ELPAS

KWS ELECTRONIC

HIGH FREQUENCY TEST EQUIPMENT

Upstream Monitoring System • UMS

AMA 310 UMS & VAROS 107

This System combines both the KWS devices AMA 310 and VAROS 107 to a high-end monitoring system for the return path. An AMA 310 with UMS option in the 19“ adapter (5 RU) is deployed in the headend, the cable handheld VAROS 107 in the field.

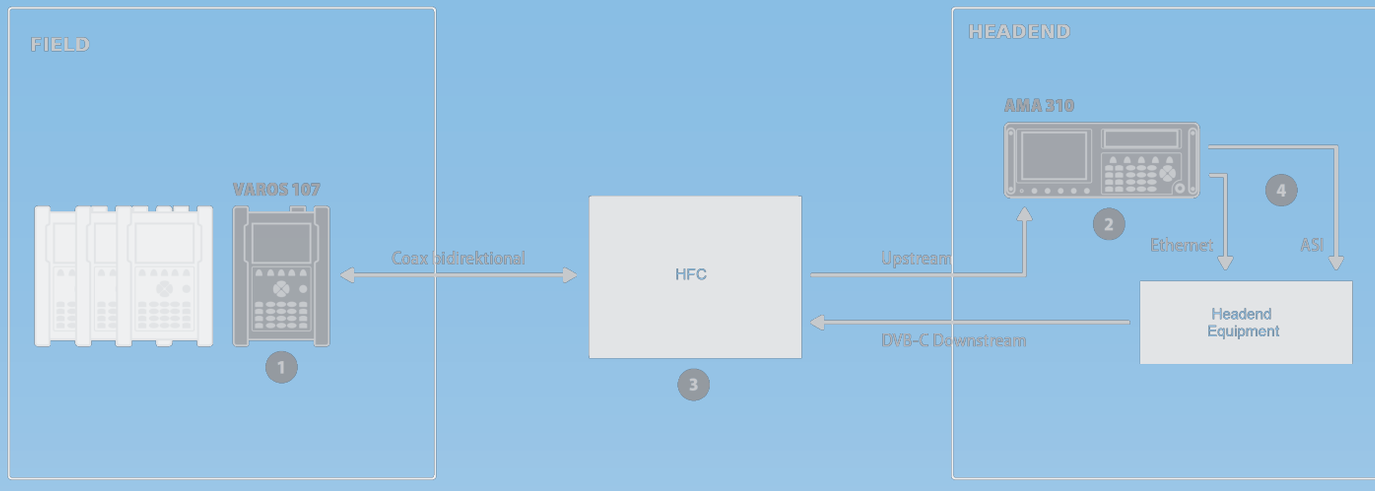
Both devices communicate over the coaxial or HFC network that being currently measured. An Internet connection is therefore not necessary. The key component of the AMA 310 UMS is a real time spectrum analyzer.

Common errors are reliably detected, for example, an increased noise floor, brief ingress interferers, or an inclined position in the upstream frequency range. In addition, known RF measurement parameters such as MER, BER and constellation diagram can be recorded from the upstream and returned to the VAROS 107 field devices. In addition, the test signals sent from the field devices are measured to a highly degree of accuracy using the AMA 310.

The ease of use, numerous measurement possibilities, automated test sequences, and a simple and clear report function for documentation complete this monitoring system.

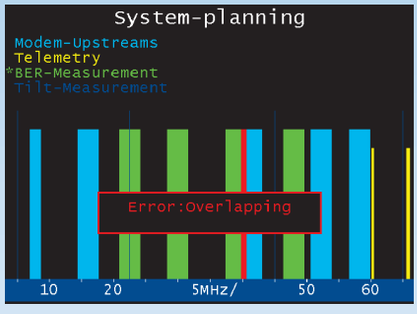
KEY Features (Upstream Frequency Range)

- Real-time Spectrum view with Peak Hold function
- Waterfall Diagram
- Measurement of MER/BER and Constellation Diagram of modulated Test Upstreams
- Comfortable Line-up for Return Channel Amplifiers
- Frequency Response diagram with sweep function
- Automatic Measurements with exportable Report creation as XML files
- Data communication bi-directional over HFC-Network (no additional Internet connection necessary)



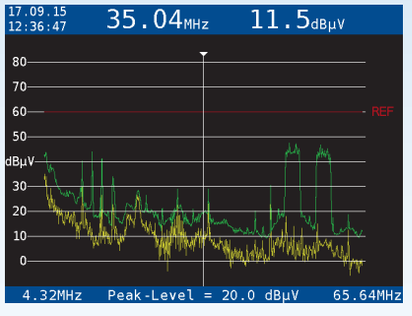
Block Diagram

1) Field Devices VAROS 107, communicate bi-directional via the COAX network with the headend device without any other connections
2) Headend Device AMA 310 which receives the upstream channel in the headend
3) HFC – Hybrid Fibre Coax Network
4) MPEG-2 Datastream output with all measurement and telemetry data via Ethernet (UDP/RTP) or ASI out



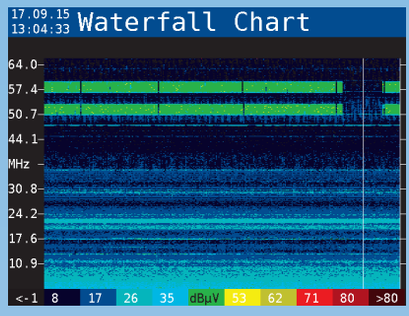
Graphical guided configuration tool in Headend Device

Complete configuration of the frequency system plan is graphically guided in the headend device. At that device all information for the field devices can be preset and will be distributed via MPEG-2 data transport stream to the field device. The big adavantage is, that at field device side no additonal settings by the field technicans are necessary.



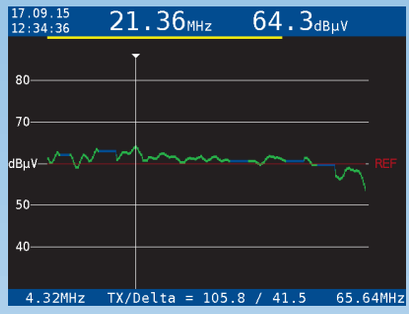
Real-time spectrum view at VAROS 107

This fielddevice view shows the received spectrum of the complete return channel range by the headend in real time. A freely moveable cursor and a predefined reference level help line completes that view. Additionally a peak hold line can be added to detect also very short ingresses and modem bursts.



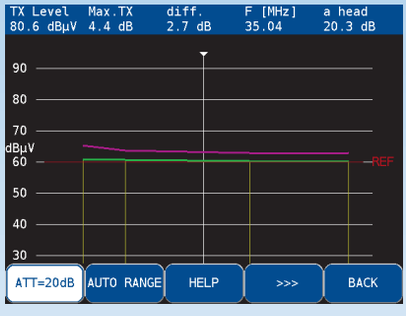
Waterfall diagram at VAROS 107

The continiously running waterfall diagram is a pseudo 3D view of the received spectrum data. With this view also short ingress and noise can be shown. The view can be shown in two different level-dynamic ranges , one for the full dynamic range, and the other one optimized for modem upstreams.



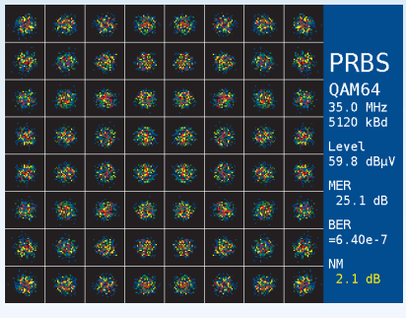
Sweep function at VAROS 107

With the sweep functionality a complete frequency response of the return channel range can be measured.
To allow measurements during active modem communication, DOCSIS upstream channels are skipped while sweeping.



Comfortable Line-up assistance for return channel amplifiers at VAROS 107

Line-up of different types of return channel amplifiers with a guided measurement. With this feature an easy and reliable line-up of amplifiers in the house-installation as well as for amplifiers in the line is possible. Also measurements at attenuated testpoints of amplifiers are possible.



Complete Channel parameters can be measured

Modulated transmissions from the field device will be completely measured by the headend device and the results like MER, BER, noise marging (NM) and constellation diagram can be shown at the field device in real time.

Reporting and automatic measurement

Reports are created by automatic Measurement and will be exported as XML file, which is compatible with common table caclulation tools. A report includes the measurement results of transmitted test channels from the field device to the headend device in the upstream range, a complete frequency response and measuring results from predefined (by headend device) DVB-C and DOCSIS channels in the downstream range.

Technical Data of UMS Option in Headend Device AMA 310

TS-Output as MPEG2	Interface:	ASI Out Ethernet 100 Mbit (UDP/RTP)
	Data rate	< 700 kBit/s
Real-time spectrum	Frequency range	4.32 – 65.76 MHz
	Measuring range	0 – 120 dBµV
	Resolution	0.1 dB
	Measuring accuracy	± 1.5 dB (@ 20°C) ± 2.0 dB (0°C – 40°C)
Measuring Parameters	**MER (with QAM-PRBS signal)**	
	Measuring range	up to 40 dB
	Resolution	0.1 dB
	Measuring accuracy	± 1.5 dB
	BER (with QAM-PRBS signal)	
	Depth of measurement	$1.00 \cdot 10^{-8}$

www.kws-electronic.de

KWS-Electronic GmbH • Tattenhausen • Sportplatzstrasse 1 • Fon 00 49.80 67.90 37-0 • Fax 00 49.80 67.90 37-99 • info@kws-electronic.de