



11/2/09

Nemko Canada Inc
303 River Road
Ottawa, Ontario, Canada
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Attn: Director of Certification

FCC ID: J26-500005
IC: 5843A-500005

Request Modular Authority

We hereby request Modular Approval based on the numbered requirements identified below as we address them to be included in our application for equipment authorization.

1. The modular transmitter must have its own RF shielding. This is intended to ensure that the module does not have to rely upon the shielding provided by the device into which it is installed in order for all modular transmitter emissions to comply with Part 15 limits. It is also intended to prevent coupling between the RF circuitry of the module and any wires or circuits in the device into which the module is installed. Such coupling may result in non-compliant operation.

[CA] The CalAmp WPAN module meets this requirement by the use of an RF shield which encases the 802.15 Ember solution, power amplifier, LNA, filters and all other RF components. The chipset, oscillators, and associated circuitry are entirely resident under a continuous metal shield assembly, designed for EMI mitigation, with designated ground and interfaces.

Please reference device photos supplied with the document package for shield placement and assembly.

2. The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with Part 15 requirements under conditions of excessive data rates or over-modulation.

[CA] The CalAmp WPAN Module meets this requirement by routing all WPAN data payload through the central processor. The dedicated inputs of the 802.15 modulator are exclusively driven and buffered by the processor UART logic, which inherently prohibits non-compatible data rates or modulation types from being introduced to the transmitter circuitry.

3. The modular transmitter must have its own power supply regulation. This is intended to ensure that the module will comply with Part 15 requirements regardless of the design of the power supplying circuitry in the device into which the module is installed.

[CA] The CalAmp WPAN Module device meets this requirement by utilizing a dedicated, on-board 3.0V linear power supply which regulates an external DC power supply voltage.

Please refer to the supplied schematic for details on the WPAN Module power regulation.

4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c). The antenna must either be permanently attached or employ a “unique” antenna coupler (at all connections between the module and the antenna, including the cable). Any antenna used with the module must be approved with the module, either at the time of initial authorization or through a Class II permissive change. The “professional installation” provision of Section 15.203 may not be applied to modules.

[CA] The CalAmp WPAN Module will have two antenna configurations. The first configuration will employ a permanently attached surface mount antenna. The second configuration will incorporate a U.FL antenna interface on the module. This module interface requires a unique coaxial feed assembly direct to the external antenna, which is approved for use as required in the relevant Sections. Both configurations will be tested to confirm to FCC limits.

5. The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during testing. This is intended to demonstrate that the module is capable of complying with Part 15 emission limits regardless of the device into which it is eventually installed. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in Section 15.207. AC or DC power lines and data input/output lines connected to the module must not contain ferrites, unless they will be marketed with the module (see Section 15.27(a)). The length of these lines shall be length typical of actual use or, if that length is unknown, at least 10 centimeters to insure that there is no coupling between the case of the module and supporting equipment. Any accessories, peripherals, or support equipment connected to the module during testing shall be unmodified or commercially available (see Section 15.31(i)).

[CA] The CalAmp WPAN Module meets this requirement by having been tested against, and found to be compliant with, Part 15 Class B conducted and radiated requirements in a "stand-alone" module configuration. Ferrites were not used for any cable assemblies to achieve compliance.

Please refer to supplied Nemko report for compliance details.

6. The modular transmitter must be labeled with its own FCC ID number, and, if the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: XYZMODEL1" or "Contains FCC ID: XYZMODEL1." Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.

[CA] The Calamp WPAN Module device meets this requirement by attaching an FCC label, with FCC ID, on the 802.15 transceiver shield during production of that assembly

Calamp will specify in all documentation that all end products that incorporate the WPAN module must print the WPAN Module FCC ID on a label on the outside of the product.

Please see FCC label document supplied.

7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter and the manufacturer must provide adequate instructions along with the module to explain any such requirements. A copy of these instructions

must be included in the application for equipment authorization. For example, there are very strict operational and timing requirements that must be met before a transmitter is authorized for operation under Section 15.231. For instance, data transmission is prohibited, except for operation under Section 15.231(e), in which case there are separate field strength level and timing requirements. Compliance with these requirements must be assured.

[CA] Calamp will provide installation and operating instructions for the WPAN module that outline all FCC operational requirements and all other operating/integration instructions.

8. The modular transmitter must comply with any applicable RF exposure requirements. For example, FCC Rules in Sections 2.1091, 2.1093 and specific Sections of Part 15, including 15.319(i), 15.407(f), 15.253(f) and 15.255(g), require that Unlicensed PCS, UNII and millimeter wave devices perform routine environmental evaluation for RF Exposure to demonstrate compliance. In addition, spread spectrum transmitters operating under Section 15.247 are required to address RF Exposure compliance in accordance with Section 15.247(b)(4). Modular transmitters approved under other Sections of Part 15, when necessary, may also need to address certain RF Exposure concerns, typically by providing specific installation and operating instructions for users, installers and other interested parties to ensure compliance.

[CA] CalAmp will provide all required RF Exposure statements in User Documentation.

[CA] CalAmp seeks Modular Approval for the WPAN Module device based on our ability to satisfy, in full or in part, the requirements listed above.

The CalAmp WPAN Module is intended to be installed in existing or new CalAmp products requiring local WPAN interface, or be sold as a stand-alone WPAN module to external customers.

In the latter case, the WPAN Module will be shipped with proper antenna and instructions to ensure compliance with all FCC specifications and limits.

Sincerely,

A handwritten signature in black ink, appearing to read 'MA', with a long horizontal flourish extending to the right.

Mark Anderson
Director of Engineering
CalAmp, Corp