

<https://youtu.be/qd4cn55xtDU>

https://github.com/bird-wizard/WES_237C/tree/main/ofdm_receiver

OFDM Design Report:

OFDM_Receiver:

During testing, data types remained float32 until it was time to implement HLS streaming types. I removed the AP interface ap_fifo lines and replaced with my own preferred HLS axis interface. Added mandatory read/write functions as well as the final keep/strb entries for proper port closure. HLS Pipeline used for both for loops iterating through the reads and writes for maximum throughput.

Demod:

Implemented in fft.cpp, demod is meant to receive the real/imaginary values, allocated output arrays, and the decoded integer value. The only calls here are to the fft function to received the output arrays and a call to qpsk_decode to output the integer value.

Fft:

No change to FFT from previous implementation.

Qpsk_decode:

Hard decision design by sign value. When receiving the output real and imaginary arrays, the decoding process is to determine the sign of each value and map it to the quadrant it pertains to. No optimizations used.