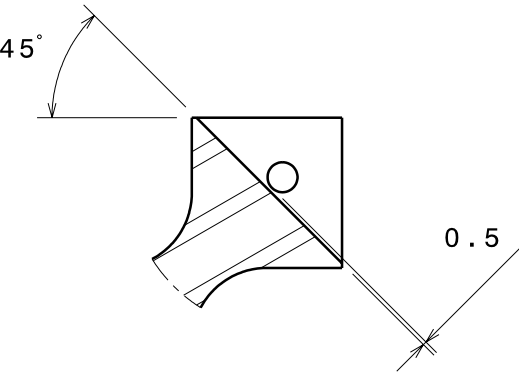
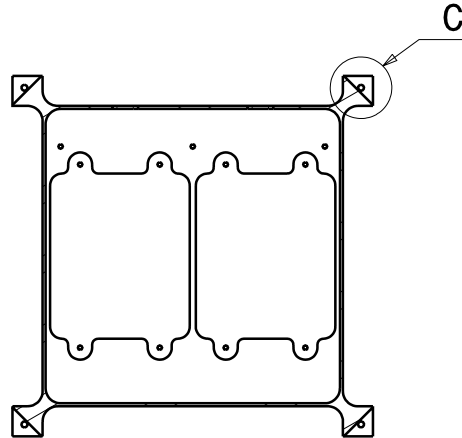
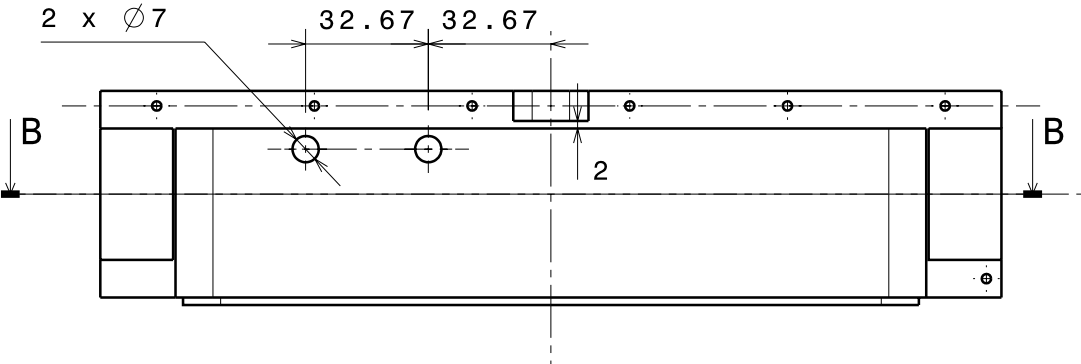
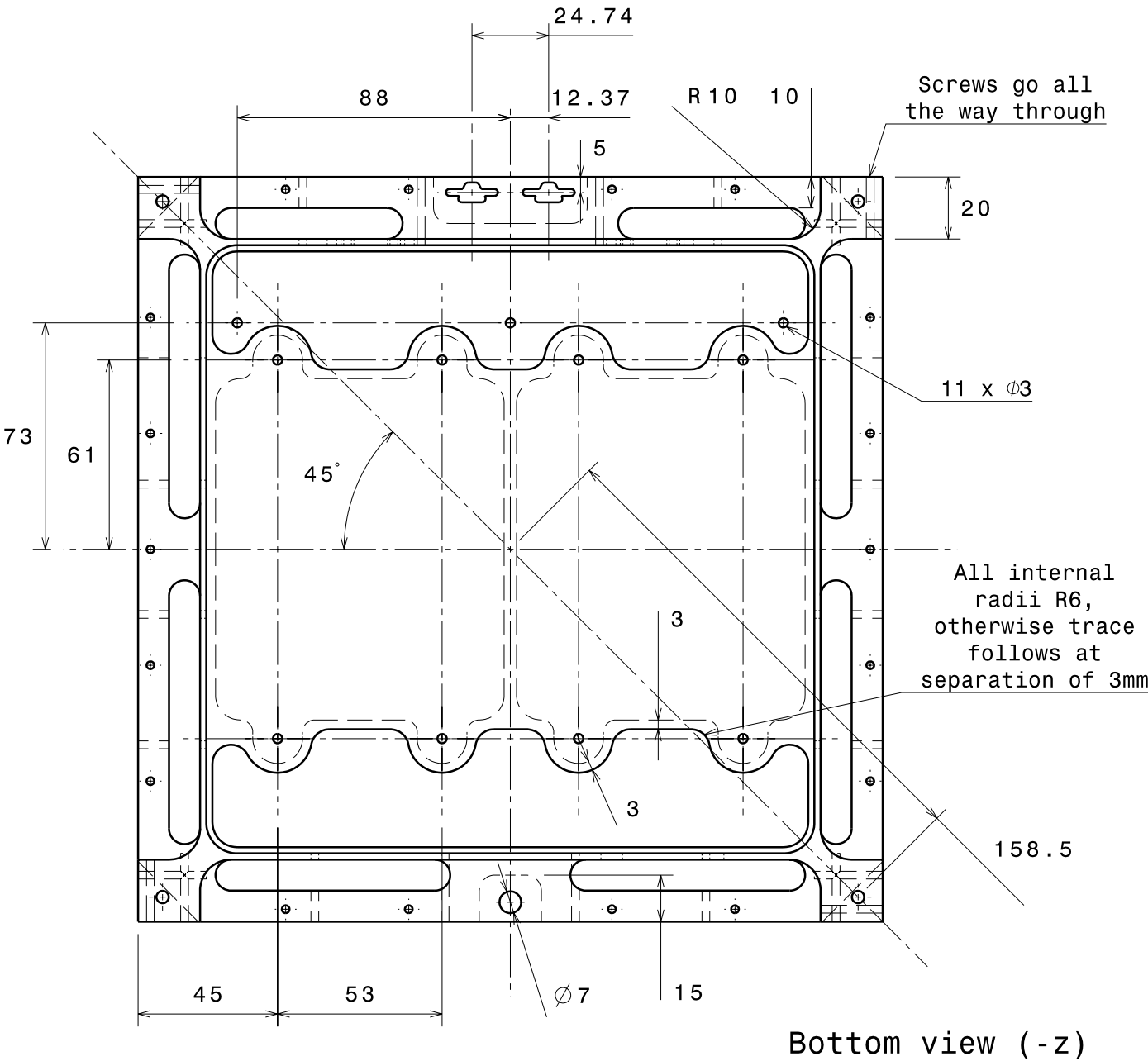
Section view A-A
Scale: 1:1

ALL DIMENSIONS ARE IN MM	
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.25 ANGLES = $\pm 1^\circ$	
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS	


	
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 29/4/2008
MATERIAL Aluminium 6061-T6	WEIGHT 1.01 kg

TITLE			
TRAY 5: RECEIVERS			
SIZE	DWG. NO.		REV.
A3	MECH-0013-7May08		1.0
SCALE	RELEASED	SHEET	
1:2	05/05/2008	1/2	

NO.	REVISION	DATE	APP.

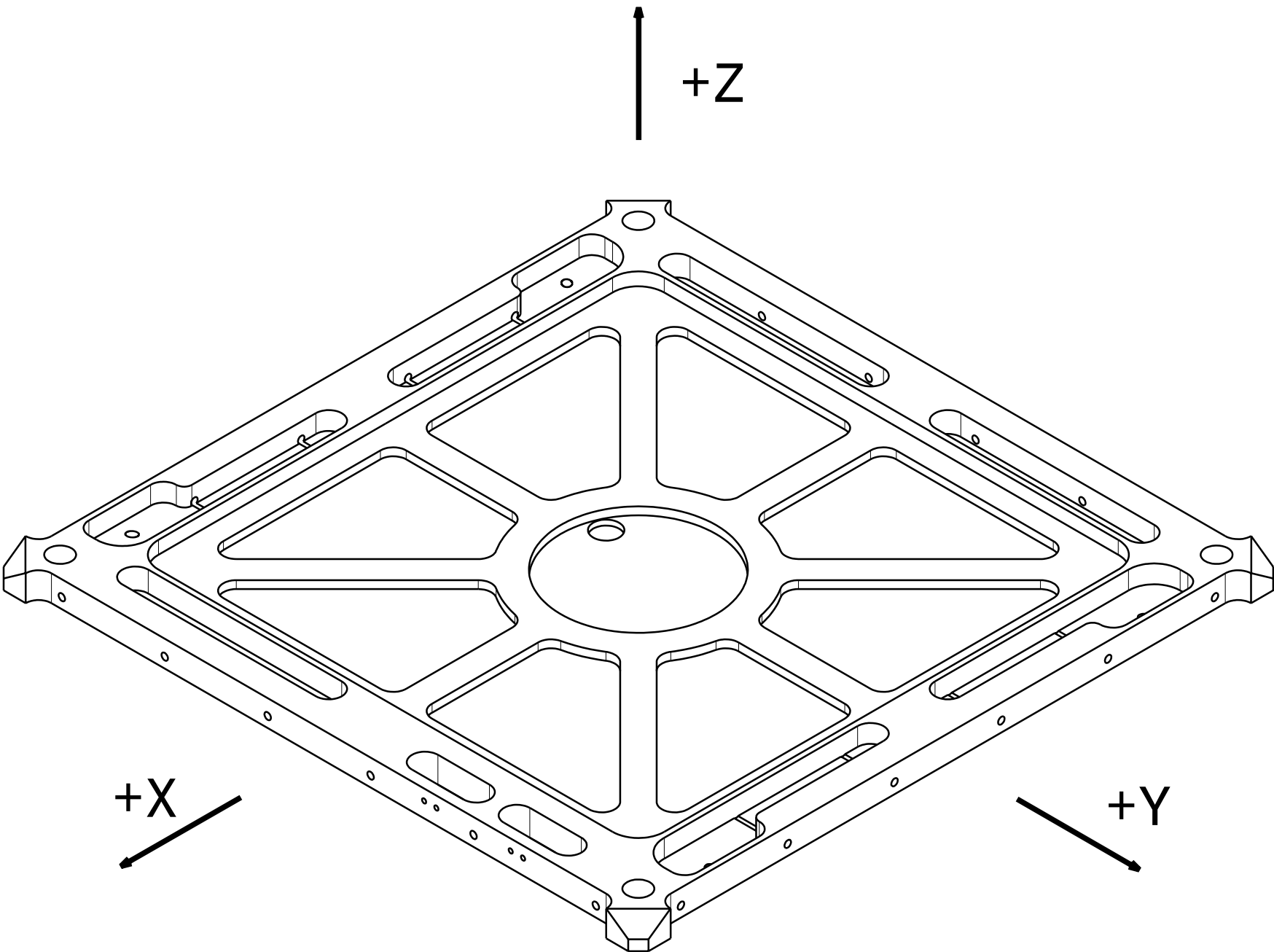


ALL DIMENSIONS ARE IN MM
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS

	
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 29/4/2008
MATERIAL Aluminium 6061-T6	WEIGHT 1.01 kg
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TITLE TRAY 5: RECEIVERS			
SIZE A3	DWG. NO. MECH-0013-7May08	REV. 1.0	
SCALE 1:2	RELEASED 05/05/2008	SHEET 2/2	

NO.	REVISION	DATE	APP.



NOTES: 1) See MECH-0205 for tools to be used
2) The baseplate (Tray 0) on the left shows the +X face which contains 4 small screw holes that pass into two small slots, the +Z face which contains a number of ribs and slots, and the +Y axis forming a right-handed co-ordinate system.

ALL DIMENSIONS ARE IN MM
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS

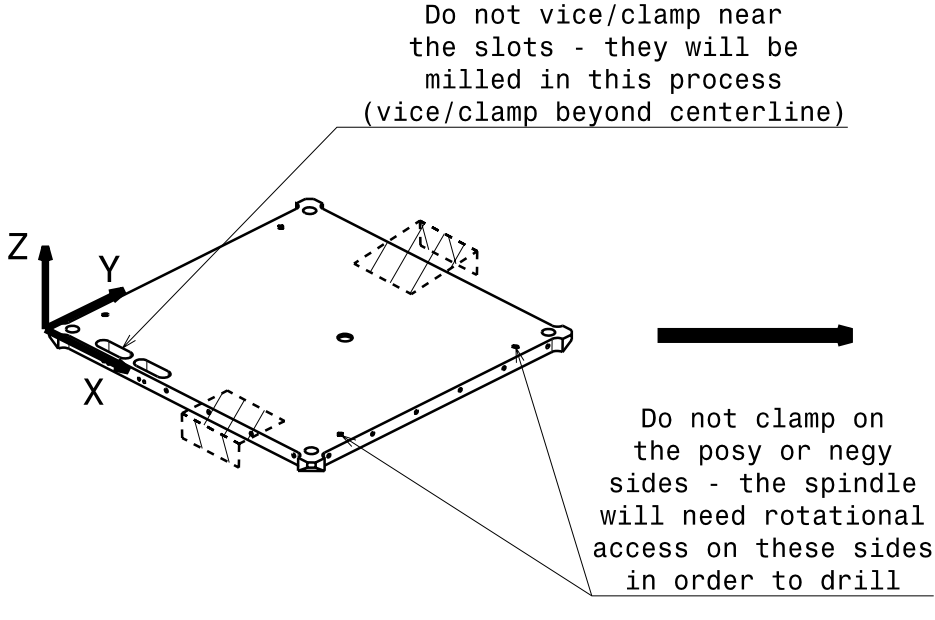
	
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 23/5/2008
MATERIAL Aluminium 6061-T6	WEIGHT ---

TITLE

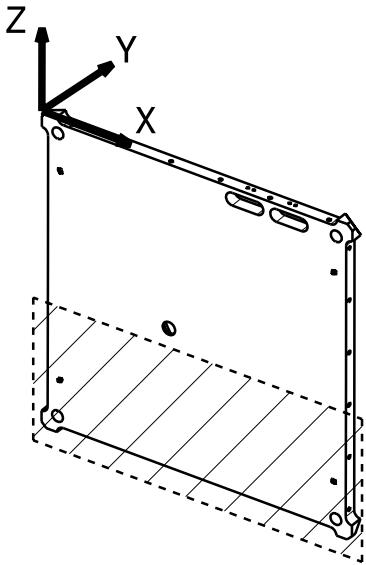
MACHINING INFO
FOR TRAY 0

SIZE A3	DWG. NO. MECH-0204-23May08	REV. 1.0
SCALE - :-	RELEASED 23/05/2008	SHEET 1 / 2
at. It may not be reproduced or communicated without our written agreement.		

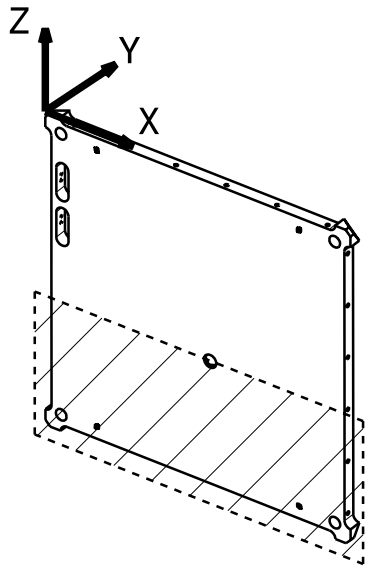
NO.	REVISION	DATE	APP.



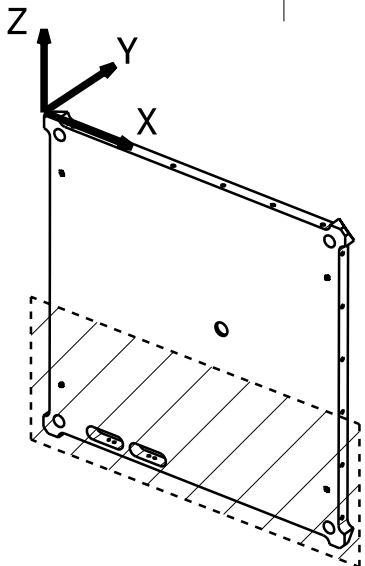
PROCESS 1 - NEGZ



PROCESS 2 - POSX

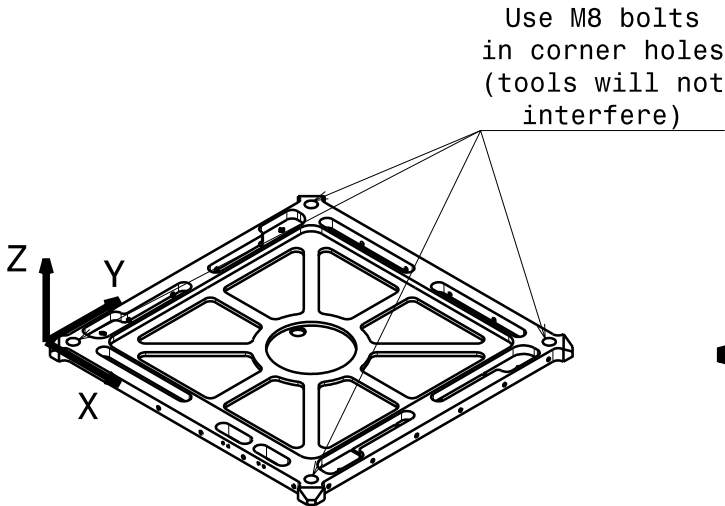


PROCESS 3 - POSY

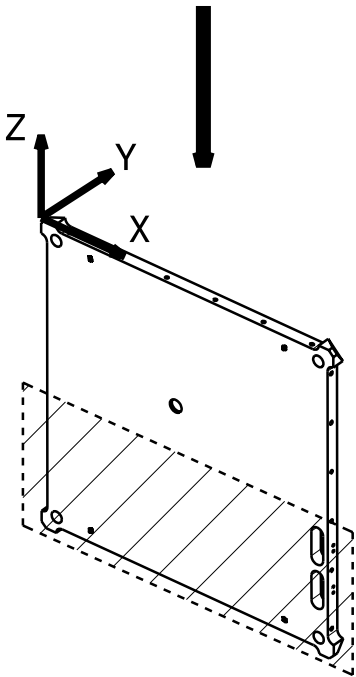


PROCESS 4 - NEGX

- NOTES: 1) The name of each process refers to the face of Tray 0 being machined
- 2) The machining axes for each process, as shown, have been placed according to the original stock material. ALWAYS use the outermost dimensions for setting up the machining axes
- 3) The machining axes align the Z-axis with the tool axis, and the X-axis along the longest dimension for the process face. Note the location of the two small slots when positioning for each of the processes
- 4) All but process 6 use a vice grip to hold the stock material (process 1 could use clamps instead). The shaded areas indicate the placement for one side of this symmetric clamp. For process 6, M8 bolts should be used to hold down the corners of the tray. Note that NO machining of the corners will need to take place in process 6 (this will have been carried out in earlier processes)



PROCESS 6 - POSZ

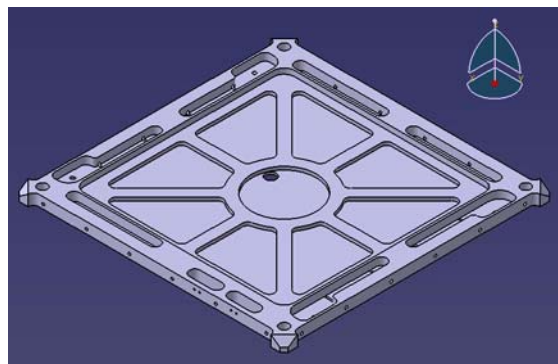
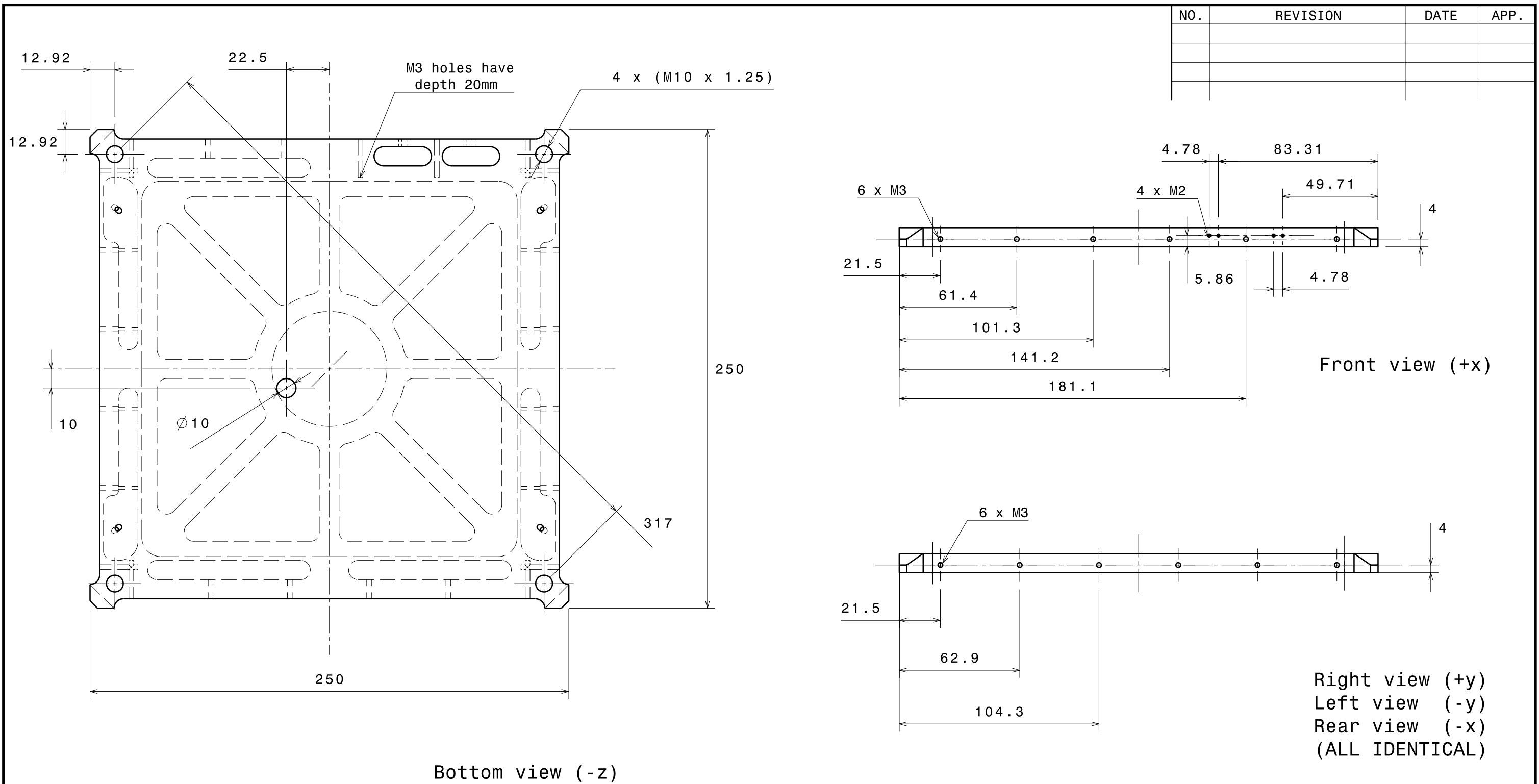



PROCESS 5 - NEGY

ALL DIMENSIONS ARE IN MM
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS

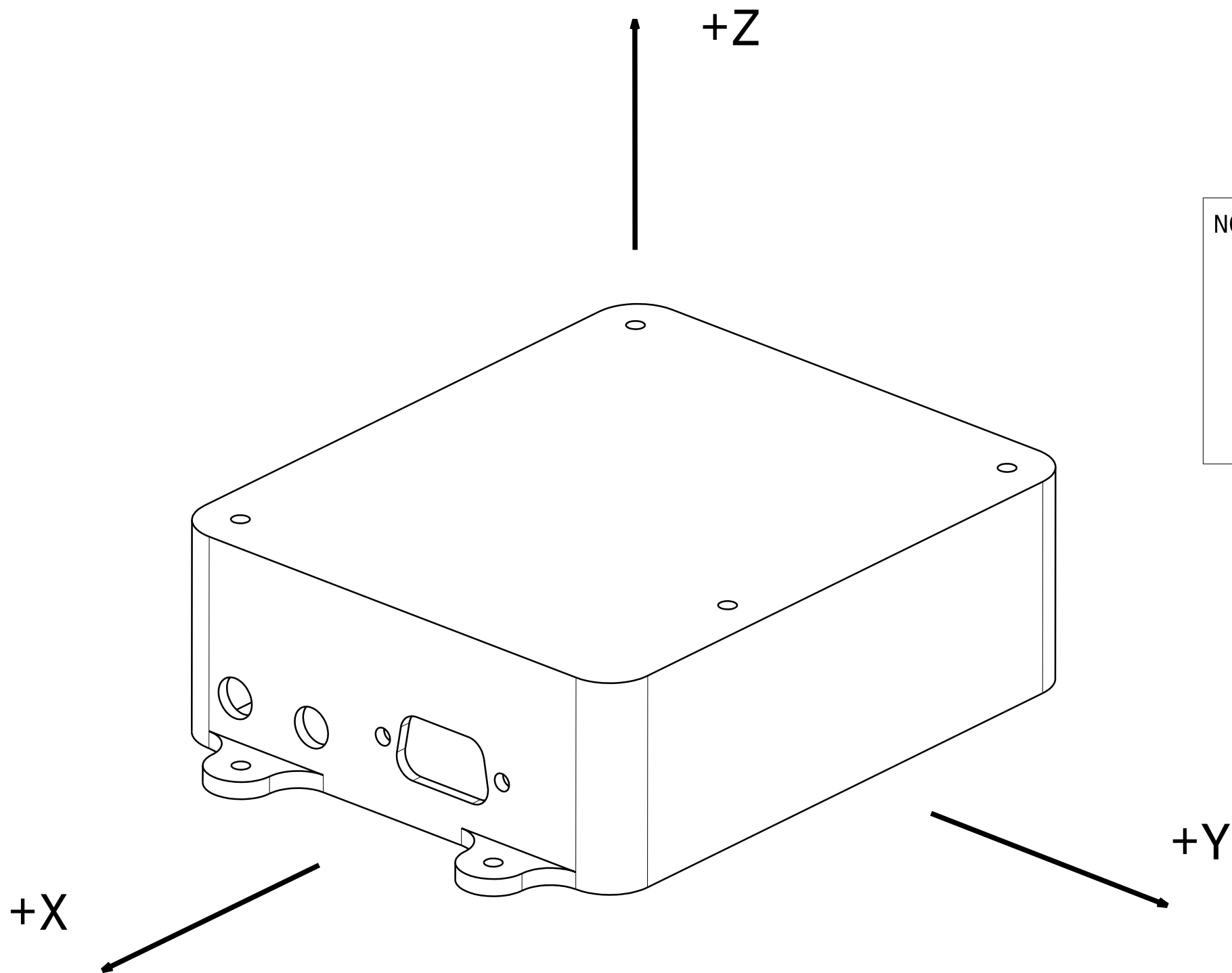
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 23/5/2008
MATERIAL Aluminium 6061-T6	WEIGHT ---
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TITLE MACHINING INFO FOR TRAY 0			
SIZE A3	DWG. NO. MECH-0204-23May08	REV. 1.0	
SCALE - : -	RELEASED 23/05/2008	SHEET 2/2	




ALL DIMENSIONS ARE IN MM		 ULSSD BLUESAT UNSW STUDENT SATELLITE PROJECT		TITLE	
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$		All dimensions are in mm		TRAY 0: BASEPLATE	
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		DRAWN <i>Christopher Hale</i>	DATE 23/04/2008		
		MATERIAL Aluminium 6061-T6	WEIGHT 0.69 kg	SIZE A3	REV. 1.0
		DWG. NO. MECH-0008-23April08		SCALE 1:2	SHEET 2/2
		RELEASED 05/05/2008		This drawing is the property of BLUESat. It may not be reproduced or communicated without our written agreement.	

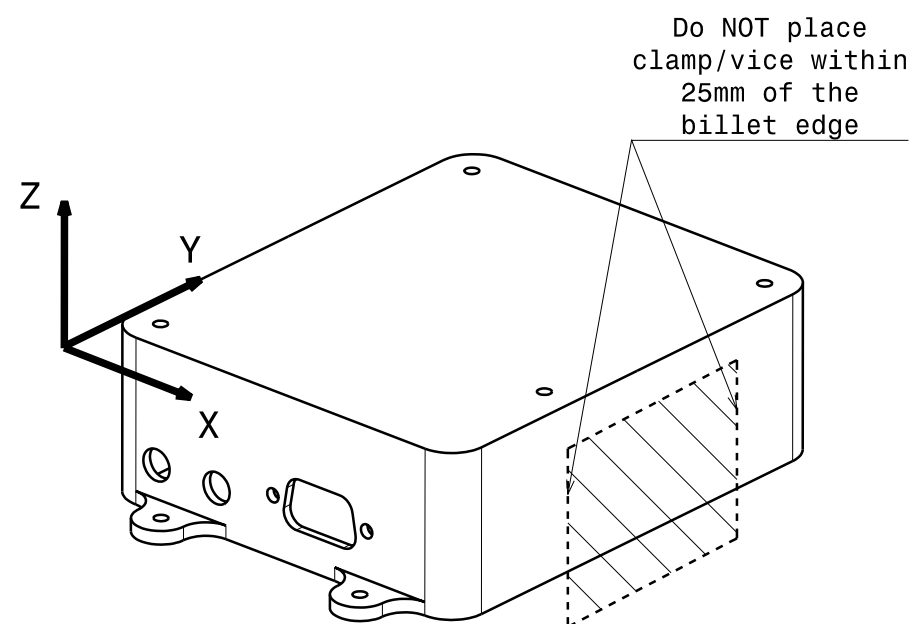
NO.	REVISION	DATE	APP.



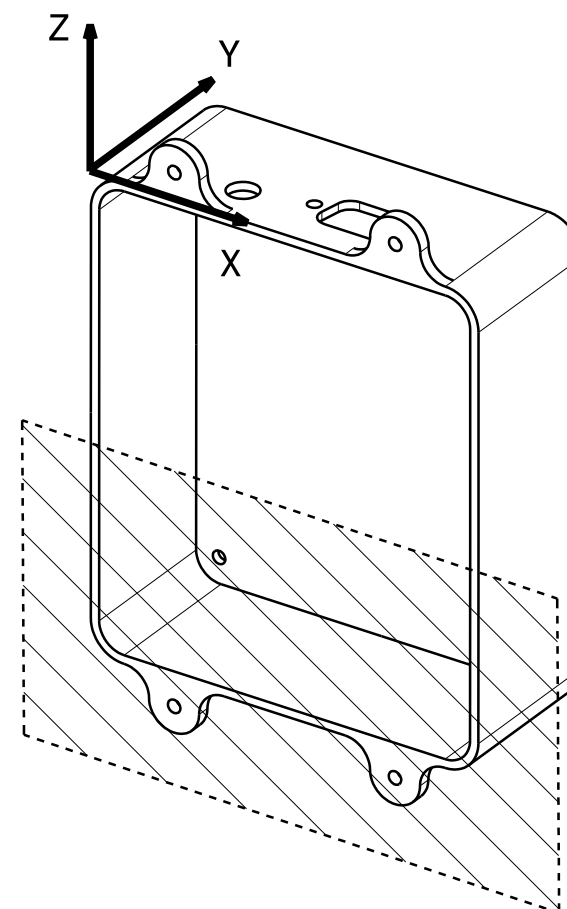
NOTES: 1) See MECH-0205 for tools to be used
2) The housing on the left is representative of the general layout of the RX and TX housings, with D-connectors on the +X face, the upright housing pointing in the +Z direction, and the +Y axis forming a right-handed co-ordinate system.

ALL DIMENSIONS ARE IN MM				TITLE	
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$		All dimensions are in mm		MACHINING INFO FOR RX AND TX HOUSINGS	
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS		DRAWN <i>Christopher Hale</i>	DATE 23/5/2008	SIZE A3	DWG. NO. MECH-0206-23May08
		MATERIAL Aluminium 6061-T6	WEIGHT ---	SCALE - : -	REV. 1.0
		RELEASED 23/05/2008		SHEET 1 / 2	
<small>This drawing is the property of BLUEsat. It may not be reproduced or communicated without our written agreement.</small>					

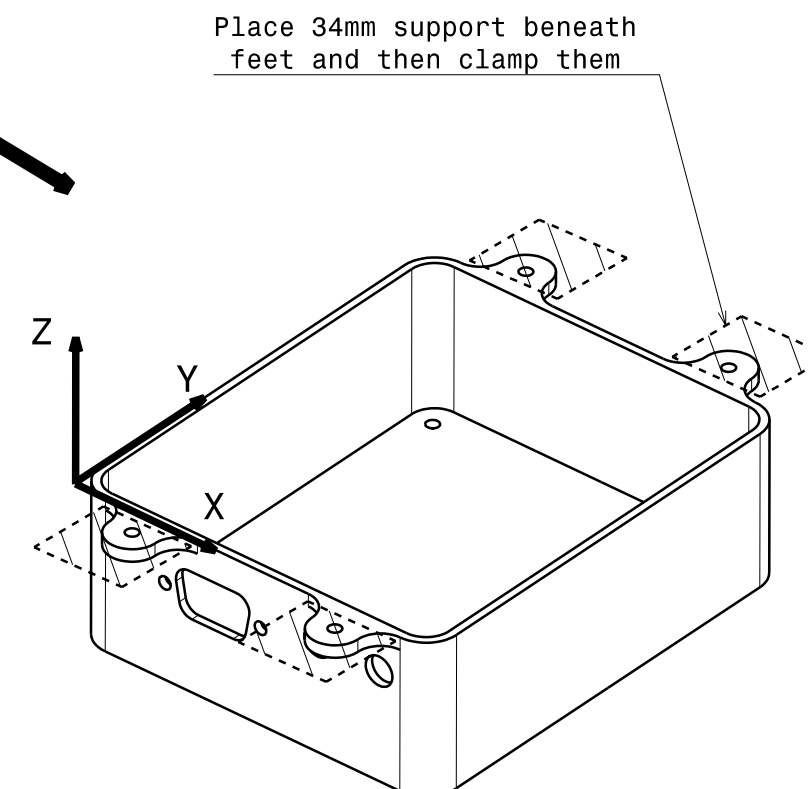
NO.	REVISION	DATE	APP.



PROCESS 1 - POSZ
(WARNING: CODE IS DIFFERENT FOR ALL 4 HOUSINGS!)



PROCESS 2 - POSX



PROCESS 3 - NEGZ

- NOTES:
- 1) The name of each process refers to the face of the housing being machined
 - 2) The machining axes for process 1 have been placed at the outer corner of the stock material. However, for processes 2 and 3, the machining axes have been placed on the +X surface with the D-connector holes (ie they are NOT measured from the outer radii of the housing feet)
 - 3) The machining axes align the Z-axis with the tool axis, and the X-axis along the longest dimension for the process face. Note the location of the D-connectors when positioning for each of the processes
 - 4) Processes 1 and 2 use a vice grip vice grip to hold the material. Process 3 uses clamps over the feet, but these feet MUST be supported by additional material so as to not shear them off during machining

ALL DIMENSIONS ARE IN MM

TOLERANCES (UNLESS OTHERWISE SPECIFIED):
DIMENSIONS = ± 0.025
ANGLES = $\pm 1^\circ$

CATIA DRAWING - TO BE MANUFACTURED USING
CNC MILL, NOT MANUALLY
USE SYMMETRY TO CALCULATE DIMENSIONS



All dimensions are in mm

DRAWN *Christopher Hale* DATE 23/5/2008

MATERIAL Aluminium 6061-T6 WEIGHT ---

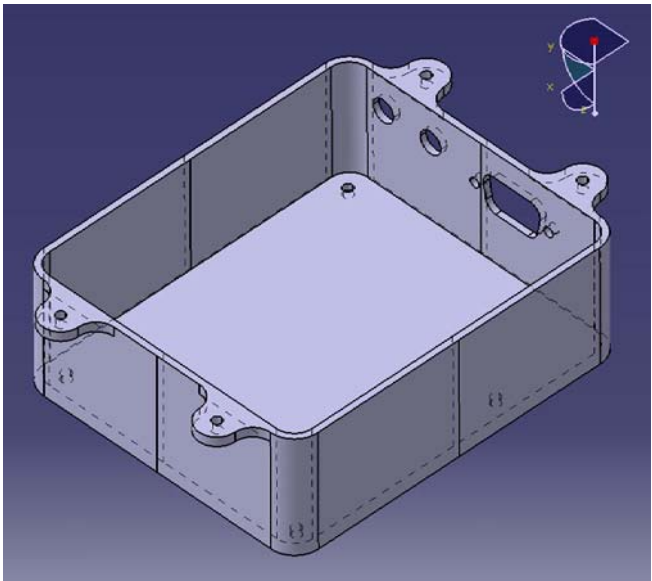
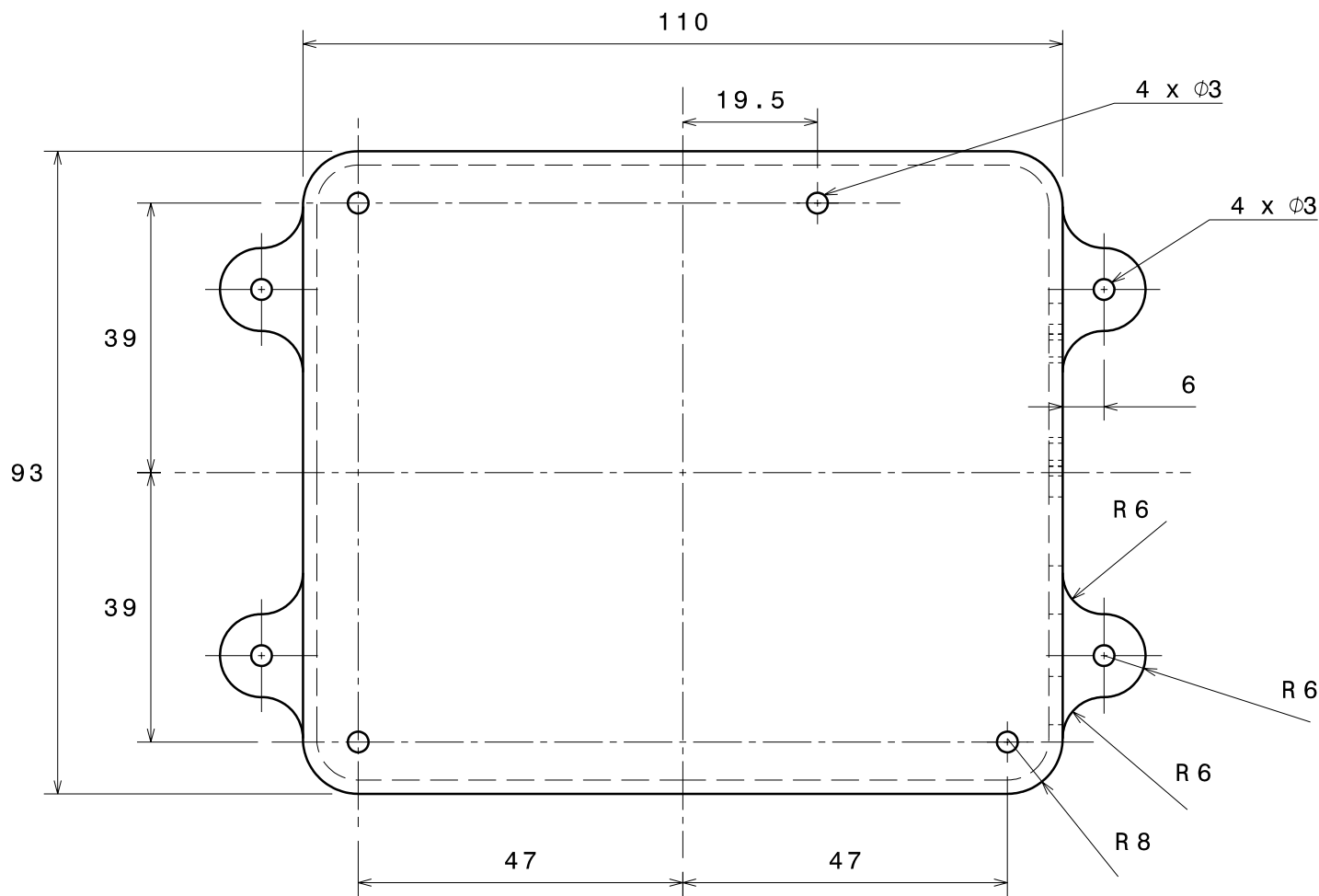
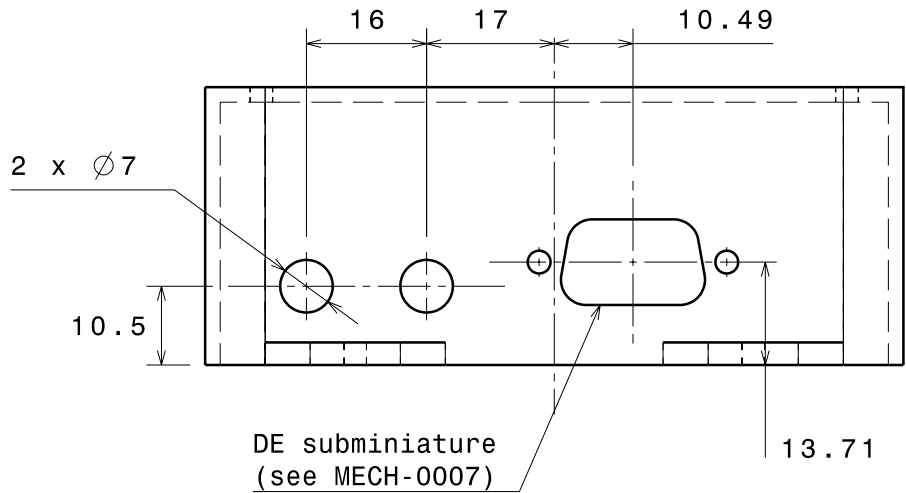
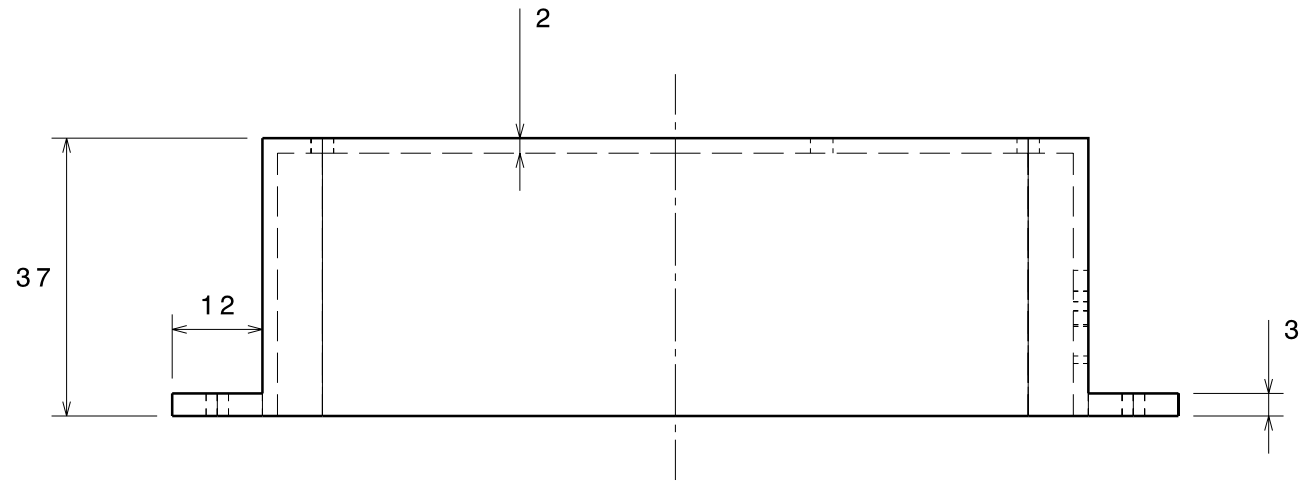
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TITLE


MACHINING INFO FOR
RX AND TX HOUSINGS

SIZE A3	DWG. NO. MECH-0206-23May08	REV. 1.0
SCALE - : -	RELEASED 23/05/2008	SHEET 2/2

NO.	REVISION	DATE	APP.



ALL DIMENSIONS ARE IN MM	
TOLERANCES (UNLESS OTHERWISE SPECIFIED): DIMENSIONS = ± 0.025 ANGLES = $\pm 1^\circ$	
CATIA DRAWING - TO BE MANUFACTURED USING CNC MILL, NOT MANUALLY USE SYMMETRY TO CALCULATE DIMENSIONS	

	
All dimensions are in mm	
DRAWN <i>Christopher Hale</i>	DATE 29/4/2008
MATERIAL Aluminium 6061-T6	WEIGHT 0.13 kg
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TITLE RECEIVER HOUSINGS			
SIZE A3	DWG. NO. MECH-0015-29April08	REV. 1.0	
SCALE 1:1	RELEASED 05/05/2008	SHEET 1/1	