

17th January 2018

TUV SUD BABT TCB
Octagon House,
Segensworth Road,
Fareham,
Hampshire,
PO15 5RL

Dear Sir/Madam,

RE: Modular Approval Request for Model:

FCC ID: TA6RFM01

The following attestation addresses the requirements to support modular approval:

Modular approval requirement	Yes	No *
(a) The radio elements must have the radio frequency circuitry shielded. Physical components and tuning capacitor(s) may be located external to the shield, but must be on the module assembly		X
(b) The module must have buffered modulation/data inputs to ensure that the device will comply with Part 15 requirements with any type of input signal		X
(c) The module must contain power supply regulation on the module		X
(d) The module must contain a permanently attached antenna, or contain a unique antenna connector, and be marketed and operated only with specific antenna(s), per Sections 15.203, 15.204(b), 15.204(c), 15.212(a), 2.929(b)	X	
(e) The module must demonstrate compliance in a stand-alone configuration	X	
(f) The module must be labelled with its permanently affixed FCC ID label, or use an electronic display (See KDB Publication 784748 about labelling requirements)	X	
(g) The module must comply with all specific rules applicable to the transmitter. The grantee must provide comprehensive instructions to explain compliance requirements	X	
(h) The module must comply with RF exposure requirements	x	

* Please provide a detailed explanation if the answer is "No."

The following is more detailed information explaining the modular approval requirement. The clause identity matches the table above.

The RF module 101-482a will only be used with Crane Electronics Ltd (CEL) product and connected to CEL PCBs. CEL design and manufacture torque measurement devices that measure, for example, the tightness of nuts on bolts. Torque data can be sent along cables from the measurement device (for example, a wrench or transducer) to a data collector. The RF module replaces the cable allowing the torque data to be sent wirelessly. The RF module board uses the nRF24LE1 Ultra-low power Wireless System On-Chip manufactured by Nordic Semiconductor, which has a maximum power output of 0dBm (1mW) at 2.400 to 2.480GHz.

- (a) When the external antenna is used, then the RF module can be inside a shielded enclosure as the external antenna will be positioned outside the enclosure. When the internal antenna is used, then the RF module must not be shielded otherwise the RF waves will be severely attenuated.
- (b) The RF module works with 3V3 logic CMOS signals. The RF module board uses the nRF24LE1 Ultra-low power Wireless System On-Chip manufactured by Nordic Semiconductor. The logic used by the CEL PCBs connected to the RF module is 3V3 logic CMOS. Therefore inputs on RF module are matched to outputs of connected CEL PCBs.
- (c) The RF module board uses the nRF24LE1 Ultra-low power Wireless System On-Chip manufactured by Nordic Semiconductor. This IC and the associate circuitry operates from 3.0 to 3.6V. The regulators for 3.3V are on the connected CEL PCBs and typically specified as better than 3.3V +/-5% (3.15V to 3.45V). The connected CEL PCBs provide a tight tolerance supply voltage for the RF module.

Yours sincerely,

Neil McDonald

Name: Neil McDonald

Title: Technical Director