

## **General Technical Conditions (GTC)**

The General Technical Conditions supplement the General Purchasing Conditions (GPC) and, together with the Specifications, form the technical basis for **preparing offers, the contents of offers, the design of the devices / systems and the documentation**. In case of different formulations, the information contained in the Specifications shall be valid.

### **1. Scope of offer**

The offer is to be prepared in accordance with the Specifications, with the bidder guaranteeing that all services and ancillary costs required for the proper fulfilment of the order – such as planning, installation, cabling, commissioning, electrotechnical test result, measuring work, provision of technical documentation and all necessary work and measuring aids – are included in the prices given.

If ORF provides equipment according to the Specifications, the costs for the integration thereof (planning, installation, technical documentation, etc.) shall be included in the offer. .

In addition, proposals and prices for repair aids, special spare parts or components considered necessary and expedient by the bidder for proper repair and maintenance shall be indicated in the offer, if desired.

As a rule, any block diagrams and drawings enclosed with the Specifications are for information purposes only, unless it is expressly stated that they are binding. Since they are usually only the result of a rough conceptual plan, ORF cannot guarantee the accuracy of such documents.

Within the framework of the overall concept set out in the Specifications, the bidder may propose the design and technology used at their discretion.

Any deviations from the Specifications must be expressly indicated in the offer.

Descriptions of the technology offered, functional descriptions, circuit diagrams, data sheets as well as guaranteed values of the individual devices used, reference lists and the like shall be included in the offer – as far as possible – so as to better assess the offer. The offer should preferably be prepared in German. However, offers in English shall also be accepted.

The offer made on the basis of the Specifications and accepted by ORF shall be binding with regard to the subsequent execution of the order. Any changes to the

task or execution during production shall require written consent.

## **2. Implementation guidelines for systems and custom-built devices**

### **2.1. Construction**

Devices must be suitable for installation in 19" racks. In the interest of facilitating servicing, they should be manufactured using plug-in module technology and modular racks. All modules (slide-in units) and individual parts, in particular electromechanical components, must be easy to install and remove. Racks, tables, desks and the like must also be designed using 19" technology.

The individual devices must be sufficiently cooled even when installed in confined areas, with the acoustic specifications of the place of use (fan noise) also being observed.

Movable connection cables and cable compartments must be flexible enough that the parts in question may move freely and the connections are not damaged even if they are often moved. When selecting the cable material and connector types, operational vibrations (vehicles) must be taken into account. Plugs must be protected against unintentional disconnection (suitable locking mechanism for all cables – e.g. IEC (power) connectors – required in the entire system).

### **2.2 Components**

Only professional components available from more than one manufacturer may be used. The bidder must guarantee the supply of spare parts for at least seven years. In the event of individual component groups being phased out, replacement types shall be provided.

All connectors required for the plugs must be supplied with the individual devices. They are to be regarded as an integral part of the devices.

No materials must be used which, in the event of a fire, release substances that are harmful to health or cause lasting damage to the environment (e.g. avoid PVC cable sheathing).

For signal paths with low voltage or current levels, only gold-plated switching and plug contacts are to be used. Additionally, a protective gas seal is required for relays. Silver as contact medium is specifically not allowed.

Any terminals for the power supply or power distribution should be designed to be maintenance-free (e.g. cage clamp), and the installation location must also be accessible at a later stage.

Lighting elements should be designed to have a long service life. LEDs should be used wherever possible.

Semi-professional equipment must be modified to fit the system infrastructure (e.g. studio standard signal level +6dBu, signal conversion, transformers, etc.) by the bidder in accordance with the applicable technical standards.

### **2.3. Labelling**

All device connections, racks, cables and other relevant system components must be clearly and robustly labelled. The labels must correspond to the technical documentation.

### **2.4 Technical documentation**

Complete technical documentation must always be supplied for devices and systems.

**Service and support documents** are made up of general, functional and detailed documents required for maintenance and repair and which consist of system and equipment documentation.

The system documentation must be in paper form, comprising a maximum of four sets, as well as an original set, created in an electronically up-to-date form, i.e. design drawings and circuits must be provided in CAD – Auto-CAD format.

**Operating documents** shall contain all information necessary for the operating personnel to understand and operate the equipment.

The operating documents must be prepared in German. Service and support documents are also accepted in English.

If a system and/or a device is modified, the documentation must be clearly amended (redlined) at the same time. If available, the CAD drawings must also be amended.

Documentation of the system to be installed in the course of an order must be provided in the form of photos, block diagrams, assembly drawings and descriptions; in addition, a complete list of spare parts for the equipment used (including manufacturer specifications) is required.

If IT-based systems are used to perform the task, corresponding process and workflow documentation shall be prepared.

Upon delivery, the contractor must hand over to ORF all necessary electrotechnical inspection logs or findings (e.g. measurement of loop resistance, grounding log, etc.). A complete electrical report must be prepared for the entire system.

**In addition to the ACAD drawing to be created, the following is also expected to ensure proper system documentation:**

- European Declaration of Conformity / company declaration and delivery of all inspection logs as well as setting and adjustment values.
- Test results for electrical systems (e.g. ÖVE/ÖNORM E 8001-6-61) and the insulation resistance according to the Electrical Engineering Act (Elektrotechnikgesetz).
- Software documentation, source code in an appropriate form with comments, software on EDP data carrier.
- System and equipment descriptions consisting of operating instructions, maintenance instructions, normal operating conditions and operating restrictions, accident concept (risk assessment of operating safety), physical limit values (e.g. energy balance, weight balance, ambient temperature, dangers due to vibrations, dangers due to static electricity).
- Diagram of the interconnection of grounding cables.
- Process and workflow documentation in AdoIT in line with ORF standards

## **2.5. Operability**

With devices that are operated regularly and at workstations, great importance must be attached to an ergonomically correct design, clear and logical arrangement of the operating elements and easy-to-read labels and displays. Fuses, setting controls, switches, etc. must be placed in easily accessible locations, preferably on front panels.

## **3. General technical specifications for systems and devices**

Detailed specifications or in-house standards exist for a number of design details. Certain devices or systems must also be manufactured to comply with special design requirements. The specifications applicable in each individual case are listed in the Specifications, but are not generally enclosed with it. If they are not known to the bidder, they may be requested by the department issuing

the invitation to tender.

Unless otherwise stated in the Specifications, the following specifications must always be observed.

### **3.1. Power supply**

Basically alternating current  
Nominal voltage 230 V +10% - 15%  
Rated frequency 50 Hz  $\pm$  5%

A redundant power supply design is to be preferred for devices with high availability, as well as for devices in the transmission path.

For devices powered by external single power supplies, a solution with a redundant power supply and a central power supply unit should be sought (e.g. centralise power supply of many individual control units).

Care must be taken to ensure selective switch-off conditions. Trains of equipment must be fed from one phase. If a second mains connection is available for devices, this must be supplied from an alternative power source.

### **3.2. Temperature range**

The specifications of the devices (equipment) must be kept within the range of 0° to 45°C at a relative humidity of 10% to 90%. If condensation forms, no damage should be incurred.

### **3.3. Radio interference suppression and disturbance**

Compliance with all relevant and applicable EU directives of the Electrical Engineering Act and ÖVE regulations must be ensured. Proof of EU conformity must be indicated (CE mark).

Electromagnetic compatibility

- a) Attention is drawn to measures to improve electromagnetic compatibility (EMC) in connection with grounding measures. Detailed information can be found in the Technical Guidelines IRT Guideline R2 "Guidelines to ensure the electromagnetic compatibility (EMC) of equipment and systems in broadcasting stations".
- b) Reference is made to IEC61000 with regard to immunity to static discharges, electromagnetic fields, fast transient disturbances, surge

voltages, conducted disturbances (induced by high-frequency fields), magnetic fields, voltage dips or short-term fluctuations or interruptions. The influence of mobile phones, DECT telephones or radio devices must be specifically checked in an additional informative test of the operational system.

### **3.4. Alarm system**

In order to be connected to an alarm system, devices shall signal their alarm status to the outside via potential-free contacts. Alternatively, SNMP-V1 signalling (preferably polling) is also accepted.

Transmission-relevant systems must be connected to assigned alarm systems.

## **4. Safety regulations**

### **4.1. Basics**

All systems and equipment must meet all safety requirements covering every aspect from delivery, storage, assembly or interconnection to acceptance testing and acceptance within ORF's area of responsibility, in accordance with

- a) EU rules
- b) Austrian regulations
- c) the state of the art
- d) internal guidelines

.

### **4.2. State of the art**

State of the art represents the technical possibilities at a certain point in time, based on the established findings of science and technology. It is **defined** by the **recognised rules of technology**.

### **4.3. Acknowledged rules of technology**

This refers to the technical specifications which are regarded by a majority of representative experts as a representation of the **state of the art**.

At the time of its adoption, a normative document relating to a technical subject shall be regarded as a **acknowledged rule of technology** if, in cooperation with the interested parties concerned (e.g. standardisation institutes), it was agreed through survey and consensus procedures. In principle, the following standards are acknowledged rules of technology:

- ÖNORMEN (Austrian Standards Institute)
- OVE/ÖNORMEN (Austrian Association for Electrical Engineering)
- TRVB (Technical Guidelines for Preventive Fire Protection)
- OIB Guidelines (Austrian Institute for Construction)
- TAEV (Technical connection conditions for energy providers)

If no relevant Austrian recognised technical regulations are available, the following German regulations shall apply accordingly:

- VDE (Association of Electrical Engineering)
- VDI (Association of German Engineers)
- DIN (German Institute for Standardisation)
- BG Rules, information and regulations of the Employers' Liability Insurance Associations

In addition, the following European and international regulations must also be observed:

- ISO (International Standardization Organization)
- IEC (International Electrotechnical Commission)
- CIE (Commission internationale de l'éclairage)
- CENELEC (Comité Européen de Normalisation Électrotechnique)

In addition to these are standards from broadcasting companies and their institutes (e.g.: IRT Institute for Broadcasting Technology, AKSI Working Group of Safety Engineers of German Broadcasters, etc.).

If another institution has drawn up a possible set of rules and this has also been generally recognised, this is also to be regarded as a recognised set of technical rules.

#### **4.4. Binding recognised rules of technology**

If recognised rules of technology have been declared binding on the basis of EU law, Austrian federal and/or state laws and related regulations, these must be observed without exception.

#### **4.5. Internal guidelines (GSI guidelines)**

Internal employee protection is defined in terms of health and safety by GSI guidelines, which must be observed if necessary. These are available on request and can be accessed on the ORF intranet.

#### **4.6 Exceptions to the application of recognised rules of technology**

In justified individual cases, clearly defined and stipulated areas may be exempted from recognised rules of technology if:

- these are not binding recognised rules of technology
- the basic protection objective is otherwise achieved in the individual case, if this can be done so on the basis of scientific and technical findings and if these are recognised by experts and comprehensible to them
- this has been expressly stated in writing by both contracting parties
- individual protective measures with GSI (Safety) have been defined and stipulated
- the agreed replacement protection measures can also be regarded as state of the art
- a risk can be ruled by an expert report to be provided by the contractor (e.g. by safety experts, generally sworn and court-certified experts, universities, testing institutes, engineering consultants, civil engineers, etc.)

#### **4.7. European Declaration of Conformity**

With the European Declaration of Conformity, the manufacturer or importer confirms that the equipment placed on the market meets all the relevant safety requirements of the European Union. This is to be handed over to ORF by the contractor. In addition to a description of the equipment and a reference to standards, the declaration of conformity also includes an indication of the last two digits of the year in which the CE marking was affixed. The EU Declaration of Conformity shall describe whether other applicable EU directives have also been complied with or whether any applicable transitional provisions have been used for this purpose.

If these requirements are not met or if proof of EU conformity (CE mark) cannot be provided, the customer shall be entitled:

- to have proof of a European Declaration of Conformity for the device provided at the contractor's expense
- to have any shortcomings identified in the European Declaration of Conformity remedied at the contractor's expense and



- to withdraw from the contract in the event of shortcomings, failure to fulfil or non-compliance with the criteria for obtaining a CE mark.

The European Declaration of Conformity must be submitted to the customer in full at the latest at the time of the safety-related acceptance of the devices / systems.

#### **4.8. Other provisions**

It is pointed out that the following special criteria of employee protection must be observed for all devices / systems and that the legal regulations (e.g. Worker Protection Act, Electrical Engineering Act, Work Equipment Ordinance, etc.) and the recognised rules of technology must be complied with:

- Electrotechnical safety
- Electromagnetic fields
- Optical radiation (e.g.: Laser, visible and invisible radiation, UV, etc.)
- Ionising radiation (e.g. radioactivity and X-rays)
- Ergonomic compatibility
- Vibration and noise
- Explosion and fire protection
- Hygiene regulations (e.g. for ventilation systems)

#### **4.9. Inspections and logs**

If inspections of equipment and systems are required by law, an inspection log must be prepared by the contractor and handed over to the customer during the acceptance test at the latest.