

In order to obtain a modular transmitter approval, a cover letter requesting modular approval must be submitted and the numbered requirements identified below must be addressed in the application for equipment authorization.

PRo: A modular approval was not requested at the time of application. A limited modular approval was requested, as described in the cover letter of the application.

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.

PRo: Only a part of the intentional radiator part of the transmitter has its own RF shielding. Therefore obtaining a modular approval is not possible. Additional RF shielding is provided by the enclosure of the system in which the intentional radiator is installed.

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.

PRo: The transmitter has buffered modulation/data inputs.

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.

PRo: The transmitter does not have its own power supply regulation. The transmitter is to be installed in notebook PC's and connects to the internal power supply of these notebook PC's. Such internal notebook power supplies have regulated DC voltages. This transmitter is only intended -and fit- for use in the specific brand of notebook PC's as described in the application.

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.

PRo: By design the intentional radiator does only function in the notebook PC's of the brand as defined in the application. Therefore the intentional radiator can only be connected to- and used with- the internal antenna of such systems. Connection to an external antenna is not possible. All this means that this intentional radiator meets the requirement.

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)).

PRo: The transmitter has been tested when built into the notebook PC's (having integral antennas) as described in the application. The Grant states that this transmitter can only be used in the notebook PC's as described in the application.

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.

PRo: The transmitter is not labeled with the FCC ID number. The FCC ID number is printed on the label of the notebook PC's in which the transmitter is authorized for use.

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.

PRo: Not applicable.

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.

PRo: The amount of exposure to RF fields depends on the antennas used in combination with the transmitter. RF exposure calculations, covering the specific types of antennas with respect to the antenna gain as defined in the application, were submitted.

If compliance with one or more of the numbered requirements, listed above, cannot be demonstrated, it may be possible to obtain a "Limited Modular Approval" (LMA). This will be issued in those instances where the Grantee can demonstrate that it will retain control over the final installation of the device, such that compliance of the end product is assured. In such a case, an operating condition on the grant of equipment authorization for the module would state that the module is only approved for use when installed in devices produced by a specific manufacturer, typically the Grantee. If LMA is sought, the application for equipment authorization must make this fact clear. It must also specifically state how control of the end product, into which the module will be installed, will be maintained, such that full compliance of the end product is always ensured.

PRo: The user is instructed not to make any modifications to any part of the transmitter and attached cables/equipment by means of an instruction sheet/manual included with the transmitter. This information is not only available to the user by means of the instruction sheet/manual, as uploaded as part of the application, but is also available through the support Dell website at the following URL:

<http://docs.us.dell.com/docs/network/tm1150mp/en/reg.htm>