

ETSI EN 301 473 v1.4.1 (2013-03)



**Satellite Earth Stations and Systems (SES);
Aircraft Earth Stations (AES) operating below 3 GHz under the
Aeronautical Mobile Satellite Service (AMSS)/
Mobile Satellite Service (MSS) and/or the
Aeronautical Mobile Satellite on Route Service (AMS(R)S)/
Mobile Satellite Service (MSS)**

<https://standards.iteh.ai/catalog/standards/etsi/e0d9df2f-d3b5-4152-b006-e97e9ae151da/etsi-en-301-473-v1-4-1-2012-12>

<https://standards.iteh.ai/catalog/standards/etsi/e0d9df2f-d3b5-4152-b006-e97e9ae151da/etsi-en-301-473-v1-4-1-2012-12>

ReferenceREN/SES-00325

Keywordsaeronautical, AMSS, earth station, mobile, MSS,
satellite**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

iteh Standards
(<https://standards.iteh.ai>)
Document Preview

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

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 2013.
All rights reserved.

DECTTM, PLUGTESTSTM, UMTSTM and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPPTM and LTETM are Trade Marks of ETSI registered for the benefit of its Members and
of the 3GPP Organizational Partners.
GSM[®] and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	8
Foreword.....	8
Introduction	8
1 Scope	9
2 References	9
2.1 Normative references	9
2.2 Informative references	10
3 Definitions and abbreviations.....	10
3.1 Definitions	10
3.2 Abbreviations	11
4 General	12
4.1 Presentation of equipment for testing purposes.....	12
4.2 Aircraft earth stations	12
4.3 Description of equipment	13
5 Requirements for AES transmitting in the band 1 610 MHz to 1 626,5 MHz	14
5.1 Unwanted emissions limits outside the band 1 610 MHz to 1 626,5 MHz and the band 1 626,5 MHz to 1 628,5 MHz (carrier-on)	14
5.1.1 Purpose	14
5.1.2 Conformance requirements	14
5.1.3 Method of test	14
5.1.4 Peak measurement	15
5.1.5 Average measurement	15
5.1.6 Test requirements	16
5.2 Unwanted emissions limits within the band 1 610 MHz to 1 626,5 MHz and the band 1 626,5 MHz to 1 628,5 MHz (carrier-on)	16
5.2.1 Purpose	16
5.2.2 Conformance requirements	16
5.2.3 Method of test	17
5.2.4 Measurement method.....	18
5.2.5 Test requirements.....	18
5.3 EIRP density limits within the operational band	18
5.3.1 Purpose	18
5.3.2 Conformance requirements	18
5.3.3 Method of test	19
5.3.4 Peak Limit Test.....	19
5.3.5 Mean Limit Test	19
5.3.6 Test requirements.....	20
5.4 Unwanted emissions limits (carrier-off).....	20
5.4.1 Purpose	20
5.4.2 Conformance requirements	20
5.4.3 Method of test	20
5.4.4 Peak measurement	21
5.4.5 Average measurement.....	21
5.4.6 Test requirements.....	21
5.5 AES Control and Monitoring Functions (CMF).....	21
5.5.1 Special test equipment	21
5.5.2 Self-monitoring functions	22
5.5.2.1 Processor monitoring	22
5.5.2.1.1 Purpose	22
5.5.2.1.2 Conformance requirements.....	22
5.5.2.1.3 Method of test.....	22
5.5.2.2 Transmit frequency generation sub-system monitoring	22
5.5.2.2.1 Purpose	22

5.5.2.2.2	Conformance requirements.....	22
5.5.2.2.3	Method of test.....	22
5.5.3	Network control authorization and reception.....	22
5.5.3.1	Network control authorization	22
5.5.3.1.1	Purpose	22
5.5.3.1.2	Conformance requirements.....	23
5.5.3.1.3	Method of test.....	23
5.5.3.1.4	Test procedure	23
5.5.3.1.5	Test requirement	23
5.5.3.2	Network control reception transmit frequency control.....	23
5.5.3.2.1	Purpose	23
5.5.3.2.2	Conformance requirements.....	24
5.5.3.2.3	Method of test.....	24
5.5.3.2.4	Test procedure	24
5.5.3.2.5	Test requirement	24
5.6	Equipment identity	24
5.6.1	Purpose	24
5.6.2	Conformance requirements	24
5.6.3	Method of test	25
5.6.4	Test procedure	25
5.6.5	Test requirements.....	25
6	Requirements for AES transmitting in the band 1 626,5 MHz to 1 660,5 MHz and the band 1 668,0 MHz to 1 675,0 MHz	25
6.1	Unwanted emissions limits outside the band 1 626,5 MHz to 1 660,5 MHz and the band 1 660,5 MHz to 1 662,5 MHz and also outside the band 1 666,0 MHz to 1 668,0 MHz, the band 1 668,0 MHz to 1 675,0 MHz and the band 1 675,0 MHz to 1 677,0 MHz	25
6.1.1	Purpose	25
6.1.2	Conformance requirements	26
6.1.3	Testing for carrier on state	32
6.1.3.1	Method of test	32
6.1.3.2	Measurement method.....	33
6.1.3.3	Test requirements.....	33
6.1.4	Testing for carrier off state	33
6.1.4.1	Method of test	33
6.1.4.2	Peak measurement method.....	34
6.1.4.3	Average measurement.....	34
6.1.4.4	Test requirements.....	34
6.2	Unwanted emissions limits within the band 1 626,5 MHz to 1 660,5 MHz and the band 1 660,5 MHz to 1 662,5 MHz and also within the band 1 666,0 MHz to 1 668,0 MHz, the band 1 668,0 MHz to 1 675,0 MHz and the band 1 675,0 MHz to 1 677,0 MHz	35
6.2.1	Purpose	35
6.2.2	Conformance requirements.....	35
6.2.2.1	General	35
6.2.2.2	Specification 1: Carrier-on state.....	35
6.2.2.3	Specification 2: Carrier-off state	38
6.2.3	Testing for carrier on state	38
6.2.3.1	Method of test	38
6.2.3.2	Measurement method.....	39
6.2.3.3	Test requirements.....	39
6.2.4	Testing for carrier off state	39
6.2.4.1	Method of test	39
6.2.4.2	Peak measurement method.....	40
6.2.4.3	Average measurement.....	40
6.2.4.4	Test requirements.....	40
6.3	AES Control and Monitoring Functions (CMF).....	40
6.3.1	Special test equipment	40
6.3.2	Self-monitoring functions	41
6.3.2.1	Processor monitoring	41
6.3.2.1.1	Purpose	41
6.3.2.1.2	Conformance requirements.....	41
6.3.2.1.3	Method of test.....	41

6.3.2.2	Transmit frequency generation sub-system monitoring	41
6.3.2.2.1	Purpose	41
6.3.2.2.2	Conformance requirements.....	41
6.3.2.2.3	Method of test.....	41
6.3.3	Network control authorization and reception.....	41
6.3.3.1	Network control authorization	41
6.3.3.1.1	Purpose	41
6.3.3.1.2	Conformance requirements.....	42
6.3.3.1.3	Method of test.....	42
6.3.3.1.4	Test procedure	42
6.3.3.1.5	Test requirement	42
6.3.3.2	Network control reception transmit frequency control.....	42
6.3.3.2.1	Purpose	42
6.3.3.2.2	Conformance requirements.....	43
6.3.3.2.3	Method of test.....	43
6.3.3.2.4	Test procedure	43
6.3.3.2.5	Test requirement	43
6.4	Equipment identity	43
6.4.1	Purpose	43
6.4.2	Conformance requirements.....	43
6.4.3	Method of test	44
6.4.4	Test procedure	44
6.4.5	Test requirements.....	44
7	Requirements for NGSO AES transmitting in the band 1 980 MHz to 2 010 MHz	44
7.1	Unwanted emissions limits outside the band 1 980,1 MHz to 2 009,9 MHz (carrier-on)	44
7.1.1	Purpose	44
7.1.2	Conformance requirements.....	44
7.1.3	Method of test	45
7.1.4	Peak measurement	46
7.1.5	Average measurement.....	46
7.1.6	Test requirements.....	46
7.2	Unwanted emissions limits within the bands 1 980,1 MHz to 2 009,9 MHz, 1 978,1 MHz to 1 980,1 MHz and 2 009,9 MHz to 2 011,9 MHz (carrier-on).....	46
7.2.1	Purpose	46
7.2.2	Conformance requirements.....	47
7.2.3	Method of test	47
7.2.4	Measurement method.....	48
7.2.5	Test requirements.....	48
7.3	Unwanted emissions limits (carrier-off)	48
7.3.1	Purpose	48
7.3.2	Conformance requirements.....	48
7.3.3	Method of test	49
7.3.4	Peak measurement	49
7.3.5	Average measurement.....	49
7.3.6	Test requirements.....	50
7.4	AES Control and Monitoring Functions (CMF).....	50
7.4.1	Special test equipment	50
7.4.2	Self-monitoring functions	50
7.4.2.1	Processor monitoring	50
7.4.2.1.1	Purpose	50
7.4.2.1.2	Conformance requirements.....	50
7.4.2.1.3	Method of test.....	50
7.4.2.2	Transmit frequency generation sub-system monitoring	50
7.4.2.2.1	Purpose	50
7.4.2.2.2	Conformance requirements.....	51
7.4.2.2.3	Method of test.....	51
7.4.3	Network control authorization and reception.....	51
7.4.3.1	Network control authorization	51
7.4.3.1.1	Purpose	51
7.4.3.1.2	Conformance requirements.....	51
7.4.3.1.3	Method of test.....	51

7.4.3.1.4	Test procedure	51
7.4.3.1.5	Test requirement	52
7.4.3.2	Network control reception	52
7.4.3.2.1	Transmit frequency control	52
7.5	Equipment identity	53
7.5.1	Purpose	53
7.5.2	Conformance requirements	53
7.5.3	Method of test	53
7.5.4	Test procedure	53
7.5.5	Test requirements	53
8	Protection of the global navigation satellite service operating in the band 1 559 MHz to 1 610 MHz	54
8.1	1 559 MHz to 1 605 MHz	54
8.1.1	Purpose	54
8.1.2	Conformance requirements	54
8.2	1 605 MHz to 1 610 MHz	54
8.2.1	Purpose	54
8.2.2	Conformance requirements	54
8.3	Method of test	55
8.4	Average measurement	55
8.5	Test requirements	55
9	Protection of the radio astronomy services operating in the band 1 610,6 MHz to 1 613,8 MHz and in the band 1 660 MHz to 1 670 MHz	56
9.1	Purpose	56
9.2	Conformance requirements	56
9.2.1	Alternative 1	56
9.2.2	Alternative 2	57
9.2.3	Protection of the radio astronomy service in the 1 660,0 MHz to 1 670,0 MHz band	57
9.3	Method of test - unwanted emissions (alternative 1)	57
9.4	Test procedure - unwanted emissions (alternative 1)	57
9.5	Test requirement - unwanted emissions (alternative 1)	58
9.6	Method of test - CMF function (alternative 2)	58
9.7	Test procedure- CMF function (alternative 2)	58
9.8	Test requirement- CMF function (alternative 2)	59
Annex A (normative):	General test requirements	60
A.1	AES test modes	60
A.2	Special Test Equipment	60
A.2.1	STE description	60
A.2.2	Use of STE for control and monitoring functions tests	61
A.2.3	Test modulating signal	61
A.3	Laboratory Test Equipment	62
A.4	Interpretation of the measurement results	62
A.5	Test report	62
Annex B (normative):	Environmental conditions	63
B.1	General	63
B.2	Environmental conformance requirements	63
B.3	Environmental test conditions	63
Annex C (normative):	Arrangements for measurement of emissions from AES	64
C.1	General	64
C.2	Carrier-on emissions	64
C.2.1	Equipment required	64

C.2.2	Equipment arrangement	65
C.2.3	Emissions from 4 GHz to 18 GHz.....	65
C.2.4	Emissions from 10 kHz to 4 GHz.....	65
C.3	Carrier-off emissions	66
C.3.1	Equipment required	66
C.3.2	Equipment arrangement	66
C.3.3	Carrier-off emissions from 4 GHz to 18 GHz	66
C.3.4	Carrier-off emissions from 10 kHz to 4 GHz	67
Annex D (informative):	Explanation of nominated bandwidth.....	68
D.1	Introduction	68
D.2	Interpretation of Parameters [B _n , f _c , a, b].....	68
D.3	Choice of nominated bandwidth.....	68
D.4	Maximum value for nominated bandwidth	70
Annex E (informative):	Bibliography.....	72
History		73

iTech Standards
(<https://standards.iteh.ai>)
Document Preview

[ETSI EN 301 473 V1.4.1 \(2012-12\)](#)

<https://standards.iteh.ai/catalog/standards/etsi/e0d9df2f-d3b5-4152-b006-e97e9ae151da/etsi-en-301-473-v1-4-1-2012-12>