Declaration of maximum 2.4GHz link duty cycle for Ubisensor V2.0

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Overview

This document describes the maximum possible duty cycle of transmissions of the Ubisensor v2.0 device via its 2.4GHz transceiver, which is to be certified under FCC Part 15.249.

Device operation

As part of its operation, the Ubisensor V2.0 device utilises a 2.4GHz conventional radio link which is to be certified under FCC Part 15.249. The device transmits only infrequently on the 2.4GHz radio link.

The maximum time for which the 2.4GHz transmitter of the Ubisensor may be active in a cycle is 2.2035ms, and the maximum rate at which the device may be cycled is 160Hz, leading to a maximum transmitter 'on' time of 2.2035ms every 6.25ms. The maximum transmitter 'on' time in any 100ms period is therefore 16 x 2.2035ms = 35.256ms.

Conclusion

The maximum possible transmitter on time of a sensor is 35.256ms in any 100ms period.

Therefore the duty cycle correction factor which should be applied to measurements of a continuous signal during testing = 20log(35.256/100) = -9.055 dB