

## μMUX™ System Demo

High-performance multiplexing in a small form factor

Nuvotronics is proud to introduce our μMUX Multiplexers—a product family that features a miniature SMT footprint. The demonstration highlights it's value in low loss, high selectivity, and contiguous channels.

### What you gain

**Keeps the noise figure low** – adds very little loss, so link margin stays intact

**Sub-octave filter bands suppress harmonic products** – cuts distortion at the source

**Preserves full receiver sensitivity** – constellation quality remains crisp even under heavy jamming

**Enables compact, filter-first architectures** – one small part delivers big RF immunity

**Works across harsh RF environments** – from UAVs & satcom gateways to multi-band ground radios

### Watch the Demo



### See the portfolio

Nuvotronics offers a line of banded and sub-octave multiplexers covering the 2-40 GHz frequency range with custom solutions available over the 1-110 GHz range.



### Demo Review

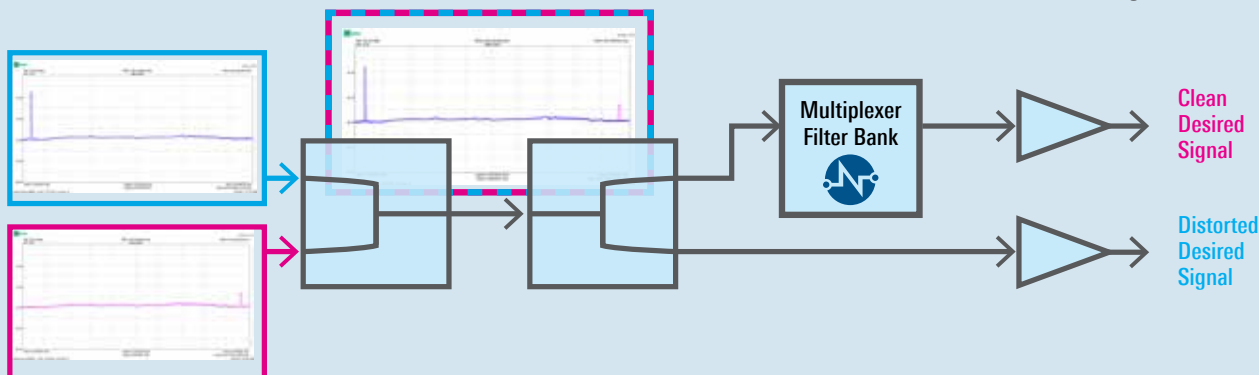
To show how Nuvotronics' ultra-selective sub-octave multiplexer restores a wide-band receiver in the presence of a strong interferer, we built a side-by-side demo. Two signal generators make a "desired" signal and an "interferer." The interferer is ½ the operating frequency of the desired band. Second-order distortion in the LNA pulls the interferer's second harmonic into the band, degrading the desired signal.

**Interfering and Desired** signals are generated by two sources.

Signals are combined to simulate a noisy environment at the antenna port.

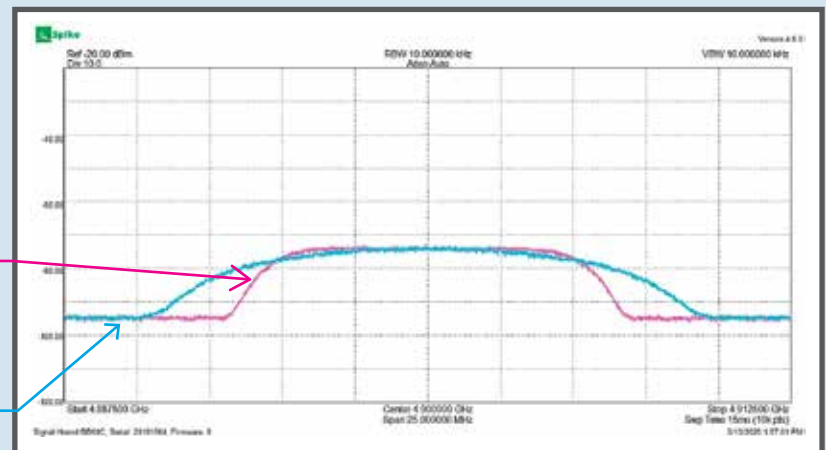
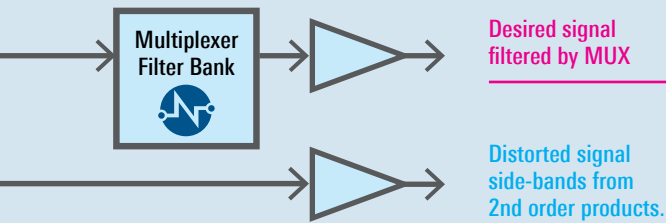
Combined signals are split between 2 paths. One with our multiplexer and one without.

As the signals move through the system, the LNAs create 2nd order products that distort the desired signal.



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As shown in the spectrum graph, the LNA's 2nd-order harmonics intrude and distort the desired signal.

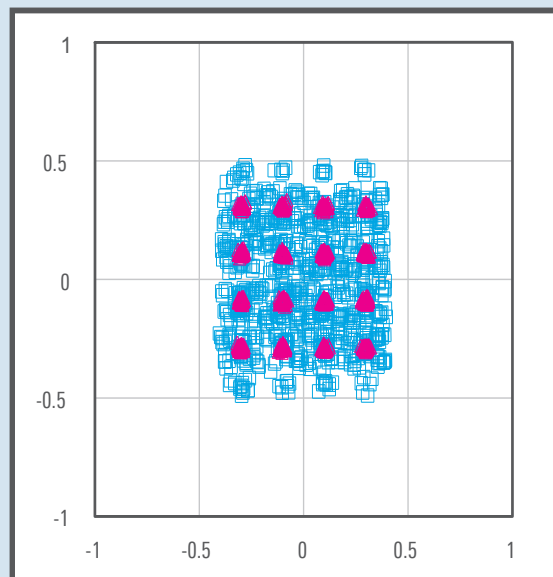


The constellation diagram shows decoding of the incoming signal.

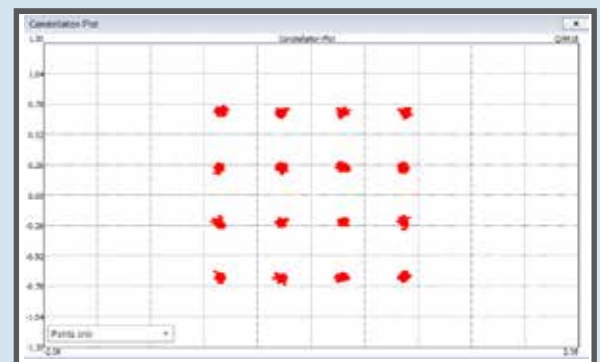
The result with the multiplexer is close to ideal.

△ W/ Multiplexer

□ W/O Multiplexer



Constellation with and without multiplexer filter



Ideal constellation

## Key Takeaways

- The Nuvotronics sub-octave multiplexer prevents intermodulation spurs that undermine wide-band receiver performance.
- Its ultra-low insertion loss enables a true filter-first front end with virtually no noise-figure penalty.
- With best-in-class isolation and out-of-band rejection, the Nuvotronics multiplexer keeps receivers performing at full sensitivity—even amid heavy interference.