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Report of Certification to CFR 47 Part 15 Subpart C

Report #0701043
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RFID TRANSCEIVER MODEL DP120USB

The manufacturer and applicant:

Northern Apex Corporation
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Fort Wayne, IN 46818

Report prepared for:

Mr. Kurt Oyer
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Test Date(s): August 21, October 26, 2007

On the basis of the measurements made, the equipment tested is capable of operation, under normal use and maintenance, in compliance with the requirements of 47CFR Part 15 Subpart C

Signatures

Gordon Helm, NCE

David Tarnowski, NCE

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Statements concerning this report

NVLAP Accreditation: NVLAP Lab Code 200129-0

The scope of AHD accreditation is the conducted emissions, radiated emissions test methods of:

- ? IEC/CISPR 22: Limits and methods measurement of radio disturbance characteristics of information technology equipment.
- ? FCC Method – 47 CFT Part 15 – Digital Devices.
- ? AS/NZS 3548: Electromagnetic Interference – Limits and Methods of Measurement of Information Technology Equipment.
- ? IEC61000-4-2 and Amend.1: Electrostatic Discharge Immunity

Test Data:

This test report contains data covered by the NVLAP accreditation.

Subcontracted Testing:

This report does not contain data produced under subcontract.

Test Traceability:

The calibration of all measuring and test equipment and the measured data using this equipment are traceable to the National Institute for Standards and Technology (NIST).

Limitations on results:

The test results contained in this report relate only to the Item tested. Any electrical or mechanical modification made to the test item subsequent to the test date shall invalidate the data presented in this report. Any electrical or mechanical modification made to the test item subsequent to this test date shall require an evaluation to verify continued compliance.

Limitations on copying:

This report shall not be reproduced, except in full, without the written approval of AHD.

Limitations of the report:

This report shall not be used to claim product endorsement by NVLAP, FCC, or any agency of the US Government.

Statement of Test Results Uncertainty:

Following the guidelines of NAMAS publication NIS81 and NIST Technical Note 1297, the Measurement Uncertainty at a 95% confidence level is determined to be: ? 1.4 dB.

Confidentiality of certain technical content:

At the request of the applicant, block diagrams, schematics, and circuit descriptions are to be kept confidential. Therefore, sections and figures with confidential technical content are blank in this document. Said technical content is supplied to under separate cover for review by the technical competent body and not for public review.

Statement Attesting to the Accuracy of the Data

The measurements declared in this report were made in accordance with the procedures indicated, and the energy levels emitted by this equipment were found to be within the limits applicable.

The technical test data reported herein was performed or supervised by a NARTE Certified Engineer at a NVLAP accredited facility who attests to the accuracy of the data presented and whose signature appears below.

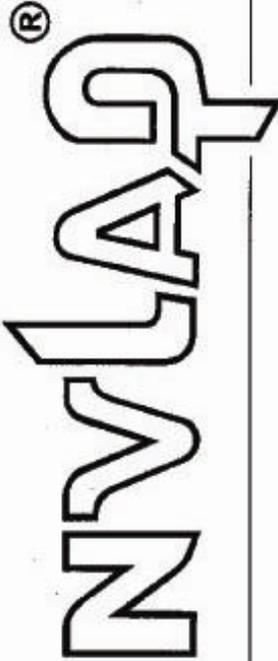
On the basis of the measurements made, the equipment tested is capable of operation in compliance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.



Gordon Helm, NCE
Technical Lab Manager, AHD

NVLAP Accreditation

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200129-0

AHD (Amber Helm Development, L.C.)
Dowagiac, MI

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communique dated 18 June 2005).



2007-07-01 through 2008-06-30

Effective dates

Jolly S. Bruce
For the National Institute of Standards and Technology

NVLAP-01C (REV. 2006-09-13)

1. APPLICABLE STANDARDS

- 1) United States Code of Federal Regulations (CFR), Title 47—Telecommunications
 - a. Chapter I, Federal Communications Commission
 - i. Part 15-Subpart A (General Requirements)
 - ii. Part 15-Subpart C (Intentional Radiators)
- 2) ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio Noise Emissions from Low-Voltage electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
{More specific citations of these standards are made in the sections where measurement data is reported.}
- 3) RF Exposure Information
Per 47CFR 2.1091 (b) and (c), the EUT is classified as “portable” and excluded from routine RF exposure evaluation prior to equipment authorization, respectively. Together with 47CFR 1.1307(b) and 1.1310, the EUT falls into a category that precludes the need for doing radiation exposure measurements and submittal of an Environmental Assessment (EA).

2. DESCRIPTION OF PRODUCT UNDER TEST

General Description

The DP120USB is a read-write radio-frequency identification (RFID) product that is used in conjunction with a host USB-enabled computer. Power to the EUT is supplied through the USB connection rather than a separate power supply or battery: it can only operate if connected to a PC with a USB port. In application, the product is placed on a desktop next to its host PC and oriented such that the EUT’s antenna and circuit boards are facing upwardly.

Two main systems comprise the DP120 USB: the RFID coupler (RF transmit / receive electronics with antenna included), and the serial communications electronics between the RFID coupler and the host computer.

Block Diagrams and Circuit Descriptions

Overall product functional block diagram

Figure 1. DP120 USB system diagram



Figure 2. Schematic, serial communications interface

RFID coupler circuit



Figure 3. The Tagsys Medio S002 block diagram.

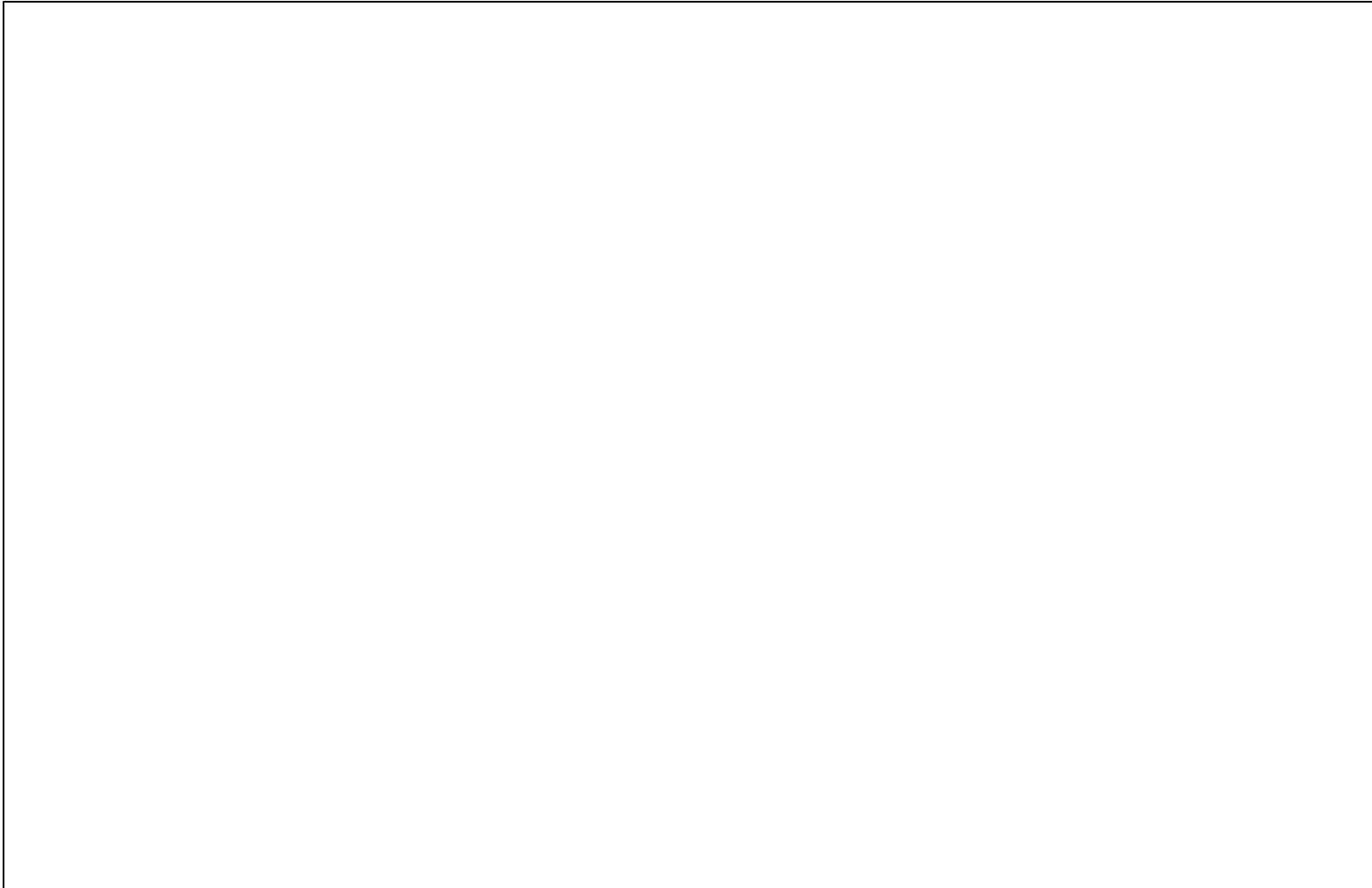


Figure 4a. RFID Coupler: I/O, DC supply, and controller



Figure 4b . RFID Coupler: transmitter section

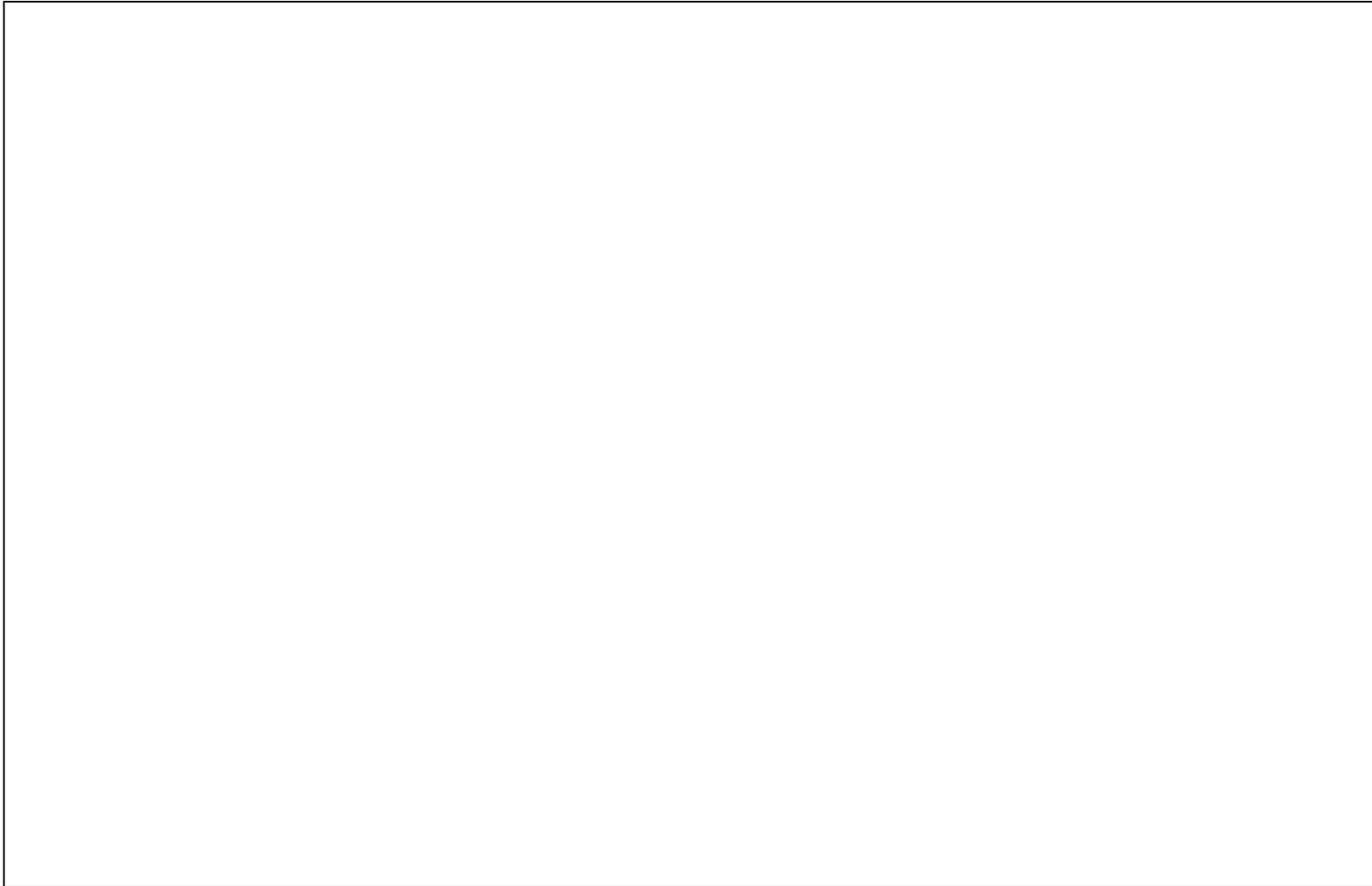


Figure 4c . RFID Coupler: receiver section

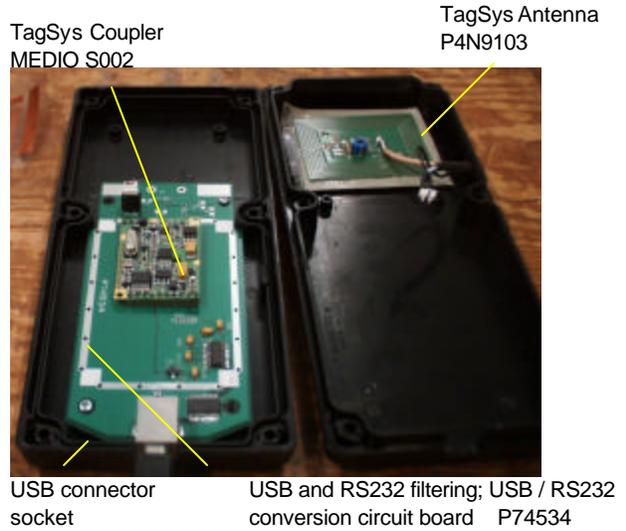
Power supply

The DC power requirements are provided by a host computer via the VBUS line.

Photographs of EUT



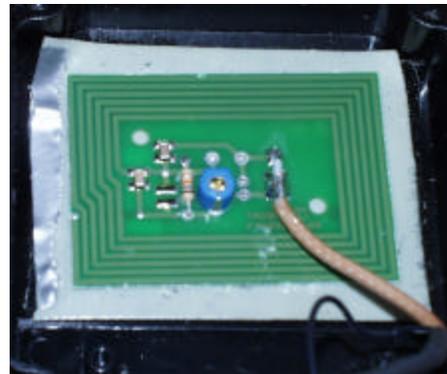
Assembled product with RFID tag on top and USB cable exiting out of the bottom



Inside view of product



Close-up of RFID coupler attached to USB / RS232 converter circuit board



Close up of RFID antenna

Close up of back of USB / RS232 converter

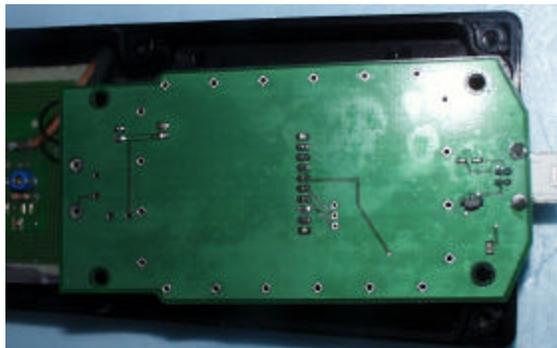


Figure 5a. Photos of EUT's interior and exterior

Model: DP120 USB
FCC ID: RIN-ADP120USB
Northern Apex Corp.

This device complies with Part 15 of the FCC Rules. Operation is subject to the two following conditions: (1) this device may not cause harmful interference (2) this device must accept any interference received including interference that causes undesired operation.

Figure 5b. Photo of label



Figure 5c. Photo of label on product