DOEWE
TEST SOLUTION EXPERT

COMPANY PROFILE

Doewe Technologies, headquartered in Beijing, has been operating for a decade and currently has branches including the Beijing R&D Center, Chengdu R&D Center, Doewe Shanghai, Doewe Shenzhen, and Doewe Hong Kong. The company is fully committed to building its independent brand "Doewe," with its business covering two main categories: Advanced Sensing Measurement and Control (ASMC) and Professional Test and Measurement Solutions (PTMS).

The ASMC product line provides innovative high-precision sensing acquisition and data analytics solutions. PTMS focuses on industry-specific test and measurement solutions for audio, video, and RF applications. It has established the 5XC product system, serving sectors such as transportation, broadcasting, automotive electronics, consumer electronics, and university research institutes.

Through relentless effort, several of the company's products have become benchmark test instruments in their respective industries. Doewe Technologies also holds multiple core patents and software copyrights, participates in relevant industry standards working groups, and contributes to the formulation of national and industry standards. Building on past achievements, Doewe continues to increase its R&D investment. We have never forgotten our original aspiration, firmly believing that only profound technological accumulation creates value. We persistently pursue innovation in test and measurement technology, dedicated to technology development, application software services, and research in test and measurement solutions.

Leveraging its Beijing headquarters, related technical centers, and subsidiaries, Doewe Technologies has gradually established a nationwide pre-sales and after-sales service network, providing customers with professional technical consultation. Guided by the principles of "Rigorous, Efficient, Professional, Innovative," Doewe Technologies will continue steadfastly on this path, living up to the trust of every customer.

The journey ahead is long and challenging. We will accompany you on this path of growth to create a new future of technology together.

Overview

The mid-to-high-end integrated TV signal analyzer AMA310 series, developed by Beijing Doewe Technologies Co., Ltd., features a core module designed in China and manufactured with German craftsmanship. It offers a variety of excellent testing functions, supporting DVB-C/S/S2, FM, PAL D/K, and DTMB (GB20600-2006) testing tailored to Chinese requirements. It also includes DOCSIS3.0/C-DOCSIS uplink/downlink analysis and an optical input test interface (high-end version), real-time demodulation output, and supports real-time color decoding playback for RF input/ASI input, as well as large card decryption. The series is divided into three configurations: the fully equipped AMA310X, the core configuration AMA310B, and the basic batch version AMA310S. This manual describes the full configuration; for version differences, refer to the purchasing list.

- **Dual LCD displays for separate image/spectrum and parameter viewing, ensuring convenient observation;**
- **Waterproof and stain-resistant buttons for intuitive and easy operation;**
- **Testing frequency range covers 5~2150MHz;**
- **Supports spectrum analysis, with automatic high-speed level display range adjustment based on signal strength, eliminating the need for manual range switching;**
- **Supports FM/FM slots, analog cable TV forward/reverse channels, and analog satellite standard testing;**
- **Supports DVB-S/S2, DVB-C, DAB, and DTMB modulation standards, as well as DOCSIS3.0/C-DOCSIS testing;**
- **DTMB (GB20600-2006) supports the following testing functions: full-mode demodulation testing for RF; real-time demodulation output for TS; online decoding observation; support for MPEG2 SD/HD, H.264 SD/HD, and H.265/AVS+ HD/UHD; audio decoding and playback; carrier level testing; MER and BER testing;supports channel parameter parsing; displays baseband parameters during decoding; supports SFN echo testing;**
- **Digital TV supports modulation constellation diagram display for DVB-S/S2, DVB-C, and DOCSIS signal modulation imbalance and phase error analysis. The ZOOM function can magnify each quadrant of the constellation diagram, and supports freezing the constellation diagram;**
- **DVB-C supports BER and MER testing, with MER true testing capability up to 40dB, while also supporting return channel testing and DOCSIS3.0/C-DOCSIS uplink/downlink analysis;**
- **Analog TV testing supports preset standard channel tables or custom channel tables for automatic testing. It also supports image oscilloscope functionality, with real-time waveform display for TV scan lines (L-625 lines), and the waveform can be magnified;**
- **DVB-S/S2 testing supports level, MER, and BER analysis, constellation diagram display, and provides LNB power supply. It supports DiSEqC, UNICABLE, and JESS protocols, as well as a test audio tone proportional to the input level, allowing rough judgment of input signal strength based on frequency, facilitating convenient antenna adjustment and positioning.**

Core Features and Advantages

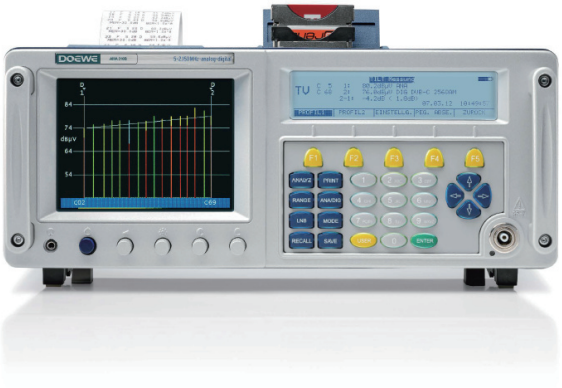
- Supports direct optical interface input testing, with test parameters applicable to RF input testing mode;
- Supports real-time decoding, compatible with SD and HD, includes 2 CI slots, supports DV output, and real-time image output via SCART interface;
- Built-in 24-bit thermal printer for direct printing of test parameters/spectrum graphs, and supports real-time output of constellation diagrams and spectrum graphs via SCART interface;
- Supports LAN remote control, provides remote control software, and supports integration with other software;
- The device supports test parameter memory function, with 200 test memory points and approximately 20,000 test values, allowing arbitrary arrangement and recording;
- Built-in rechargeable battery and 12V DC power socket, compatible with car cigarette lighter 12V DC power supply;
- Optional instrument case, sturdy and aesthetically pleasing, with anti-collision protection;
- Professional field testing software, supporting real-time field testing and statistics for FM, PAL, D/K, and DTMB standard signals;
- Professional K-factor test antenna, portable design, can be mounted on a tripod for testing;
- Suction cup telescopic antenna, supports FM and TV bands.

AMA310 Series Product Features

- **5.5" high-resolution color TFT display**
- **Frequency range: 5 - 2150 MHz**
- **Analog: FM and analog TV**
- **Digital: DVB-S, DVB-S2, DVB-C, DTMB**
- **Return channel: RF level, BER, MER, constellation diagram**
- **MPEG4 decoding, supports SD and HD image display, includes 2 CI slots**
- **H.265/AVS+ decoding and image display, supports DRA decoding**
- **Real-time constellation diagram display**
- **Ripple voltage and phase jitter detection**
- **CATV: MER testing capability up to 40dB, S/N (analog TV) testing capability up to 55dB**
- **Supports full-channel Tilt testing for observing transmission path overview**
- **DTMB echo characteristic testing (impulse response)**
- **Analog TV Videotext and DVB subtitling testing**
- **DiSEqC, UNICABLE, JESS**
- **Supports remote programming**
- **Supports data monitoring and recording**
- **Online printing of test results and screen captures**
- **Supports USB, SCART input/output, DVI output, and Ethernet RJ45 interface**
- **Rechargeable lithium battery, 14.4V/6.6Ah**

Integrated TV Signal Analyzer AMA310 Series

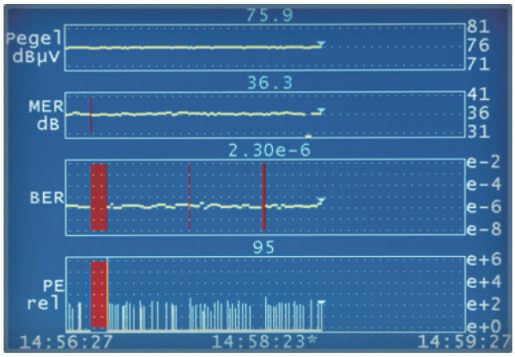
Core Features and Advantages



German Craftsmanship, Professional Assurance

Faster computing and control programs, higher image display resolution, and more flexible operational design are typical features of the AMA310.

High-brightness color TFT provides high-contrast images. To adapt to different operating environments, the device keyboard supports backlighting.



Precision Testing

Modern industrial design and high-performance rechargeable batteries make the analyzer more economical, and all integrated modules strictly comply with EMC regulations.

This ensures no interference between internal modules, guaranteeing consistent and accurate test results.

Data Storage and Recording

Test results, spectrum screenshots, and constellation diagrams can be directly saved in BMP format for test reports.

The device supports an internal clipboard and can also save images directly to USB storage for easy copying.

The device can store up to 200 test memory points, with up to 20,000 test result records.

Real-Time Demodulation

Supports real-time demodulation output for DVB-C/S/S2 and DTMB RF input, ASI interface. The demodulation process can test TS stream parameters and service lists, and supports parsing of PAT/PMT, SDT, EIT, NIT, BAT, and TOT parameters.

Professional Decoding

Supports the most comprehensive hardware decoding in the industry, including MPEG-2/H.264, AVS/AVS+ video decoding (compatible with SD and HD), and MPEG, AAC, and DRA audio decoding.

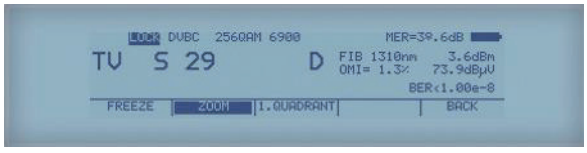
Modules and Functions

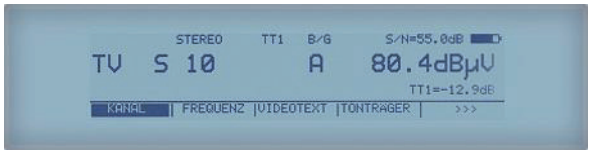
For the AMA 310 series, the testing functions that have been implemented so far are as follows：

Optical Receiver Test Option (1310-1490-1550nm)

Based on this module, the quality of HF signals transmitted in optical fibers can be directly tested. The built-in optical receiver module in AMA310converts optical signals into RF signals. In addition to testing optical power, it can also display the optical modulation index (OMI). The input interface uses a stable SC/APC connector, which automatically shuts off when no fiber is connected for protection.

The RF signal obtained after the optical receiver module is consistent with the RF signal input from coaxial cables, meaning all RF input tests can be applied to the optical input interface.

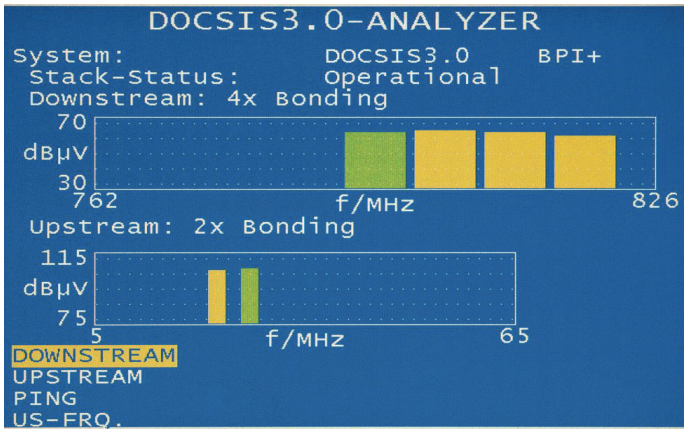




S/N Testing Option

Using this module, AMA 310 can test the signal-to-noise ratio of analog TV, with a testing capability of up to 55dB.

This function allows precise evaluation of analog TV signal transmission system design.

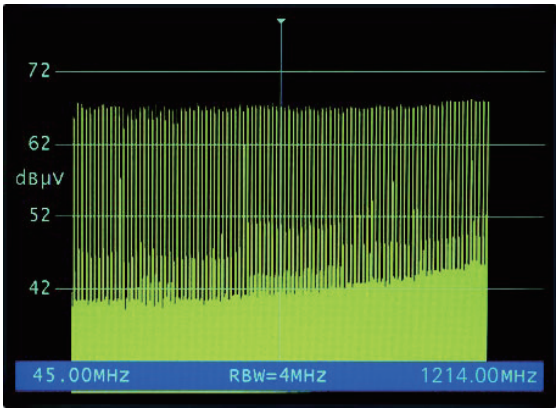


DOCSIS Analysis Option

Built-in CM, supports EuroDOCSIS and (US) DOCSIS analysis, compatible with DOCSIS 3.0 and C-DOCSIS.

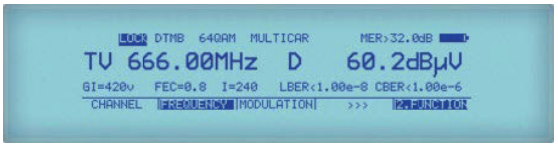
Graphically displays channel binding and real-time uplink/downlink signal testing.

Modules and Functions



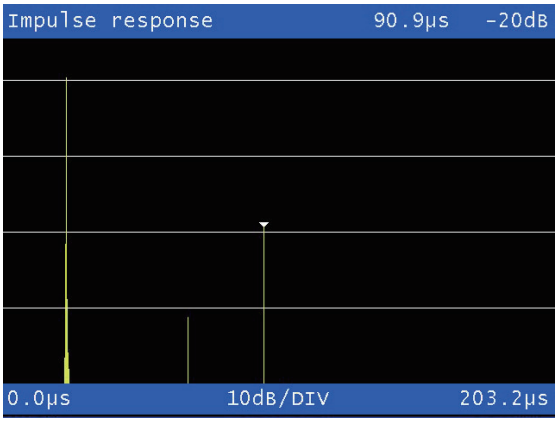
CATV Frequency Range (up to 1214 MHz)

More and more cable TV operators are upgrading their transmission networks to support 1GHz bandwidth. The image shows a combined spectrum from 50MHz to 1000MHz, with the level of each channel displayed.



DTMB (GB20600-2006) Test Option

DTMB (GB20600-2006) is China's terrestrial digital TV transmission standard. Level, error rate (LBER and CBER), MER, and SFN can all be tested.



DTMB SFN Testing Function

By moving the cursor, the relative attenuation and delay of echo signals can be directly measured, with highly accurate results. The echo interval identification capability reaches 0.1 μs.

Modules and Functions

Telescopic Antenna

A portable omnidirectional antenna for FM and TV bands, easy to use in vehicles.

GPS Receiver

BroadCMS plus dedicated GPS receiver for quick test locking.

Car Cigarette Lighter Power Cable

The device can optionally provide a dedicated cable for car cigarette lighter power supply for vehicle testing.

Dedicated F-F Test Cable

Used to connect the K-factor antenna and the instrument.

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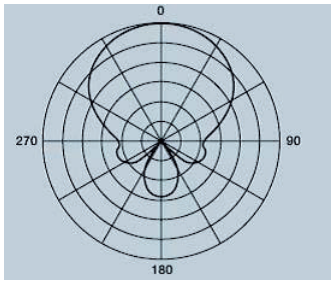
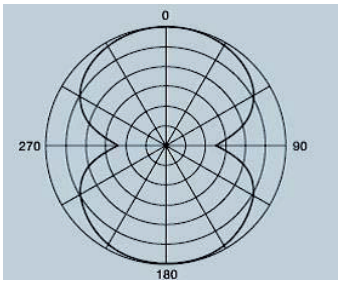
Modules and Functions

K-Factor Directional Antenna

Professional antenna with K-factor standard curve, 75ohm impedance, directly compatible with the AMA310 series.

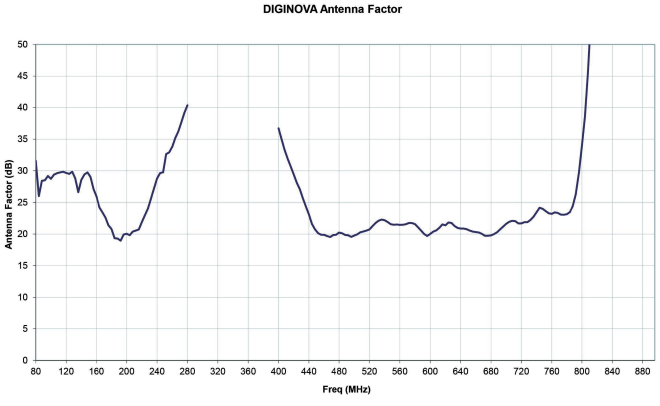


UHF Band Radiation Pattern



VHF Band Radiation Pattern

Signal			FM	BIII	UHF 21-60
Maximum gain	dBi	BOSS OFF	-2		4 ... 7
		BOSS ON	-2	10	19 ... 22
Noise figure	dB		-	3	2
Output level	dBµV (DIN45004B)		-	Autoregul.	
Power supply	V⎓		12 - 24		
Max. current	mA		32@12Vdc - 37@24Vdc		
Protection level	IP		53		
Wind load	N		69.6 (@ 130 Km/h) 95.7 (@ 150 Km/h)		
Weight	g		1500		
Dimensions	mm		420 x 315 x 75		



Modules and Functions

Adapter

Tripod

Instrument Case

Option Name	Description	Model	Remarks
Integrated TV Signal Analyzer	All functions described in this manual	AMA310X	Full-featured high-end version, available for single purchase
Integrated TV Signal Analyzer	Supports DVB-C/DOCSIS, DVB-S/S2, and DTMB analysis Supports MPEG2/H.264/HEVC/AVS+/DRA decoding Does not include ATV S/N testing or optical input testing	AMA310B	Custom version, minimum order of 5 units
Broadcast TV Analyzer Tester	Supports DVB-S/S2 and DTMB analysis Supports MPEG2/H.264/HEVC/AVS+/DRA decoding Does not include ATV S/N testing, optical input testing, DVB-C testing,DOCSIS testing, or printer	AMA310S	Custom basic version, minimum order of 30 units
K-Factor Antenna	Supports FM and TV bands, provides K-factor curve and radiation pattern	AMA-Bk	
Coverage Testing Option	Real-time monitoring solution, provides free map functionality and complete,configures dedicated control computer	BroadCMS Plus	
GPS Receiver	For use with BroadCMS Plus	AMA-GPS	
Suction Cup Telescopic Omnidirectional Antenna	For use with BroadCMS Plus	AMA-Ba	
Car Cigarette Lighter Power Cable	12V DC power supply	AMA-Bc	
Dedicated F-F Test Cable	For K-factor antenna testing	AMA-Bf	
Adapter		AMA-Bz	
Tripod	For mounting K-factor antenna	AMA-Bt	
Instrument Case	For storing devices and accessories	AMA-Bo	

Field Strength Coverage Testing System BroadCMS

The field strength coverage testing system BroadCMS comprehensively supports AM, FM, CDR, PAL-D/K, and DTMB signal field strength coverage monitoring. The system includes monitoring platform software, a GPS receiver system, and map solutions, enabling the drawing of point trajectories and line trajectories for 2D coverage effect evaluation. BroadCMS can be used with the integrated TV signal analyzer, professional receiving antennas, and precision transmission cables, and supports secondary integration with mainstream broadcast TV test instruments in the industry.

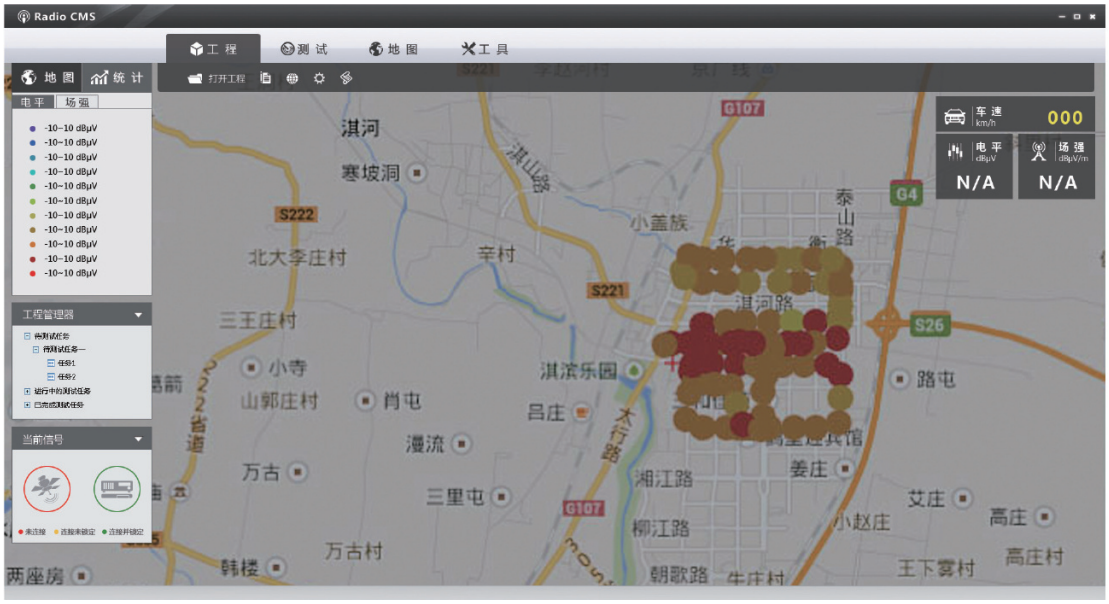
Key features of the field strength coverage testing system include:

- Displays signal level parameters and performs strength statistics, automatically calculating field strength values in dBuV/m based on antenna factors and cable loss inputs;
- Supports GPS positioning and real-time communication with the test host, providing system status during mobile testing;
- Supports automatic saving of test information, including signal strength, longitude, and latitude;
- Supports both online and offline map modes, with map caching functionality, compatible with Google and Bing maps;
- Supports real-time display of current test location and related test data on the map window;
- Includes coverage analysis functionality, enabling the creation of area-based coverage analysis diagrams from test data;
- Allows playback of the testing process based on test paths and data;
- Test data can be exported as Google Earth files;
- Automatically generates test reports in Word format;
- Supports custom threshold settings;
- Provides statistical functionality to view data distribution for current or completed tests;
- Supports exporting data to Excel

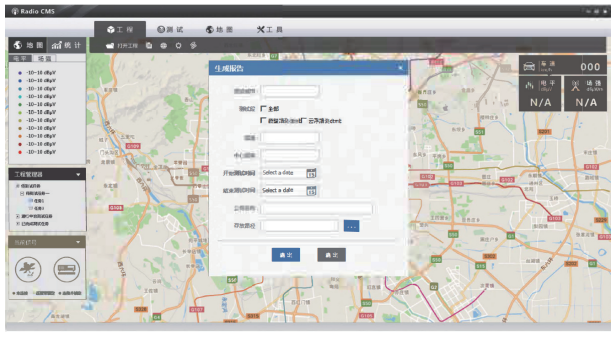
When hovering over a specific data point, detailed information about that point is displayed

Measures the straight-line distance between two points. Select the distance measurement tool in the navigation bar, move the mouse to the map area, click to start marking points, and right-click to end. The distance is measured in real-time and displayed to the right of the marked points

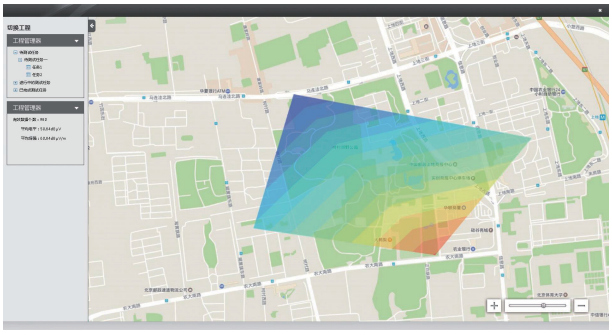
Field Strength Coverage Testing System BroadCMS



Marks transmitter tower information. Select the "Mark Transmitter Tower" tool in the navigation bar, click the left mouse button at the desired location on the map, and a dialog box for transmitter tower information will pop up.



PC Remote Control Software/Remote Control Software



Supports coverage diagram functionality to illustrate signal coverage quality

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