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Processing Part of NRJ Success

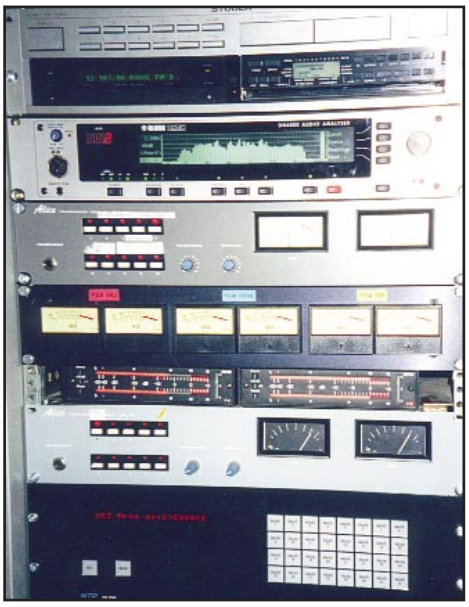
By Roland Fauquissart

PARIS "Audio processing is like Formula 1 motor racing," said David Perreau of the NRJ Group.

"You can have the best engine there is, but if the chassis is not up to standard, you will never record the best time. It is in the details that precious tenths of seconds are earned."

The same, said Perreau, applies to audio processing: "First, you set up the basic system as carefully as possible and then dedicate a lot of time to optimizing performance."

David Perreau in his Processing Studio (above); NRJ Processing Racks (below)



Overseeing sound

According to Perreau, with digital processing — even with the best DSP engine — if the settings of the processing logic are not right, you will not get the most out of the system. There are always the presets, but for the best result possible, he said, "you have to get back into the machine."

Perreau, works as chief sound engineer at NRJ, the French group whose stations include NRJ, Chérie FM, Rires et Chansons and Nostalgie. Together with Director-General Christophe Sabot, he oversees the overall sound of the group.

NRJ created the position of sound engineer, which is responsible for all aspects of the final sound of the station, in 1995. Perreau joined NRJ in 1994 after seven years with Radio France and several private stations.

Gone are the days when analog processing equipment occupied entire racks and when, if customizing a unit meant looking up the circuit diagram, grabbing a soldering iron and new components, and then carry out circuitry surgery.

In those days, the analog processing chain at NRJ was a real monster, Perreau said.

At NRJ, which regularly ranks as the top music station in France and the second most popular station overall, audio processing became a key part of the group profile very early on. Perreau said that NRJ adopted the methods of U.S. stations as the model.

"Over there," he said, "they started specializing in the field 40 years ago. It is artistic considerations that determine sound processing, and not technical criteria. This was the approach NRJ adopted. And the group has sought constant evolution in the processing sphere since then."

The distribution of tasks throughout the

NRJ Group is reflected in the structure of the company. Sogetec, which is owned by NRJ Group, takes care of technical matters through its two divisions — Sogetec and Sogetec-Audio.

The former handles the broadcast side of operations while the latter is responsible for purchasing equipment and for installing and maintaining on-air and production studios in Paris and at the hundred or so local NRJ broadcasters with local programs.

When people talk about broadcast processing, they are usually referring to final processing. But they are ignoring the fact that quality runs right through all phases of broadcasting, said Perreau.

Audio source quality is important too — further processing amplifies not only the qualities of the sound but also its defects.

"This," said Perreau, "is why I took great care when choosing equipment for all the studios in the group." Ten years ago, NRJ changed everything.

The ubiquitous Shure SM7 microphones made way for Neumann U87s. And after a number of trials, the group settled upon a vocal processing chain of Focusrite Red One microphone preamplifiers and Summit Audio compressors and equalizers.

You will find exactly the same chain in every studio in the NRJ group. "Whether live or recorded for a promotional spot, the voice of the presenter is processed in exactly the same way," Perreau said.

The group has to generate two outgoing signals from its Paris studios: one for the Télédiffusion de France (TDF) transmitter site on the Eiffel Tower and one to the satellite.

The satellite signal is transmitted to provincial relay stations and retransmitted terrestrially by Sogetec. This signal is encoded for transmission via the France Télécom MVR 128 satellite system.

"It is easy to understand, said Perreau, "that this signal will not be treated in the same way as the uncompressed signal sent to the Eiffel Tower."

But when is it best to process the signal? Before or after the link? With or without data reduction?

"Some of our competitors chose to limit the amount of processing ahead of digital encoding and to send the satellite an almost 'raw' sound," said Perreau. "Thus they have to install full processing capabilities at each transmission site."

The theory is that it is more intelligent to process a signal after data reduction has been applied, rather than before, because the algorithms may affect heavily processed audio strangely. The goal is a better final sound but at a proportionately higher cost.

NRJ made the opposite choice. Most of its processing is done in Paris, followed by final processing just before transmission by each local broadcaster. Frequency modulation and stereo encoding are performed with Orban Optimod 8100 or Cutting Edge Omnia.jr processors.

Economies of scale

According to Perreau, there is a major advantage in doing most of the processing in Paris. "Apart from the economies of scale," he said, with this set up "all we need to do to give the station a new 'color' nationwide is to reset the master processor in Paris."

There is no need to readjust 250 different sites by modem, he said.

Another advantage of the NRJ setup is that the provincial studios, which provide four hours of local news and publicity each day, all have the same equipment as the Paris studio. Again, the aim is consistent sound quality throughout the network.

Equipment in the provincial stations includes Pacific Recorder & Engineer (PR&E) consoles, Focusrite and Summit Audio voice processors, and four-band Omnia.fm and Optimod processors, just like in the capital.

Perreau goes to great trouble to check operation of final processing units, regulating the modulation, monitoring the coverage and comparing it with that of the competition.

He adjusts the processing in the local studios to ensure compliance with NRJ Group guidelines, but the also takes into consideration the coloring used by local competitors, which may have a type of sound with which NRJ is not familiar.

Network sound

In terms of master processing, each of the four stations in the NRJ Group has its own personality, and NRJ carried out trials to see how different processing equipment and styles complemented that personality.

"We use IDT processors on Rires et Chansons because they are particularly suited to the blend of one-man sketches and old songs," said Perreau. "The IDT units offer a dynamic reduction of background noise and are good at correcting level variations."

For Nostalgie, which plays a lot of tracks from the 1950s, '60s and '70s, the most frequent problems are background noise and limited sound spectrum.

With "power" processing, finding the right balance is not easy, said Perreau, but the 48 kHz Cutting Edge Omnia handles the problem very well.

"All its logic," said Perreau, "is on a PCMCIA card, making it easy for us to get the manufacturer to install parameters and algorithms that suit our needs. In this way, a single piece of equipment can give us the calm sound of Nostalgie or all the punch needed for NRJ or Chérie FM."

The overall network sound also changes according to the time or type of show.

"Morning shows, where there is more talking and sketches with background sound effects than music, are obviously very different from the music-only shows with long tracks of dance music broadcast in the afternoons," Perreau said.

At NRJ headquarters in Paris, Perreau has an office/workshop from which he can direct the local and nationwide processing of the four NRJ networks. Perreau can also listen in to what is going across the FM band in Paris.

The final stage in processing, to respect French frequency modulation limits, is a clipper that trims any signal that is out of line.

If the signal is pushed too far, listeners may initially listen to the station because it sounds louder and clearer on the dial. However, after about 10 minutes or so, fatigue sets in as the listener unconsciously realizes that the sound is distorted.

In such a situation, the listener usually will change the station — something that Perreau is keen to stop NRJ listeners doing.

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Roland Fauquissart is a sound engineer and a regular contributor to Broadcast & Production – France, a sister publication to Radio World.