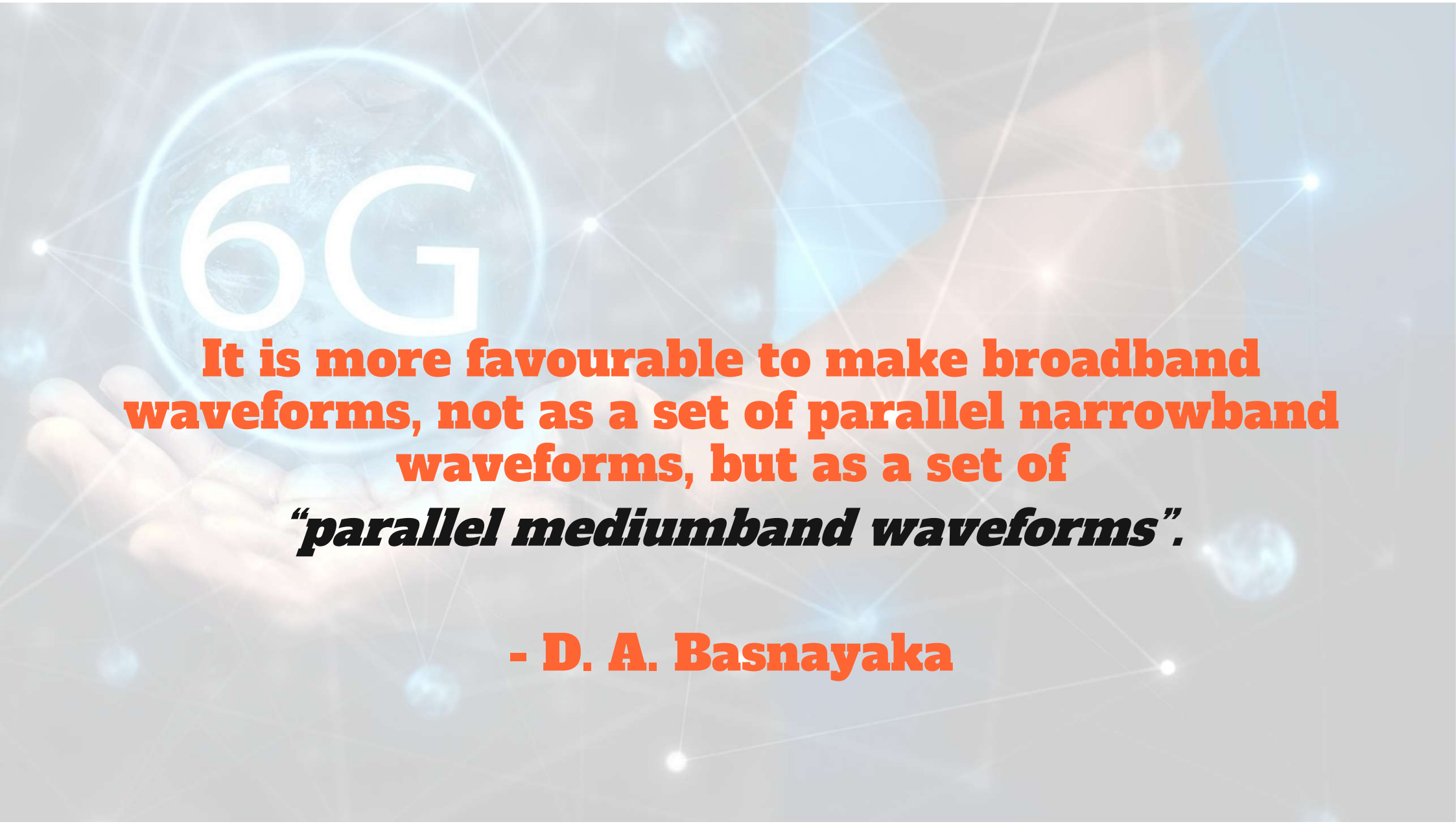
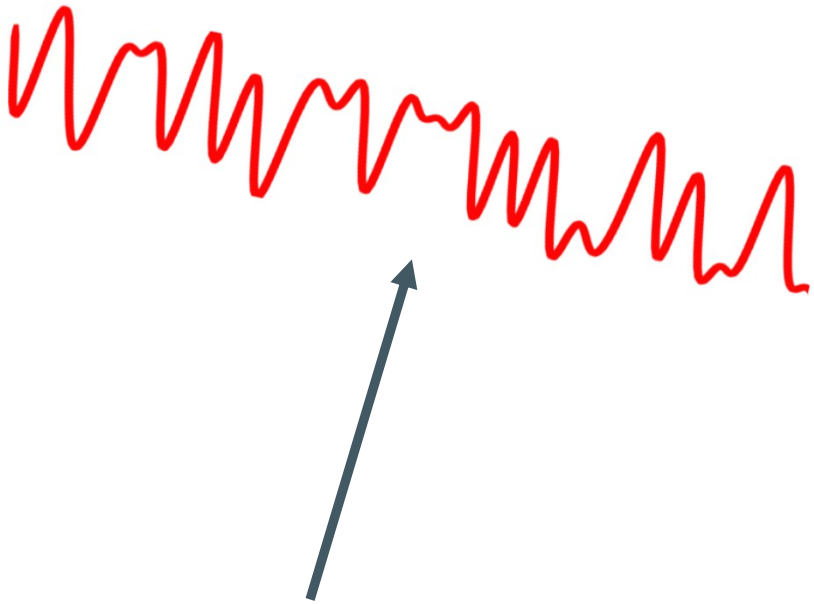


It is more favourable to make broadband waveforms, not as a set of parallel narrowband waveforms, but as a set of *"parallel mediumband waveforms".*

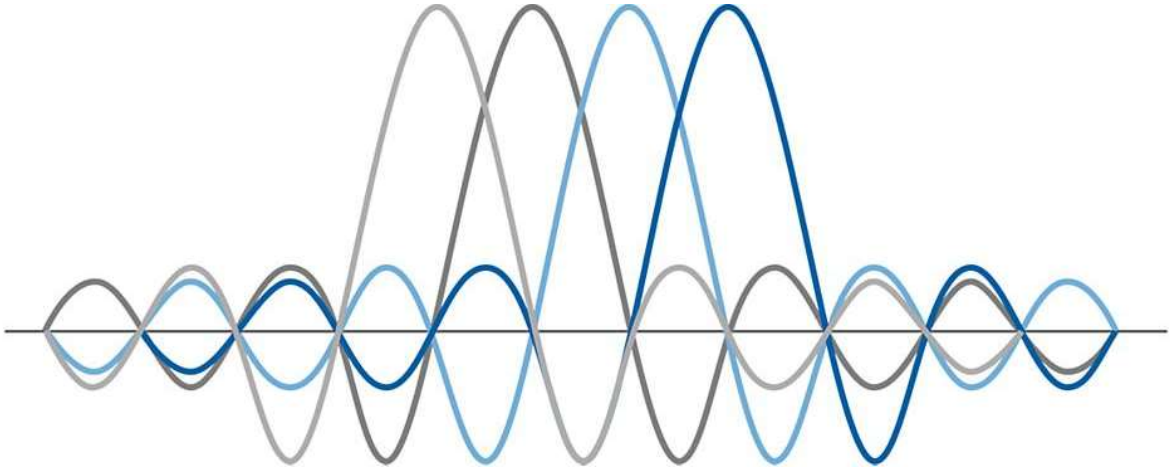
- D. A. Basnayaka

4G and 5G are said to be broadband communication systems!

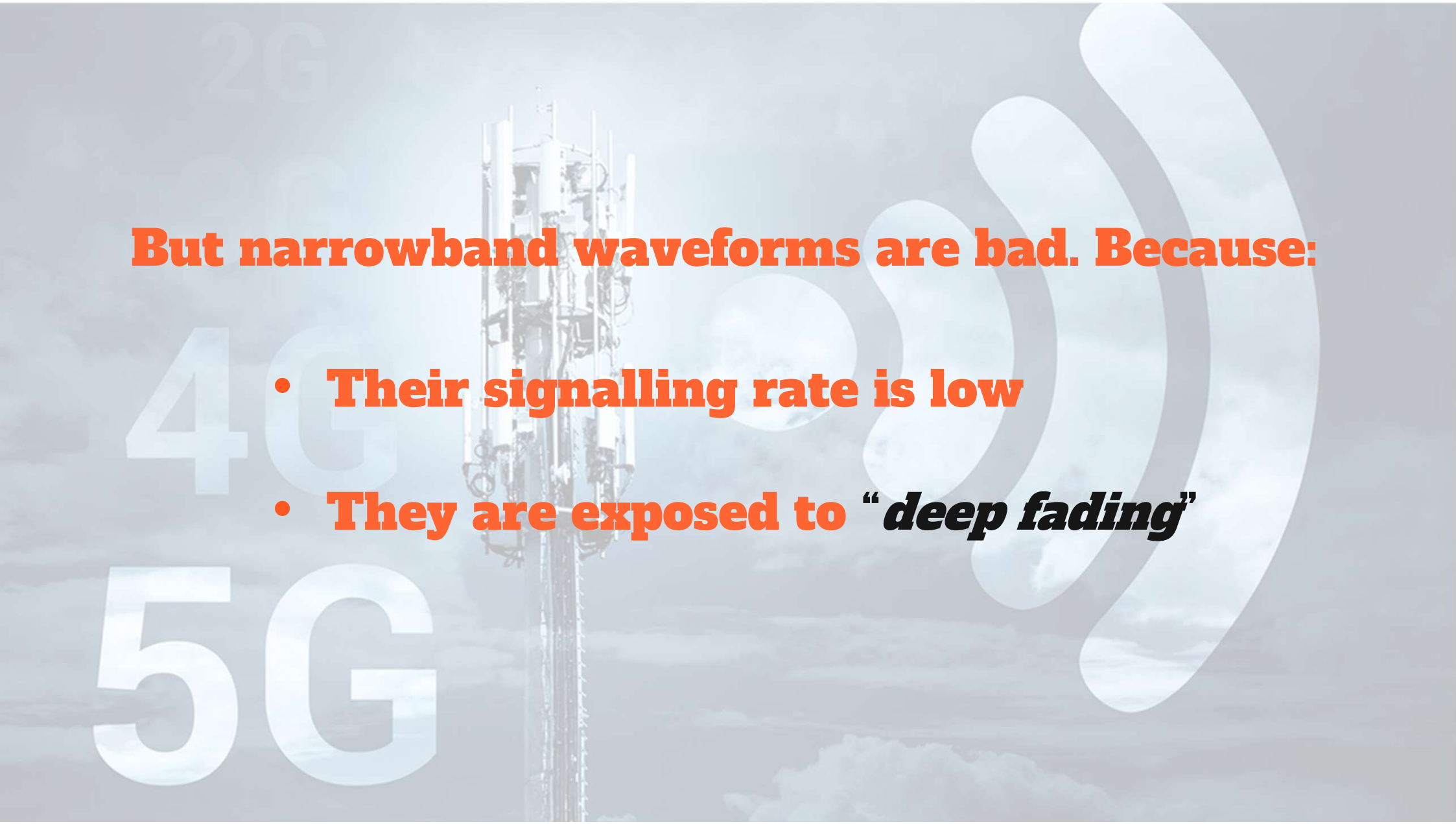
Do you know why is it?



Because the information bearing signal between a transmitter and a receiver is a “*broadband waveform*”

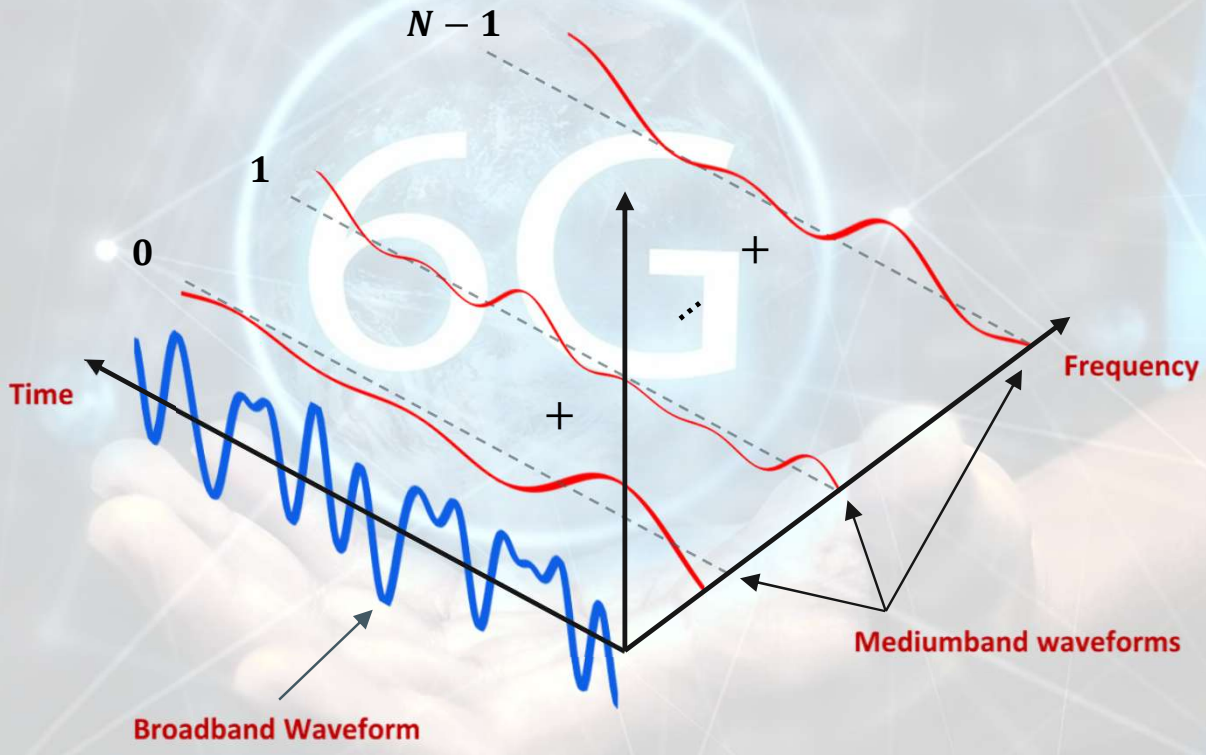


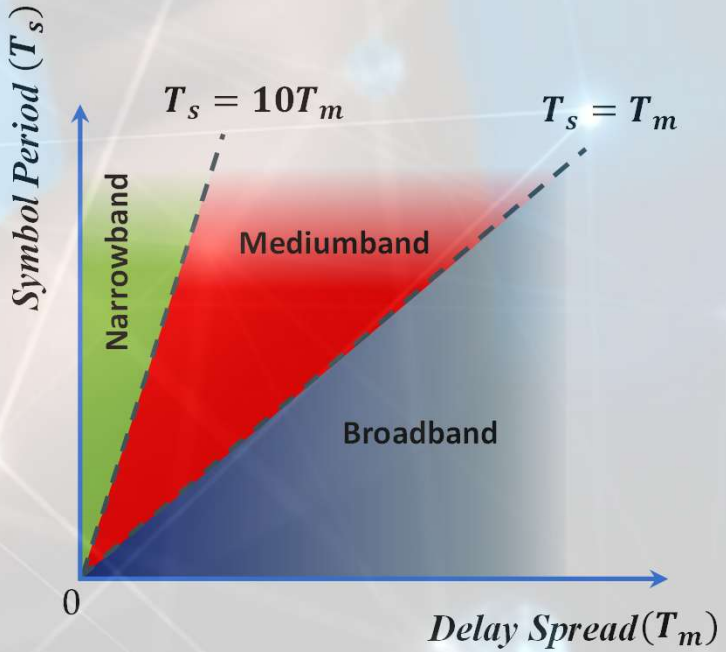
Traditionally broadband waveforms are designed as a set of “*parallel narrowband waveforms*”



But narrowband waveforms are bad. Because:

- **Their signalling rate is low**
- **They are exposed to "*deep fading*"**





D. A. Basnayaka, IEEE OJCOMS 2023.

We are looking at future broadband waveforms, not as a set of parallel narrowband waveforms, but as a set of "*parallel mediumband waveforms*"

Why mediumband waveforms matter?

D. A. Basnayaka, "Communicating in the mediumband: What it is and why it matters," *IEEE Communication Magazine*, Nov. 2024.

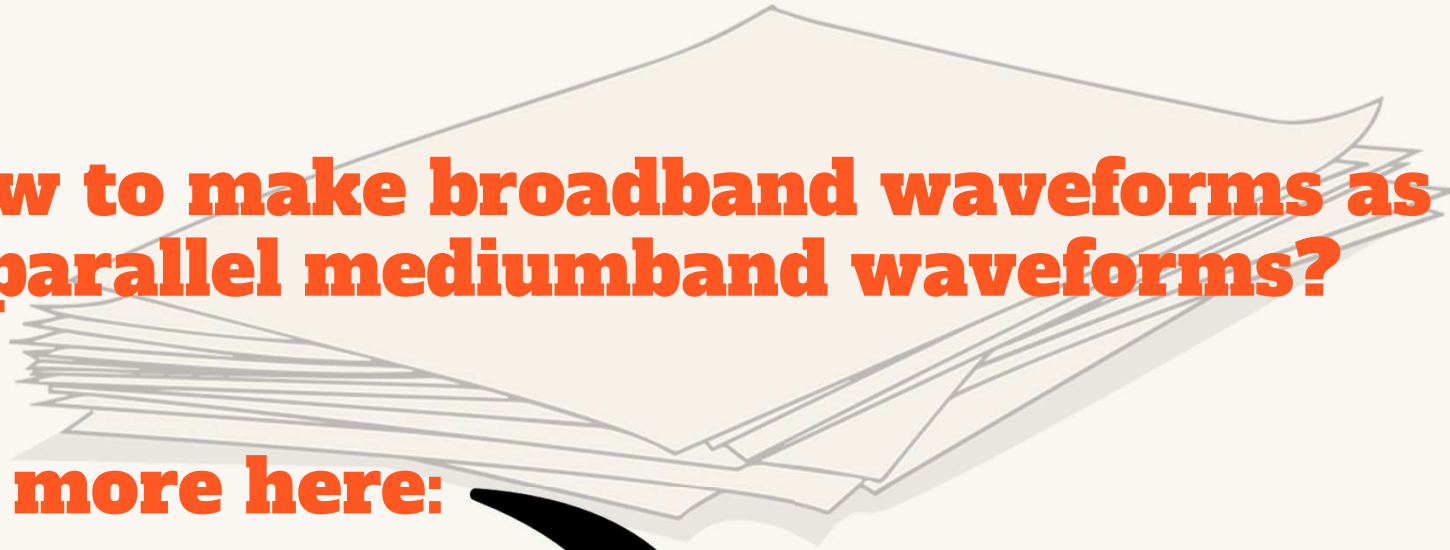
Because:

- They do signalling at a faster rate
- They can avoid "***deep fading***"
- They can afford more interference

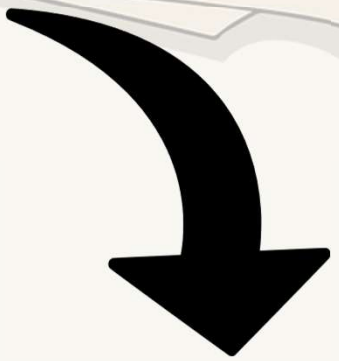
D. A. Basnayaka, "Communicating in the mediumband: What it is and why it matters," *IEEE Communication Magazine*, Nov. 2024.

- **What is mediumband waveform?**

- **How to make broadband waveforms as a set of parallel mediumband waveforms?**



Read more here:



D. A. Basnayaka and A. Firag, "Integrating mediumband with emerging technologies: Unified Vision for 6G and Beyond Physical Layer," ***Available Online***