
Non-Ionizing Electromagnetic Radiation (NIER) Report Requirements

1. Scope

This standard covers the requirements for Non-Ionizing Electromagnetic Radiation (NIER) reports submitted to Seattle City Light (SCL).

2. Application

This standard is intended for use by:

- SCL engineers who review NIER reports
- Wireless communication providers (customers) who submit NIER reports to SCL

3. Overview

NIER reports document compliance with the Federal Communications Commission (FCC) guidelines for human exposure to radiofrequency (RF) electromagnetic fields as defined in FCC OET Bulletin 65 as it applies to the general public and occupational workers in the vicinity of wireless communication antennas.

A NIER report is required by SCL for the installation or modification of any RF-emitting device antenna facility, including, but not limited to:

- Macrocell facilities
- Small wireless facilities
- Advanced metering infrastructure (AMI) collectors
- AMI router/repeaters

4. Requirements

4.1 Submission

Customers are required to submit a NIER report to SCL Joint Use for:

- New installations of wireless antenna sites
- Modifications or upgrades to existing wireless antenna sites

A single NIER report can be used for multiple antenna installation locations, provided the locations all have the same antenna configuration (antenna model, transmitting equipment, and antenna centerline), with the exception of macrocell facilities, each which require a separate NIER report.

The date of preparation shall appear on the front of the report.

SCL reserves the right to reject reports that are deemed incomplete, contradictory, and or/erroneous.



In cases where an installation of RF equipment complies with the FCC criteria for exemption for NIER reporting, SCL will require an RF Compliance Letter prepared and signed by a Washington State-licensed Professional Engineer (PE). The RF Compliance Letter shall include the FCC ID of the RF equipment and the type of exemption, as allowed by FCC OET Bulletin 65 and FCC 19-126.

4.2 Certification of Compliance

All NIER reports shall be reviewed and evaluated by a Washington State-licensed Professional Engineer (PE) with requisite knowledge in RF-emitting devices. Such evaluation shall be conducted under the guidance of FCC OET Bulletin 65.

The PE shall submit a certification of compliance to include a summary stating the total safe approach distances corresponding to FCC 100% Maximum Permissible Exposure (MPE), for the following:

- General population (vertical and horizontal planes)
- Occupational workers (vertical and horizontal planes)

Certification shall include a signed and dated PE stamp.

4.3 Installation Location Information

The NIER report shall declare the following information regarding each installation location:

- Customer site name or identification number
- GPS coordinates
- Street address
- SCL pole number for the pole proposed for the installation

4.4 Safe Approach Distance Summary Table

SCL requires that a table be presented in each NIER report that summarizes key data points for the installation, including:

- Antenna radius (rad) center height above ground level (AGL)
- Indication whether installation includes multiple bands or not
- Number of transmit sectors
- Frequency band(s) included in installation
- Technology type(s)
- Transmit frequency
- Actual transmit output power
- Total transmit power
- Total cable loss and combining loss (dB)
- Antenna gain
- Main lobe Effective Isotropic Radiative Power (EIRP) (converted into watts)
- Safe approach distances (vertical and horizontal) for both the general population and occupational workers for each frequency band as well as total safe approach distances for the installation as a whole.

The table shall be formatted in accordance with the example shown in Figure 4.4.

Table 4.4. Example of a Safe Approach Distance Summary Table

Band	Technology Type	Transmit Frequency	Actual Transmit Output Power (watts)	Total Transmit Power (watts)	Total Cable Loss & Combining Loss (dB)	Antenna Gain (dBi)	EIRP (main lobe) watts	Safe Approach Distances			
								FCC 100% MPE General		FCC 100% MPE Occupational	
								Distance, Horizontal Plane (ft)	Distance, Vertical Plane (ft)	Distance, Horizontal Plane (ft)	Distance, Vertical Plane (ft)
Total Safe Approach Distances											

4.5 Interference from Other Operational Frequencies at Proposed Installation Location

If applicable, include a review of any known interference which may be produced via interaction between the applicant's operating frequency(ies) and any other known licensed or unlicensed operational frequencies at the proposed location.

4.6 Equipment Specifications and Operational Parameters

The NIER report shall include, in an appendix, specification sheets for all wireless equipment included in the installation, including

- Antenna specification sheet
- Transmitter data sheet
- Base station and/or transceiver transmit frequencies
- Actual transmit output power (as limited by parameters, e.g., a 40-watt transmitter configured as a 30-watt in Network)

Equipment specification sheets may be referenced in the report and included in an appendix.

4.7 Supporting Data

Data supporting information shall be included in the NIER report, such as:

- Methodology used for calculations
- Assumptions
- Applicable references
- Other materials that support the information presented in the report
- Analysis reports

5. References

Federal Communications Commission (FCC) 19-126; Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rule Making, and Memorandum Opinion and Order, Released December 4, 2019

Federal Communications Commission Office of Engineering and Technology (FCC OET) Bulletin 65; Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, Edition 97-01 (1997)

6. Sources

IEEE C95.1-2019; "Standard for Safety Levels with Respect to Human Exposure to Electric, magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz"

Haberman, Douglas; SCL Joint Use Strategic Advisor and subject matter expert for 0095.06

Mott, Kenneth; SCL Communication Electrician and subject matter expert for 0095.06

Neuansourinh, Ponet; SCL Standard Engineer, originator, and subject matter expert for 0095.06

OET Bulletin 56-1999; "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields"

SCL Work Practice 0095.04; "Working in the Vicinity of Wireless Communications Antennas"