Nielsen Encoder Solutions

Client Engineering
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Nielsen Encoders
Encoder FAQ's

How does Nielsen encoding work? Using the science of psychoacoustics, Nielsen is able to use the way our ear perceives sound to mask the audio watermark in your broadcast. In some situations an otherwise clearly audible sound can be masked by another sound. For example, conversation at a bus stop can be completely impossible if a loud bus is driving past. This phenomenon is called masking. A weaker sound is masked if it is made inaudible in the presence of a louder sound. Nielsen's watermark carries a unique identification of your broadcast, a timestamp of when the watermark was inserted, and it rides in your broadcast audio masked from the human ear throughout all the distribution paths of your programming.

Do the encoders change the audio experience for the viewers? No, the Nielsen audio watermark is masked from the human ear. To validate this, Nielsen submitted the Watermarks technology to the Dolby Labs Golden Ears program and to the labs of the major Broadcast Networks and National Cable Networks. Nielsen's masking has been certified by all these labs.

What do I need to encode? Each unique program channel will need to be encoded with a unique Nielsen audio watermark.
What are the different types of encoders, and which one do I need? There are three solutions, all inserting the same information. Below is an overview, with a comparison chart on the next page.

❏ Ross Video NWE-3G card* - This type of Nielsen encoder is used in the standard SD or HD non-compressed audio/video domain. This is compatible with most broadcast paths.

❏ Ross Video NWE-TS Encoder – This type of Nielsen encoder is used in the standard ASI compressed stream. This is specifically for broadcast paths that utilize ASI stream splicing technology.

❏ Linear Acoustics Nielsen Encoder module – This type of Nielsen encoder is also used in the standard SD or HD non-compressed audio/video domain, but utilizes the Linear Acoustics audio processing hardware.

Do I need to buy additional equipment to support the encoders? Unlikely, but this needs to be determined on a client-by-client basis. Nielsen Operations and Nielsen Engineering will be examining your broadcast audio to determine if any processing is necessary, and will reach out to your engineering team for specifics about your broadcast air chain.

What are the inputs to the encoder, and where in my air chain does it go? For all 3 types of Nielsen encoders, you will need a program stream input, external clock source input (LTC, NTP, etc.) and an Ethernet connecCon to your local network. The encoder should be placed acer all input switching devices in your plant, and prior to any and all distribution paths. Nielsen Operations will guide you through every step of this process. Please contact them via web, email, or phone using the information on the last page.

Encoder Comparison
Cost and Feature Comparison

Product	Features	Installation	Cost	
Ross NWE-3GA	Fully configurable, single card per signal solution – Open Gear chassis sold separately. 3G, HD, SD video (3 Gb/s, 1.5 Gb/s, or 270 Mb/s) and 16 SDI embedded or 8 AES channel audio. Multiple channels require multiple cards, each card uses 3 frame slots.	Prior to the stations ATSC digital encoder	3GA Card Open-gear Frame	$5950.00 $1800.00
Ross NWE-TS	DVB-ASI input, 19.39 Mbps ATSC TS compliant only. Nielsen Watermark to up to 4 unique channels and configurable to assign different Nielsen SID values to each of the selected audio streams, suitable for single-program and Multi-program Transport Streams.	After the stations ATSC digital encoder.	NWE-TS	$8900.00
Linear Acoustic AERO.2000	Combines loudness control, AEROMAX® audio processing, Dolby® encoding/decoding, unmatched up-mixing via UPMAX® II, and Nielsen Watermark encoder module at additional cost, requires single unit for each program stream	Audio Processing	AERO 2000	~$25,000.00
Linear Acoustic AERO.1000	Metadata-based transmission audio loudness platform, UPMAX® up-mixing algorithm, optionally configured with Dolby® decoders, Dolby encoders, and Nielsen Watermark encoders at additional costs, requires single unit for each program stream.	Audio Processing	AERO 1000	~$13,000.00
Linear Acoustic AERO.100	DTV Audio Processor AEROMAX® processing, UPMAX® II upmixing/downmixing, Dolby® encoding/decoding, BS.1770 loudness metering, requires single unit for each program stream	Audio Processing	AERO.100	~$13,000.00

Encoder Contact Information
Web-links and Technical Support

❏ Nielsen Encoder Policy and Information
   Web-link for Nielsen Encoder Policy and latest software
      https://engineeringportal.nielsen.com/docs/TV
   Nielsen Encoder Support team – 800-537-4872 or encoders@nielsen.com
   Nielsen Client Engineering Contact - Tom Welch 813.366.3113 or thomas.welch@nielsen.com

❏ Ross Video
   NWE-3G hSp://www.rossvideo.com/terminal-equipment/nielsen/products/nwe-3g.html
   NWE-TS hSp://www.rossvideo.com/terminal-equipment/nielsen/products/nwe-ts.html

❏ Linear Acoustic
   Linear Acoustics products http://www.linearacoustic.com/products-and-solutions.htm

Nielsen SDK Integration

Vendors who have certified Nielsen SDK products

Manufacturer	Product	SW version	Nielsen sw version
Ericsson	Media First Encoding Live	7.0.11.115	4.2.1**
Evertz	OvertureRT Live	1U	4.1.1**
Grass Valley	Miranda iTX OS2		4.0.4**
Harmonic	Electra X		3.8.3
Imagine Comm	Versio Cloud	-	3.6.1
Inetsat S.A.	Inetsat Playout	-	3.7.4
Pebble Beach	Dolphin	1.5.1	4.1.1**
Snell	ICE	5.4	3.8.3
Telestream	Vantage	7.0	3.8.3

** - Indicates CBET enabled sw solution, other vendors are in the integration or upgrade process