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*Candidate Harmonized European Standard (Telecommunications series)*

**Electromagnetic compatibility  
and Radio spectrum Matters (ERM);  
Narrow-band direct-printing telegraph equipment  
for receiving meteorological or navigational  
information (NAVTEX);  
Part 3: Harmonized EN under article 3.3 (e)  
of the R&TTE directive**

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## Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the ETSI standards One-step Approval Procedure.

The present document is part 3 of a multi-part deliverable covering the narrow-band direct-printing telegraph equipment for receiving meteorological or navigational information (NAVTEX), as identified below:

- Part 1: "Technical characteristics and methods of measurement";
- Part 2: "Harmonized EN covering essential requirements of article 3.2 of the R&TTE directive";
- Part 3: "Harmonized EN covering essential requirements of article 3.3 (e) of the R&TTE directive".**

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations and following Commission Decision 2000/638/EC.

The present document is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Directive 1999/5/EC [1] of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity ("the R&TTE Directive").

<b>Proposed national transposition dates</b>	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

## Introduction

The present document is part of a set of standards designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [1]. Each standard is a module in the structure. The modular structure is shown in figure 1.

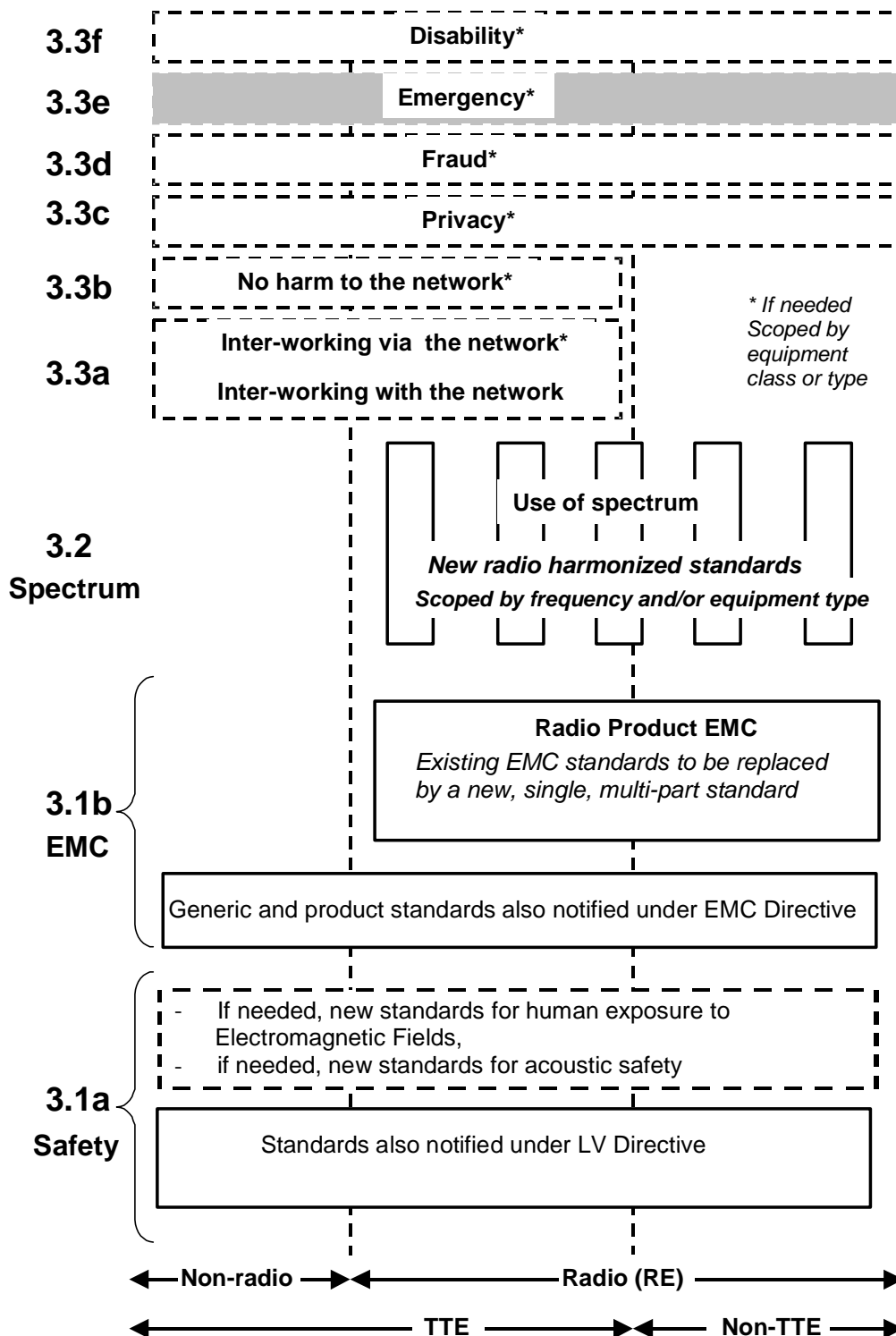


Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of the figure 1 shows the different clauses of Article 3 of the R&TTE Directive [1].

For article 3.3 various horizontal boxes are shown. Dotted lines indicate that at the time of publication of this standard essential requirements in these areas have to be adopted by the Commission. If such essential requirements are adopted, and as far and as long as they are applicable, they will justify individual standards whose scope is likely to be specified by function or interface type.

The vertical boxes show the standards under article 3.2 for the use of the radio spectrum by radio equipment. The scopes of these standards are specified either by frequency (normally in the case where frequency bands are harmonized) or by radio equipment type.

For article 3.1b the diagram shows the new single multi-part product EMC standard for radio, and the existing collection of generic and product standards currently used under the EMC Directive [2]. The parts of this new standard will become available in the second half of 2000, and the existing separate product EMC standards will be used until it is available.

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive [3] and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

The bottom of the figure shows the relationship of the standards to radio equipment and telecommunications terminal equipment. A particular equipment may be radio equipment, telecommunications terminal equipment or both. A radio spectrum standard will apply if it is radio equipment. An article 3.3 standard will apply as well only if the relevant essential requirement under the R&TTE Directive [1] is adopted by the Commission and if the equipment in question is covered by the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the R&TTE Directive [1] may be covered in a set of standards.

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;
- it provides scope for standards to be added:
  - under article 3.2 when new frequency bands are agreed; or
  - under article 3.3 should the Commission take the necessary decisions,without requiring alteration of standards that are already published;
- it clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

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# 1 Scope

The present document applies to the Narrow-band direct-printing telegraph equipment for receiving meteorological or navigational information (NAVTEX) radio equipment operating on a frequency of 518 kHz.

The present document is intended to cover the provisions of Directive 1999/5/EC [1] (R&TTE Directive) [1] Article 3.3 (e), which states that radio equipment within the scope of the present document shall be so constructed that: "it supports certain features ensuring access to emergency services".

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of Article 3 of the R&TTE Directive [1] will apply to equipment within the scope of the present document.

NOTE: A list of such ENs is included on the web site <http://www.newapproach.org/>.

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# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).
- [2] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).
- [3] Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).
- [4] ETSI ETR 028 (1994): "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".

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# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [1], and the following apply.

**environmental profile:** range of environmental conditions under which equipment within the scope of the present document is required to comply with the provisions of the present document

**supplier:** entity referred to in the R&TTE Directive [1] responsible for the placing on the market of an equipment within the scope of the Directive



## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

A.C	Alternating Current
EMC	Electro-Magnetic Compatibility
LV	Low Voltage
R&TTE	Radio and Telecommunications Terminal Equipment

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## 4 Technical requirements specifications

### 4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be determined by the environmental class of the equipment. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the required operational environmental profile.

### 4.2 General, operational and technical requirements

#### 4.2.1 Void

#### 4.2.2 General and operational requirements

##### 4.2.2.1 Composition

The equipment shall, as a minimum, include:

- a radio-frequency receiver operating on a frequency of 518 kHz. Where a second or third frequency is provided for the reception of maritime safety information, it shall only be possible to select these frequencies manually;
- a printing device that shall comply with the following:
  - A.C. powered equipment shall meet all the requirements on the two main frequencies 50 Hz and 60 Hz;
  - the printing device shall print the message received on paper. Changing the paper shall be a simple operation. The paper capacity shall be sufficient to enable at least 200 000 characters to be printed;
  - the printing device shall print easily legible signs and produce a low level of noise;
  - the printing device shall be capable of printing at least 32 characters per line.

##### 4.2.2.2 Construction

The mechanical and electrical design and the construction and finish of the equipment shall accord with good engineering practice and the equipment shall be designed for use on board ships at sea.

All controls, instruments and terminals shall be clearly identified. Details concerning the power source with which the equipment is to be used shall be clearly indicated. A label indicating the type designation under which the equipment is being submitted for the type approval tests shall be affixed to the equipment in a place where it is clearly visible in the normal operating position.

It shall be possible to reduce to zero the intensity of any equipment light source other than visual alarms.

The equipment shall comprise a device for performing tests to verify whether the radio-frequency receiver, signal processor or printing device are working correctly.

The test shall at least provide verification of the signal's path from the antenna to the loudspeaker or to an audio-frequency output delivering sufficient power to operate a loudspeaker or earphones.

A self-return switch shall be used if a loudspeaker is used.

The signal processing unit and the printing device shall contain an integrated system for verifying their operation.

To limit the number of messages printed, it shall be possible to select the coast stations which it is wanted to print, by detecting the B1 characters identifying them. Messages of coast stations not selected shall not be printed.

The equipment shall display information indicating that the B1 characters have been selected or excluded, or this information shall be easily accessible, e.g. in printed form using the printing device.

It shall be possible to inhibit the printing of message categories (defined by the B2 characters), transmitted by the coast stations selected, other than navigational warnings, gale warnings and SAR messages. It shall be possible to exclude at least four different message categories.

The equipment shall provide a clear indication of the message categories that are excluded.

Means shall be provided to avoid the printing of messages which are not correctly received or which have already been correctly received.

A message is considered to have been correctly received if the character error rate is less than  $4 \times 10^{-2}$ . The message identification of each such message shall be stored in memory until erased.

When the received character error rate exceeds  $33 \times 10^{-2}$  for more than 5 seconds, the printing of the message shall be inhibited, the message shall be considered as not correctly received, and the message identification shall not be stored in memory.

The equipment shall not print any message (except as defined in the following paragraph), the identification of which is already stored in memory.

A message shall always be printed if B3B4 = 00.

The equipment shall be capable of storing at least 100 message identifications in its memory.

If the number of message identifications received exceeds the memory capacity, the oldest message identification shall be erased.

However, after a period of 60 to 72 hours, a message identification shall automatically be erased from the memory.

An alarm indicating the reception of SAR messages shall be provided, whether incorporated in the equipment or remote from it. This alarm shall only be able to be stopped manually but without inhibiting receipt of further other alarms.

If an additional alarm is used to indicate the reception of navigational and gale warnings, it shall be capable of being suppressed.

The equipment may be provided with facilities to store complete messages without being printed directly, with the exception of messages with the message identity B3B4 = 00 and/or B2 = A, B, D or L, which shall always be printed upon receipt. Where such storage facilities are provided, it shall be possible at least to print out, on request, stored messages in the sequential order: last stored - first printed.

An alarm shall be provided to indicate that the paper has nearly run out or has run out.

If any message is incompletely printed because the paper has run out, the message identification for that message shall not be stored in the memory. Memory storage of new message identifications shall be inhibited if there is no paper available in the printing device.

The equipment shall print an asterisk for each invalid character detected.

The equipment may be provided with additional facilities to print messages in a second language using an alphabet different from the latin alphabet.

### 4.2.2.3 Safety precautions

Measures shall be taken to protect the equipment from damage as a result of accidental reversal of polarity at the power source.

Means shall be provided for earthing the equipment's metal parts which are accessible from the outside, but the equipment shall not cause any terminal of the electrical power source to be earthed.

In order to provide protection against damage due to electrostatic voltage which may occur at the receiver input, the resistance to direct current between the antenna terminal and the casing shall not exceed 100 k $\Omega$ .

The information in memories, programmed by the user, shall not be erased by power source interruptions of less than 6 hours.

## 4.3 Environmental requirements

### 4.3.1 Vibration test

#### 4.3.1.1 Definition

This test determines the ability of equipment to withstand vibration without resulting in mechanical weakness or degradation in performance.

#### 4.3.1.2 Requirement

The equipment shall meet the requirements of the performance check. There shall be no harmful deterioration of the equipment visible.

#### 4.3.1.3 Conformance

Relevant environmental tests as defined within clause 5.3.1 shall be carried out.

### 4.3.2 Temperature tests

#### 4.3.2.1 Definition

The immunity against the effects of temperature is the ability of the equipment to maintain the specified mechanical and electrical performance after the following tests have been carried out. The maximum rate of raising or reducing the temperature of the chamber in which the equipment is being tested shall be 1°C/minute.

#### 4.3.2.2 Dry heat

##### 4.3.2.2.1 Definition

This test determines the ability of equipment to be operated at high ambient temperatures and operate through temperature changes.

##### 4.3.2.2.2 Requirement

The equipment shall meet the requirements of the performance check.

##### 4.3.2.2.3 Conformance

Relevant environmental tests as defined within clause 5.3.1 shall be carried out.

### 4.3.2.3 Damp heat

#### 4.3.2.3.1 Definition

This test determines the ability of equipment to be operated under conditions of high humidity.

#### 4.3.2.3.2 Requirement

The equipment shall meet the requirements of the performance check.

#### 4.3.2.3.3 Conformance

Relevant environmental tests as defined within clause 5.3.1 shall be carried out.

### 4.3.2.4 Low temperature

#### 4.3.2.4.1 Definition

This test determines the ability of equipment to be operated at low temperatures. It also allows equipment to demonstrate an ability to start up at low ambient temperatures.

#### 4.3.2.4.2 Requirement

The equipment shall meet the requirements of the performance check.

#### 4.3.2.4.3 Conformance

Relevant environmental tests as defined within clause 5.3.1 shall be carried out.

## 4.4 Conformance requirements

### 4.4.1 Protection of input circuits

#### 4.4.1.1 Definition

Protection of the input circuits is defined as the ability of the equipment to withstand excessive voltages applied to the input circuit.

#### 4.4.1.2 Limit

The receiver shall not be damaged and shall operate normally without further intervention after the test.

#### 4.4.1.3 Conformance

Conformance tests as defined within clause 5.3.2.1 shall be carried out.

### 4.4.2 Sensitivity test

#### 4.4.2.1 Definition

The sensitivity of the receiver is a defined level of the radio-frequency signal at which the receiver gives a character error ratio better than a defined value.

#### 4.4.2.2 Limit

The character error ratio shall be less than  $4 \times 10^{-2}$ .

#### 4.4.2.3 Conformance

Conformance tests as defined within clause 5.3.2.2 shall be carried out.

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## 5 Test conditions, power supply and ambient temperatures

### 5.1 Test conditions, power supply and ambient temperatures

#### 5.1.1 General

Approval tests shall be made under normal test conditions and also, where stated, under extreme test conditions.

Where such conditions are applicable, the equipment shall meet the requirements of the present document for any combination of voltages and temperatures within the extremes specified.

#### 5.1.2 Artificial antennas

Where specified, the tests shall be carried out with the receiver connected, as appropriate, to the following artificial antennas, although this shall not in any way imply that the receiver shall only operate satisfactorily with antennas possessing these impedance characteristics:

- a) a non-reactive resistance of 50  $\Omega$ ;
- b) a resistance of 10  $\Omega$  in series with a capacitance of 150 pF.

#### 5.1.3 Normal test signal

The normal test signal shall be an F1B radio-frequency signal modulated with a frequency shift of  $\pm 85$  Hz centred on 518 kHz.

It shall contain signals providing the following traffic information:

1 2 3 4 5 6 7 8 9 0 A B C D E F G H I J K L M N O P Q R S T U - Carriage return - Line feed.

For tests with the normal test signal, the above information shall be transmitted at least 35 times continuously.

Where other receive frequencies are provided in addition to the international NAVTEX frequency of 518 kHz, the test signal described above shall be duplicated but centred on each of the additional frequencies in turn.

#### 5.1.4 Test signals applied to the receiver input

Sources of test signals to be applied to the equipment input shall be connected via a network such that the impedance presented to the equipment is equal to the impedance of the artificial antenna (see clause 5.1.2), whether one or more test signals are applied to the equipment simultaneously. If there are two or more test signals, measures shall be taken to prevent any undesirable effects resulting from interactions between the signals in the generators or other sources.

The levels of the test signals at the receiver input shall be expressed in terms of the electro-motive force (emf) at the output terminals of the source including the associated network.

#### 5.1.5 Test power source

During approval tests, the equipment's power supply shall be provided by a test power source capable of producing normal and extreme voltages as specified in clauses 5.1.6.1.2 and 5.1.6.2. The internal impedance of the test power source shall be low enough to have only a negligible effect on the test results. For the purpose of the tests, the power source voltage shall be measured at the input terminals of the equipment.

During the tests, the power source voltage shall be maintained within a tolerance of  $\pm 3$  % relative to its level at the beginning of each test.

## 5.1.6 Environmental conditions for testing

### 5.1.6.1 Normal test conditions

#### 5.1.6.1.1 Normal temperature and humidity

The normal temperature and humidity conditions for tests shall be any convenient combination of temperature and humidity within the following ranges:

- temperature:                     $+15^{\circ}\text{C}$     to     $+35^{\circ}\text{C}$ ;
- relative humidity:            20 %        to        75 %.

#### 5.1.6.1.2 Normal test power supply

##### 5.1.6.1.2.1 Mains voltage and frequency

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage or any of the declared voltages for which the equipment is indicated as having been designed for.

The frequency of the test power source, corresponding to the mains, shall be  $50\text{ Hz} \pm 1\text{ Hz}$ .

##### 5.1.6.1.2.2 Power source from a battery

Where the equipment is designed to operate from a battery, the normal test voltage shall be the nominal voltage of the battery (12 volts, 24 volts, etc).

##### 5.1.6.1.2.3 Other power sources

For operation from other power sources, the normal test voltage shall be fixed by agreement between the equipment manufacturer and the authority conducting the tests.

### 5.1.6.2 Extreme test conditions

#### 5.1.6.2.1 Extreme temperatures

For tests at extreme temperatures, measurements shall be made in accordance with the procedures specified in clause 4.5 at the lower and upper temperatures of  $0^{\circ}\text{C}$  and  $40^{\circ}\text{C}$ .

#### 5.1.6.2.2 Extreme test power supply values

##### 5.1.6.2.2.1 Extreme mains voltage and frequency

The extreme test voltages for equipment to be connected to the mains shall be the nominal mains voltage  $\pm 10$  %.

The frequency of the test power source corresponding to the mains shall be  $50\text{ Hz} \pm 1\text{ Hz}$ .

##### 5.1.6.2.2.2 Power source from a battery

Where the equipment is designed to operate from a battery, the extreme test voltages shall be 1,3 and 0,9 multiplied by the nominal voltage of the battery (12 volts, 24 volts, etc).

### 5.1.6.2.2.3 Other power sources

For equipment using other test power sources, the extreme voltages shall be fixed by agreement between the manufacturer and the authority conducting the tests.

## 5.1.7 Procedures for tests at extreme temperatures

Before measurements are made, the equipment shall have reached thermal equilibrium in the test chamber. The equipment shall be switched off during the temperature stabilizing period. The sequence of measurements shall be chosen and the humidity in the test chamber shall be controlled so that excessive condensation does not occur.

## 5.2 Interpretation of the measurement results

The interpretation of the results recorded in a test report for the measurements described in the present document shall be as follows:

- the measured value related to the corresponding limit will be used to decide whether an equipment meets the requirements of the present document;
- the value of the measurement uncertainty for the measurement of each parameter shall be included in the test report;
- the recorded value of the measurement uncertainty shall be, for each measurement, equal to or lower than the figures in table 1.

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with ETR 028 [4] and shall correspond to an expansion factor (coverage factor)  $k = 1,96$  or  $k = 2$  (which provide confidence levels of respectively 95% and 95,45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 1 is based on such expansion factors.

**Table 1: Maximum measurement uncertainty**

Parameter	Uncertainty
Radio frequency	$< \pm 1 \times 10^{-7}$
Audio frequency	$\pm 1 \times 10^{-5}$

## 5.3 Essential radio test suites

### 5.3.1 Environmental tests

#### 5.3.1.1 Introduction

Environmental tests shall be carried out before tests are performed on the same equipment with respect to the other requirements of the present document.

#### 5.3.1.2 Procedure

Unless otherwise stated, the EUT shall be connected to an electrical power source during the periods for which it is specified that electrical tests shall be carried out. These tests shall be performed using the normal test voltage (clause 5.1.5.2).

#### 5.3.1.3 Performance check

Where the term "performance check" is used, this shall be taken to mean a visual inspection of the equipment and a sensitivity test of the receiver as described in clause 5.3.2.

#### 5.3.1.4 Vibration test

The EUT, complete with any shock and vibration absorbers with which it is provided, shall be clamped to the vibration table by its normal means of support and in its normal attitude. Provision may be made to reduce or nullify any adverse effect on equipment performance which could be caused by the presence of an electromagnetic field due to the vibration unit.

The equipment shall be subjected to sinusoidal vertical vibration at all frequencies between:

- 5 Hz and 13,2 Hz with an excursion of  $\pm 1 \text{ mm} \pm 10 \%$  ( $7 \text{ m/s}^2$  maximum acceleration at 13,2 Hz);
- 13,2 Hz and 100 Hz with a constant maximum acceleration of  $7 \text{ m/s}^2$ .

The frequency sweep rate shall be slow enough to allow the detection of resonances in any part of the equipment.

A resonance search shall be carried out throughout the test. If any resonance of the equipment had  $Q \geq 5$  measured relative to the base of the vibration table, the equipment shall be subjected to a further vibration endurance test at each resonant frequency at the vibration level specified in the test with a duration of 2 hours. If resonances occur only with  $Q < 5$ , the further endurance test shall be carried out at one single observed resonant frequency. If no resonance occurs, the endurance test shall be carried out at a frequency of 30 Hz.

The performance check shall be carried out at the end of each 2 hour endurance test period.

The procedure shall be repeated with vibration in each of two mutually perpendicular directions in the horizontal plane.

After conducting the vibration tests, the equipment shall be inspected for any mechanical deterioration.

The results obtained shall be compared to the limits in clause 4.3.1.2 in order to prove compliance with the requirement.

#### 5.3.1.5 Temperature tests

##### 5.3.1.5.1 Dry heat

The EUT shall be placed in a chamber at normal room temperature and relative humidity. The EUT and, if appropriate, any climatic control devices with which it is provided shall then be switched on. The temperature shall then be raised to and maintained at  $+55^\circ\text{C} (\pm 3^\circ\text{C})$ . At the end of the period of 10 hours to 16 hours at  $+55^\circ\text{C} (\pm 3^\circ\text{C})$ , the EUT shall be subjected to a performance check. The temperature of the chamber shall be maintained at  $+55^\circ\text{C} (\pm 3^\circ\text{C})$  during the whole of the performance check period. At the end of the test, the EUT shall be returned to normal environmental conditions or to those at the start of the next test.

The results obtained shall be compared to the limits in clause 4.3.2.2.2 in order to prove compliance with the requirement.

##### 5.3.1.5.2 Damp heat

The EUT shall be placed in a chamber at normal room temperature and relative humidity. The temperature shall then be raised to  $+40^\circ\text{C} (\pm 2^\circ\text{C})$ , and the relative humidity raised to 93 % ( $\pm 3 \%$ ) over a period of 3 hours  $\pm 0,5$  hours. These conditions shall be maintained for a period of 10 hours to 16 hours. Any climatic control devices provided in the EUT may be switched on at the conclusion of this period.

The EUT shall be switched on 30 minutes later, or after such period as agreed with the manufacturer, and shall be kept operational for at least 2 hours during which period the EUT shall be subjected to the performance check. The temperature and relative humidity of the chamber shall be maintained as specified during the whole test period.

At the end of the test period and with the EUT still in the chamber, the chamber shall be brought to room temperature in not less than 1 hours. At the end of the test the EUT shall be returned to normal environmental conditions or to those required at the start of the next test.

The results obtained shall be compared to the limits in clause 4.3.2.3.2 in order to prove compliance with the requirement.



### 5.3.1.6 Low temperature

The EUT shall be placed in a chamber at normal room temperature and relative humidity. The temperature shall then be reduced to, and be maintained at,  $-15^{\circ}\text{C}$  ( $\pm 3^{\circ}\text{C}$ ) for a period of 10 hours to 16 hours. Any climatic control devices provided in the EUT may be switched on at the conclusion of this period. The EUT shall be switched on 30 minutes later, or after such period as agreed by the manufacturer, and shall be kept operational for at least 2 hours during which period the EUT shall be subjected to a performance check. The temperature of the chamber shall be maintained at  $-15^{\circ}\text{C}$  ( $\pm 3^{\circ}\text{C}$ ) during the whole of the test period. At the end of the test the EUT shall be returned to normal environmental conditions or to those required at the start of the next test.

The results obtained shall be compared to the limits in clause 4.3.2.4.2 in order to prove compliance with the requirement.

## 5.3.2 Conformance tests

### 5.3.2.1 Protection of input circuits

The receiver shall not be damaged when an unmodulated signal at a level of 30 volts (r.m.s.) is applied to the receiver input as specified in clause 5.1.4 for a period of 15 minutes on any frequency in the range from 100 kHz to 28 MHz.

Where additional receive frequencies are provided, the procedure shall be repeated at each of the additional frequencies in turn.

The results obtained shall be compared to the limits in clause 4.4.4.2 in order to prove compliance with the requirement.

### 5.3.2.2 Sensitivity test

The receiver shall be connected to the artificial antenna specified in a) in clause 5.1.2, and a normal test signal (see clause 5.1.3) at a level of  $8\ \mu\text{V}$  shall be applied.

The receiver shall then be connected to the artificial antenna specified in b) in clause 5.1.2, and a normal test signal at a level of  $5\ \mu\text{V}$  shall be applied.

Measurements shall be made under normal test conditions and under extreme test conditions (clause 5.1.6).

Where additional receive frequencies are provided, the procedure shall be repeated at each of the additional frequencies in turn.

The results obtained shall be compared to the limits in clause 4.4.5.2 in order to prove compliance with the requirement.

## Annex A (normative): The EN Requirements Table (EN-RT)

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the EN-RT proforma in this annex so that it can be used for its intended purposes and may further publish the completed EN-RT.

The EN Requirements Table (EN-RT) serves a number of purposes, as follows:

- it provides a tabular summary of all the requirements;
- it shows the status of each EN-R, whether it is essential to implement in all circumstances (Mandatory), or whether the requirement is dependent on the supplier having chosen to support a particular optional service or functionality (Optional). In particular it enables the EN-Rs associated with a particular optional service or functionality to be grouped and identified;
- when completed in respect of a particular equipment it provides a means to undertake the static assessment of conformity with the EN.

**Table A.1: EN Requirements Table (EN-RT)**

EN Reference		EN 300 065-3				Comment
No.	Reference	EN-R (note)	Status			
1	4.2	General, operational and technical requirements	M			
2	4.3.1	Vibration	M			
3	4.3.2.2	Dry heat	M			
4	4.3.2.3	Damp heat	M			
5	4.3.2.4	Low temperature	M			
6	4.4.1.	Protection of the input circuits	M			
7	4.4.2	Sensitivity test	M			

NOTE: These EN-Rs are justified under Article 3.3 (e) of the R&TTE Directive.

### Key to columns:

**No** Table entry number;

**Reference** Clause reference number of conformance requirement within the present document;

**EN-R** Title of conformance requirement within the present document;

**Status** Status of the entry as follows:

M Mandatory, shall be implemented under all circumstances;

O Optional, may be provided, but if provided shall be implemented in accordance with the requirements;

O.n this status is used for mutually exclusive or selectable options among a set. The integer "n" shall refer to a unique group of options within the EN-RT. A footnote to the EN-RT shall explicitly state what the requirement is for each numbered group. For example, "It is mandatory to support at least one of these options", or, "It is mandatory to support exactly one of these options".

**Comments** To be completed as required.

## Annex B (informative): The EN title in the official languages

Language	EN title
Danish	Elektromagnetisk kompatibilitet og Radiospektrum Anliggender (ERM); Smalbånds telegrafudstyr med direkte udskrift beregnet til modtagning af meteorologiske eller navigationsdata (NAVTEX); Del 3: Harmoniseret EN som dækker de væsentlige krav i R&TTE direktivets artikel 3.3e
Dutch	Elektromagnetische compatibiliteit en radiospectrum zaken (ERM); Narrow-Band Direct-Printing telegrafie ontvangers voor meteorologische informatie en informatie tbv navigatie (NAVTEX ) ontvangers; Deel 3: Geharmoniseerde EN welke invulling geeft aan de wezenlijke vereisten, neergelegd in artikel 3.3e van de R&TTE Directive
English	Electromagnetic compatibility and Radio spectrum Matters (ERM); Narrow-band direct-printing telegraph equipment for receiving meteorological or navigational information (NAVTEX); Part 3: Harmonised EN covering essential requirements of article 3.3e of the R&TTE directive
Finnish	Sähkömagneettinen yhteensopivuus ja radiospektriasiat (ERM); Kapeakaistaiset suoraan tulostavat lennätinlaitteet sään ja merenkulun tietojen vastaanottoon (NAVTEX); Osa 3: Harmonisoitu EN, joka kattaa R&TTE - direktiivin artiklan 3.3e olennaiset vaatimukset
French	Equipement télégraphique en bande étroite à impression directe pour recevoir des informations météorologiques ou de navigation (NAVTEX); Partie 3 : Norme harmonisée couvrant l'article 3.3 (e) de la Directive R&TTE.
German	Elektromagnetische Verträglichkeit und Funkspektrumangelegenheiten (ERM); Direkt druckende Schmalband-Telegrafieempfänger für meteorologische oder die Navigation betreffende Informationen (NAVTEX); Teil 3: Harmonisierte Europäische Norm (EN) mit wesentlichen Anforderungen nach R&TTE-Richtlinie Artikel 3.3e
Greek	Ηλεκτρομαγνητική συμβατότητα και Θέματα Ραδιοφάσματος (ERM) – Στενοζωνικός τηλεγραφικός εξοπλισμός άμεσης εκτύπωσης για λήψη μετεωρολογικών ή ναυσιπλοϊκών πληροφοριών (NAVTEX) – Μέρος 3: Εναρμονισμένο EN για την κάλυψη των ουσιαστών απαιτήσεων του άρθρου 3.3e της Οδηγίας R&TTE
Icelandic	
Italian	Compatibilità elettromagnetica e Questioni relative allo spettro delle radiofrequenze (ERM); Apparecchiature telegrafiche in banda stretta a stampa diretta per la ricezione di informazioni meteorologiche o di navigazione (NAVTEX); Parte 3: Norma armonizzata relativa ai requisiti essenziali dell'articolo 3.3e della direttiva R&TTE
Portuguese	Assuntos de Espectro Radioelétrico e Compatibilidade Electromagnética (ERM); Equipamento receptor telegráfico de faixa estreita para impressão directa de informação meteorológica ou navegação (NAVTEX); Parte 3: EN harmonizada cobrindo os requisitos essenciais no âmbito do Artigo 3.3e da Directiva R&TTE
Spanish	Equipos telegráficos de impresión directa de banda ancha para recepción de información meteorológica o de navegación (NAVTEX); Parte 3: EN armonizada cubriendo los requisitos esenciales según el artículo 3.3e de la directiva de R&TTE
Swedish	Elektromagnetisk kompatibilitet och radiospektrumfrågor (ERM); Smalbandig direktskrivande telegrafutrustning för mottagning av meteorologisk information eller navigeringsinformation (NAVTEX); Del 3: Harmoniserad EN omfattande väsentliga krav enligt artikel 3.3e i R&TTE-direktivet

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## Bibliography

The following material, though not specifically referenced in the body of the present document, gives supporting information.

- EN 300 065-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Narrow-band direct-printing telegraph equipment for receiving meteorological or navigational information (NAVTEX); Part 1: Technical characteristics and methods of measurement".
- Commission Decision 2000/638/EC of 22 September 2000 on the application of Article 3(3)(e) of Directive 1999/5/EC to marine radio communication equipment intended to be fitted to seagoing non-SOLAS vessels and which is intended to participate in the global maritime distress and safety system (GMDSS) and not covered by Council Directive 96/98/EC on marine equipment.

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## History

<b>Document history</b>			
V1.1.1	December 2000	One-step Approval Procedure	OAP 20010427: 2000-12-27 to 2001-04-27