Instruction sheet 07-03 / March 2023

Recommendations for fire brigade response near base transceiver stations

Short title: Radio transmitters
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Change history:

Version: 4 (March 2023)
Replaces Version: 3 (April 2018)
Initial Version: May 2007

Significant changes:
- Editorial changes

Note:

A spelling that is equally fair to all genders is desirable. However, since corresponding newer spellings generally lead to major restrictions in readability, this has been dispensed with. Thus, for the entire document, the masculine form includes all genders, unless explicitly stated otherwise.

Content:

1. Purpose of the instruction sheet

The amount of transceiver stations is permanently increasing due to the rapid expansion of the mobile phone networks. This instruction sheet also covers transmission towers that broadcast radio and television signals.

These base transceiver stations have been considered when assessing risks during fire brigade responses. Stations with high transmitting output such as TV transmission towers should be included in the deployment plans together with the relevant information (operator, safety distance etc.).

Department 10 of the gfpa has prepared this sheet with state-of-the-art technical information and details of tactical response tactics for fire brigades.

The relevant information of the trade association's regulation entitled "Electromagnetic Fields" (DGUV 15 regulation of the trade associations, June 2001) has been considered.

2. General

- Electromagnetic fields interact with the human body.
- With increasing intensity, high-frequency electromagnetic fields cause warming of the human body (like a microwave oven). If this effect remains within legal limits, however, the possibility of any risk to health can be ruled out
- The effect of electromagnetic fields decreases rapidly with increasing distance from the source! ("inverse square law")
- The Federal Network Agency (BnetzA) stipulates a safety radius that must be observed around each antenna. This means that, as a rule, no uniform safety distances can be specified; exception: mobile phone stations. (See Table 1). System locations and safety distances can be found online in the EMF map of the Federal Network Agency.
- Strong high-frequency electromagnetic fields can impair the operation of aerial rescue vehicles (HRVs) as well as fire brigade radio communications during operations.

3. Measures

3.1. Gathering information

- In the case of response activities (e.g. use of an HRV for human rescue, height rescue operation) on roofs, masts, bridges, towers and alike, it must be determined whether there are antenna installations in the vicinity. Keep as much distance as possible.

3.2. Protective measures:

- The most reliable protective measure is to have the installation in question switched off by the operator.
- If this is not possible, a safety distance that depends on the field intensity or transmitting power must be observed:

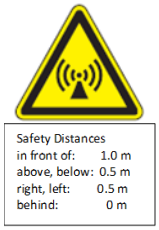
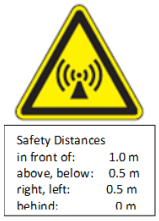
Safety distances for:		
	Mobile phone transceiver stations	
	No signage or:	Safety distance: ○ at front (major direction of radiation: 0,5 m ○ at side, above and below: 0,25 m ○ behind the antenna: 0,0 m
		If the required safety distance is greater than 0.5 m, this is stated on signage below the warning sign.
	Rundfunk- und Fernsehsender	
	No signage or:	Ask facility operator about safety distances.
		Safety distances according to warning sign.

Table 1: Safety Distances for mobile phone transceiver stations und radio and TV transmitters

3.3. Documentation

- All response activities in the close vicinity of high frequency electromagnetic fields must be documented.

4. References

- ASCHENBRENNER, D.: ELEKTROMAGNETISCHE FELDER, IN: CIMOLINO, U. (HRSG.) EINSATZLEITERHAND-BUCH, ECOMED VERLAG, LANDSBERG / LECH 20002022
- FUNKANLAGEN UND ELEKTROMAGNETISCHE FELDER (EMF), BUNDESNETZAGENTUR (BNETZA), HTTPS://WWW.BUNDESNETZAGENTUR.DE/DE/VPORTAL/TK/FUNKTECHNIK/EMF/START.HTML
- MOBILFUNK UND GESUNDHEIT; DEUTSCHE TELEKOM MOBILNET TECHNIK GMBH, 03/2022
- DGUV VORSCHRIFT 15 „ELEKTROMAGNETISCHE FELDER“ VOM JUNI 2001
- DGUV REGEL 103-013 „ELEKTROMAGNETISCHE FELDER“ JANUAR 2006
- MOBILFUNK UND SICHERHEIT; BUNDESVERBAND INFORMATIONSWIRTSCHAFT, TELEKOMMUNIKATION UND NEUE MEDIEN E.V. BITKOM, JANUAR 2017