FIFO Min Depth Calculation:

$$data\ items = 120$$

$$T_w = 12.5ns, \quad T_r = 20ns$$

$$Time\ needed\ for\ data\ to\ be\ sent = 12.5n * 120 = 1500ns$$

$$Data\ received\ during\ that\ time = \frac{1500n}{20n} = 75$$

$$Data\ that\ needs\ to\ be\ buffered = 120 - 75 = 45$$

$$Min\ FIFO\ Depth = 45 \quad --- \quad Needed\ bits = 6$$

$$FIFO\ Depth\ used: 2^6 = 64$$

$$Max\ Burst\ data\ for\ FIFO\ Depth(64) \approx 168$$

Two Main Cases were tested:

Test 1: Data Items = 120 < Max Burst Data

Test 2: Data Items = 200 > Max Burst Data

Testing Procedure:

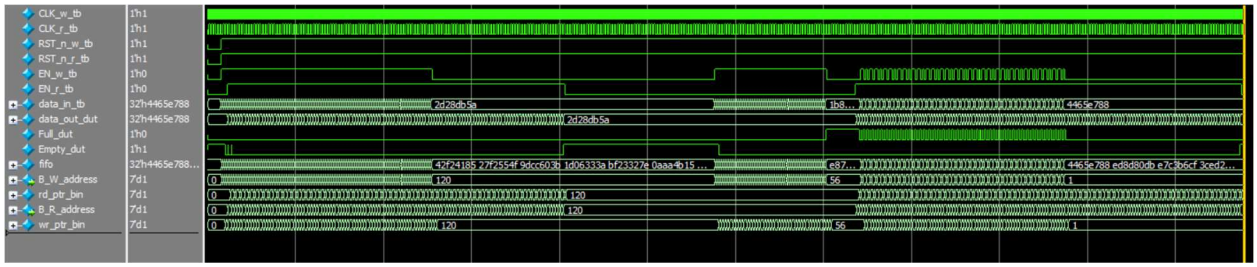
A queue was used to save data written from sender.

Another queue was used to save output data from FIFO.

The two queues were compared to check for data loss.

```
# Test1: Succeeded
# Test2: Succeeded
```

Waveform:



Reset Functionality is not clear for Sender and Receiver (Depends on the chosen protocol).

RTL is submitted in another PDF.