



SLOVENSKI STANDARD
SIST ETS 300 338 E1:2003
01-december-2003

F U X] ' g _ U c d f Y a U] b ' g] g h Y a] ' f F 9 G L E H M b] b Y ' _ U f U _ h f] g h _ Y] b ' a Y f] b Y a Y t c X Y n U
b U d f U j Y z _] [Y b Y f] f U t c z c X X U U t c '] b ' g d f Y Y a U t c ' X] [] h U b] ' g Y Y _ h j b] _ '] W j ' d c a c f g _]
g ' i y V] ' b U g f Y X b Y j U c j b Y a z g f Y X b Y # _ f U h _ c j U c j b Y a] b ' I ? J ' d c X f c 1

Radio Equipment and Systems (RES); Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service

iteh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003>

Ta slovenski standard je istoveten z: ETS 300 338 Edition 1

ICS:

33.060.20	Sprejemna in oddajna oprema	Receiving and transmitting equipment
47.020.70	Navigacijska in krmilna oprema	Navigation and control equipment

SIST ETS 300 338 E1:2003 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003>



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 338

November 1995

Source: ETSI TC-RES

Reference: DE/RES-01-05

ICS: 33.020

Key words: radiotelephony, maritime radio, GMDSS, DSC systems

Radio Equipment and Systems (RES);
Technical characteristics and methods of measurement for
equipment for generation, transmission and reception of Digital
Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF
mobile service

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

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

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1995. All rights reserved.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 338 E1:2003](https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003>

Contents

Foreword	9
1 Scope	11
2 Normative references	11
3 General requirements	12
3.1 Construction	12
3.1.1 General	12
3.1.2 DSC signals input/output: analogue signals	12
3.1.3 DSC signals input/output: digital signals	13
3.1.4 Decoding	13
3.1.5 Accessibility	13
3.1.6 Calibration	13
3.1.7 Selection of signal characteristics	13
3.1.8 Reduction of power for VHF equipment	13
3.1.9 VHF channel 70 access	13
3.1.10 Automatic/semi-automatic service	13
3.2 Switching time	13
3.3 Frequencies	13
3.4 Classes of emission	14
3.5 Controls and indicators	14
3.5.1 General	14
3.5.2 Input panel	14
3.5.3 Light sources	14
3.5.4 Operation	14
3.5.5 Markings	15
3.5.6 Distress function	15
3.6 Facilities for equipment for coding and decoding of DSC	15
3.6.1 Composition of calls	15
3.6.2 Visual indication	15
3.6.3 Ship's identity	15
3.6.4 Entry of information	15
3.6.5 Insertion of sequence codes	16
3.6.6 Insertion of error check character	16
3.6.7 Distress call	16
3.6.8 Remote control	16
3.6.9 Single frequency distress call	16
3.6.10 Multi-frequency distress call	16
3.6.11 Distress call acknowledgement	16
3.6.12 Incoming calls	16
3.6.13 Internal memory	16
3.6.14 Automatic acknowledgement	17
3.6.15 Routine testing	17
3.7 Alarm circuits	17
3.7.1 Distress and urgency	17
3.7.2 Other categories	17
3.8 Interfaces between DSC equipment and external circuits	17
3.8.1 Remote alarms	17
3.8.2 Operational interfaces	17
3.8.3 Printer output	17
3.8.4 Other interfaces	18
3.9 Safety precautions	18
3.9.1 Excessive current and voltage	18
3.9.2 Protection	18
3.9.3 Earthing	18
3.9.4 Access	18

	3.9.5	Memory	18	
3.10		Compass safe distance	18	
3.11		Instructions	18	
3.12		Warming-up period	19	
	3.12.1	Time	19	
	3.12.2	Heaters	19	
	3.12.3	Heating circuits	19	
4		Test conditions	19	
4.1		General	19	
4.2		Generation and examination of the digital selective call signal	19	
4.3		Standard test signals	19	
	4.3.1	References to standard test signals	19	
	4.3.2	Standard test signal no. 1	19	
	4.3.3	Standard test signal no. 2	20	
	4.3.4	Standard test signal no. 3	20	
	4.3.5	Standard test signal no. 4	20	
4.4		Determination of the symbol error rate in the output of the receiving part	20	
4.5		Impedance of test signal sources	20	
	4.5.1	Equipment ports	20	
	4.5.2	Impedances	21	
		4.5.2.1 Non-integrated equipment	21	
4.6		Connection of test signals	21	
4.7		Test power source	21	
4.8		Internally generated signals	22	
4.9		Normal test conditions	22	
	4.9.1	Normal temperature and humidity	22	
	4.9.2	Normal test power source	22	
		4.9.2.1 Mains voltage and mains frequency	22	
		4.9.2.2 Secondary battery power source	22	
		4.9.2.3 Other power sources	22	
4.10		Extreme test conditions	22	
	4.10.1	Temperatures when testing under extreme conditions	22	
	4.10.2	Procedures of tests at extreme temperatures	22	
	4.10.3	Extreme values of test power source	23	
		4.10.3.1 Mains voltage and mains frequency	23	
		4.10.3.2 Secondary battery power sources	23	
		4.10.3.3 Other power sources	23	
4.11		Environmental tests	23	
	4.11.1	Introduction	23	
	4.11.2	Procedure	23	
	4.11.3	Performance check	23	
	4.11.4	Vibration test	24	
		4.11.4.1 Method of measurement	24	
		4.11.4.2 Requirement	25	
	4.11.5	Temperature tests	25	
		4.11.5.1 Dry heat for externally mounted equipment	25	
			4.11.5.1.1 Method of measurement	25
			4.11.5.1.2 Requirement	25
		4.11.5.2 Damp heat cycle	25	
			4.11.5.2.1 Method of measurement	25
			4.11.5.2.2 Requirement	26
		4.11.5.3 Low temperature cycle for externally mounted equipment	26	
			4.11.5.3.1 Method of measurement	26
			4.11.5.3.2 Requirement	26
	4.11.6	Corrosion test	26	
		4.11.6.1 General	26	
		4.11.6.2 Method of measurement	26	
		4.11.6.3 Requirements	27	
	4.11.7	Rain test	27	
		4.11.7.1 General	27	
		4.11.7.2 Method of measurement	27	
		4.11.7.3 Requirements	28	

4.12	Measurement uncertainty and interpretation of the measuring results.....	28
4.12.1	Measurement uncertainty.....	28
4.12.2	Interpretation of measurement results	29
5	MF/HF transmitter with integrated DSC encoder	29
5.1	Frequency error	29
5.1.1	Definition	29
5.1.2	Method of measurement	29
5.1.3	Limits	29
5.2	RF output power	29
5.2.1	Definition	29
5.2.2	Method of measurement	29
5.2.3	Limits	29
5.3	Modulation rate	30
5.3.1	Definition	30
5.3.2	Method of measurement	30
5.3.3	Limits	30
5.4	Residual modulation of the transmitter	30
5.4.1	Definition	30
5.4.2	Method of measurement	30
5.4.3	Limits	30
5.5	Unwanted emission.....	30
5.5.1	Definition	30
5.5.2	Method of measurement	31
5.5.3	Limits	31
5.6	Testing of generated call sequences	32
5.7	Tuning time	32
5.8	Protection of transmitter	33
5.8.1	Definition	33
5.8.2	Method of measurement	33
5.8.3	Limits	33
6	VHF transmitter with integrated DSC encoder.....	33
6.1	Frequency error (carrier).....	33
6.1.1	Definition	33
6.1.2	Method of measurement	33
6.1.3	Limits	33
6.2	Frequency error (demodulated signal).....	33
6.2.1	Definition	33
6.2.2	Method of measurement	33
6.2.3	Limits	34
6.3	Carrier power	34
6.3.1	Definition	34
6.3.2	Method of measurement	34
6.3.3	Limits	34
	6.3.3.1 Normal test conditions	34
	6.3.3.2 Extreme test conditions	34
6.4	Modulation index.....	34
6.4.1	Definition	34
6.4.2	Method of measurement	34
6.4.3	Limits	34
6.5	Modulation rate	35
6.5.1	Definition	35
6.5.2	Method of measurement	35
6.5.3	Limits	35
6.6	Residual modulation of the transmitter	35
6.6.1	Definition	35
6.6.2	Method of measurement	35
6.6.3	Limits	35
6.7	Adjacent channel power.....	35
6.7.1	Definition	35
6.7.2	Measurement	35
	6.7.2.1 Method of measurement.....	35

	6.7.3	Limits	36
6.8		Conducted spurious emissions conveyed to the antenna	36
	6.8.1	Definition	36
	6.8.2	Method of measurement	36
	6.8.3	Limit	36
6.9		Testing of generated call sequences	37
6.10		Transient frequency behaviour of the transmitter	37
	6.10.1	Definitions	37
	6.10.2	Method of measurement	38
7		MF/HF DSC encoder	41
	7.1	Frequency error	41
		7.1.1 Definition	41
		7.1.2 Method of measurement	41
		7.1.3 Limits	41
	7.2	Output voltage	41
		7.2.1 Definition	41
		7.2.2 Method of measurement	41
		7.2.3 Limits	41
		7.2.3.1 Analogue voltage	41
		7.2.3.2 Binary voltage	41
	7.3	Bit stream speed	41
		7.3.1 Definition	41
		7.3.2 Method of measurement	41
		7.3.3 Limits	42
	7.4	Unwanted spectral components of the output signal	42
		7.4.1 Definition	42
		7.4.2 Method of measurement	42
		7.4.3 Limits	42
	7.5	Testing of generated call sequences	43
	7.6	Residual frequency modulation	43
		7.6.1 Definition	43
		7.6.2 Method of measurement	43
		7.6.3 Limits	43
8		VHF DSC encoder	43
	8.1	Frequency error	43
		8.1.1 Definition	43
		8.1.2 Method of measurements	43
		8.1.3 Limits	43
	8.2	Output voltage	44
		8.2.1 Definition	44
		8.2.2 Method of measurement	44
		8.2.3 Limits	44
		8.2.3.1 Analogue voltage	44
		8.2.3.2 Binary voltage	44
	8.3	Bit stream speed	44
		8.3.1 Definition	44
		8.3.2 Method of measurement	44
		8.3.3 Limits	44
	8.4	Unwanted spectral components of the output signal	44
		8.4.1 Definition	44
		8.4.2 Method of measurement	44
		8.4.3 Limits	45
	8.5	Testing of generated call sequences	45
	8.6	Residual frequency modulation	45
		8.6.1 Definition	45
		8.6.2 Method of measurement	45
		8.6.3 Limits	46
9		MF/HF receiver with integrated DSC decoder	46
	9.1	Scanning watch receiver efficiency	46
		9.1.1 Definition	46

	9.1.2	Method of measurement	46
	9.1.3	Limits	46
9.2		Calling sensitivity	46
	9.2.1	Definition	46
	9.2.2	Method of measurement	46
	9.2.3	Limits	47
9.3		Adjacent channel selectivity	47
	9.3.1	Definition	47
	9.3.2	Method of measurement	47
	9.3.3	Limits	47
9.4		Co-channel rejection	47
	9.4.1	Definition	47
	9.4.2	Method of measurements	47
	9.4.3	Limits	48
9.5		RF intermodulation response	48
	9.5.1	Definition	48
	9.5.2	Method of measurement	48
	9.5.3	Limits	48
9.6		Interference rejection and blocking immunity	48
	9.6.1	Definition	48
	9.6.2	Method of measurement	48
	9.6.3	Limits	48
9.7		Dynamic range	49
	9.7.1	Definition	49
	9.7.2	Method of measurement	49
	9.7.3	Limits	49
9.8		Conducted spurious emissions	49
	9.8.1	Definition	49
	9.8.2	Method of measurement	49
	9.8.3	Limits	49
9.9		Verification of correct decoding of various types of digital selective calls	49
9.10		Protection of receiver antenna input circuits	50
10		VHF receiver with integrated DSC decoder	50
	10.1	Maximum usable sensitivity	50
		10.1.1 Definition	50
		10.1.2 Method of measurement	50
		10.1.3 Limits	50
	10.2	Co-channel rejection	50
		10.2.1 Definition	50
		10.2.2 Method of measurement	50
		10.2.3 Limits	51
	10.3	Adjacent channel selectivity	51
		10.3.1 Definition	51
		10.3.2 Method of measurement	51
		10.3.3 Limits	51
	10.4	Spurious response and blocking immunity	51
		10.4.1 Definition	51
		10.4.2 Method of measurement	51
		10.4.3 Limits	52
	10.5	Intermodulation response	52
		10.5.1 Definition	52
		10.5.2 Method of measurement	52
		10.5.3 Limits	52
	10.6	Dynamic range	52
		10.6.1 Definition	52
		10.6.2 Method of measurement	52
		10.6.3 Limit	52
	10.7	Conducted spurious emissions	53
		10.7.1 Definition	53
		10.7.2 Method of measurement	53
		10.7.3 Limit	53
	10.8	Verification of correct decoding of various types of digital selective calls	53

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

SIST ETS 300 338 E1:2003

<https://standards.iteh.ai/catalog/standards/sist/45540bc3-5c24-41d4-9815-348748104a56/sist-ets-300-338-e1-2003>

11	MF/HF DSC decoder	53
11.1	Interface for scanning.....	53
11.2	Scanning efficiency	54
11.2.1	Definition.....	54
11.2.2	Method of measurement.....	54
11.2.3	Limits	54
11.3	Dynamic range	54
11.3.1	Definition.....	54
11.3.2	Method of measurement.....	54
11.3.2.1	Analogue voltage	54
11.3.2.2	Binary voltage.....	54
11.3.3	Limits	55
11.4	Verification of correct decoding of various types of digital selective calls	55
12	VHF DSC decoder	55
12.1	Dynamic range	55
12.1.1	Definition.....	55
12.1.2	Method of measurement.....	55
12.1.2.1	Analogue voltage	55
12.1.2.2	Binary voltage.....	55
12.1.3	Limits	56
12.2	Verification of correct decoding of various types of digital selective calls	56
Annex A (normative): Test calls.....		57
A.1	Types of calls to be tested.....	57
A.2	Telecommands applicable to DSC shipborne equipment	58
A.2.1	Class A, MF/HF equipment.....	58
A.2.2	Class A, VHF equipment.....	58
A.2.3	Class B, MF equipment.....	58
A.2.4	Class B, VHF equipment.....	58
A.2.5	Class D.....	58
A.2.6	Class E.....	58
A.2.7	Class F.....	58
A.2.8	Class G.....	58
Annex B (normative): Specifications for adjacent channel power measurement arrangements.....		59
B.1	Power measuring receiver specification	59
B.1.1	IF filter	59
B.1.2	Attenuation indicator.....	60
B.1.3	Rms value indicator.....	60
B.1.4	Oscillator and amplifier.....	60
History.....		61

Foreword

This European Telecommunications Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI).

Transposition dates	
Date of adoption of this ETS:	29 September 1995
Date of latest announcement of this ETS (doa):	28 February 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 August 1996
Date of withdrawal of any conflicting National Standard (dow):	31 August 1996

Every ETS prepared by ETSI is a voluntary standard. This ETS may contain text concerning conformance testing of the equipment to which it relates. This text should be considered as guidance only and does not make this ETS mandatory.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST ETS 300 338 E1:2003](https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003>

Blank page

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST ETS 300 338 E1:2003](https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003>

1 Scope

This European Telecommunication Standard (ETS) states the minimum requirements for equipment to be used for generation, transmission and reception of Digital Selective Calling (DSC) for use on board ships.

DSC may be used in the Medium Frequency (MF), High Frequency (HF) and Very High Frequency (VHF) Maritime Mobile Service (MMS), both in connection with distress and safety communication and in connection with public correspondence.

This ETS covers the requirements to be fulfilled by:

- DSC equipment integrated with a transmitter and/or a receiver;
- DSC equipment not integrated with a transmitter and/or a receiver.

These requirements include the relevant provisions of the ITU Radio Regulations [1] and ITU-R recommendations, the International Convention for the Safety Of Life At Sea (SOLAS) [3], and the relevant resolutions of the International Maritime Organization (IMO).

Equipment for generation, transmission and reception of DSC is recommended to be designed according to following equipment classes:

- Class A - includes all the facilities defined in Annex 1 of ITU-R Recommendation M.493-6 [4];
- Class B - provides minimum facilities for equipment on ships not required to use Class A equipment and complies with the minimum IMO Global Maritime DistreSS (GMDSS) carriage requirements for MF and/or VHF installations. This equipment should provide for:
 - alerting, acknowledgement and relay facilities for distress purposes;
 - calling and acknowledgement for general communication purposes; and
 - calling in connection with semi-automatic/automatic services, as defined in ITU-R Recommendation M.493-6 [4], Annex 2, subclause 3;
- Class D - provides minimum facilities for VHF DSC distress, urgency and safety as well as routine calling and reception, not necessarily in full accordance with IMO GMDSS carriage requirements for VHF installations;
- Class E - provides minimum facilities for MF and/or HF DSC distress, urgency and safety as well as routine calling and reception, not necessarily in full accordance with IMO GMDSS carriage requirements for MF/HF installations;
- Class F - provides for VHF DSC distress, urgency and safety calling and also for reception of acknowledge to its own distress calls (in order to terminate the transmission);
- Class G - provides for MF DSC distress, urgency and safety calling and also for reception of acknowledge to its own distress calls (in order to terminate the transmission).

2 Normative references

This ETS incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent references to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ITU Radio Regulations.
- [2] ITU-T Recommendation E.161 (1988): "Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network".

- [3] International Convention for the Safety of Life at Sea (1974) as amended in 1988.
- [4] ITU-R Recommendation M.493-6: "Digital selective-calling system for use in the maritime mobile service".
- [5] ITU-R Recommendation M.541-5: "Operational procedures for the use of digital selective-calling (DSC) equipment in the maritime mobile service".
- [6] ITU-R Recommendation M.689-2: "Operational procedures for an international maritime VHF radiotelephone system with automatic facilities based on DSC signalling format".
- [7] NMEA 0183, Version 2.00: "Standard for interfacing marine electronic devices".
- [8] ITU-R Recommendation SM.332-4: "Selectivity of receivers".
- [9] ISO Standard 3791: "Office machines and data processing equipment - Keyboard layouts for numeric applications".
- [10] IEC Recommendation 529: "Degrees of protection provided by enclosures (IP code)".
- [11] ETR 028: "Radio Equipment and Systems (RES); Uncertainties in the measurement of mobile radio equipment characteristics".
- [12] ITU-T Recommendation V.11: "Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s".
- [13] ITU-R Recommendation M.1082: "International maritime MF/HF radiotelephone system with automatic facilities based on DSC signalling format".

3 General requirements

[SIST ETS 300 338 E1:2003](https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003)

<https://standards.iteh.ai/catalog/standards/sist/45540be3-5e24-41d4-9815-348328f04a56/sist-ets-300-338-e1-2003>

3.1 Construction

3.1.1 General

The equipment shall comprise the necessary facilities for coding and transmission of DSC and for decoding and conversion of the information content of received DSC to visual form in plain language.

The design and function of DSC equipment shall comply with the provisions of ITU-R Recommendation M.493-6 [4].

The equipment may be either;

- an independent unit for connection to an external radio installation designed for maritime radio communication; or
- mechanically and electrically integrated in such radio equipment.

The equipment shall be constructed in conformity with good engineering practice, both mechanically and electrically, and shall be suitable for use on-board ships.

If the DSC equipment is integrated into radio equipment the receiver part of the equipment shall be designed for continuous operation.

3.1.2 DSC signals input/output: analogue signals

If the equipment is designed as an independent DSC unit for connection to the audio frequency terminals of external radio equipment, the input and output impedances shall be 600 Ω free of earth.

3.1.3 DSC signals input/output: digital signals

If the equipment is designed as an independent DSC unit, with binary inputs and outputs for DSC, the logic level shall comply with ITU-T Recommendation V.11 [12].

3.1.4 Decoding

The DSC equipment shall be so designed that in the decoding process the greatest possible use is made of parity bits for error detection, time multiplex repetitions and error check characters in the received call (see ITU-R Recommendation M.493-6 [4], Annex I, subclause 1.6 and, if appropriate subclause 1.7.2).

3.1.5 Accessibility

All parts of the equipment which are subject to inspection and maintenance adjustments shall be easily accessible. Components shall be easily identifiable either by markings within the equipment, or with the aid of technical description.

3.1.6 Calibration

The equipment shall be so constructed that its main modules can easily be replaced and put into operation without elaborate calibration or re-adjustment.

3.1.7 Selection of signal characteristics

Equipment constructed for DSC to be used on frequencies both in the MF/HF range and in the maritime VHF band shall automatically select the signal characteristics relevant to the frequency range concerned (see ITU-R Recommendation M.493-6, [4] Annex I, subclauses 1.2 and 1.3).

3.1.8 Reduction of power for VHF equipment

Integrated VHF DSC equipment shall automatically reduce power (see subclause 6.3) for transmission of ships originated routine "all ships calls".

3.1.9 VHF channel 70 access

Equipment for transmission of DSC in the maritime VHF band shall be provided with facilities which, except for distress and safety calls, automatically prevents the transmission of DSC on channel 70 until the channel is free.

3.1.10 Automatic/semi-automatic service

Equipment designed for use in an automatic/semi-automatic VHF radiotelephone service using DSC shall comply with the provisions of ITU-R Recommendation M.689-2 [6].

Equipment designed for use in an automatic/semi-automatic MF/HF radiotelephone service using DSC shall comply with the provisions of ITU-R Recommendation M.1082 [13].

3.2 Switching time

For integrated equipment, the Radio Frequency (RF) channel switching arrangement shall be such that the time necessary to change from using one of the channels to using any other channel in the same band does not exceed 5 seconds.

For integrated equipment, the time necessary to change over from RF transmission to RF reception or vice versa, shall not exceed 0,3 seconds.

3.3 Frequencies

For integrated equipment, the RF equipment shall be capable of transmitting and/or receiving on one or more of the following frequencies:

- 2 187,5 kHz only;