

Exhibit:

Necessary Bandwidth Description (Updated 8-30-18)

Note: This is an updated exhibit for use of the DWM1001 module, please disregard the first version which applies to the DWM1000 module.

Necessary bandwidth value being used is from the IEEE standard 802.15.4-2011. The radio being used is a module based on the DW1000 chip which complies with this standard.

The bandwidth is given in Section 14.2.3 "PSDU timing parameters," in Table 99 on page 198 of the standard. The radio will be operated using channel 5, which has a bandwidth of **499.2 MHz** for any other combination of parameters given in the table.