



American Telecommunications Certification Body Inc.
6731 Whittier Ave, McLean, VA 22101

May 10, 2002

RE: Tadiran Telematics Ltd.

FCC ID: NTAXMETER2

After a review of the submitted information, I have a few comments on the above referenced Application.

- 1) Please provide a block diagram that includes the frequencies as specified in CFR 2.1033(a)(5).
- 2) Photos are not normally held confidential. Justification must be provided to hold photographs as confidential. Justification could include: (1) special tools required to open the case, (2) the circuitry may be potted or covered in epoxy, (3) the company professionally installs the product and it is not directly viewable by the public during use or after use, and (4) the product may involve new technology. Trade secret is not sufficient justification. New technology, if it is documented, can be justification for holding photos as confidential, but for example, a basic FM transmitter is not new technology. Please provide an updated letter of confidentiality that justifies why the antenna photographs should be held as confidential.
- 3) FYI, MPE calculations are not necessary for application under 15.249. The RF Exposure exhibit will not be reviewed.
- 4) Please provide information on how the antenna attaches to the board (type of mating connector).
- 5) The users manual does not include the statements required by 15.21. Please supply an updated manual.
- 6) The fundamental shows both a peak measurement and measurement corrected by the duty cycle for averaging. The FCC limit specified is 94 dBuV/m is a QP limit, not an average limit, therefore correction for averaging is not allowed for < 1000 MHz in 15.249. Please provide Quasi-peak data showing compliance with the 94 dBuV/m limit. We have provided a published interpretation from the FCC regarding this issue on the following page. From reviewing this you will see that the PRF only refers to the data rate OOK modulation and not the duty cycle.
- 7) Please explain how the device was transmitting during the tests (continuous, etc.)
- 8) From the information provided in the Operational Description, it appears that the unit might use extended data packets or extra data packets (see page 7 & 8) during transmit. Please confirm that the Duty Cycle used in the report is considered to be the "worse-case" or maximum duty cycle for this product. If not please provide further information.
- 9) Information given on page 6 of 11 of the Operational Description states that the EUT's transmission rate is programmable (to a maximum of once per 10 seconds), yet plots in the test report (page 17 of 38) show transmissions occurring every 108.5 msec. Please explain.
- 10) Antenna and cable factors should be included within the test report.

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Examining Engineer

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The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information may result in application termination. Correspondence should be considered part of the permanent submission and may be viewed from the Internet after a Grant of Equipment Authorization is issued.

Please do not respond to this correspondence using the email reply button. In order for your response to be processed expeditiously, you must submit your documents through the AmericanTCB.com website. Also, please note that partial responses increase processing time and should not be submitted.

Any questions about the content of this correspondence should be directed to the sender.

From the FCC Interpretation Database

Subject: Para. 15.249-Detector

Remarks:

Keyword: quasi-peak under 1000mhz, 15.249

Rule Parts: Part 15, Para. 15.35

Inquiry: I am confused about the intent of 15.249 regarding averaging of emission field intensity. 15.249(d) refers to 15.35(b) with the wording "above 1000mhz....the above field strength limits are based on average limits." However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above....etc." implying all limits may be averaged. Para. 15.35 specifies quasi-peak under 1000 MHz with a footnote for PRF of under 20 Hz that appears to permit other averaging techniques. We have a utility meter transmitter that operates in the 902-928 MHz band and sends a 2.3 millisecond burst of 4800 baud data every 5.6 seconds. Using a quasi-peak detector this works out to a fundamental field intensity of about 1 millivolt/meter. If instead, we average this over 100 milliseconds and apply it to the unmodulated carrier of about 68 millivolts/meter (to the 20 db maximum) we show compliance with the 50 millivolt/meter limit. The issue has now come up that the 50 millivolt/meter limit is absolute unless quasi-peak is used, but for this device a CISPR quasi-peak reading is way under because of the low duty cycle. Any suggestions?

Response: According to Section 15.35(a), for emissions below 1000MHz, e.g. emissions from systems operating in the 902-928 MHz band, measurements are made with a quasi-peak detector unless the device uses pulse modulation and the PRF is 20 Hz or less. In the latter case, all emissions below 1000 MHz are measured using a peak detector. As described in the Report and Order implementing this rule (GEN Docket No. 87-389, para. 94), the Commission recognized that "...pulsed modulated systems subject to measurement with a CISPR quasi-peak detector can generate excessive peak emissions if the pulse-repetition frequency is extremely low." For that reason, the Commission adopted a peak limit instead of quasi-peak for PRF's of 20 Hz or less. For products operating in the band 902-928 MHz under Section 15.249, the provision for applying an average measurement applies only above 1000 MHz (see 15.35 (b)). For a pulse modulated system, this measurement is obtained by measuring the peak level, applying a pulse desensitization correction factor if necessary, determining the maximum duty cycle over 100 ms and calculating the average level. Your reference to the statement in Section 15.249 (b) that "the peak field strength of any emission shall not exceed the maximum permitted emission limits specified above.." is incomplete. The rest of this statement is "... By more than 20 db under any condition of modulation." Further, as indicated from the first sentence in this paragraph this statement only applies to emissions above 1000 MHz and is not applicable to emissions below that frequency. There is no implication that average limits may be applied below 1000 MHz. Based on the above, if your PRF (as opposed to duty cycle) is 20 Hz or less during the transmission interval a peak limit applies; if the PRF is greater than 20 Hz, a quasi-peak limit applies. You state that your equipment transmits a 2.3 ms burst at 4800 baud every 5.6 seconds. Based on this information, it appears that the PRF should be greater than 20 Hz.