



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

October 14, 2003

RE: FCC ID: RIM-IMON_ATCB000839

Attention: Rick McMurray / Kathy Grzovic

I have a few comments on this Application.

1. The 731 states the device operates under Part 15, 18 and 25. Please explain.
2. Please note that in accordance with 2.1033, block diagrams must contain the frequencies of all clocks and their paths. Please note that the block diagram provided does not contain this information.
3. Please note that while part 18 and part 25 may have their own particular statements to be included in the manual, the 2-condition statement is a part 15 only statement. Reference to these two conditions therefore should only reflect part 15.
4. While you have provided a letter from the manufacturer that the device will be professionally installed, this information needs to be contained in the user manual and a sample of the installation instructions need to be provided. These installation instructions must also clearly indicate that when using a YAGI antenna the power must be appropriately reduced. Please provide the installation instructions for this device.
5. Please note that in the photo "ITLM-1 RF SECTION BOTTOM" there appears to be another rf connector. This connector is not on the other models. Please explain this connector.
6. The description of the hop sequencing for the device is unclear. It appears from the description that all transmitters may be hopping in step with each other. It appears that the device transmits the hop sequence after 53 hops, thus repeating the same pattern. Also, it appears that the modulation of the hop frequency is off most or at least a large part of the time, however, the device apparently continues hopping. This would seem to violate the condition whereby a FHSS device starts at the next hop channel in the table for the next transmission. It may even appear as if the device even continues transmitting the hop channels without modulation. Please note that the definition of a FHSS system is "A spread spectrum system in which the carrier is modulated with the coded information in a conventional manner causing a conventional spreading of the RF energy about the frequency carrier." If the carrier is not modulated, it cannot spread the rf energy and thus is not a "spread Spectrum" device. Please clarify and explain the pseudorandom hopping of this system.
7. Please note that a modification appears to have been made to the device to make it comply. Please provide a letter from the manufacturer that this modification will be installed in all devices. Also, please provide revised schematics showing the inclusion of the modifications performed on the device.
8. Please note that the operational description says that The Microprocessor, radio, RF AMP, RF Switch, JTAG, RTC, LDO and Analog front end to the analog interfaces are all the same circuits and components. Please also note that the justification letter states the circuitry in the rf is 'identical'. However, because the digital circuitry is different in all three devices and because this additional circuitry may cause significant variations in at least the radiated emissions of each individual device, it is not possible to determine the worse case emissions by arbitrary selection as stated in the report. Please provide evidence that the device used in testing produced the worse case emissions.
9. Please note that for the dwell time you have only shown that in a 1 sec sweep the dwell is only 390ms. However, the limit is 400ms within a 20 second time frame. Please explain how this shows compliance. Please note that from the explanation of the FHSS hopping description you have a condition where the 333ms dwell rate may exceed the 400ms over 20 seconds. (53 channels each dwelling at 333ms = 17.69seconds. This means that in the next hop sequence it may be possible for the 333ms dwell to exceed channel occupancy limits. This would be an analyzer setting of 20 seconds showing the number of 333ms pulses occurring. This would mean that only one 333mx transmission would be allowed during that 20 seconds on any one channel).

Please explain and show that under the long dwell condition the device is compliant during the full 20 seconds time limit

10. FYI - Your documentation states that with the Yagi antenna a reduction in power is required. Please note that the Yagi antenna listed has a gain of 8.65dBi. The device has a conducted power output of 17.7dBm (59mW). The limit for a FHSS device in the 902 to 928MHz range using more than 50 hopping channels (your device is said to use 53) is 1 Watt (30dBm). This means with a 6dB gain antenna the device could output an EIRP of 36dBm. Reduction would then have to occur. With the conducted power listed this means that an antenna with a gain of almost 18dBi could be used before an equivalent reduction would have to occur. Unless the reason for reducing the power for the Yagi is for radiated emissions compliance, by not reducing the conducted power of this device, the range using the Yagi could be significantly increased.



Dennis Ward

<mailto:dward@AmericanTCB.com>

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.