



September 14, 2000

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FCC Application Processing Branch

FCC ID O2SNURIT3010C  
Applicant: Lipman USA, Inc.  
Correspondence Reference Number: 16039  
731 Confirmation Number: EA98583

To Whom It May Concern:

Please accept this letter as a response to your e-mail dated 9/12/00, which was in regards to problems with our submission of the Nurit 3010 CDPD credit card terminal. A total of four issues were brought to my attention and below you will hopefully find sufficient information to continue approving our terminal.

Issue #1: SAR report contains results for hand compliance only, with the antenna in stowed condition. It is also indicated in the SAR report that the device may be carried in a case that hooks onto a belt. Please confirm if device may transmit in body-worn configurations and also demonstrate SAR compliance for bystanders and other parts of the user's body with respect to 1-g SAR limit for other applicable antenna configurations during normal use.

Answer #1: It was confirmed that the addition tests were performed, but the results were not uploaded. APREL Labs, will be uploading the missing test results. To answer the second part of this question, the holster was designed only to hold the terminal. The plastic of the holster actually prevents a credit card from being swiped and therefore the terminal cannot transmit when in the holster.

Issue #2: Duty factor info indicates regular transaction time is 6 seconds and it takes another 10 seconds before the next transaction can occur. This would result in a typical transmission duty factor of  $6/16 = 37.5\%$ . Note: For RF exposure purposes, maximum duty factor is need. Depending on the transmission protocol and network implementation, byte counts may not always be applicable for determining RF exposure duty factor; especially when RF carrier stays on when no bytes are sent at certain intervals. Please clarify and provide additional info that is applicable for determining the worst case source-based time-averaging duty factor (see 2.1093).

Answer #2: The POS does not in fact transmit for the whole 6 seconds. It only transmits 500 bytes of data max, which would take about 200 milliseconds of the 6 seconds at 19200bps. The absolute maximum duty factor would be 6.9%. In addition, it has been confirmed that the letter you received explaining the software controlled Duty Factor was actually an incorrect version. APREL Labs will also upload a letter that is relevant to the CDPD hardware within our terminal. (The affected pages in the User's exposure reports are appended to this letter, the Bystander report has been amended and is uploaded separately).

Issue #3: SAR was tested at 100% duty factor. Please verify that during normal device operations at substantially lower duty factors device performance does not change. For example, at 100% fully loaded conditions, depending on the design of a device, performance could become worse.

Answer #3: During normal operation of the Nurit 3010, the Duty Factor of the CDPD modem cannot be changed. During testing the CDPD modem only operates at 100%.

Issue #4: If applicable, based on test results and device operating configurations, please include appropriate operating instructions in the manual for end-users to satisfy RF exposure compliance requirements.

Answer #4: APREL Labs will upload a new version of the User's Guide including, bystander distance warning.

Sincerely,

John R. Carpino  
Chief Engineer Assistant

FCC ID: O2SNURIT3010C  
 Applicant: Lipman USA Inc.  
 Equipment: Wireless Point of Sale Terminal with a Novatel NRM-6832 Expedite Wireless IP Modem  
 Model: Nurit 3010, CDPD  
 Standard: FCC 96 –326, Guidelines for Evaluating the Environmental Effects of Radio-Frequency Radiation

## ENGINEERING SUMMARY

This report contains the results of the engineering evaluation performed on a Lipman Nurit 3010 wireless point of sale terminal (POS) which incorporates a Novatel NRM-6832 Expedite wireless IP modem. This report is supplementary to the engineering evaluation for bystander exposure, report LPMB-Nurit 3010 CDPD-3507B. The measurements were carried out in accordance with FCC 96-326. The POS was evaluated at its nominal maximum power level (power level 2) with 100% duty factor.

For the SAR Analysis for the User, the Lipman Nurit 3010 wireless point of sale terminal (POS) was tested at low, middle and high channels with the antenna oriented in one position (at the antenna side of the terminal, 0°, where it is most likely to come in contact with the user's hand). The maximum SAR (3.64 W/kg) was found to coincide with the peak performance RF output power of channel 400 (middle, 837 MHz), with the antenna side of the DUI facing up against the bottom of the phantom. Test data and graphs are presented in this report.

Based on the test results and on how the device will be used, with the duty factor of the POS intrinsically limited to less than 7% (see Appendix F), it is certified that the product meets the requirements as set forth in the above specifications, for an uncontrolled RF exposure environment for extremities (hand).

(The results presented in this report relate only to the sample tested.)



## 7. CONCLUSIONS

The maximum Specific Absorption Rate (SAR) averaged over 10 grams, determined at 837 MHz (channel 400, middle, antenna side, antenna stowed, power level 2) of the Lipman Nurit 3010 wireless point of sale terminal (POS), which incorporates a Novatel NRM-6832 Expedite wireless IP modem operating with a 100% duty factor, is 3.64 W/kg. The overall margin of uncertainty for this measurement is  $\pm 25.6\%$  (Appendix C). The SAR limit given in the FCC 96-326 safety guideline for uncontrolled exposure of extremities (4 W/kg reduced by the measurement uncertainty) is 2.98 W/kg.

Considering the above, this unit as tested, and as it will be marketed, with a POS duty factor of less than 7% (Appendix F), is found to be compliant with this requirement.



## APPENDIX F. Duty Factor Limitation of Lipman Nurit 3010 POS



LIPMAN U.S.A. Inc. *The Ideal Solution®*

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Syosset, New York 11791

September 14, 2000

Federal Communications Commission  
Equipment Authorization Branch  
7435 Oakland Mills Road  
Columbia, MD 21406

To Whom It May Concern:

A typical authorization financial transaction in the POS industry consists of approximately 100 bytes of request that is transmitted by the POS device and 50 bytes of response received by the POS device. The fastest transaction time that has been achieved on the CDPD network was 3 seconds. A regular transaction time is about 6 seconds and it takes another 10 seconds before the next transaction can be run after swiping the next card and entering the amount.

To be conservative, we will still assume that we can transmit one transaction per 3 sec continuously. According to Novatel Wireless, CDPD transmits at a maximum of 19200 bits per second, which would be 57600 bits in 3 seconds. The maximum duty factor is therefore  $100 \text{ bytes} * 8 \text{ bits/byte} / 57600 = 0.0139$  or 1.4%.

Some of the financial institutions may require the terminal to submit all transactions as a batch at the end of each day. During this batch upload terminal uploads all necessary transactions to the host computer.

The current maximum byte stream transmitted for a transaction in a batch upload is 250.

Assuming the worst condition situation, the terminal will submit one transaction (500-byte stream, double the size of current numbers) per 3 seconds. According to Novatel Wireless, CDPD transmits at a maximum of 19200 bits per second, which would be 57600 bits in 3 seconds. The maximum duty factor is therefore  $500 \text{ (bytes per transaction)} * 8 \text{ bits/byte} / 57600 \text{ bits (per 3 seconds shortest transaction interval)} = 0.0694$  or 6.9%.

Sincerely,  
Bulent Ozayaz  
Chief Engineer

