

COMPLIANCE WORLDWIDE INC. TEST REPORT 201-24RF

In Accordance with the Requirements of
Federal Communications Commission
CFR Title 47 Part 2.1093:2023
Radio Frequency Exposure Evaluation: Portable Devices

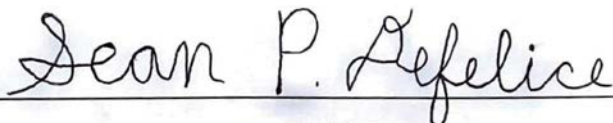
Issued to
Napco Security Technologies, Inc.
333 Bayview Avenue
Amityville, NY 11701

for the
R-PH 125 kHz Proximity Card Reader
Model: R-PH

FCC ID: AD8R-PH

Report Issued on June 28, 2024

Tested by



Sean P. Defelice

Reviewed By



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1. Scope

This test report certifies that the Napco Security Technologies R-PH 125 kHz Proximity Card Reader, as tested, meets the FCC Part 2.1093 / Part 1.1307 requirements exempting the device from a SAR Evaluation. The scope of this test report is limited to the test sample provided by the client, only in as much as that sample represents other production units. If any significant changes are made to the unit, the changes shall be evaluated, and a retest may be required. Measurement Uncertainty will not be applied to any of the measurement / testing results in this test report to determine pass/fail criteria per the Decision Rule as defined in ISO/IEC Guide 17025-2017 Clause 3.7.

2. Product Details

- 2.1. Manufacturer:** Napco Security Technologies
2.2. Model Number: R-PH
2.3. Serial Number: Preproduction
2.4. Description: The R-PH 125 kHz Proximity Card Reader is used for scanning passive ID cards in a security environment. Connection is provided via a Wiegand interface.
2.5. Power Source: 7 - 16 VDC from control panel
2.6. Hardware Revision: N/A
2.7. Software Revision: N/A
2.8. Modulation Type: Pulse Modulation
2.9. Operating Frequency: 125 kHz
2.10. EMC Modifications: None

3. Product Configuration

3.1. Operational Characteristics & Software

Once powered is applied to the product via the support equipment the EUT is configured to transmit continuously.

3.2. EUT Hardware

Manufacturer	Model/Part # / Options	Serial Number	Volts	Freq (Hz)	Description/Function
Napco Security Technologies	R-PH	Preproduction	7-16	VDC	125 kHz Prox Card Reader

3.3. EUT Cables/Transducers

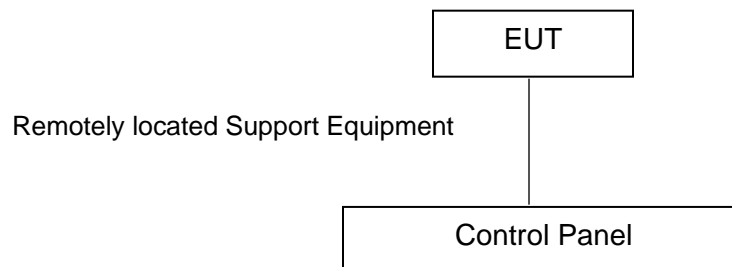
Cable Type	Length	Shield	From	To
24 AWG Wiegand	10M	No	EUT	Panel

3. Product Configuration (continued)

3.4. Support Equipment

Device	Manufacturer	Model	Serial #
None			

3.5. Block Diagram



4. Measurements Parameters

4.1. Measurement Equipment and Software Used to Perform Test

Device	Manufacturer	Model No.	Serial No.	Cal Due	Interval
EMI Test Receiver, 9kHz - 7GHz ¹	Rohde & Schwarz	ESR7	101156	10/26/2024	3 Years
EMI Test Receiver, 10 Hz - 7GHz ¹	Rohde & Schwarz	ESR7	101770	7/23/2025	1 Year
Loop Antenna 9 kHz - 30 MHz	EMCO	6512	9309-1139	4/14/2025	3 Years
Loop Antenna 20 Hz – 5 MHz	ETS-Lindgren	6511	00108119	3/31/2025	3 Years
Digital Barometer	Control Company	4195	ID236	3/15/2025	1 Year

¹ ESR7 Firmware revision: V3.48, SP3 Date installed: 09/30/2020

4.2. Measurement & Equipment Setup

Test Dates:	June 21 st , 2024
Test Engineer:	Sean Defelice
Normal Site Temperature (15 – 35 °C):	20.5
Relative Humidity (20 - 75 %RH):	46 %
Frequency Range:	9 kHz to 1 GHz
Measurement Distance:	3 Meters
EMI Receiver IF Bandwidth:	200 Hz – 10 to 150 kHz 9 kHz – 150 kHz to 30 MHz 120 kHz - 30 MHz to 1 GHz 1 MHz - Above 1 GHz
EMI Receiver Avg Bandwidth:	>= 3 * RBW
Detector Function:	Peak, QP - 30 MHz to 1 GHz Peak, Avg - Above 1 GHz Unless otherwise specified.

4.3 Measurement Procedure

The test measurements contained in this report are based on the requirements detailed in FCC Part 15, Subpart C - Intentional Radiators, notably Section 15.209, Radiated emission limits; general requirements and ANSI C63.10:2013 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

In addition, FCC KDB 447498 D01 General RF Exposure Guidance v06, October 23, 2015 are referenced for the testing and requirements detailed in this report.

5. Choice of Equipment for Test Suites

5.1. Choice of Model

This test report is based on the test samples supplied by the manufacturer and are reported by the manufacturer to be equivalent to the production units.

5.2. Presentation

The test sample was tested complete with all required ancillary equipment. Refer to Section 3 of this report for the product equipment configuration.

5.3. Choice of Operating Frequencies

The transmitter in the unit under test utilizes a single operating frequency at approximately 125 kHz.

6. Measurement Data

6.1. Radiated Field Strength of Fundamental (15.209, Section (a))

Requirement: Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

For 125 kHz: Field Strength ($\mu\text{V/m}$) = $2400/F(\text{kHz})$ at 300 meters.
 Field Strength ($\mu\text{V/m}$) = $2400/125.000$
 Field Strength ($\mu\text{V/m}$) = 19.20
 Field Strength ($\text{dB}\mu\text{V/m}$) = $20 \text{ LOG}_{10}(19.20)$
 Field Strength ($\text{dB}\mu\text{V/m}$) = 25.67 at 300 meters.

Test Notes: From 110 kHz to 490 kHz, the field strength limit employs an average detector (FCC Part 15.209(d)).

Reference ANSI C63.10-2013 sections 5.3.2 and 6.4.4.2. The following formula was used to extrapolate the measurement distance to the limit distance:

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left(\frac{d_{\text{near field}}}{d_{\text{measure}}} \right) - 20 \log \left(\frac{d_{\text{limit}}}{d_{\text{near field}}} \right) \quad \text{Equation 1}$$

FS_{limit} is the calculation of field strength at the limit distance ($\text{dB}\mu\text{V/m}$)	6.97
FS_{max} is the measured field strength, expressed in ($\text{dB}\mu\text{V/m}$) (average)	86.97
$d_{\text{near field}}$ is the $\lambda/2\pi$ distance (Meters)	381.97
d_{measure} is the distance of the measurement point from the EUT (Meters)	3.00
d_{limit} is the reference limit distance (Meters)	300.00

Since $d_{\text{near field}}$ is greater than d_{limit} , the measurement formula was simplified to:

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log (d_{\text{limit}}/d_{\text{measure}}).$$

Results: Compliant

6. Measurement Data (continued)

6.1. Radiated Field Strength of Fundamental (15.209, Section (a), RSS-GEN Table 6)

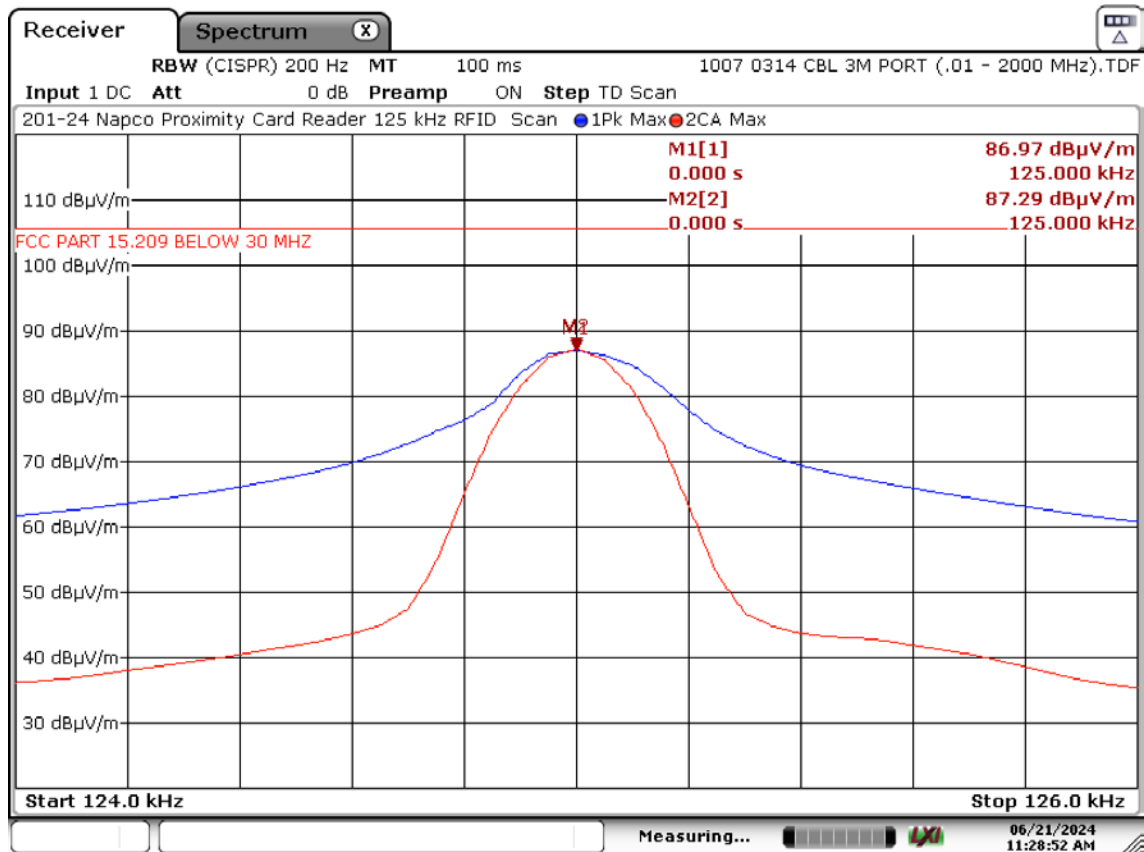
6.1.1. Worst Case Radiated Field Strength of Fundamental

Freq. (MHz)	Amplitude ¹ (dBμV/m)	Duty Cycle Correction ²	Corr. Ampl. ² (dBμV/m)	FCC 15.209 Limit (dBμV/m)	Margin (dB)	Ant Position	Ant Height	Turntable Azimuth	Result
	Average	dB	Average	(Average)		Par/Per	cm	Deg	
0.125000	6.97	0.00	6.97	25.67	-18.70	Par	100	354	Compliant

¹ Measurement has been extrapolated from 3 meters to 300 meters using Equation 1 on the previous page.

² The test signal was transmitting at close to a 100% duty cycle. Therefore, a correction factor to the peak field strength is not necessary.

6.1.2. Worst Case Radiated Field Strength of Fundamental @ 3 Meters



Date: 21 JUN 2024 11:28:53

6. Measurement Data (continued)

6.2. Public Exposure to Radio Frequency Energy Levels (FCC Part 2.1093:2023)

6.2.1. 2.1093 Requirements

Requirement: Reference CFR 2.1093: (b) A portable device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

(c) (1) Evaluation of compliance with the exposure limits in §1.1310 of this chapter, and preparation of an EA if the limits are exceeded, is necessary for portable devices having single RF sources with more than an available maximum time-averaged power of 1 mW, more than the ERP listed in Table 1 to §1.1307(b)(3)(i)(C), or more than the Pth in the following formula, whichever is greater.

Reference CFR 1.1307: Determination of exemption. For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

The available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

$$\text{EUT Output Power (dBm)} = 3\text{M Field Strength} - 95.2; (-7.91 = 87.29 - 95.2)$$

Frequency (MHz)	DUT Peak Field Strength at 3M (dBμV/m)	DUT Output Power (dBm)	DUT Antenna Gain (dBi)	DUT Output Power (mW)	Exemption Limit (mW)	Result
0.125	87.29	-7.91	0	0.161	1.0	Compliant

Result: Compliant - The device under test meets the exemption requirement detailed in CFR Title 47, Section 1.1307 (3)(i)(A).