

INTERNATIONAL STANDARD



**Radio data system (RDS) – VHF/FM sound broadcasting in the frequency range
from 64,0 MHz to 108,0 MHz –
Part 5: Marking of RDS receiver devices**

IECNORM.COM : Click to view the full PDF of IEC 62106-5:2018



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2018 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IECNORM.COM : Click to view the PDF of IEC 61706-5:2018

INTERNATIONAL STANDARD



**Radio data system (RDS) – VHF/FM sound broadcasting in the frequency range
from 64,0 MHz to 108,0 MHz –
Part 5: Marking of RDS receiver devices**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.160.40

ISBN 978-2-8322-6070-8

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions, abbreviated terms and conventions.....	6
4 Receiver profiles, marking and certification requirements of RDS devices and compliance testing.....	6
4.1 Receiver profiles.....	6
4.2 Marking on receivers, packaging and documentation	8
4.3 Certification requirements	9
4.4 Compliance test.....	9
Annex A (informative) RDS and RDS2 logo.....	10
Bibliography.....	11
Table 1 – Usage of RDS features in various receiver types.....	7
Table 2 – Groups to be decoded by receivers marked "RDS".....	8

IECNORM.COM : Click to view the full PDF of IEC 62106-5:2018

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**RADIO DATA SYSTEM (RDS) –
VHF/FM SOUND BROADCASTING IN THE FREQUENCY
RANGE FROM 64,0 MHz TO 108,0 MHz –****Part 5: Marking of RDS receiver devices**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62106-5 has been prepared by technical area 1: Terminals for audio, video and data services and contents, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This first edition, together with IEC 62106-1, IEC 62106-2, IEC 62106-3, IEC 62106-4 and IEC 62106-6, cancels and replaces IEC 62106:2015, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 62106:2015:

- provision has been made to carry RDS on multiple data-streams (RDS2);
- a logo for RDS2 has been added,
- new are receiver profiles, conformity requirements, certification and compliance test.

The text of this International Standard is based on the following documents:

CDV	Report on voting
100/2909/CDV	100/3059A/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62106 series, published under the general title *Radio data system (RDS) – VHF/FM sound broadcasting in the frequency range from 64,0 MHz to 108,0 MHz*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Since the mid-1980s a fascinating development has taken place. Most of the multimedia applications and standards have been created or redefined significantly. Hardware has become extremely powerful with dedicated software and middleware. In the mid-1980s Internet as well as its protocols did not exist. Navigation systems became affordable in the late 1990s, and a full range of attractive smartphones now exist. The computing power of all these new products is comparable with that of the mainframe installations in that era.

Listener expectations have grown faster than the technology. Visual experience is now very important, like the Internet look and feel. Scrolling text or delivering just audio is nowadays perceived as insufficient for FM radio, specifically for smartphone users. New types of radio receivers with added value features are therefore required. RDS has so far proven to be very successful.

FM radio with RDS is an analogue-digital hybrid system, which is still a valid data transmission technology and only the applications need adaptation. Now the time has come to solve the only disadvantage, the lack of sufficient data capacity. With RDS2, the need to increase the data capacity can be fulfilled.

RDS was introduced in the early 1980s. During the introductory phase in Europe, the car industry became very involved and that was the start of an extremely successful roll-out. Shortly afterwards RDS (RBDS) was launched in the USA.

The RDS Forum has investigated a solution to the issue of limited data capacity. For RDS2, both sidebands around the RDS 57 kHz subcarrier can be repeated a few times, up to three, centred on additional subcarriers higher up in the FM multiplex still remaining compatible with the ITU Recommendations.

The core elements of RDS2 are the additional subcarriers which will enable a significant increase of RDS data capacity to be achieved and then only new additional data applications will have to be created, using the RDS-ODA feature, which has been part of the RDS standard IEC 62106 for many years.

In order to update IEC 62106:2015 to the specifications of RDS2, IEC 62106 has been restructured as follows:

- Part 1: Modulation characteristics and baseband coding
- Part 2: RDS message format, coding and definition of RDS features
- Part 3: Usage and registration of Open Data Applications ODAs
- Part 4: Registered code tables
- Part 5: Marking of RDS and RDS2 devices
- Part 6: Compilation of technical specifications for Open Data Applications in the public domain

The following future parts are planned:

- Part 7: RBDS
- Part 8: Universal Encoder Communication Protocol UECP

The original specifications of the RDS system have been maintained and the extra functionalities of RDS2 have been added.

RADIO DATA SYSTEM (RDS) – VHF/FM SOUND BROADCASTING IN THE FREQUENCY RANGE FROM 64,0 MHz TO 108,0 MHz –

Part 5: Marking of RDS receiver devices

1 Scope

This part of IEC 62106 defines receiver profiles and criteria that can be used for marking RDS receiver devices.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62106 (all parts), *Radio Data System (RDS) – VHF/FM sound broadcasting in the frequency range from 64,0 MHz to 108,0 MHz*

3 Terms, definitions, abbreviated terms and conventions

For the purposes of this document, the terms, definitions and abbreviated terms given in IEC 62106-1 and IEC 62106-2 apply. The notation and conventions given in IEC 62106-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Receiver profiles, marking and certification requirements of RDS devices and compliance testing

4.1 Receiver profiles

Table 1 recommends the usage of RDS features applicable to various types of FM/RDS receiver, described by the following generic descriptions:

- Hi-Fi – Typically a mains powered non-portable device used within a home (living room, etc.).
- Portable – Typically a battery/mains option device for use in kitchen, bathroom, etc. which may on occasion be taken outside or, for example, on holiday.
- Smart/Tablet – Smartphone or Tablet device with integrated FM tuner.
- Car Radio – A single- or multiple-tuner receiver mounted within the vehicle dashboard, used for audio reception or one which is an integral part of a multimedia system (i.e. excludes any integrated TMC function).
- TMC – A separate hand-held navigation device with TMC receiver or the TMC function incorporated within a car radio/navigation system.

Table 1 – Usage of RDS features in various receiver types

Feature	Hi-Fi	Portable	Smart/Tablet	Car Radio	TMC
PI	M	M	M	M	M
AF	R ^a	R	O	M	R ^b
CT	R	R	O ^c	M	M ^d
ECC ^e and PI-CI ^{e, f}	R	R	R	R	R
PI-Extended Generic	O	O	O	R	R
PS	M	R	M	M	
EON-PS	O	O	O	R	
Regionalization ^g	R	R	R	M	
LPS [†]	R	R	R	R	
PTYI ^h	O	O	O	O	
PTY SELECTION ⁱ	R	R	R	R	
PTY STAND-BY/EON	O	O	O	O	
PTY-31 ^j (ALARM) EON	R	R	R	M	R ^k
PTYN ^l	O	O	O	O	
Service Following FM & DAB ^m				M	
RT ⁿ	R	R	R	R ^p	
RT+ ⁿ	O	O	R ^q	R	
eRT ^o	O	O	O	O	
TP	R ^r	R ^r	O	M	
EON-TP	R	R	O	M	
TA	R ^r	R ^r	O	M	
EON-TA	O	R	O	M	
TMC ^s					M
TMC-SPN					M
TMC-TI					M ^s

M: Mandatory – All RDS radios shall provide features marked as mandatory to be considered in compliance with the specification. However, if in any country the RDS feature in question is not used, M can be replaced by O.

R: Recommended – While not mandatory, it is recommended that RDS radios provide these features for the best possible user experience. However, if in any country the RDS feature in question is not used, R can be replaced by O.

O: Optional – These are optional features that can be implemented in an RDS radio at the manufacturers' discretion.

^a AF is useful even for a fixed location device (in a simplified form) as it will ensure the device is using the strongest signal if the same radio programme is available on more than one frequency. The receiver should provide an option to disable AF in case the user wants to connect an FM radio cable network service.

^b Used in addition to Tuning Information with TMC Group (TI).

^c Connected devices that are synchronized to the mobile carrier's network will always be at least a few seconds time delayed. The time tolerance in the standard for mobile networks is in the order of minutes, not seconds or milliseconds. Many mobile devices can be manually re-configured to synchronize time via another source, but some devices cannot be re-configured, or the end-user does not care to change it.

^d In order to synchronize with traffic message expiry times, etc.

^e Required for RadioDNS; ECC and PI-CI uniquely identify a country world-wide.

^f PI-CI, the PI country code, is used to uniquely identify a country together with ECC.

^g Capability to identify Regional networks and programmes. Product reacts up to customer expectation. The radio shall identify the generic PI structure and use the regional AF information.

^h PTYI has some limited application if PTY Standby feature is implemented.

^l	PTY descriptions available in multi-languages, preferably selectable by user.
^j	Receiver should 'awake' from standby mode and break with alarm announcement into audio with pre-set increased volume.
^k	In a TMC device, although audio will not be presented, a display indication that there is an 'Alarm' will prompt the user to be alert.
^l	Display functionality only.
^m	Only for multi-standard receivers; the relevant information is carried in DAB.
ⁿ	RadioText and RT+ in widespread use. Display shall not scroll the text.
^o	For RDS and RDS2: eRT not yet widely implemented, but needed for specific markets.
^p	For in-car use, the ability to disable the RT display should be provided.
^q	For RT+ there exist a wide range of classes, but among them, apart from item 'title' and 'artist', web address for the radio programme's home page is one that will be very attractive.
^r	Even in 'home' devices, the ability to identify and receive Traffic information is useful.
^s	See ISO 14819; TMC Guidelines are separately available.
^t	The long PS (LPS) is UTF-8 coded, see ISO/IEC 10646 for UTF-8. If LPS is broadcast, PS shall not be displayed – only LPS. Display shall be capable to show full LPS without scrolling.

4.2 Marking on receivers, packaging and documentation

The following marking shall be used on receivers, packaging and documentation:

RDS if only data-stream 0 is decoded;

RDS2 if in addition the upper data-streams 1-3 can be demodulated.

Receivers are in conformity with the marking "RDS" if they implement the RDS group decoding listed in Table 2 by only using decoding of data-stream 0.

Table 2 – Groups to be decoded by receivers marked "RDS"

Group	Hi-Fi	Port-able	Smart/ Tablet	Car Radio	TMC
0A/B – basic tuning	M	M	M	M	M
1A – slow labelling	R ^{a*}	R ^{a*}	R ^{a*}	R ^{a*}	M
2A/B – RadioText	R	R	R	R	
3A – ODA	O ^{b*}	O ^{b*}	O ^{b*}	R ^{b*}	M
4A – CT	R	R	R	R	M
8A – TMC					M
10A – PTYN	O	O	O	O	
14A/B – EON	R	R	O	M	
15A – LPS	R	R	R	R	
15B – fast switching	O	O	O	M	
^{a*} Required for ECC to uniquely identify country together with PI-CI					
^{b*} Required for eRT, RT+, eRT+, TMC and the new AF lists format (see IEC 62106-6).					

Receivers are in conformity with the marking "RDS2" if they implement the RDS features and group decoding listed in Table 1 and Table 2 on all four streams and in addition meet the following requirements.

- Tunnelling (see IEC 62106-2) shall be supported to permit enhancements to be achieved for already existing RDS features and also to support all legacy groups also on the upper carriers.

- Decoding of C-type groups and the assignment of ODA-AIDs to the 64 ODA-channels shall be supported.
- As RDS2 on the upper carriers is ODA rather than feature driven, a physical or online data interface (e.g. USB) is required to permit updating or installation, in RDS2 radio receivers, of new application software to be used for decoding new ODAs.

4.3 Certification requirements

Normally, self-certification is recommended. A compliance test is optional.

4.4 Compliance test

For the receiver manufacturer a proposed option is that a qualified RDS Forum¹ member or an industry neutral test institute performs a compliance test also, on the basis of IEC 62634, for a fee to be mutually agreed. Particularly for car radios and TMC receivers, a test drive in a defined area may be part of the evaluation.

RDS car radios for the car industry are generally designed according to the car manufacturer's own requirements specification. Performance testing is often jointly done with the radio supplier. In this respect, that kind of cooperation can be of great help in the discussion for future RDS products to be developed.

For the receiver manufacturers who are mainly active on the aftermarket, the RDS Forum can offer support to ensure that the product has the right profile for the respective market.

An important issue is also the capability to select correctly the proper AF with the best audio quality. If applicable, identification of regional programmes and corresponding switching within the relevant radio programme networks can be tested.

The certificate issued may only be used for the specific receiver model tested.

¹ www.rds.org.uk/

Annex A
(informative)

RDS and RDS2 logo²

RDS logo:



NOTE The wording "RADIO DATA SYSTEM" may be omitted.

© European Broadcasting Union and British Broadcasting Corporation 1992 and 1996.

® Trademark National Association of Broadcasters (U.S. only). Trademark registered on behalf of the National Radio Systems Committee.

When RDS2 is implemented, the following logo may be used:



© RDS Forum Office, Geneva, Switzerland, 2015.

The word marks "RDS" or "RDS2" may be used instead of the above logos.

² The information given in Annex A is for the convenience of users of this document and does not constitute an endorsement by IEC.