

Newglee Technology Digital Radio Broadcasting End to End Solution



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About Newglee

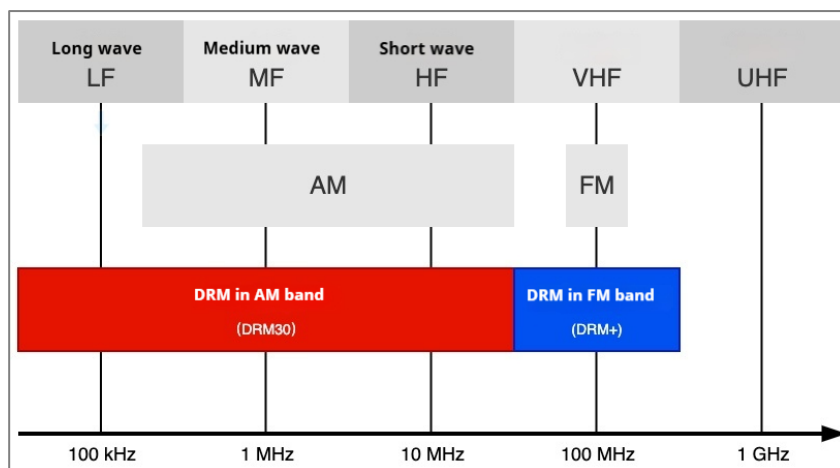
Chengdu Newglee Technology Co., Ltd. was established in early 2025 with a registered capital of RMB 10 million. Headquartered in Chengdu, Sichuan, the company operates two R&D centers in Chengdu and Shenzhen, as well as three production bases in Chengdu, Shenzhen, and Dongguan.

The company specializes in DRM digital sound broadcasting and, guided by the core concept of “end-to-end delivery”, has established a full-chain product portfolio covering media encoding, signal modulation, RF transmission, and terminal reception. Since its foundation, the company has continuously expanded its product lineup—from foundational encoding and modulation equipment to high-performance receiver modules, professional vehicular antennas, software-defined radio (SDR) reception platforms, and all-standard in-vehicle integrated solutions. It is among the first companies worldwide to deliver a complete end-to-end DRM solution, earning broad recognition from customers both domestically and internationally.

Newglee’s R&D team has accumulated multiple proprietary technologies and patents in DRM digital broadcasting technologies. Leveraging an innovative SDR architecture, the company extends its core technological advantages into a wide range of application scenarios. To date, it has developed a comprehensive product matrix spanning device integration, in-vehicle reception, professional monitoring and coverage evaluation, as well as the automotive OEM market—providing reliable technical support and services to broadcast operators, equipment manufacturers, and industry users across multiple countries and regions.

Looking ahead, Newglee will continue to increase R&D investment, leveraging the flexibility of software-defined architectures and a multi-standard convergence strategy to drive the large-scale adoption of digital sound broadcasting and support the global broadcasting industry in achieving a smooth digital transformation.

About DRM



Digital Radio Mondiale (DRM) is an open international standard for digital radio broadcasting systems. This technology aims to provide high-quality digital audio and data services for Shortwave (SW), Medium Wave (MW), and Long Wave (LW) bands, and has been successfully extended to the VHF/FM band (known as the DRM+ standard).

The DRM system holds a solid international standard status. It has been adopted by the International Telecommunication Union (ITU) as a recommended standard for global digital broadcasting (ITU-R BS.1114), and its core standards are published by the European Telecommunications Standards Institute (ETSI) (ETSI ES 201 980), establishing DRM's authoritative position in the global digital broadcasting field. With extensive application and deployment in many countries and regions around the world, DRM has proven to be a mature, reliable, and future-oriented digital radio broadcasting technology solution.

Spectrum Compatibility and Deployment Advantages

The DRM system is thoughtfully designed with full consideration for compatibility with existing analog broadcasting. It utilizes the existing Amplitude Modulation (AM) broadcasting bands and adheres to the 9 kHz or 10 kHz bandwidth step requirements from the initial design stage. This "In-Band" feature enables DRM to coexist and smoothly transition with existing analog transmissions worldwide, achieving a steady migration to digitalization while protecting broadcasters' existing spectrum investments.

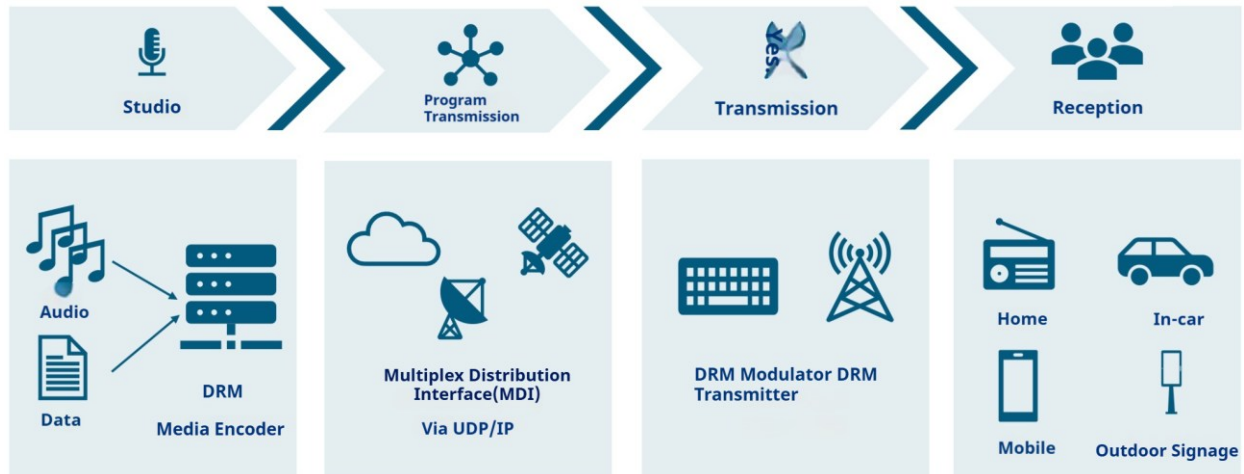
Signal Modulation and Anti-Fading Capabilities

DRM adopts advanced COFDM (Coded Orthogonal Frequency Division Multiplexing) as its core modulation technology to cope with complex and variable wireless propagation environments. COFDM distributes digitally encoded audio and data signals across a large number of closely spaced orthogonal carriers for simultaneous transmission, significantly enhancing the signal's resistance to multipath effects, interference, and frequency-selective fading. The system also incorporates time interleaving technology to further mitigate the impact of deep fading on data packets, thereby improving the robustness of signal reception. Various parameters of COFDM and coding (such as guard interval, interleaving depth, and coding rate) can be flexibly adjusted, allowing broadcasters to find the optimal transmission combination based on propagation conditions, transmission power, data capacity, and robustness requirements.

Audio Coding and Service Quality

In terms of audio coding, the DRM system adopts Unified Speech and Audio Coding (USAC), also known

as MPEG xHE-AAC (Extended High-Efficiency Advanced Audio Coding), as the main standard. As an ISO/MPEG audio standard, USAC provides backward compatibility with other AAC family profiles. By combining SBR (Spectral Band Replication) and PS (Parametric Stereo) technologies, DRM can deliver high-fidelity audio experiences close to FM quality at extremely low data rates, fundamentally improving the listening quality of traditional AM broadcasting.



Typical DRM Broadcasting Chain

The DRM system not only provides high-quality audio broadcasting but also supports rich value-added services and key functions:

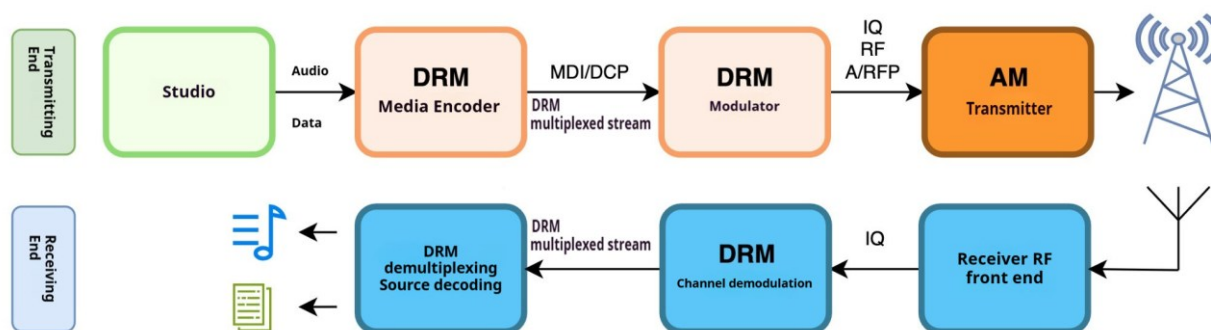
1. **Basic Broadcasting Service Upgrade:** An ideal choice for upgrading basic broadcasting services, delivering high-fidelity, noise-free digital audio broadcasting in medium and shortwave bands.
2. **Multimedia and Data Service Capabilities:** Leveraging its multiplexing characteristics, it can simultaneously transmit multiple types of digital information such as audio, text, images, streaming media, and interactive applications within a single transmission channel, realizing "broadcasting + internet" applications.
3. **Emergency Warning Functionality (EWF):** A crucial public service tool. In the event of natural disasters or other major public incidents, broadcasters can use this function to send real-time, accurate emergency warning messages to listeners mandatorily.
4. **Distance Education and Information Dissemination:** Utilizing the long-distance propagation characteristics of Shortwave (SW) and DRM's multimedia broadcasting capabilities, broadcasters can achieve global coverage across regions and continents at a low deployment cost, effectively sending educational content, health information, and technical materials to remote or underdeveloped areas, enabling widespread and low-threshold knowledge dissemination.

Why Choose DRM Digital Radio Broadcasting

Listeners, broadcasters, and regulatory authorities choose DRM as the standard for digital radio broadcasting for multiple reasons, including:

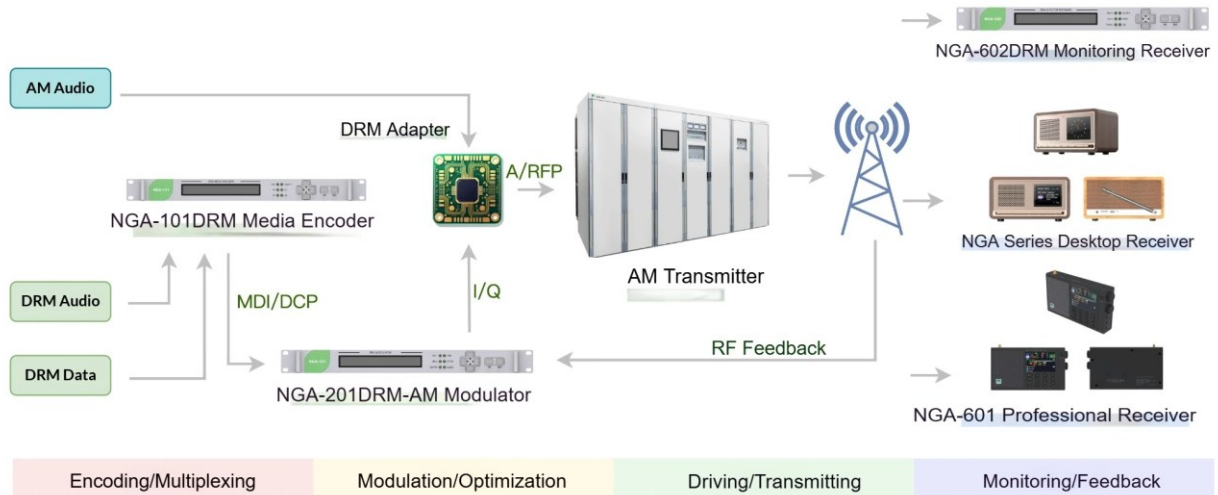
- **Optimized Listener Experience:** DRM delivers superior sound quality and reception, allowing listeners to enjoy clearer, high-fidelity audio—essential for music, radio programs, and voice content.
- **Multi-Channel Options:** DRM enables simultaneous transmission of multiple channels on the same frequency, providing listeners with more choices and diverse program content tailored to individual interests and preferences.
- **Expanded Coverage:** DRM digital radio broadcasting offers broader coverage, reaching areas inaccessible to traditional analog broadcasting. This allows broadcasters to expand their audience, increase market share, and serve more people.
- **Improved Energy Efficiency:** Compared to analog broadcasting, DRM can transmit over the same coverage area with less power, helping broadcasters save energy costs, reduce operational expenses, and contribute to sustainable development.
- **Efficient Spectrum Utilization:** DRM technology optimizes spectrum resource usage, supporting more channels and services. This is crucial for spectrum regulatory authorities, enabling more radio stations to operate and promoting the diversity and development of broadcasting services.
- **Global Standardization and Interoperability:** As an internationally standardized digital radio broadcasting technology, DRM boasts extensive compatibility and interoperability, facilitating coordination and cooperation among broadcasters and regulatory authorities worldwide to achieve interconnection and sharing of broadcasting services.

In summary, DRM as a digital radio broadcasting standard offers enhanced listener experiences, wider coverage, energy cost savings, efficient spectrum utilization, and global standardization. These advantages make it the preferred choice for listeners, broadcasters, and regulatory authorities.



DRM Broadcasting and Reception Flow

Newglee DRM Solution Overview



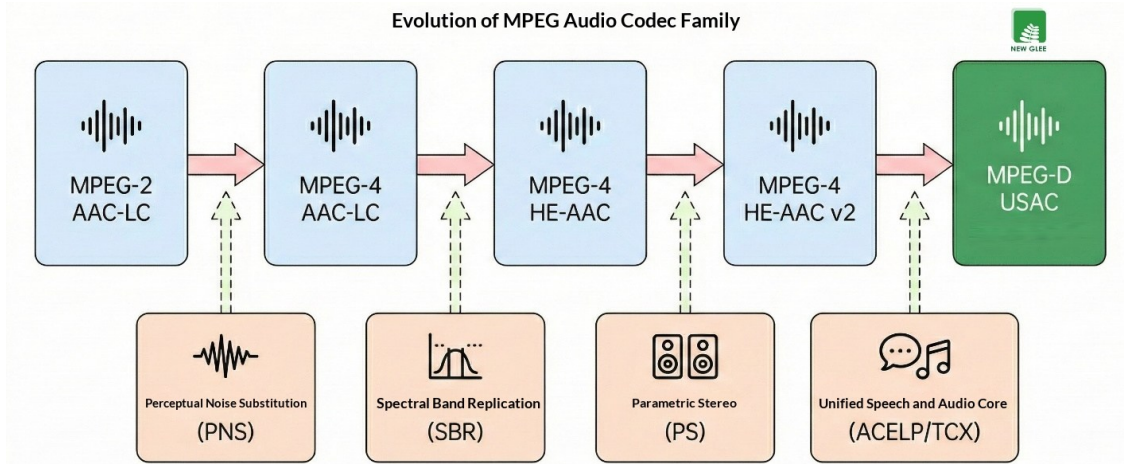
Newglee presents its comprehensive end-to-end DRM solution, designed to provide full digital radio broadcasting technology support for the broadcasting industry. As the global broadcasting industry undergoes digital transformation, with digital radio gradually becoming a global trend. As an advanced digital radio broadcasting technology, DRM (Digital Radio Mondiale) not only improves sound quality but also enables more diverse broadcasting content transmission and more efficient spectrum utilization.

Newglee's solution covers the entire chain from head-end equipment to receivers, helping radio stations achieve efficient and reliable digital upgrading and transformation. Our products include:

- **DRM Media Encoder NGA-101:** Advanced encoding technology delivering high-quality audio and data encoding and transmission.
- **NGA-201 DRM Modulator:** High-performance modulator ensuring stable signal transmission and high-quality audio output.
- **NGA Transmitter Adapter:** Seamless integration with transmitters to drive Envelope Elimination and Restoration (EER) transmitters.
- **NGA Series Consumer DRM Receivers:** Diverse reception options for consumers to enjoy high-quality digital radio broadcasting.
- **NGA-601 Professional DRM Receiver:** Used for professional monitoring and reception of DRM signals to ensure broadcasting quality.
- **NGA-701 DRM Receiver Module:** Designed for emergency broadcast reception, BeiDou ground-based augmentation reception, or integration into receiver systems.
- **NGA-602 Monitoring Receiver:** For broadcasters to monitor station transmission quality.
- **NGT-RX1 Vehicular MW/SW Active Antenna:** Provides a high-performance omnidirectional reception antenna for in-vehicle applications.
- **Type 5 SDR Professional DRM Digital Radio Receiver:** Provides professional users with comprehensive DRM reception and evaluation capabilities.

Newglee's DRM solution not only meets the digital upgrading needs of existing radio stations but also provides complete digital radio broadcasting support for newly built stations, helping customers achieve a smooth transition from analog to digital. We are committed to advancing the digitalization of the global broadcasting industry through advanced technology and high-quality equipment, bringing listeners a better and more diverse broadcasting experience.

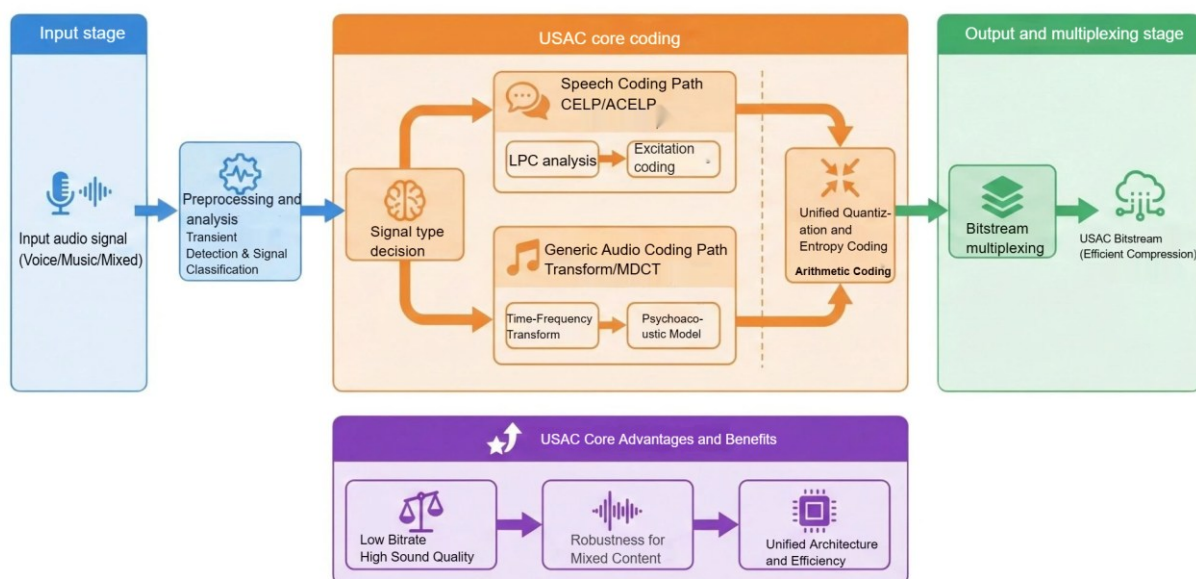
Next-Generation Audio Codec: USAC Application and Proprietary Implementation



In the development of Digital Radio Mondiale (DRM) technology, transmitting higher-quality audio within limited spectrum bandwidth has long been a key industry focus. With the maturity of MPEG USAC (Unified Speech and Audio Coding)—commercially known as xHE-AAC—the transmission efficiency of digital radio broadcasting has been significantly improved.

USAC is not a simple upgrade of AAC technology but a major evolution of the MPEG audio coding architecture. As the key audio codec specified by the DRM digital radio broadcasting standard, USAC primarily addresses the bottlenecks of traditional coding schemes in versatility and efficiency.

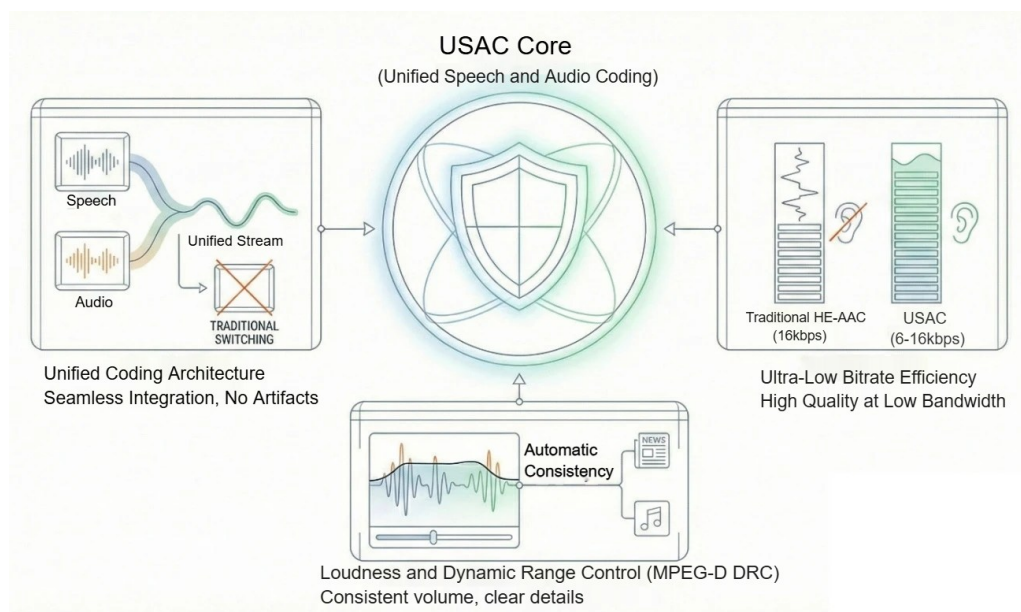
In early DRM standards, the coding system required selecting and switching between multiple encoders based on the type of source signal: HE-AAC v2 for general audio and CELP or HVXC for voice signals. This discrete architecture struggled to balance performance when processing mixed content (such as news with background music), and encoder switching could introduce audible discontinuities.



In contrast, USAC adopts a unified coding architecture for all scenarios, with key technical advantages including:

- **Unified Coding Model:** Integrates voice and general audio coding models, dynamically adjusting or mixing coding tools within millisecond-level frames based on input signal characteristics, eliminating artificial artifacts caused by hard encoder switching.
- **Low Bitrate Transmission Efficiency:** Excels in compression performance in low-bandwidth environments such as shortwave or crowded FM bands. Test data shows that clear mono voice can be transmitted at 6 kbps, and acceptable stereo broadcasting at 12-16 kbps—outperforming traditional HE-AAC at the same bitrates.
- **Loudness Control and Dynamic Range Control (MPEG-D DRC):** Incorporates mandatory loudness control to maintain consistent volume when listeners switch channels. For content with large dynamic ranges (e.g., classical music), this function ensures detail retention without volume overload in noisy environments like vehicles.

In terms of localized implementation of the USAC codec, Newglee Technology has achieved engineering application of USAC standard algorithms through independent R&D. By developing an independently owned USAC encoding and decoding library, Newglee has gained independent mastery of core algorithms, providing underlying technical support for the construction of digital radio broadcasting systems.



Based on its self-developed USAC core, Newglee has launched the Media Encoder NGA-101 (DRM Encoder-Multiplexer), designed for broadcasting applications with real-time encoding, stable long-term operation, and low resource consumption. As an integrated encoding and multiplexing device, NGA-101 supports DRM service multiplexing, enabling simultaneous transmission of multiple audio streams and data services such as text and images. In summary, USAC has become a key audio standard for next-generation digital radio broadcasting due to its high efficiency at low bitrates. Through NGA-101, Newglee has translated this standard into a practical engineering solution, supporting the digital evolution of the broadcasting industry..

Newglee DRM Transformation Cases

With years of experience and engineering expertise in the DRM field, Newglee provides digital upgrading and transformation services for analog radio transmitters, and has now become a leading comprehensive DRM solution provider.

Case Studies of DRM Transmitter Transformation



DX Medium Wave Transmitter Transformation:

Carrier Power **100kW**

DRM Output Power 40kW

ACPR > 40dB

MER > 35dB



DX Medium Wave Transmitter Transformation:

Carrier Power **10kW**

DRM Output Power 4.5kW

ACPR > 40dB

MER > 35dB



Medium Wave Transmitter Transformation:

Carrier Power **600kW**

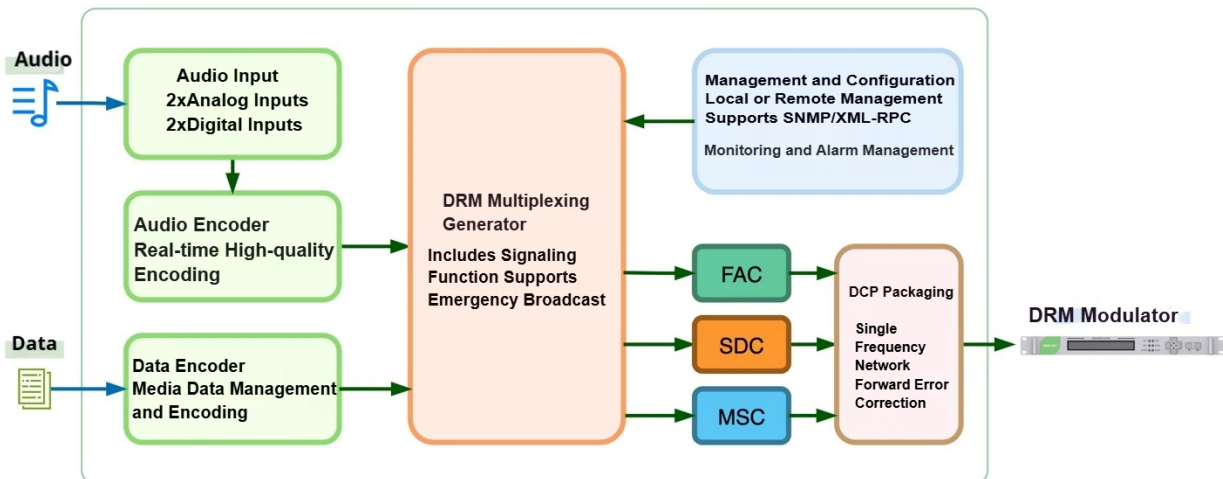
DRM Output Power 350kW

ACPR > 40dB

MER > 40dB

Newglee DRM Media Encoder NGA-101

The Newglee DRM Media Encoder NGA-101 is a highly reliable professional digital radio broadcasting system designed for audio and data encoding and multiplex stream generation for DRM (Digital Radio Mondiale) digital radio broadcasting. It supports all content and signaling options specified by the DRM standard, as well as all interfaces for seamless integration into the broadcasting chain.



Triple Functions

- ✓ **DRM Digital Radio Broadcasting Audio Encoder**
Supports multi-stream real-time audio encoding in MPEG Unified Speech and Audio Coding (USAC) format
- ✓ **DRM Multimedia Data Encoder**
Supports all standardized and broadcaster-specific data services, including import, processing, encoding, and broadcasting of text, images, and structured information.
- ✓ **DRM Multiplex Generator**
Manages a wide range of DRM signal functions, generates complete DRM multiplex signals, arranges multi-multiplex configurations, and provides standard MDI/DCP output streams.

Key Features

Configuration and Management

The system is typically located in studios, broadcast centers, or transmission sites and can be fully managed and supplied with data through remote control, accessible via any modern web browser.

Audio and Data Input

The system supports up to 2 digital AES/EBU audio inputs or 2 analog stereo inputs. Additionally, audio files can be uploaded to the system for offline audio encoding.

DRM Multiplex Output via MDI/DCP

The output signal of the Newglee DRM Media Encoder carries the complete DRM multiplex (FAC, SDC, MSC) in MDI/DCP format, complying with ETSI TS 102 820 (Multiplex Distribution Interface) and ETSI TS 102 821 (Distribution and Communication Protocol) standards.

Newglee DRM Modulator NGA-201



The Newglee DRM Modulator NGA-201 is designed in compliance with ETSI ES 201 980 and GY/T 423-2025 DRM system specifications, serving as a core DRM baseband processing device based on an embedded platform. It decodes multiplex stream data transmitted via the MDI/DCP protocol and modulates it into DRM-compliant signals. The transmission of multiplex streams supports forward error correction (DCP-PFT) to maximize the integrity of the input multiplex stream signals.

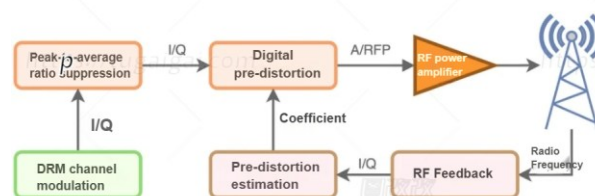
Highlight

- **Channel Coding and OFDM Modulation:** Receives MDI/DCP streams from DRM media encoders and generates I/Q signals meeting ETSI ES 201 980 and GY/T 423-2025 requirements.
- **Peak-to-Average Power Ratio (PAPR) Suppression:** Effectively reduces the PAPR of OFDM signals, thereby improving transmitter output capability and efficiency.
- **Digital Pre-Distortion:** Compensates for and adjusts transmission signals to ensure high-quality transmission.
- **Multiple Output Modes:** Supports I/Q output, envelope/phase-modulated RF output, or direct RF output, adapting to various transmitter systems.

Main functions

- ✓ Supports input of MDI/DCP multiplex streams via Ethernet
- ✓ Supports A, B, C, D modes
- ✓ Supports standard QAM constellation mapping
- ✓ Supports symmetric/hybrid hierarchical modulation constellation mapping
- ✓ Supports 2-second long and 0.4-second short interleaving
- ✓ Supports channel bandwidths of 4.5/5/9/10/18/20 kHz
- ✓ Coding rates: 1/4 to 8/9 (EEP/UEP)
- ✓ Supports internal 10 MHz, external 10 MHz, and 1PPS clock sources
- ✓ Supports single-frequency and multi-frequency synchronization networking
- ✓ Supports Dynamic Reconfiguration
- ✓ Output spectrum complies with ITU-R spectrum requirements for DRM broadcasting
- ✓ Supports Crest Factor Reduction (CFR)
- ✓ Supports digital I/Q output, amplitude/phase output, and RF output

Digital Baseband Predistortion



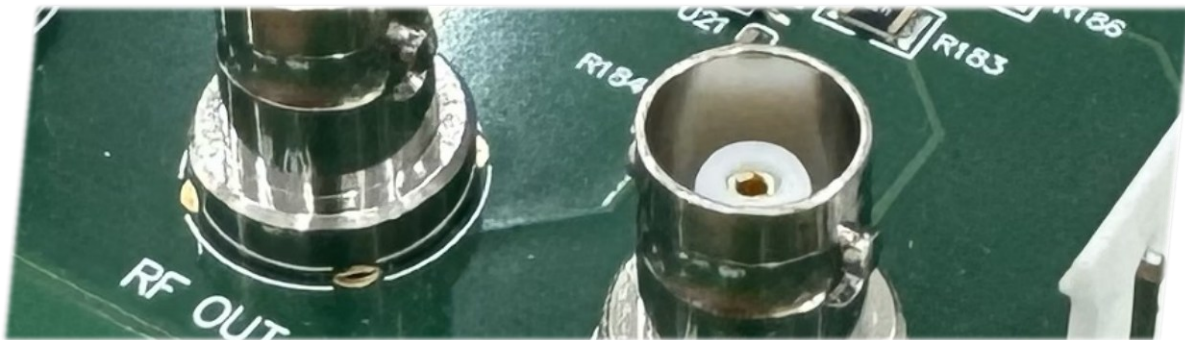
Digital Baseband Pre-Distortion (DPD) is a key technology for achieving digitalization of high-power medium- and shortwave transmitters.

The NGA-201 modulator provides comprehensive signal optimization to ensure high-quality transmission and minimize out-of-band emissions. Its core functions include nonlinear distortion compensation of AM/AM and AM/PM characteristics through calculated correction curves, linear distortion compensation of frequency response and group delay through the design of equalization filters, and precise adjustment of time delays between signals.

All parameters are calculated on the NGA-201 and applied to the transmitter adapter. These functions significantly enhance signal transmission quality and reliability while effectively reducing out-of-band emissions.

Newglee DRM Transmitter Adapter

The Newglee Transmitter Adapter is specifically designed for the DRM digital transformation of traditional EER amplitude modulation radio transmitters to meet the high standards of modern digital radio broadcasting. It generates high-precision envelope and phase outputs from input I/Q signals and performs precise delay adjustment on these signals to efficiently drive EER transmitters. Meanwhile, the digital pre-distortion function effectively overcomes various linear and non-linear distortions through real-time feedback and adaptive algorithms, ensuring that broadcast signals comply with ITU spectrum mask requirements.

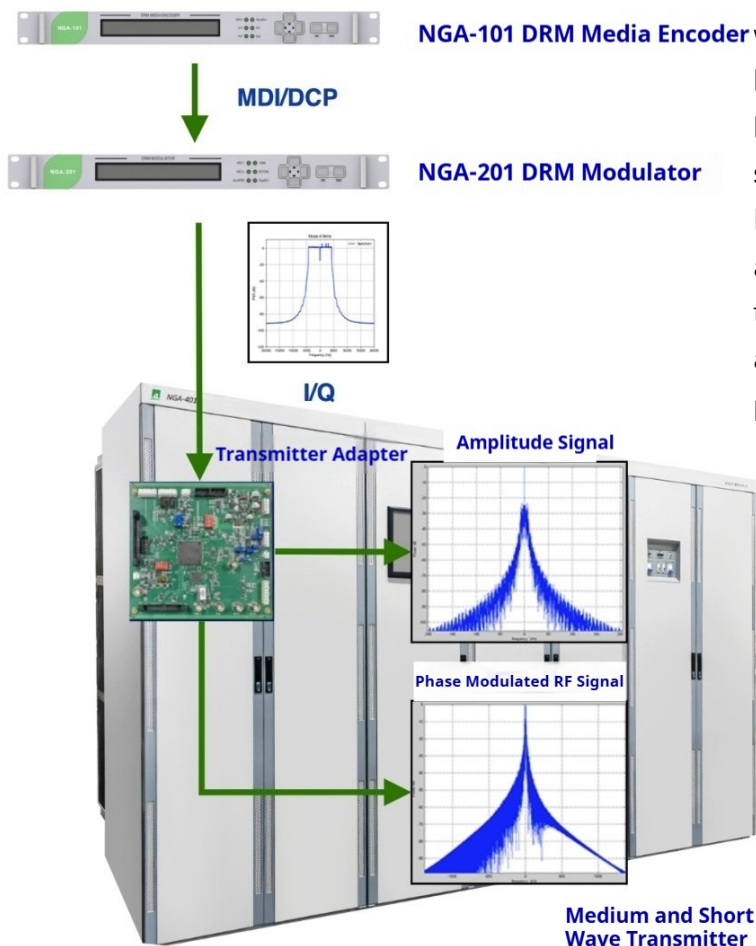


A key highlight of this adapter is its full digital processing capability. Full-link digital management minimizes errors caused by analog-to-digital and digital-to-analog conversions, significantly improving the overall output quality of the transmitter. The Newglee Transmitter Adapter is designed to revitalize traditional broadcast transmission equipment, enabling aging devices to continue functioning in the digital radio broadcasting era through digital transformation. It demonstrates outstanding advantages in technical performance, user experience, and operational convenience, establishing it as the definitive solution for digitally upgrading legacy transmitters.

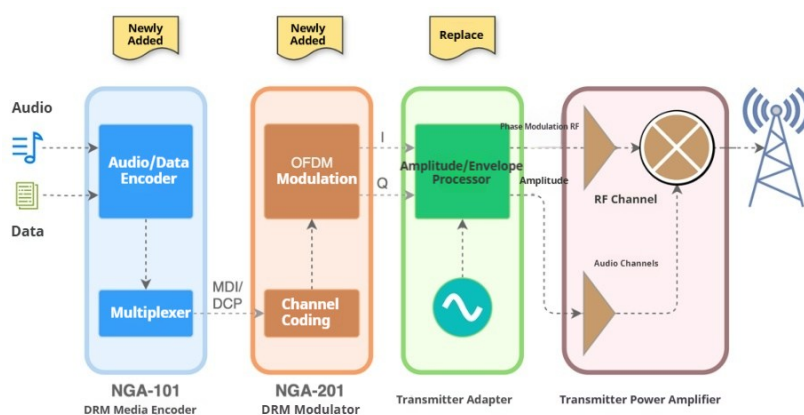
Main Functions:

- **Amplitude-Phase Output:** Can drive various PDM (Pulse Duration Modulation), PSM (Pulse Step Modulation), and DX-type transmitters.
- **Delay Adjustment:** Supports precise delay processing for the audio branch and phase branch of the transmitter.
- **Digital Pre-Distortion Function:** Supports feedback-based adaptive correction pre-distortion with advanced adaptive algorithms.
- **Full Digital Processing:** The adapter adopts full-link digital processing, which can greatly improve the overall output quality of the transmitter.

Newglee MW/SW Transmitter DRM Digital Upgrade Solution

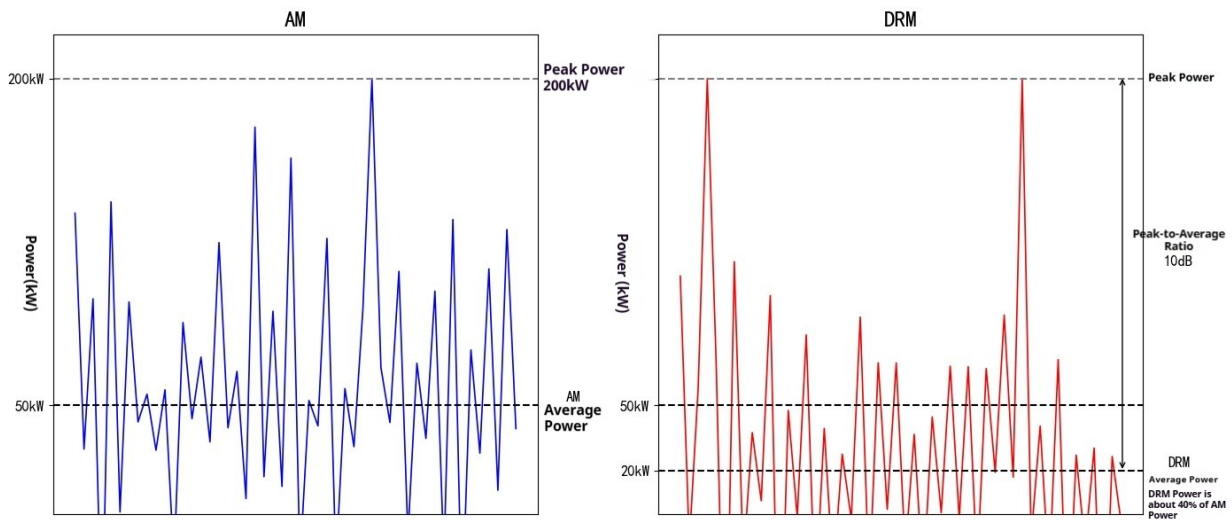


Enhance your broadcasting capabilities with Newglee's advanced DRM digital broadcasting solutions. As an industry leader, Newglee offers a comprehensive suite of front-end equipment, including DRM media encoders, modulators, and adapters, designed to seamlessly transition your analog AM mediumwave and shortwave transmitters to high-performance digital broadcasting.



Our solution is built around compatibility, ensuring seamless integration with various Envelope Elimination and Restoration (EER) transmitters, including PDM, PSM, and DX models. This versatility guarantees smooth and efficient upgrades regardless of your current setup. By upgrading existing transmission facilities instead of purchasing new equipment, you can significantly reduce costs while achieving cutting-edge performance.

More Economical Operation – Advantages in Energy Saving



For daily broadcast audio programs, over 90% of the energy of AM broadcast signals is concentrated in the carrier (calculated at 30% average modulation index). Additionally, the human ear is sensitive to noise, requiring a high signal-to-noise ratio (above 26dB as required by ITU) to ensure broadcast service quality. Therefore, AM broadcast coverage requires high field strength, resulting in high transmitter power and energy consumption. Since DRM signals are digital modulation signals that do not require carrier transmission, even with high-order modulation (64QAM), their reception signal-to-noise ratio threshold is comparable to that of analog audio. Theoretical analysis, calculations, and actual field tests have shown that under the premise of unchanged broadcast service area coverage, the transmission power of DRM broadcasting is only 1/10 to 1/20 of that of AM broadcasting, which can greatly reduce transmission power and save transmitter energy consumption.

The high spectral efficiency of DRM signals enables more information to be transmitted in the same frequency band, meaning less power is required per unit bandwidth. More importantly, the Newglee NGA-201 modulator significantly improves transmission efficiency through its advanced peak-to-average power ratio suppression technology and transmitter optimization scheme. This modulator not only meets all quality standards but also achieves a Modulation Error Ratio (MER) significantly higher than the minimum DRM requirements, with out-of-band radiation levels far below the limits of the DRM spectrum mask. These improvements enable the transmitter to achieve efficient DRM transmission while ensuring signal integrity and spectrum cleanliness, thereby maximizing the overall performance of the DRM transmission system.

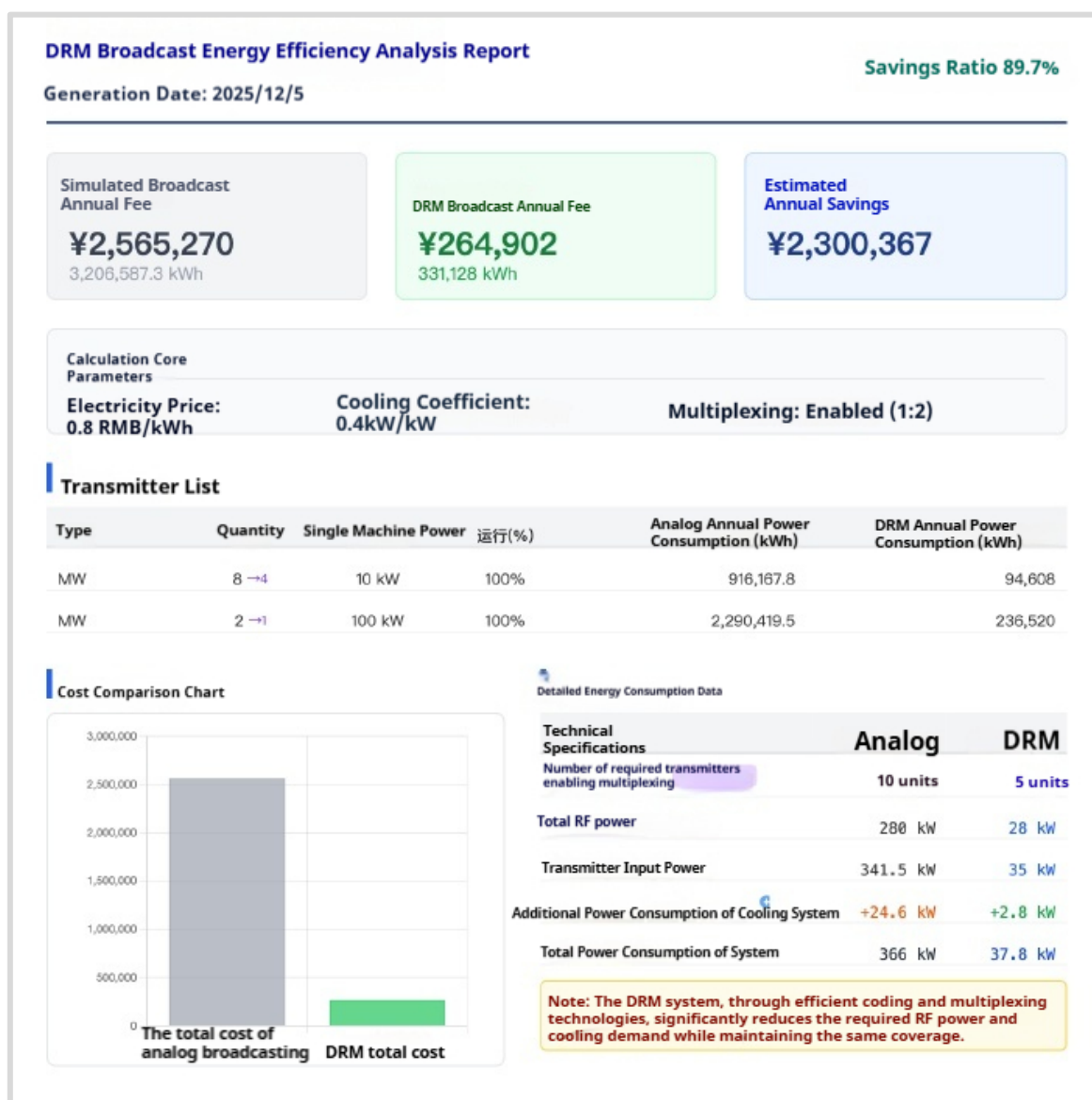
These technical features make DRM not only excellent in providing high-quality audio and data services but also demonstrate significant advantages in energy consumption, providing strong support for the sustainable development of the broadcasting industry.

DRM Energy Efficiency Calculator — Quantifying the Energy Savings of DRM

In radio station operations, electricity costs are a major expense, and traditional analog transmitters consume high energy. DRM digital radio broadcasting achieves equivalent coverage with low power, resulting in significant energy savings. Newglee has launched a free online tool (*Only Chinese is supported for the time being*)– the "DRM Digital Radio Broadcasting Energy Efficiency Calculator" – to help operators accurately assess the benefits of transformation. Based on international standards, this tool calculates electricity costs and cooling system savings by inputting parameters such as electricity prices and station information, supports multi-channel multiplexing analysis and advanced parameter customization, and generates detailed PDF reports with one click. It intuitively displays annual savings and savings ratios through data, driving decision-making and supporting green and low-carbon transformation. For any English-related inquiries, please contact the official DRM Consortium at <https://www.drm.org/about-drm/drm-energy-calculator/>

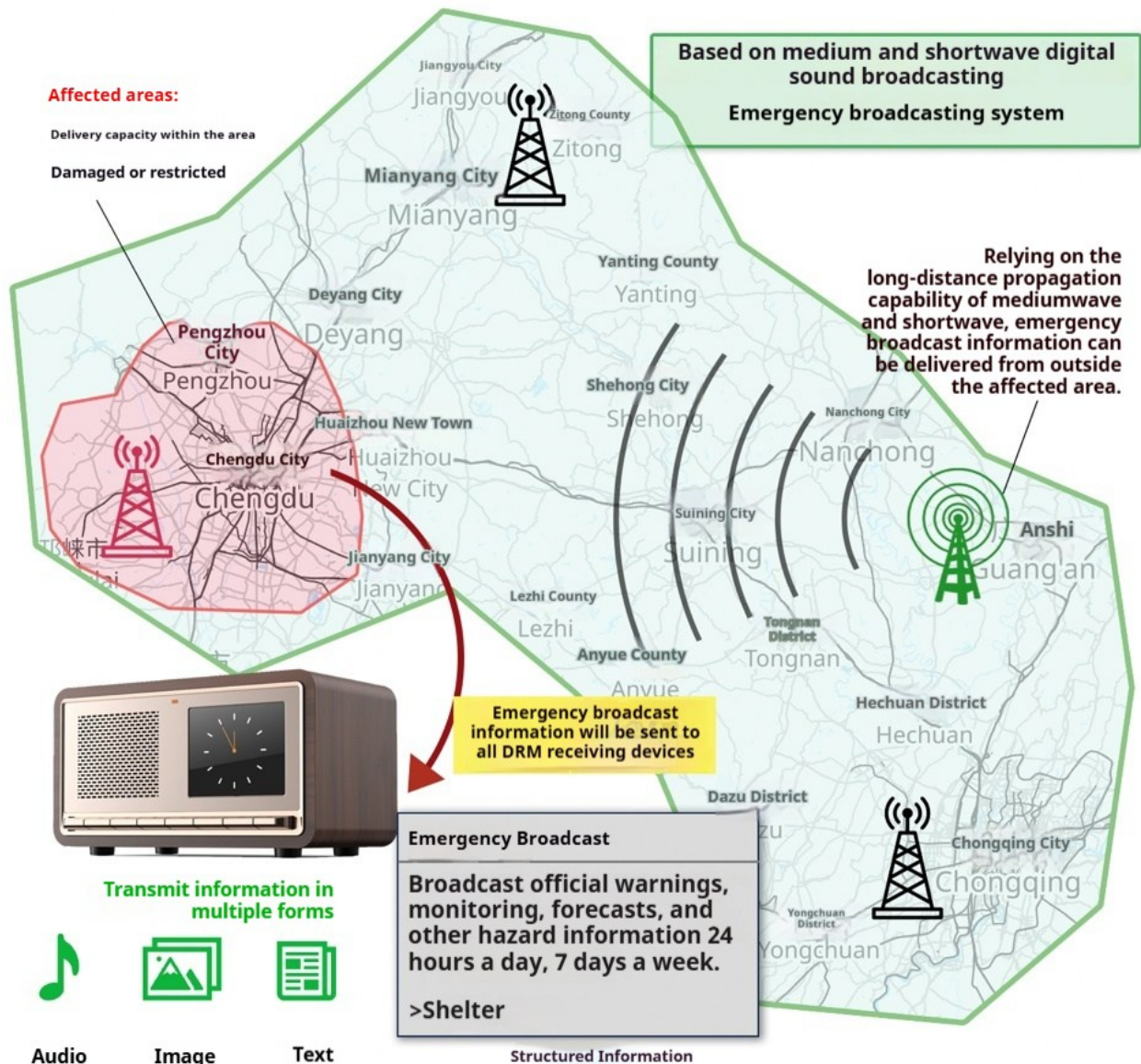


Scan the QR Code to Access
the DRM Efficiency Calculator



Newglee DRM Emergency Broadcast Solution

Leveraging its inherent technical characteristics and international standard support, DRM technology provides an efficient, reliable, and wide-coverage transmission solution for national and regional emergency broadcast systems. The core value of the DRM emergency broadcast solution lies in its powerful information delivery capability and flexible media carrying capacity.



Long-Distance Coverage: Utilizing the radio wave propagation characteristics of Shortwave (SW), Medium Wave (MW), and Long Wave (LW), the DRM system can achieve ultra-long-distance, cross-regional, and even intercontinental signal transmission. This advantage is particularly valuable in scenarios where ground communication infrastructure is damaged or power is interrupted due to natural disasters (such as earthquakes and floods), ensuring reliable long-distance delivery of emergency information. Compared to local network-dependent solutions, DRM's broadcast mode features low energy

consumption and high penetration, covering remote areas and mountainous regions to ensure "last-mile" information reach.

Multi-Media Information Delivery: DRM supports the coexistence of multiple media formats, enabling information transmission through high-quality audio, data subtitles, images, and other methods, greatly improving the comprehensibility and reception efficiency of emergency information.

Standardized Emergency Mechanisms: The DRM system standard provides a solid foundation for emergency broadcasting. The core Announcement mechanism can mandatorily activate receiving terminals and switch to emergency channels during emergencies. Alternative Frequency Switching (AFS) ensures continuous reception of emergency information. Additionally, the system supports dynamic Reconfiguration to enhance robustness; combined with its data multiplexing capability, it can carry multimedia streams such as text and slides to achieve multi-modal synchronous release.



Newglee DRM Emergency Broadcasting Solution

The Newglee DRM emergency broadcast solution is an end-to-end, seamlessly connected complete system designed to efficiently and accurately link China's emergency broadcast platform with the DRM digital radio broadcasting network. It consists of five core components:

1. **Emergency Broadcast Adapter (EBA):** Serves as the core bridge, receiving and parsing emergency broadcast messages issued by the emergency broadcast platform.
2. **DRM Media Encoder (DME):** Receives DIP packets from the EBA, completes encoding and multiplexing, performs dynamic reconfiguration, and generates multiplex streams.
3. **DRM Modulation and Transmission System:** Achieves large-area coverage of signals through modulation, frequency conversion, and high-power amplification.

4. **DRM Receiving Terminals:** Implements signaling monitoring, mandatory wake-up, automatic frequency switching, and accurate display of multimedia information to ensure reliable delivery of emergency information.
5. **Emergency Broadcast Platform:** The authoritative source of emergency messages, connecting national/provincial platforms, responsible for message generation, review, and classification, managing the lifecycle of emergency messages (storage, verification, and expiration), and determining the target area, audience level, and release authority of messages.

Newglee DRM Receiver Solution Overview

Since its establishment, Newglee's digital radio broadcasting R&D and technical team has been committed to promoting the innovation of digital radio broadcasting technology, focusing on the R&D, production, manufacturing, and sales of digital radio broadcasting receiver solutions. We have successfully developed a variety of digital radio broadcasting receivers, some of which are world-first models, opening up new areas for digital radio broadcasting receiver technology.

Newglee is dedicated to providing end-to-end DRM digital radio broadcasting receiving terminal solutions covering all links of the industrial chain, demonstrating our technical breadth and depth in promoting the popularization of global digital radio broadcasting. Our product line focuses on providing diverse and highly reliable receiving terminals and professional tools:



Product Categories

- **Consumer and In-Vehicle Terminals:** Targeting general users, we offer high-performance, cost-effective consumer and in-vehicle receivers. These terminals support multi-band DRM reception including medium wave, shortwave, and FM, and integrate structured graphic information and DRM emergency alert functions, aiming to provide high-quality information consumption and in-vehicle entertainment experiences at an affordable cost.
- **Professional Emergency Reception Solutions:** For the public service sector, we provide highly reliable and adaptable emergency broadcast reception solutions. This solution supports full-band reception and features automatic wake-up functionality, ensuring the reception and broadcast of emergency alert information even under extreme conditions to meet national-level emergency support needs.
- **Professional Monitoring Equipment for Radio and TV:** For radio stations and regulatory authorities,



we provide professional DRM monitoring receivers. Such equipment is a powerful professional broadcast monitoring and analysis solution, supporting real-time spectrum analysis, signal quality evaluation, service decoding, logging, and recording/playback functions. It is an important tool for operators to ensure broadcast quality, conduct engineering deployment, and perform regulatory tasks.

Through the provision of comprehensive terminal products from consumer-grade to professional-grade, Newglee meets all needs from personal information acquisition to national-level infrastructure construction.

Newglee All-in-One Automotive Radio SDR Solution



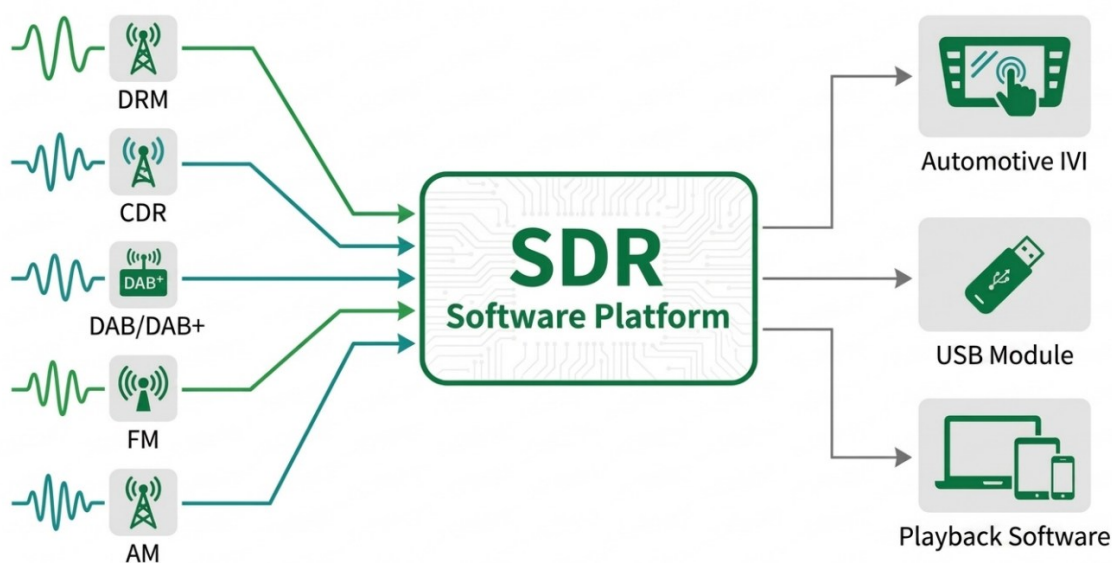
Type 5 SDR

The global transition to digital broadcasting is accelerating. DRM has been deployed at scale in multiple countries. In China, the official release and implementation of GY/T 423-2025 Technical Specification for Medium- and Short-Wave Digital Sound Broadcasting in July 2025 marks the entry of DRM into large-scale commercial application. The CDR standard has entered large-scale trial deployment, while DAB/DAB+ continues to expand across Europe and the Asia-Pacific region. Meanwhile, FM/AM analog broadcasting will continue to operate throughout a prolonged transition period. In this context, in-vehicle radio reception systems face an unprecedented multi-standard coexistence challenge.

Newglee's all-in-one automotive radio solution is based on a Software Defined Radio (SDR) architecture, integrating five major broadcast standards—DRM, CDR, DAB/DAB+, FM, and AM—into a unified software platform. The entire reception chain, from RF signal processing to audio output, is implemented purely in software.

The solution does not rely on dedicated DSP hardware and can be flexibly deployed on mainstream ARM automotive platforms. A single platform supports all broadcast standards, significantly reducing system integration complexity and hardware cost.

Targeting automotive OEMs and Tier-1 suppliers, the solution is delivered in three forms: factory-installed IVI integration, aftermarket USB receiver modules, and companion playback software—covering both OEM and aftermarket scenarios.



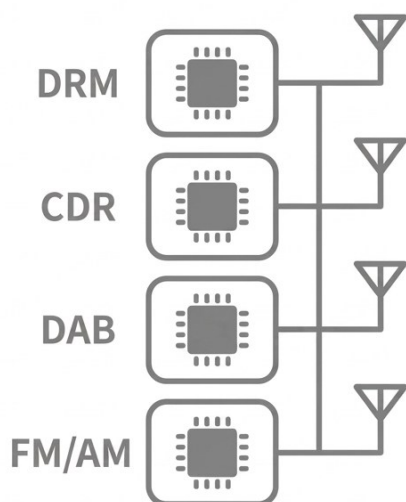
Key Features

- **Unified Multi-Standard Platform:** Full support for DRM30/DRM+, CDR, DAB/DAB+, FM, and AM
- **Full Software Signal Chain:** RF processing to audio decoding entirely in software, enabling continuous OTA upgrades
- **Automotive-Grade Ready:** Compatible with mainstream ARM automotive SoCs and automotive-grade tuner chips
- **Rich Data Services:** Station logos, slideshow images, news services, text messaging, and RDS
- **Emergency Broadcasting:** DRM EWF + CDR + DAB Alarm Announcement Switching (ASA) with automatic switching and enhanced alerting
- **Flexible Delivery Models:** Pre-install SDK integration, USB receiver modules, and playback software

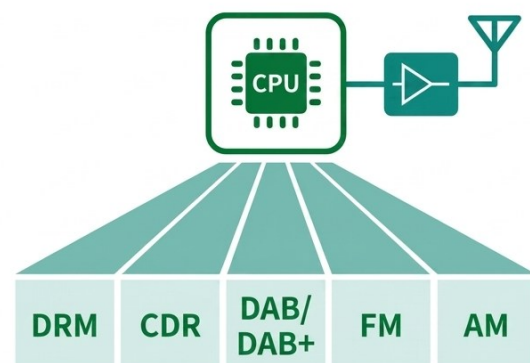
Advantages of the SDR Architecture

Traditional in-vehicle radio receiver architectures allocate dedicated chips or firmware modules for each broadcast standard. As the number of supported standards increases, hardware complexity grows accordingly, leading to higher integration costs and greater maintenance challenges. Software-defined radio fundamentally changes this paradigm: core signal processing is implemented in software running on a general-purpose processor, enabling seamless switching between different broadcast standards through software alone.

Traditional Architecture



SDR Architecture



Traditional Solution vs. SDR-Based Solution

✧ Reduced Integration Complexity

A single software stack, a general-purpose processor, and one tuner front-end can replace multiple dedicated receiver hardware modules. For multi-standard in-vehicle systems, this translates to fewer chips, simpler hardware design, and lower BOM cost.

✧ Platform Flexibility

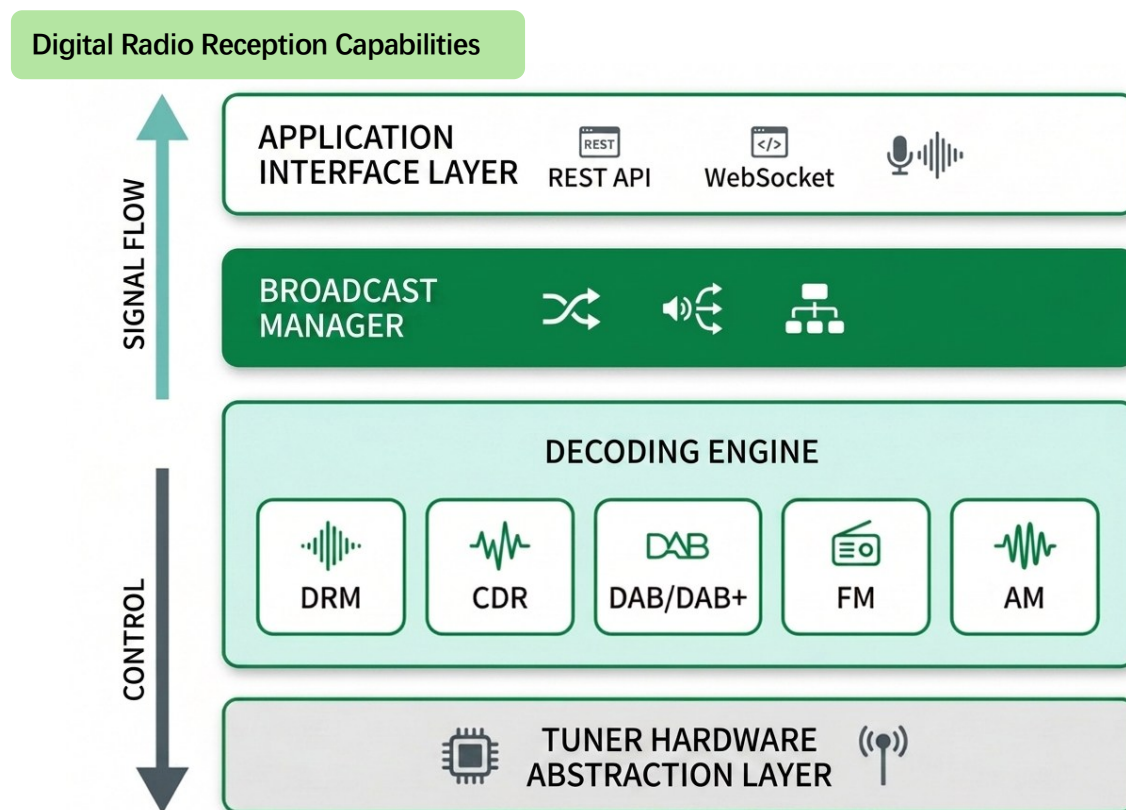
The software-based approach is inherently cross-platform. A single core codebase can be deployed across different automotive SoCs, adapting to various OEM hardware configurations without redevelopment.

✧ Continuous Evolution Support

Broadcast standards continue to evolve—with new codecs, data services, and spectrum allocations. SDR enables these updates via OTA software upgrades without hardware replacement, significantly extending product lifecycle.

✧ Hardware Abstraction & Tuner Independence

A Hardware Abstraction Layer (HAL) decouples the system from specific tuner chips. Tuner capabilities—such as sampling rate, frequency range, and operating modes—are declared in a standardized manner, allowing the upper-layer software to dynamically negotiate optimal parameters. Changing tuner vendors only requires adapting the abstraction layer, with no modification to core decoding software.



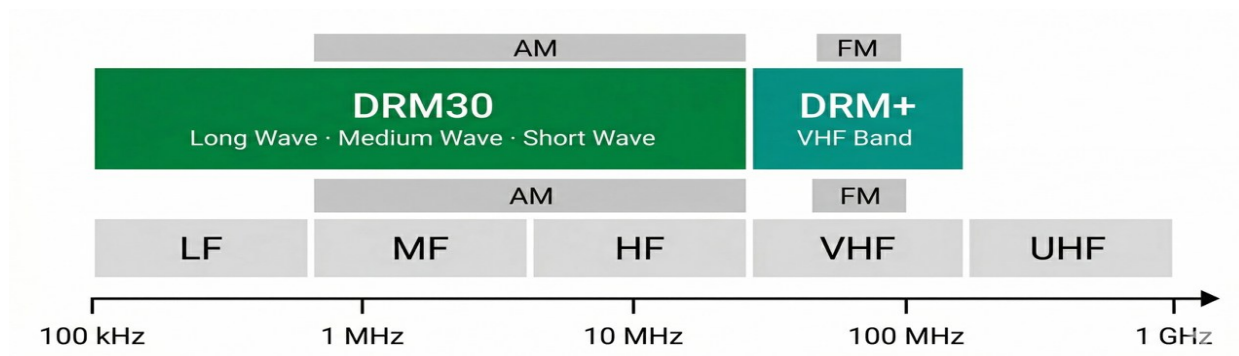
✧ DRM: A Global Digital Broadcasting Standard

The solution fully supports the DRM (Digital Radio Mondiale) standard, covering both DRM30 and DRM+ frequency ranges.

- **DRM30** operates in longwave, medium wave, and shortwave bands, suitable for wide-area terrestrial and international broadcasting. Leveraging long-distance propagation characteristics, it enables cross-regional and even transcontinental coverage at relatively low deployment cost.
- **DRM+** operates in the VHF band, suitable for dense urban coverage and coexistence with existing FM spectrum.

All five robustness modes (Mode A–E) are supported, with automatic detection and switching to adapt to propagation environments ranging from stable ground wave to fast fading—ensuring reliable reception in high-speed vehicular scenarios.

Audio codecs include USAC and HE-AAC. USAC, as a next-generation codec, delivers excellent audio quality at ultra-low bitrates, significantly improving traditional AM listening experience, especially for bandwidth-constrained HF broadcasting.



DRM Frequency Band Coverage Diagram

✧ CDR: China's Indigenous Digital Radio Standard

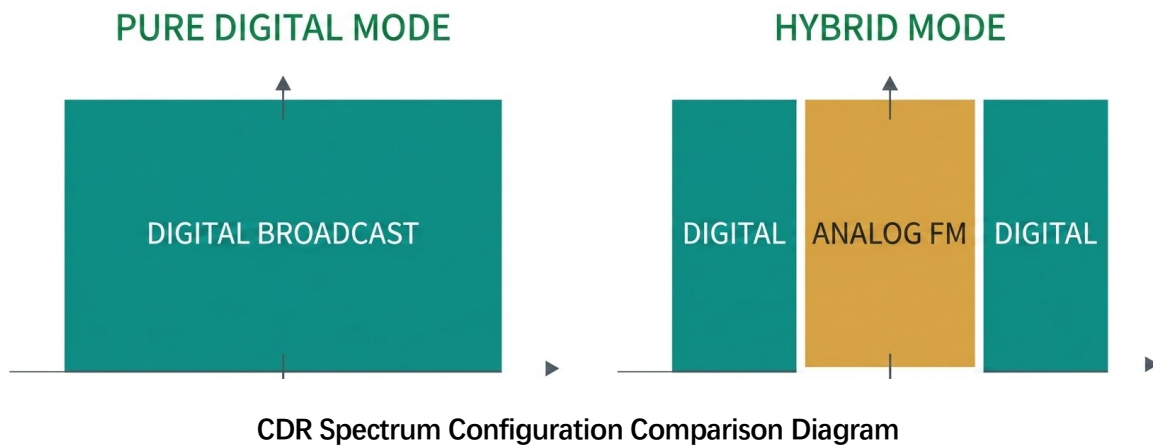
The solution strictly complies with the GY/T 268 series standards, fully supporting all transmission modes and spectrum configurations of CDR (FM-band Digital Audio Broadcasting).

CDR overlays digital signals within the FM band and supports two operating modes:

- **All-Digital Mode:** Entire spectrum allocated to digital transmission, maximizing data capacity
- **Hybrid Mode:** Analog FM retained in the center band, with digital signals on both sides, ensuring backward compatibility

This flexible spectrum configuration enables broadcasters to transition smoothly from hybrid to full-digital operation while protecting existing spectrum investments.

Audio coding adopts China's proprietary DRA/DRA+ standards. Through Spectral Band Replication (SBR) and Parametric Stereo (PS), it delivers near-CD-quality stereo audio at low bitrates.



✧ DAB/DAB+

The solution supports both DAB and DAB+ standards, ensuring compatibility with widely deployed networks in Europe and Asia-Pacific.

DAB+ uses HE-AAC v2 encoding, offering more channels and better audio quality than legacy DAB (MPEG Audio) under the same bandwidth. This ensures full broadcast coverage for global vehicle platforms.

✧ FM/AM Analog Broadcasting

During the transition period, full FM/AM analog reception is maintained:

- **FM:** Stereo decoding and RDS data services (station name, program type, traffic announcements, alternative frequencies)
- **AM:** Multiple demodulation modes and adaptive bandwidth control, narrowing bandwidth under weak signal conditions to maintain reception quality

Data Services & User Experience

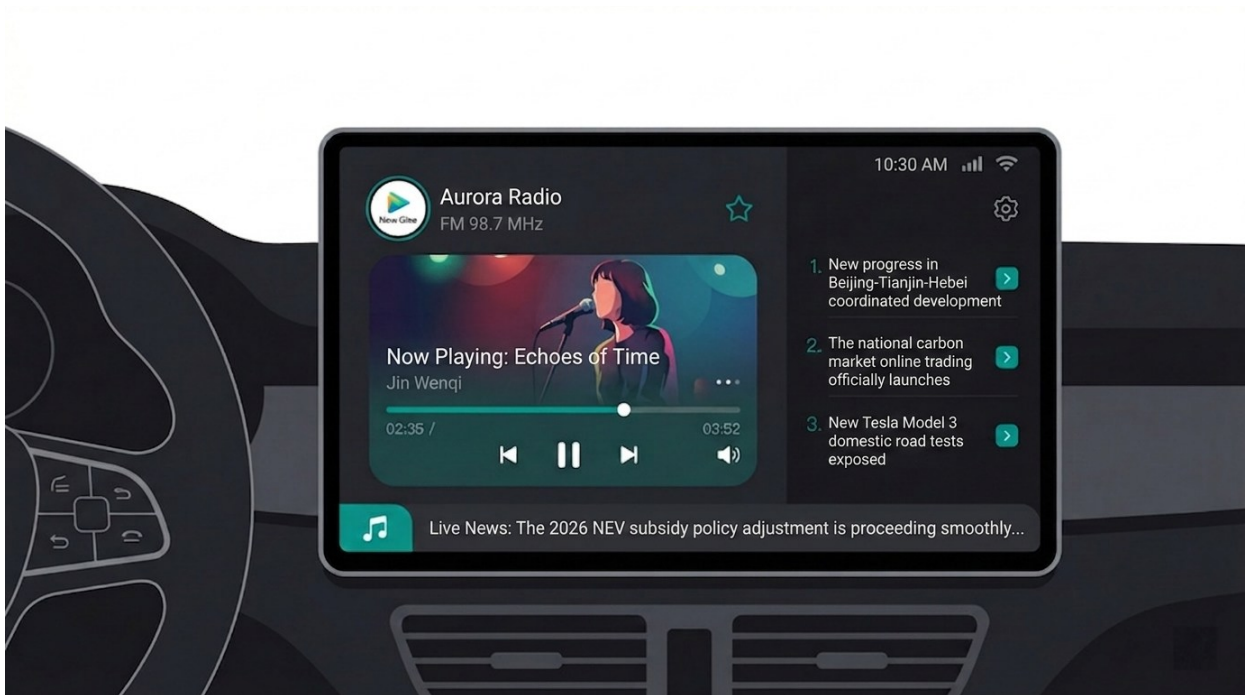
The value of digital broadcasting lies not only in improved audio quality, but also in its ability to carry rich associated data services, delivering a more intuitive and information-rich experience for drivers and passengers.

✧ Station Logo

Receives station branding via digital broadcast signals and displays it intuitively on the in-vehicle screen, enhancing brand recognition and user interface aesthetics.

✧ Slideshow

Synchronized image delivery alongside program content—such as album covers, program posters, and event information—adding a visual dimension to audio-only broadcasting and improving user engagement.



✧ News Services

Structured news service with multi-level navigation. Drivers can browse categories and headlines, and select content of interest for detailed reading, similar to an in-vehicle news application.

✧ Text Messaging & RDS

Real-time text information delivery with full Unicode support, ensuring accurate rendering of multilingual content such as Chinese. In FM mode, RDS data services are available, including station name, program type, traffic announcements, and alternative frequencies.

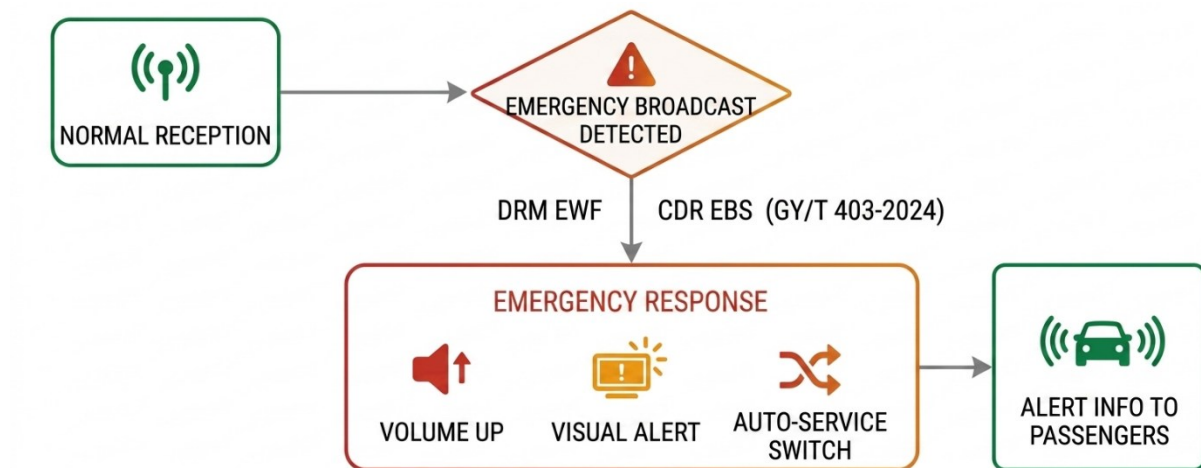
✧ Seamless Standard Switching

When switching between different broadcast standards, the system uses audio crossfade to ensure smooth transitions, eliminating audio interruptions and maintaining a continuous listening experience.

Emergency Broadcasting & Driving Safety

In emergency situations such as natural disasters, extreme weather, and major traffic accidents, broadcasting remains the most wide-reaching and infrastructure-independent channel for information dissemination. Unlike push services that rely on cellular networks, broadcast signals can still be reliably delivered even when terrestrial communication infrastructure is damaged or power is disrupted. For vehicles in motion, the timely reception of emergency warning information is directly related to the safety of drivers and passengers.

The solution integrates dual-standard emergency broadcasting capabilities, ensuring timely response to emergency signals under any listening condition.



✧ DRM Emergency Warning Function (EWF)

Compliant with international DRM emergency broadcasting specifications. When an emergency alert flag is embedded in the broadcast signal, the system automatically triggers the emergency response procedure.

The key advantage of DRM emergency broadcasting lies in its long-range propagation capability—by utilizing the MW and SW bands, emergency information can still be delivered from transmitters outside the affected area, even when local communication infrastructure is damaged.

✧ CDR Emergency Broadcasting

Compliant with *GY/T 403-2024 Emergency Broadcasting Technical Standard*. Emergency response is triggered by emergency information identifiers embedded in the broadcast signal, with message integrity verification to ensure accuracy and reliability.

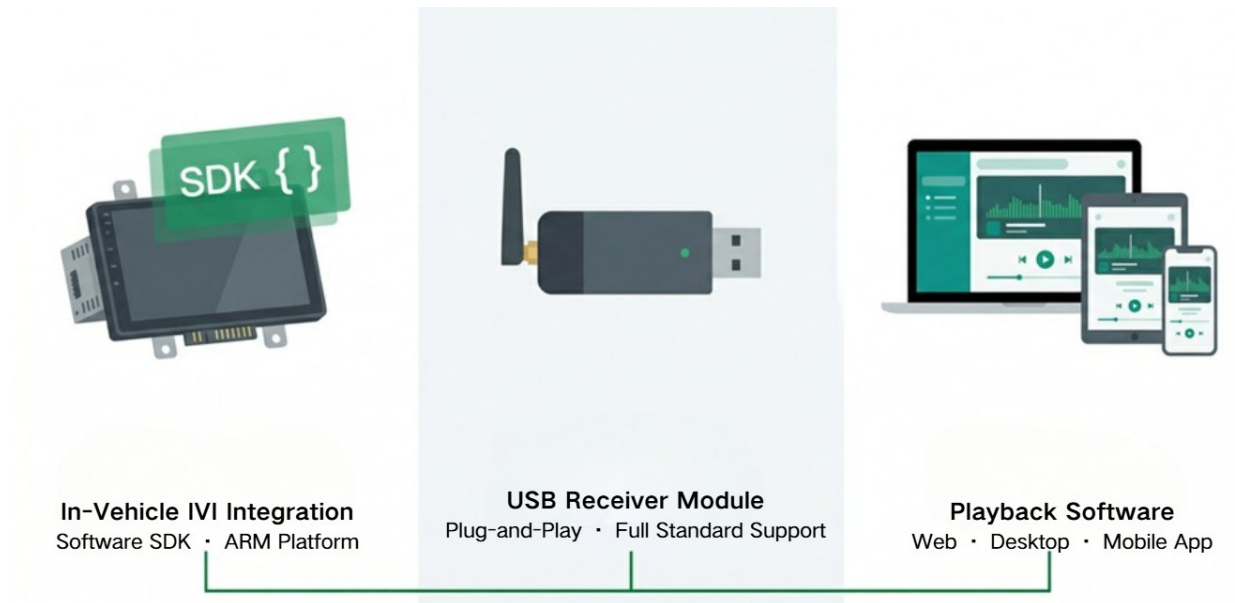
✧ Automatic Emergency Response

Regardless of which broadcast standard is currently being received, once an emergency broadcast signal is detected, the system automatically performs the following actions:

- **Automatic Switching:** Immediately switches to the emergency broadcast service without requiring driver intervention
- **Volume Boost:** Automatically increases audio output volume to ensure occupants clearly hear the alert
- **Visual Alerting:** Triggers high-contrast flashing warnings on the in-vehicle display to capture driver attention
- **Information Presentation:** Fully displays emergency text content, including hazard type, affected areas, and recommended actions

This capability transforms in-vehicle radio from a purely entertainment function into a critical component of driving safety assurance.

Delivery Models & Collaboration



IVI Integration (Pre-installation)

Delivered to automotive OEMs and Tier-1 suppliers in the form of a software SDK for direct integration into in-vehicle infotainment (IVI) systems. The SDK provides standardized API interfaces covering a complete feature set, including tuner control, service management, audio output, and data service access. It supports mainstream ARM-based automotive SoCs and is compatible with both Linux and Android Automotive platforms.

Multi-Standard USB Receiver Module

Targeting the aftermarket automotive market and consumer electronics sector, a compact plug-and-play hardware module is provided. The module integrates an SDR front-end and communicates with the host system via a USB interface. It supports full-standard reception including DRM, CDR, DAB/DAB+, FM, and AM. Equipment manufacturers can leverage this module to rapidly develop digital broadcast reception products, significantly reducing development cycles.

Companion Playback Software

Provides multi-platform playback applications covering Web UI, desktop native interfaces, and Android mobile clients. The playback software fully renders all digital broadcasting service components, including real-time spectrum display, station logos, slideshow images, news services, and text messages, with full Unicode support for all textual content. A unified user experience design ensures consistency across platforms.

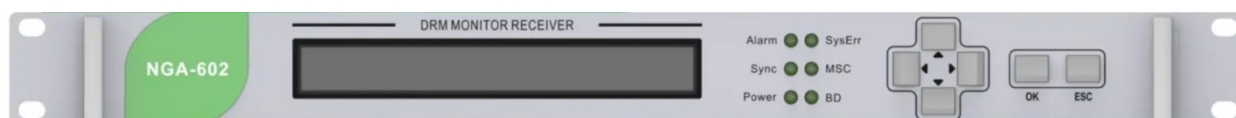
NGA-601 Next-Generation Professional DRM/AM/FM Receiver



- Supports mediumwave/shortwave/VHF DRM reception
- USAC audio decoding
- Slideshow and structured text/image information
- DRM text information display
- DRM Emergency Warning Function (EWF)
- Expert mode
- Geo-tagged reception log
- MDI recording and stream transmission
- 3.5-inch IPS color touchscreen

The Newglee NGA-601 is a next-generation DRM/AM/FM receiver specifically designed for digital broadcast operators, radio stations, and regulatory authorities. It provides a powerful, flexible, and portable professional broadcast monitoring and analysis solution.

NGA-602 DRM Monitoring Receiver



The Newglee NGA-602 DRM Monitoring Receiver is a professional-grade digital broadcast monitoring device specifically designed for receiving, decoding, and analyzing DRM (Digital Radio Mondiale) signals. It is equipped with a complete web-based interactive interface, supporting real-time spectrum monitoring, service selection, signal quality analysis, logging, and recording/playback functions.

- **Multi-Service Synchronous Processing:** Can simultaneously decode and display up to 4 DRM services, including audio, text information, slides, and structured graphic information
- **Advanced Signal Analysis:** Real-time monitoring of MER, SNR, RF level, and synchronization status
- **Recording and Playback:** Supports IQ raw signal recording for up to 2 hours and offline analysis
- **Alert Management:** Supports configurable threshold alerts for MER and RF levels, generating historical log records
- **Web Interactive Interface:** Modern responsive operation interface accessible via standard

NGA-701 DRM Digital Radio Receiver Module

The NGA-701 is a high-performance embedded radio receiver module designed for device integration. It is specifically engineered for manufacturers seeking to rapidly integrate digital broadcasting capabilities into their products. With a compact form factor of only 55 × 68 mm, the module integrates an RF front-end, digital signal processing, and audio output. It covers the 500 kHz–108 MHz frequency range (MW/SW/FM) and supports both DRM30 digital broadcasting and FM/AM analog reception.

Typical Application Scenarios

- **Emergency Broadcast Receiver Terminals**

Equipped with built-in emergency broadcast signal detection and trigger output. Upon receiving a DRM Emergency Warning Function (EWF) signal, the module can automatically activate external alert devices. Suitable for community terminals, outdoor public warning systems, and in-vehicle emergency receivers.

- **BeiDou Ground-Based Augmentation Signal Reception**

Supports reception and decoding of BeiDou ground-based augmentation data transmitted via MW/SW broadcast signals, enabling enhanced positioning accuracy for navigation devices.

- **Consumer Electronics and IoT Integration**

The compact size and rich interface set make it ideal for integration into smart radios, in-vehicle terminals, outdoor broadcast speakers, and IoT gateways, enabling rapid addition of digital radio reception capabilities to conventional devices.

Interfaces and Integration

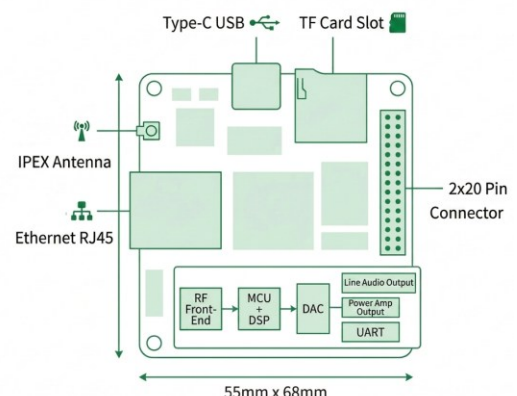
The module provides comprehensive peripheral interfaces: IPEX antenna connector (50 Ω), RJ45 Ethernet, USB Type-C, UART serial interface, TF card slot, stereo Line Out, and differential speaker output. A 2×20 pin header exposes key signals including power supply, USB, Ethernet, audio, and GPIO, allowing direct integration with the customer's mainboard.

Power Supply and Installation

Supports single power input via either 5V (Type-C) or 3.3V (pin header), with a maximum current consumption of 500 mA. Firmware upgrades can be performed via USB, Ethernet (OTA), or TF card, ensuring long-term maintainability after deployment.

Technical Specifications

- **Frequency Range:** 500 kHz–108 MHz (MW/SW/FM)
- **Supported Standards:** DRM30, FM/AM analog broadcasting
- **Audio Output:** Stereo Line Out + differential speaker output
- **Communication Interfaces:** 10/100M Ethernet, USB 2.0 Type-C, UART
- **Storage Expansion:** MicroSD card slot (FAT32/exFAT)
- **Power Supply:** 5V or 3.3V, ≤ 500 mA
- **Module Dimensions:** 55 × 68 mm



NGT-RX1 Vehicular MW/SW Active Antenna

The quality of digital radio reception begins with the antenna. In the medium-wave (MW) and shortwave (SW) bands, in-vehicle reception has long faced a fundamental engineering challenge: traditional antennas are bulky, complex to install, and prone to high noise floors, making them unsuitable for high-quality reception in mobile environments. Newglee has specifically developed the NGT-RX1 vehicular MW/SW active antenna for digital broadcasting applications, providing a professional RF front-end solution for DRM30 reception.

Innovative Magnetic Capacitive Coupling Grounding Technology

The NGT-RX1 adopts a monopole antenna architecture and innovatively utilizes magnetic capacitive coupling grounding technology to form a virtual RF ground plane. Combined with an industrial-grade vacuum suction mount for securing the antenna body, this enables completely non-invasive installation without any modification to the vehicle.

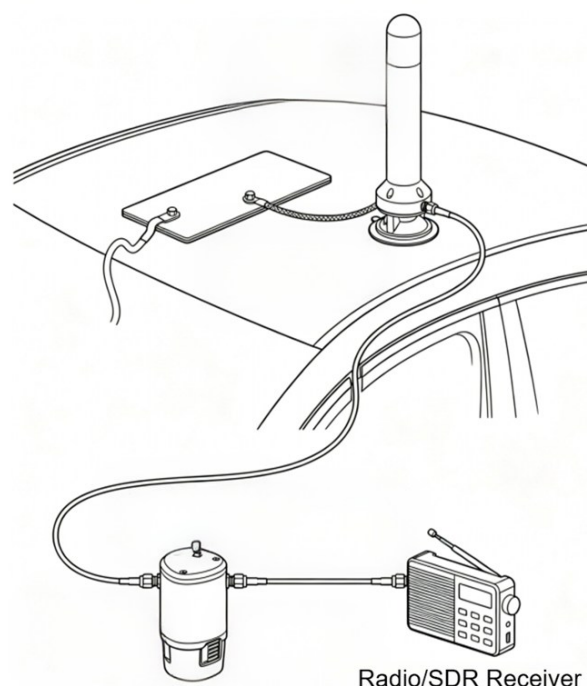
High-Performance Active Circuit Design

The antenna integrates a low-noise, high dynamic range preamplifier. Power is supplied via a Bias-Tee over the coaxial cable, and the antenna provides a standard 50 Ω SMA output interface, allowing direct connection to various SDR receivers or professional broadcast reception equipment.

Application Scenarios

The NGT-RX1 is primarily designed for field testing and evaluation of DRM broadcast networks. Its non-invasive quick-mount design allows rapid deployment on test vehicles without modification, while the high dynamic range active circuitry ensures accuracy and repeatability of collected data. Typical applications include:

- **Coverage Evaluation:** Collect signal strength, signal-to-noise ratio (SNR), and demodulation quality data along planned routes to generate coverage maps
- **Field Data Acquisition:** Perform mobile recording in



conjunction with professional receivers to provide raw data for network optimization

- **Transmitter Site Acceptance Testing:** Verify service area reception performance after commissioning of new or upgraded transmission sites

Technical Specifications

- **Frequency Range:** 100 kHz–30 MHz (covering LW/MW/SW)
- **Antenna Gain:** 0 dB $\pm$ 2 dB (active impedance matching, unity gain)
- **Output Impedance:** 50 Ω (SMA connector)
- **Third-Order Intercept Point (OIP3):** > +28 dBm (high dynamic range)
- **Second-Order Intercept Point (OIP2):** > +50 dBm (strong intermodulation immunity)
- **Power Supply:** DC 11.3V, powered by a universal lithium battery, Bias-Tee feeding
- **Mounting Method:** Vacuum suction mount + capacitive grounding plate, non-invasive installation

Type 5 SDR Professional DRM Digital Radio Receiver

Newglee Type 5 SDR is a professional-grade DRM digital radio reception and analysis system designed for broadcast operators, regulatory authorities, and engineering teams. The system consists of a compact USB receiver module and professional reception/analysis software. It connects via plug-and-play USB with bus power supply, requiring no external power, enabling rapid deployment of a complete mobile reception and monitoring platform on a laptop.



Full-Band DRM Reception

Type 5 SDR fully complies with the DRM international standard (ETSI ES 201 980), covering all DRM frequency bands—longwave (LF), medium wave (MF), shortwave (HF), and VHF Band II (FM band). It supports all robustness modes (Mode A–E).

Audio decoding supports USAC and HE-AAC, ensuring compatibility with current and future DRM deployments. The system also provides AM analog reception, supporting multiple demodulation modes such as synchronous AM detection (SAM) and envelope detection.

The companion Type 5 Player application features a clean, consumer-oriented interface, presenting audio and data services in an intuitive card-based layout, making it suitable for exhibition demonstrations and user experience evaluation.

GPS/BeiDou Mobile Coverage Evaluation

The system integrates support for GPS/BeiDou positioning modules, receiving location data via the standard NMEA-0183 serial protocol. It records real-time latitude, longitude, altitude, UTC time, and

satellite count.

Combined with synchronized logging of signal quality metrics and CSV data export, engineering teams can perform drive tests along planned routes, correlating key indicators such as MER and SNR with geographic location to generate coverage maps. This provides quantitative support for transmitter site selection, power planning, and network optimization.

Professional Signal Analysis

Type 5 SDR provides comprehensive signal monitoring and analysis tools to meet the needs of broadcast engineering and network planning:

- **Real-Time Spectrum Analysis:** FFT-based power spectral density display with peak hold and exponential averaging
- **Waterfall Display:** Historical spectrum visualization with automatic contrast adjustment, showing signal variation over time
- **Constellation Diagram:** QAM constellation visualization (4/16/64-QAM) with phosphor persistence rendering
- **Modulation Error Ratio (MER):** Per-subcarrier MER bar charts for precise identification of frequency-domain degradation
- **Signal-to-Noise Ratio (SNR):** Real-time SNR monitoring
- **MER/SNR Historical Curves:** Configurable time span (1 minute to 10 days) for tracking long-term signal quality trends

Rich Data Service Presentation

Type 5 SDR fully decodes and presents all DRM-defined data services:

- **News Service:** Structured text-based news with hierarchical navigation
- **MOT Slideshow:** Reception and display of synchronized image content
- **Station Logo:** Received via SPI signaling
- **Text Messaging:** Real-time text display with full Unicode support
- **Multi-Service Decoding:** Simultaneous decoding and display of up to four DRM services

Data Logging and Export

- **CSV Logging:** Time-stamped and geo-tagged recording of MER, SNR, and other metrics, with historical curve playback
- **RSI Recording:** Storage of complete multiplex streams and receiver status data

Technical Specifications

- **Supported Standards:** DRM + AM analog broadcasting
- **Frequency Range:** Full coverage of LW/MW/SW bands
- **Robustness Modes:** Mode A/B/C/D/E
- **Audio Codecs:** USAC, HE-AAC
- **Data Services:** Text, MOT Slideshow, SPI Logo
- **Connectivity:** USB plug-and-play, bus-powered
- **Positioning Support:** GPS/BeiDou (NMEA-0183)
- **Operating Platform:** Windows
- **UI Language:** Chinese / English

Application Scenarios

- **Broadcast Network Coverage Evaluation:** Drive testing along planned routes, collecting signal quality data to generate coverage maps
- **Transmitter Site Acceptance Testing:** Verification of service area reception after commissioning of new or upgraded transmission sites
- **Broadcast Quality Monitoring:** Long-term fixed-point monitoring of signal quality metrics, tracking historical trends and detecting anomalies
- **Exhibition Demonstration and Technical Evaluation:** Combined with the Type 5 Player application to fully showcase DRM audio and data service capabilities

NGA-101 DRM Media Encoder Specifications



Product Overview

Newglee DRM Media Encoder NGA-101 is a professional digital broadcasting front-end device dedicated to creating, managing, and outputting Digital Radio Mondiale (DRM) multiplex streams that comply with ETSI ES 201 980 standard and GY/T 423-2025 "Technical Specification for Medium and Shortwave Digital Sound Broadcasting". Through an intuitive web interface, it can integrate audio, text, images, and data services into multiplex streams for transmission to DRM modulators.

Key Features

- **End-to-end DRM workflow:** Integrates the creation, multiplexing, and output of DRM broadcast streams
- **Web-based management:** Graphical interface supporting service configuration, multiplexing, and real-time monitoring
- **Multi-service support:** Can integrate audio, DRM text, MOT slides, and interactive data
- **Robust output:** Supports MDI/DCP stream transmission and configurable error protection (PFT) to ensure transmission reliability
- **Hardware integration:** Dual analog/digital audio inputs, redundant network interfaces, and front-panel diagnostic functions

Core Functions

- Supports MDI/DCP audio stream transmission
- Supports MDI/DCP PFT multi-level error protection
- Compatible with A/B/C/D operating modes
- Supports 16QAM/64QAM modulation

Technical Specifications

DRM features

- **Robustness modes:** Supports A/B/C/D modes (DRM30 standard)
- **Technical standards:** Complies with ETSI ES 201 980 DRM specifications and GY/T 423-2025 requirements
- **Protection mechanisms:** Supports all coding rates and protection levels for EEP/P/UEP
- **Service types:** Audio (USAC), DRM text, MOT slideshow (JPG/PNG), interactive data
- **Output protocols:** Supports MDI/DCP (UDP) transmission, including AF/F/PFT modes

Input/Output Interfaces

- **Analog audio inputs:** 2×Stereo (XLR/TRS combo interfaces)
- **Digital audio inputs:** 2×AES/EBU (XLR interfaces)
- **Network interfaces:** 2×10/100/1000BASE-T (RJ-45) for system management and data output.
- **USB interface:** 1×Type A for device configuration and future function expansion.
- **Web management:** Integrated web console
- **Local display:** Front panel equipped with 2×40-character LCD status monitor.
- **Network management protocol:** Supports SNMP.

Physical & Environmental Parameters

- **Installation:** 1RU 19-inch rack-mount
- **Dimensions:** 438mm × 44mm × 330mm (W×H×D)

Power Parameters

- **Input voltage:** AC 110V-240V @ 50/60Hz
- **Typical power consumption:** 20W

Environmental Parameters

- **Operating temperature:** 0°C to 40°C
- **Real-time temperature monitoring:** Supported

NGA-201A DRM-AM Modulator Specifications



Product Overview

Newglee NGA-201A DRM-AM Modulator is an advanced core DRM baseband processing device designed in compliance with ETSI ES 201 980 standard and GY/T 423-2025 "Technical Specification for Medium and Shortwave Digital Sound Broadcasting". Based on an embedded platform, it is equipped with advanced channel coding and OFDM modulation functions. It receives MDI/DCP streams from DRM encoders and generates DRM-compliant signals.

Key Features

- **Peak-to-Average Power Ratio (PAPR) suppression:** This function effectively reduces the PAPR of OFDM signals, enhancing the output capability and efficiency of the transmitter.
- **Digital pre-distortion:** Ensures high-quality transmission by effectively compensating for and adjusting transmission signals.
- **Multiple output modes:** The modulator supports various output options, including I/Q output, envelope/phase-modulated RF output, or direct RF output, making it compatible with different transmitter systems.

Functional Characteristics

- Inputs MDI/DCP multiplex streams via Ethernet. Compatible with A, B, C, and D modes.
- Standard QAM constellation mapping, symmetric and hybrid hierarchical modulation constellation mapping.
- Coding rate ranges from 1/4 to 8/9 (EEP/UEP).
- Clock sources include internal 10MHz and external 10MHz, with 1PPS for time synchronization.
- Supports single-frequency and multi-frequency synchronous networking.
- Dynamic reconfiguration capability.
- Output spectrum meets ITU-R spectrum requirements.
- Peak-to-Average Power Ratio (PAPR) suppression.
- Options for digital I/Q output, amplitude/phase output, and RF output.

Technical Specifications

DRM Features

- Robustness modes: DRM30 modes A, B, C, D.
- Channel bandwidth: 4.5, 5, 9, 10, 18, 20 kHz.
- Modulation: MSC 16 QAM/64 QAM and HMmix/HMSym, SDC 4 QAM/16 QAM.
- Protection: Equal Error Protection (EEP) and Unequal Error Protection (UEP), supporting all coding rates and protection ratios.
- Interleaving: Short interleaving (0.4s) and long interleaving (2s).
- SFN (Single Frequency Network): Supported
- DRM DCP: Supports Forward Error Correction (FEC) and Protected Fragment Transmission (PFT).

Signal Pre-Correction

- AM/AM, AM/PM distortion correction.
- Peak-to-Average Power Ratio (PAPR) suppression.
- Phase/envelope equalization.
- Phase/envelope delay compensation.

Interfaces (Input - Output)

- RF OUT: 1 BNC interface for direct RF output
- RF IN: 1 BNC interface for RF feedback
- 10 MHz: 1 BNC interface for reference input
- 1PPS: 1 BNC interface for reference input
- Ethernet: 1 10/100 Base-T RJ45 connector for MDI/DCP input and management
- Baseband output: 1 AES/EBU XLR interface for digital I/Q output (48 kHz)
- RS232: 1 UART interface for transmitter configuration
- GNSS UART: 1 UART interface for GNSS receiver

Management

- Web: Integrated web console
- LCD: Front panel 2-line 20-character LCD
- SNMP

Physical & Environmental

- Installation: 1RU 19-inch rack-mount chassis
- Dimensions (W×H×D): 438mm × 44mm × 330mm

Power

- Input: AC 110V - 240V @ 50/60Hz
- Typical power consumption: 20W

NGA-201F DRM-FM Modulator Specifications



Product Overview

The Newglee NGA-201F DRM-FM Modulator supports the DRM standard ETSI ES 201 980 and is designed to convert data streams from a media encoder into RF signals. It features modules for DRM baseband processing, digital signal synthesis, frequency conversion, DAC, RF output, audio signal input/output, monitoring system, and control panel.

Key Features

- **Multiple output modes:** The modulator supports various output options, including I/Q output, envelope/phase-modulated RF output, or direct RF output, making it compatible with different transmitter systems. Digital Pre-Distortion: Optimizes signal quality through compensation.
- **DRM Modulation Support:** Uses Mode E modulation to generate standard RF signals from MDI/DCP streams. High Performance Processing: Digital signal processing algorithms and Digital Pre-Distortion (DPD) to optimize system performance.
- **Frequency Synthesis:** Direct digital frequency synthesis maximizes RF domain proximity, supporting the 87-108 MHz band.
- **Network Management:** Supports remote control via Web, RS232/RS485, and firmware can be upgraded over the network. Reliable Operation: GPS synchronization supports SFN/MFN operation, ensuring seamless long-term operation. Spectrum Optimization: Advanced windowing and filtering algorithms ensure signal purity.

Functional Characteristics

- Dual MDI Input: MDI/DCP streams.
- Modulation Parameters: Bandwidth 100kHz, Interleaving depth 0.6s.
- Mode: Mode E.
- Mapping: 4QAM, 16QAM.
- Coding Rates: 1/4 to 8/9.
- Clock Sources: 10MHz internal/external, 1PPS sync.
- Networking: Single/multi-frequency sync.
- Reconfiguration: Dynamic.
- Spectrum: ITU-R compliant.
- PAPR Reduction: Built-in.
- Outputs: RF, I/Q.

Technical Specifications

DRM Features

- Bandwidth: 100 kHz
- Modulation: 4QAM, 16QAM
- Protection: EEP/UEP with all coding rates and protection ratios
- Interleaving: 600ms
- SFN: Supported
- DRM DCP: FEC and PFT supported
- RF output accuracy: MER >50 dB, ACPR < -60 dBc

Signal Pre-Correction

- AM/AM, AM/PM distortion correction
- PAPR reduction
- Phase / envelope equalization
- Phase / envelope delay compensation

Interfaces (Input & Output)

- RF IN: 1x BNC for pre-corrected signal input, +5 to +10 dBm
- 10 MHz in: 1x BNC for reference input
- 10 MHz out: 1x BNC for reference output
- 1PPS in: 1x BNC for reference input
- 1PPS out: 1x BNC for reference output
- Ethernet: 1x 10/100 Base-T RJ45 for management
- MDI: 2x 10/100 Base-T RJ45 for IP DCP/MDI input
- RS232: 1x UART for Tx configuration
- RS485: 1 x RS485 for Tx configuration
- RF OUT: 1x BNC for direct RF output

Management

- Web: Integrated web console
- LCD: 2 x 40 front panel LCD for status monitoring
- SNMP

Physical & Environment

- Mounting: 1RU 19" rackmount chassis
- Dimensions (W x H x D): 438mm x 44mm x 330mm
- Weight: 3.5kg

Power

- Input: AC 176V-264V @ 50/60Hz
- Typical Power Consumption: 20 wat

NGA-601 Next-Generation Professional DRM/AM/FM Receiver Specifications

Product Overview

Newglee NGA-601 is a next-generation DRM/AM/FM receiver specifically designed for digital broadcast operators, radio stations, and regulatory authorities. It provides a powerful, flexible, and portable professional broadcast monitoring and analysis solution.



Key Features

- **Advanced DRM support:** Integrates USAC high-definition audio decoding, supporting structured graphic information, MOT slide playback, and emergency alert functions.
- **Analysis and data tools:** Expert mode enables real-time monitoring of MER/RSSI indicators, supporting logging, DCP/P/MDI stream transmission (Max model), and GPS/Beidou dual-mode positioning.
- **Interaction and connectivity:** Equipped with a 3.5-inch IPS color touchscreen and physical buttons, supporting SMA antenna interface, adjustable attenuation/impedance, USB, and Micro SD expansion.
- **Full-band reception:** Supports DRM/AM/FM signal monitoring in medium wave, shortwave, FM bands, and VHF Band II, meeting the parsing needs of existing and future broadcast signals.

Core Functions

- USAC audio decoding.
- Graphic slide/structured graphic information broadcasting.
- DRM text information display.
- DRM Emergency Warning Function (EWF).
- Expert mode.
- Geotagged reception logs, MDI recording, and stream transmission.
- 3.5-inch IPS color touchscreen.

Technical Specifications

Broadcast Reception

- DRM broadcasting: Medium wave (520-1710kHz), shortwave (2.3-26.1MHz), VHF Band II (87.5-108MHz).
- Compliance: ETSI ES 201 980 standard
- AM and FM broadcasting.
- Antenna interface: External SMA antenna interface (no built-in antenna), adjustable attenuation/impedance.
- Tuning modes: Manual/memory tuning.
- Step sizes: 1kHz/5kHz/9kHz/10kHz/100kHz and direct frequency input.

Data Display and Recording

- DRM text information display.
- DRM graphic interactive services.
- DRM MOT slide playback.
- Displays signal strength, MER (Modulation Error Ratio), and DRM channel parameters.
- DRM MDI stream recording.
- DRM reception log recording.
- Screenshot function.
- Real-time GPS/Beidou dual-mode positioning reception (GPS/Beidou receiver required separately).
- Display: 3.5-inch 320x480 high-brightness IPS full-view capacitive touchscreen.

Interface Configuration

- SMA external antenna input interface.
- USB Type-A interface (for GPS/Beidou receiver).
- USB Type-C interface (charging and firmware upgrade).
- 3.5mm headphone interface.
- Micro SD card slot.

Audio Output

- 5W mono cavity speaker.
- 3.5mm headphone output.

Wireless Connectivity

- Wi-Fi (Wireless Local Area Network).
- Supports MDI stream transmission via Wi-Fi

Battery and Power

- Dual 18650 rechargeable lithium-ion batteries with coulomb counter power monitoring.
- User-replaceable batteries.
- USB Type-C charging interface.
- Supports low-power sleep mode.

Dimensions and Weight

- Dimensions: 190mm × 110mm × 36mm (W×H×D).
- Weight: 250g (without batteries)

NGA-602 DRM Monitoring Receiver Specifications



Product Overview

Newglee NGA-602 DRM Monitoring Receiver is a professional-grade digital broadcast monitoring device dedicated to receiving, decoding, and analyzing DRM (Digital Radio Mondiale) signals. It is equipped with a complete web-based interactive interface, supporting real-time spectrum monitoring, service selection, signal quality analysis, logging, and recording/playback functions.

Key Features

- **Multi-service synchronous processing:** Can simultaneously decode and display up to 4 DRM services, including audio, text information, slides, and structured graphic information.
- **Advanced signal analysis:** Real-time monitoring of MER (Modulation Error Ratio), SNR (Signal-to-Noise Ratio), RF level, and synchronization status.
- **Recording and playback:** Supports IQ raw signal recording for up to 2 hours and offline analysis.
- **Alert management:** Supports configurable threshold alerts for MER and RF levels, generating historical log records.
- **Web interactive interface:** Modern responsive operation interface accessible via standard browsers.

Core Functions

- **Frequency range:** 500 kHz – 30 MHz (medium wave/shortwave).
- **Supported modes:** MF/HF band A/B/C/D operating modes.
- **Decoding capabilities:** USAC, HE-AAC v2 audio decoding; MOT slides/structured graphic information/text information parsing.
- **Interface configuration:** Dual Gigabit Ethernet ports, USB interface, front panel LCD display, and key control.
- **Recording function:** IQ format recording, maximum continuous recording of 2 hours, built-in 512GB storage space.
- **Alert function:** Configurable alerts for MER, RF level, and audio status.
- **Web interface:** Real-time data transmission via WebSocket, supporting export of logs and diagnostic data

Technical Specifications

DRM Features

- Robustness modes: Supports A/B/C/D modes (DRM30 standard).
- Technical standards: Complies with ETSI ES 201 980 DRM specifications and GY/T 423-2025 specifications.
- Frequency range: 500 kHz – 30 MHz.
- Supported bandwidths: 4.5/5/9/10/18/20 kHz.
- Modulation modes: 4QAM/16QAM/64QAM.
- Audio coding/decoding: USAC, HE-AAC v2.
- Data services: Structured graphic information/MOT slides/text information.
- Maximum concurrent services: 4 simultaneous processing

Signal Monitoring

- Linearity: +10 dBm IIP3.
- Dynamic range: 100 dB BDR.
- MER range: 0–70 dB, accuracy ± 0.5 dB.
- SNR range: 0–70 dB, accuracy ± 0.5 dB.
- Synchronization mechanism: Automatic detection and tracking

Input/Output Interfaces

- RF input: 1×BNC signal input interface.
- Network interfaces: 2×10/100/1000BASE-T (RJ-45) for system management and data output (supports remote data backup).
- USB interface: 1×Type A for device configuration and future function expansion.
- GPS interface: Optional external time synchronization input.
- RS232 interface: 1×UART configuration interface.

Monitoring and Recording

- Spectrum display: Real-time FFT spectrum and waterfall plot.
- Data recording: Supports CSV format export (automatic/manual mode).
- Recording format: 16-bit IQ sampling data.
- Maximum single recording duration: 2 hours.
- Storage capacity: Built-in 512GB

Management Functions

- Web management: Integrated web console.
- Local display: Front panel equipped with 2×40-character LCD status monitor