



Regulatory Compliance:

Summary Status for COREInsight Tags on Aircraft.

Version 1.3

Date: 20th August 2018

Context.

There are two main regulatory documents concerned with use of radio frequency (“RF”) devices on aircraft: AC91.21-1D (US) and EASA AMC2 CAT.GEN.MPA.140 (European). These cover Portable Electronic Devices (“PEDS”) and recently recognise “cargo tracking devices” as a specific class of PED. Both documents are available on the CORE website.

There are two primary areas of recommendations: (1) RF emissions, and (2) lithium batteries.

RF Emissions.

AC91.21.1D is absolutely clear in regard to cargo tracking devices. Section 10.3.2 states:

*“The device may use low-powered wireless communications during flight **without the need to comply with paragraph 10.2.1**. RTCA DO-363 states: “[e]xperience shows that low-power emission levels do not affect aircraft systems. The low-power emission limit is 100mW EIRP (equivalent isotropic radiated power). Wireless communication standards which are limited to this level do not need to be analyzed for backdoor coupling. This includes Bluetooth (IEEE 802.15.1), ZigBee (IEEE 802.15.4)”.*

Section 10.2 refers to DO-160 emissions testing.

In terms of EASA AMC2 CAT.GEN.MPA.140 a CORE tag is a non-transmitting PED and authorised for all phases of flight.

There are a number of regulatory bodies worldwide for RF compliance in general such as FCC (US), IC (Canada), EC (Europe), CCC (China), etc. The tags use a single BLE RF transceiver module which is pre-certified worldwide with all the regulatory bodies. These certifications can be found starting on page 24 of the NINA B111 Technical Specification on the CORE web site.

Lithium Batteries.

Currently there are two types of tags: (1) standard tags for structural units, and; (2) pallet tags.

Standard tags contain a single AA size Lithium Thionyl Chloride lithium metal cell (ER14505). This contains 0.52g of lithium. Thionyl Chloride is a non – volatile and non – flammable electrolyte.

Pallet tags contain two coin cell lithium metal batteries (CR2450) each containing <0.3g of lithium.

In both cases they satisfy UN38.3 regulations in regard to shipping lithium batteries enclosed in equipment and are manufactured in accordance with UN ST/SG.AC.10/11 “Manual of Tests and Criteria” and Underwriters Laboratory UL 1642.