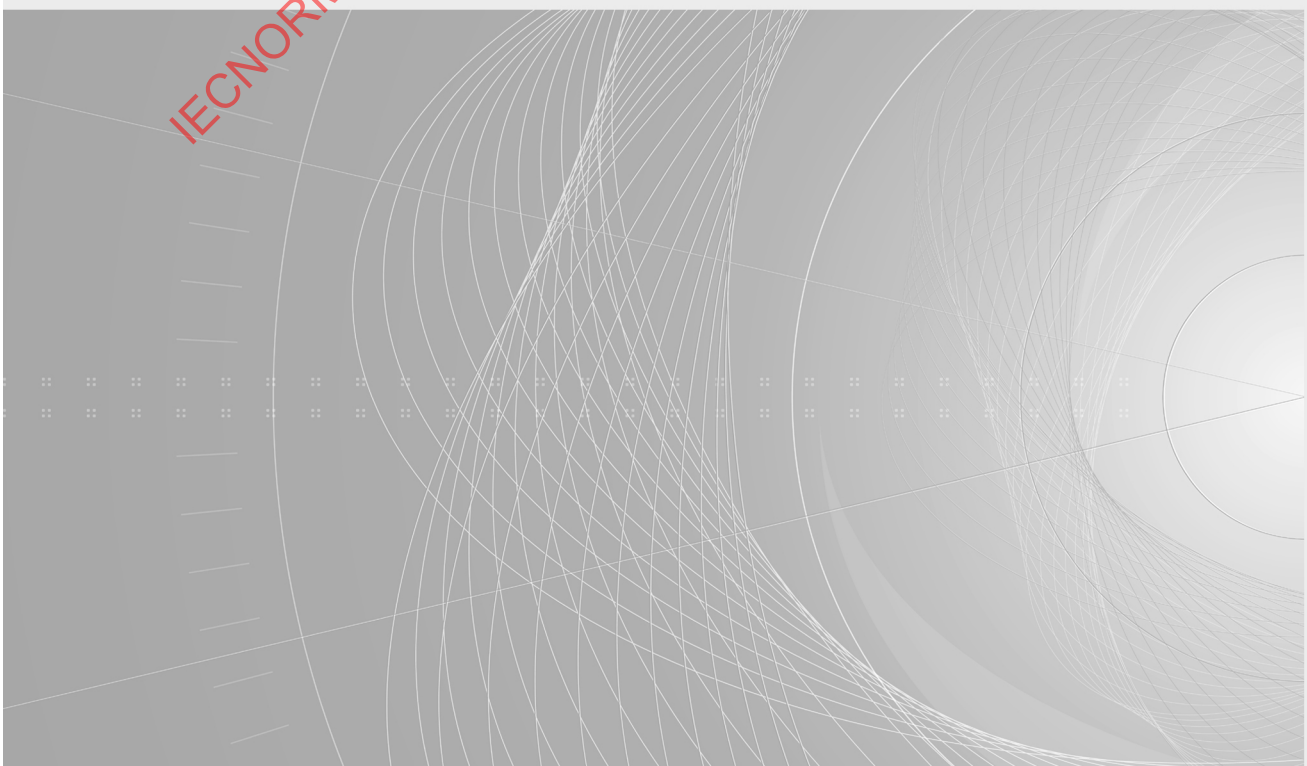
IEC 62106-9

Edition 1.0 2021-05

INTERNATIONAL STANDARD

Radio data system (RDS) –VHF/FM sound broadcasting in the frequency range from 64,0 MHz to 108,0 MHz –
Part 9: RBDS – RDS variant used in North America



IEC 62106-9:2021-05(en)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.060.01; 33.160.20; 33.170

ISBN 978-2-8322-9785-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 9: RBDS – RDS variant used in North America

FOREWORD

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International Standard IEC 62106-9 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, IEC 62106-5, IEC 62106-6 and IEC 62106-10, cancels and replaces IEC 62106:2015, and constitutes a technical revision.

IEC 62106-9 cancels and replaces US NRSC-4-B, National Radio Systems Committee – United States RBDS standard, published in 2011.

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

Draft	Report on voting
100/3399/CDV	100/3553/RVC

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

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 language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under 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.

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. [1, 2, 3, 4, 5, 6, 7] [1]

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 whike 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, the original document has been restructured as follows:

Part 1: RDS system: Modulation characteristics and baseband coding

Part 2: RDS message format, coding and definition of RDS features

Part 3: Coding 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

Part 9: RBDS – RDS variant used in North America

Part 10: Universal Encoder Communication Protocol UECP

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

Obsolete or unused functions from the original RDS standard have been deleted.

[1] Numbers in square brackets refer to the Bibliography.

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

Part 9: RBDS – RDS variant used in North America

1 Scope

This part of IEC 62106 specifies the Radio Broadcast Data System (RBDS), which is an RDS-compatible variant used in countries of North America. RBDS was first standardized by the U.S. National Radio Systems Committee (NRSC) in 1993 and subsequently revised in 1998, 2004, 2005 and 2011[2]. With the publication of this edition of IEC 62106, the RDS and RBDS standards are now harmonized into a single document.

The frequency range of operation (64,0 MHz to 108,0 MHz as indicated by the title of this document) varies according to regional regulatory authority. The U.S. range is 88 MHz to 108 MHz, as set by the U.S. Federal Communications Commission. [8]

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*

IEC 62106-2:2021, *Radio data system (RDS) – VHF/FM sound broadcasting in the frequency range from 64,0 MHz to 108,0 MHz – Part 2: Message format: coding and definition of RDS features*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions 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

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2 The NRSC (www.nrscstandards.org) is jointly sponsored by the National Association of Broadcasters (NAB) and the Consumer Technology Association (CTA). Its purpose is to study and make recommendations for technical standards that relate to radio broadcasting and the reception of radio broadcast signals. See www.nrscstandards.org.

3.2 Abbreviated terms

For the purposes of this document, the abbreviated terms given in IEC 62106-1 and the following apply.

CBC Canadian Broadcasting Corporation

NPR National Public Radio (USA)

NRSC National Radio Systems Committee (USA)

RBDS Radio Broadcast Data System

4 Coding of information

4.1 General

The RBDS standard uses the same data modulation as in IEC 62106-1. It also uses the same RDS features and group type coding as in IEC 62106-2. Open Data Applications coding and registration for application identification are specified in IEC 62106-2 and IEC 62106-3, respectively. Any exceptions for RBDS to these specifications are described in 4.2.

4.2 Exceptions

4.2.1 PI coding

The PI code nibbles are composed differently. The methods used are described in Annex A.

4.2.2 PTY coding

The 5-bit PTY codes are defined with a different meaning in RBDS. The code definitions given in Annex B shall be used for RBDS.

4.2.3 PS

For RBDS, there is no prohibition on using PS for displaying sequential information and there is no requirement that PS be static. For RBDS, there are no restrictions on the content or update rate of the PS field.

Annex A
(normative)

PI coding for North America

A.1 General

PI codes in North America are issued and used differently than in the rest of the world. In areas licensed by the U.S. Federal Communications Commission (except Guam), PI codes are calculated by the station's call letters.[3] Stations in Canada and Mexico use PI codes starting with 0xC and 0xF, respectively (except for certain CBC FM stations in Canada as indicated in Table A.2). This gives each station a unique PI code without the need for any outside coordination.

These PI codes do not make use of coverage area codes (IEC 62106-2). Coverage area codes are only valid for PI codes with nibble 1 being "B" or "E". (PI codes with nibble 1 being "D" were repurposed for AM and HD multicast on FM translators in 2017; see Table A.2 through Table A.4). Broadcasters and receiver manufacturers shall take note of this subtle, yet significant, difference of RBDS.

An optional method for forming PI codes is given in Clause A.4, which can be useful for broadcasters that are providing traffic information using RDS.

Because of this optional method, broadcasters should be aware that PI codes cannot be used in receivers for decoding call letters for display. The PS (program service) data field or the RT+ field STATIONNAME.SHORT may be transmitted instead. [7]

A.2 Call letter conversion

A.2.1 Conversion method to be used

1) Assign decimal values to last 3 letters of call letters using values from Table A.1.

Table A.1 – Letter to decimal value conversion

Letter	Decimal value		Letter	Decimal value
A	0		N	13
B	1		O	14
C	2		P	15
D	3		Q	16
E	4		R	17
F	5		S	18
G	6		T	19
H	7		U	20
I	8		V	21
J	9		W	22
K	10		X	23
L	11		Y	24
M	12		Z	25

3 Excluding FM translators, see Clause A.5. Note: some broadcasters may elect to substitute 0x1 for the first nibble of the PI code to support RDS TMC traffic data transmission. See Clause A.4 for additional information.

2) Calculate a weighted decimal value (**call it "<VAL>"**) for the last 3 letters of the call sign, according to each letter's position, and add together to obtain this decimal value (see exception for 3-letter call signs below).

EXAMPLE 1

K <3rd letter position> <2nd letter position> <1st letter position>
W <3rd letter position> <2nd letter position> <1st letter position>

<3rd letter position value> x 676
\+ <2nd letter position value> x 26
\+ <1st letter position value>
decimal value for 3 letters = <VAL>

3) If station call sign begins with K, add <VAL> to (decimal) 4096 and convert the result to hexadecimal (HEX {<VAL> + 4 096}) to obtain four digit PI code. However, if call sign begins with W, add <VAL> to (decimal) 21 672 and convert to hexadecimal (HEX {<VAL> + 21 672}) to obtain four digit PI code.

IF K… HEX{<VAL> + 4 096} = FOUR DIGIT PI CODE

IF W… HEX{<VAL> + 21 672} = FOUR DIGIT PI CODE

Exceptions to above assignments:

a) Call letters that map to PI codes = _ 0 _ _

RDS receivers conforming to the PI coding specified in IEC 62106-2 will treat a PI code that has nibble 2 of zero as a local station (unique broadcast) and will not AF switch. If a station's call letters map to a PI code = _0_ _, the PI code assignment needs to be reassigned into the A _ _ _ group as follows:

P1 0 P3 P4 → A P1 P3 P4

EXAMPLE 2 1045 →A145; 30F2 → A3F2; 80A1 → A8A1; etc.

b) Call letters that map to PI codes = _ _ 0 0

If station's PI code ends with 00, the PI code will be reassigned into the A F _ _ group as follows:

P1 P2 0 0 → A F P1 P2

EXAMPLE 3 1C00 → AF1C; 3200 → AF32; 8C00 → AF8C; etc.

NOTE 1 For 9 special cases – 1000, 2000, .., 9000 – a double mapping occurs, using exceptions 1 and 2: 1000→A100→AFA1; 2000→A200→AFA2; ...; 8000→A800→AFA8; 9000→A900→AFA9

c) Two stations carry identical programming

These stations will need to assign the same PI code for both stations. The radio will need an identical PI code match to switch to the alternate frequency. The call letters can still be displayed independently with the PS information.

EXAMPLE 4 If WYAY and WYAI have identical programming, either the mapping of WYAY (PI code = 0x4F78) or WYAI (PI code = 0x4F68) will need to be used.

d) 3-letter-only call letters

For 3-letter call sign stations, a mapping of pre-assigned PI codes is shown in Table A.4, 3-letter only call signs. The mapping of 3-letter-only call letters is reserved in PI codes ranging from 0x9950 to 0x9EFF.

e) Nationally linked radio stations carrying different call letters

These stations will need to be assigned a PI code with a nibble 1 of 0xB (B_01 to B_FF and E_01 to E_FF; note that the "0xD" range of D_01 to D_FF was repurposed in 2017 for AM and HD multicast on FM translators in 2017; see Table A.3).

NOTE 2 Nibble 2 can only be filled with 1 through F. If a 0 is used, some receivers may not switch to alternate frequencies.

Table A.2 – PI code possibilities

NOTE 1 Some broadcasters may elect to substitute 0x1 for nibble 1 of the PI code to support RDS TMC traffic data transmission. See Clause A.4 for additional information.

NOTE 2 PI codes within the range Hex [0000-0FFF] are RESERVED and not to be used.

CALL LETTERS (K)	<VAL> + 4096 (decimal)	FOUR DIGIT PI CODE (hex)
KAAA	0 + 4 096 = 4 096	HEX{4096} = 1000
KAAB	1 + 4 096 = 4 097	HEX{4097} = 1001
:	:	:
:	:	:
KZZY	17 574 + 4 096 = 21 670	HEX{21670} = 54A6
KZZZ	17 575 + 4 096 = 21 671	HEX{21671} = 54A7

CALL LETTERS (W)	<VAL> + 21672 (decimal)	FOUR DIGIT PI CODE (hex)
WAAA	0 + 21 672 = 21 672	HEX{21672} = 54A8
WAAB	1 + 21 672 = 21 673	HEX{21673} = 54A9
:	:	:
:	:	:
WZZY	17 574 + 21 672 = 39 246	HEX{39246} = 994E
WZZZ	17 575 + 21 672 = 39 247	HEX{39247} = 994F

CALL LETTERS MAPPING TO _ 0 _ _	FOUR DIGIT PI CODE (hex)
1000	A100
1001	A101
:	:
:	:
90FF	A9FF

CALL LETTERS MAPPING TO _ _ 0 0	FOUR DIGIT PI CODE (hex)
1000, A100	AFA1
1100	AF11
1200	AF12
:	:
:	:
1F00	AF1F
2000, A200	AFA2
2100	AF21
2200	AF22
:	:
:	:
AF00	AFAF

Table A.3 – Nationally/regionally-linked radio stations code

NATIONALLY/REGIONALLY-LINKED RADIO STATIONS CODE[a,b]	FOUR DIGIT PI CODE (hex)
NPR-1	B_01
CBC English – Radio One	B_02
CBC English – Radio Two	B_03
CBC French => Radio-Canada - Première Chaîne	B_04
CBC French => Radio-Canada - Espace Musique	B_05
CBC (reserved)	B_06
CBC (reserved)	B_07
CBC (reserved)	B_08
CBC (reserved)	B_09
NPR-2	B_0A
NPR-3	B_0B
NPR-4	B_0C
NPR-5	B_0D
NPR-6	B_0E
(not currently assigned)	B_0F
:	:
(not currently assigned)	B_FF
Reserved for AM and HD multicast on FM translators	D_01
:	:
Reserved for AM and HD multicast on FM translators	D_FF
(not currently assigned)	E_01
(not currently assigned)	E_02
:	:
(not currently assigned)	E_FF

[a] In the United States, these codes will be allocated by the administrators of the NRSC. The nibble 2 of each four digit hex code shall be determined by the broadcaster using the rules for coverage area codes defined in IEC 62106-2:2021, Table 5.

[b] The scheme outlined in this table will map all possible K___, W___, 3-LETTER-ONLY CALL LETTERS, CALL LETTERS MAPPING TO _0_ _, CALL LETTERS MAPPING TO __00, and NATIONALLY-LINKED RADIO STATIONS into a four digit hex PI code.

Table A.4 – 3-letter only call signs

3-LETTER ONLY CALL SIGNS					
CALL	FOUR DIGIT PI CODE (hex)	CALL	FOUR DIGIT PI CODE (hex)	CALL	FOUR DIGIT PI CODE (hex)
KBW	99A5	KOY	9992	WHO	9978
KCY	99A6	KPQ	9993	WHP	999C
KDB	9990	KQV	9964	WIL	999D
KDF	99A7	KSD	9994	WIP	997A
KEX	9950	KSL	9965	WIS	99B3
KFH	9951	KUJ	9966	WJR	997B
KFI	9952	KUT	9995	WJW	99B4
KGA	9953	KVI	9967	WJZ	99B5
KGB	9991	KWG	9968	WKY	997C
KGO	9954	KXL	9996	WLS	997D
KGU	9955	KXO	9997	WLW	997E
KGW	9956	KYW	996B	WMC	999E
KGY	9957	WBT	9999	WMT	999F
KHQ	99AA	WBZ	996D	WOC	9981
KID	9958	WDZ	996E	WOI	99A0
KIT	9959	WEW	996F	WOL	9983
KJR	995A	WGH	999A	WOR	9984
KLO	995B	WGL	9971	WOW	99A1
KLZ	995C	WGN	9972	WRC	99B9
KMA	995D	WGR	9973	WRR	99A2
KMJ	995E	WGY	999B	WSB	99A3
KNX	995F	WHA	9975	WSM	99A4
KOA	9960	WHB	9976	WWJ	9988
KOB	99AB	WHK	9977	WWL	9989

A.2.2 Examples of assigning PI codes from call letters

EXAMPLE 1: call sign KGTB

G = 6 × 676 = 4 056
T = 19 × 26 = 494
B = 1 = 1
= 4 551 (= <VAL>)

Since call sign begins with K: 4 551 + 4 096 = 8 647 (STATION DECIMAL VALUE) = HEX [8647] = 0x21C7 = KGTB's PI code.

EXAMPLE 2: call sign WKTI

K = 10 × 676 = 6 760
T = 19 × 26 = 494
I = 8 = 9
= 7 262 (= <VAL>)

Since call sign begins with W: 7 262 + 21 672 = 28 934 (STATION DECIMAL VALUE) = HEX [28934] = 0x7106 = WKTI's PI code.

EXAMPLE 3: Checking hex code

To check hex code:

```
      4th digit × 4 096
+     3rd digit × 256
+     2nd digit × 16
+     1st digit × 1
(should equal) STATION DECIMAL VALUE
```

For call sign KGTB:
PI code = 21C7, from STATION DECIMAL VALUE of 8 647

```
      2 × 4 096
+     1 × 256
+     12 × 16
+     7 × 1
=  8 647 = STATION DECIMAL VALUE
```

For call sign WKTI:
PI code = 7 106, from STATION DECIMAL VALUE of 28 934

```
      7 × 4 096
+     1 × 256
+     0 × 16
+     6 × 1
= 28 934 = STATION DECIMAL VALUE
```

A.3 Application: receiver functionality to PI code assignments

Within North America, coverage area codes are recognized only in the following PI code blocks:

- 0xB_01 to 0xB_FF
- 0xE_01 to 0xE_FF

Historically, the range 0xD_01 to 0xD_FF was also considered as a valid PI code range with coverage area code recognition for nationally/regionally linked stations. However, the D-block PI codes have been repurposed for FM translators in North America as managed by the NAB on behalf of the NRSC. The D-block should no longer be used for ad-hoc assignment.

All other PI codes do not make use of coverage area codes and shall be handed as such within the receiver.

RDS receivers conforming to the PI coding specified in IEC 62106-2 store PI codes into presets in addition to storing frequencies into presets. This function is to recognize the broadcast first by program rather than frequency. Thus, if a preset is pushed and the PI code has changed, the RDS receivers would not recognize the new PI code and go into a PI search.

EBU DOC TECH 3260 January 1990 Chapter 4 page 49 states [9]:

"If however the PI code changes completely, the receiver should initiate a PI search for a frequency whose PI code exactly matches the PI code of the original tuned frequency. Failing an exact PI code match, the receiver should search for a PI code differing only in the regional element (bits 5-8) from the original PI code. If neither of these criteria are met, the receiver should remain on the original tuned frequency."

Therefore, in North America, since call letters are used to create the PI code, the receiver would have to do a PI search every time a station would change call letters or a preset is pushed in a new listening area having a station at the same frequency as the preset station. For PI codes < 0xB000, future receivers could check the AF list associated to a preset and, if no AF's are acceptable, a PI search could be initiated. If no identical PI is found, the receiver should return to the original tuned frequency and accept the new PI code.

If a PI search is performed, the regional variant search (the second search to match PI codes differing only in bits 5-8) should be eliminated in a PI search if the tuned PI is below 0xB000, or within the ranges of 0xC000 to 0xDFFF, and 0xF000 to 0xFFFF.

If a feature similar to the regional variants as specified for the PI code in IEC 62106-2 is desired, a grouping of PI codes starting with the B and E nibble 1 could be designated as follows:

– If NPR broadcasts break off national programming to go local for a period of time, it could be assigned a PI of 0xB_01 (cannot use 0 as nibble 2 because current receivers will not search for AF's: therefore, use 4-F for indication of a variant.).
– If no AFs or identical PIs are found via the AF list or an identical PI search, the receiver could, while tuned to NPR station 1 (PI=0xB101), accept a variant NPR station 2 whose PI varies only in nibble 2 (bits 5-8). Thus 0xB201, 0xB301, 0xB401, ... could be accepted.

PI codes starting with the B and E nibbles yield 510 possibilities for "regional" programming. These PI codes will be shared by the United States, Canada, and Mexico. The problem here becomes that a registry needs to be kept; however, there should not be too many broadcasts that fit in this category and not many would be used.

A.4 Optional – modifying PI code for use with traffic information systems

Broadcasters who are transmitting traffic information using the TMC ODA may want to substitute 0x1 for the nibble 1 (bits b_{15} to b_{12} shown in Figure 17 of IEC 62106-2:2021) of the PI code. Doing so will make the TMC transmission compatible with a greater variety of traffic information receivers, because many such receivers interpret a nibble 1 of 0x1 as an indication that the receiver is in North America, consistent with the location table definition contained in the TMC specification. Note, however, that this may also cause some receivers that use the PI code to determine the station call sign (by "back calculation") to behave incorrectly [7].[4]

One method that a receiver can use to try and establish whether a 0x1 first nibble substitution has been made is to check for the presence of the TMC ODA in the RDS transmission, as shown in Table A.5.

Table A.5 – Receiver checking method for PI 0x1 nibble 1 substitution

Nibble 1 of PI code	TMC ODA data present	Receiver interpretation
0x1	No	PI code has been calculated using method described in Clause A.2, without a nibble 1 substitution. Approximately 16 % of the radio stations in the Western half of the U.S. have a calculated nibble 1 of 0x1, and none of the stations in the Eastern half of the U.S. do. [5]
0x1	Yes	A first nibble substitution of 0x1 can have been done on the PI code, or, a station that has a calculated nibble 1 of 0x1 is transmitting TMC ODA information.
(any other value)	Yes or No	PI code has been calculated using method described in A.2, without a nibble 1 substitution.

A.5 PI codes for FM translators

FM translators that are licensed by the U.S. Federal Communications Commission have a six-character call sign (unlike a full-power station, which has a four-character call sign) and as such

4 See NRSC-G300, *RDS Usage Guideline*, for additional information on the impact of the first nibble substitution discussed in this Section.

5 Statistics from RDS-TMC (ISO-14819-1) and PI Code Issue: Summary of the problem and the path to a solution, presented to the NRSC RBDS Subcommittee on September 23, 2009.

the method for determining PI codes defined above cannot be applied to FM translators. If an FM translator is simply re-broadcasting (simulcasting) the audio program of a full-power FM station, then that translator should use the PI code of the full-power station being simulcast.

For cases where the FM translator is not simulcasting a full-power FM station, the NRSC has developed a method for assigning PI codes that is described in NRSC-G300 [6]. These cases include when a translator is broadcasting the content from an HD Radio multicast channel, or the audio program of an AM radio station (a so-called "cross-service" translator).

The PI code assignments for these stations can be accessed at https://picodes.nrscstandards.org [10].

Annex B
(normative)

PTY coding

PTY programme type codes with the corresponding terms to be displayed on a receiver are listed in Table B.1. They serve as an identification of specific programme items, whose meaning is defined as listed below.

Spanish language PTY code translations are shown in Table B.3.

NOTE For code 00000, the PTY display should be kept blank.

Table B.1 – Programme type codes and corresponding terms for display

Number	Code	Programme type	8-character display[a]	16-character display[a]
0	00000	No program type or undefined		
1	00001	News	News	News
2	00010	Information	Inform	Information
3	00011	Sports	Sports	Sports
4	00100	Talk	Talk	Talk
5	00101	Rock	Rock	Rock
6	00110	Classic Rock	Cls Rock	Classic Rock
7	00111	Adult Hits	Adlt Hit	Adult Hits
8	01000	Soft Rock	Soft Rck	Soft Rock
9	01001	Top 40	Top 40	Top 40
10	01010	Country	Country	Country
11	01011	Oldies	Oldies	Oldies
12	01100	Soft	Soft	Soft
13	01101	Nostalgia	Nostalga	Nostalgia
14	01110	Jazz	Jazz	Jazz
15	01111	Classical	Classicl	Classical
16	10000	Rhythm and Blues	R & B	Rhythm and Blues
17	10001	Soft Rhythm and Blues	Soft R&B	Soft R & B
18	10010	Foreign Language	Language	Foreign Language
19	10011	Religious Music	Rel Musc	Religious Music
20	10100	Religious Talk	Rel Talk	Religious Talk
21	10101	Personality	Persnlty	Personality
22	10110	Public	Public	Public
23	10111	College	College	College
24	11000	Spanish Talk	Habl Esp	Hablar Espanol
25	11001	Spanish Music	Musc Esp	Musica Espanol
26	11010	Hip-Hop	Hip-Hop	Hip-Hop
27	11011	Unassigned		
28	11100	Unassigned		
29	11101	Weather	Weather	Weather
30	11110	Emergency Test	Test	Emergency Test
31	11111	Emergency	ALERT !	ALERT! ALERT!

[a] These short terms are recommended for the 8- or 16-character display of the radio.

Table B.1 defines the meaning of the terms used in Table B.2 to denote programme type. These definitions can slightly differ between various language versions.

Table B.2 – Definition of the terms used to denote programme type – PTY

1	**News**	News reports, either local or network in origin.
2	**Information**	Programming that is intended to impart advice.
3	**Sports**	Sports reporting, commentary, and/or live event coverage, either local or network in origin.
4	**Talk**	Call-in and/or interview talk shows either local or national in origin.
5	**Rock**	Album cuts.
6	**Classic Rock**	Rock oriented oldies, often mixed with hit oldies, from a decade or more ago.
7	**Adult Hits**	An up-tempo contemporary hits format with no hard rock and no rap.
8	**Soft Rock**	Album cuts with a generally soft tempo.
9	**Top 40**	Current hits, often encompassing a variety of rock styles.
10	**Country**	Country music, including contemporary and traditional styles.
11	**Oldies**	Popular music, usually rock, with 80% or greater non-current music.
12	**Soft**	A cross between adult hits and classical, primarily non-current soft-rock originals.
13	**Nostalgia**	Big-band music.
14	**Jazz**	Mostly instrumental, includes both traditional jazz and more modern "smooth jazz".
15	**Classical**	Mostly instrumentals, usually orchestral or symphonic music.
16	**Rhythm and Blues**	A wide range of musical styles, often called "urban contemporary".
17	**Soft Rhythm and Blues**	Rhythm and blues with a generally soft tempo.
18	**Foreign Language**	Any programming format in a language other than English.
19	**Religious Music**	Music programming with religious lyrics.
20	**Religious Talk**	Call-in shows, interview programs, etc. with a religious theme.
21	**Personality**	A radio show where the on-air personality is the main attraction.
22	**Public**	Programming that is supported by listeners and/or corporate sponsors instead of advertising.
23	**College**	Programming produced by a college or university radio station.
24	**Spanish Talk**	Call-in shows, interview programs, etc. in the Spanish language.
25	**Spanish Music**	Music programming in the Spanish language.
26	**Hip-Hop**	Popular music incorporating elements of rap, rhythm-and-blues, funk, and soul.
27	**Unassigned**	
28	**Unassigned**	
29	**Weather**	Weather forecasts or bulletins that are non-emergency in nature.
30	**Emergency Test**	Broadcast when testing emergency broadcast equipment or receivers. Not intended for searching or dynamic switching for consumer receivers.. Receivers may, if desired, display "TEST" or "Emergency Test".
31	**Emergency**	Emergency announcement made under exceptional circumstances to give warning of events causing danger of a general nature. Not to be used for searching - only used in a receiver for dynamic switching.