

# TNO CERTIFICATION

Electronic Products and Systems  
Smidshornerweg 18  
P.O. Box 15  
9822 ZG NIEKERK  
The Netherlands

Phone +31 594 50 50 05  
Fax +31 594 50 48 04  
E-mail: [eps@certi.tno.nl](mailto:eps@certi.tno.nl)

Telefication B.V.  
attn.: Mr. W. Blom  
P.O. Box 60004  
6800 JA Arnhem

BTW/VAT NR NL8003.32.167.B01  
Bank ING at Delft  
Bank account 67.25.33.871  
stating 'TNO Certification Niekerk'

Date  
March 11, 2002

Reference  
02K0253

Subject  
Request for limited modular approval

Your letter  
-

Dear Mr. Blom,

This letter is to confirm that Agere Systems Nederland B.V. is requesting a "Limited Modular Approval" for the 2.4 GHz Low Power RLAN MiniPCI card with FCC ID: IMRMPCIDE3. The usage of this wireless device will be limited to the following Dell Computer Corporation models: Latitude C610, Latitude X200, Latitude C400, Inspiron 8100 and Inspiron 8200.

Limited modular approval is requested since a number of items of DA 00-1407 cannot be met. Please see attached excerpt of DA 00-1407, where the remarks about the items, which cannot be met, are marked in red.

The 2.4 GHz Low Power RLAN MiniPCI card with FCC ID: IMRMPCIDE3 will be factory installed by Dell Computer Corporation in order to ensure compliance with the applicable parts of CFR 47 Part 15.

Yours sincerely,  
TNO Certification EPS



P.A.J.M. Robben, B.Sc.E.E.  
Marketing Manager

**Excerpt of DA 00-1407**

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.

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.

**Remark: 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.

**Remark: 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.

**Remark: The transmitter has its own integrated and dedicated power supply 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.

**Remark: The antenna is not integrated with the transmitter. A list of antennas, integrated in the notebook PC's and intended for use with the transmitter, is part of the submitted documentation for certification. All antennas, intended for use with the transmitter, have been tested in accordance with the appropriate sections of the FCC Rules.**

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)).

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

**Remark: 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.**

6. 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.

**Remark: 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.

**Remark: This 2.4 GHz Low Power RLAN MiniPCI transceiver has a conducted output power of less than 50 mW. With reference to OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), Section 3, Footnote 14, a SAR test report is not required to demonstrate compliance with CFR 47 Part 15.247(b)(4).**

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.

**Remark: 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 available to the user by means of the instruction sheet/manual, uploaded as part of the application. The 2.4 GHz Low Power RLAN MiniPCI card with FCC ID: IMRMPCIDE3 will be factory installed by Dell Computer Corporation in order to ensure compliance with the applicable parts of CFR 47 Part 15.**