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High voltage direct current (HVDC) substation audible noise

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CONTENTS

FOREWORD.....	7
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	10
3.1 Sound and noise terms.....	10
3.2 Sound radiation terms	14
3.3 Acoustic fields	16
4 Environmental influences.....	16
4.1 General	16
4.2 Directivity of sound radiation	16
4.3 Background noise.....	17
4.4 Topography	19
4.5 Meteorological conditions	20
5 Noise level limits	21
5.1 General	21
5.2 Regulations	22
5.2.1 Noise level limits	22
5.2.2 Noise level measurement	22
5.3 Land-use classifications	22
5.4 Location of required performance limits	23
5.4.1 General	23
5.4.2 At the fence surrounding the HVDC substation or at the border of the substation owner's property.....	23
5.4.3 At the given contour away from the HVDC substation (e.g. on a circle perimeter or beyond a property border line).....	23
5.4.4 At the border of a nearby property	23
5.5 Relationship of performance limits to time duration.....	24
5.6 Typical noise performance limits	24
5.6.1 General	24
5.6.2 Specific A-weighted sound pressure levels	24
5.6.3 Maximum allowable increase over background noise levels.....	24
6 Sound emitting sources	25
6.1 General	25
6.2 Converter transformer	25
6.2.1 Noise sources in a converter transformer	25
6.2.2 Comparison with a.c. power transformers	26
6.2.3 Special features of HVDC converter transformers.....	26
6.2.4 Transformer winding noise.....	27
6.3 Reactors	28
6.3.1 Type and design of HVDC reactors.....	28
6.3.2 Mechanism of sound generation	28
6.3.3 AC filter reactors	33
6.3.4 HVDC smoothing reactors	34
6.3.5 Self-tuned filter reactors	35
6.4 Capacitors.....	36
6.4.1 Type and design of capacitors	36

6.4.2	Mechanism of sound generation	36
6.5	Cooling fans	39
6.6	Other sound-emitting sources	40
6.6.1	Switching devices	40
6.6.2	Synchronous compensators	41
6.6.3	Diesel generators	41
6.6.4	Air conditioning plant	41
6.6.5	Cooling circuit pumps	41
6.6.6	Converter valves	41
6.6.7	Air compressors	42
6.6.8	Corona sources	42
6.7	Typical sound power levels of sound emitting sources	42
7	Sound reduction measures	42
7.1	General	42
7.2	Substation layout	43
7.2.1	General	43
7.2.2	Transformers and tanked reactors	43
7.2.3	Air-cored reactors	43
7.2.4	Capacitors	44
7.2.5	Cooling fans	44
7.2.6	Diesel generators	44
7.2.7	Switching devices	44
7.2.8	Air conditioning plant	44
7.2.9	Corona sources	44
7.2.10	Synchronous compensators	44
7.3	Component design	45
7.3.1	General	45
7.3.2	Transformers and tanked reactors	45
7.3.3	Air-cored reactors	45
7.3.4	Capacitors	45
7.3.5	Cooling fans	46
7.3.6	Pumps and diesel generators	46
7.3.7	Switching devices	46
7.3.8	Air-conditioning plant	46
7.3.9	High voltage connections	46
7.4	Sound enclosures	46
7.4.1	General	46
7.4.2	Transformers and tanked-reactors	46
7.4.3	Air-cored reactors	47
7.4.4	Capacitors	47
7.5	Retrofitable techniques	48
7.5.1	Enclosures	48
7.5.2	Damping	48
7.5.3	Active noise and vibration mitigation	48
8	Operating conditions	48
8.1	General	48
8.2	Normal operating conditions	49
8.3	Exceptional operating conditions	50
8.4	Operating conditions specified for verification	51

9	Sound level prediction	51
9.1	General	51
9.2	Modelling of plant	52
9.2.1	General	52
9.2.2	Layout	52
9.2.3	Source	52
9.2.4	Transmission path	52
9.3	Calculation procedure	53
9.3.1	Sequence of calculation	53
9.3.2	Calculation of attenuation terms	55
9.3.3	Results presentation	59
10	Verification of component sound power	61
10.1	General	61
10.2	Calculation	61
10.2.1	General	61
10.2.2	Calculation of force spectrum	62
10.2.3	Transfer function calculation	62
10.2.4	Sound power calculation	63
10.3	Measurement	64
10.3.1	General aspects on sound power determination	64
10.3.2	Sound pressure measurement	66
10.3.3	Corrections for background noise	67
10.3.4	Sound intensity measurement	67
10.4	Combination of calculation and measurement	69
10.4.1	General	69
10.4.2	Verification of key components	69
10.4.3	Verification of key components at site	69
11	Verification of sound levels from the HVDC substation	70
11.1	General	70
11.2	Acoustic environment	71
11.3	Conditions for verification	71
11.4	Calculation	71
11.5	Measurement	72
11.6	Combination of calculation and measurement	72
12	Parameters to be specified	74
12.1	General	74
12.2	Noise level measurement	74
12.3	Data to be presented by customers, or to be investigated by contractors	74
12.3.1	Land-use classification, noise regulation and limits	74
12.3.2	Environmental condition	75
12.3.3	Operation condition of HVDC substation	77
12.4	Data to be clarified by contractors	77
12.4.1	Noise of components	77
12.4.2	Noise prediction of the HVDC substation	77
12.4.3	Noise measurement on the site	78
	Annex A (normative) Procedure to correct for background noise in HVDC and SVC plants	79
	Bibliography	82

Figure 1 – Spherical spreading in a free-field from a point source	17
Figure 2 – Hemispherical spreading from a point source	18
Figure 3 – Quarter-spherical spreading from a point source	18
Figure 4 – Explanation of specific and background noise	19
Figure 5 – Example of reflecting hill and low ground.	19
Figure 6 – Example of sound refraction with the shown wind gradient	20
Figure 7 – Sound travels faster near the ground	21
Figure 8 – Sound travels slower near the ground	21
Figure 9 – Dry-type air-core reactor	29
Figure 10 – Magnetic field of an air-core reactor winding	30
Figure 11 – Simplified shape of the symmetrical breathing mode of a reactor winding	31
Figure 12 – Example of flexural modes (bending modes) for a simply supported winding layer without axial constraint	32
Figure 13 – Example of spectrum of currents through a.c. filter reactor	33
Figure 14 – Example of spectrum of forces acting on the reactor winding	34
Figure 15 – Example of spectrum of currents through an HVDC smoothing reactor	34
Figure 16 – Example of spectrum of forces acting on the reactor winding	35
Figure 17 – Reactor for self-tuned filter applications	35
Figure 18 – Capacitor element package with capacitor elements	36
Figure 19 – Forces in a capacitor element	37
Figure 20 – Example of spectrum of voltages across the capacitor	38
Figure 21 – Example of spectrum of electrostatic forces in a capacitor	39
Figure 22 – Explanation of AC network harmonics and converter harmonics	50
Figure 23 – Examples of transmission paths from source to receiver	53
Figure 24 – Grouping of point sources to one equivalent source if the measurement distance (r) is larger than $2a$	54
Figure 25 – Definition of geometrical parameters used for calculation of screening	56
Figure 26 – Reflecting obstacles are treated by mirror sources	57
Figure 27 – Definition of parts for calculation of ground attenuation	57
Figure 28 – Definition of parameters used in Equation 38	59
Figure 29 – Example of graphical presentation of sound pressure level calculation	60
Figure 30 – Three steps to determine the sound power of HVDC components	62
Figure 31 – Linear transfer function between e.g. force and vibration velocity for a 1-DOF system with the resonance frequency 500 Hz	63
Figure 32 – Definitions of the parameters used in Equation (42)	67
Figure 33 – Combination of calculation and measurement in determining the sound pressure level	72
Figure 34 – Example of layout of noise sources of an HVDC substation	73
Figure 35 – HVDC substation and example of microphone positions for determination of sound power levels	73
Figure A.1 – Example of a background correction at 1/24 octave band resolution	80
Table 1 – Examples of component sound power level	42
Table 2 – Normal operating conditions	50

Table 3 – Exceptional operating conditions	51
Table 4 – Examples of atmospheric attenuation coefficients	56
Table 5 – Examples of attenuation coefficient values for octave bands	59
Table 6 – Groups of noise sources	60
Table 7 – Ranking of noise sources	61
Table 8 – Vibration force frequency spectrum resulting from the electrical fundamental frequency 50 Hz and its 11 th harmonic	62
Table 9 – Summary of different methods for sound power determination.....	69
Table 10 – Land use classification	74
Table 11 – Existence different noise limits at different times	75
Table 12 – Existence of noise limits due to further regulation.....	75
Table 13 – Definition of noise limits at different locations	75
Table 14 – Existence of background noise limits at different locations and different times	75
Table 15 – Compilation of relevant topographical features	76
Table 16 – Compilation of relevant meteorological conditions	76
Table 17 – Compilation of further noise related weather conditions	76
Table 18 – Existence of additional locations with relevant noise limits	76
Table 19 – Possibility of future development	76
Table 20 – Other sources of audible noise	76
Table 21 – Definition of operating condition during audible noise measurement	77
Table 22 – Further conditions relevant for audible noise measurement	77
Table 23 – List of audible noise sources to be installed	77
Table 24 – Contents of an audible noise prediction report.....	78
Table 25 – Contents of an audible noise measurement report.....	78
Table A.1 – Total sound level for the SVC example.....	81

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HIGH VOLTAGE DIRECT CURRENT (HVDC)
SUBSTATION AUDIBLE NOISE**

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 61973, which is a technical specification, has been prepared by subcommittee 22F: Power electronics for electrical transmission and distribution systems, of IEC technical committee 22: Power electronic systems and equipment, with the participation of IEC technical committee 115: High voltage direct current (HVDC) transmission for DC voltages above 100 kV.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
22F/243/DTS	22F/260/RVC

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

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

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

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

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

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HIGH VOLTAGE DIRECT CURRENT (HVDC) SUBSTATION AUDIBLE NOISE

1 Scope

This technical specification applies to the specification and evaluation of outdoor audible noise from high voltage direct current (HVDC) substations. It is intended to be primarily for the use of the utilities and consultants who are responsible for issuing technical specifications for new HVDC projects with and evaluating designs proposed by prospective contractors. It is primarily intended for HVDC projects with line-commutated converters. Part of this technical specification can also be used for the same purpose for HVDC projects using voltage sourced converters, and for flexible a.c. transmission systems (FACTS) devices such as static Var compensators (SVCs) and static synchronous compensators (STATCOMs).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications*

IEC 61672-2, *Electroacoustics – Sound level meters – Part 2: Pattern evaluation tests*

ISO 1996-2, *Acoustics – Description, assessment and measurement of environmental noise – Part 2: Determination of environmental noise levels*

ISO 266:1997, *Acoustics – Preferred frequencies*

ISO 3740, *Acoustics – Determination of sound power levels of noise sources – Guidelines for the use of basic standards*

ISO 3743-2, *Acoustics – Determination of sound power levels of noise sources; engineering methods for small, movable sources in reverberant fields – Part 2: Methods for special reverberation test rooms*

ISO 3744, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*

ISO 3745, *Acoustics – Determination of sound power levels of noise sources using sound pressure – Precision methods for anechoic and hemi-anechoic rooms*

ISO 3746, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Survey method using an enveloping measurement surface over a reflecting plane*

ISO 8297, *Acoustics – Determination of sound power levels of multisource industrial plants for evaluation of sound pressure levels in the environment – Engineering method*

ISO 9613-1, *Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere*

ISO 9613-2, *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*

ISO 9614-1, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 1: Measurement at discrete points*

ISO 9614-2, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning*