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# American National Standard—Cybersecurity Requirements for Lighting Systems—Parking Lots

National Electrical Manufacturers Association

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**ANSI C137.2-2019**

# *American National Standard—Cybersecurity Requirements for Lighting Systems—Parking Lots*

**Secretariat: National Electrical Manufacturers Association**

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**CONTENTS**

1. Introduction ..... 1
2. Scope ..... 1
3. Normative References ..... 1
4. Definitions ..... 2
5. Parking Lot Lighting Systems and NIST Guide to Industrial Control Systems (ICS) Security SP 800-82 rev 2 ..... 3
6. Parking Lot Connected Lighting System ..... 5
7. Overall Parking Lot Lighting System Risk Management ..... 7
7.1. Parking Lot Lighting Systems Cybersecurity Risk Management Framework ..... 7
7.2. Risk Management Framework Steps ..... 9
8. Parking Lot Lighting Systems Security Controls Application Guidance ..... 12
8.1. Access Control ..... 14
8.2. Awareness and Training ..... 15
8.3. Audit and Accountability ..... 15
8.4. Security Assessment and Authorization ..... 15
8.5. Configuration Management ..... 16
8.6. Contingency Planning ..... 16
8.7. Identification and Authentication ..... 17
8.8. Incident Response ..... 17
8.9. Maintenance ..... 18
8.10. Media Protection ..... 18
8.11. Physical and Environmental Protection ..... 18
8.12. Planning ..... 19
8.13. Personnel Security ..... 19
8.14. Risk Assessment ..... 19
8.15. Systems and Services Acquisition ..... 20
8.16. Systems and Communication Protection ..... 21
8.17. System and Information Integrity ..... 21
8.18. Program Management ..... 21
9. Parking Lot Lighting System Cybersecurity Integration ..... 22

## Foreword

At the time this Standard was approved the ANSI C137 committee was composed of the following members:

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# Parking Lot Cybersecurity

## 1. Introduction

Many commercial organizations operate a parking lot which is incidental to their core business operations. Typically this type of organization does not have an IT department developing its property tools; they tend to be fully dependent on off-the-shelf solutions and third-party providers. Cybersecurity risk of harm may involve at least two main scenarios: unauthorized access to the organization network and data, and unauthorized access to customers or others visiting the organization (either in person or remotely). This document addresses a recommended cybersecurity practice for the parking lot lighting systems setup. It is recognized that this type of environment has the need to share IT resources with other tasks and functions, to use off-the-shelf solutions, and to outsource IT services. Cybersecurity protection and mitigation measurements can be shared with other activities and functions.

## 2. Scope

The intent of this document is to provide cybersecurity requirements for Lighting Systems used in parking lots with public access. This Standard provides specifications for the protection of signals and data to, from and within the lighting system, potentially including those that may initiate, control or monitor non-lighting functions. This Standard is not intended to address parking lots with enhanced security requirements, such as critical infrastructure sectors. This Standard does not apply to safety-related cybersecurity.

## 3. Normative References

National Institute of Standards and Technology.

NIST. (2004). FIPS PUB 199 Standards for Security Categorization of Federal Information and Information Systems. *Federal Information Processing Standards Publication.*

NIST. (2006). FIPS PUB 200 Minimum Security Requirements for Federal Information and Information Systems. *Federal Information Processing Standards Publication.*

NIST. (2011). SP 800 -137 Information Security Continuous Monitoring (ISCM) for Federal Information Systems and Organizations: U.S Department of Commerce National Institute of Standards and Technology.

NIST. (2013). NIST SP 800-53 Rev 4 Security and Privacy Controls for Federal Information Systems and Organizations: U.S. Department of Commerce National Institute of Standards and Technology

NIST. (2014). NIST SP 800-53A Assessing Security and Privacy Controls in Federal Information Systems and Organizations: U.S. Department of Commerce

NIST. (2015). NIST SP 800 82 Guide to industrial control systems (ICS) security. 100 Bureau Drive (Mail Stop 8930) Gaithersburg, MD 20899-8930: United States Department of Commerce. National Institute of Standards and Technology.