Testing Tomorrow's Technology

June 1, 2009, 2009

Rich Fabina
ATCB

RE: ATCB 007636, Nivis, LLC FCC ID: SQB-NIVISMOD0003, Response to May 22, 2009 Comments Letter

1. The modular transmitter was mounted atop an application board as stated on page 7 of the submitted test report and shown in the test setup photos exhibit. Please justify how this meets the requirement to test a modular transmitter in a stand-alone condition in accordance with Section 15.212(a)(1)(v) of the FCC Rules. This section states that AC, DC or input lines to the module must be either typical in length if this length is known or 10 cm in length if the length is unknown. Placement of the application board so close to the modular transmitter may shield or block radiated emissions from the base of the module.

We are applying for a Limited Modular Approval for this product. It will always and only be used with an application board attached. Paragraph 1.3 of the test report has been updated.

2. The application is missing the theory of operation exhibit for which confidentiality has been requested. Please provide a theory of operation exhibit for this transmitter.

The theory of operation has been uploaded.

3. Please provide several zero span plots showing the pulses in a complete pulse train to justify the -7.23 dB duty cycle correction factor calculated in Section 2.8 of the submitted test report.

Figures 2 and 3 have been added in the updated report.

4. The FCC ID number is not on a single line as specified in Section 2.925(a)(1) of the FCC Rules. Please provide an amended FCC ID label that meets this requirement.

A revised label has been uploaded.

5. Please provide external photos of the antenna that will be marketed with this modular transmitter. No photos of the antenna were provided in the external photo exhibit for this application.

Additional photographs have been uploaded.

6. Please provide a photo showing the bottom of the printed circuit (PC) board of the modular transmitter. No photo of the bottom of this PC board was provided.

Additional photographs have been uploaded.

3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com

7. The block diagram states that this transmitter used an MMCX antenna connector but the modular approval request letter in item 4 states that this transmitter uses a reverse SMA antenna connector. Please replace the incorrect exhibit.

The modular approval request letter has been corrected and uploaded.

8. External photos of the modular transmitter were provided while the module was still connected to the application board. Since the application board is not part of this application for Certification, please provide external photos of the modular transmitter only.

Additional photographs have been uploaded.

9. The user manual should inform the installer of this module that the FCC ID number must be shown on the exterior of the case of the product into which it is installed. Page 5 of the user manual states the FCC ID is "xxx-xxxxxxxx" not the actual FCC ID: SQB-NIVISMOD0003. The manual should state the actual FCC ID not a generic FCC ID so the final device is labeled correctly. Please submit a corrected user manual with the actual FCC ID number on page 5.

A revised manual has been uploaded.

10. Please demonstrate compliance with the peak radiated emission limit of 74 dBuV/m @ 3m with a 1 MHz resolution bandwidth (RBW) and a 1 MHz video bandwidth (VBW) for the restricted bands at 2310-2390 MHz and 2483.5-2500 MHz. The spectrum analyzer plots in

Figures 18 and 19 made with a 100 or 120 kHz RBW are not acceptable for showing compliance with these limits. Also no correction factors were provided for the levels shown in these figures.

The requested data has been added to the revised test report.

11. Please demonstrate compliance with the average radiated emission limit of 54 dBuV/m @ 3m with a 1 MHz RBW and a 10 Hz VWB for the restricted band at 2310-2390 MHz. You only provided a calculation for the average radiated emission in the restricted band at 2483.5-2500 MHz shown in Figure 20.

The requested data has been added to the revised test report.

12. In Section 2.14 of the test report for peak power output levels, is the 0.2 dB cable loss included in the measurement instrument or should it be added to the reported levels like it was for the power spectral density measurements in Section 2.15 of the test report? If they were not added, this will change the output power listed on the FCC application form and I will need an amended FCC application form.

The updated report clarifies the fact that the cable loss was included in the measurement data. Form 731 was correct on this information submitted.

13. The block diagram on page 12 of the test report does not show the application board being connected to the modular transmitter during testing. Please correct this oversight.

The block diagram has been updated.

14. Please correct the FCC application form as described below:
    (a) The equipment code listed in item 4(a) of Section III of the application form should be DTS not DSS (DSS is used only for frequency hopping spread spectrum transmitters),
    (b) The frequency range listed in item 6(a) of Section III of the application form should be from the center frequency of the lowest channel to the center frequency of the highest channel of the transmitter not the entire FCC band (2400-2483.5 MHz), and
    (c) The output power listed in item 6(b) of Section III should agree with the output power mentioned in item 12 above.

A revised Form 731 has been uploaded.

15. For Your Information – Table 5 of the submitted test report shows compliance of the digital device emissions in this device to the Class A digital device limits. This test result is not needed since this is part of a Verification test report for the digital device emissions. Also testing to the Class A limits should be done very carefully since the transmitter emissions are subject to Section 15.209 (if an emission frequency is in the restricted band in Section 15.205) which is the same as the Class B digital device limits (above 30 MHz). If you report a Class A digital device emission that exceeds the Class B digital device limit, the FCC will want a positive demonstration that this emission comes from the digital device rather than the transmitter. This can be very tricky so it is better to not raise any questions about the Verification tests during the Certification of a transmitter.

The report has been updated to clarify the data and we have noted your suggestions for future reports.

16. For Your Information – The double readings or limits in the columns in Table 7 are confusing. Lose them. As I mentioned before, the intentional radiator emissions limit in Section 15.209 is the same as the Class B digital device limit. Always show compliance with Section 15.209 to eliminate any problems. If you have to, make two separate tables to eliminate confusion and questions.

The report has been updated to clarify the data and we have noted your suggestions for future reports.

17. For Your Information – The radiated emissions reported in Table 8 that are not in the restricted bands listed in Section 15.205 are superfluous. You already have shown compliance with the -20 dBC limit for these emissions by including the RF antenna conducted plots on pages 18 to 24 of the test report. The only information that needs to be in this table are the emissions that are in the restricted bands with a limit of 54 (average) or 74 (peak) dBuV/m @ 3m. Steve, call me if you want to discuss the last three items above.

The report has been updated to clarify the data and we have noted your suggestions for future reports.

If you have any other questions, or need additional information, please let me know.

Best Regards,

Sandi McEnery
Manager

3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com