



# American Telecommunications Certification Body Inc.

6731 Whittier Ave, McLean, VA 22101

October 7, 2003

RE: FCC ID: RFJTG-806\_ATCB000766

Attention: Leon Kass

I have a few comments on this Application.

1. The second photo in the exhibit, I assume, is the bottom of the board. However, the photo is not clear. Please provide clear photos of both sides of all boards. The photos should be of the quality that a full view of all components can be easily seen.
2. Please note that the antenna connection point for duplexer DUP2 is only assumed to be at pin 1. However, this connection is not made clear in the schematics. Please verify this connector location. x
3. Please provide a theory of operation for the device.
4. Please note that the label states that the external antenna cannot exceed 3dBd gain. Please explain if this is speaking of the indoor antenna gain or of both the indoor and outdoor antenna gains.
5. Please note that the label on the device states that an external antenna of no greater than 3dBd (5.12 dBi) gain can be used. In the manual you state that in poor reception area the use of a YAGI antenna be used. The gain of a YAGI is dependent on the number of elements and can exceed 18dBd (20dBi) gain. Please explain and/or correct all documentation as necessary to be in line with the label statement restricting us of antenna(s) with greater gain than 3dBd (5.12dBi).
6. The manual states max output of 21dBm. The report states 25dBm. Documentation should be consistent. Please explain.
7. Please note that since this is a licensed device, spurious emissions must be measured using antenna substitution methods as found in TIA 603. Your report only states that the device was placed on an OATS and radiated emissions measurements were made. Also, no radiated spurious emissions were provided as stated in the report. Please test the radiated emissions using the antenna substitution methods found in TIA603 as required by the FCC.
8. Please note that the 28dBm downlink power listed on page 1 of the report does not agree with the actual measured power of 29.1dBm listed on page 5 of the report.
9. Please note that on the frequency stability tabular data on page 7 of the report the first frequency line entry (806MHz) shows a frequency shift of 60MHz. While this may be a typographical error the data is in question. Please explain and correct as needed.
10. Please verify and or correct the table headings shown on page 8 of the report.
11. Please note that intermodulation products are considered to be spurious emissions by the FCC. As such they must meet the requirements of the associated emission mask for the rule part used. SMR part 90 device must meet the  $43+10\log(P)$  of 80dB (which ever is the lesser attenuation) for spurious emissions outside the assigned bands. This level is equal approximately -13dBm (either conducted or radiated (antenna substitution method)). Please note that the intermod products shown in the plots in the files "Confidential\_Test report-page8.pdf" and "Confidential\_Test report-page10.pdf" appears to fail. Please explain.
12. Please note that the output plot correlating to the input plot found on "Confidential\_Test report-page14.pdf" does not appear to have been provided. Please explain.
13. Please provide more information on the input wave than just "sine wave" and "square wave". Please note that amplifiers and amplifier repeaters should be tested using the type modulation they will be amplifying. This means input and comparative output plots should be done using FID, DXW modulations as indicated in the documentation. Please verify that the inputs selected (16kHz FM, etc) represent the FID, DXW input signals expected at the input of the device. This deals primarily

with the square wave representing DXW modulation. Please explain how a 16kHz square wave accurately represent a DXW (TDMA) signal?

14. Please verify that the emissions designator DXW is the designator for the device. (I do not see how a TDMA SS modulation system can be adequately emulated by a simple square wave – whereas a simpler digital modulation type might be).



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.