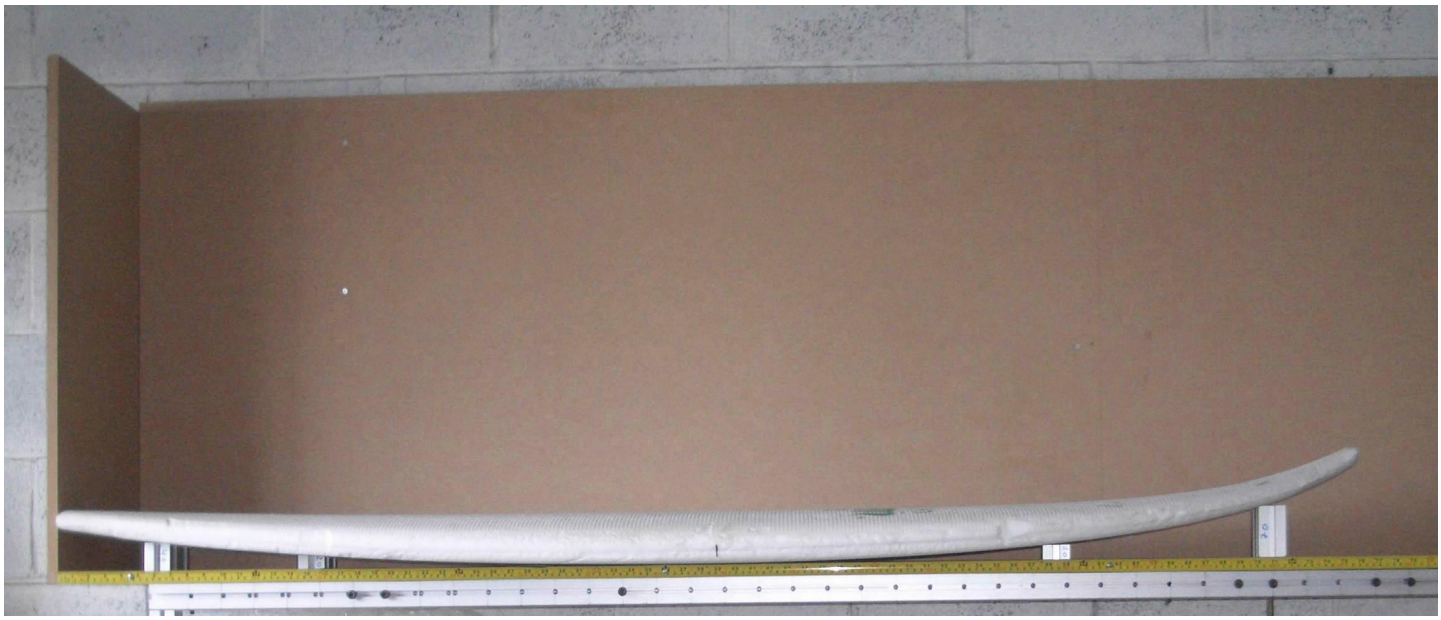
Scanning a blank/board with the APS3000

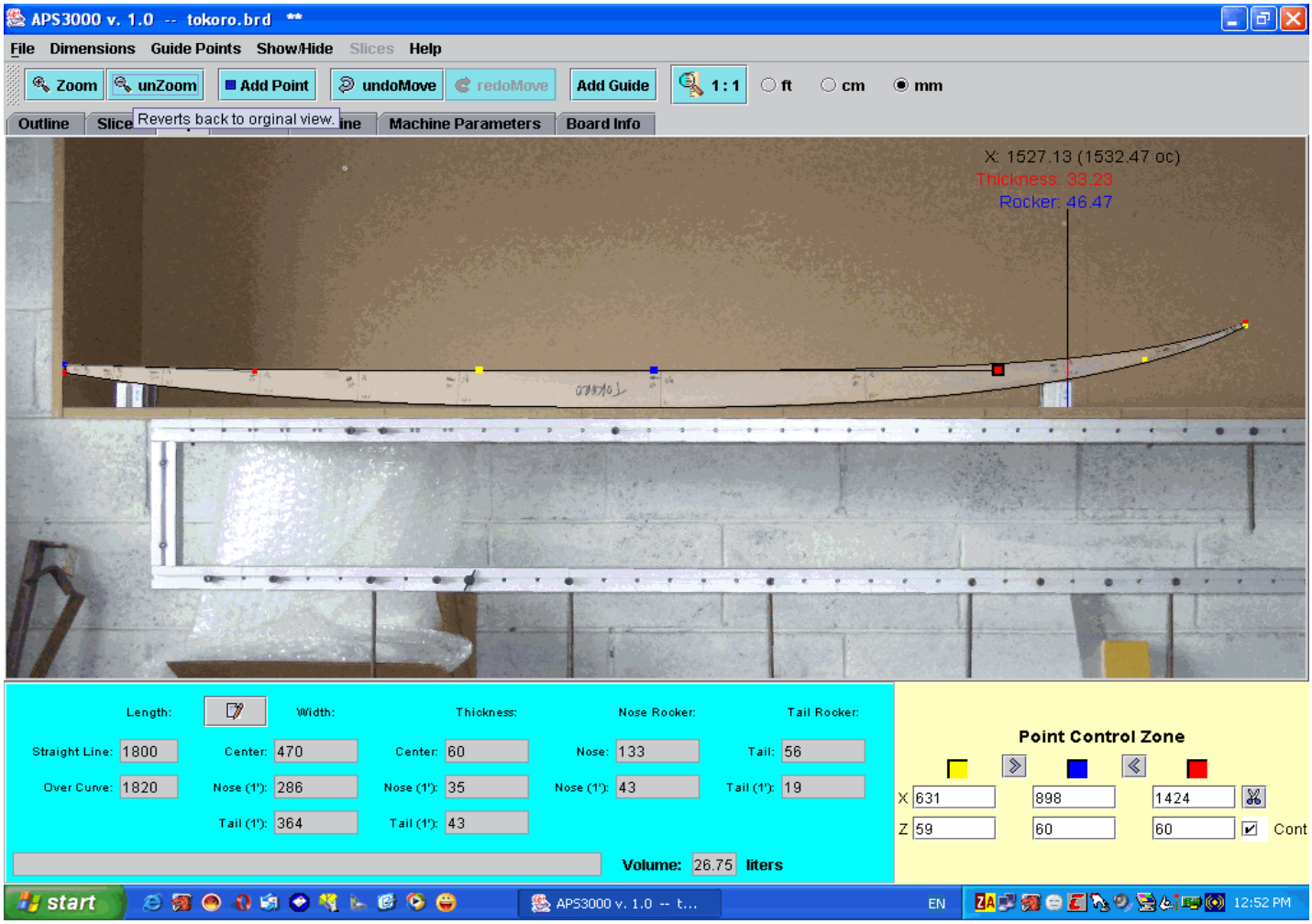
I started the APS3000 project in the mid nineties and I wanted to create a system that enables to design and shape a surfboard the same way as it is done in the shaping bay. Very often I have been asked about scanning a board and I must confess I never liked the idea . Why scan a board? What is the motivation behind? If you use the APS3000 for a short while, the need for scanning disappears and after you designed a board, the file is the **perfect scan** and you can reproduce and improve and change to your hearts content. Every shaper that comes to me asks me about "scanning" but funny enough, that question disappears very soon.

Anyway, to scan a board you have different posibilities starting off with the low tech stick and tape method. The collected data can be incorporated in our program using the "GUIDE POINTS" and is one of the more accurate methods around. Next you can scan using special scan tools like rocker sticks for example and again those data can be used for our "GUIDE POINT" function. With more dollars (and more time) available you can improve to laser and touch scanners which will deliver a reasonable accuracy. If you invest very big, you will get a better result. But with its curves and reflections and the necessary "smoothing algorithms after" you will be more than lucky to get an accuracy better than 1/8". The critical parts are nose , tail and outer rail, tough luck that these are the most important ones too. I have played a lot with these tools and I had reps here for anything that scans but I still like none of these systems. Some machines use the machine itself for scanning which is a great way to waste valuable machine time. Our controller has a digitizing function if you really want to go that way it can be used but I stick to the "box on the wall" till I have something better, faster or more precise.

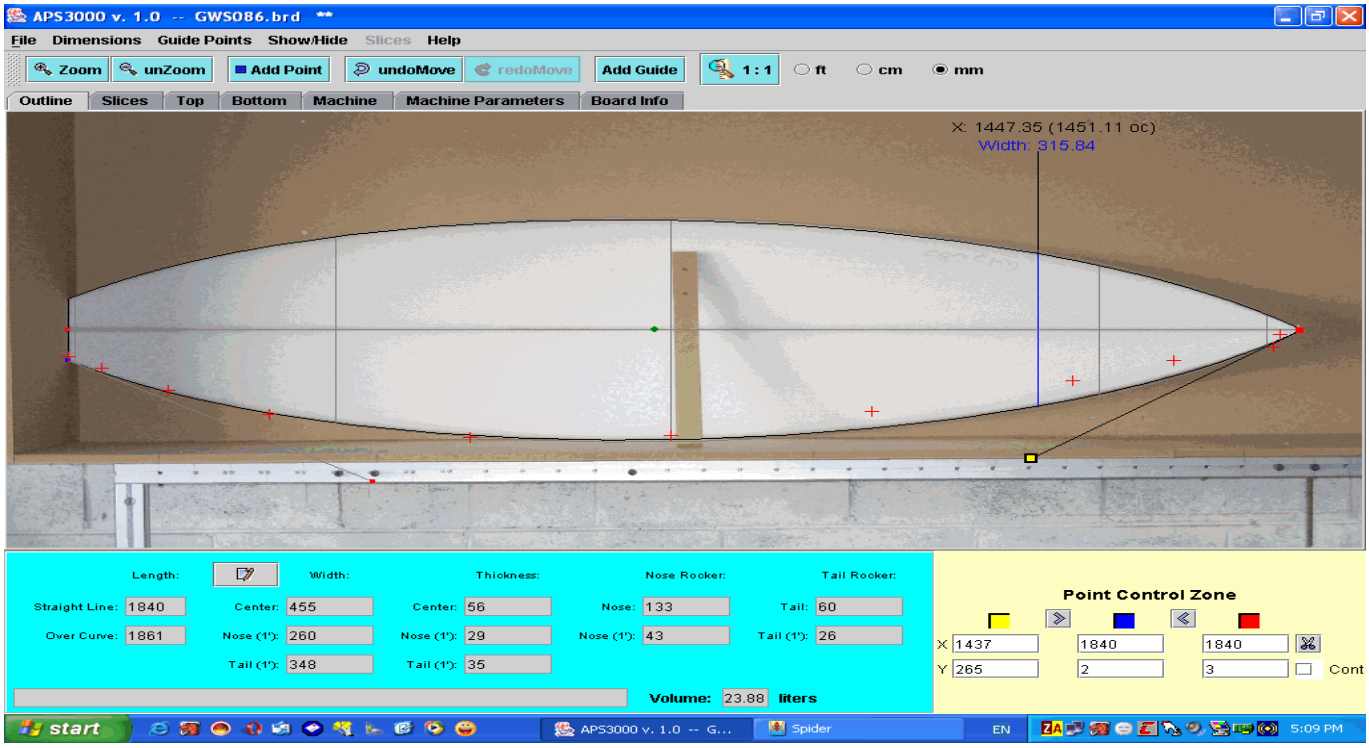


The box on the wall is just that, a box 14" deep and around 10' long hanging on the wall. I put the board in the box, place a few spacers (they are blocks with certain heights ranging from 10mm to 100mm) where they fit and note down the X position of those spacers as well as the tail and nose lift (remember, X measures the distance from the tail in a straight line). It is now important to determine the apex of the curve, the X position of the lowest point. Boards with single concaves need a little bit of your fantasy as the bottom curve used in the APS3000 is actually the stringer curve but I am sure you will manage easy and come up with solutions. I now set a horizontal bar across the box and with the help of my digital calipers I meassure the deckscurve.
All this data I insert in the program as GUIDE POINTS (which help to determine the curve. Where I suspect a change in the curve I take three measurements just to make sure those little (but important) details are captured. I now take my little digital camera (thanks Bert Burger, was a great idea) and take a shot (preferable with the spacers in place) of the board. Now it is important to open a board in the program (any will do) and size it to the correct length (the little box bottom left). Go to FILE -- IMAGE BOARD-- and import the picture. I let you work out the rest, it is too easy and deadly accurate (the ZOOM function in the program will help you) even

when the photo is of limited quality as you still have your measure points.



The same way you can scan the outline and you will see that measured data points are very important to compensate for the distortion of the image.



I have an easy way to scan the cross section of the board using a little aluminium profile and my trusted digital micrometer.

And there is also the 1:1 function in the program to display the slices in real size on the screen (just press Z when in SLICE mode and adjust the thickness on the screen to the real thickness by holding a ruler against the screen) which allows you to use temlates of he slice against the screen.