

Arbitrary Resources Launches Test Solution to Perform Advanced Digital Broadcast Signal Analysis for the Tektronix Real-Time Spectrum Analyzers

DBA Software with the Tektronix Real-Time Spectrum Analyzers, the Most Advanced Solution for Complete Digital Broadcast Signal Analysis in the Time, Frequency, Modulation, and QoS Domains with an Easy Hardware and Software Integration with Content Analysis Tools

Barcelona, Spain, April 1st, 2008 – Arbitrary Resources, S.L., a R&D and Consulting company for the T&M Industry, announced **DBA**, a Digital Broadcast Analysis software application for the Tektronix RSA3000 series of Real-Time Spectrum Analyzers (RTSA). **DBA** extends the area of application of the Tektronix RTSAs by expanding their modulation analysis capabilities to the DVB-T/H COFDM based terrestrial broadcasting standards. New capabilities in **DBA** include modulation accuracy and Quality-of-Service analysis, multi-domain transient characterization, and easy integration with content analysis tools.

The **DBA** performance and analysis features enable users to full characterization and validation of DVB-T/H signals for R&D, manufacturing, deployment, and maintenance of digital broadcast equipment, as well as advanced diagnosis of digital broadcast transmission networks. **DBA** along with the Tektronix RTSA is the perfect complement to supervisory equipment popular in broadcasting networks, capable of detecting network problems but with limited analysis and diagnosis capabilities. **DBA** can be applied to all the DVB-T/H usage areas as it can analyze baseband I&Q, IF and RF signals with a single instrument. Additionally, Tektronix RTSAs extend the analysis capabilities to the μ W range used in fixed and mobile contribution links. The **DBA/RTSA** combination offers one of the highest performance modulation accuracy analysis available, with intrinsic MER (Modulation Error Ratio) in the 48dB range, necessary to test state-of-the-art transmission equipment.

"**DBA** adds to the Tektronix RTSA platform all the extra analysis capabilities necessary for successful DVB-T/H signal characterization and diagnosis," said Joan Mercadé, General Manager, Arbitrary Resources, "and it does so by leveraging the excellent signal acquisition performance already available in Tektronix' RTSAs. Extremely fast transient analysis, involving tens of thousands of OFDM symbols captured using the unique trigger features available in the Tektronix equipment, and the capability to export any Transport Stream (TS) being carried by the signal open new domains in signal analysis, which allow full diagnosis of virtually any signal problem."

DBA adds analysis capabilities such as modulation accuracy, constellation diagram, channel response characterization, and quality of service parameters, all of them according to the DVB's TR 101 290 measurement standard. **DBA** extends analysis even further by easing the correlation between multiple domains of the signal such as time, frequency, modulation, and contents. New exclusive analysis functionality such as MERgram (MER vs Carrier vs Time) allows for easy detection and diagnosis of interference signals even if they are pulsed.

Full DVB-T/H Support

DVB-T/H are very complex signals requiring analysis at multiple levels. Correlating results from different layers is a must when diagnosing problems in a piece of equipment, a transmission site, or a complete network. Additionally, DVB-T/H signals allow network operators to select multiple signal characteristics such as the channel bandwidth OFDM mode, carrier modulation scheme, guard interval, and signal protection level. **DBA** supports any combination of them according to the DVB standards including 2K/4K/8K modes and 5, 6, 7, and 8MHz channel bandwidth. Analysis settings may either be manually set-up or automatically detected, depending of the signal characteristics and the TPS (Transmission Parameter Signaling) information. Basic signal parameters such as frequency and bit rate error are also analyzed. Tektronix Real-time Spectrum Analyzers already offer multiple spectrum visualization and analysis functions such as CCDF, signal power, and spectrogram. **DBA** adds all the additional spectrum related measurements specified by the DVB' TR 101 290 standard: Shoulder Attenuation (left, right, and mean) and Spectrum Flatness. Quality-of-Service measurements include Errors before Viterbi, Errors before Reed-Solomon, and PER (Packet Error Ratio). Channel response analysis shows channel impulse response, and magnitude/phase vs frequency response. Full modulation quality analysis according to the TR 101 290 standard and constellation display may be based in the full signal or in any combination of user-selected carrier and symbol ranges. Up to four simultaneous analysis displays may be selected at any time.

Unique Transient Behavior Analysis

Tektronix Real-Time Spectrum Analyzers architecture opens the door to transient capture and characterization. Triggered seamless captures of many seconds are possible. Frequency Mask Trigger may be used to isolate high spectral growth episodes, such as transmitter clipping, while external trigger may start captures based on content errors detected by an external TS analyzer. Capturing thousands of OFDM symbols allows for complete transient characterization. **DBA** makes possible to analyze such long captures thanks to its high analysis speed, capable of fully analyzing tens of symbols per second. All the modulation and spectrum quality measurements as well as the quality-of-service analysis is performed in a symbol-by-symbol basis, so correlation of causes and effects is easy. The unique and exclusive MERgram analysis tool uncovers previously difficult to catch and characterize impulsive interferences allowing an easy problem diagnosis.

Easy Integration with the RTSA Analyzers and External Tools

DBA is designed to run in the RTSA' embedded computer or as an external application. It can run interactively with live data being capture by the analyzer or as an off-line tool working on files previously captured by any RTSA analyzer. It can even work interactively with remote RTSA through any Internet connection. Interactivity is guaranteed as **DBA** is capable of showing live MER measurements at one reading per second rate, making possible a comfortable and quick transmitter alignment procedure. Supported instruments include the RSA3303A/B, RSA3308A/B, RSA3408A/B, WCA230A, and WCA280A. Available software options for the Tektronix RTSA analyzers make them useful in analyzing mixed mobile telephony/broadcast networks. All graphical and textual information generated by the **DBA** application may be exported in ASCII format so it can be further analyzed and/or documented using external software tools. Finally, the **DBA** Transport Stream extraction feature allows the user to link the time, frequency, and modulation domains with the content domain. Extracted Transport Streams can be analyzed using tools such as the Tektronix MTS4SA or simply played back.



Press Release-DBA

For more information on these and additional features and capabilities, please contact Arbitrary Resources at <http://www.arbitraryresources.com>.

Pricing and Availability

Version 1.0 of **DBA** is ready for delivery. **DBA** is available for €9,900. All prices are E.U. MSRP.

About Arbitrary Resources, S.L.

Arbitrary Resources, S.L. is a R&D and consulting services provider for the Test & Measurement Industry. It specializes in extending the measurement capabilities of existing equipment to successfully serve new areas of application, such as wireless and broadcast testing. With more than 20 years of experience in the measurement business and the development of complete solutions, Arbitrary Resources develops OEM software packages, participates in big projects for major T&M manufacturers, and adapts world-class technology from leading research groups in universities for commercial use. Headquartered in Barcelona, Spain, Arbitrary Resources works with customers located in Europe, USA, and Asia. Arbitrary Resources' Web address is www.arbitraryresources.com.