

Recommendation **ITU-T K.37 (01/2024)**

SERIES K: Protection against interference

Low and high frequency electromagnetic compatibility (EMC) mitigation techniques for telecommunication installations and systems – Basic EMC Recommendation

Recommendation ITU-T K.37

Low and high frequency electromagnetic compatibility (EMC) mitigation techniques for telecommunication installations and systems – Basic EMC Recommendation

Summary

Recommendation ITU-T K.37 defines mitigation techniques which the telecommunication operators may use to avoid disturbances, interference and damages caused by power and electrified railway plants, radio transmitters, both intentional and unintentional, and electrostatic discharges.

This Recommendation contains guidance for the telecommunication system normal operation:

- use of telecommunication equipment fulfilling relevant electromagnetic compatibility (EMC) requirements;
- proper installation practices such as well-controlled earthing and bonding networks and a.c. power distribution networks in buildings, avoidance of disturbing equipment close to telecommunication equipment, environmental control and well-designed cabling;
- proper working practices such as avoiding use of hand-held radios close to telecommunication equipment and applying special precautions when handling electrostatic discharge sensitive devices;
- proper working practices in areas subject to high levels of low-frequency induction.

Special mitigation methods like shielding and filtering are discussed for cases where EMC problems arise.

This Recommendation does not include circuit or equipment design rules or guidelines for manufacturing – it is noted that this information is already widely available.

History*

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Introduction

This Recommendation contains guidance for telecommunication operators on avoiding interference and damage caused by power and electrified railway plants, radio transmitters, both intentional and unintentional, and electrostatic discharges. The text is intentionally short, drawing the attention of the user to reference standards and documents listed.

Equipment, when used in an environment where it is intended to be installed, should be able to function properly and without disturbing other equipment. This is assured by environmental classification and electromagnetic compatibility (EMC) test requirements.

Telecommunication equipment normally fulfils the EMC requirements when the doors of cabinets are closed, and other covers are in place. During installation and maintenance, it is necessary to open the doors which require special precautions when handling Electrostatic Discharges (ESD) sensitive devices. Hand-held radios may also cause interference in such situations.

Mitigation methods are also given for cases where interference exists due to fast transient or radio-frequency phenomena for some reason – e.g., the environment is harder than the class the equipment is designed for – or other power users are creating a harsh environment. Practical rules are given for situations where interference occurs, e.g., due to low frequency harmonic disturbance from an a.c. power system or user.

This Recommendation is a basic EMC Recommendation for telecommunications.

