

From: **Palle Preben-Hansen, OZ1RH** palle@oz1rh.com
Subject: Båndpass filter i indgangen
Date: 22 August 2018 at 16:59
To: Claus Felby claus.felby@gmail.com

PO

Hej Claus,

Se vedlagte fra det nye Radcom. Selv på 1296 skal der filter foran preamp.

73, Palle.

ner tropo!

ons kicked off at the with a long, hot, dry vriting, has extended ien Edge. Just as the conditions were over ended inland before hings around dusk on 26 June Keith, ed working SM6DVG 1298km, then an 67AJ) at 1305km. HI beacon (JO57TX) 125km at 59+, so over the North Sea

test on 26 June for a change with 10GHz at 809km OZ1FF (JO45BO) n 3.4GHz G4ODA OE at 730km. Z1FF spotted the (BQ (IO80LX) on n and several DX at day. On 29 June Y6BEC (IP62OA) 8km.

l to the VHF NFD with some decent urday night of the e UK worked in to and Scandinavia. ontest stations in to work, but only registered on the o concentrate on he new 2.3GHz ilability of cheap ld split the two e 2.3GHz on the

0020B) worked o but relied on is other DX. Of o, this was the 1.3GHz station urthertheless, I was nt operator (and bands) Simon, at introduction given the right o a single 55- ? stations over

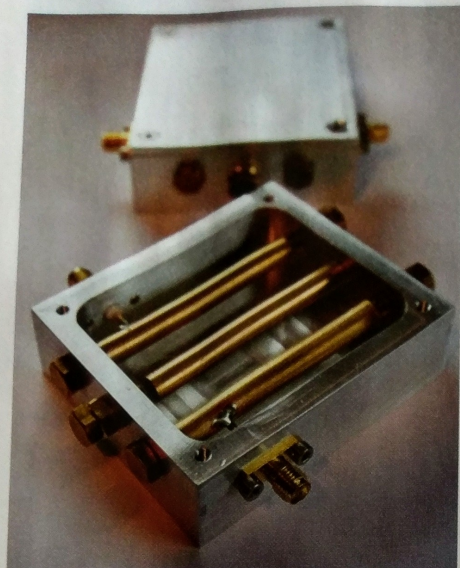


PHOTO 1: The 1296MHz low loss bandpass filter from Aerial Parts of Colchester.

1.3GHz noise levels

Wort's Causeway (JO02CE), the contest site used by the Camb-Hams, is at 67m ASL. It's one of the few 'high spots' close to Cambridge. Unfortunately, like many other amateur contest sites it also has several commercial radio masts within 1km and is line of sight and just 30km from the multi-kW Sandy Heath broadcast TV mast in Bedfordshire. The second harmonic of its 690MHz channel 48 falls close to 'our' 1.3GHz band and, while the broadcast transmitter will no doubt have excellent filtering, this harmonic can be generated in an unsuspecting contest group's equipment. Combined with cellular signals from the 800, 1800 and 2600MHz bands, any receiver front end must deal with high levels of out of band and in-band interference. With an unfiltered preamp in use on the site, if you pump up Flossie's [1] mast to full height the wideband band noise level on 23cm goes up from quiet to S9 over about a 180° arc from north through west to south. I'm sure this is typical of many other contest groups' site issues. Adding a band pass filter in front of the preamp is only a solution if its loss is well under 1dB as we should aim for a system noise figure of 1dB or so on this band for terrestrial use. While Sam, G4DDK's excellent VLNA23 with sub-0.3dB noise figure and 38dB gain is just about

input and far too much gain for this kind of environment. During VHF NFD I tried just such a preamp at Wort's Causeway and, even when followed by a 5-pole bandpass filter, we couldn't hear much in a westerly direction on the Saturday due to S9 band noise.

Gavin, M1BXF and the Camb-Hams technical team have developed a filtered masthead preamp for use at Wort's Causeway, consisting of a G8FEK SBA1250 filtered preamp [2] with 0.5dB noise figure preceded by a 0.3dB loss filter from Aerial Parts of Colchester [3]. When we switched to that on Sunday there was no sign of the noise, so we picked up the westerly stations that no doubt had heard us but could not make themselves heard on Saturday while we were using the VLNA23. This was a salutary lesson for me as, from home (at just 4m ASL), I'm screened from Sandy Heath by hills and 'get away with' using an unfiltered preamp on the band. As an alternative to a bandpass filter, one could use the approach G4DDK uses in his PGA144 preamp for VHF. This involves using a band stop filter to remove the VHF FM band interferers, leaving a very low loss at 144MHz. This principle could be applied to a 1.3GHz preamp. A high pass filter rolling off below 1.2GHz and with a notch at 2.6GHz would be a possible approach, leaving low loss in the 1.3GHz band. Something for you to experiment with and write up for *RadCom*, maybe?

Finally

I hope to see you at the UKuG Crawley GHz Round Table on Sunday 9 September [4], at the Gnu Radio companion course [5] and at the RSGB convention in October [6]. I get very few technical or band reports from readers, so I rely heavily on social media for news. Please tweet @g4bao and @ukghz using #GHz_bands.

Websearch

- [1] www.camb-hams.com/flossie
- [2] <http://g8fek.com/lna.html>
- [3] <https://bit.ly/2J7Opt7>
- [4] www.microwavers.org/main/events/crawley-rt
- [5] <https://bit.ly/2J7KkFm>
- [6] www.rsgb.org/convention

DX of UZ9FZ
when the band
AR (JN49CV)
at 571km.

the perfect EME preamp for 23cm, where it's
pointing at the 'cold' sky, Sam will be the first
to tell you NOT to use it alone in a high-noise
terrestrial environment. It has an unfiltered

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