Rev 1.2 EN

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# Pre-Amplifier UBBV-Series Manual

AARONIA AG

WWW.AARONIA.DE

Made in Germany

Please read this manual

carefully before starting up

the preamplifier. The manual gives you

useful instructions how to operate the

unit correctly.

# Content

**ATTENTION:**
**Please screw antennas and adapter always in a non-violent way with the UBBV preamplifier. Please use for loosening or screwing of SMA-connections ONLY the enclosed SMA tool, which offers a over-tightening protection.**

Don’t bring ever the UBBV preamplifier in contact with water. Don’t use it if it is raining. The sensitive electronic system could otherwise be damaged.

Because of the high sensivity the electonic system of the UBBV preamplifier is very shock- and impact-sensitive. Always treat your preamplifier carefully. Don’t let the UBBV falling down, as it could be damaged.

**We recommend to use always our transport case for storage and transport.**

The UBBV preamplifier is maintenance-free. Please clean it therefore only outside with enclosed cleaning brush or a damp cloth. Don’t use cleaning supplies.

**WARNING:**

**Please avoid to overstress the UBBV-preamplifier by inputting to much power as otherwise the UBBV preamplifier could be damaged. The maximum peak-power, which you can put at the input of the preamplifier, is 20dBm.**

**The output power of the UBBV-preamplifier could be up to 20dBm. Please ensure that your connected measurement unit will not be damaged due to this power.**

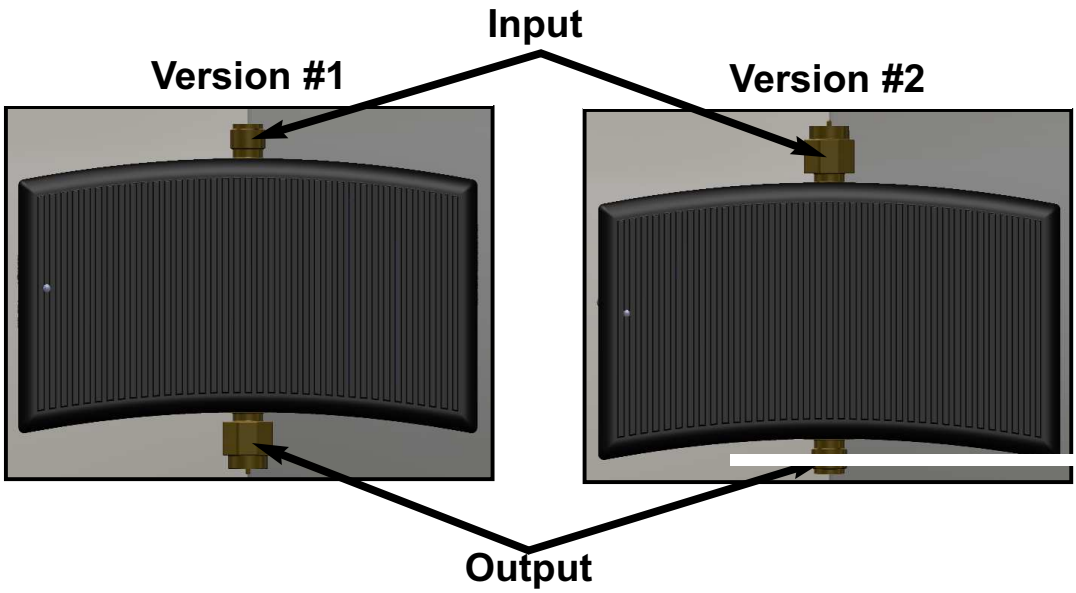
# 2.0 Scope of delivery

Please check before initial operation the completeness of delivery. Please reclaim missing parts **immediately** at Aaronia or at your Aaronia dealer.

Included in delivery are the following items:

**(1) Cleaning brush**
**(2) SMA adapter** for operation with external devices (optional)
**(3) UBBV preamplifier with integrated battery**
**(4) SMA to N adapter** for operation with external devices (optional)
**(5) SMA tool**
**(6)** International **battery charger** (power supply) with four adapters
**(7) Two mounting brackets** for SPECTRAN measuring unit
**(8)** Mini **USB cable** for reading out the calibration data

There are different versions of the UBBV-preamplifier available, which only vary in the SMA connections. At all versions the position of the input and output are identical:
The **input** of the UBBV-preamplifier is always located at the site which is bent outwards.



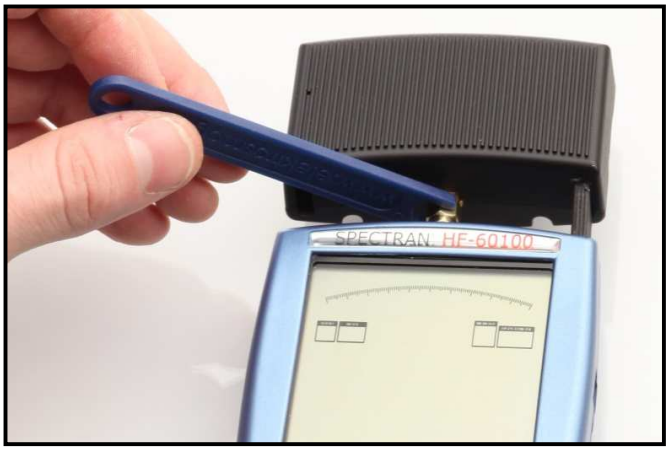

The **output** of the UBBV-preamplifier is always located at the site which is bent inwards.

**Version #1**: Input: Female with SMA jack; Output: Male with SMA plug and cap nut.
This version can for instance be mounted directly at the front part of our SPECTRAN measurement devices. Please see the instruction in section 4.0 „Operating at SPECTRAN".
By using our optional SMA adapter the version #1 can be also inserted between two SMA cables (see instruction at section 5.0 „Operating at external devices"). Here the SMA adapter is screwed at the male SMA plug with cap nut. You will receive then a further female SMA plug.

**Version #2**: Input: Male with SMA jack and cap nut; Output: Female with SMA jack.
This version is fixed screwed with our HyperLOG X antenna series and is specially **suited for the respective antenna** (see instruction at section 6.0 „Operating at HyperLOG X antennas") **and therefore cannot be used for other purposes!**

Please put the enclosed mounting brackets consistently and in a non-violent way in the intended slots of the SPECTRAN until it locks firmly.
Please put then the protruding mounting brackets of the SPECTRAN consistently and in a non-violent way in the intented slots of the UBBV-preamplifier until the SMA jack of the SPECTRAN and the SMA plug of the UBBV-preamplifier lock in place together.

Screw then with enclosed SMA tool the SMA plug of the preamplifier with the SMA jack of the SPECTRAN. Avoid tilting the UBBV-preamplifier in order to avoid damaging the sensitive SMA jacks. Screwing should be carried out very smooth. **Refrain from using force!** As soon as you feel any resistance, please retighten the screw connection. Do this also in a non-violent way! The SMA tool offers a over-tightening protection and starts to slip down if too strong forces are affecting.
The UBBV-preamplifier should be now firmly fixed with the SPECTRAN without wobbling.

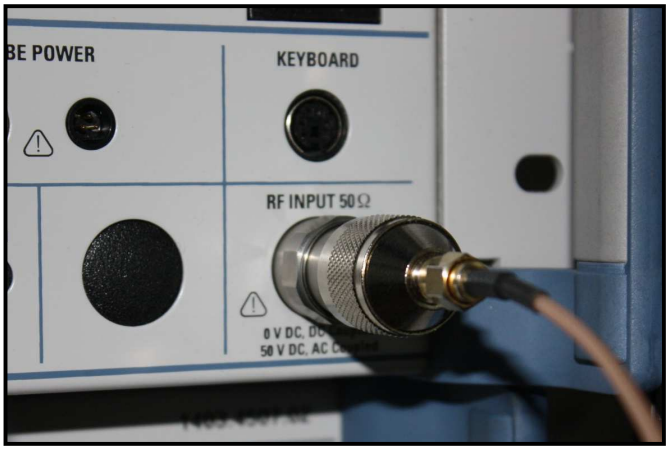



**Please leave always, if possible, the both devices connected as every removal and re-assembly could wear out the SMA jacks and could cause damages!**

**ATTENTION:** If you don't use the SPECTRAN together with our LCS or MCS software, you have to activate the UBBV-preamplifier in the menu "RefOff" (by choosing the headword "UBBV12") in order that the SPECTRAN is calibrated correctly!

By using our SMA adapter you can equip the male output of **version#1** of the UBBV-preamplifier with a female SMA jack.

That way the in- and output of our UBBV-preamplifier can be connected with one of our optional 1m, 5m or 10m SMA cables and you can plug in any spectrum analyzer, oscilloscope, antenna etc..




If your measurement unit or antenna is equipped with a N-input, you will need our optional SMA to N adapter as well.

**Version #2** (Input: Male with SMA jack and cap nut; Output: Female with SMA jack) is fixed screwed with our HyperLOG X antenna series and is specially **suited for the respective antenna and therefore cannot be used for other purposes!**


Nevertheless the preamplifier can be mounted and removed as follows:

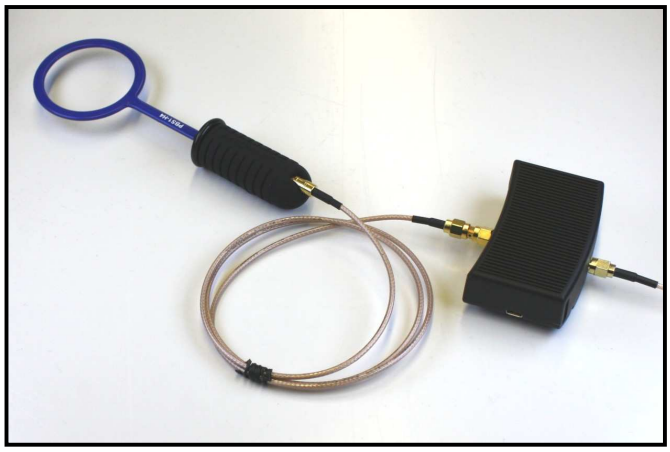
Please put the protruding mounting brackets of the HyperLOG antenna consistently and in a non-violent way in the intented slots of the UBBV-preamplifier until the SMA jack of the HyperLOG antenna and the SMA plug of the UBBV-preamplifier lock in place together.


Screw then with enclosed SMA tool the SMA plug of the preamplifier with the SMA jack of the HyperLOG antenna. Avoid tilting the UBBV-preamplifier in order to avoid damaging the sensitive SMA jacks. Screwing should be carried out very smooth. **Refain from using force!** As soon as you feel any resistance, please retighten the screw connection. Do this also in a non-violent way! The SMA-tool offers a over-tightening protection and starts to slip down if too strong forces are affecting. The UBBV-preamplifier should be now firmly fixed with the HyperLOG antenna without wobbling.


**ATTENTION: Please leave always the UBBV-preamplifier connected to the antenna (as delivered) as every removal and re-assembly could wear out the SMS jacks and could cause damages!**

**Operating at SPECTRAN:**
If you are using our SPECTRAN, you can connect the UBBV-preamplifier at the SPECTRAN as described in section „4.0 Operating at SPECTRAN“. After this please put the SMA cable of the PBS Probe Set directly at the installed UBBV-preamplifier.

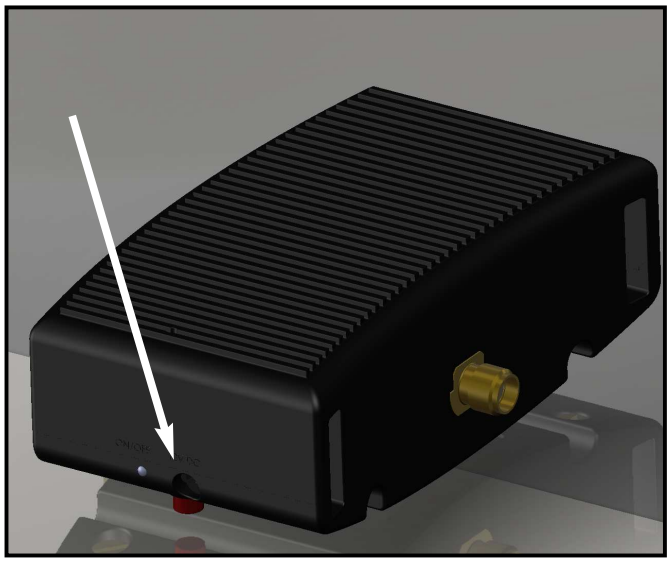
**Operating at external devices:**
If you are using our UBBV-preamplifier together with an external device, you have to equip the UBBV-preamplifier with our SMA adapter according to instruction „5.0 Operating at external devices“.
Thereafter you can connect directly the SMA cable of the PBS Probe Set to the SMA jack.




The UBBV-preamplifier can be turned on and off at the switch on the back side of the preamplifier. With the integrated LiPo-battery the preamplifier has a run-time of approx. 3-4 hours.
When starting up the preamplifier it might be necessary to charge the battery first. Please pay attention to the instruction in section 9.0.

If the UBBV-preamplifier is switched on, a red control LED on the upper side of the preamplifier lights up.

**Battery operation:**



The UBBV-preamplifier includes a LiPo power battery, which is already installed in the preamplifier. **The run-time of the battery is about 3-4 hours.**
The battery can be charged by enclosed battery charger. For this please connect the battery charger to the mains supply and the jack plug of the battery charger to the power connection of the UBBV-preamplifier. The battery will be loaded then. The control LED next to the power connection changes its colour after some seconds from green to red. After the battery is loaded completely, the control LED lights up green again.
**A complete charging takes about 90 minutes.**

**Long-term operation with external power supply:**
As described before, the external power connection is used for charging the internal battery. Additionally you can use it to operate the UBBV-preamplifier independently from the internal battery (long-term operation).
For this the battery charger will be connected to the mains supply and the jack plug of the battery charger will be plugged to the power connection of the UBBV-preamplifier. The control LED next to the power connection should light up then green. With an empty battery the control LED lights up red. As soon as the battery is charged completely, the control LED lights up green again. The UBBV-preamplifier operates independantly of the state of charge.

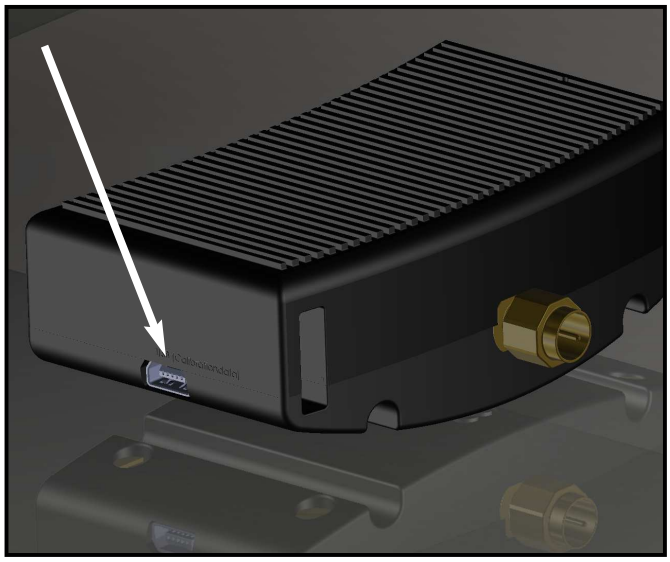
You can connect also other **DC sources** with **12V**. As connecting plug a 3,5mm jack plug has to be used. The connecting plug has to be poled as follows: The **inner pole** is “+” and the **outer pole** is “-”. With our optional power adapter for the cigarette lighter (see our pricelist) you can charge or operate the UBBV-preamplifier also in the car.

All cables/equipment, which you want to connect to the external power supply of the preamplifier, have to deliver DC of 12V. Please use a standard jack plug with a diameter of 3,5mm (inner pole PLUS, outer pole MINUS).

# 10.0 Reading out the calibration data

Every Aaronia UBBV-preamplifier is already individually calibrated in our factory. The corresponding calibration data are stored at an EEprom in the preamplifier. These data you can read out at any time via USB-interface of the preamplifier.

**Reading out the calibration date (still in preparation!):**
Please connect for this the enclosed USB 2.0 cable (USB A at Mini USB B 5pol) with your computer and switch on the UBBV-preamplifier (power LED lights up red).



Reading out the data can be done by using our free MCS analysis software (for Windows, MAC-OS or Linux), which you can find at enclosed CD or at our forum website http://spectran-developer.net.
The read-out data you can export as a textfile and e. g. print out or put and illustrate in a spreadsheet.

You can also use the typical calibration data of the UBBV-preamplifier, but there might be some small variations within the series. Therefore we recommend to use always for an accurate measurement the internal calibration data of the UBBV-preamplifier. That way you can better compensate the frequency dependant amplification of each UBBV-preamplifier.

# The Aaronia warranty

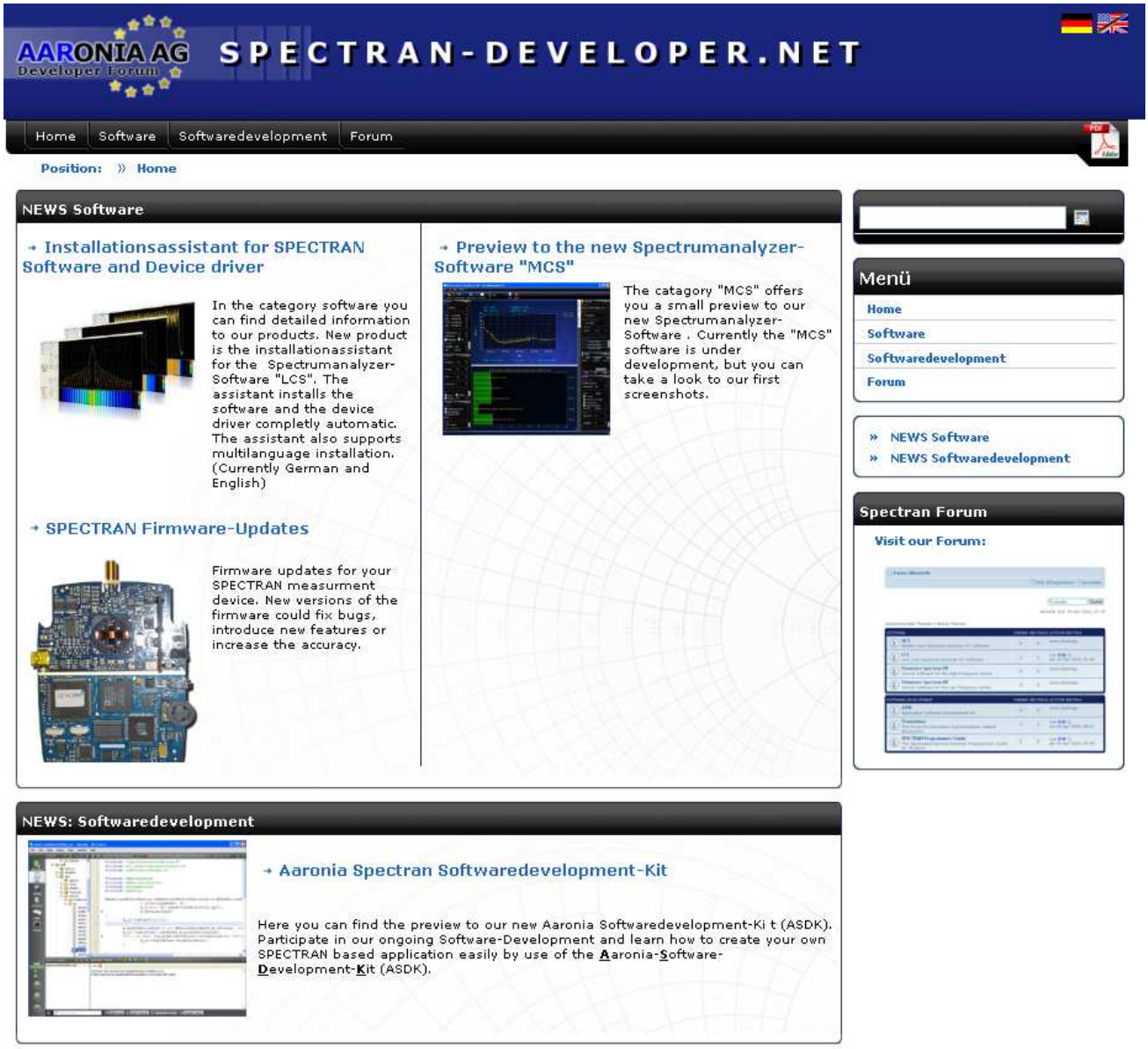
**Guaranteed upgrade service to „higher-value models“.**
Your can exchange your UBBV-preamplifier, just by paying the differential amount, for a **higher-value model of the same series** (e. g. UBBV1 to UBBV2) at any time.

**Guaranteed exchange when launching new models.**
Once we are launching new devices, you can at any time exchange your UBBV-preamplifier, just by paying the differential amount, for a new version of your choice.

**10 years warranty on all models.**
We offer 10 years warranty for all our UBBV-preamplifiers (battery excluded). We promptly exchange defective units in a non-bureaucratic way.

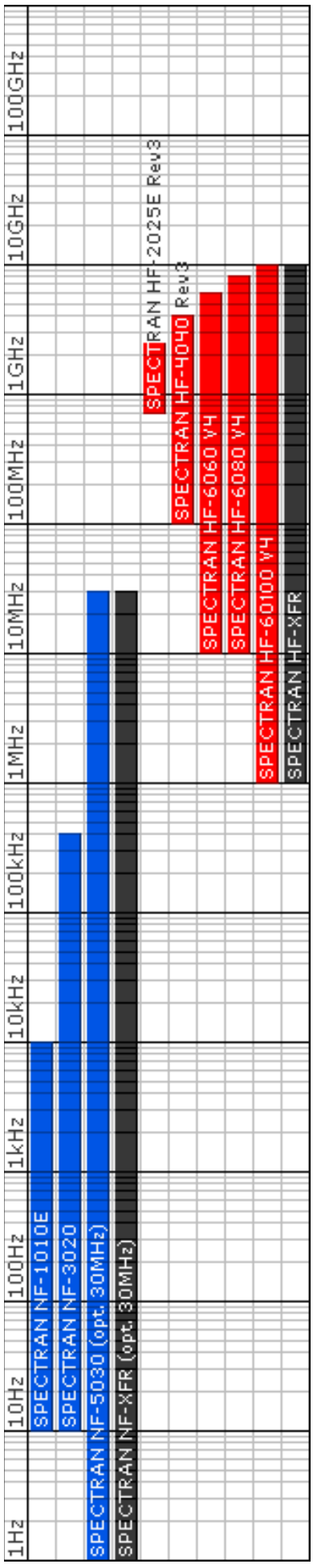
Please visit our **support website**:

**http://spectran-developer.net**




Here you can find e.g..:
- Free **Firmware updates**
- Free **PC Analyzer-Software** (for MAC OS, Linux and Windows)
- **P-CODE Programme, examples** and **SPECTRAN TUNING**
- **User Forum** incl. **FAQ**
- **News** about latest Aaronia products

## Frequency charts for SPECTRAN spectrum analyzers




## Frequency charts for HyperLOG and BicoLOG antennas and probes