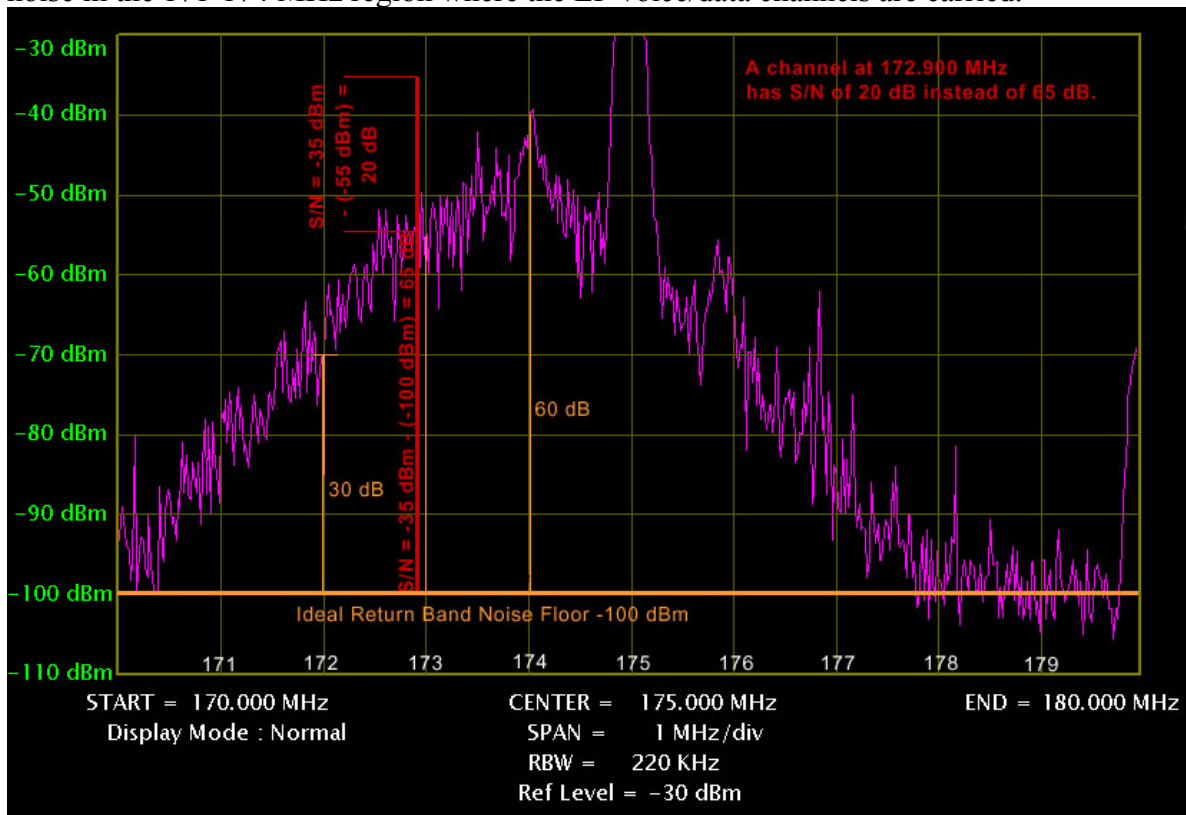


Return Pilots Reduce Leaky Feeder Range

Return pilot signals required by some Leaky Feeder systems actually reduce the effective communication range and effectiveness of the Leaky Feeder network. These pilots cause the noise floor in the Return direction to increase, thereby reducing the signal to noise (S/N) and thus range from the cable.

This is an actual picture of the Return band of the LF system at a mine in Queensland, Australia. The Return Pilot tone is seen at 175.000 MHz. Note the significantly increased noise in the 171-174 MHz region where the LF voice/data channels are carried.



Frequency (MHz)	S/N Reduction (dB)	Estimated Reduced Range (m)
172.000	30 dB	50
173.000	45 dB	60
174.000	60 dB	80

Reduced range from the cable increases the likelihood of being out of range and reduces the effectiveness of a LF system to improve mine safety and productivity.

Varis' LF system do not use Return Pilots and thus will not suffer these problems. Varis' LF system will however maintain these pilots when installed into other systems, and have been used to reduce or eliminate Return Pilot noise in over 30 mines worldwide.