

[Ham Page](#)

## DUNESTAR 600 multiband filters

The pictures which follow were made using an HP-141T-HP8552B-HP8553B spectrum analyzer with an HP8444A tracking generator. The scans were performed on June 8, 2008 on a DuneStar Model 600 which was delivered on June 2, 2008 and probably manufactured in late May 2008. The unit was run into a 50 ohm resistive load. There may be changes in insertion loss and rejection if the load is significantly different from 50 ohms resistive.

There are two pictures for each band, One picture shows the pass band rejection over a wide frequency range -- generally showing the sub-harmonic frequency and the first harmonic frequency. The display scale is 10 dB per division. The second picture in each set shows the pass band insertion loss. The display scale is 2 dB per division.

The DuneStar 600 manual states the specifications for the filter set as:

Insertion Loss: Typical, 0.5-0.7 dB

Rejection: Typical, 40dB band-to-band

Bandwidth: VSWR <1.5:1 typical

160M 1.8- 1.93

80M 3.5- 3.85

40M 7.0- 7.30

20M 14.0-14.35

15M 21.0-21.50

10M 28.0-28.70

Each of the DuneStar filters is manually tuned during production so the measurements I recorded are specific to this unit and may not apply to others. In discussion with the factory they felt that the differences between units is small.

### Results of my measurements on this unit:

1. My measurements show for these filters in every case the band rejection attenuates the sub-harmonic by at least 40 dB and the first harmonic by at least 35 dB.

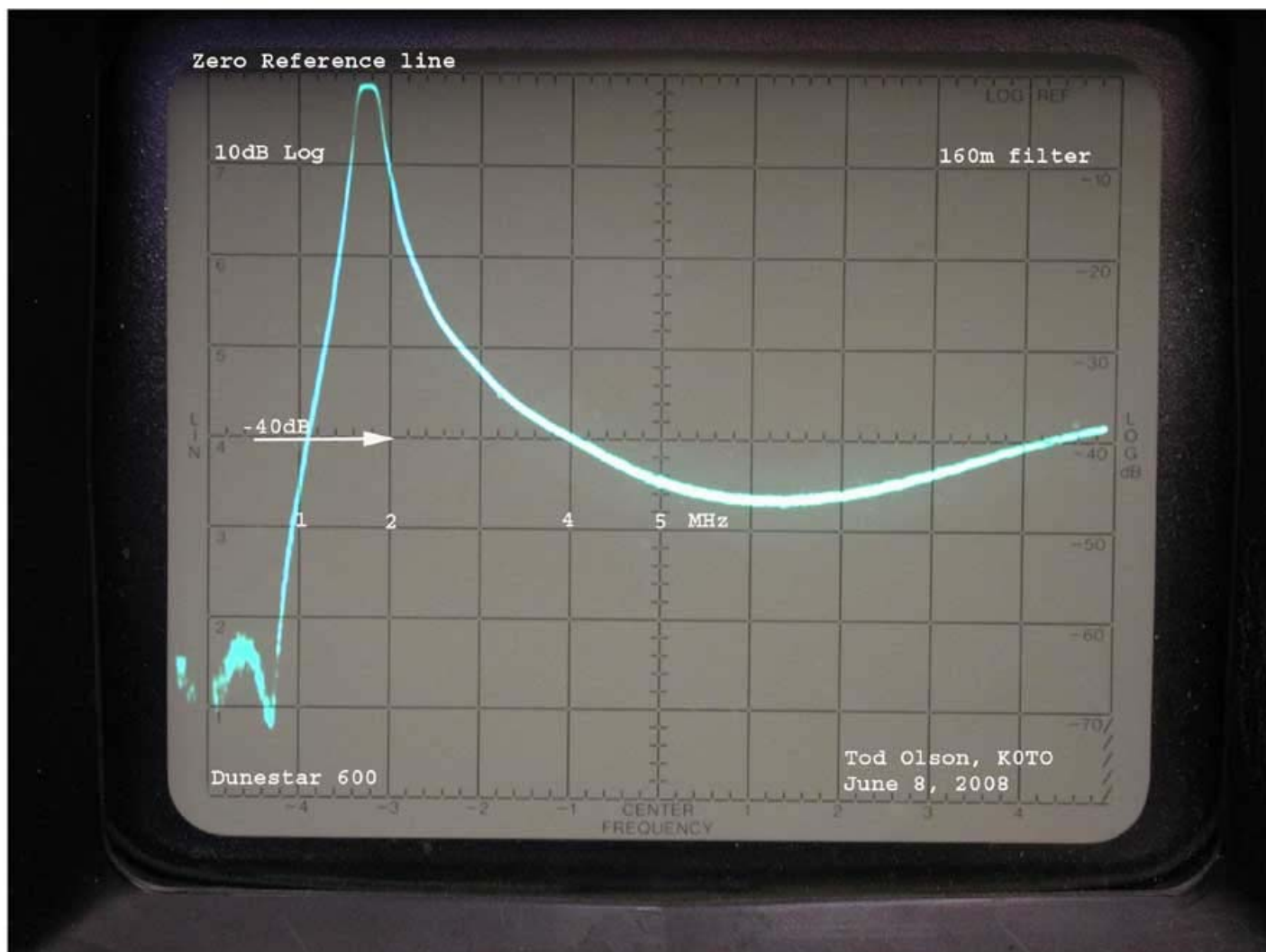
2. On every band I found the insertion loss to be slightly greater than the spec, about 0.1 dB. My spectrum analyzer probably is not really able to accurately measure to the nearest 0.1 dB so these results probably conform to the spec. More than that, I don't think that an additional 0.1 dB of loss would be at all noticeable -- at least not for me.

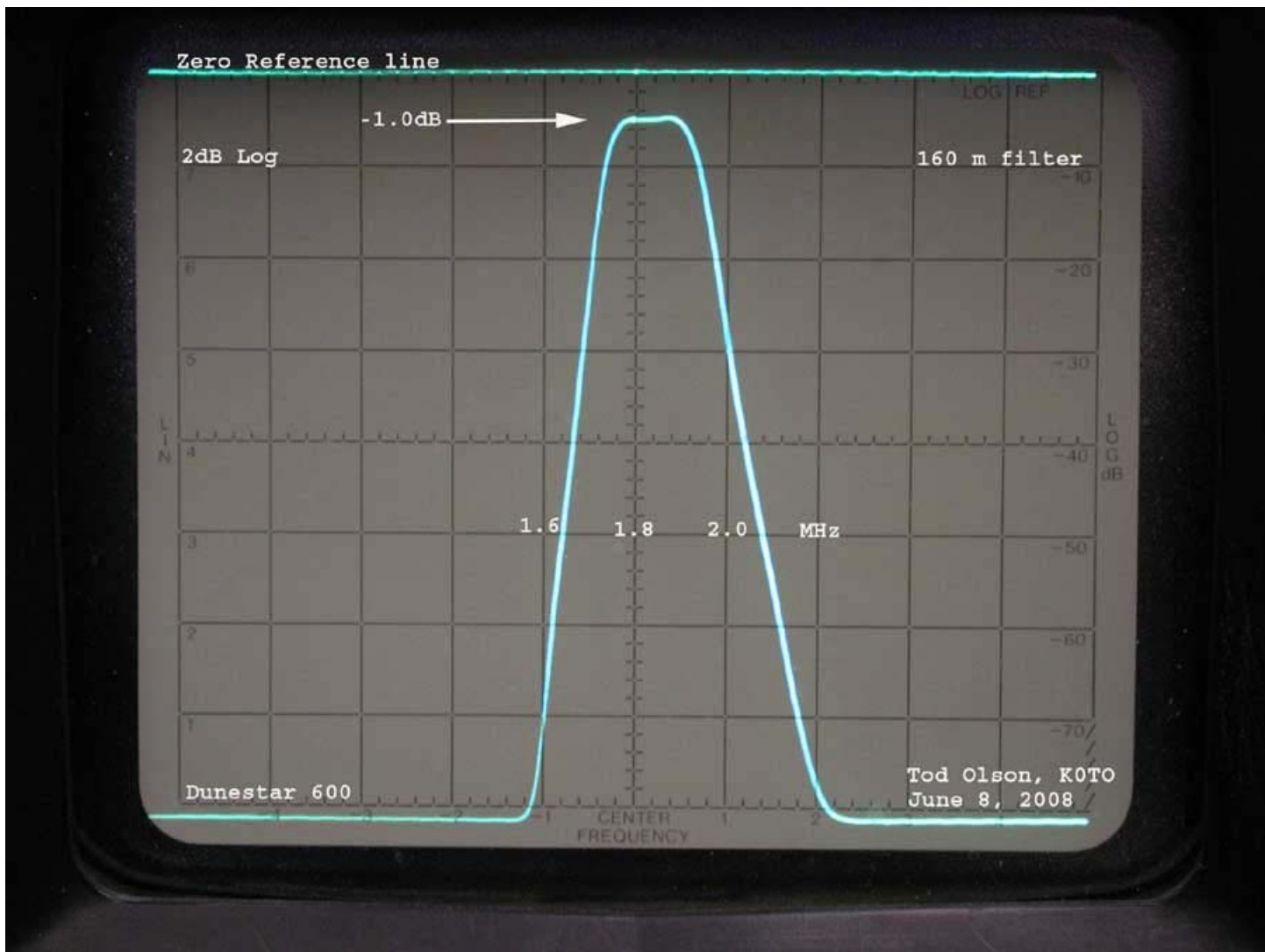
3. The bandwidth specifications are met for all bands except 80 meters. On 80 meters the band seems to be from 3.45-3.80 kHz instead of 3.50-3.85 kHz. .It may be that the tuning of that filter has somehow changed.

### Observations:

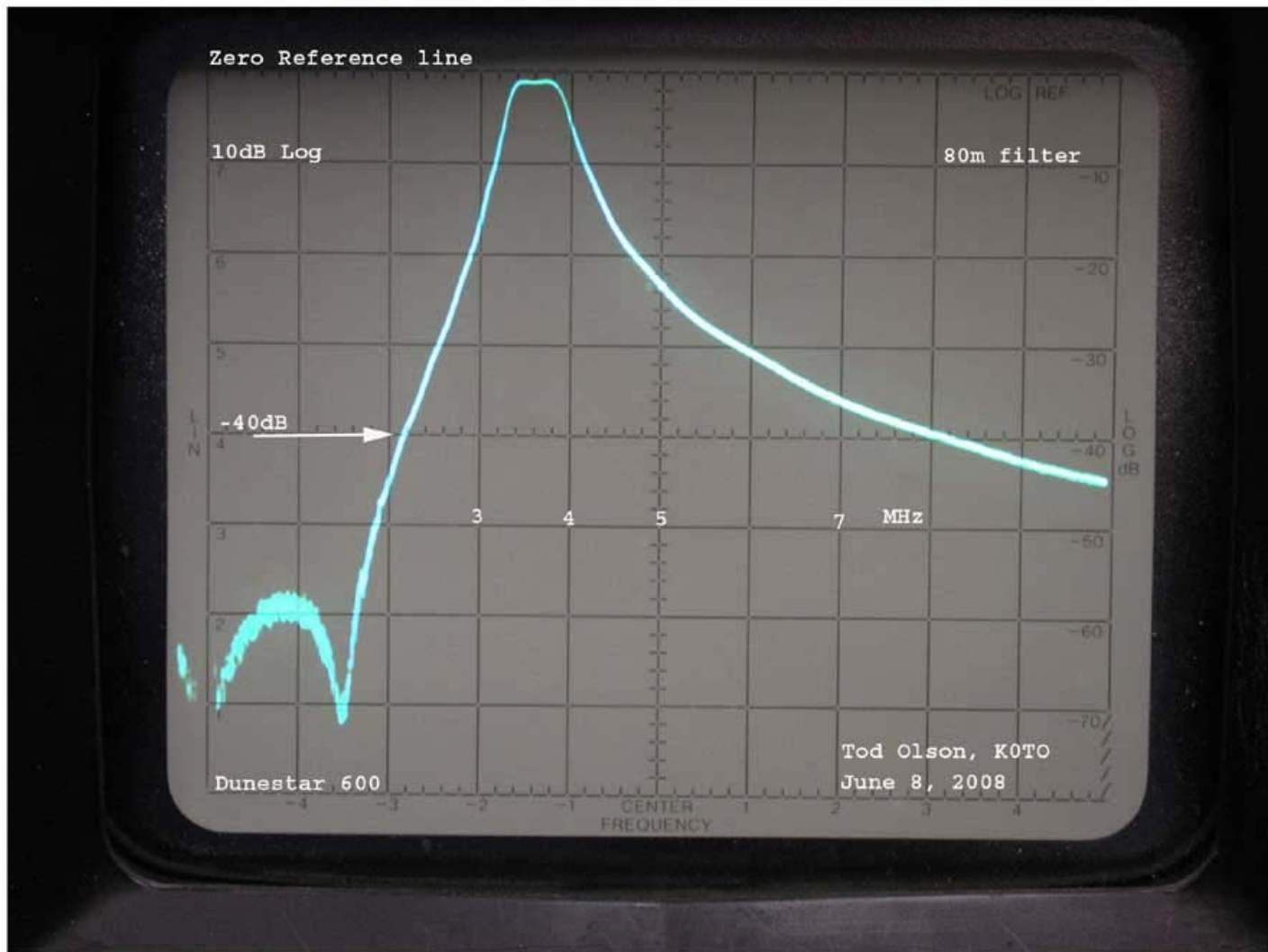
The attenuation of the filters seems appropriate for three pole filters. The only unexpected thing was with respect to the 80m filter. The pass band of interest seems a bit low, starting at 3450 and going to 3800 or so. It is my feeling that this filter unit will perform in accordance with one's expectations for a filter with these specifications. The internal construction is excellent. No tests were made [yet] running power through the filters. It would seem reasonable that one should assure that the bands are not switched with RF power going into the filter.

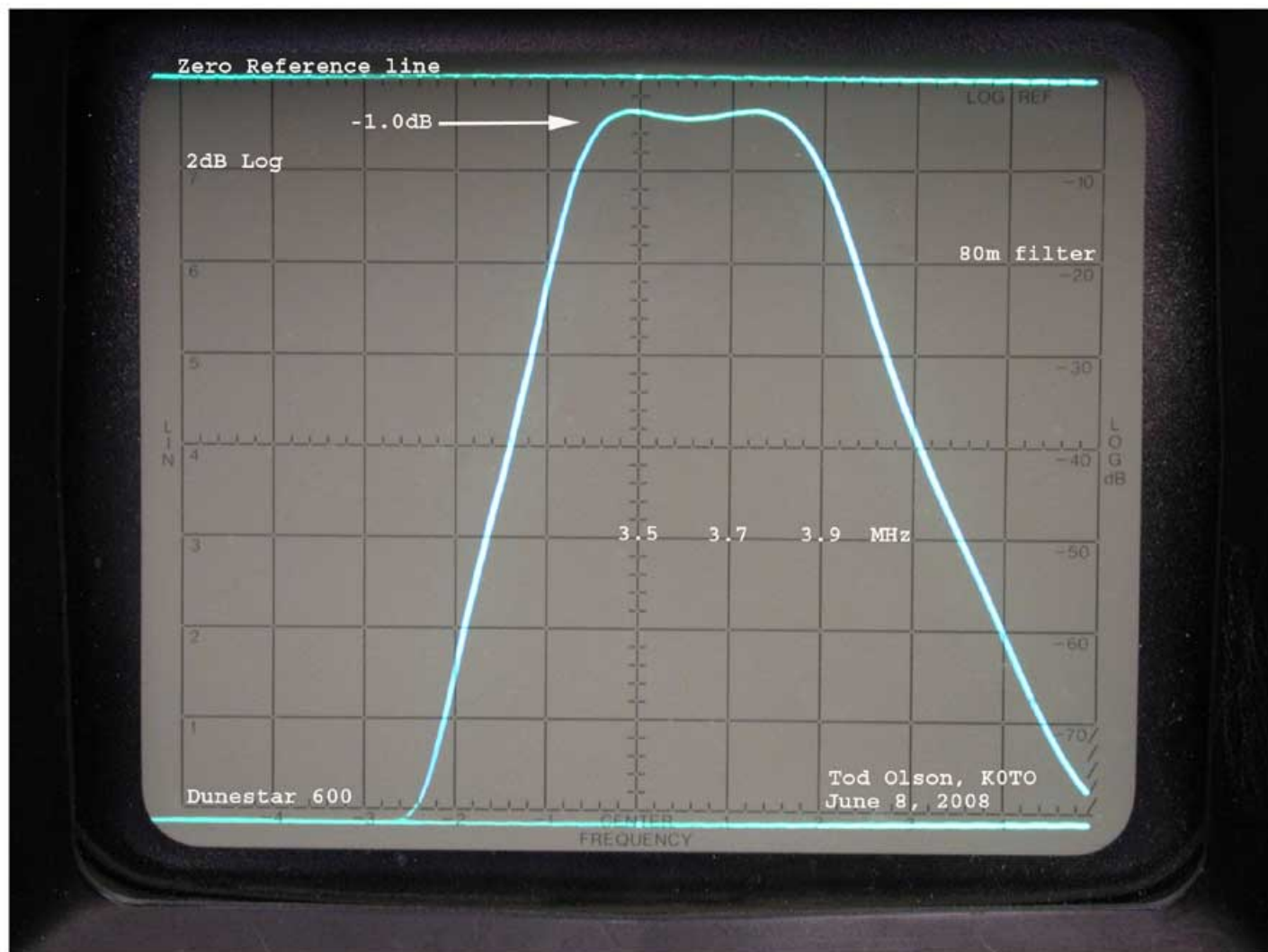
### The 160 meter filter.



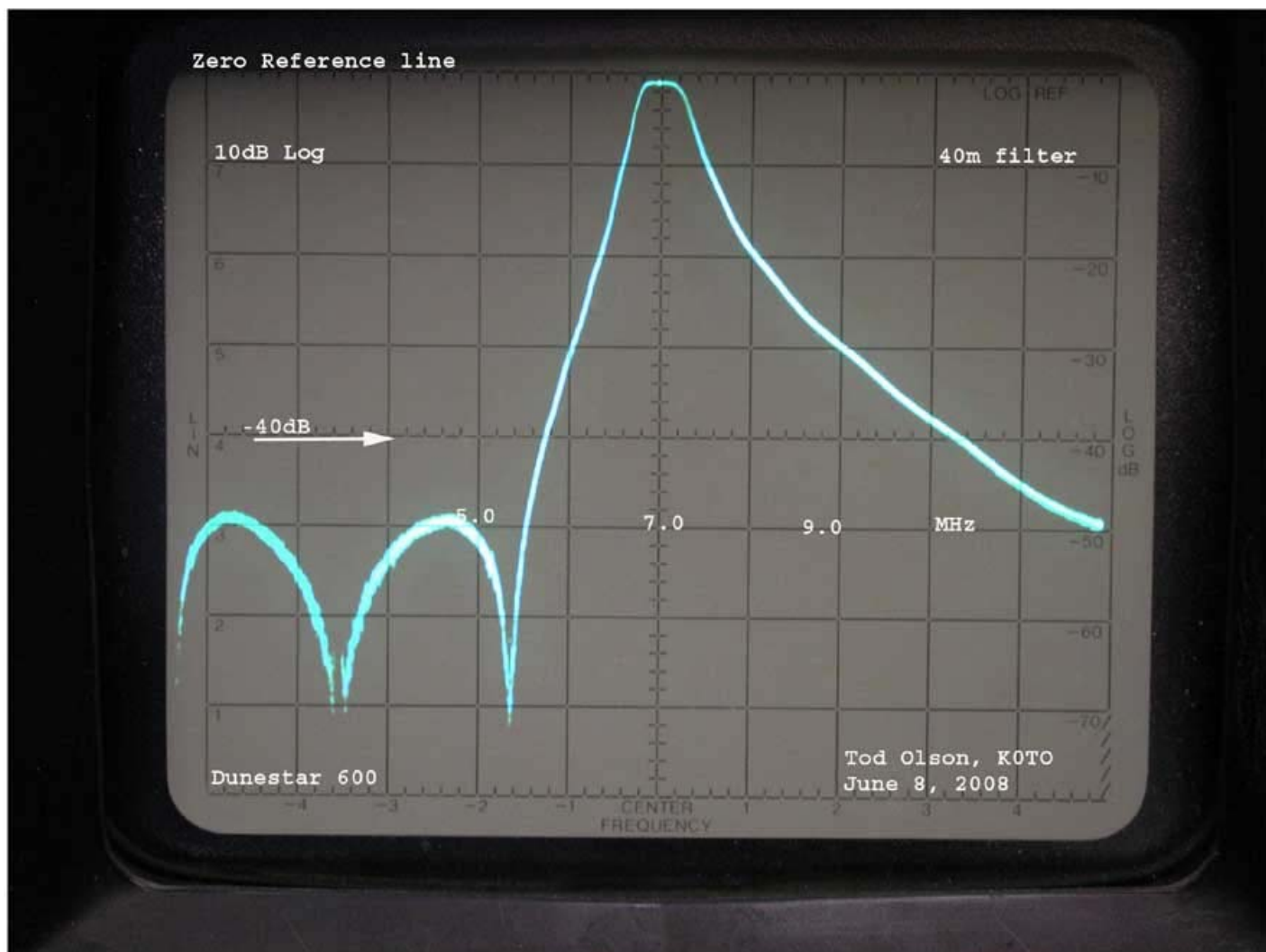


The 80 meter filter.

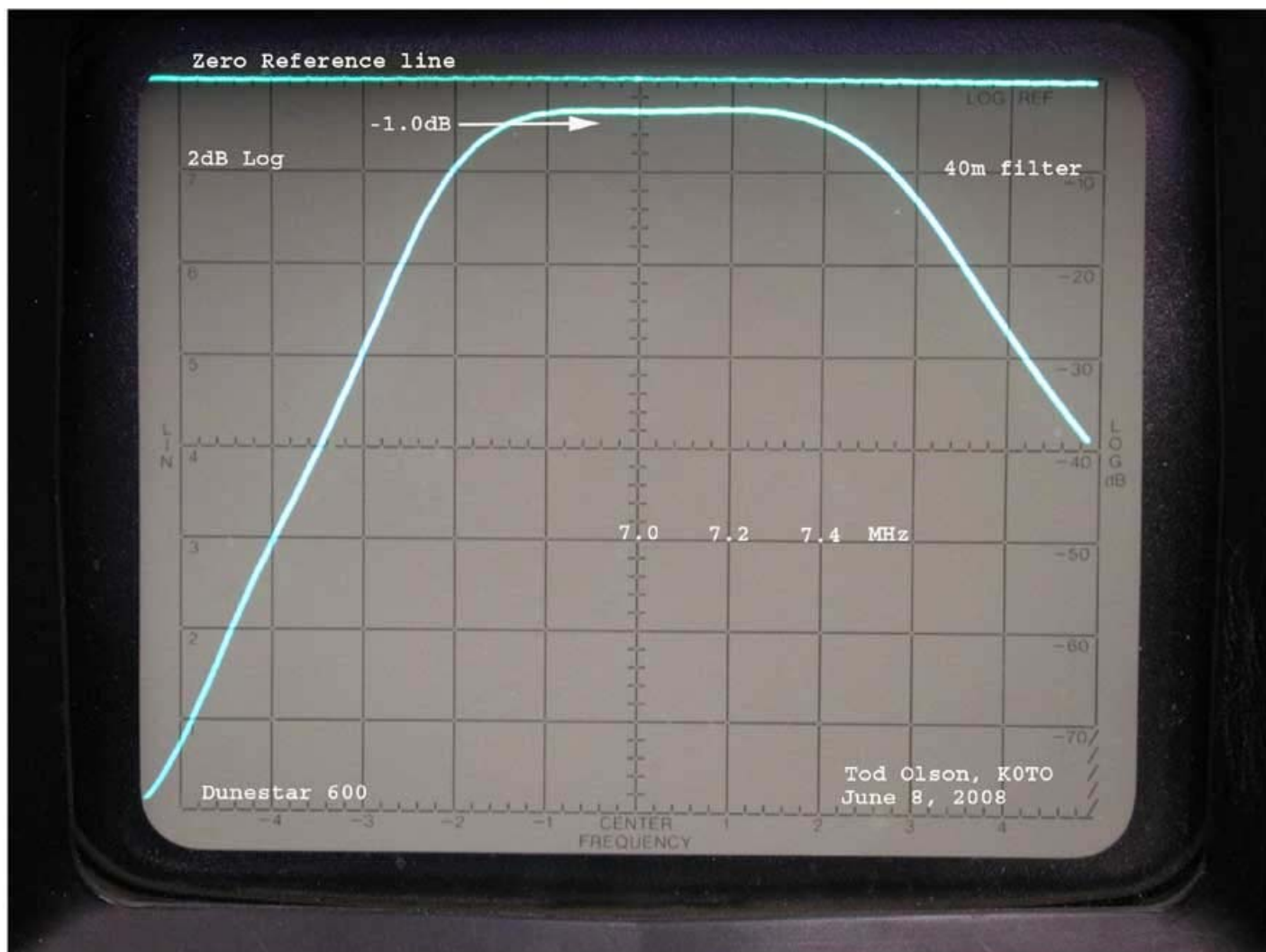




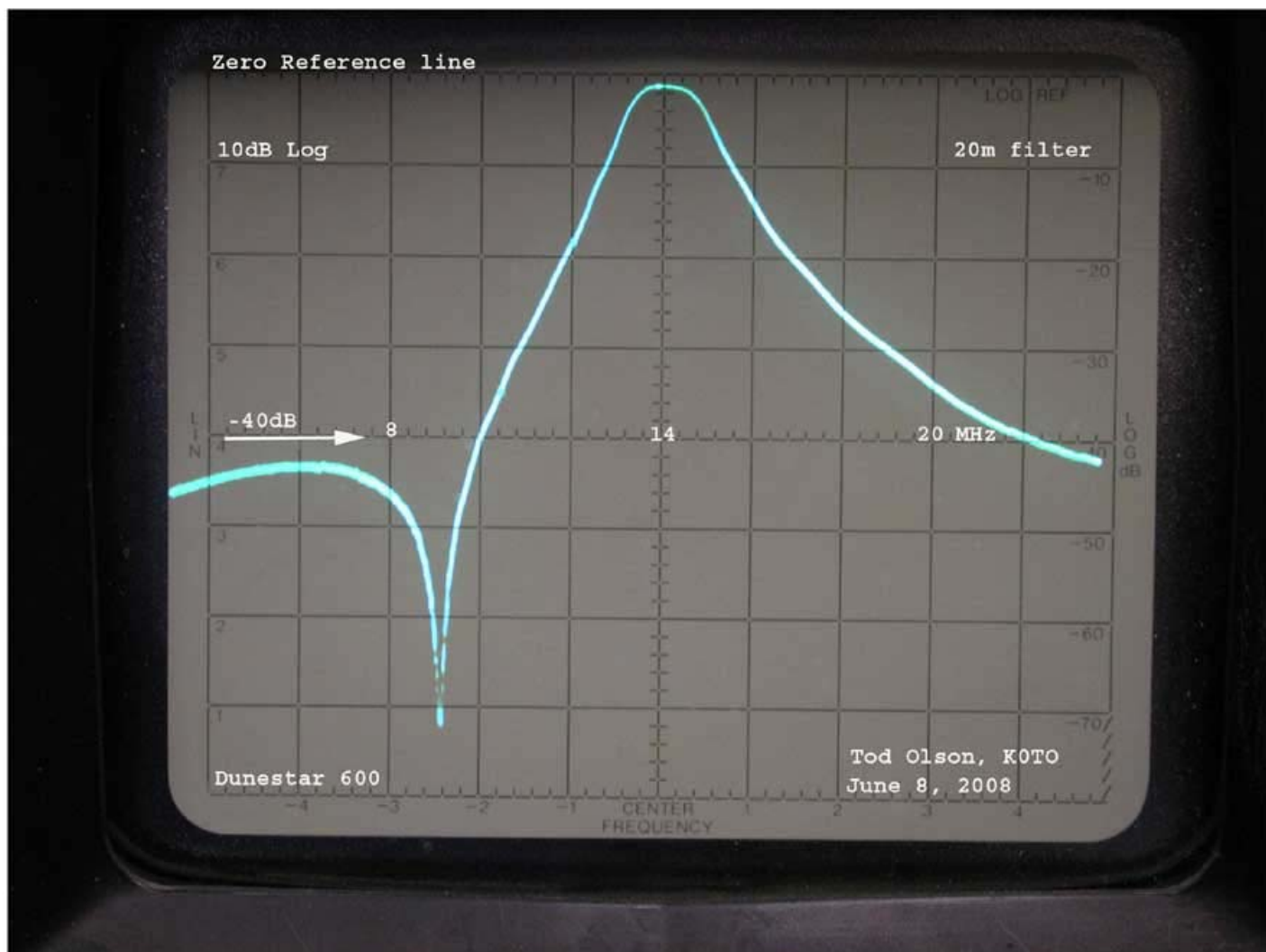
The 40 meter filter.



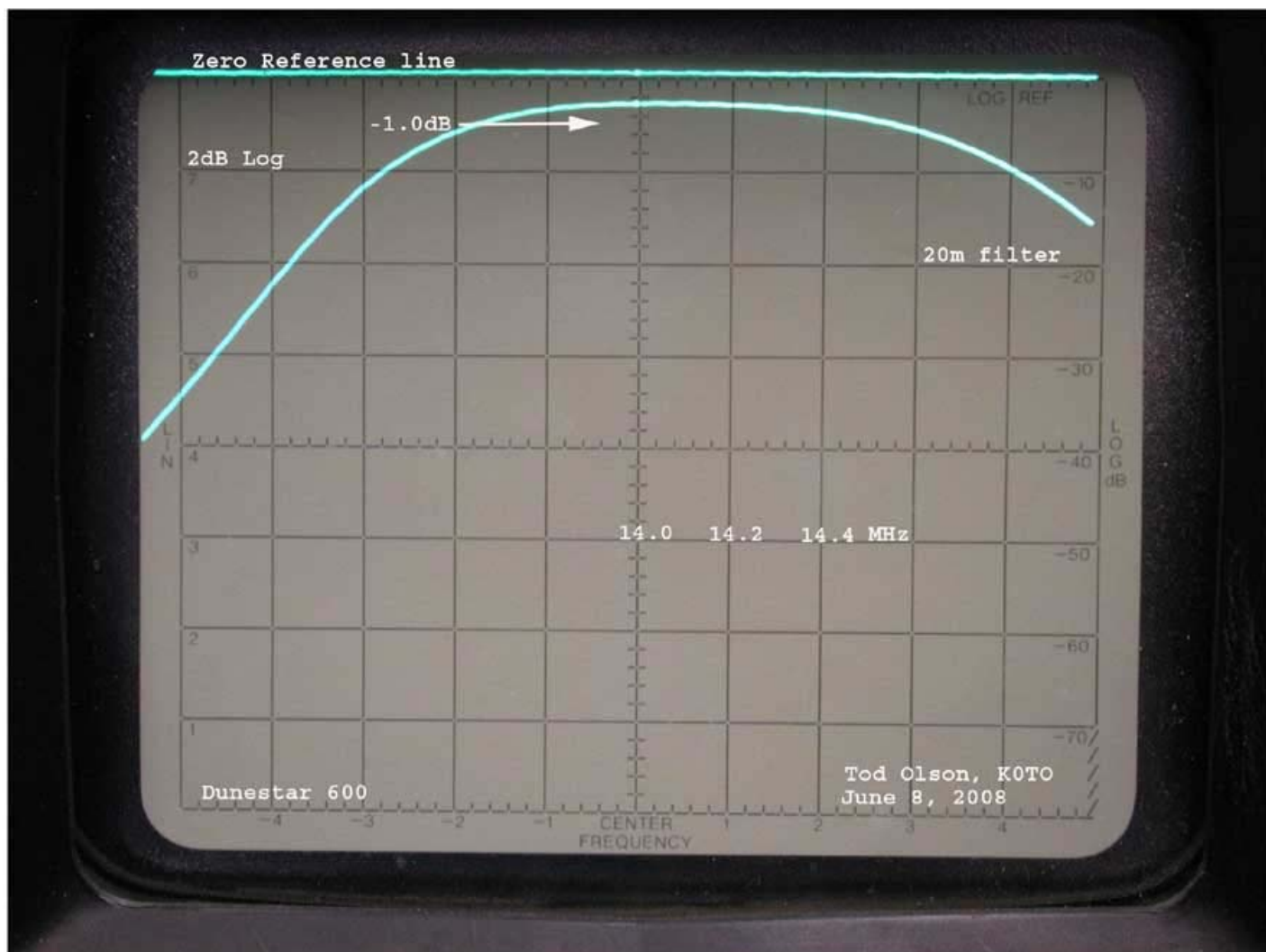




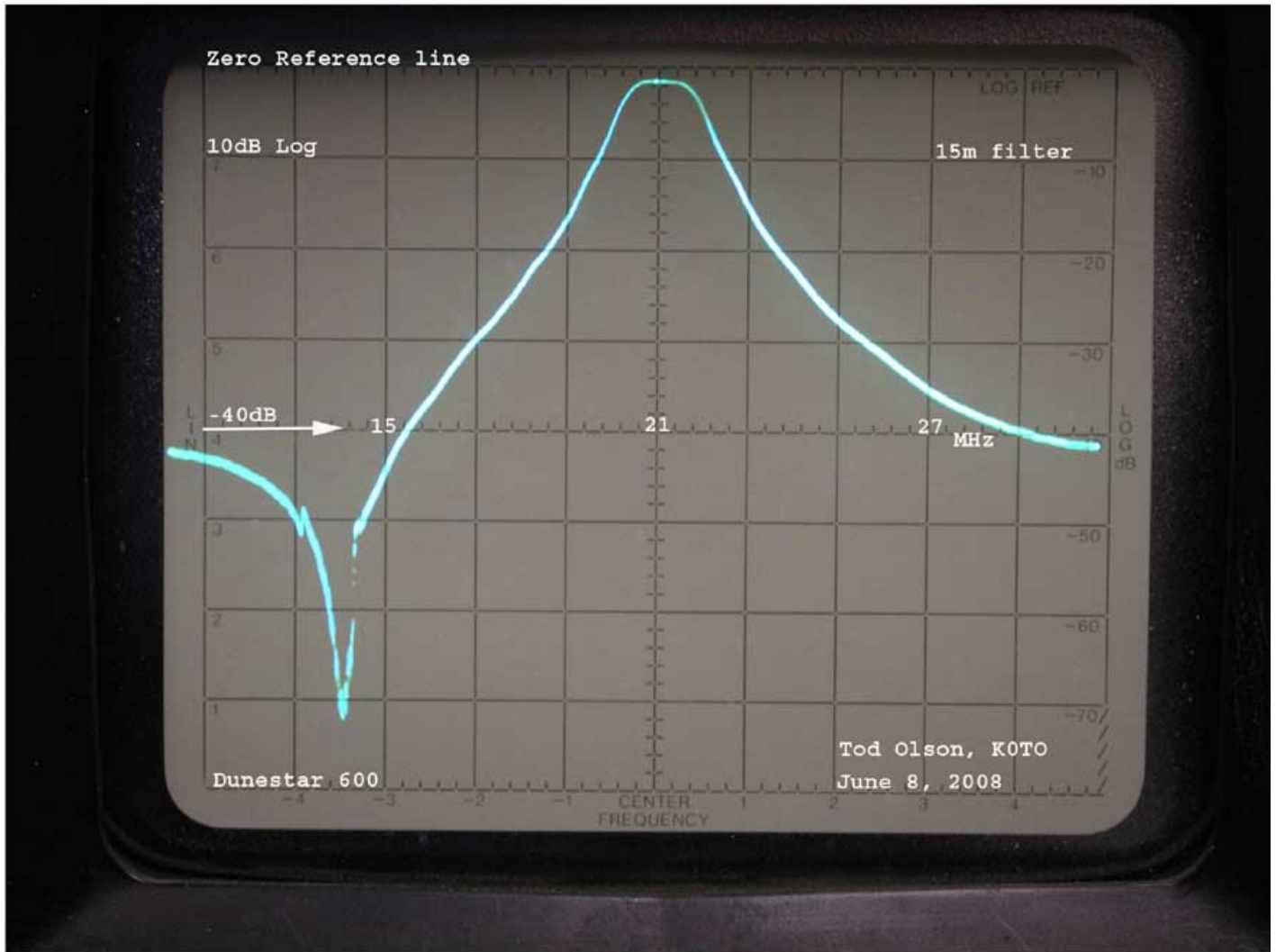
The 20 meter filter.

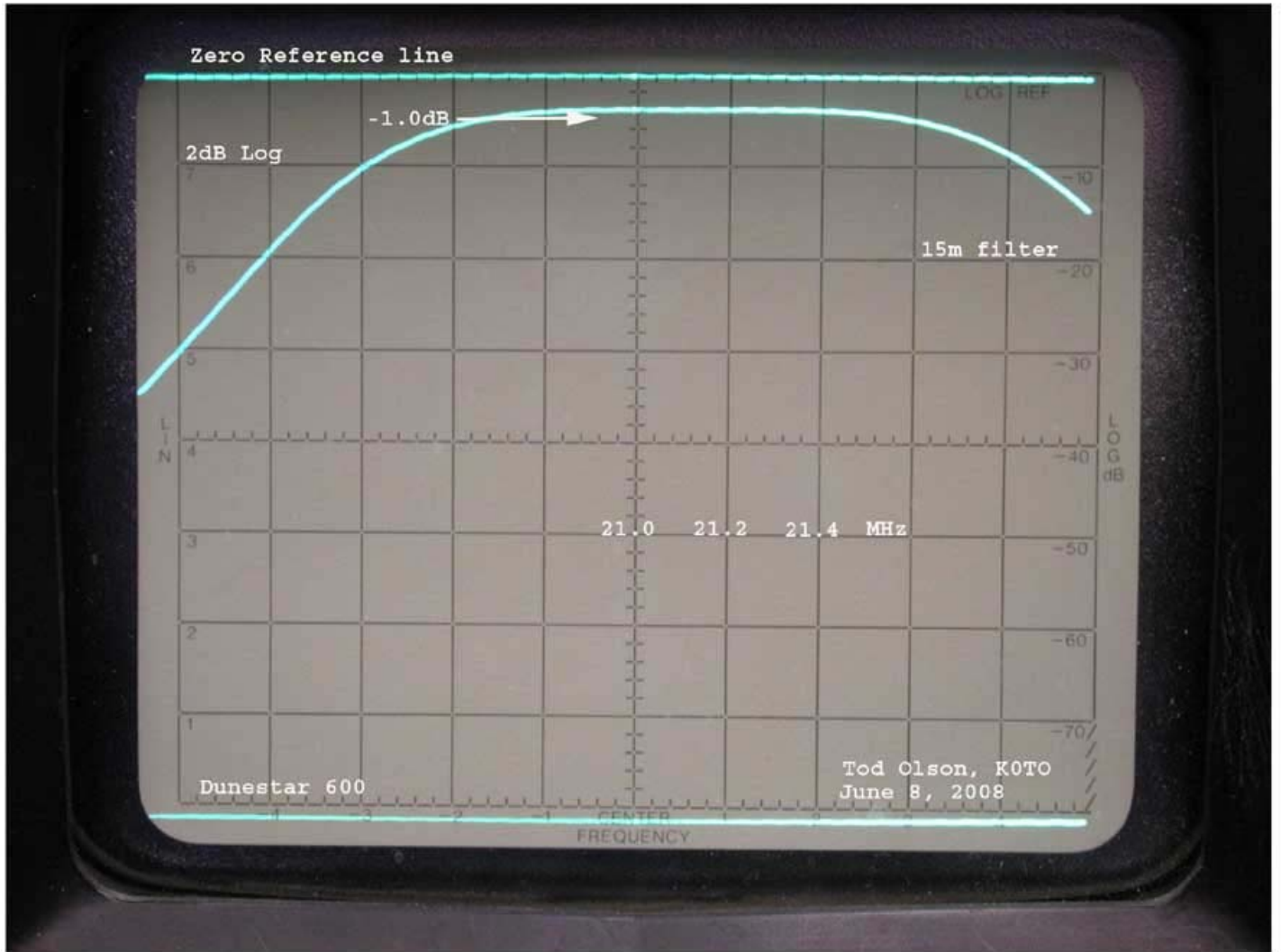




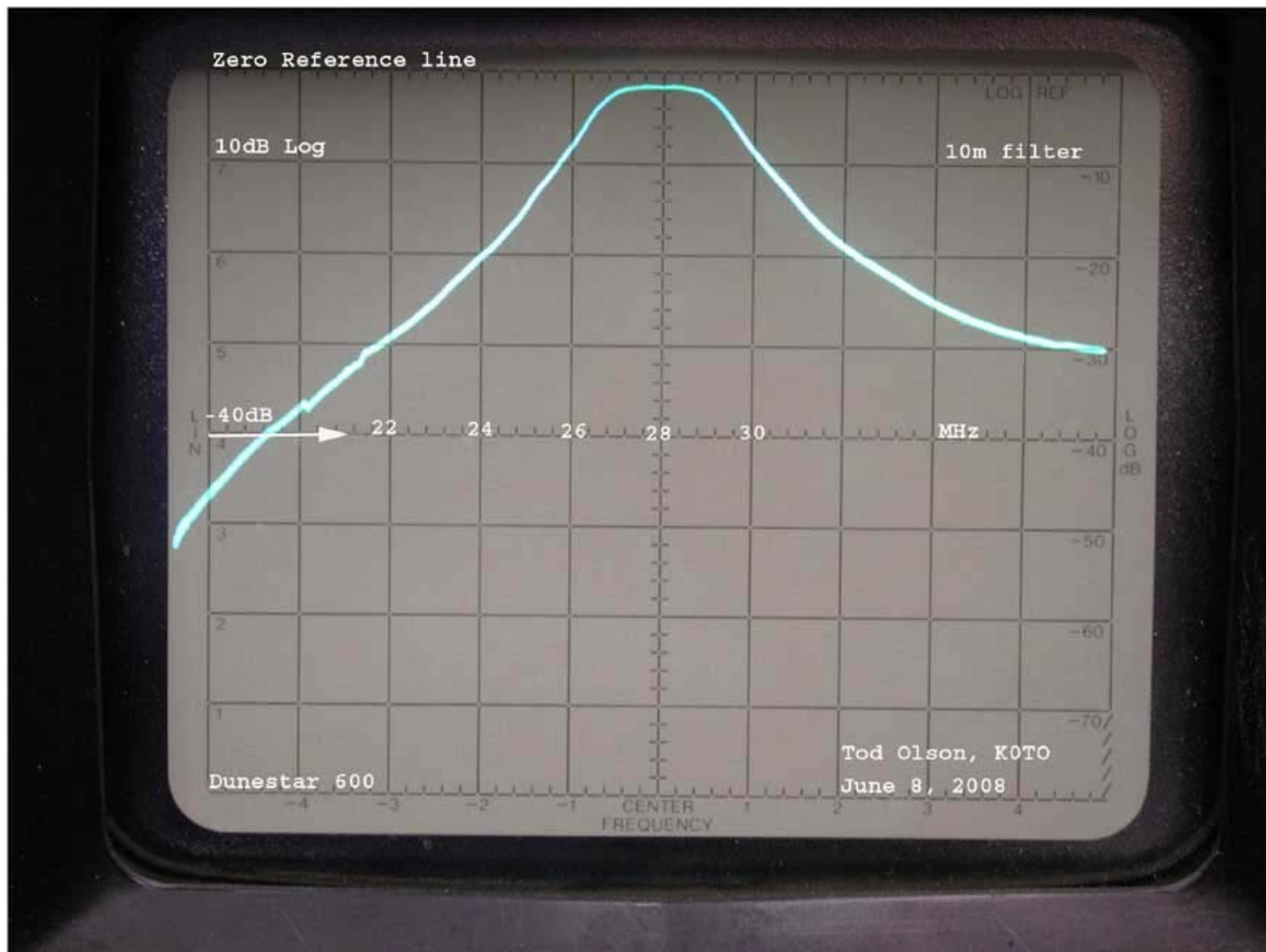


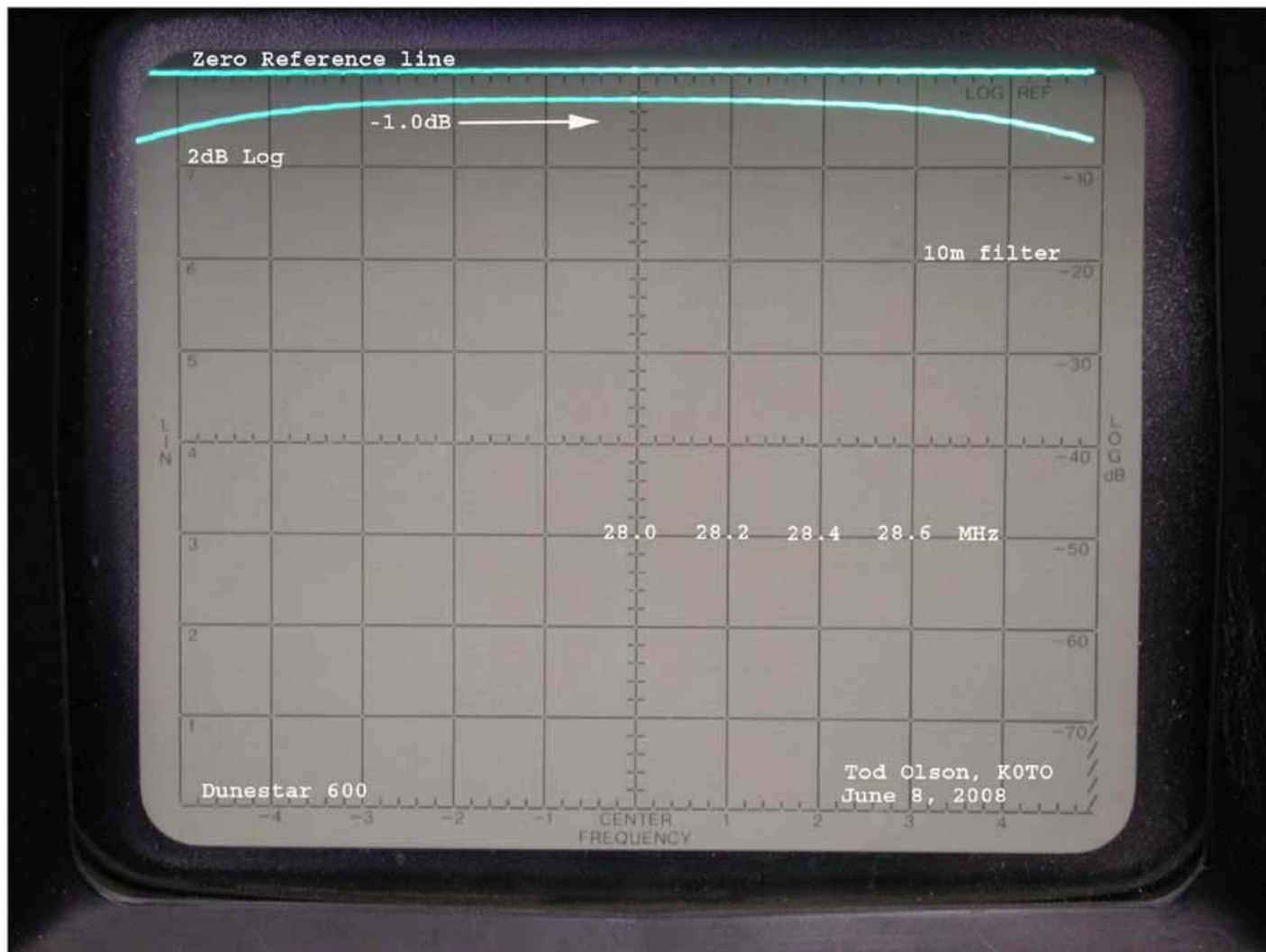
The 15 meter filter.





The 10 meter filter.





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