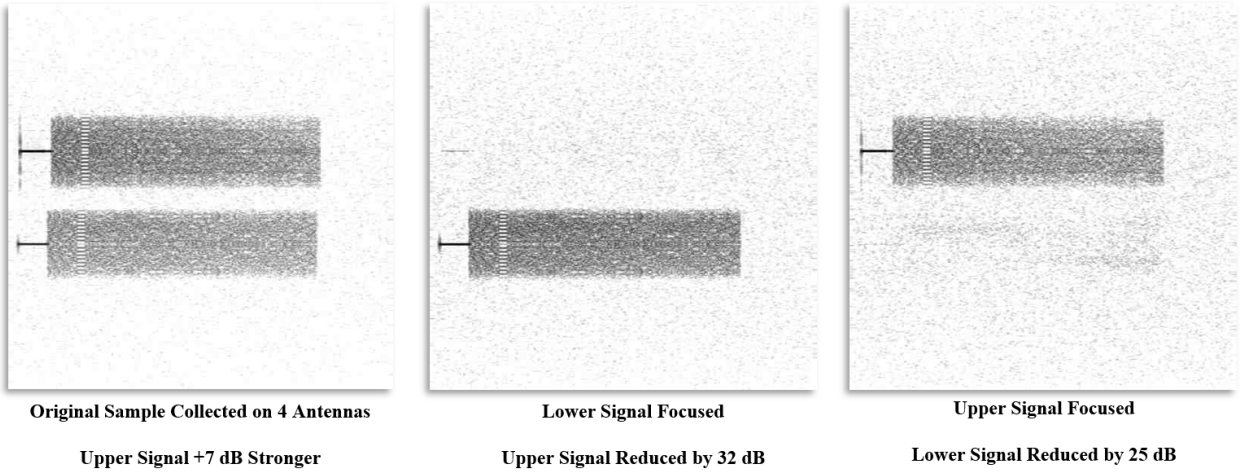
N-Channel Super-Resolution HF/DF Sensors

Espy's teamSENTINEL HF sensors can be configured to support N-channel super-resolution spectrum monitoring and DF. These systems are built from the same HF RF Conditioner modules and Server as a standard HF/DF sensors. Each HF RF Conditioner module (RFC-D1H2_01) accepts two (2) antenna inputs, the number of RF Conditioner modules required for N is always ½N, where N can be 4, 6, 8, 10 or 12 (N=8 required 4xRFC-D1H2_01).

These N-channel HF/DF sensors share the same robust list of capabilities of other teamSENTINEL sensors with the added advantage of software defined beamforming. Software defined beamforming delivers significant improvements to the signal to noise ratio (SNR) of prosecuted energy and the ability to reduce co-channel interference between multiple signals received at the same time and frequency but along different azimuths[10]. Espy's teamSOIGNE GUIs provide intuitive access to multiple spectral views produced as a result of configuring various reception beams.

Figure 21: Example of co-channel signal rejection



In the above figure, two signals operating at approximately the same frequency but transmitted along different azimuths are separated using a combination of beams and nulls (N=4).

[10] For N=8, theoretical SNR improvements of up to 9 dB are possible with simultaneous rejection of up to four (4) co-channel interferers.