



# Washington Laboratories, Ltd.

7560 LINDBERGH DRIVE  
GAITHERSBURG, MD 20879  
(301) 417 - 0220 FAX # (301) 417 - 9069

October 15, 2003

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

RE: Comments of October 7, 2003  
APPLICATION: CN2ETH-15 Cattron-Theimeg Inc.

Dear Mr. Johnson:

Below are the comments that you have provided regarding the application for certification referenced above. Our responses to those comments are in ***bold italic***.

Thank you for your attention. Please feel free to contact us for any additional information that you may require.

Regards,

*Gregory M. Snyder*  
Chief EMC Engineer, Wireless/Telco Services Manager

*Brian J. Dettling*  
Documentation Specialist

WLL Project: 7479

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1) The block diagram and operational description show an optional amplifier in the RF circuitry. Please explain if this was present or not and which version this is (20 mW or 450 mW). Also, please note Question 7 below. Note that due to the expected difference in power levels and spurious emissions, each model will likely require a different FCC ID and also the expected output power with the optional output amplifier installed will likely not meet with 15.231 levels. It is also suggested that the operational description be adjusted to clarify exactly which model is covered by this application.

***R. This device uses only the 10 – 20mW amplifier and the 450mW option is not installed in this version of the unit. The 450mW version of the unit is a separate certification covered under Part 90 for licensed usage. The schematic also shows that this power amplifier is not installed.***

2) It is uncertain where and how the antenna is integrated into the device. Please provide additional photos to show this. Also, if the gain of the antenna is known, please provide.

***R. The antenna is located on a small PCB located on the inside of the right side cover. This can be seen on "Side Panel" photographs with the white coax cable connecting the antenna to the circuit board.***

3) From the users manual, it appears that this device may contain Spring Return to Center Toggle switches, Maintained Toggle switches, Momentary Push button switches, and Rotary Select. Note that the maintained toggle and rotary select switches do not automatically release. Since it appears that these devices are customizable, therefore what causes the device to deactivate TX within 5 seconds when these types of buttons are used. Also, note that the description of the device in the test report mentions a single-paddle, while this function does not appear to be integrated in this device.

***R. The only maintained switch is the On/Off power switch. No Rotary Select switches are available on this version of the unit. All other switches are Spring Return to Center and the spring-loaded Momentary Push to Operate switch on the top of the unit.***

4) From the users manual, it appears that this device may also contain side panels and/or analog switches. Note that 15.231 typically does not typically allow for analog style proportional controls as use of these controls may be deemed as sending data versus a simple on/off command. Please provide further information regarding the use of these controls in this product and how the device will maintain the requirements of 15.231(a).

***R. No analog controls are available on this unit. All switches are momentary command switches. The manual covers variations of the unit that are for licensed use.***

5) The users manual also mentions the possibility of an optional external antenna. Note that 15.231 is based on field strength readings and therefore any changes to the antenna can affect the results. Please explain if this device will be offered with this option or not.

***R. There are no provisions for connecting an external antenna to this unit and no external antenna is offered for the ETH-15 unit.***

6) Since this device contains selectable frequencies via the dip switches contained in the device, please provide a list of the TX frequencies. If this device may contain various lists due to coding, please provide the actual lowest and highest adjustable center frequencies. The FCC prefers the grant for these devices to be approved only for the specific tunable frequencies.

***R. The device has 16 selectable frequencies between 447MHz and 473MHz which are factory set before delivery to the end user, unless they are sold as a multi-system spare.***

7) The output power given in the test report is  $< 1$  mW, while the block diagram/schematic/operational description exhibits mention 10-20 mW. Note that given a 0 dBi gain antenna and the results obtained, it appears that the output is significantly below 1 mW. It appears that the exhibits provided may be for another transmitter. Please explain and provide any corrected exhibits necessary.

***R. This is an estimation of power based on the Friss Transmission Formula and not an actual conducted power measurement. The gain of the antenna is not known. Only the field strength of the fundamental requirement of 15.231 was measured.***