



Broadcast Electronics

the
radio
experience

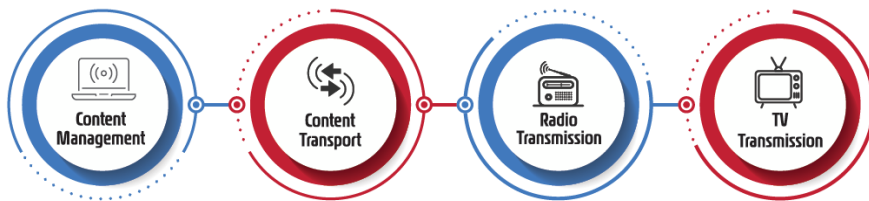
TRE
plus

Datacasting Platform: Deliver visual messages to car dashboards and enable new revenue streams

Overview

Broadcast Electronics has an over 65-year legacy of providing innovative technology to enable radio and TV broadcasters to deliver compelling content to their audiences and create revenue-generating business opportunities. Supporting global innovation and next generation content delivery, Broadcast Electronics embodies a customer first approach to the market from the company's headquarters in Quincy, Illinois in the United States.

Customer focused solutions from Broadcast Electronics are built on four technology areas:

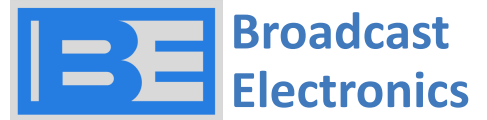


AudioVault is BE's award-winning suite of Content Management software enabling live and automated program creation and playout, news solutions and digital logging as well as data management.

The Marti range enables content Transportation, powering audio contribution and distribution for point-to-point (STL) wireless connectivity.

Radio Transmission is the heart of Broadcast Electronics with multiple product lines to support AM and FM transmission. The BE STX line of HD Radio® ready FM transmitters provides superior sonic quality and low operating cost. BE ETX analog FM transmitters deliver compact, energy efficiency in a cost-effective package. The BE AM line of transmitters provides for rugged, reliable, energy efficient peace of mind for your AM radio station.

Broadcast Electronics complete line of **low and high-power TV transmitters** are designed around a software defined core exciter that can cover all the global analog and digital TV standards. With solutions covering UHF and VHF frequency bands and air-cooling configurations, BE can craft the right solution to meet your technical, budgetary and operating requirements.



Broadcast Electronics is a global technology company dedicated to driving innovation in broadcast technology providing market leading solutions for software-based content management, Radio & Television transmission, and scientific applications of radio frequency devices.

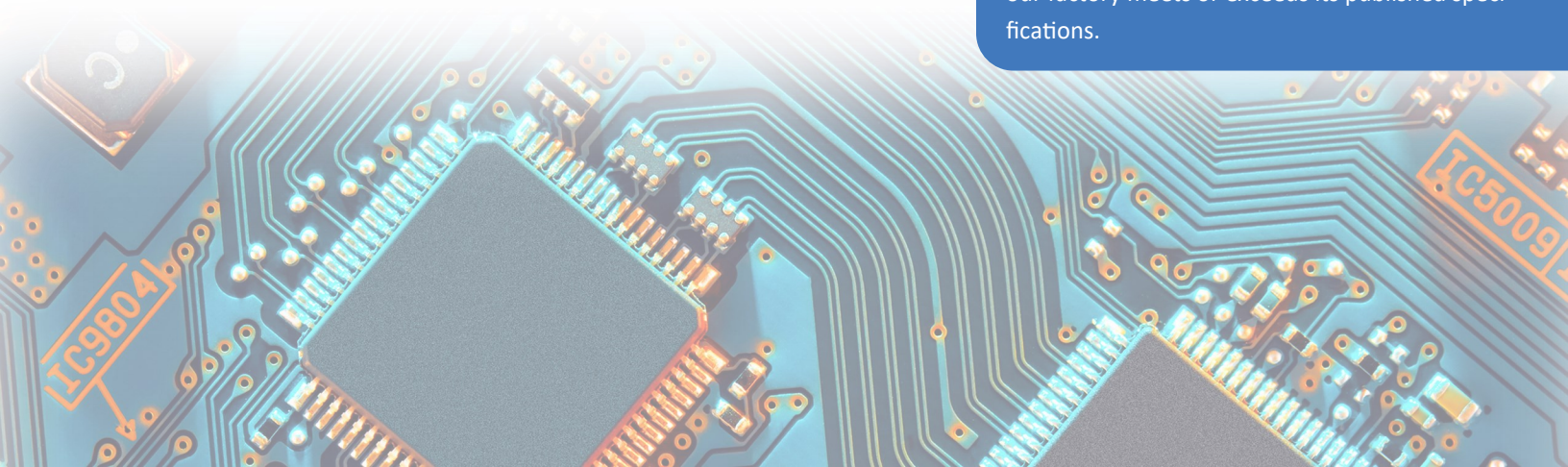
Broadcast Electronics, has been providing high-tech solutions for broadcasters for more than 65 years in over 170 countries. All of our products and services come from a heritage of creativity and innovation unmatched in the industry, focused on developing innovative solutions for customers problems.



Every major innovation that shaped modern radio originated in Quincy, and it is here that BE products are designed, supported and manufactured today.

Our facility in Quincy employs the latest instruments for research, new product design, prototype fabrication and testing.

We take advantage of the best practices of automated production, adding human attention to detail to ensure every product that leaves our factory meets or exceeds its published specifications.



The Radio Experience

TREplus

The delivery of radio and audio content continues to evolve across multiple different technologies which enable a rich user experience combining visual content – text, images, contextual data – along with audio.

The Radio Experience – TREplus from Broadcast Electronics is the original and most powerful comprehensive software platform that empowers radio operators to increase engagement with their listeners by managing the delivery of visual content to accompany the audio they are delivering.

TREplus manages data across all the multiple audio delivery methods – Analog FM – RDS, HD Radio®, DAB, streaming, mobile apps, station website.....wherever your audio goes.

TREplus allows you to provide an increased connection with your community, adding up-to-date song titles and artists for the music you play, station promotions, news headlines, weather, and local events, and even enables advanced advertising options to deliver new incremental revenue.

Why Visual Content Matters

High-resolution screens are finding their way into every part of our day-to-day lives, and the car dashboard is no exception. With new features ranging from government-mandated backup cameras for safety to touchscreen control of the climate in your car, automakers are including larger and more capable displays with full-color capability into cars at a record level. The car radio is evolving into a highly capable infotainment system with dynamic content display capability. In fact, over 80% of cars on the road today can display visual content using proven RDS technology on analog FM radio and over 25% of vehicles can display enhanced full-color graphics and text using HD Radio or hybrid radio technology according to Xperi.

In a recent blog, radio network Westwood One outlined the impact of having visual content in addition to the primary audio program ming based on the results of studies they had undertaken with MARU/Vision Critical, along with another study done by Nielsen clearly shows visual content gains the attention of radio listeners at an impressive level.



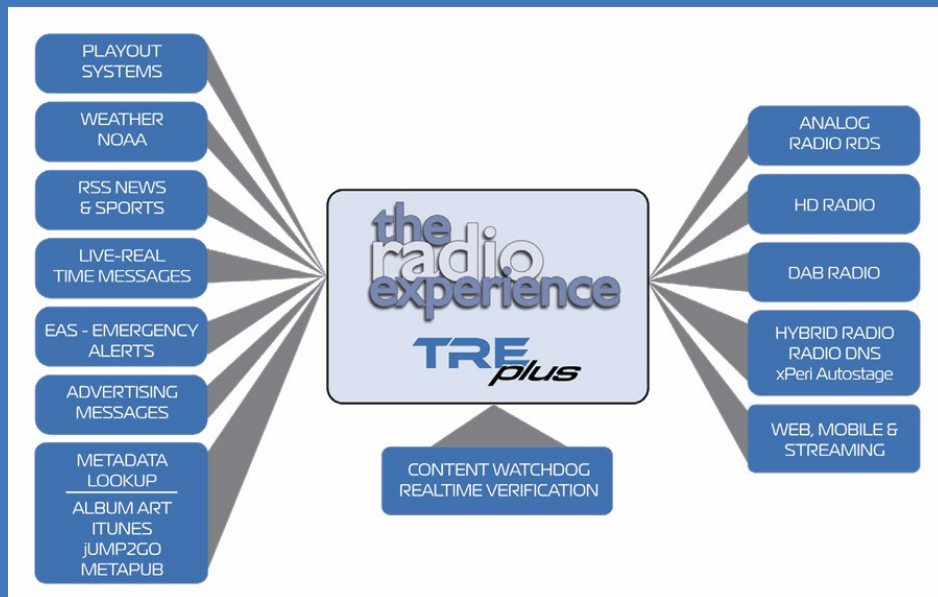
80%
of cars can
display visual content

- Nearly 70% of regular radio listeners pay attention to content on the display screen
- Two-thirds of regular radio users recall seeing visual content displayed on the car dashboard and recall the retailer's radio ads – an increase of 30% over messages with no visual content
- Nearly 85% of listeners who recalled the radio ad with visual content indicated they planned to or had visited retailers' locations – 12% more than those who didn't see visual content.
- Over half of the ad agencies surveyed were familiar with visual display technology in cars, and of those who knew about it – nearly 75% were interested in using visual content along with radio ads. Even more compelling they indicated a willingness to pay a nearly 15% premium to include visual content.

Using the combination of sound and visual content is a powerful tool for radio operators to build a deep connection with their listeners, community, and advertisers. The Radio Experience – TREplus simplifies the delivery of compelling visual content and provides a platform for broadcasters to increase the bond with their listeners and community and enable new revenue streams.

Managing Metadata

The Radio Experience – TREplus provides a simple and seamless interface between the sources of metadata to accompany your content, and the multiple platforms that you reach your listeners on. Our hosted software platform links to all the major audio playout systems, programs service providers, open-source music, news, and weather feeds, as well as your station branding, advertising, and messaging. All of the sources are scheduled, monitored, and managed to provide a clean and visually appealing feed to consumers via radio, streaming, web pages, and mobile apps – wherever your listeners consume your content.



delivers flexible solutions to match your objectives

We understand that each broadcaster operates with different objectives and requirements, and we have tailored TREplus to allow you to start small and grow as you grow.

Basic: Station call letters and branding, song artist and title information, station personality promotion, news, weather and other basic program associated data can be visually displayed.

Message Manager - Advertising: Enhancing everything in the basic level, supercharge your visual content with tools to create, schedule, and manage promos, ad flights, messages linked to audio and more. With a complete logging and reporting system built in, Message Manager is the premier tool for adding revenue generating capabilities to your visual content stream. The message manager level also provides connectivity to Hybrid Radio platforms like Radio DNS and Xperi Autostage.

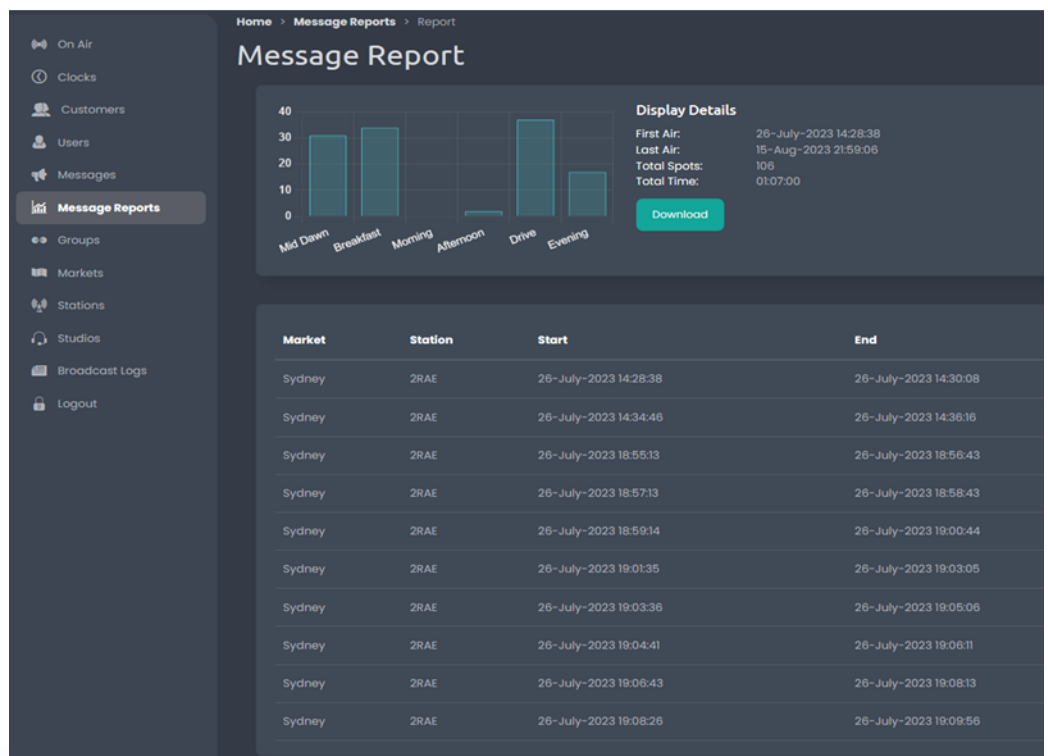
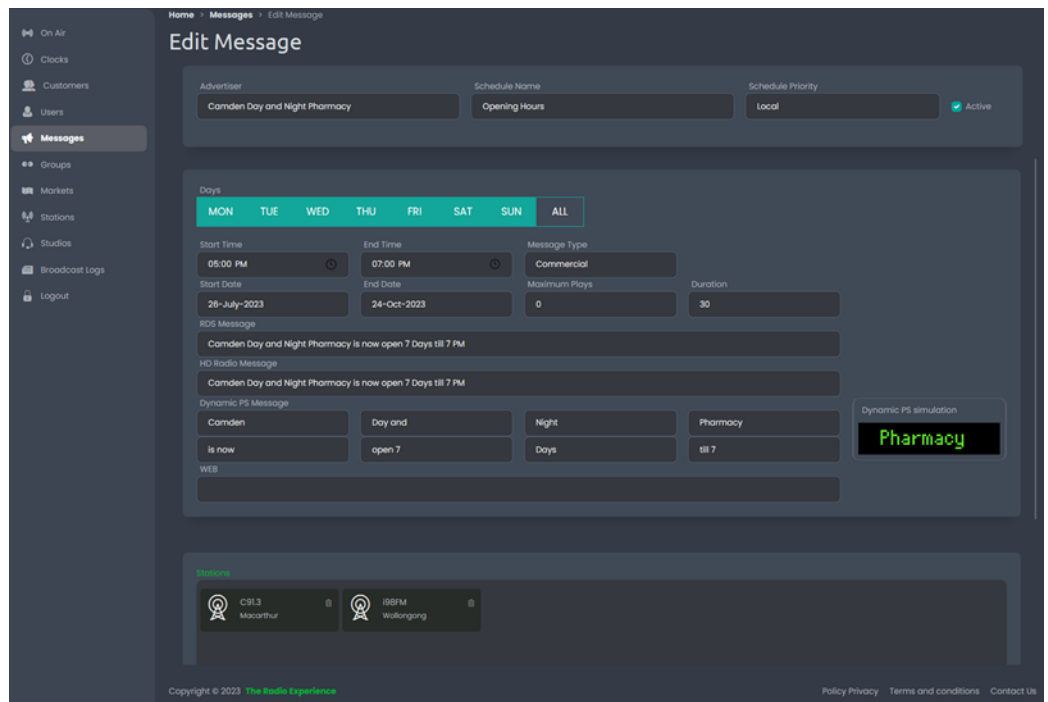
Network: Ideal for groups or multi-station operations, the Network level expands message manager with the ability to organize and manage multiple stations in groups, regionals, formats with a flexible structure you need to target advertisements and messages across multiple stations with the click of a mouse. Open new revenue opportunities by opening visual sponsorships to regional and national advertisers. The network level also offers BE's exclusive Content Watchdog, featuring powerful AI technology to verify that the actual messages you send are received and displayed on the radio – the industry's only closed loop system.

All levels provide for inputs from all the popular program sources and leading automation systems for a single stream of content with multiple outputs for RDS, most popular streaming services, station website and mobile apps. Adding display capability for HD Radio is a simple software key you can turn on at any time.

Powerful and Intuitive User Interface

Create, edit, and schedule messages with the click of a mouse from anywhere with the TREplus browser based user interface. Craft messages that elevate your station brand and deliver impact for your advertisers to accelerate revenue growth. Tailor the content separately for Analog RDS and Digital Radio like HD Radio, DAB, and others, and even verify what the dynamic PS message will look like on the radio while you create it. We have simplified scheduling your messages across dayparts, days of the week, and even multiple stations in your local market, region, or national footprint. Creating and scheduling your messages is just the beginning of what TREplus can do for you.

Extensive monitoring and reporting capabilities allow you to accurately log when and how often your message is displayed. This simplifies any billing or contract performance requirements including managing common messages and advertisers across multiple stations on a single report



The digital dash has elevated consumer expectations – TREplus arms you to deliver impactful visual content and drive new revenue.

Consumers are expecting to see visual content along with their favorite audio programs – your station can capture their attention and increase engagement using the powerful tools from The Radio Experience - TREplus. Once consumers experience having relevant visual content in the car, only seeing your frequency gives the impression something is lacking. Make your station more relevant and dynamic with visual station branding, and music awareness, and take your advertiser's message to the next level with compelling text offers, graphic images, and even QR codes to drive immediate response.

Broadcast Electronics has eliminated upfront capital costs with a simple pay-as-you-go model that allows you to make new revenue and cash in your pocket out of the gate. Start engaging your audience and making incremental revenue today.



Analog Radio - No RDS



Analog Radio TREplus - Song Title & Artist



Analog Radio TREplus - Station Branding



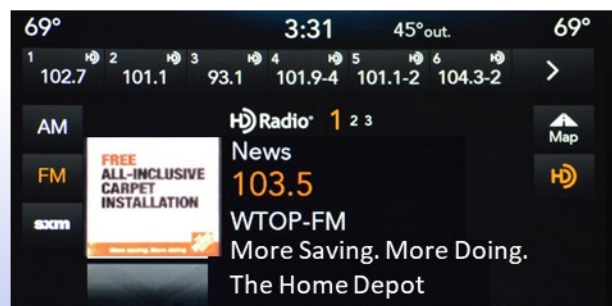
Analog Radio TREplus – Advertising



HD Radio TREplus - Station Branding



HD Radio TREplus - Album Art



HD Radio TREplus - Advertising



HD Radio TREplus – QR Code

BE's The Radio Experience – TREplus Delivers Incremental Revenue

Top 25 Market: A top broadcast group deployed TREplus on their cluster of 5 stations in a midwestern US market, with great success. They offered an exclusive sponsorship for a single advertiser per station to have a visual ad displayed on radios during each commercial break per hour, 24 hours a day seven days a week. They quickly secured an annual contract for over \$60,000 per station to several key advertisers including an attorney, healthcare provider, and financial services company. The group was able to grow new revenue by more than \$300,000 annually leveraging the power of The Radio Experience from Broadcast Electronics.

Top 200 Market: A West Coast broadcaster added TREplus during a recent upgrade of their BE AudioVAULT playout system to streamline the display of artist and title information on in-dash displays. Upon learning about the advertising capabilities, the system can enable, they presented and secured an annual contract with a major car dealership across their three stations for over \$45,000 in new revenue.



Service and Support

We know that having the right support behind a product is every bit as important as the features and capabilities it delivers. At Broadcast Electronics we are committed to provide you with not only great products and software, but a dedicated team of service experts to help you keep your station running smoothly for years to come.

Training

Broadcast Electronics has long provided training programs for our products to educate and prepare users to operate and maintain them in the most effective possible manner. Training is offered for all styles of transmitters and Audio Vault systems, featuring a mix of instruction with hands-on operation and troubleshooting. Training programs can be crafted to meet your local needs, offered in our facility, at your location or online. Many of our programs can provide SBE ongoing educational credits.

Warranty

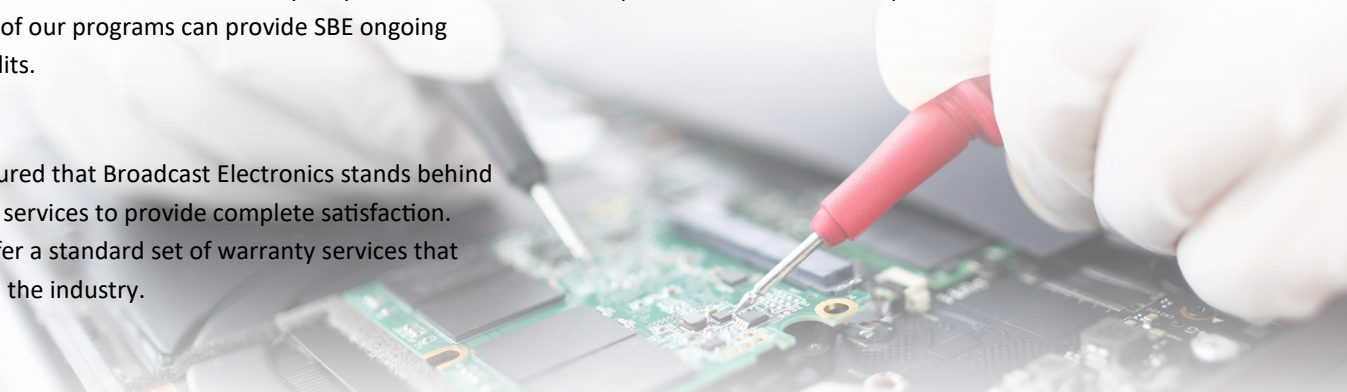
You can rest assured that Broadcast Electronics stands behind its products and services to provide complete satisfaction. Our products offer a standard set of warranty services that exceed others in the industry.

Repair Service

As a leader in providing innovative products and solutions to broadcasters around the globe, Broadcast Electronics understands the needs for long life and years of trouble-free service. You can feel secure that if disaster strikes and your products need service, we offer complete repair and refurbishment service to get you back on the air delivering your high-quality programming quickly.

On-Site Service and Installation

Regardless if you simply need some additional help troubleshooting an existing transmitter or Audio Vault system, or a complete installation of a new one, let the global service team at Broadcast Electronics help you get things up and going quickly. If you just need commissioning, on site set up and test, or an extra pair of hands, we can help with that too.





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