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Radijska oprema in sistemi (RES) - Radioteleks naprave, ki delujejo na pomorskem srednje- in kratkovalovnem podroļ ju - Tehniļ ne karakteristike in merilne metode

Radio Equipment and Systems (RES); Radiotelex equipment operating in the maritime MF/HF service; Technical Characteristics and methods of measurement

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Radio Equipment and Systems
Radiotelex equipment operating in the maritime MF/HF service
Technical characteristics and methods of measurement

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Foreword

This European Telecommunications Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI) and has undergone the ETSI standards approvals procedure.

The standard sets out the minimum requirements for the use of radiotelex equipment aboard ships, operating in the maritime mobile MF/HF radio service. Equipment must be capable of transmitting on one or more of the frequency bands assigned to the service (415 kHz to 526.5 kHz, 1605 kHz to 4.0 MHz, or 1605 kHz to 28MHz).

The standard incorporates the requirements of International Maritime Organisation (IMO) Assembly Resolutions A 569(14) and A 613(15), CCIR Recommendations 490, 491-1 and 625 and CCITT Recommendation F.130. It includes the performance standards for Narrow-Band Direct Printing (NBDP) equipment operating in the Global Maritime Distress and Safety System (GMDSS). Where the equipment is provided with a digital input panel, it must comply where practicable with CCITT Recommendation E.161/Q.11.

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1 Scope

This standard states the minimum requirements for radiotelex equipment[1)] for use on board ships. These requirements include the relevant provisions of the Radio Regulations and the performance standards for shipborne MF/HF radio installations for Narrow Band Direct Printing (NBDP) equipment operating in the Global Maritime Distress and Safety System (GMDSS), and of the performance standards Res. A 569(14) and Res. A 613(15) as adopted by the International Maritime Organization (IMO).

Annex VI of CEPT Recommendation T/R 34-01, CCIR Recommendation 625, 490, 491-1 and CCITT Recommendation F 130 are regarded as a constituent part of this standard.

Maritime radiotelex equipment shall use the error-detecting and correcting system used for direct-printing telegraphy in the maritime mobile service as described in CCIR Recommendation 625.

The equipment shall be able to operate in the Forward Error Correcting (FEC) and Automatic Repetition reQuest (ARQ) modes in accordance with CCIR Recommendation 625.

Maritime radiotelex equipment may consist of integrated equipment or of a combination of a maritime mobile transmitter/receiver and external NBDP equipment. Where such a combination is used the requirements for integrated equipment shall apply to that combination.

If the equipment, or parts of it, is designed in such a manner that it can also be used for other categories of maritime radio communication (e.g. radiotelephony), the relevant parts of the equipment shall furthermore fulfil the requirements of the relevant standards applicable for the service(s) in question.

2 General requirements

2.1 Construction

In all respects the mechanical and electrical design and construction and also the finish of the equipment shall conform with good engineering practice, and the equipment shall be suitable for use on board ships at sea.

The number of operational controls, their design and manner of function, location, arrangement and size should provide for simple, quick and effective operation. The controls should be arranged in a manner as to minimize the chance of inadvertent operation.

Their number should be the minimum necessary for satisfactory operation.

All operational controls should permit normal adjustments to be easily performed and should be easy to identify from the position at which the equipment is normally operated. Controls not required for normal operation should not be readily accessible.

The equipment should be so designed that the main units can be replaced readily, without elaborate recalibration or readjustment.

All controls, indicators, and terminals, shall be clearly labelled. A label showing the type designation under which the equipment is submitted for type testing, shall be fitted to the equipment so as to be clearly visible in the normal operating position.

The serial number shall be permanently marked on each unit of the equipment or on a name plate permanently fastened to that unit.

If the equipment consists of more than one unit, each unit shall have a clear identity.

Details of the power supply from which the equipment is intended to operate, shall also be clearly indicated.

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1) For the purposes of this standard, radiotelex equipment is defined as direct-printing telegraph equipment employing automatic identification and error correction in the maritime mobile MF/HF radio service.

Equipment intended to be installed on the bridge shall be provided with adequate illumination to enable identification of controls and facilitate reading of indicators at all times. Means shall be provided for dimming to extinct the output of any equipment light source.

The design of the equipment shall be such that misuse of the controls shall not cause damage to the equipment or injury to personnel.

If an equipment is connected to one or more other equipments, the performance of each shall be maintained.

Where a digital input panel with the digits "0" to "9" is provided, the digits shall, where practicable, be arranged to conform with CCITT Recommendation E 161/Q.11.

For the purpose of maintenance, components shall be easily identifiable either by markings within the equipment, or with the aid of the technical description.

For type-testing purposes, a comprehensive technical description shall be provided with the equipment.

Where external terminals can be used to operate the radiotelex equipment, the equipment shall be provided with at least a standard interface in conformity with CCITT Recommendation V.10 or Recommendation V.28 and/or be capable to operate a teleprinter in a 60 V/30 mA loop.

Where more than one keyboard/printer combination can be used, one shall have priority over the others.

At each operating position, an indication shall be available to indicate that another operating position is in use.

Incoming calls shall have priority over the local use of the teleprinter and/or display unit.

Associated teleprinters or display units shall display 69 characters per line.

The self-identification data of the radiotelex equipment shall be in conformity with CCIR Recommendation 625 and shall be permanently stored in the equipment. It shall not be possible for the user to change this data.

2.2 Controls and indicators

Visual indicators shall be available to indicate that:

- the supply voltage is connected (ON)
- the terminal is ready for operation (STAND BY)
- a call is detected (CALLED)
- the transmitter has been inhibited from operation when a continuous B (SPACE) or Y (MARK) signal is generated.
- that the transmitter is delivering RF output power to the antenna. Failure of the indicating circuit shall not interrupt the antenna circuit.

For integrated equipment, indication shall be given for failure to activate the associated transmitter.

An equipment on/off switch shall be provided.

2.3 Operational precautions

All adjustments and control-settings necessary to use the equipment in distress related traffic shall be readily accessible.

The ship's identity and information inherent to the radiotelex process shall be stored in non-volatile memory devices (i.e. not backed-up by primary or secondary power sources).

The information in volatile memory devices shall be protected against interruptions in the power supply of up to at least 10 hours duration.

If primary or secondary batteries are used to protect information stored in memory devices, it shall be stated on the equipment or on a label attached to the equipment when the batteries have to be replaced.

Transmission shall be inhibited under all conditions until the frequency has stabilized within the required limits.

2.4 Operational and maintenance instructions

Adequately detailed operation and maintenance instructions shall be provided with the equipment.

If the equipment is so constructed, that fault diagnosis and repair is practicable down to component level, the instructions shall include full circuit diagrams, component layouts and components parts lists.

If the equipment contains modules in which fault diagnosis and repair down to component level is not practicable, the instructions shall contain sufficient information to enable localization and replacement of the defective module. With regard to other modules and components in the equipment, the instructions shall contain the information mentioned in the previous paragraph.

2.5 Safety precautions

Provision shall be made to protect the equipment from the effects of excessive current or voltage and from excessive rise of temperature in any part of the equipment due to failure of the cooling system, if any.

Provision shall be made to protect the equipment from damage if the power supply is subject to transient voltage changes and from damage due to the accidental reversal of the polarity of the power supply.

Means shall be provided to earth exposed metallic parts of the equipment, but this shall not cause any terminal of the source of electrical energy to be earthed.

All parts and wiring, in which the direct or alternating voltage or both (other than radio frequency voltages) combine to give a peak voltage greater than 50 volts, shall be protected against accidental access and shall be isolated automatically from all sources of electrical energy when the protective covers are removed. Alternatively, the equipment shall be so constructed that access to such voltages may only be gained after having used a tool for this purpose, like a spanner or a screwdriver, and warning labels shall be prominently displayed both within the equipment and on protective covers.

2.6 Warming-up period

The equipment shall be operational and shall meet the requirements of this specification within one minute of being switched on, except as provided in the next paragraph.

If the equipment includes parts which require to be heated in order to operate correctly, for example crystal ovens, then a warming-up period of 30 minutes from the moment of application of power to those parts shall be allowed, after which the requirements of this specification shall be met.

Where the above paragraph is applicable, the power supplies to the heating circuits shall be so aranged so that they can remain operative when other supplies to the equipment or within the equipment are switched off. If a special switch for these circuits is provided on the equipment, the function of the switch shall be clearly indicated and the operating instructions shall state that the circuit should normally be left connected to the supply source. A visual indication that power is connected to such circuits shall be provided on the front panel.

2.7 Operational facilities

The following operational facilities shall be available:

a) Activation of calling towards the corresponding radiotelex station (CALL).

b) Reversion of transmission direction (OVER).