ETSI EN 301 489-2 V2.1.1 (2019-04)

**ElectroMagnetic Compatibility (EMC)
standard for radio equipment and services;
Part 2: Specific conditions for radio paging equipment;
Harmonised Standard covering the essential requirements
of article 3.1(b) of Directive 2014/53/EU**

Reference
REN/ERM-EMC-359

Keywords
EMC, harmonised standard, paging, radio

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Contents

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.2] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to making available on the market of radio equipment and repealing Directive 1999/5/EC [i.1].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

The present document is part 2 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

National transposition dates	
Date of adoption of this EN:	26 June 2017
Date of latest announcement of this EN (doa):	31 July 2019
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 January 2020
Date of withdrawal of any conflicting National Standard (dow):	31 January 2021

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document, together with ETSI EN 301 489-1 [1], specifies technical characteristics and methods of measurements for radio paging equipment (receivers, transmitters and combined equipment) and associated ancillary equipment.

NOTE 1: Examples of paging equipment are given in annex B.

The present document covers the essential requirements of article 3.1(b) of Directive 2014/53/EU [i.1] under the conditions identified in annex A.

Technical specifications related to the antenna ports and emissions from the enclosure ports of paging equipment, are not included in the present document.

NOTE 2: Such technical specifications are found in the relevant product standard for the effective use of the radio spectrum.

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and ETSI EN 301 489-1 [1], the provisions of the present document take precedence.

2 References

2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long- term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI EN 301 489-1 (V2.2.0) (03-2017): "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU".

[2] ETSI EN 300 224 (V2.0.0) (03-2017): "Land Mobile Service; Radio Equipment for use in a Paging Service operating within the frequency range 25 MHz - 470 MHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long-term validity.

The following referenced documents are not necessary for the application of the present document, but they assist the user with regard to a particular subject area.

[i.1] Directive 2014/53/EU of the European Parliament and of the council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

[i.2] Commission Implementing Decision C (2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electro-technical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 301 489-1 [1], clause 3 and the following apply:

alignment range: frequency range over which the receiver or transmitter can be programmed and/or re-aligned to operate without any physical change of components other than programmable and frequency controlling devices

base receiver: receiver at a fixed location

base transmitter: transmitter at a fixed location

calling function: transmission of a message via the base transmitter to the paging receiver in order to alert and/or inform the carrier of the paging receiver

paging receiver: equipment for the reception and decoding of paging transmissions; either fixed, or portable

pocket receiver: stand-alone pocket paging receiver, or a receiver being part of a pocket paging transceiver, typically for portable use (portable equipment)

pocket transmitter: stand-alone pocket paging transmitter using the return channel, or a transmitter being part of a pocket paging transceiver, typically for portable use (portable equipment)

standby mode (base transmitter): mode of operation in which the transmitter is ready to transmit, waiting for a start control signal to actual start transmitting

standby mode (pocket transmitter): mode of operation in which the transmitter is ready to transmit, waiting for a control signal to start the transmitting sequence

standby mode (receiver): mode of operation in which the receiver is capable of receiving calls

talk-back function: transmitting of a message from the pocket transmitter (normally combined in a transceiver) which is sent to a central receiver (base receiver) and further processed by the central processing unit

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 301 489-1 [1], clause 3 and the following apply:

CR	Continuous phenomena applied to Receivers
CT	Continuous phenomena applied to Transmitters
EUT	Equipment Under Test
RF	Radio Frequency
TR	Transient phenomena applied to Receivers
TT	Transient phenomena applied to Transmitters

4 Test conditions

4.1 General

4.1.1 Introduction

For the purposes of the present document, the test conditions of ETSI EN 301 489-1 [1], clause 4 shall apply as appropriate. Further product related test conditions for PMR equipment are specified in the present document.

For emission and immunity tests, the test modulation, test arrangements, etc., as specified in the present document clauses 4.1 to 4.5, shall apply.

4.1.2 Receivers

Whenever a receiver is provided with a detachable antenna, the EUT shall be tested with the antenna fitted in a manner typical of normal intended use.

The individual immunity tests shall be performed with the receiver in the standby mode.

Fixed, mobile or pocket paging receivers:

- before the individual tests the receiver shall be set into the standby mode, a communications link shall be established and the message memory of the receiver shall be loaded with recognizable messages, if applicable (performance check);
- during the individual tests the wanted RF input signal shall **not** be applied to the receiver, except for the spot frequency test as part of the radio frequency electromagnetic field immunity test;
- after the individual tests and the termination of the required performance assessment (e.g. by means of the stored messages in the message memory of the receiver, see clauses 6.3 and 6.4) the communications link shall be re-established and another performance check shall be carried out to verify that the EUT is still operational.

Base receivers:

- base receivers are not subject to the spot frequency test as part of the radio frequency electromagnetic field immunity test;
- before the individual tests the base receiver shall be set into the standby mode, a communications link shall be established and the output of the receiver shall be monitored (performance check);
- during the individual tests the wanted RF input signal (the unmodulated carrier, see clause 4.2) **remains applied** to the base receiver;
- after the individual tests of the base receiver (see clauses 6.3 and 6.4) and the termination of the required performance assessment (e.g. by means of audio breakthrough measurements at the output of the base receiver, see clauses 6.3 and 6.4) the maintained communications link is switched off and re-established to ensure that the base receiver is still able to receive new incoming requests.

4.1.3 Transmitters

Mobile and pocket transmitters:

- the mobile or pocket transmitter **is not** subject to the spot frequency test as part of the radio frequency electromagnetic field immunity test;
- the mobile or pocket transmitter shall operate in transmit mode with an unmodulated carrier, at its maximum rated output power. If unmodulated operation is not possible, the manufacturer shall specify the method of performance assessment and the acceptable degradation of performance.

Base transmitters:

- the base transmitter shall operate in the standby mode, except for the spot frequency test as part of the radio frequency electromagnetic field immunity test (see clause 7.2.2, table 1), where the transmitter shall be tested additionally operated at its maximum rated output power, modulated with normal test modulation (see clause 4.5.5).

4.2 Arrangements for test signals

4.2.1 General

The provisions of ETSI EN 301 489-1 [1], clause 4.2 shall apply.

4.2.2 Arrangements for test signals at the input of transmitters

The provisions of ETSI EN 301 489-1 [1], clause 4.2.1 shall apply, with the following modifications.

Mobile and pocket transmitters:

- mobile or pocket transmitters are normally not equipped with an external modulation input port, if an external modulation input port is present, the arrangement for base transmitters shall apply.

Base transmitters:

- for base transmitters, the signal generator to be used for the normal test modulation (see clause 4.5) shall be located outside the test environment and connected to the modulation input port of the transmitter. Adequate measures shall be taken to protect the measuring equipment from the effect of all of the radiated immunity test fields within the test environment.

4.2.3 Arrangements for test signals at the output of transmitters

The provisions of ETSI EN 301 489-1 [1], clause 4.2.2 shall apply with the following modification.

The transmitter shall be operated at its maximum rated RF output power, modulated with normal test modulation (see clause 4.5). Where the transmitter incorporates a RF antenna connector, the output signal of the transmitter shall be coupled to the measuring equipment via a shielded transmission line such as a coaxial cable. Where the transmitter does not incorporate a RF connector, the output signal of the transmitter shall be coupled to an antenna located within the test environment. This antenna shall be coupled by a shielded transmission line to the measuring equipment located outside of the test environment.

Base transmitters:

- base transmitters are subject to the spot frequency test as part of the radio frequency electromagnetic field immunity test (see clause 7.2.2, table 1). For this test the measuring equipment shall be a paging receiver and repetitive calls shall be transmitted and coupled to the input of the paging receiver, located outside the test environment.

4.2.4 Arrangements for test signals at the input of receivers

The provisions of ETSI EN 301 489-1 [1], clause 4.2.3 shall apply with the following modification.

A communication link shall be established at the start of the test and maintained during the test. The level of the wanted RF input signal shall be chosen to a value significantly above the threshold sensitivity but below the overload characteristics of the receiver (the signal level should be 60 dB above the threshold sensitivity).

Where the receiver incorporates a RF antenna connector, the RF signal source shall be coupled to the input of the receiver via a shielded transmission line such as a coaxial cable. Where the receiver does not incorporate an RF connector, the RF signal source shall be presented to the receiver from another antenna located within the test environment. This antenna shall be coupled to the RF signal source via an adjustable attenuator.

Fixed, mobile and pocket paging receivers:

- for fixed, mobile or pocket paging receivers, the manufacturer shall at the time of submitting the equipment for testing, supply if necessary, a test fixture and a message generator as stated in clause 4.5, to generate the wanted RF input signal.

4.2.5 Arrangements for test signals at the output of receivers

The provisions of ETSI EN 301 489-1 [1], clause 4.2.4 shall apply.

Fixed, mobile and pocket paging receivers:

- for fixed, mobile, or pocket paging receivers, during the spot frequency test as part of the radio frequency immunity test (see clause 7.2.2, table 1), the call received signal output of the receiver shall be coupled to the measuring equipment, located outside the test environment (e.g. by non-metallic means such as an acoustic tube/ coupler) and it shall be possible to assess the performance of the equipment from the call received signal(s) of the receiver.

Base receivers:

- for base receivers, the audio signal output of the receiver shall be coupled to the measuring equipment, located outside the test environment. When the receiver does not have an audio signal output, the manufacturer shall specifiy the method of performance assessment and the comparable degradation of performance.

4.3 Exclusion bands

4.3.1 General

The provisions of ETSI EN 301 489-1 [1], clause 4.3 shall apply.

4.3.2 Receiver exclusion bands

The exclusion band for receivers (including receivers of pocket transceivers), is the frequency range determined by the alignment range, as declared by the manufacturer, extended as follows:

- for receivers operating in the frequency band 25 MHz to 80 MHz, the lower frequency of the exclusion band is the lower frequency of the alignment range, minus 10 % of the centre frequency of the alignment range or minus 5 MHz, whichever results in the lower frequency. For such receivers, the upper frequency of the exclusion band is the upper frequency of the alignment range, plus 10 % of the centre frequency of the alignment range or plus 5 MHz, whichever is greater;

- for receivers operating above 80 MHz, the lower frequency of the exclusion band is the lower frequency of the alignment range, minus 5 % of the centre frequency of the alignment range or 10 MHz, whichever results in the lower frequency and the upper frequency of the exclusion band, is the upper frequency of the alignment range plus 5 % of the centre frequency of the alignment range or plus 10 MHz, whichever is greater.

4.3.3 Transmitter exclusion band

For transmitters operating, or intended to operate, in a channelized frequency band, the exclusion band is five times the channel spacing designated to the relevant paging service in the used frequency band, centred around the operating frequency.

4.4 Narrow band responses of receivers

The provision of ETSI EN 301 489-1 [1], clause 4.4 shall apply.

4.5 Normal test modulation

4.5.1 General

The manufacturer may have to supply the test modulation/demodulation equipment.

The test signal generator (modulation) shall be able to produce a continuous stream of repetitive messages.

The test signal receiver (de-modulator) shall be, where appropriate, able to produce a repetitive readout of message acceptance.

4.5.2 Fixed, mobile and pocket paging receivers

- For fixed, mobile, or pocket paging receivers, the wanted RF input signal shall be set to the nominal frequency selected for the EUT and the modulation shall represent selective recognizable messages, repeatedly transmitted to the EUT.

4.5.3 Base receivers

- For base receivers, the receiver wanted RF input signal shall be an un modulated carrier, set to the nominal frequency of the EUT receiver.

4.5.4 Mobile and pocket transmitters

- For mobile or pocket transmitters not having a modulation input port, the internal equipment modulation shall be used as normal test modulation signal and a repetitive call possibility shall be available.

4.5.5 Base transmitters

- for base transmitters, the normal test modulation signal to be used for the calling function shall represent selective messages and may be generated by a signal generator, or encoded within the equipment. The signal generator used can be a test signal generator supplied by the manufacturer and capable of generating repetitive calls;
- the manufacturer may have to supply the test modulation/de-modulation equipment;
- details concerning the modulation used shall be recorded in the test report.

5 Performance assessment

5.1 General

The provisions of ETSI EN 301 489-1 [1], clause 5.1 shall apply.

5.2 Standard paging equipment

For radio paging equipment of a non-specialized nature or for radio paging equipment combined with an ancillary equipment, the normal test modulation, test arrangements, etc. as specified in clause 4 and its subclauses shall apply.

Fixed, mobile and pocket paging receivers:

- for fixed, mobile, or pocket paging receivers, the performance assessment during immunity tests is based on unintentional behaviour of the equipment. It shall be possible from the performance check before and after the test, to assess the performance of the receiver from the presented messages and/or the call received alert signal(s) of the receiver (see clause 4.1.1). During the spot frequency immunity test, the performance will be verified by the assessment of the successful transfer of paging calls, i.e. from the call received signal(s) of the receiver.

Base receivers:

- for base receivers, the performance assessment during immunity tests is based on the audio breakthrough level caused by the modulation of the immunity test RF source, measured by the audio test equipment, with the unmodulated wanted RF carrier provided to the EUT.

Mobile and pocket transmitters:

- for mobile or pocket transmitters, the performance assessment during immunity tests is based on the audio breakthrough level caused by the modulation of the immunity test RF source, as measured by the test receiver with the EUT in transmit mode of operation.

Base transmitters:

- for base transmitters, the performance assessment during immunity tests is based on unintentional behaviour of the equipment, except during the spot frequency immunity test, where the performance shall be verified by the assessment of the successful transfer of paging calls, i.e. from the call received signal(s) to the test receiver.

5.3 Ancillary equipment

The provision of ETSI EN 301 489-1 [1], clause 5.4 shall apply.

5.4 Equipment classification

Paging equipment, or combinations of equipment declared as capable of being powered for intended use by the main battery of a vehicle, shall additionally be considered as mobile equipment.

Paging equipment, or combinations of equipment declared as being capable of being powered for intended use by AC mains, shall additionally be considered as base station equipment for fixed use.

6 Performance criteria

6.1 General

The equipment shall meet the minimum performance criteria as specified in clauses 6.1, 6.2, 6.3 and 6.4.

Paging equipment, for all immunity tests according to the present document, except the spot frequency test as part of the radio frequency immunity test, shall be assessed for:

- the establishment of the communications link from the base transmitter to the fixed, mobile, or pocket paging receiver, the transmission of recognizable messages and the detection and storage of these messages in the memory of the paging receiver, before and after the test (performance check);

- where applicable, the establishment of the communications link from the mobile or pocket transmitter to the base receiver, the transmission of recognizable signals and the detection of these signals by the base receiver (performance check).

If an equipment is of a specialized nature and the performance criteria specified in the table are not appropriate, the manufacturer shall declare a substituted specification for an acceptable performance level, or performance degradation, as required by the present document. The performance specification shall be included in the test report and the product description and documentation.

6.2 Performance criteria for Continuous phenomena applied to Transmitters (CT)

Mobile or pocket transmitters:

- a communications link shall be established before the test and during the test the modulation of the carrier of the EUT, caused by the modulation of the immunity test RF source, shall be less than 25 % of the system peak modulation;
- during each individual exposure in the test sequence, it shall be verified by appropriate means supplied by the manufacturer, that the communication link is maintained;
- at the conclusion of the test, the transmitter shall operate as intended with no loss of function;
- where the EUT is a stand-alone transmitter, tests shall be repeated with the transmitter in standby mode, to ensure that no unintentional transmission occurs.

Base transmitters:

- during the radio frequency immunity test, no loss of functions or stored data shall occur. The transmitter output shall remain on channel and shall be unchanged from its initial power level;
- during the spot frequency test as part of the radio frequency immunity test, the transmitter shall be capable of transmitting calls to a test receiver/measuring device with a resulting call acceptance ratio of 4/5 (four out of five) or better;
- at the conclusion of the test comprising the series of individual exposures, the transmitter shall operate as intended with no loss of functions;
- during the tests in standby mode, no unintentional transmission shall occur.

At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained during the test.

Where the EUT is a transmitter only and can be operated in standby mode, tests shall be repeated with the EUT in this mode to ensure that unintentional transmission does not occur.

6.3 Performance criteria for Transient phenomena applied to Transmitters (TT)

Mobile or pocket transmitters:

- a one-way communication link shall be established before the test and after each individual exposure it shall be verified, by appropriate means supplied by the manufacturer, that the communication link is maintained;
- at the conclusion of the test the EUT shall operate as intended with no loss of functions or stored data;
- where the EUT is a stand-alone transmitter, tests shall be repeated with the transmitter in standby mode to ensure that no unintentional transmission occurs.

Base transmitters:

- the test shall be performed in standby mode for all types of transmitters, to ensure that no unintentional transmission occurs;
- at the conclusion of the test, the EUT shall operate as intended with no loss of functions or stored data.

6.4 Performance criteria for Continuous phenomena applied to Receivers (CR)

Fixed, mobile or pocket paging receivers:

- during the test, no false call shall occur;
- at the conclusion of the test comprising the series of individual exposures, the receiver shall operate as intended with no loss of functions or stored data (messages), as declared by the manufacturer;
- during the spot frequency test as part of the radio frequency immunity test, the receiver shall provide a call received signal acceptance ratio of 4:5 (four out of five) or better;
- where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

Base receivers:

- a communications link shall be established before the test and during the test the audio output of the EUT caused by the modulation of the immunity test RF source, shall be less than 25 % of the system peak output voltage;
- during each individual exposure in the test sequence it shall be verified by appropriate means, supplied by the manufacturer, that the communication link is maintained;
- at the conclusion of the test, the receiver shall operate with no loss of function.

6.5 Performance criteria for Transient phenomena applied to Receivers (TR)

Fixed, mobile or pocket paging receivers:

- no false call shall occur due to the test;
- at the conclusion of the test, the receiver shall operate as intended, with no loss of functions or stored data (messages) as declared by the manufacturer;
- where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

Base receivers:

- a communication link shall be established before the test and after each individual exposure in the test sequence, it shall be verified by appropriate means supplied by the manufacturer, that the communication link is maintained;
- at the conclusion of the test, the receiver shall operate with no loss of function.

6.6 Performance criteria for ancillary equipment tested on a stand-alone basis

The provision of ETSI EN 301 489-1 [1], clause 6.4 shall apply.

7 Applicability overview

7.1 Emission

7.1.1 General

Table 1 in ETSI EN 301 489-1 [1] contains the applicability of EMC emission measurements to the relevant ports of radio and/or associated ancillary equipment.

7.1.2 Special conditions

No special conditions shall apply to Paging equipment in the scope of the present document.

7.2 Immunity

7.2.1 General

Table 2 of ETSI EN 301 489-1 [1] contains the applicability of EMC immunity measurements to the relevant ports of radio and/or associated ancillary equipment.

7.2.2 Special conditions

The following special conditions set out in table 1, relate to the immunity test methods and performance criteria used in ETSI EN 301 489-1 [1], clause 9.

Table 1: Special conditions for EMC immunity tests

Reference to clauses in ETSI EN 301 489-1 [1]	Special product-related conditions, additional to or modifying the test conditions in the ETSI EN 301 489-1 [1], clause 9
9.2.2: Test method; Radio frequency electromagnetic field	**Spot frequency test:** A spot frequency test shall additionally be performed at 80 MHz, 104 MHz, 136 MHz and 165 MHz, 200 MHz, 260 MHz, 330 MHz, 430 MHz, 560 MHz, 715 MHz and 920 MHz ± 1 MHz, excluding those frequencies that fall within the exclusion band. The test shall additionally be performed at the edge frequencies of the exclusion band. Mobile or pocket transmitters and base receivers are exempted from the spot frequency test.

Annex A (informative): Relationship between the present document and the essential requirements of Directive 2014/53/EU

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.2] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.1].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive and associated EFTA regulations.

Table A.1: Relationship between the present document and the essential requirements of Directive 2014/53/EU

Harmonised Standard ETSI EN 301 489-2				
Requirement			Requirement Conditionality	
No	**Description**	**Reference: Clause No**	**U/C**	**Condition**
1	Emission: Enclosure of ancillary equipment measured on a stand-alone basis	8.2 of ETSI EN 301 489-1 [1]	C	Only applicable to ancillary equipment not incorporated in the radio equipment and intended to be measured on a stand-alone basis
2	Emission: DC power input/output ports	8.3 of ETSI EN 301 489-1 [1]	C	Only where equipment has DC power input and/or output ports with a cable length greater than 3 m or from a vehicle power supply
3	Emission: AC mains power input/output ports	8.4 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power input and/or output ports
4	Emission: Harmonic current emission (AC mains input port)	8.5 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power input ports
5	Emission: Voltage fluctuations and flicker (AC mains input ports)	8.6 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power input ports
6	Emission: Wired network ports	8.7 of ETSI EN 301 489-1 [1]	C	Only where equipment has wired network ports
7	Immunity: Radio frequency electromagnetic field (80 MHz to 6 000 MHz)	7.2.2 and 9.2 of ETSI EN 301 489-1 [1]	U	
8	Immunity: Electrostatic discharge	9.3 of ETSI EN 301 489-1 [1]	U	
9	Immunity: Fast transients, common mode	9.4 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power ports or DC power ports or wired network ports with cables longer than 3 m
10	Immunity: Radio frequency, common mode	9.5 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power ports or DC power ports or wired network ports with cables longer than 3 m
11	Immunity: Voltage dips and interruptions	9.7 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power input ports
12	Immunity: Surges, line to line and line to ground	9.8 of ETSI EN 301 489-1 [1]	C	Only where equipment has AC mains power input ports and/or wired network ports

Key to columns:

Requirement:

No A unique identifier for one row of the table which may be used to identify a requirement.

Description A textual reference to the requirement.

Clause Number Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.

Requirement Conditionality:

U/C Indicates whether the requirement is unconditionally applicable (U) or is conditional upon the manufacturer's claimed functionality of the equipment (C).

Condition Explains the conditions when the requirement is or is not applicable for a requirement which is classified "conditional".

Presumption of conformity stays valid only as long as a reference to the present document is maintained in the list published in the Official Journal of the European Union. Users of the present document should consult frequently the latest list published in the Official Journal of the European Union.

Other Union legislation may be applicable to the product(s) falling within the scope of the present document.

Annex B (normative): Examples of Paging equipment in the scope of the present document

B.1 Introduction

The provisions of the present document apply to radio and associated ancillary equipment intended for use in the land mobile service, that means to Private/Professional Radio-paging equipment as set out in the following clauses.

B.2 On-site paging equipment

The present document applies to on-site paging equipment and associated ancillary equipment.

On-site paging equipment may comprise fixed paging receivers, pocket receivers, pocket transmitters, pocket transceivers, and base transmitters or base receivers, as defined in ETSI EN 300 224 [2], used in a privately owned and operated paging systems in a restricted and pre-defined area.

The radio-type of equipment operates in the frequency range 25 MHz to 470 MHz.

B.3 Wide-area paging equipment

The present document applies to wide-area paging equipment and associated ancillary equipment.

Wide-area paging equipment may comprise fixed receivers, pocket receivers, base transmitters and associated ancillary equipment, as used in privately owned and operated wide-area Paging Services, as well as in public wide-area Paging Services.

Annex C (informative): Change history

Version	Information about changes
2.1.0	Revision under RE-D.

History

Document history		
V1.2.1	August 2000	Publication
V1.3.1	August 2002	Publication
V2.1.0	March 2017	EN Approval Procedure AP 20170625: 2017-03-27 to 2017-06-26
V2.1.1	April 2019	Publication