

DRM Application:

Multi Channels Simulcast (MCS)

Spectral Shaping (*)

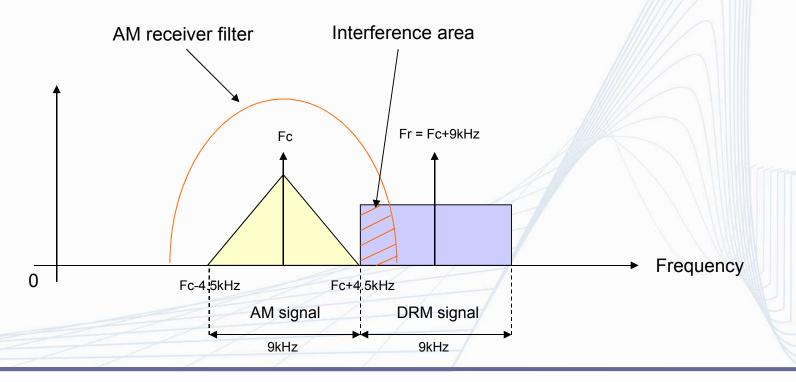
(*) TDF Patent



In the case of simulcasting AM and DRM signals in two adjacent channels (MCS: Multi Channels Simulcast), the Spectral Shaping allows to significantly improve the AM signal reception with the vast majority of poor/medium AM receivers available on the market today.

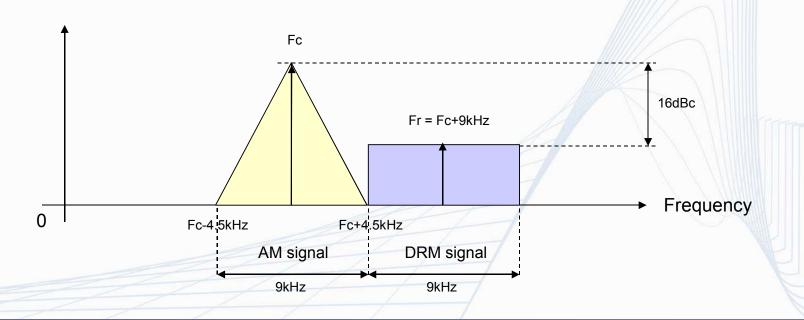


- ✓ Most of the existing AM receivers available on the market today have a poor selectivity performance and a bad amplitude/frequency response, when an adjacent channel is used for transmitting a DRM signal,
- ✓ Most of the existing AM receivers available on the market today use a too large bandwidth filter, which exceeds the AM bandwidth and causes therefore audible noise in treble for the AM signal (see example below)



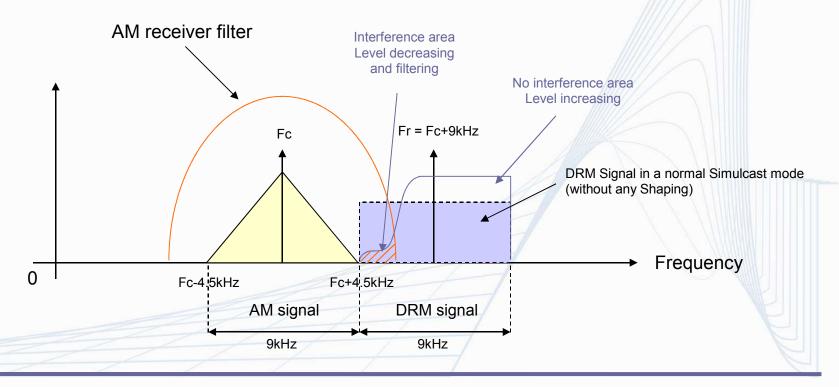


- ✓ Some studies show that a protection level of minimum 16dBc between the AM and the DRM signals (DRM signal level below the AM signal level) is necessary in order to reach acceptable performances using poor/medium AM receivers in the normal Simulcast mode defined by the DRM standard (see example below),
- ✓ However and in some cases, the AM receiving performances remain poor





- ✓ The Spectral Shaping consists in reducing efficiently the level of the DRM signal within the interference area and to increase the level of the DRM signal in the other areas, which don't directly interfere with the AM signal (see example below),
- ✓ The level reduction in the interference area is a frequency and roll-out (filter shaping) pre-filtering system,





The technical results

- ✓ A gain in the interference area of 6-12dB depending on the AM receiver used,
- ✓ An equivalent noise degradation (END) of 2dB for the DRM signal, which corresponds to a 2dB power loss for the transmitter,
- ✓ The END of 2dB can easily be compensated by increasing the level of DRM signal in the non interference area,

The value for the broadcasters

- ✓ The Spectral Shaping flexibility allows to transmit AM 9kHz/10kHz and DRM 9kHz/10kHz in Simulcast (same content) in two adjacent channels, without disturbing the existing AM quality of service and adding at the same time a full DRM channel to get new audience in digital quality,
- ✓ It is a very good solution for a smooth transition from AM to DRM. For example, the flexibility of the solution allows the broadcaster to smoothly disable the Spectral Shaping as soon as the DRM audience is increasing



- ✓ The Spectral Shaping is a digital process available in the SOPRANO DRM Modulator of DIGIDIA, when the Simulcast option is required,
- ✓ The Spectral Shaping can be enabled or disabled easily with the Web interface of the SOPRANO product or with the LCD option available on the front panel,
- ✓ The Spectral Shaping can be used in any kind of DRM mode in 9kHz or 10kHz channel bandwidths, at any frequency from 148.5kHz to 27Mhz











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