

INTERNATIONAL STANDARD

IEC 62106

First edition
2000-01

**Specification of the radio data system (RDS)
for VHF/FM sound broadcasting
in the frequency range
from 87,5 to 108,0 MHz**

Withdrawn

© IEC 2000 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission
Telefax: +41 22 919 0300

3, rue de Varembeé Geneva, Switzerland
e-mail: inmail@iec.ch

IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE **XF**

For price, see current catalogue

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SPECIFICATION OF THE RADIO DATA SYSTEM (RDS) FOR VHF/FM SOUND
BROADCASTING IN THE FREQUENCY RANGE FROM 87,5 TO 108,0 MHZ

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

This International Standard IEC 62106 has been prepared by the IEC Subcommittee 100A: Multimedia end-user equipment, of the Technical Committee 100: Audio, video and multimedia systems and equipment.

This standard is based on the European CENELEC Standard EN 50067:1998 prepared by the RDS Forum, using an earlier specification [8] that was originally developed within the European Broadcasting Union. It was submitted to the National Committees for voting under the Fast Track Procedure as the following documents:

FDIS	Report on voting
100A/134A/FDIS	100A/139/RVD

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

Attention is drawn to the fact that there may be Intellectual Property Rights (IPR) in relation to certain provisions of this standard. IPR holders should notify the IEC of their claims.

This publication has not been drafted in complete accordance with the ISO/IEC Directives, Part 3.

Annexes B, C, G, H, K, L and Q are for information only.

Annexes A, D, E, F, J, M, N, and P form an integral part of this standard.

CONTENTS

	page
0 Scope	6
1 Modulation characteristics of the data channel (physical layer)	6
1.1 Subcarrier frequency	6
1.2 Subcarrier phase	6
1.3 Subcarrier level	8
1.4 Method of modulation	8
1.5 Clock-frequency and data-rate	8
1.6 Differential coding	8
1.7 Data-channel spectrum shaping	9
2 Baseband coding (data-link layer)	12
2.1 Baseband coding structure	12
2.2 Order of bit transmission	12
2.3 Error protection	13
2.4 Synchronization of blocks and groups	14
3 Message format (session and presentation layers)	15
3.1 Addressing	15
3.1.1 Design principles	15
3.1.2 Principal features	15
3.1.3 Group types	17
3.1.4 Open data channel / Applications Identification	19
3.1.4.1 Use of Open data applications	19
3.1.4.2 Open data applications - Group structure	20
3.1.5 Coding of the Group types	21
3.1.5.1 Type 0 groups: Basic tuning and switching information	21
3.1.5.2 Type 1 groups: Programme-item number and slow labelling codes	23
3.1.5.3 Type 2 groups: RadioText	25
3.1.5.4 Type 3A groups: Applications Identification for Open Data	27
3.1.5.5 Type 3B groups: Open data application	28
3.1.5.6 Type 4A groups: Clock-time and date	28
3.1.5.7 Type 4B groups: Open data application	29
3.1.5.8 Type 5 groups: Transparent data channels or ODA	29
3.1.5.9 Type 6 groups: In house applications or ODA	30
3.1.5.10 Type 7A groups: Radio paging or ODA	31
3.1.5.11 Type 7B groups: Open data application	31
3.1.5.12 Type 8 groups: Traffic Message Channel or ODA	32
3.1.5.13 Type 9 groups: Emergency warning systems or ODA	33
3.1.5.14 Type 10 groups: Programme Type Name (Group type 10A) and Open data (Group type 10B)	34
3.1.5.15 Type 11 groups: Open data application	35
3.1.5.16 Type 12 groups: Open data application	36
3.1.5.17 Type 13A groups: Enhanced Radio paging or ODA	36
3.1.5.18 Type 13B groups: Open data application	37
3.1.5.19 Type 14 groups: Enhanced Other Networks information	38
3.1.5.20 Type 15A groups	39
3.1.5.21 Type 15B groups: Fast tuning and switching information	39

	page
3.2 Coding of information	40
3.2.1 Coding of information for control	40
3.2.1.1 Programme Identification (PI) codes and Extended Country Codes (ECC)	40
3.2.1.2 Programme-type (PTY) codes	40
3.2.1.3 Traffic-programme (TP) and traffic-announcement (TA) codes	40
3.2.1.4 Music Speech (MS) switch code	40
3.2.1.5 Decoder Identification (DI) and Dynamic PTY Indicator (PTYI) codes	41
3.2.1.6 Coding of Alternative Frequencies (AFs) in type 0A groups	41
3.2.1.7 Programme-item number (PIN) codes	46
3.2.1.8 Coding of Enhanced Other Networks information (EON)	46
3.2.2 Coding and use of information for display	50
3.2.3 Coding of clock-time and date (CT)	50
3.2.4 Coding of information for Transparent data channels (TDC)	50
3.2.5 Coding of information for In House applications (IH)	50
3.2.6 Coding of Radio paging (RP)	51
3.2.6.1 Introduction	51
3.2.6.2 Identification of paging networks	52
3.2.7 Coding of Emergency Warning Systems (EWS)	53
4 Description of features	54
5 Marking	57

Withdrawing

ANNEXES

	page
Annex A (normative) - Offset words to be used for group and block synchronization	59
Annex B (informative) - Theory and implementation of the modified shortened cyclic code	60
Annex C (informative) - Implementation of group and block synchronization using the modified shortened cyclic code	66
Annex D (normative) - Programme identification codes and Extended country codes	69
Annex E (normative) - Character definition for Programme Service name, Programme Type Name, RadioText and alphanumeric Radio paging	73
Annex F (normative) - Programme Type codes	77
Annex G (informative) - Conversion between time and date conventions	81
Annex H (informative) - Specification of the ARI system	83
Annex J (normative) - Language identification	84
Annex K (informative) - RDS logo	86
Annex L (informative) - Open data registration	87
Annex M (normative) - Coding of Radio Paging	90
Annex N (normative) - Country codes and Extended country codes for countries outside the European Broadcasting Area	126
Annex P (normative) - Index of abbreviations	131
Annex Q (informative) - Bibliography	132

0 Scope

The Radio Data System, RDS, is intended for application to VHF/FM sound broadcasts in the range 87.5 MHz to 108.0 MHz which may carry either stereophonic (pilot-tone system) or monophonic programmes. The main objectives of RDS are to enable improved functionality for FM receivers and to make them more user-friendly by using features such as Programme Identification, Programme Service name display and where applicable, automatic tuning for portable and car radios, in particular. The relevant basic tuning and switching information therefore has to be implemented by the type 0 group (see 3.1.5.1), and it is not optional unlike many of the other possible features in RDS.

Withdrawn