

# Video Software-Defined Toolkits

ACCELERATE YOUR RF DIGITAL VIDEO BROADCAST RECEIVER TESTING

## DVB-T, DVB-T2, ISDB-T, DMB, DTMB, CMMB, ATSC

The **AST-1000** is an **extensible, future-proofed platform** that can handle all of today's infotainment RF and non-RF (e.g., CAN) test needs while also easily accommodating changing standards, new protocols and additional applications for wide-ranging product test and validation needs.

Featuring Avera's **leading RF and test expertise**, the software-defined AST-1000 is powered by the NI VST and LabVIEW, and **can generate all common radio, digital video, as well as simulate GNSS signals**.

## FULL SUITE OF VIDEO SIGNAL GENERATORS

To solve all your video signal test needs, Avera's **software-defined video toolkits** generate perfect analog and digital video broadcast signals for the most common worldwide standards like ATSC, CMMB, DTMB, DVB-T, DVB-T2, and ISDB-T. Without expanding your hardware footprint or having to juggle different instruments, you can generate any signal you need via the handy console, accelerating your RF product testing.

With our signal generator toolkits at your fingertips, you can quickly access signal and test libraries, set up and take measurements, save user-defined configurations, use the APIs to accelerate test-plan development and to automate validation and manufacturing tests—including from within NI TestStand.



 **Avera**

# Video Software-Defined Toolkits

## DVB-T

The **DVB-T Software** toolkit offers a standards-based test solution for designing, evaluating and manufacturing Digital Video Broadcasting-Terrestrial (DVB-T) receivers and transmitters.

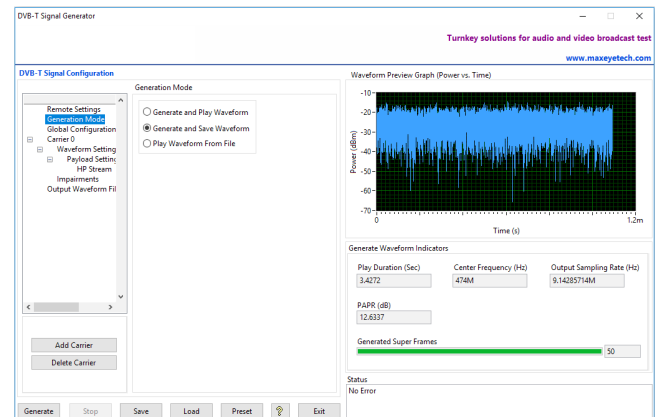
DVB-T is the Europe-based consortium standard for broadcast transmission of digital terrestrial television.

DVB-T can transport compressed video data in an MPEG transport stream using OFDM modulation with channel coding (i.e. COFDM).

This standard is in use in more than 30 countries. The use of COFDM with an appropriate guard interval allows optimal trade-off between network topology and frequency efficiency.

### Specification

- ETSI EN 300 744 V1.6.1 (Digital Video Broadcasting; Framing structure, channel coding and modulation for digital terrestrial television)



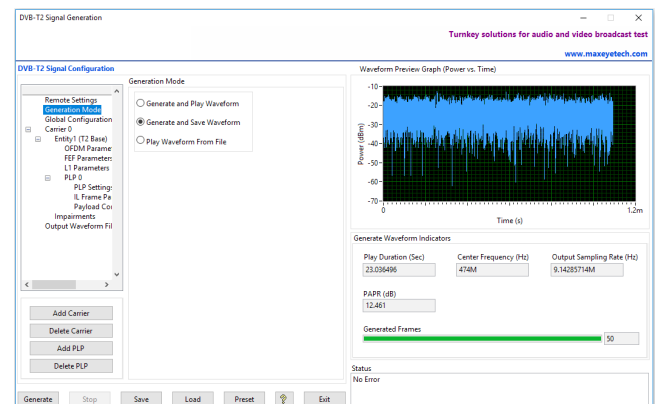
## DVB-T2

The **DVB-T2 Software** toolkit offers a standards-based test solution for designing, evaluating and manufacturing Digital Video Broadcasting-Terrestrial (DVB-T2) Second Generation equipment.

This system transmits compressed digital audio, video and other data in Physical Layer Pipes (PLPs), using OFDM modulation with concatenated channel coding and modulation.

### Specification

- ETSI EN 302 755 V1.3.1 (2012-04), "Digital Video Broadcasting (DVB); Frame structure, channel coding and modulation for a second-generation digital terrestrial television broadcasting system (DVB-T2)"
- Supports Single and Multiple PLPs configuration including T2-Lite



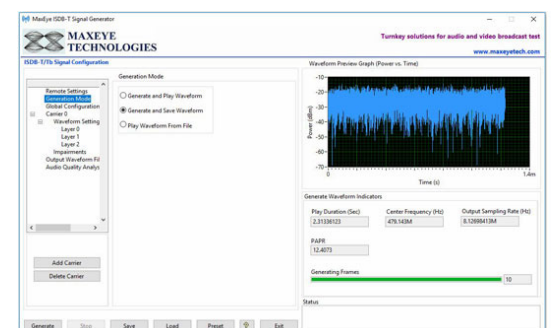
## ISDB-T

The **ISDB-T Software** toolkit offers a standards-based test solution for designing, evaluating and manufacturing Integrated Services Digital Broadcasting Terrestrial (ISDB-T) equipment.

ISDB-T is a Japanese standard for digital terrestrial television and a derivative of ISDB-T. ISDB-Tb is developed by the Brazilian government and is being widely adopted in South America.

### Specification

- ARIB STD-B31 Version 1.6 Transmission System for Digital Terrestrial Television Broadcasting
- ABNT NBR15601 – Brazilian Standard, Digital Terrestrial Television – Transmission System



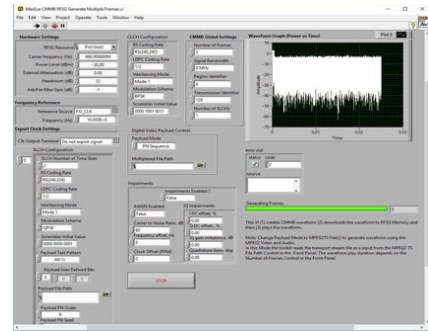
# CMMB

The **CMMB Software** toolkit offers standards-based test solution for designing, evaluating and manufacturing China Mobile Multimedia Broadcasting (CMMB) equipment.

CMMB is a mobile television and multimedia standard developed and specified in China by the State Administration of Radio, Film and Television (SARFT).

## Specification

- GY/T 220.1-2006 - Mobile Multimedia Broadcasting Part 1: Framing Structure, Channel coding and Modulation for Broadcasting Channel.
- GY/T 220.2-2006 - Mobile Multimedia Broadcasting Part 2: Multiplexing



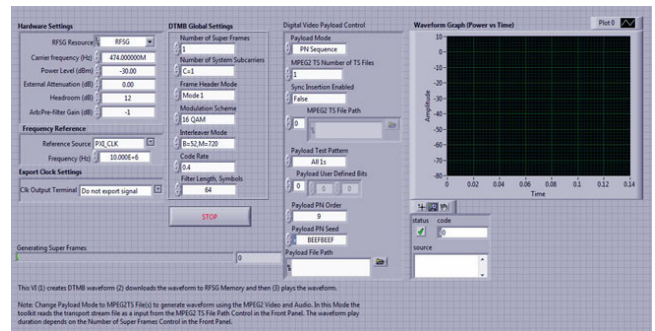
# DTMB

The **DTMB Software** toolkit offers a standards-based test solution for designing, evaluating and manufacturing Digital Terrestrial Multimedia Broadcast (DTMB) equipment.

DTMB is a TV standard for mobile and fixed terminals used in China, Hong Kong and Macau.

## Specification

- GB 20600-2006 - Framing Structure, Channel Coding and Modulation for Digital Terrestrial Television Broadcasting



# ATSC

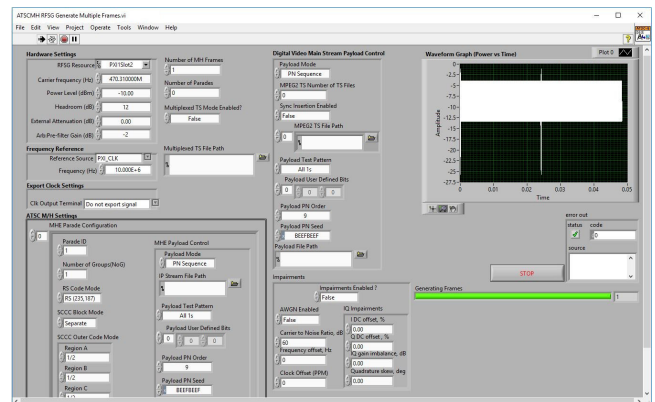
The **ATSC Software** toolkit offers a standards-based test solution for designing, evaluating and manufacturing ATSC equipment.

ATSC standards have been developed by the Advanced Television Systems Committee for digital television transmission over terrestrial, cable, and satellite networks.

ATSC is optimized for a fixed reception in the typical North American environment and uses 8VSB modulation. Additional channel coding mechanisms are introduced in ATSC-M/H to protect the signal.

## Specification

- ATSC Digital TV Standard, Part 2 – RF/Transmission Characteristics, Document: A/53 Part 2:2011, 15 December 2011
- ATSC-Mobile DTV Standard, Part 2 – RF/Transmission System Characteristics, Document A/153 Part 2:2009, 15 October 2009





# Averna's AST-1000

## Industry-Leading Infotainment Signal Testing Platform

The only RF Solution  
designed for Radio,  
Navigation, Video  
and Connectivity  
testing!

### → Key Features and Benefits

- Supports all common broadcast radio, digital video and navigation protocols
- Multi-constellation and multi-frequency GNSS Simulator powered by M3 Systems
- FPGA framework easily accommodates new signals, saving on instrument costs
- Easy-to-use interface for quick signal generation and easy test setups
- Flexible PXIe architecture allows integration of other applications/cards
- Rack-mountable, it handles lab validation as well as functional and EOL testing
- Standardized platform, easy calibration, simple maintenance, and global support
- Standardized APIs for seamless upgrade from older Averna RF signal-source products

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