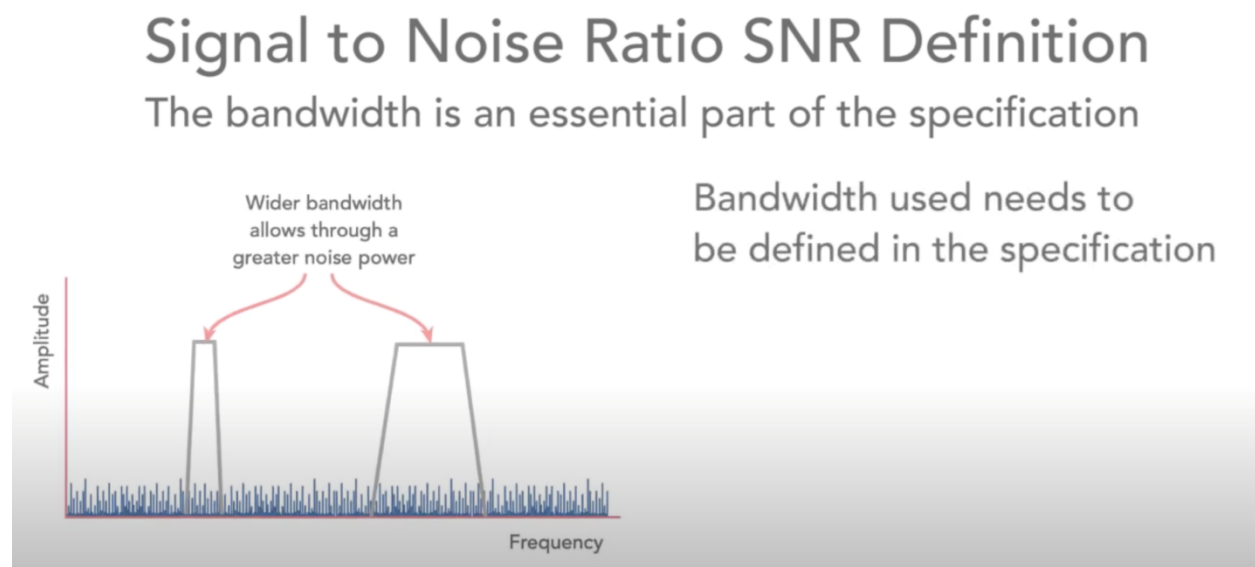


Lyle initially sent the first drawing. The drawing he sent may give people the impression noise level is the same regardless of bandwidth. They might look at the noise pip height and think it is the detected level and is always the same level regardless of bandwidth:



This is my description of how it really works.

We can visualize this as an infinite number of equal sized narrow windows or blocks within the system bandwidth. The detector sums all of the imaginary “blocks” within its bandwidth shape to make a net power or level. This summing is true for anything from a microphone to our ears to the detector in a radio. The resulting sum of all the noise blocks inside the bandwidth is the total noise power. The sum of all the signal blocks inside the signal bandwidth is the total signal power.

- 1.) If block areas wider than the signal bandwidth are allowed to reach the detector it will add noise power without adding any more signal. The more bandwidth outside the signal's bandwidth, the more noise power increase with no increase in signal
- 2.) If system bandwidth up through the detector is less than useful signal bandwidth, signal will be lost at the same rate as noise
- 3.) The narrowest part of the system determines the filtered window width

Detector sums an infinite number of slices inside the window of the detector bandwidth. The more slices in the window the greater the power sum.

