



FP-TRO FM Receiver / (HD-passive) Translator / Exciter

Up to now, broadcasters seeking to improve their coverage through the use of translators have been forced to use a variety of receivers in the translate plant, all of which have been framed on a technology that is easily 50 years old. While it has done so quite successfully, even the well-renowned FT1AP from Fanfare has relied on refined version of this older technology.

However, with the extremely challenging assignment of receiving the analog base-band with its now-embedded and particularly complex, IBOC signal, a more sophisticated receiver, one capable of much greater sensitivity and selectivity is required. Nowhere is this more critical than at the translator site where being able to provide a robust signal to the exciter is the only way to ensure the listener will actually receive the HD-Radio signal reliably.

Add to this the fact that, while an available Fanfare receiver might be able to provide such a signal, this still leaves the broadcaster to deal with the economics of a proprietary IBOC exciter system.

Therefore, in order to deal effectively with the problem of performance and cost, Fanfare is pleased to offer a “new age” receiver/translator/exciter combination that is truly extraordinary in a number of very important ways. Once you read on, you’ll agree, something new and very exciting is being presented in the form of the Fanfare FP-TRO, Receiver/Translator.

In general terms, the Fanfare FP-TRO has been designed to provide three operational capabilities;

1. ***Receive and translate the entire band, including all IBOC sidebands***

The FP-TRO will receive and translate the entire intended base-band signal which includes the analog signals: all sub carriers; SCA content and pilot tones as well as the complex digital portion of the IBOC waveform, some of which extends beyond the normal 200 kHz bandwidth of the FM channel.

2. ***Be capable of providing a fully locked (HD-Radio) signal with only 10uV/Meter of signal***

The FP-TRO will be able to create a fully translated signal of broadcast quality of all components of the signal as mentioned in 1 (above), and will do so with a minimum signal of 10µV/meter at the antenna input.

3. ***Provide first adjacent rejection capable of attenuating a 1.0V/M adjacent signal at the antenna input***

Further, the FP-TRO will perform #'s 1 and 2 (above) in the presence of a first adjacent signal of up to 1.0V/meter at the antenna input.

Utilizing Fanfare’s state of art technology, enhanced by the efficiency of NTP interface technology developed by Omega RT, the FP-TRO brings with it the most sensitive and selective front end ever deployed in any commercial radio receiver. Not only that, adjacent attenuation is >90dB, thereby fully attenuating the adjacent carrier and its content while still capturing the IBOC digital components that may be, technically, within that adjacent channel.

Therefore, not only is the FP-TRO capable of handling adjacent problems, without the need for sophisticated, expensive filters, it will deal with most of your co-channel interference as well. Also, with an extraordinarily small input, the TRO will bring forth not only a fully quieted signal in analog stereo, but a fully locked HD-Radio signal as well.



*The
FP-TRO
consists of
two units;
Unit 1 being
the receiver
and unit 2
being the
translator/
exciter*

Within unit one, the signal is received and amplified through the equivalent of 6 TRF stages. Drift is all but eliminated through the use of a specially designed NTP-assisted circuit that tracks and corrects tuned frequency vs actual frequency. This ensures accurate tuning at all times. An NTP based linear modulator heterodynes the selected signal to a 10.7 MHz IF signal. The result is a pure signal, devoid of the typical inter-modulation products that arise from a conventional RF mixer. An NTP-based IF strip then removes any extraneous signals that might remain.

The IF signal is then passed through a link to the translator stage in unit two. This could be a coaxial link of up to 200 ft., a microwave link, or other phase linear means having a band-pass of 350KHz or greater. Such a latitude in placement allows for total isolation of units one and two, if practicable or necessary.

In unit two, the IF signal is linearly modulated up to the desired output carrier frequency. Within this process, the signal is accurately converted, stripped of any extraneous artifacts and noise and amplified for presentation at unit two's output as a 0dB linearized signal.

Finally, multipath interference artifacts may also be a thing of the past; this being due to a very sophisticated method of NTP-based, circuit management employed in the TRO which finely manicures extraneous signal information from the base-band as it passes through the translator's stages.

While the Fanfare FP-TRO translator/receiver will certainly revolutionize thinking about translator deployment for distribution of HD's IBOC signals, it is not reserved exclusively for use in HD applications. Due to its extremely high efficiency, again thanks to the inclusion of NTP-based technology developed by Omega Reception Technologies, all translator sites, especially those suffering from adjacent or co-channel interference, will benefit greatly.

To complete the translator package, we are very fortunate to have Crown Broadcast working with us during these formative stages of the TRO's development. Use of Crown Broadcast linearized amplifiers as a means of ensuring the most efficient power transfer will guarantee that the broadcaster is installing not only a high performance translator reception setup, but a most efficient transmitter setup as well.



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