



ALPS APPLICATION NOTE

The FM Airchain

How a 'cheapo' can cost you fortunes...

Audio processing for FM radio has come a long way in the last three decades - the marketplace is now mature and the major manufacturers having reached somewhat of a development equilibrium now tinker with the cosmetic appearance as much as the functionality of their products, which on the whole share a common block diagram of functionality. The claims of all final airchain processor are broadly the same and in some circumstances are rather bold - however, what nobody will dare to claim is that their product will make bad audio sound good.

Buying the processor that will stamp out your 'identity' on the band is a key purchasing decision for any station - rightly involving lots time in evaluation, lots of opinion, emotional turmoil (particularly between programme and engineering staff) and costs running into many thousands in hardware and man hours combined. It is surprising after all of the effort and expense that the end result is often way sub-optimal! The complex bit of multiband processing equipment seems not only to create your signature like it did on the bench but now also exacerbates every little nuance of 'bad' sound that goes near it - as well as the pleasant and desirable effects there is a lot more unpleasant distortion. There is a saying about one apple spoiling the barrel - in many radio stations there is often a 'cheapo' compressor/limiter in the airchain that is responsible for all of the damage.

To work at its best the masterpiece of engineering that is your final processor needs to be presented with the cleanest audio possible, but the cheapo compressor/limiter or built in clipper that protects your Studio to Transmitter Link (STL) from the wild levels emanating from the studio is almost without doubt the guilty party. Let's face it, if it only cost 100 bucks it is hardly likely to sound like a million is it? Sadly, a cheap wideband limiter is going to sound cheap, and perhaps more sadly there is no trick in the world that your expensive final processor can do to make it better again - in fact it is going to make the effects of the cheapo sound louder still - that is its job!

Simply removing 'el cheapo', and scaling the audio so it never can reach the STL input level ceiling is workable but the trade-off will be a much raised noise floor. This means that you will have to throw some capture range away in the final processor in order to prevent noise rush-up so this is not elegant either (which may perhaps explain why the capture range of some popular final processors can often seem rather shy when you reasonably expect it to 'lift' quiet material) and there is no room for compromise in the quality of your product in the competitive radio market.

For best results one should always split audio processing across both sides of the STL - this requires defeating the AGC in the final processor, and installing a single ALPS unit to feed the studio end of the STL. All other level control equipment in the chain should be removed! ALPS installed here will not only protect the line/STL by carrying out 'Sure-Level' wide ranging level correction (AGC), and brick-wall limiting perfectly; ALPS also ensures the best possible signal to noise ratio from the link system and present the final processor's multiband section with perfect, clean audio, enabling it in turn to transform your studio output into LOUDEST, yet CLEANEST audio possible.

ALPS-1 has a tamper-proof front panel and attractive price, yet retains fully professional specifications and features, including failsafe relay-bypass in case of power failure. Computer control is via USB (front panel) or RS-232.

ALPS-2 (illustrated) adds ergonomic control from the front panel for 'live' applications.

ALPS-3 includes IP and GPI interfaces and a built-in Real Time Clock plus scheduling / day-part software.



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