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Order on the protection of public telecommunications networks and radio receiving and transmitting stations operated in defined frequency ranges for safety purposes

(Sicherheitsfunk-Schutzverordnung - SchuTSEV)[1]

of 13 May 2009

Pursuant to §6(3) of the Act on Electromagnetic Compatibility of Equipment (*Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln*) of 26 February 2008 (Federal Gazette I p. 220), the Federal Government has decreed as follows:

Contents

§1 **Scope**

This Order lays down detailed rules for the application of special measures by the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railways (*Bundesnetzagentur*) to protect

1. radio receiving and transmitting stations operated in defined frequency ranges for safety purposes, and
2. public telecommunications networks

from electromagnetic interference.

§2 **Definitions**

For the purposes of this Order, the following definitions shall apply:

1. 'operator' is the natural or legal person with legal and actual control over a telecommunications facility or a telecommunications network;

2. 'public telecommunications network' is a telecommunications network within the meaning of §3(27) of the Telecommunications Act which is used to provide publicly accessible telecommunications services within the meaning of §3(24) of the Telecommunications Act;

3. 'emissions' are electromagnetic energy caused by a conducted electrical signal, which escapes from the conductor through induction, influence or radiation coupling and may affect radio communications.

§3 **Protection of radio receiving and transmitting stations operated for safety purposes**

(1) Emissions from line-bound telecommunications facilities and networks may not exceed the interference field strength values given in Annex 2 in the frequency ranges to be protected listed in Annex 1. The interference field strength must be measured using the procedures set out in Annex 3.

(2) The Federal Network Agency may

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[1] The obligations arising from Directive 98/34/EC of 22 June 1998 of the European Parliament and of the Council laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on information society services (OJ L 204, p. 37), as last amended by Council Directive 2006/96/EC of 20 November 2006 (OJ L 363, p. 81), have been met.

1. check that the requirements of paragraph 1 are being met;
2. order the operator of a telecommunications facility or telecommunications network to take special measures for testing purposes and, in particular, require the operator to feed test signals;
3. require the operator to ensure, by the end of a reasonable period, that his line-bound telecommunications facilities or network meet the requirements of paragraph 1;
4. order special measures to be taken with regard to location, time or technical specifications for the operation of the line-bound telecommunications facilities or the line-bound telecommunications network;
5. place a total or partial ban on the operation of the line-bound telecommunications facilities or the line-bound telecommunications network.

(3) Without prejudice to the requirements of paragraph 1, the Federal Network Agency may, in collaboration with the Federal authorities competent for the radio receiving and transmitting stations concerned, take measurements in respect of radio receiving and transmitting stations requiring special protection in the interests of public safety.

§4 **Protection of public telecommunications networks**

Where line-bound telecommunications facilities and networks cause electromagnetic emissions that interfere with public telecommunications networks, the Federal Network Agency may order those facilities and networks to comply with the maximum interference field strength values given in Annex 2. §3 paragraph 1 sentence 2 shall apply accordingly.

§ 5 **Protection of aeronautical frequencies**

(1) Line-bound transmissions of analogue signals (radio signals) in the frequency ranges

1. 112 megahertz to 125 megahertz must be ceased by 31 March 2009 at the latest;
2. 125 megahertz to 137 megahertz must be ceased by 31 December 2010 at the latest.

(2) Transmission of digital signals shall be permissible in these frequency ranges, provided that the line-bound transmission networks concerned comply with the maximum interference field strength values given in Annex 2 up to the user's terminal. The operator must prove and document testing of the line-bound transmission network and submit corresponding documentation to the Federal Network Agency on request.

(3) The Federal Network Agency may check that the obligations of paragraphs 1 and 2 have been met and use administrative enforcement measures if necessary.

(4) If the Federal Network Agency detects in its measurements that the line-bound transmission networks meet the requirements of paragraph 2, it may, in agreement with the Federal Office for Information Management and Information Technology of the Federal Armed Forces, relax the threshold values in accordance with Annex 2 No 7.

§6 **Entry into force**

This Order shall enter into force on the day following that of its promulgation.

Berlin, 13 May 2009

The Federal Chancellor, Dr Angela Merkel

The Federal Minister of Economic Affairs and Technology, Dr Karl-Theodor zu Guttenberg

Order on the protection of public telecommunications networks and radio receiving and transmitting stations operated in defined frequency ranges for safety purposes

(Sicherheitsfunk-Schutzverordnung - SchuTSEV)

Explanatory Memorandum

A. General section

Background and purpose of the Order

Radio receiving and transmitting stations operated in defined frequency ranges for safety purposes and public telecommunications networks require special protection from the effects of electromagnetic emissions in the interests of public safety. For these cases, Article 4(2)(b) of Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC (OJ L 390, p. 24, 31.12.2004) permits the Member States to take special measures. Accordingly, §6(3) of the Act on Electromagnetic Compatibility of Equipment (*Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln*) provides for the adoption of an Order implementing suitable provisions.

This is such an Order. In particular, it takes account of the fact that there are currently no European harmonised standards to protect this radio equipment in accordance with the needs of the relevant users. Should corresponding harmonised standards become available, the provisions of this Order can be repealed accordingly (also in the interests of a reduction in red tape).

The EMC system is based on the flexible use of frequencies in line-bound telecommunications networks, provided that there are corresponding harmonised standards which are observed. This means that restrictions on flexible use based on location (regional protection zones), technical specifications (threshold values) and time must be specified and kept to a minimum.

In accordance with the actual interference potential determined by the Federal Network Agency, the Order therefore contains provisions on the protection of safety-related radio applications and public telecommunications networks from emissions from line-bound telecommunications equipment and networks.

The Order therefore replaces the previous provision No 30 (NB 30) of the Order on the table of frequency allocations (FreqBZPV) of 26 April 2001 (Federal Gazette I, p. 778) on flexible use in and along conductors. The aim of the Order is not only to provide greater legal certainty for all parties, but also to give them room for manoeuvre and provide the Federal Network Agency with the necessary instruments to ensure compliance with this framework.

Contents of the Order

In addition to the Act on the Electromagnetic Compatibility of Equipment (EMVG), §14 of which gives the Federal Network Agency powers to act in the event of a specific incident, the SchuTSEV provides for the following:

1. Suitable and necessary measures can be taken in order to protect radio receiving and transmitting stations operated in defined frequency ranges for safety purposes from electromagnetic emissions, including precautionary measures.

The Order therefore sets out special threshold values for emissions from line-bound telecommunications facilities and networks for certain, defined frequency ranges. Compliance of telecommunications equipment and networks with the specific threshold values is necessary to ensure that radio receiving and transmitting stations operated for safety purposes can operate without interference.

The Federal Network Agency can check, as a precautionary measure, that these threshold values are complied with in order to protect safety-related radio receiving and transmitting stations, and take measures specific to the relevant case, up to the imposition of a ban.

2. Binding technical decision-making criteria can be applied to electromagnetic emissions affecting public telecommunications networks. For this purpose, the Order lays down threshold values to be observed by the station or network causing interference.

3. Analogue, line-bound transmission of broadband radio signals in two frequency ranges which are not intended for (TV) broadcasting in open land will be terminated on a defined date. This will permit the use of aeronautical channels currently blocked for safety reasons. However, under certain conditions, line-bound transmission of digital broadband signals is permissible.

Budgetary implications

The Federal Network Agency estimates running costs of approximately EUR 5.4 million a year for measures under §3(2) and (3). Personnel costs are covered by redistributing tasks and by using manpower from the staff surplus. The additional costs of measures under §3 to §5 will be covered by income from fees.

Impact on the economy

Although the industry will have to invest in coaxial cable networks to comply with §3 to §5 of the SchuTSEV, no additional operating and maintenance costs are expected. However, the SchuTSEV gives operators the predictability they have requested to be able to plan better, and operators have been well aware of the issues involved for several years.

B. Specific section

§1

This provision sets out the Order's scope.

§2

This provision sets out definitions providing clarity to the application of this Order. A reference is also made to the definitions in the EMVG and the Telecommunications Act.

§2(2)

The definition of 'public telecommunications network' covers both cable networks and radio networks that can be used by any person without any further conditions, although charges may be payable.

§2(3)

The definition of 'emissions' within the meaning of this Order covers electromagnetic energy caused by a conducted electrical signal, which escapes from the conductor through induction, influence or radiation coupling and may affect radio communications. This can occur, for example, in coaxial cable television networks and PLC and other cable-bound networks, and depends on the physical structure of the networks and the transmission parameters. 'Emissions' can also be caused by mechanical faults causing leakage, insufficient shielding or a mismatch between the network and the consumer. They can therefore have an effect on radio systems working on the same frequency. Air traffic control in particular has been affected by this for years, and for safety reasons can no longer use certain frequencies.

§3 and §4

The Act provides the Federal Network Agency with sufficient powers above and beyond the provisions on the electromagnetic compatibility of equipment (EMVG) to remedy any situation. This includes protection of telecommunications networks and radio equipment and thus takes into account the second recital of the Directive. §3 and §4 therefore contain obligations above and beyond the EMVG, which only exceed the basic protection in justified cases and are therefore kept to a minimum. This is based, in particular, on the volume of emissions documented by the Federal Network Agency. DSL or LAN networks, for example, are within the permissible thresholds when correctly installed, owing to the characteristics of their network components and the transmission properties. Therefore, no further requirements need to be made of them other than the obligations to be met in the event of an incident. The same applies to electrical equipment.

Compliance with the protective goals set out in §3 and §4 will be checked by the Federal Network Agency in cooperation with the parties concerned, taking account of urgency and proportionality. Efforts should be focused on self-control by the market players or operators of such telecommunications equipment and networks.

§3(1)

This provision covers particular protection for a series of radio receiving and transmitting stations operated for safety purposes. It sets out:

1. the requirements to be met by line-bound telecommunications equipment and networks in defined frequency ranges; and

2. the measurement procedures to be used by the Federal Network Agency to actually implement the Order.

In order to ensure that these safety-related radio receiving and transmitting stations operate as intended without interference, there must be particular limits on ‘emissions’ from line-bound telecommunications equipment and networks. The interference field strength values to be complied with in defined frequency ranges pursuant to Annex 1 are set out in Annex 2 and the measurement procedures are set out in Annex 3 of the Order. The intention of the Order is not to subject all electrical equipment to the thresholds in Annex 2; in particular, it is not aimed at any specific apparatus.

Apparatus is subject to the requirements and rules of the European internal market, including the relevant EU directives on placing apparatus on the market and bringing it into service. Compliance with these requirements is proved by the manufacturer, authorised representatives or importer by means of EC conformity assessment procedures. As part of the EC conformity assessment procedures, harmonised standards with presumed effect can be used. Support for the procedures may also in certain cases be provided by a notified body.

Apparatus placed on the market and operated in accordance with harmonised standards based on EU law or its transposed national equivalent can be connected to line-bound telecommunications equipment and networks without having to meet additional technical requirements based on the SchuTSEV.

The basic requirements of the EMVG must still be met.

§3(2)

This provision sets out the room for manoeuvre available to the Federal Network Agency in its measures to protect safety-related radio receiving and transmitting stations. These measures must be proportionate to the problem to be resolved. The Federal Network Agency can order graduated measures at local, regional and Federal level. In particular in respect of requirements to be met at a Federal level, the intention is to develop measurement procedures in cooperation with those potentially concerned, enabling telecommunications stations and networks to be tested at random as efficiently as possible (e.g. reference journeys, measurements at high locations). Once they have been produced, the results can be disseminated by means of publication in the Official Gazette.

§3(3)

This provision gives the Federal Network Agency a legal basis to carry out precautionary testing on protection requirements that can be derived from theoretical calculation models for radio receiving and transmitting stations operated for safety purposes (monitoring). The measurements thus taken can be used to estimate the risk with respect to radio receiving and transmitting stations operated for safety purposes. Additions or amendments to this Order may therefore become necessary. Where possible with regard to safety and security, the test procedures designed for that purpose (e.g. overview of the present situation) will be published in the Federal Network Agency's official gazette.

§4

This provision protects public telecommunications networks. Owing to the actual amount of interference until now, however, the provision can essentially be limited to the protection of public radio networks. It specifies the intervention powers of the Federal Network Agency under §14 of the EMVG in the event of any conflict. Conflict may arise in particular when the radio receiving and transmitting stations of public telecommunications networks are affected by line-bound telecommunications networks, even if the latter meet the basic requirements of the EMVG. The provision sets out two technical decision-making criteria for resolving such cases of conflict:

1. the threshold values for 'emissions' from line-bound telecommunications stations and networks to be applied by the Federal Network Agency when interference occurs, and

2. the measurement procedures to be used.

The threshold values are in accordance with the internationally discussed and published CEPT Recommendation 05-04 "Criteria for the assessment of radio interferences caused by radiated disturbances from wire-line telecommunication networks", dated 24/06/2005 (see: http://www.erodocdb.dk/doks/doccategoryECC.aspx?doccatid=2).

The network requirements apply to all technologies. This is without prejudice to the principle of proportionality in the selection and application of the necessary measures as described in the EMVG.

§5

Although protection for radio receiving and transmitting stations operated for safety purposes is provided by §3 of this Order, incorrect or outdated installations in conjunction with relatively high signal levels, especially in coaxial cable television networks, have until now prevented the use of certain radio telephone frequencies for air traffic. Studies carried out by the Federal Network Agency show that the signal level and resulting "emissions" are markedly lower when coaxial cable television networks are used. However, this benefit is to a large extent offset by leakages in incorrectly fitted or outdated cable installations.

For this reason, paragraph 1 of this provision lays down deadlines for, in particular, the operators of coaxial cable television networks to stop using analogue signals in the frequency ranges listed. Under certain conditions (a line-bound transmission network complies with threshold values set out in Annex 2 up to the user terminal), these frequencies can be used to transmit digital signals; for paragraph 3, see "Annex 2" below. With respect to meeting these requirements, the definition of operator under §2(1) applies; in other words, the person with actual and legal control is responsible for complying with the threshold values.

This is intended to improve the compatibility situation overall and to ensure that the frequencies assigned to air traffic, which cannot, for safety reasons, be operated at present because of emissions from coaxial cable television networks, can be used again. The operator must prove and document testing of the line-bound transmission network and submit corresponding documentation to the Federal Network Agency on request. A conscious decision has been made not to make formal requirements concerning the form of the proof or documentation, so as to keep red tape to a minimum.

Paragraph 2 refers to the transmission of digital signals via the corresponding line-bound transmission networks. As for the apparatus connected to these networks, the explanations given under §3(1) apply similarly.

§6

This provision sets out the date on which the Order enters into force.

Annex 1

This Annex gives a non-exhaustive list of frequency ranges requiring particular protection in which radio receiving and transmitting stations are operated for safety purposes in Germany. In the frequency ranges listed, unacceptable interference has occurred in the past or is expected in the near future despite technical progress. To protect this equipment, special thresholds for "emissions" from line-bound telecommunications networks and stations must be complied with. The frequency list in Annex 1 therefore represents only a portion of all the frequencies used for safety purposes in the Federal Republic of Germany by radio transmitting and receiving stations.

Annex 2

Annex 2 contains the interference field strength values (electric field strengths)

- to be complied with by line-bound telecommunications equipment and networks for the frequency ranges listed in Annex 1 in the interests of protecting radio transmitting and receiving stations operated for safety purposes; and
- compliance with which can be ordered by the Federal Network Agency when dealing with interference to public telecommunications networks.

Annex 2 thus adopts a specification agreed by operators of coaxial cable television networks and operators of safety radio services with respect to NB 30 of the Order on the table of frequency allocations (FreqBZPV). It concerns the further reduction of the interference field strength threshold by 9 dB in the frequency ranges 108 to 144 MHz and 230 to 400 MHz. This strengthens protection of the radio channels concerned in the event of any leakage occurring during the operation of cable television networks (e.g. where a connecting cable is damaged owing to incorrect use in the home).

The provision on thresholds in this Annex stipulates a measurement distance of 3 m. This measurement distance is applied even though it may be in the near-field and thus cause the measurement result to underestimate the interference field strength from the equipment. However, the field strength measurement is a less expensive measurement procedure than that of interference radiation measurement and is therefore used here for testing.

If this measurement distance cannot be maintained or a more precise measurement is required, the equivalent interference radiation level given as an alternative in footnotes 1 and 3 (Dipol) is measured far-field.

BNetzA measurements in the aeronautical range have shown that the interference field strength threshold is greatly exceeded in certain locations.

The Federal Network Agency can relax the threshold value under §5(4) in the frequency range 230 to 400 MHz in agreement with the Federal Army's IT Office (*Bundesamt für Informationsmanagement und Informationstechnik der Bundeswehr*, IT-AmtBw), if there is evidence that cable network operators have significantly improved the current interference situation.

Annex 3

Annex 3 contains the procedures for measuring emissions from line-bound telecommunications equipment and networks. These are reference measurement procedures for non-discriminatory checks of compliance with the threshold values under Annex 2.