



N7623B Signal Studio for Digital Video Technical Overview

Create Digital Video Waveforms with Ease

N7623B Signal Studio for Digital Video, the enhancement of N7623A, is a versatile software tool that simplifies the creation of arbitrary waveforms for most requested digital video standards, such as DVB-T/H/C/S/S2, ISDB-T, ATSC, DTMB, J.83 Annex B, and CMMB, and also enhanced support for MPEG transport streams that will fit into 64 MSa memory. Play back fully channel-coded digital video waveforms using the N5162A MXG ATE, N5182A MXG, E4438C ESG, and E8267D PSG vector signal generators, high-performance platforms that support a wide range of applications, including cellular and wireless connectivity communications.

To meet your specific need for designing and verifying digital video components and receivers, Signal Studio for Digital Video provides easy access to modulation parameters, coding specifications, static fading and signal generator control from one simple interface. When combined with the MXG ATE, MXG, ESG, or PSG, it is also an effective test solution that delivers flexibility in digital video signal structure at an excellent price/performance ratio.

Free 14-Day Trial

Download the software today to investigate the signal creation capability and generate test signals using a free 14-day trial license. After the trial license expires, each vector signal generator must be licensed separately to play back waveforms created by the software.

For more information, visit:
www.agilent.com/find/signalstudio

Key Features

- Supports N5162A MXG ATE, N5182A MXG, E4438C ESG, and E8267D PSG signal generators
- Quickly and easily configures digital video signals that comply for the following format, for both component and receiver tests
 - DVB-T/H/C/S/S2
 - ISDB-T, ISDB-T_{SB} (sound broadcasting using 1-seg or 3-seg)
 - J.83 Annex B
 - ATSC
 - DTMB
 - CMMB
- Customizes waveforms by adjusting signal parameters from the intuitive user interface
- Supports multi-carrier waveform capability
- Choose a PN sequence, or supply your own pattern or MPEG TS file as the source data and monitor video at the receiver
- Trim and edit input Transport Stream (TS) files for continuous video file playback for receiver video test
- Supports BER test with fixed or user defined data pattern.
- Adds static fading (for DVB-T/H, ISDB-T, ATSC and DTMB) and AWGN to simulate realistic signal conditions
- Automate signal configuration and generation using the API

Licensing Options

The N7623B offers flexible licensing options that allow you to choose the time-based or perpetual licensing and fixed or transportable options.

Refer to the Licensing topic for detailed licensing information and an easy-to-use Configuration Assistant that clearly describes the required options that will best meet your testing needs.

Fixed and Transportable Licenses

Fixed licenses are tied to a specific signal generator, while transportable licenses can be transferred from one signal generator to another up to 10 times per month, one signal generator at a time.

Time-based Licenses

For the N7623B, fixed, one-month, time-based licenses are available.

Waveform 5-pack Licenses

Waveform 5-pack licensing is a cost-effective solution for generating Agilent Signal Studio waveforms for a fraction of the full software price. You can create, generate, and permanently license up to 45 Signal Studio waveforms (nine 5-pack licenses) for playback on the N5162A MXG ATE, N5182A MXG, E4438C ESG, or E8267D PSG signal generators. With each Waveform 5-pack order, you will receive a 30-day license for any N76xxB Signal Studio application that allows you to create and evaluate an unlimited number of waveforms during the 30-day trial period.

Advanced Options

Each of the following formats includes *advanced* capability for receiver and component test testing.

Formats	Description
Advanced DVB-T/H/C/J.83 Annex A/C	The Advanced DVB-T/H/C license includes all the capability you need for receiver and component testing.
Advanced ISDB-T	The Advanced ISDB-T license includes all the capability you need for receiver and component testing.
Advanced DTMB	The Advanced DTMB license includes all the capability you need for receiver and component testing.
Advanced ATSC	The Advanced ATSC license includes all the capability you need for receiver and component testing.
Advanced DVB-S	The Advanced DVB-S license includes all the capability you need for receiver and component testing.
Advanced DVB-S2	The Advanced DVB-S2 license includes all the capability you need for receiver and component testing.
Advanced J.83 Annex B	The Advanced J.83 Annex B license includes all the capability you need for receiver and component testing.
Advanced CMMB	The Advanced CMMB license includes all the capability you need for receiver and component testing.

Configure Waveforms Quickly and Easily

Signal Studio for Digital Video provides a flexible, intuitive graphical user interface that makes operation easy and straightforward. All signal and hardware parameters are conveniently set in a windows interface. Graphical displays make it easy to confirm the Digital Video formats and parameters you've chosen, enabling you to configure the signal quickly and easily.

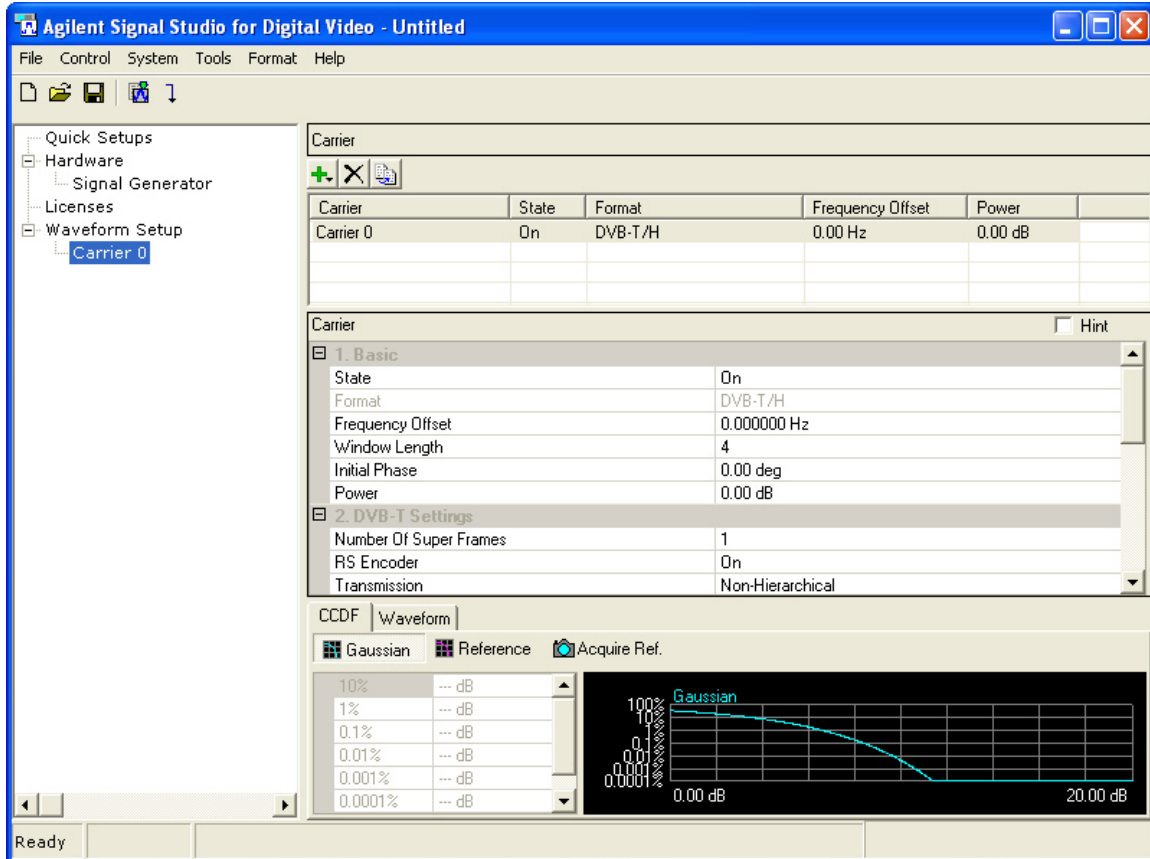


Figure 1. Graphical displays show carrier setup for digital video formats, as well as pre-download CCDF and power analysis tools.

Save Configurations as Quick Setup Buttons

Start by customizing the parameters in a configuration to create signals you need. Save your custom configurations as Quick Setups for later use. Create a library of different scenarios tailored to meet your specific testing requirements.

Expand Your Test Capability with Agilent Baseband Studio Products

These capabilities are available with the E4438C ESG and E8267D PSG signal generators:

- Add one or two channels of real-time fading impairments to digital video signals with the Agilent N5115B Baseband Studio for Fading solution
- Access digital IQ and digital IF test signals with the Agilent N5102A Baseband Studio Digital Signal Interface Module

Flexibility for All Your Digital Video Test Needs

Format	Features	Description
DVB-T/H	<ul style="list-style-type: none"> • 2k/4k/8k modes • 5/6/7/8 MHz bandwidth • Modulation: QPSK, 16QAM, 64QAM • OFDM frame with scattered pilot cells • continual pilot carriers and TPS • Hierarchical coding <ul style="list-style-type: none"> ○ Outer code (RS encoding) and inner code (K=7 convolutional coding, 1/2, 2/3, 3/4, 5/6, 7/8) ○ Outer Byte-wise interleaving and inner bit-wise and symbol interleaving 	<p>DVB-T is for terrestrial broadcast and the DVB-H is the extension to DVB-T for broadcast to handheld devices. The DVB-T/H quick setup menu simplifies the configuration of custom DVB-T/H signals needed to fully characterize your DVB-T/H components and systems. Signal Studio for Digital Video supports non-hierarchical or hierarchical transmission, enabling the simultaneous transmission of high and low priority transport streams. Use the software to specify modulation (QPSK, 16QAM, or 64QAM), coding (outer/ inner encoding), and TPS information. In addition to modifying physical layer signal parameters, Signal Studio for Digital Video automatically codes TPS carriers to convey transmission scheme information to the receiver.</p>
DVB-C	<ul style="list-style-type: none"> • based on the MPEG-2 system layer, with appropriate forward error correction (FEC) technique • FEC improves bit error ratio (BER), ensuring quasi error free (QEF) operation • Modulation: 16QAM, 32QAM, 64QAM, 128QAM, 256QAM 	<p>Use the Signal Studio for Digital Video software to quickly and easily create DVB-C signals for testing digital cable receivers. Customize fully channel-coded DVB-C I/Q waveforms by selecting from one of five modulation types, adjusting the symbol rate, and setting signal shaping parameters.</p>
DVB-S	<ul style="list-style-type: none"> • Modulation: QPSK • Transport multiplex adaptation and randomization for energy dispersal • Outer coder (RS(204,188)), Inner coder • Convolutional interleaver • Baseband shaping and modulation 	<p>Signal Studio for Digital Video also provides DVB-S (Digital Video Broadcasting -Satellite) solutions that simplify the creation of waveforms which comply with Standard DVB-S. Signal Studio for DVB-S format is based on the traditional digital modulation scheme (QPSK), and provides specification of RS Encoder to meet your test requirements.</p>

<p>ISDB-T</p>	<ul style="list-style-type: none"> • Support 3 hierarchical layers, TS processing • Outer coder (RS coder), Inner coding • Energy Dispersal is conducted at each hierarchical layer • Delay adjustment at each layer associated with byte interleaving • Bit interleaving and delay adjustment • Mapping: DQPSK, QPSK, 16QAM, 64QAM • Time and Frequency interleaving • Framing with CP/SP, AC, TMCC • Configure each segment independently to support ISDB-Tsb • Phase compensation of segment for consecutive transmission 	<p>ISDB-T solution of Signal Studio for Digital Video provides reliable and easily-configurable signals that enable testing of high-quality video, sound, and data broadcasting, not only for fixed receivers but also for mobile receivers. The system supports hierarchical transmissions of up to three layers (Layers A, B, and C), and mode 1, 2, and 3 to enable the specification of different sets of transmission parameters for different hierarchical layers (number of segments, inner-coding rate, modulation scheme). Besides, it has four choices of guard-interval length to enable better design of a single-frequency network (SFN).</p>
<p>ATSC</p>	<ul style="list-style-type: none"> • Data randomizer • RS encoder • Data interleaver • 8-VSB Trellis coder • Data organization (Sync Mux) • Modulation: 8VSB, 16VSB, pilot addition 	<p>Signal Studio for Digital Video software also enables quick and easy creation of ATSC signals. Use the software to customize ATSC waveforms by selecting from modulation (8VSB, 16VSB), coding (outer/ inner encoding). Signal Studio for ATSC format uses the 8-VSB Trellis coder and the data organization of Sync Mux.</p>
<p>DTMB</p>	<ul style="list-style-type: none"> • BCH and LDPC coding for 3 data rates • Modulation: 4QAM-NR, 4QAM, 16QAM, 32QAM, 64QAM • Symbol interleave • Frequency interleave for OFDM • Framing: Frame header mode 1,2,3, C=1 and C=3780 • Filter: SRRC with settable Roll-off factor (default value is 0.05) 	<p>The DTMB (Terrestrial TV standard in China) menu greatly simplifies the configuration of custom DTMB signals, which are widely applied in Terrestrial SD and HDTV areas.</p>

<p>DVB-S2</p>	<ul style="list-style-type: none"> • Flexible input stream adapter, suitable for operation with single and multiple input streams of various formats (packetized or continuous) • Powerful FEC system based on LDPC (Low-Density Parity Check) codes concatenated with BCH codes, allowing Quasi-Error-Free operation at about 0,7dB to 1 dB from the Shannon limit, depending on the transmission mode (AWGN channel, modulation constrained Shannon limit) • 4 constellations (QPSK, 8PSK, 16APSK 32 APSK), ranging in spectrum efficiency from 2 bit/s/Hz to 5 bit/s/Hz; A wide range of code rates (from 1/4 up to 9/10) • A set of three spectrum shapes with roll-off factors 0,35, 0,25 and 0,20; • Adaptive Coding and Modulation (ACM) functionality, optimizing channel coding and modulation on a frame-by-frame basis. 	<p>Signal Studio for Digital Video software also provides quick and easy creation of</p> <p>DVB-S2 signals, which is a "second generation" modulation and channel coding system.</p> <p>Signals that comply with DVB-S2 are widely applied in the Broadcast Services (BS) satellite application.</p>
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<p>J.83 Annex B</p>	<ul style="list-style-type: none"> • Two distinct operating modes of interleaving capability <ul style="list-style-type: none"> ○ Level 1- for 64-QAM transmission ○ Level 2 - 64-QAM and 256-QAM transmission (for both modulation schemes is capable of supporting variable interleavingMulti-service support • Input signal: Modified MPEG-2 transport stream • Framing structure: An FEC frame consists of a 42- or 40-bit sync trailer following 60 or 88 RS blocks, with each block containing 128 symbols. An RS symbol consists of 7 bits. supplying improved packet delineation functionality, and error detection capability independent of the FEC layer. • Modulation: with bandwidth 8 MHz and 6 MHz; Constellation 64-QAM, 256-QAM 	<p>J.83 Annex B solution of Signal Studio for Digital Video provides easily-configurable signals for a digital multi-service television distribution system tests and measurements specific to a cable channel. The specification covers both 64- and 256-QAM. Most features of both modulation schemes are the same. The data format input to the modulation and coding is assumed to be MPEG-2 transport, and MPEG synchronization is decoupled from FEC synchronization so that carrying ATM packets won't interfere with ATM synchronization. Besides, two following modes are supported, with symbol rate of 5.057 M symbols/s and 5.361 M symbols/s separately. Typically, Mode 1 will be used for 64-QAM and Mode 2 will be used for 256-QAM. The system will be compatible with future implementations of higher data rate schemes employing higher order QAM extensions.</p>
<p>CMMB</p>	<ul style="list-style-type: none"> • Frequency range:30MHz~3000 MHz • Physical Layer Bandwidth: 8MHz • Provides transmission rate configurable transmission channels and supports SFN and MFN • Physical logical channel (PLCH) includes <ul style="list-style-type: none"> ○ CLCH (Control logic Channel):carrying control information ○ SLCH (Service logic Channel):carrying broadcasting service 	<p>Signal Studio for Digital Video software also provides quick and easy creation of CMMB signals. For different test and measurement requirements, the transmission modes and parameters could be selected according to the characteristics of services and network environment, so that the flexible and economical business operation could be realized.</p>

Thoroughly Test Your Digital Video Receivers and Components

Receiver testing

For Digital Video receiver development, Signal Studio for Digital Video provides flexibility in signal configuration to create the DVB-T/H/C/S/S2, ISDB-T, ISDB-T_{SB} (sound broadcasting using 1-seg or 3-seg), ATSC, DTMB as well as CMMB test stimuli needed to perform BER measurements throughout the entire design process.

In each broadcasting standard, through configuration of modulation types (QAM, QPSK, or VSB), OFDM parameters (sub carriers number, guards period length of FFT size) and burst frames in DVB-H, different RF waveforms could be generated for receiver testing.

Signal Studio for Digital Video allows you to use your own MPEG file as source data in order to monitor video at the receiver.

Simulate real-world conditions

Achieve realistic channel simulation by applying noise and static fading to your digital video waveforms. You can configure test signals with up to 20 fading paths and add other impairments, such as I/Q skew, I/Q gain, and I/Q offset, all from the Signal Studio for Digital Video user interface. With the addition of the calibrated noise personality (N5162A-403/N5182A-403/E4438C-403/E8267D-403), you can add real-time AWGN to the DVB-T/H/C/S/S2, ISDB-T, ISDB-T_{SB} (sound broadcasting using 1-seg or 3-seg), ATSC, DTMB as well as CMMB signals to assess receiver performance.

Component testing

Quickly and easily characterize your Digital Video components using customized DVB-T/H/C/S/S2, ISDB-T, ISDB-T_{SB} (sound broadcasting using 1-seg or 3-seg), ATSC, DTMB as well as CMMB waveforms. Signal Studio for Digital Video generates spectrally correct Digital Video signals with optional coding and framing components, enabling you to assess frequency accuracy, linearity, and power efficiency of amplifiers and other components.

Digital Video signal analysis

Together with the PC-based E9285B or N89601A modulation analysis software, signals of DVB-T/H/SH, ISDB-T, 8/16VSB, QPSK and 256QAM etc can be captured from a variety of Agilent Technologies measurement equipment, shown in the following figures.

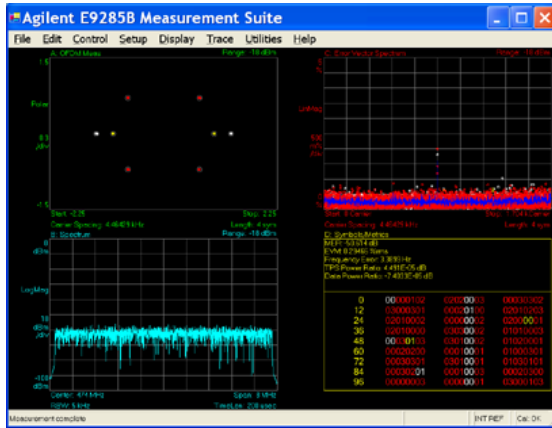


Figure 2. Agilent E9285A Measurement Suite shows the characteristics of a DVB-T signal which is generated using the Signal Studio for Digital Video and signal generator

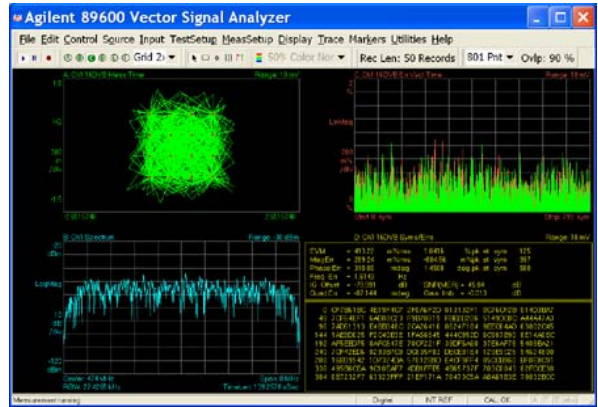


Figure 3. Agilent 89600 Series vector signal analysis software (v 6.3 or higher) with Option AYA, Digital Demodulation shows the characteristics of a DVB-C signal which is generated using the Signal Studio for Digital Video and signal generator

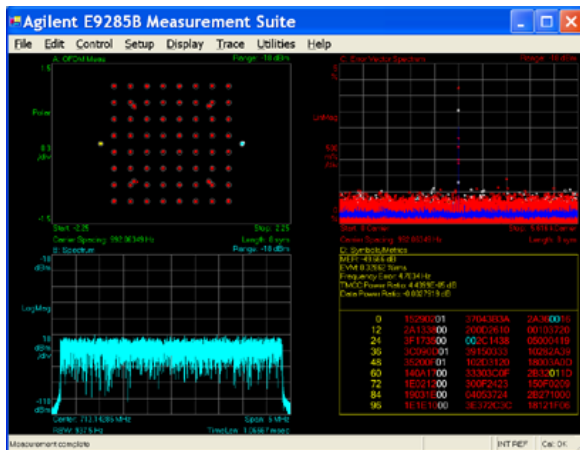


Figure 4. Agilent E9285A Measurement Suite shows the characteristics of a ISDB-T signal which is generated using the Signal Studio for Digital Video and signal generator

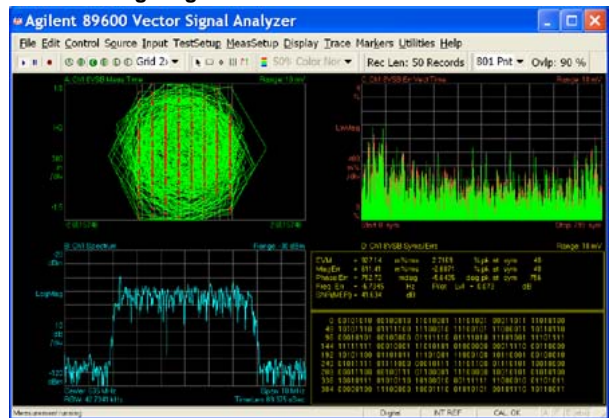


Figure 5. Agilent 89600 Series vector signal analysis software (v 6.3 or higher) with Option AYA, Digital Demodulation shows the characteristics of a ATSC signal which is generated using the Signal Studio for Digital Video and signal generator

Supported Standards

Signal Studio for Digital Video supports the following standards.

- DVB-C standard: ETSI 300 429: Digital Video Broadcasting (DVB): Framing structure channel coding and modulation for cable systems
- DVB-T/H standard: ETSI 300 744: Digital Video Broadcasting (DVB): Framing structure channel coding and modulation for digital terrestrial television
- DVB-S standard: EN 300 421: European Standard (Telecommunications series) Digital Video Broadcasting (DVB), Framing structure, channel coding and modulation for 11/12 GHz satellite services
- DVB-S2 standard: ETSI EN 302 307: Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications
- ISDB-T standard: ARIB STD-B31: Transmission system for Digital Terrestrial Television broadcasting
- ATSC standard: ATSC Digital Television Standard (A/53), annex D
- J.83 standard: ITU-T Recommendation J.83 SERIES J: TRANSMISSION OF TELEVISION, SOUND PROGRAMME AND OTHER MULTIMEDIA SIGNALS
- DTMB standard: GB20600-2006
- CMMB standard: GY/T 220.1-2006: Mobile Multimedia Broadcasting Part 1: Broadcast channel frame structure, channel coding and modulation; Part Two: Multiplex

Performance Characteristics

MER¹ N5162A/N5182A MXG vector signal generator

Settings		Characteristic Value ³	Performance Range ⁴
DVB-T/H ²	2K mode	-45.3	-45.3 to -48.87
	4K mode	-45.7	-45.5 to -47.7
	8K mode	-44.5	-44.5 to -48.2
DVB-C ²		-45.4	-45.4 to -49.9
DVB-S ⁶		-42.3	-42.3 to -42.8
ISDB-T ⁸		-44.7	-44.7 to -47.9
ATSC ⁷		-40.8	-40.8 to -41.7
DVB-S2 ⁹		-42.6	-42.6 to -47.9
J.83B ¹⁰		-48.3	-47.8 to -50.03

MER¹ E4438C ESG vector signal generator

Settings		Characteristic Value ³	Performance Range ⁴
DVB-T/H ²	2K mode	-47.8	-47.8 to -49.9
	4K mode	-48.1	-47.9 to -50.5
	8K mode	-47.6	-47.3 to -49.9
DVB-C ²		-45.7	-45.7 to -47.3
DVB-S ^{5,6}		-40	-40 to -40.9
ISDB-T ⁸		-47.7	-47.5 to -48.6
ATSC ⁷		-40.9	-40.9 to -41.4
DVB-S2 ⁹		-41.4	-41.4 to -47.01
J.83B ¹⁰		-45.6	-47.03 to -45.6

MER¹ E8267D PSG vector signal generator

Settings		Characteristic Value ³	Performance Range ⁴
DVB-T/H ²	2K mode	-46.87	-46.02 to -50.75
	4K mode	-47.32	-46.38 to -52
	8K mode	-47.13	-46.38 to -52.04
DVB-C ²		-43.3	-43.2 to -45.8
DVB-S ⁵		-38.86	-38.63 to -41.11
ISDB-T ⁸		-46.2	-46.20 to -48.87
ATSC ⁷		-40.31	-40.31 to -41.2
DVB-S2 ⁹		-39.01	-39.01 to -40.58
J.83B ¹⁰		-43.82	-43.82 to -44.7

1. All MER values refer to averaged values over 10 tests

2. Carrier settings: -30 dBm power at 474 MHz

3. Non-warranted value based on testing during development phase of this product. The majority (80%) of instruments tested met this value.

4. Non-warranted range based on testing during development phase of this product. All instruments tested performed within this range.

5. The MER is worse on ESG without UNB option on DVB-S

6. Carrier settings: -30 dBm power at 2 GHz

7. Carrier settings: -30 dBm power at 635 MHz

8. Carrier settings: -30 dBm power at 713.142 857 MHz

9. Carrier settings: -30 dBm power at 1 GHz, symbol rate is 10MHz

10. Carrier settings: -30 dBm power at 2 GHz.

Recommended Configuration

MXG ATE Systems¹

N7623B with the following options:

N7623B-3FP ¹	License: N5162A MXG ATE
N7623B-QFP ⁴	Advanced DVB-T/H/C
N7623B-RFP ⁴	Advanced ISDB-T
N7623B-SFP ⁴	Advanced DTMB
N7623B-UFP ⁴	Advanced ATSC
N7623B-VFP ⁴	Advanced DVB-S
N7623B-WFP ⁴	Advanced DVB-S2
N7623B-XFP ⁴	Advanced J.83 Annex B
N7623B-YFP ⁴	Advanced CMMB

N5162A with the following options:

N5162A-506 (or N5162A-503)	Frequency range from 250 kHz to 6 GHz (or 3 GHz)
N5162A-652 (or N5162A-654)	Internal baseband generator, 60 MSamples/s (or 125 MSamples/a), 8 MSamples waveform memory
N5162A-019	Increase baseband generator memory to 64 MSamples (recommended)
N5162A-403	Calibrated AWGN (required for C/N capability)
N5162A-UNV	Enhanced dynamic range

MXG Systems²

N7623B with the following options:

N7623B-3FP ²	License: N5182A MXG
N7623B-QFP ⁴	Advanced DVB-T/H/C
N7623B-RFP ⁴	Advanced ISDB-T
N7623B-SFP ⁴	Advanced DTMB
N7623B-UFP ⁴	Advanced ATSC
N7623B-VFP ⁴	Advanced DVB-S
N7623B-WFP ⁴	Advanced DVB-S2
N7623B-XFP ⁴	Advanced J.83 Annex B
N7623B-YFP ⁴	Advanced CMMB

N5182A with the following options:

N5182A-506 (or N5182A-503)	Frequency range from 250 kHz to 6 GHz (or 3 GHz)
N5182A-652 (or N5182A-654)	Internal baseband generator, 60 MSamples/s (or 125 MSamples/a), 8 MSamples waveform memory
N5182A-019	Increase baseband generator memory to 64 MSamples (recommended)
N5182A-403	Calibrated AWGN (required for C/N capability)
N5182A-UNV	Enhanced dynamic range

ESG Systems³**N7623B with the following options:**

N7623B-1FP ³	License: E4438C ESG
N7623B-QFP ⁴	Advanced DVB-T/H/C
N7623B-RFP ⁴	Advanced ISDB-T
N7623B-SFP ⁴	Advanced DTMB
N7623B-UFP ⁴	Advanced ATSC
N7623B-VFP ⁴	Advanced DVB-S
N7623B-WFP ⁴	Advanced DVB-S2
N7623B-XFP ⁴	Advanced J.83 Annex B
N7623B-YFP ⁴	Advanced CMMB

E4438C with the following options:

E4438C-506 ⁵	Frequency range from 250 kHz to 6 GHz
E4438C-602 ⁶	Internal baseband generator, 64 MSamples memory
E4438C-UNJ ⁵	Enhanced phase noise
E4438C-403	Calibrated AWGN (required for C/N capability)
E4438C-005	6 GB internal hard drive

PSG Systems⁷

N7623B with the following options:

N7623B-2FP ⁷	License: E8267D PSG
N7623B-QFP ⁴	Advanced DVB-T/H/C
N7623B-RFP ⁴	Advanced ISDB-T
N7623B-SFP ⁴	Advanced DTMB
N7623B-UFP ⁴	Advanced ATSC
N7623B-UFP ⁴	Advanced DVB-S
N7623B-WFP ⁴	Advanced DVB-S2
N7623B-XFP ⁴	Advanced J.83 Annex B
N7623B-YFP ⁴	Advanced CMMB

E8267D with the following options:

E8267D-520 ⁷	Frequency range from 250 kHz to 20 GHz
E8267D-602 ⁸	Internal baseband generator, 64 MSamples memory
E8267D-UNU ⁹	Pulse modulation (recommended)
E8267D-403	Calibrated AWGN (required for C/N capability)
E8267D-005	6 GB internal hard drive

1. Requires MXG ATE firmware revision A.01.40 or later.
2. Requires MXG firmware revision A.01.10 or later.
3. Requires ESG firmware revision C.04.84 or later.
4. Required in addition to N7623B-1FP, N7623B-2FP or N7623B-3FP.
5. Option 506 also requires Option UNJ, enhanced phase noise. Other frequency range options may also be used.
6. One of the following baseband generator options is required to use the software: E4438C-001, -002, -601, -602. E4438C-602 is recommended for its larger memory.
7. Requires PSG firmware revision C.04.84 or later. Other frequency range options may also be used.
8. One of the following baseband generator options is required to use the software: E8267D -601, -602. E8267D-602 is recommended for its larger memory.
9. Option E8267D-UNW (narrow pulse modulation) is NOT recommended because it may degrade the EVM performance at 3.5 GHz or below. Options E8267D-UNU and E8267D-UNW are mutually exclusive.

Application Programming Interface (API)

The Microsoft .NET-based application programming interface (API) is provided to enable systematic and efficient configuration of digital video waveforms. It allows programmatic setting of signal parameters by importing custom data sets or using programming loops and mathematical functions rather than manually entering data in the Signal Studio graphical user interface. The entire signal configuration and playback process can easily be automated in your own programming environment using the API. Included with the software is a full API. Use the API to set parameters either programmatically or by using an API graphical user interface. The API's built-in Help System provides programming examples that you can easily leverage.

Additional Information

Signal Creation Products

For more information about Signal Studio software and Baseband Studio products including release notes, user interface descriptions, tutorials, and installation information, read the online documentation at the following websites:

Signal Studio Software

www.agilent.com/find/signalstudio

Baseband Studio Software

www.agilent.com/find/basebandstudio

Related Literature

Agilent MXG Signal Generators, Brochure, Literature number 5989-5074EN

Agilent MXG and MXG ATE Vector Signal Generator, Data Sheet, Literature number 5989-5261EN

Agilent N5182A MXG Vector Signal Generator, Data Sheet, Literature number 5989-5261EN

Agilent MXG Signal Generators, Configuration Guide, Literature number 5989-5485EN

Agilent E4438C Vector Signal Generator, Brochure, Literature number 5988-3935EN

Agilent E4438C Vector Signal Generator, Data Sheet, Literature number 5988-4039EN

Agilent E4438C Vector Signal Generator, Configuration Guide, Literature number 5988-4085EN

Agilent ESG Series Signal Generator literature <http://www.agilent.com/find/esg>

Agilent MXG Series Signal Generator literature <http://www.agilent.com/find/mxg>

Agilent PSG Series Signal Generator literature <http://www.agilent.com/find/psg>

Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements.

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 Thailand 1 800 226 008

Europe& Middle East

Austria 0820 87 44 11
 Belgium 32 (0) 2 404 93 40
 Denmark 45 70 13 15 15
 Finland 358 (0) 10 855 2100
 France 0825 010 700*
 *0.125 € fixed network rates
 Germany 01805 24 6333**
 **0.14€/ minute
 Ireland 1890 924 204
 Israel 972-3-9288-504/544
 Italy 39 02 92 60 8 484
 Netherlands 31 (0) 20 547 2111
 Spain 34 (91) 631 3300
 Sweden 0200-88 22 55
 Switzerland (French) 41 (21) 8113811 (Option 2)
 Switzerland (German) 0800 80 53 53 (Option 1)
 United Kingdom 44 (0) 118 9276201

Other European Countries:
<http://www.agilent.com/find/contactus>

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