

A large, silver, parabolic satellite dish antenna is mounted on a metal frame in a grassy backyard. The dish is angled upwards and to the left. The background shows a wooden fence, trees with autumn foliage, and a blue sky with scattered white clouds. The text is overlaid on the dish.

# Rebuilding and Improving my 6m Dish

OR

How G3LTF spent most of  
the winter of 2013-14



# G3LTF Dish #1 4.8m, 0.3 f/D 1964



Dish # 2, 1970-1993 0.5 – 0.37 f/D  
4.8m > 6.5m moved QTH twice

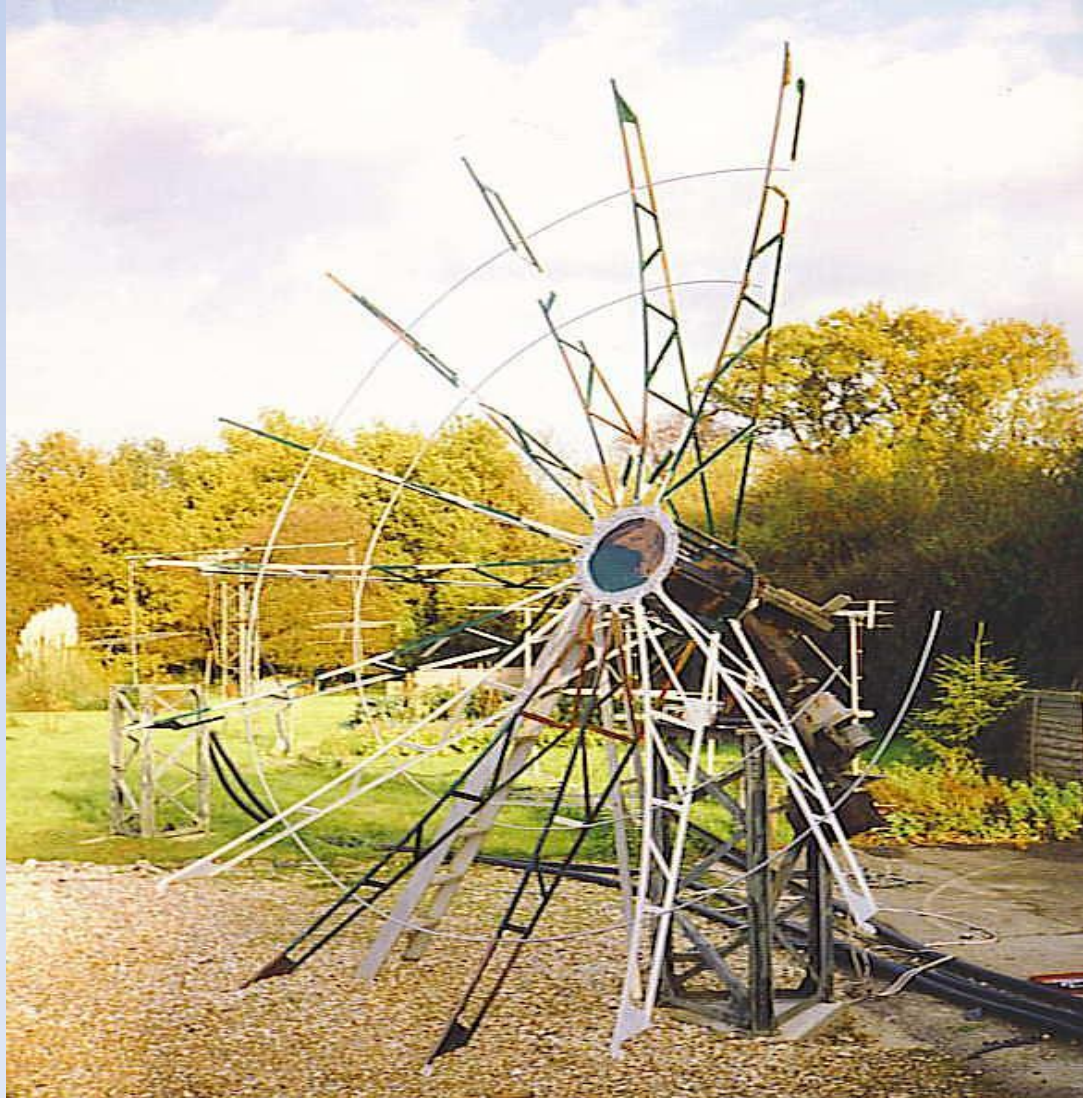




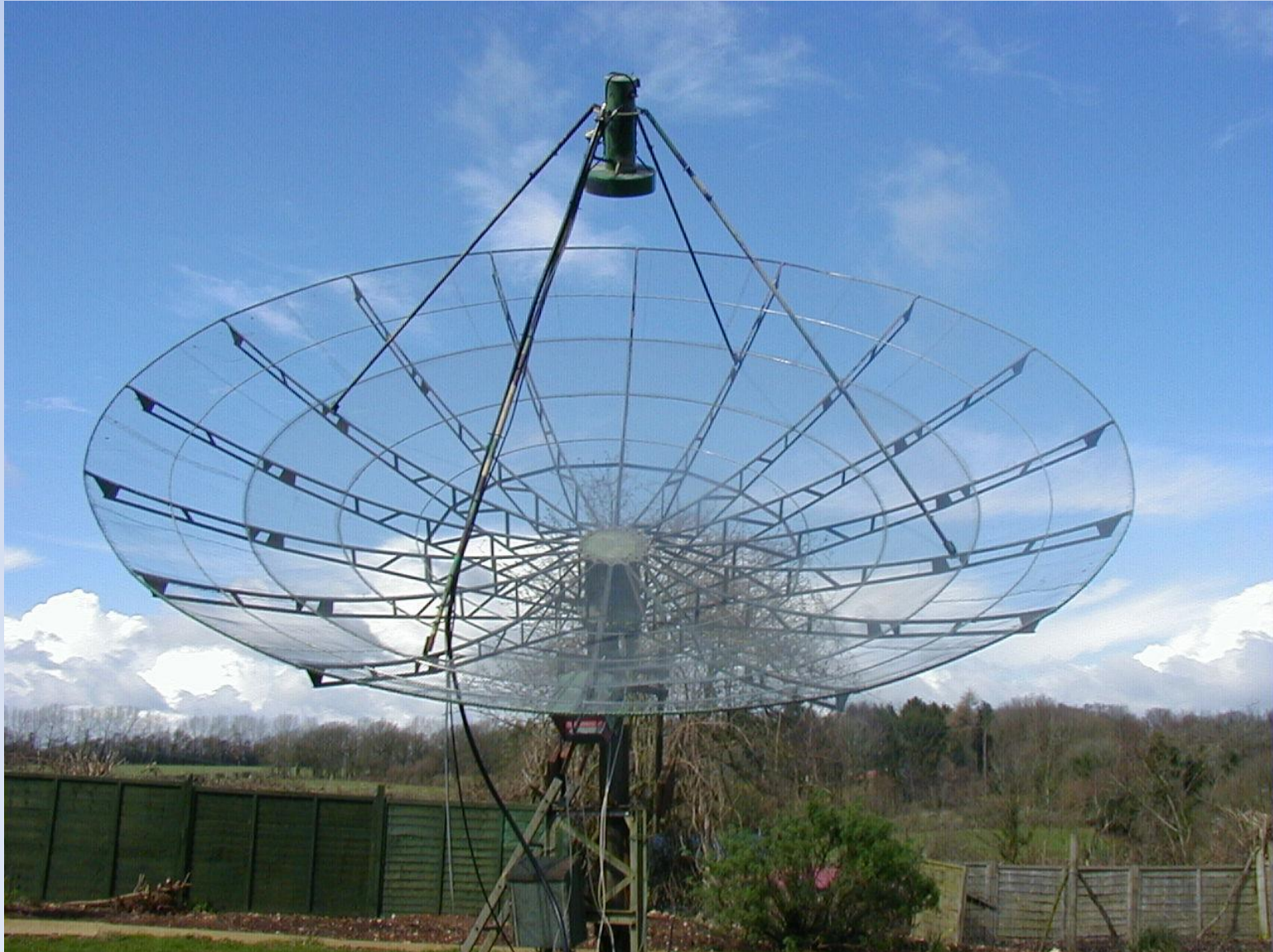




1993 – A new start - 4m 0.5f/D  
Metal replaces Wood!



1995 at IO91GG ...Now 6m, 0.375f/D





2012 Now 100% 6mm mesh covering  
with intermediate ribs (3.4GHz feed)



**November 22nd  
2013 !!**

## **Options**

Take up basket  
weaving?

Go Chase Dx on  
160m CW?

Rebuild?

**Rebuild and Improve**





























# The kit of parts





The next question..... How and why did this happen and how do we fix it for the future?





The HA axis (tube!) broke at the weld





# Assembling the new HA axis with new, sealed, bearings

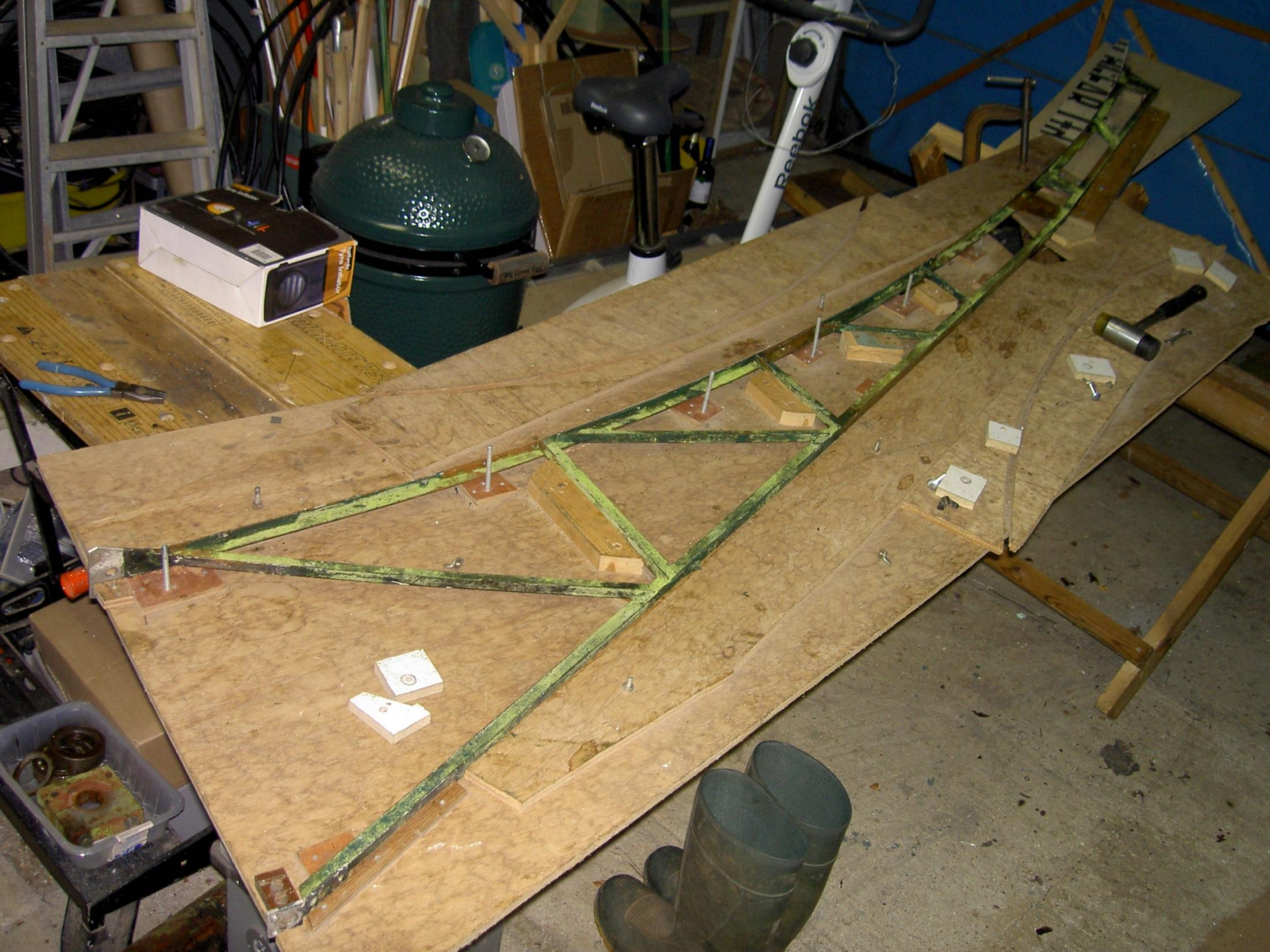




Next: Check all ribs in the jig and repair the broken ones













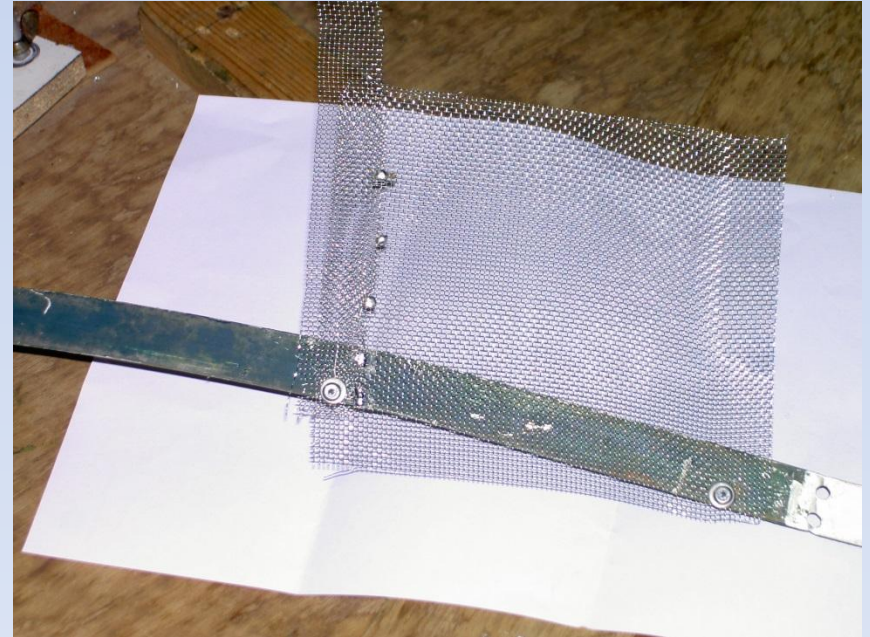




# Next Question.. Do I want to change the mesh?

G4CCH Dish

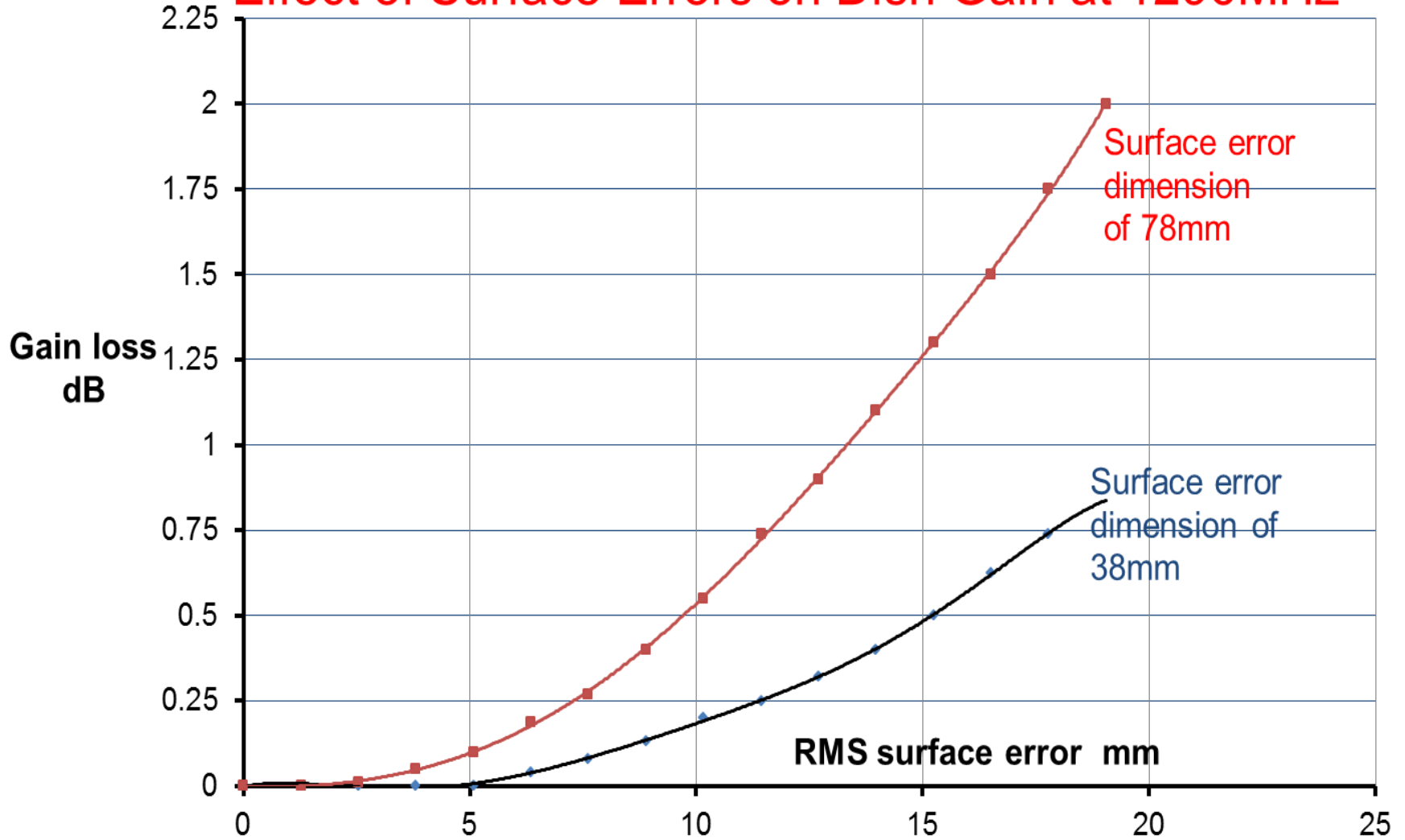
Test with some 1.5mm S.S mesh



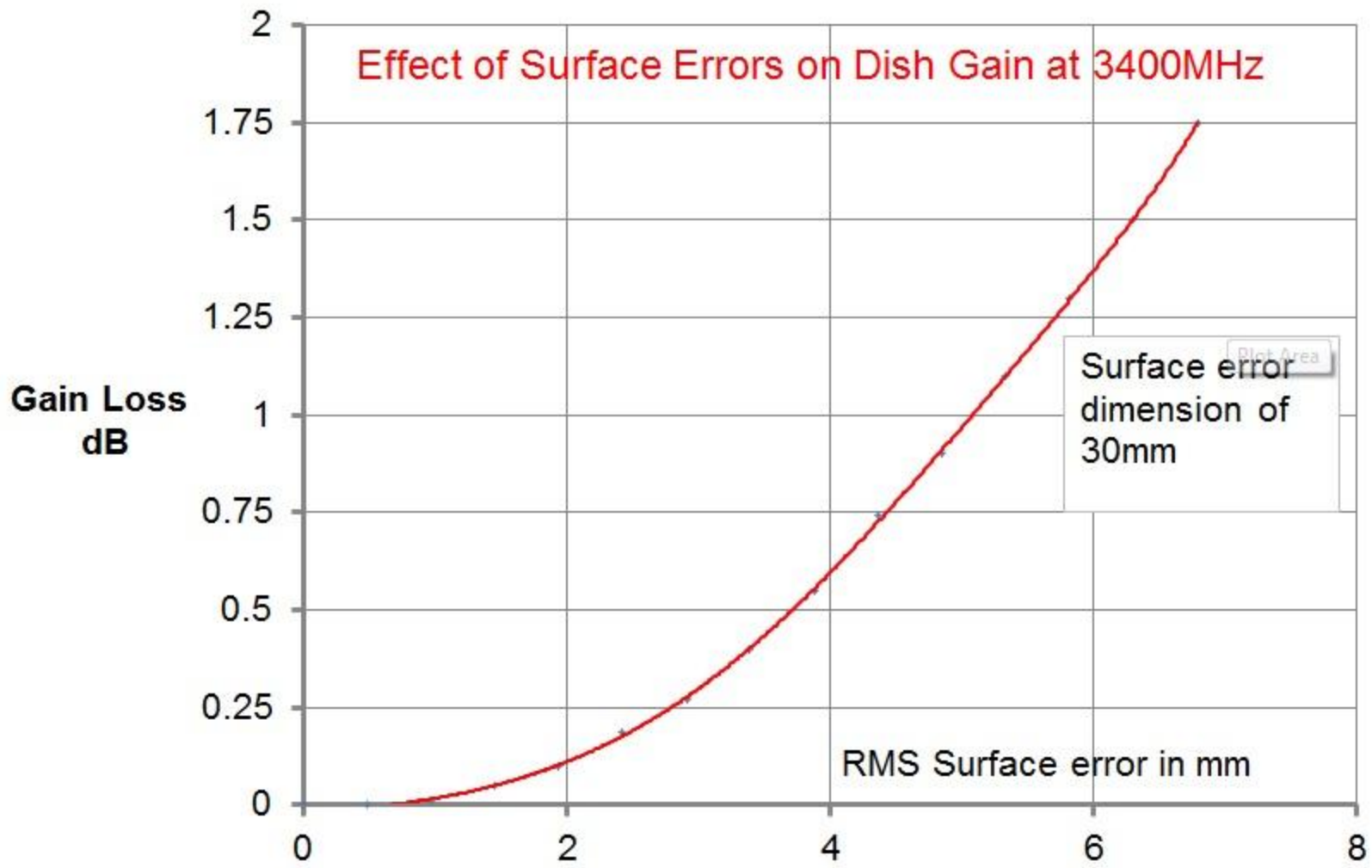


# We need very accurate alignment of ribs and hub for good performance above 23cm

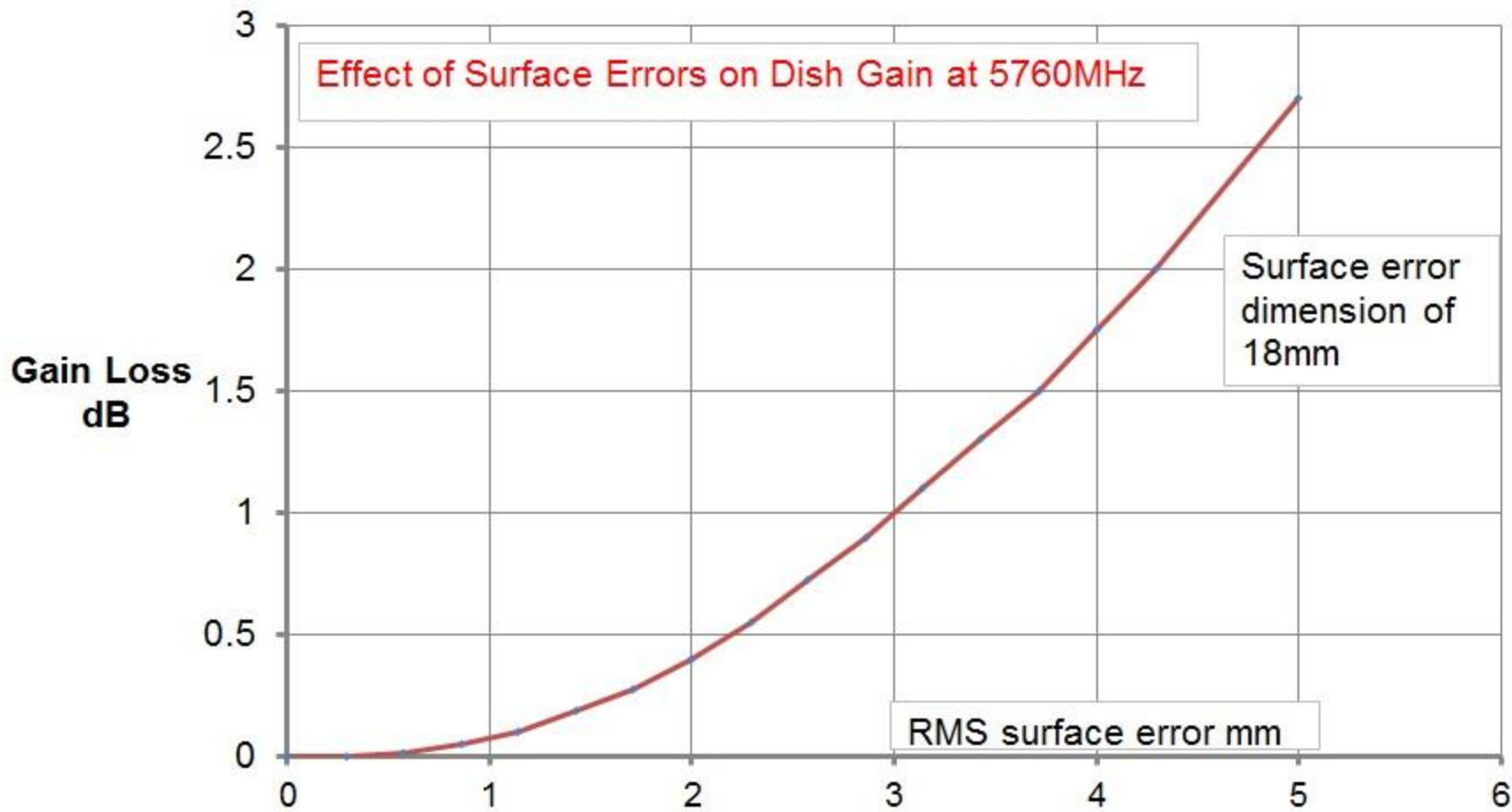
## Effect of Surface Errors on Dish Gain at 1296MHz













# Make a new, (better!) Alignment Jig









# Lifting the HA – Declination Axes into place





# And next is the Hub...





# Finally we start to re-fit the ribs





# The alignment jig in action





5 days later, the outer rim being fitted





Now for the tedious bit...mesh covering





The original fitting of the 6mm mesh, pop-riveted to the ribs and seams soldered









Finally...March 5<sup>th</sup> 2014





# Measured Gain Improvement

All bands needed re-focussing, much sharper focal point

## Using Sun Noise Measurement

- 23cm small ~ 0.2dB
- 13cm 0.7dB
- 9cm 1.7dB
- 6cm 0.6dB

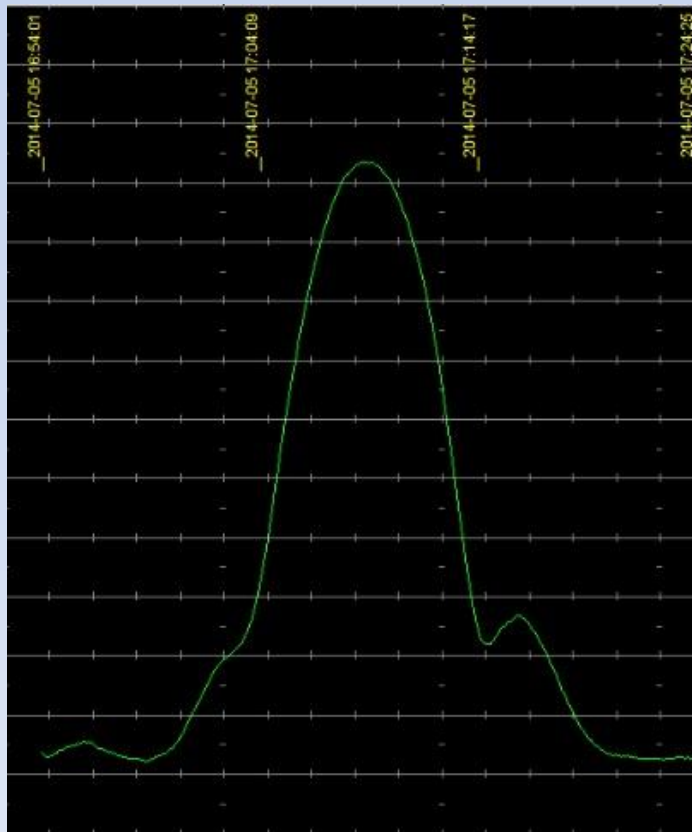
## Using Moon Noise Measurement

- 23cm small ~ 0.2dB
- 13cm 0.6dB  
(+0.4dB on EMECalc G/T)
- 9cm 1.4dB  
(-0.5dB on EMECalc G/T)
- 6cm 0.9dB  
(-2.2dB on EMECalc G/T)

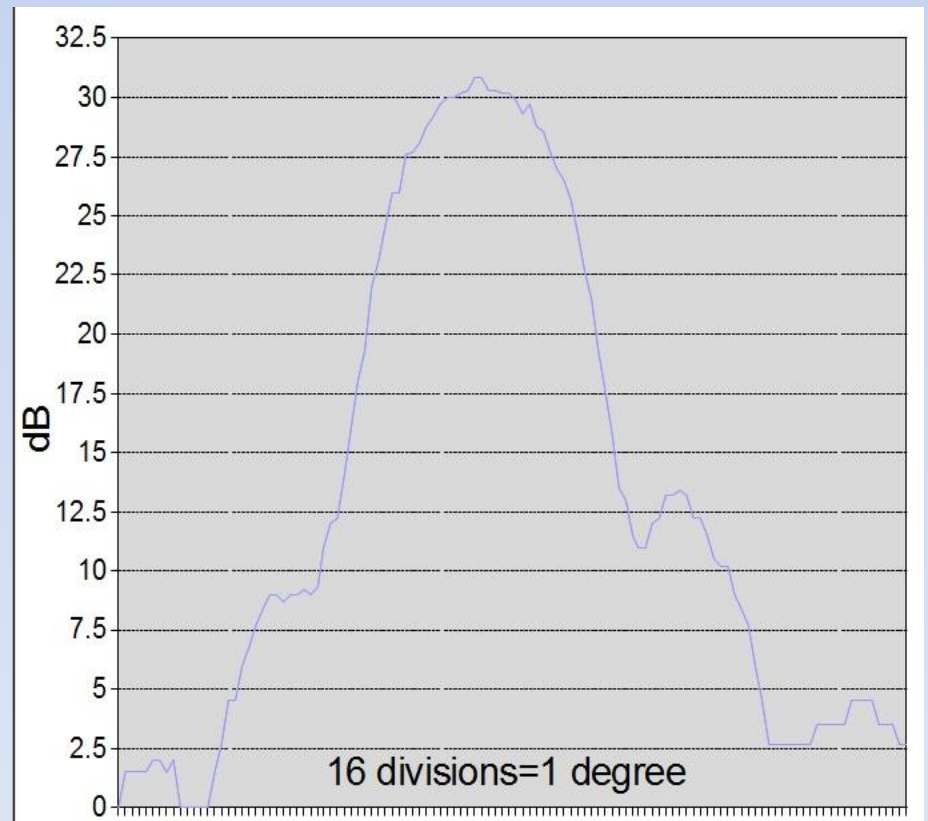


# But... Always another Question!

9cm pattern 2014



9cm pattern 2008





**W**e have not succeeded in  
answering all your  
problems. The answers  
we have found only serve  
to raise a whole set of  
new questions. In some  
ways we feel we are as  
confused as ever, but we  
believe we are confused on  
a higher level and about  
more important things.



**THANKS FOR  
LISTENING**