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RE: FCC Modular Approval Requirements Date: 15th October 2012
FCC ID: ZK4P3W-001

i The radio elements must have the radio frequency circuitry shielded.
The radio frequency circuit is shielded by a tin plated steel can soldered to the printed circuit board.

ii 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; The module has a microcontroller that buffers the modulation inputs, controlling the amplitude and data rate applied to the transmitter modulator.

iii The module must contain power supply regulation on the module;
The power supply regulator is affixed to the module printed circuit board.

iv 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); The module has a standard SMA antenna connector, but requires professional installation. The module is not marketed or sold to the general public. The module requires professional installation because it can only be used in Rotork equipment, which is used in oil/gas/chemical/power plant control systems and is intended for industrial use only.

v The module must demonstrate compliance in a stand-alone configuration; The module was tested in a stand-alone configuration, and the test report reflects these test results.

vi The module must be labeled with its permanently affixed FCC ID label, or use an electronic display (See KDB Publication 997198 about labeling requirements); The module has a permanently fixed FCC ID label.

vii The module must comply with all specific rules applicable to the transmitter. The grantee must provide comprehensive instructions to explain compliance requirements; The module is for professional installation only. It can only be installed within Rotork equipment, in accordance with the applicable drawings, and used with the type of antenna with which it was tested (also a Rotork product.) The compliance requirements are satisfied if the relevant drawings are followed, and the correct parts used. There are no adjustments available to the end user.

viii The module must comply with RF exposure requirements. General exposure limit above 1500MHz = 1.0mWcm^{-2}. Peak output power of module =35.6mW (Report p13), duty cycle=8.4% (Report p67). Surface area of radome (closest possible point of approach to radiating element) 47cm^2 - neglecting end. Therefore, power density at closest point of approach to radiating element = 35.6mW x 8.4% / 47cm^2 = 63.6µWcm^{-2}
It is recognized that this calculation makes naïve assumptions, but it is contended that the result is so far under the limit that a first-order approximation is justified.

Mark Harris
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