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Spectrum analysers are rather expensive devices, especially the one's with a tracking generator. Therefore old spectrum analysers without a tracking generator are most budget friendly. Without a tracking generator it isn't possible to align filters of desired. A tracking generator generates a steady amplitude signal at the frequency where the receiver end is "looking". Therefore in time each frequency is generated and measured and shown on the display. Another way to show behaviour of a certain filter is by using a wideband noise source. This noise source generates wideband noise, ideally at a steady signal level. This can be used as a cheap substitute of a tracking generator.

BG7TBL designed a rather cheap wideband noise source, or should I say "NOISE SOURCE. This product can be bought easily on eBay.

### Build quality

The hardware design is quite nice. DC power input and four header pins as alternative power input and a gold plated SMA connector for signal output. There's a protective diode in the power in line and there's a power led placed on the board. The (surface mount) soldering and the silk screening of the board looks very nice. There are a lot of through hole connections to the reference plane at the bottom. The quality of the product is visually great.

### Output signal strength

Although there's a "pi" attenuator network on board, the output level is rather high. Don't feed the signal directly into your SA! Since the signal is rather high and broadband, the local mixer of your Spec. Ann will be likely overloaded. It's safe to assume the noise source generates 0 dBm at some peaks. Use a 20 dB attenuator in combination with a Rigol DSA-815.

### Design

The heart of the design is a Zener diode. This diode generates wideband noise. This noise is amplified in three stages and at the end attenuated a bit, likely for 50 Ohms impedance matching.

### Versions

It seems that there are several versions, at least three. The oldest seems to be the 2013-12-18 version with two electrolytic capacitors. The 2014-08-20 design is even more complex and has six electrolytic capacitors. The 2016-03-06 is fully surface mounted and doesn't have electrolytic capacitors. This is a good thing since electrolytic capacitors will age and surface mounted caps perform much better!

### Heat problem

It seems there is a heat problem. After a short amount of time, the three amplifier semiconductor packages will become very hot. I'm not an expert in this area, but I guess the heat generation is surprisingly large. Assembly of a heat-sink on top of the amplifier parts would be wise if operation for several minutes is desired.

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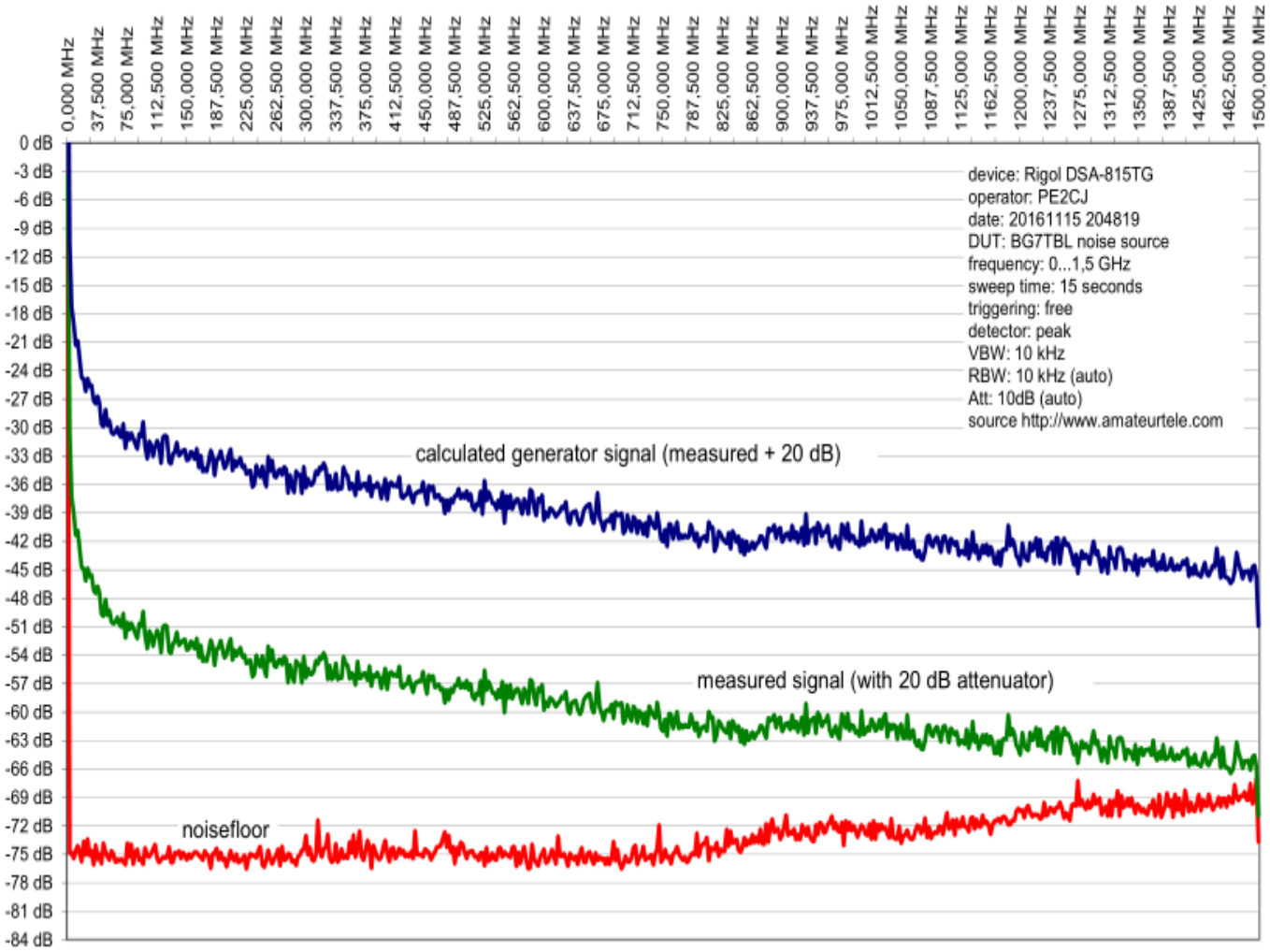
**Overall conclusion**

Although this  noise source is rather cheap, it does generate wideband noise. It would be possible to adjust filters using this noise source and a spectrum analyser. The build quality is very nice. The signal output isn't very linear, but for this price and purpose this shouldn't be a problem. If you have a rather old spectrum analyser without a tracking generator, this is a nice piece of equipment to have although it never will be as good as a tracking generator.




**From Phil, VK5SRP - I have found this board in a case:**
https://www.banggood.com/DC-12V-SMA-Noise-Source-Simple-Spectrum-External-Generator-Tracking-Source-Module-With-Case-p-1148776.html?cur_warehouse=CN

From - http://www.amateurtele.com/index.php?artikel=218