Multi-Channel Encoding Monitor (MCEM)

Overview of MCEM Analytics

The Nielsen Multi-Channel Encoding Monitor (MCEM) can provide insights about encoding performance by way of minute level encodability and detectability graphs and reports. This document highlights some of the additional insights that a user can gain by analyzing data available from this platform.

Encodability and Detectability

ENCODABILITY is an objective measure of an audio signal's capacity to be PPM encoded. Encodability is determined by dividing the number of PPM codes inserted into the left and right signal channels by the maximum possible number of codes that could be inserted.

DETECTABILITY is a subjective assessment from 0 (worst) to 4 (best) of the likelihood a Panelist's meter will detect PPM codes in an audio source. Detectability is determined by averaging the audio's message signal strength over the past 60 seconds and comparing that average to a set of thresholds. Detectability is an estimate because it is not possible for the algorithm to take into account all of the factors in any particular panelist's listening environment (i.e. radio volume, meter position, background noise, etc.) that could affect the code being detected.

Encodability View | **Detectability Confidence View**

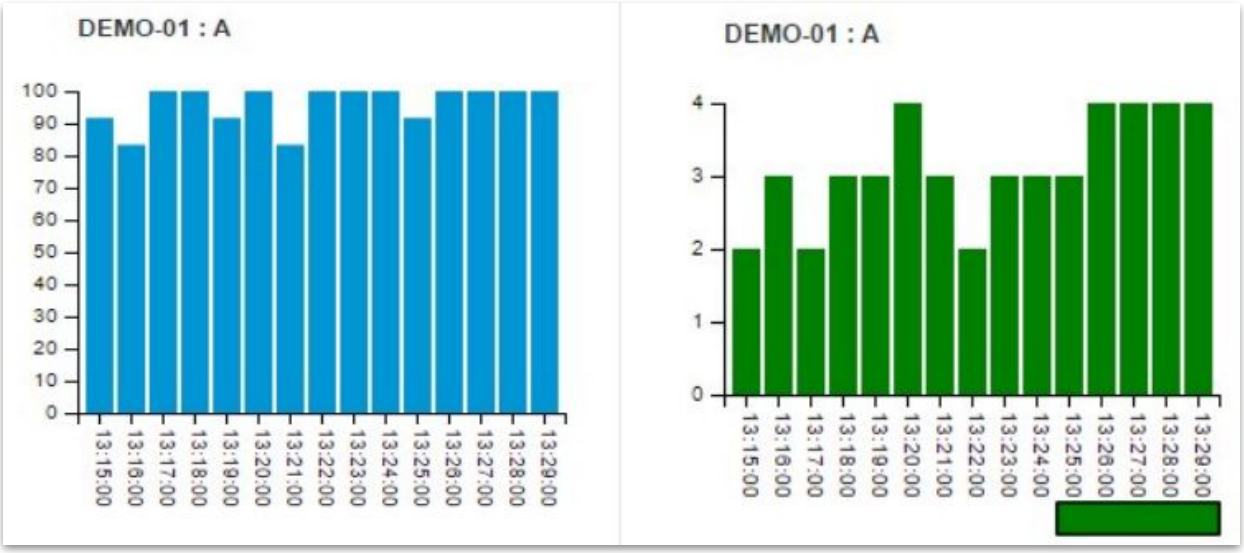

Figure 1: Web Interface View of Encodability & Detectability Graphs

Downloading Encodability and Detectability Data to Gain Additional Insights

When connected to the MCEM's web interface, all users have the ability to view a rolling 15 minute window of their stations encodability and detectability scores. The views can be accessed by selecting the Encodability View or Detectability Confidence View from the menu options.

On this screen, users are also presented a link to download the prior 60 days worth of encodability and detectability data. The data set downloaded through this link contains additional insights that can be used to help a station engineer diagnose a potential encoding issue including audio level input to the monitor, raw message signal strength, number of bars reported, and name of encoder detected [i.e. Primary or Backup].

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Example of Downloaded Encodability and Detectability Data

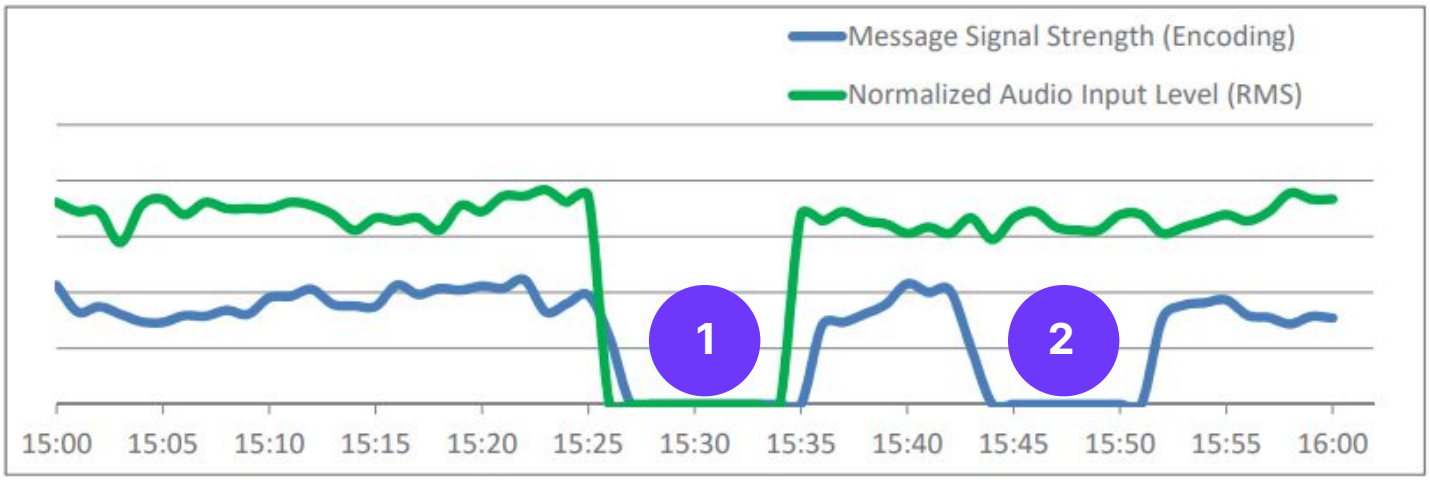
time_utc	id_channel	channel_set_name	chr_alias	mss	rms	number_of_bars
10/24/2016 0:00	1	A	DEMO-01Primary	3.42	-41	3
10/24/2016 0:01	1	A	DEMO-01Primary	3.36	-49	3
10/24/2016 0:02	1	A	DEMO-01Primary	4.01	-45	4
10/24/2016 0:03	1	A	DEMO-01Primary	4.10	-59	4
10/24/2016 0:04	1	A	DEMO-01Primary	4.02	-49	4
10/24/2016 0:05	1	A	DEMO-01Primary	4.13	-47	4
10/24/2016 0:06	1	A	DEMO-01Primary	4.29	48	4
10/24/2016 0:07	1	A	DEMO-01Primary	4.24	-36	4
10/24/2016 0:08	1	A	DEMO-01Primary	4.39	-38	4
10/24/2016 0:09	1	A	DEMO-01Primary	3.78	-36	4
10/24/2016 0:10	1	A	DEMO-01Primary	3.68	-35	4
10/24/2016 0:11	1	A	DEMO-01Primary	3.80	-40	4
10/24/2016 0:12	1	A	DEMO-01Primary	3.45	-46	3
10/24/2016 0:13	1	A	DEMO-01Primary	2.92	-48	2
10/24/2016 0:14	1	A	DEMO-01Primary	3.04	-48	3
10/24/2016 0:15	1	A	DEMO-01Primary	3.35	-46	3

Figure 2: Detectability Download Data

time_utc	channel_set_name	percent
10/24/2016 0:00	A	100
10/24/2016 0:01	A	100
10/24/2016 0:02	A	91
10/24/2016 0:03	A	100
10/24/2016 0:04	A	100
10/24/2016 0:05	A	100
10/24/2016 0:06	A	91
10/24/2016 0:07	A	100
10/24/2016 0:08	A	100
10/24/2016 0:09	A	100
10/24/2016 0:10	A	91
10/24/2016 0:11	A	100
10/24/2016 0:12	A	100
10/24/2016 0:13	A	100
10/24/2016 0:14	A	83
10/24/2016 0:15	A	100

Figure 3: Encodability Data

Example Analysis of Multi-Channel Encoding Monitor Detectability Data



Taking the additional data available in comma separated variable form (.csv) from the detectability download and plotting it on a graph can provide additional insights. The example above in Fig. 4 shows two encoding outages, the first centered on 15:30 and the next between 15:45 and 15:50. The causes for these outages, as we can tell visually by looking at the graph above, are different.

1

During the 15:30 outage, we see the Message Signal Strength drop to zero, as does the Audio Input Level (RMS). Because the RMS drops to zero, we know that the cause of the outage is a loss of audio input (silence) on the station.

2

During the second outage, the Message Signal Strength drops to zero while the Audio Input Level does not. This suggests that the cause for this outage is either an encoder failure or an unencoded feed sent to air.

For more information contact your Audio Client Engineer at 1-866-767-7212, or email encoding@nielsen.com

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