

Exposure to Radio Frequency Electromagnetic Fields

Standard



Contents

1	Introduction	3
2	Requirements.....	3
3	RF EMF procedure.....	4
4	Training	5
5	Field monitor equipment	5
6	Medical fitness and response.....	6
6.1	Medical devices.....	6
6.2	Suspected exceedance of Exposure Limits.....	6
7	Local risk assessment.....	6
8	Monitoring and review.....	6
9	References	7
10	Change information.....	7

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1 Introduction

This standard describes the minimum requirements for working in areas where exposure to Radio Frequency (RF) Electro Magnetic Field (EMF) may occur during work on behalf of Ericsson to ensure that the Health and Safety aspects are properly managed.

Where local legislation exceeds requirements in this standard, local legislative requirements shall apply.

2 Requirements

The following requirements shall apply:

- The limits in applicable national regulations on occupational exposure to RF EMF shall be applied (“Exposure Limits”). If no specific national limits exist, the limits in the International Commission on Non-Ionizing Radiation (ICNIRP) guidelines [1] shall be used.
- Relevant Ericsson employees and contractors (“Employees”), i.e. those that work in environments where the RF EMF exposure may exceed applicable public exposure limits, shall be familiar with the applicable safety requirements including relevant customer and/or network provider information.
- Only Employees who have received relevant RF EMF safety training shall carry out work in areas where RF EMF exposure may exceed public exposure limits.
- Warning signs shall be respected and instructions on site shall be followed.
- If the RF EMF exposure is exceeding the Exposure Limits in the workplace, relevant equipment shall be switched off or the power shall be reduced, as deemed necessary.
- Antenna feeders, waveguides or connectors associated with a transmitter in operation shall not be disconnected, unless it is known that the RF EMF exposure will not exceed the Exposure Limits.
- Work near loose or defective cabling and connectors associated with a transmitter in operation shall be avoided as this may lead to RF EMF exposure exceeding the Exposure Limits.
- Only trained Employees shall carry out RF EMF exposure measurements.
- RF EMF exposure surveys shall be conducted according to applicable standards.



3 RF EMF procedure

During the planning phase and before commencement of any work on site:

- Persons responsible to conduct site surveys must identify any instance where it is necessary to have an assessment of RF EMF exposure carried out in advance of work commencing.
- In situations where information about the boundary within which the Exposure Limits may be exceeded ("Compliance Boundary) is not available, such information shall be obtained from the network operator(s), or an RF EMF exposure assessment shall be made before any work commences.
- Relevant local safety requirements shall be gathered from the site owner, network provider, operator and/or Ericsson.

Before entering a base station or antenna site, Employees shall

- review relevant RF EMF safety information for the site, and
- review existing local risk assessments.

When accessing and while being present on a site, the following shall apply:

- Other relevant RF EMF sources near the work location and access routes shall be identified and if needed RF EMF exposure information shall be obtained.
- No work shall be carried out within the Compliance Boundary (exclusion zone) of a live antenna transmitting at full or unknown power levels. When work shall be performed in this zone, e.g. directly in front of a directional antenna, the power shall be reduced, or relevant transmitter(s) shall be switched off as per local network operator's outage procedure.
- Antenna feeders, waveguides or connectors associated with a transmitter in operation shall not be disconnected, unless it is known that the RF EMF exposure will not exceed the Exposure Limits.
- If RF EMF exposure level or Compliance Boundary information is not available, the Employee shall take any of the following actions:
 - contact the responsible site manager who shall make sure that an RF EMF exposure assessment is conducted, or
 - measure the RF EMF exposure levels, if the Employee has received appropriate measurement training and has been equipped with a field monitor covering the frequency range of the radio services at the site.



4 Training

Employees i.e. those that work in environments where the RF EMF exposure may exceed applicable public exposure limits, shall have received relevant safety training in RF EMF. Such training shall include:

- Exposure Limits and safety guideline,
- how to determine RF EMF exposure levels and interpret available Compliance Boundary information,
- actions to be taken in case of suspected exposure exceeding the Exposure Limits, and
- if relevant, measurement equipment training.

The training provided shall validate the knowledge of the course participants at the end of the training.

5 Field monitor equipment

In cases when the Employee uses a field monitor (e.g. NARDA Nardalert Personal Monitor) to ensure that the RF EMF exposure is not exceeding the Exposure Limits, the following shall apply:

- the manufacturer's instructions supplied with the field monitor, as well as relevant standards, shall be followed,
- where a field monitor alarm has been triggered or a meter shows a value exceeding the Exposure Limits, work shall be suspended until the actual RF field strength can be confirmed by a more accurate measurement survey,
- as RF EMF exposure levels may vary in time, the exposure shall be constantly monitored, unless the measured levels are significantly below the limits (e.g. more than 10 dB) at the work location, and
- personal monitors shall be re-calibrated according to intervals specified by the manufacturer. Evidence of such calibration shall be available with the monitor.



6 Medical fitness and response

6.1 Medical devices

Employees using medical devices, such as heart pacemakers, insulin pumps and implanted metal plates, shall seek medical advice from their doctor prior to work in areas with RF exposure levels exceeding public RF EMF exposure limits.

If needed, the responsible manager shall make sure that specific safety arrangements are made.

6.2 Suspected exceedance of Exposure Limits

In case of suspected exposure above the Exposure Limit, the relevant Ericsson line manager or contact person shall be notified and the incident shall be investigated by the responsible manager.

Since the Exposure Limits include wide safety margins (typically a factor of 10 for occupational exposure), and the exposure levels shall be determined over a specified time (typically six minutes), very high RF EMF levels for longer periods are needed to cause any health effects and symptoms.

If symptoms are present, a medical doctor shall be consulted to determine the reasons and relevant treatment.

7 Local risk assessment

A site risk assessment shall be conducted on all sites to identify if RF EMF levels may exceed Exposure Limits. The local risk assessment shall form part of the standard site survey.

8 Monitoring and review

The responsible manager shall monitor adherence to this standard by reviewing and keeping:

- incident statistics,
- records of all Employees who have received RF EMF training;,,
- records of RF EMF assessments, and
- records of calibration of RF EMF field monitors and meters.



9

References

[1] [ICNIRP Guidelines](#)

[2] [General information on Radio Waves and Health](#)

10

Change information

Summary of changes since last revision:

1 Smaller linguistic corrections, no change to content.