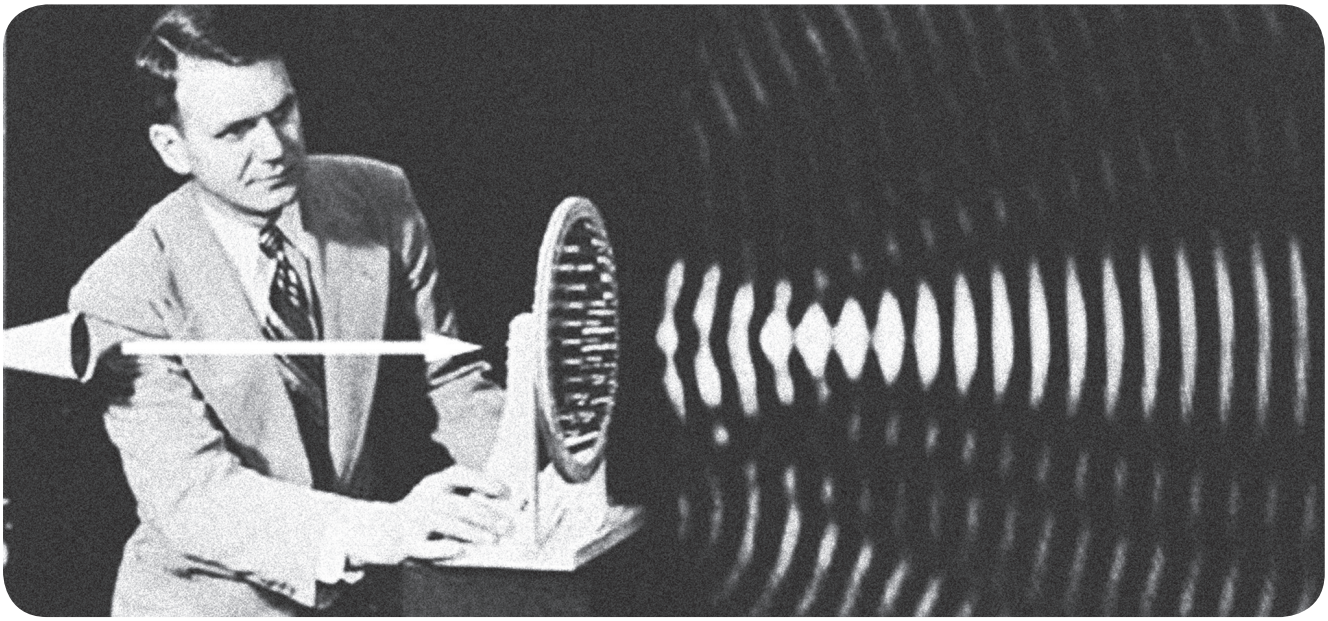
METSTA Akustiikka ja värähtely

Tulevaisuuden osaaja menestyy standardien avulla



Akustiikan ja värähtelyn standardisointi kattaa perusstandardit, melunmittausmenetelmien perusstandardit (koneet, laitteet, ajoneuvot, ampumaratamelu, ympäristömelu), rakennusakustiikan, mekaanisen värähtelyn perusstandardit sekä tärinänmittausmenetelmien perusstandardit (koneiden, laitteiden ja rakenteiden aiheuttaman tärinäpäästön tai niistä aiheutuvan tärinäaltistuksen mittaus).

Akustiikka

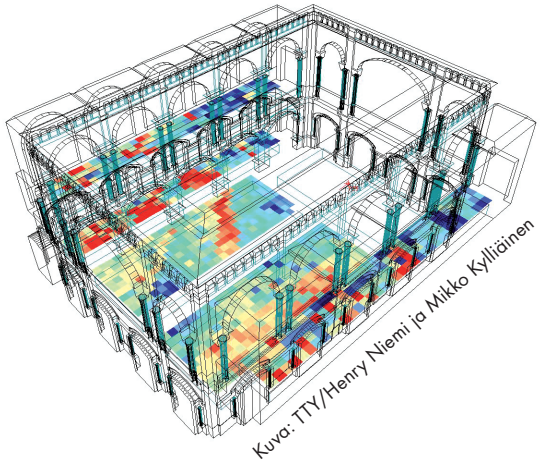
Sisältää akustiikan perusteisiin liittyvät perusstandardit (viritystaajuudet, suositellut taajuudet, audiometristen laitteiden kalibrointi, äänekkyystasojen laskenta, akustiikan suureet ja yksiköt).

Meluntorjunta

Sisältää kone- ja laitemeluun liittyvät perusstandardit, meluntorjunnan standardit (vaimentimien, seinäkkeiden, koteloiden akustiset vaatimukset), melualtistuksen mittaamisen sekä tuotteiden melunmittausmenetelmien perusstandardit (koneiden, laitteiden ja ajoneuvojen melunmittausmenetelmät). Osa tämän aihealueen standardeista liittyy koneiden suunnitteluvaatimukset esittävään EU:n konedirektiiviin 2006/42/EY (vahvistettu kansalliseksi asetukseksi). Lisäksi tuoteryhmäkohtaisia melunmittausmenetelmiä laaditaan lukuisissa tuotekohtaisissa ISO/IEC- ja CEN/CENELEC-komiteoissa.

Rakennus- ja huoneakustiikka

Sisältää rakennusten ja rakennusosien ääneneristävyyden mittaamisen, talotekniikan laitteiden melun mittaamisen, rakennusten ääniominaisuuksien arvioinnin ja huoneakustiikan parametrien mittaamisen standardit. Osa tämän aihealueen standardeista liittyy rakennustuotteita koskevaan EU:n rakennustuoteasetukseen 305/2011/EY.



Kuva: TTY/Henry Niemi ja Mikko Kylliäinen

Ympäristömelu

Sisältää ympäristömelun mittaukseen, mallintamiseen, arviointiin ja meluntorjuntaan liittyvät standardit. Standardit käsittelevät erityisesti:

- ympäristömelun kuvaamisen ja mittaamisen yleisiä periaatteita
- liikennemelun mittausta (tie-, raide-, vesi- ja ilmaliikenne)
- meluesteiden melunvaimennuksen määrittämistä
- melunvaimennuksen laskentamalleja
- ampumaratamelun mittausta ja arviointia.

Mekaaninen värähtely

Sisältää mekaaniseen värähtelyyn ja iskuihin liittyvät perusstandardit, tuotteiden tärinänmittausmenetelmien perusstandardit (koneiden, laitteiden ja rakenteiden aiheuttaman tärinäpäästön tai niistä aiheutuvan tärinäaltistuksen mittaus) sekä värähtelymittauksiin perustuvan kunnonvalvonnan standardit. Osa tämän aihealueen standardeista liittyy koneiden suunnitteluvaatimukset esittävään EU:n konedirektiiviin 2006/42/EY (vahvistettu kansalliseksi asetukseksi). Lisäksi tuotekohtaiset CEN/TC:t saattavat laatia laiteryhmäkohtaisia tärinänmittausmenetelmiä.

Akustiikka on yksi METSTAn kansallisista standardisointikomiteoista, joiden seurantavastuulle kuuluvat eurooppalaiset ja kansainväliset tekniset komiteat. Standardisointia seuraamalla komitean jäsenet voivat ennakoida ja soveltaa tulevia standardeja sekä päästä vaikuttamaan valmisteilla olevien standardien sisältöön.

Suureet, yksiköt ja referenssiarvot, terminologia
Akustiikan perusstandardit

ISO 16:en
Acoustics. Standard tuning frequency (Standard musical pitch), 1975

SFS-EN ISO 266
Akustiikka. Suositeltavat taajuudet.
Acoustics. Preferred frequencies, 1997

SFS-EN ISO 1683:en
Acoustics. Preferred reference values for acoustical and vibratory levels, 2008

ISO 8201:en
Acoustics. Audible emergency evacuation signal, 1987

ISO/TR 25417
Akustiikka. Perussuureiden ja termien määritelmät.
Acoustics. Definitions of basic quantities and terms, 2009

SFS-EN ISO 80000-8
Suureet ja yksiköt. Osa 8: Akustiikka.
Quantities and units. Part 8: Acoustics, 2008

SFS-ISO 226
Akustiikka. Vakioäänekkyyskäyrät.
Acoustics – Normal equal-loudness-level contours, 1989

SFS-EN ISO 389-1:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 1: Reference equivalent threshold sound pressure levels for pure tones and supra-aural earphones, 1998

SFS-EN ISO 389-2:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 2: Reference equivalent threshold sound pressure levels for pure tones and insert earphones, 1994

SFS-EN ISO 389-3:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 3: Reference equivalent threshold force levels for pure tones and bone vibrators, 1994

SFS-EN ISO 389-4:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 4: Reference levels for narrow-band masking noise, 1994

SFS-EN ISO 389-5:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 5: Reference equivalent threshold sound pressure levels for pure tones in the frequency range 8 kHz to 16 kHz, 2006

SFS-EN ISO 389-6:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 6: Reference threshold of hearing for test signals of short duration, 2007

SFS-EN ISO 389-7:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 7: Reference threshold of hearing under free-field and diffuse-field listening conditions, 2005

SFS-EN ISO 389-8:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 8: Reference equivalent threshold sound pressure levels for pure tones and circumaural earphones, 2004

SFS-EN ISO 389-9:en
Acoustics. Reference zero for the calibration of audiometric equipment. Part 9: Preferred test conditions for the determination of reference hearing threshold levels, 2009

SFS-ISO 532
Akustiikka. Äänekkyystason laskentamenetelmä.
Acoustics. Method for calculating loudness level, 1975

SFS-EN ISO 7029
Acoustics. Statistical distribution of hearing threshold as a function of age, 2000

ISO 7196
Acoustics. Frequency-weighting characteristic for infrasound measurements, 1995

SFS-EN ISO 8253-1:en
Acoustics. Audiometric test methods. Part 1: Pure-tone air and bone conduction audiometry, 2010

SFS-EN ISO 8253-2:en
Acoustics. Audiometric test methods. Part 2: Sound field audiometry with pure-tone and narrow-band test signals, 2009

SFS-EN ISO 8253-3:en
Acoustics. Audiometric test methods.
Part 3: Speech audiometry,2012

ISO 12124
Acoustics. Procedures for the measurement of real-ear acoustical characteristics of hearing aids, 2001

ISO 16832
Acoustics. Loudness scaling by means of categories, 2006

ISO 26101
Acoustics. Test methods for the qualification of free-field environments, 2012

Meluimmissio, määrittäminen, luokittelu Työperäisen melun mittaaminen ja arviointi. Ympäristömelun mittaaminen ja arviointi

ISO 1999
Acoustics. Estimation of noise-induced hearing loss, 2013

SFS-EN ISO 9612:en
Acoustics. Determination of occupational noise exposure. Engineering method, 2009

SFS-EN ISO 11904-1:en
Acoustics. Determination of sound immission from sound sources placed close to the ear. Part 1: Technique using a microphone in a real ear (MIRE technique), 2002

SFS-EN ISO 11904-2:en
Acoustics. Determination of sound immission from sound sources placed close to the ear. Part 2: Technique using a manikin, 2004

SFS-ISO 1996-1:en
Acoustics. Description, measurement and assessment of environmental noise. Part 1: Basic quantities and assessment procedures, 2003

SFS-ISO 1996-2:en
Acoustics. Description, measurement and assessment of environmental noise. Part 2: Determination of environmental noise levels, 2007

ISO 8297
Acoustics. Determination of sound power levels of multisource industrial plants for evaluation of sound pressure levels in the environment. Engineering method, 1994

ISO 10843
Acoustics. Methods for the description and physical measurement of single impulses or series of impulses, 1997

ISO/ TS 15666
Acoustics. Assessment of noise annoyance by means of social and socio-acoustic surveys, 2003

SFS-EN ISO 17201-1:en + AC
Acoustics. Noise from shooting ranges. Part 1: Determination of muzzle blast by measurement, 2006/2009

SFS-EN ISO 17201-2:en
Acoustics. Noise from shooting ranges. Part 2: Estimation of muzzle blast and projectile sound by calculation, 2006

SFS-EN ISO 17201-3:en
Acoustics. Noise from shooting ranges. Part 3: Guidelines for sound propagation calculations, 2010

SFS-EN ISO 17201-4:en
Acoustics. Noise from shooting ranges.
Part 4: Prediction of projectile sound, 2006

SFS-EN ISO 17201-5:en
Acoustics. Noise from shooting ranges.
Part 5: Noise management, 2010

Konemelun määrittäminen, Melunmittausmenetelmät (test codes)

SFS-EN ISO 3740:en
Acoustics. Determination of sound power levels of noise sources. Guidelines for the use of basic standards, 2000

SFS-EN ISO 3741:en
Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Precision methods for reverberation test rooms, 2010

SFS-EN ISO 3743-1:en
Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Engineering methods for small movable sources in reverberant fields. Part 1: Comparison method for a hard-walled test room, 2010

SFS-EN ISO 3743-2:en
Acoustics. Determination of sound power levels of noise sources using sound pressure. Engineering methods for small, movable sources in reverberant fields. Part 2: Methods for special reverberation test rooms, 2009

SFS-EN ISO 3744:en
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, 2010

SFS-EN ISO 3745:en
Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Precision methods for anechoic rooms and hemi-anechoic rooms, 2012

SFS-EN ISO 3746:en
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, 2011

SFS-EN ISO 3747:en
Acoustics. Determination of sound power levels and sound energy levels of noise sources using sound pressure. Engineering/survey methods for use in situ in a reverberant environment, 2011

SFS-EN ISO 4871
Akustiikka. Koneiden ja laitteiden melupäästöarvojen ilmoittaminen ja todentaminen. / Acoustics. Declaration and verification of noise emission values of machinery and equipment, 1996

SFS-EN ISO 5136:en
Acoustics. Determination of sound power radiated into a duct by fans and other air-moving devices. In-duct method, 2003

SFS-EN ISO 6926:en
Acoustics. Requirements for the performance and calibration of reference sound sources used for the determination of sound power levels, 2000

SFS-EN 27574-1 / ISO 7574-1
Acoustics. Statistical methods for determining and verifying stated noise emission values of machinery and equipment. Part 1: General considerations and definitions, 1985

SFS-EN 27574-2 / ISO 7574-2
Acoustics. Statistical methods for determining and verifying stated noise emission values of machinery and equipment. Part 2: Methods for stated values for individual machines, 1985

SFS-EN 27574-3 / ISO 7574-3
Acoustics. Statistical methods for determining and verifying stated noise emission values of machinery and equipment. Part 3: Simple (transition) method for stated values for batches of machines, 1985

SFS-EN 27574-4 / ISO 7574-4
Acoustics. Statistical methods for determining and verifying stated noise emission values of machinery and equipment. Part 4: Methods for stated values for batches of machines, 1985

ISO/TS 7849-1
Acoustics. Determination of airborne sound power levels emitted by machinery using vibration measurement. Part 1: Survey method using a fixed radiation factor, 2009

ISO/TS 7849-2
Acoustics. Determination of airborne sound power levels emitted by machinery using vibration measurement. Part 2: Engineering method including determination of the adequate radiation factor, 2009

ISO 9611
Acoustics. Characterization of sources of structure-borne sound with respect to sound radiation from connected structures. Measurement of velocity at the contact points of machinery when resiliently mounted, 1996

SFS-EN ISO 9614-1:en
Acoustics. Determination of sound power levels of noise sources using sound intensity. Part 1: Measurement at discrete points, 1993

SFS-EN ISO 9614-2:en
Acoustics. Determination of sound power levels of noise sources using sound intensity. Part 2: Measurement by scanning ,1996

SFS-EN ISO 9614-3:en
Acoustics. Determination of sound power levels of noise sources using sound intensity. Part 3: Precision method for measurement by scanning ,2002

SFS-EN ISO 11200:en
Acoustics. Noise emitted by machinery and equipment. Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions, 2014

SFS-EN ISO 11201:en
Acoustics. Noise emitted by machinery and equipment. Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections, 2010

SFS-EN ISO 11202:en
Acoustics. Noise emitted by machinery and equipment. Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections, 2010

SFS-EN ISO 11203:en
Acoustics. Noise emitted by machinery and equipment. Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level, 1995

SFS-EN ISO 11204:en
Acoustics. Noise emitted by machinery and equipment. Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections, 2010

SFS-EN ISO 11205:en
Acoustics. Noise emitted by machinery and equipment. Engineering method for the determination of emission sound pressure levels in situ at the work station and at other specified positions using sound intensity, 2003

SFS-EN ISO 11689:en + AC
Acoustics. Procedure for the comparison of noise-emission data for machinery and equipment, 1996/2007

SFS-EN ISO 12001:en
Acoustics. Noise emitted by machinery and equipment. Rules for the drafting and presentation of a noise test code, 1996

SFS-EN ISO 3822-1:en +A1
Acoustics. Laboratory tests on noise emission from appliances and equipment used in water supply installations.
Part 1: Method of measurement, 1999/2008

SFS-EN ISO 3822-2:en
Acoustics. Laboratory tests on noise emission from appliances and equipment used in water supply installations.
Part 2: Mounting and operating conditions for draw-off taps and mixing valves, 1995)

SFS-EN ISO 3822-3:en +A1
Acoustics. Laboratory tests on noise emission from appliances and equipment used in water supply installations.
Part 3: Mounting and operating conditions for in-line valves and appliances, 1997/2009

SFS-EN ISO 3822-4:en
Acoustics. Laboratory tests on noise emission from appliances and equipment used in water supply installations. Part 4: Mounting and operating conditions for special appliances, 1997

SFS-EN ISO 1680:en
Acoustics. Test code for the measurement of airborne noise emitted by rotating electrical machines, 2013

ISO 5131
Acoustics. Tractors and machinery for agriculture and forestry. Measurement of noise at the operator's position. Survey method, 1996

SFS-EN ISO 5135:en
Acoustics. Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room, 1997

ISO 6393
Earth-moving machinery. Determination of sound power level. Stationary test conditions, 2008

ISO 6394 + Cor
Earth-moving machinery. Determination of emission sound pressure level at operator's position. Stationary test conditions, 2008/2009

ISO 6395
Earth-moving machinery. Determination of sound power level. Dynamic test conditions, 2008

ISO 6396
Earth-moving machinery. Determination of emission sound pressure level at operator's position. Dynamic test conditions, 2008

ISO 6798
Reciprocating internal combustion engines. Measurement of emitted airborne noise. Engineering method and survey method, 1995

ISO 7216
Acoustics. Agricultural and forestry wheeled tractors and self-propelled machines. Measurement of noise emitted when in motion, 1992

SFS-EN ISO 7779:en
Acoustics. Measurement of airborne noise emitted by information technology and telecommunications equipment, 2010

ISO 9295
Acoustics. Measurement of high-frequency noise emitted by computer and business equipment, 1998

ISO 9296
Acoustics. Declared noise emission values of computer and business equipment, 1988

ISO 10302-1
Acoustics. Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices.
Part 1: Airborne noise measurement, 2011

ISO 10302-2
Acoustics. Measurement of airborne noise emitted and structure-borne vibration induced by small air-moving devices.
Part 2: Structure-borne vibration measurements, 2011

ISO 13475-1
Acoustics. Stationary audible warning devices used outdoors.
Part 1: Field measurements for determination of sound emission quantities, 1999

ISO/TS 13475-2
Acoustics. Stationary audible warning devices used outdoors.
Part 2: Precision methods for determination of sound emission quantities, 2000

SFS-EN ISO 22868:en
Forestry and gardening machinery. Noise test code for portable hand-held machines with internal combustion engine. Engineering method (Grade 2 accuracy), 2011

SFS-EN ISO 5136:en
Acoustics. Determination of sound power radiated into a duct by fans and other air-moving devices. In-duct method, 2003

SFS-EN ISO 2151:en
Acoustics. Noise test code for compressors and vacuum pumps. Engineering method (Grade 2), 2004

SFS-EN 1265 + A1:en
Safety of machinery. Noise test code for foundry machines and equipment, 2009

SFS-EN 1547 + A1:en
Industrial thermoprocessing equipment. Noise test code for industrial thermoprocessing equipment including its ancillary handling equipment, 2009

SFS-EN 1915-4 + A1:en
Aircraft ground support equipment. General requirements. Part 4: Noise measurement methods and reduction, 2009

SFS-EN 12549 + A1:en
Acoustics. Noise test code for fastener driving tools. Engineering method, 2009

SFS-EN ISO 20361:en + AC
Liquid pumps and pump units. Noise test code. Grades 2 and 3 of accuracy, 2007

SFS-EN 13023 + A1:en
Noise measurement methods for printing, paper converting, paper making machines and auxiliary equipment. Accuracy grades 2 and 3, 2010

SFS-EN 14462 + A1:en
Surface treatment equipment. Noise test code for surface treatment equipment including its ancillary handling equipment. Accuracy grades 2 and 3, 2009

SFS-EN 1746:en
Safety of machinery. Guidance for the drafting of the noise clauses of safety standards, 1999

Liikennemelu. Sisä- ja ulkotilat. Meluntorjunta

ISO 362-1
Measurement of noise emitted by accelerating road vehicles. Engineering method. Part 1: M and N categories, 2015

ISO 362-2
Measurement of noise emitted by accelerating road vehicles. Engineering method. Part 2: L category, 2009

SFS-EN ISO 2922:en + A1
Acoustics. Measurement of airborne sound emitted by vessels on inland waterways and harbours, 2001/2013

SFS-EN ISO 3095:en
Acoustics. Railway applications. Measurement of noise emitted by railbound vehicles, 2013

ISO 5130 + Amd1
Acoustics. Measurements of sound pressure level emitted by stationary road vehicles, 2007/2012

ISO 9645
Acoustics. Measurement of noise emitted by two-wheeled mopeds in motion. Engineering method, 1990

SFS-ISO 10844:en
Acoustics. Specification of test tracks for measuring noise emitted by road vehicles and their tyre, 2014

SFS-EN ISO 11819-1
Akustiikka. Tiepäällysteiden liikennemeluvaikutuksen mittaaminen. Osa 1: Tilastollinen ohiajomenetelmä / Acoustics. Measurement of the influence of road surfaces on traffic noise. Part 1: Statistical Pass-By method, 1997

ISO/PAS 11819-4
Acoustics. Method for measuring the influence of road surfaces on traffic noise. Part 4: SPB method using backing board, 2013

ISO 13472-1
Acoustics. Measurement of sound absorption properties of road surfaces in situ. Part 1: Extended surface method, 2002

ISO 13472-2
Acoustics. Measurement of sound absorption properties of road surfaces in situ. Part 2: Spot method for reflective surfaces, 2010

ISO 13347-1 + Amd
Industrial fans. Determination of fan sound power levels under standardized laboratory conditions.
Part 1: General overview, 2004/2010

ISO 13347-2 + Cor
Industrial fans. Determination of fan sound power levels under standardized laboratory conditions.
Part 2: Reverberant room method, 2004/2006

ISO 13347-3 + Cor + Amd
Industrial fans. Determination of fan sound power levels under standardized laboratory conditions.
Part 3: Enveloping surface methods, 2004/2006/2010

ISO 13347-4 + Cor
Industrial fans. Determination of fan sound power levels under standardized laboratory conditions.
Part 4: Sound intensity method, 2004/2006

ISO 20906 + Amd
Acoustics. Unattended monitoring of aircraft sound in the vicinity of airports, 2009/2013

SFS-EN ISO 14509-1:en
Small craft. Airborne sound emitted by powered recreational craft. Part 1: Pass-by measurement procedures, 2008

SFS-EN ISO 14509-2:en
Small craft. Airborne sound emitted by powered recreational craft. Part 2: Sound assessment using reference craft, 2006

SFS-EN ISO 14509-3:en
Small craft. Airborne sound emitted by powered recreational craft. Part 3: Sound assessment using calculation and measurement procedures, 2009

ISO 2923:1996 + Cor
Acoustics. Measurement of noise on board vessels, 1996/1997

SFS-EN ISO 3381:en
Railway applications. Acoustics. Measurement of noise inside railbound vehicles, 2005

ISO 5128
Acoustics. Measurement of noise inside motor vehicles, 1980

ISO 5129 + Amd
Acoustics. Measurement of sound pressure levels in the interior of aircraft during flight, 2001/2013

SFS-EN 12053 + A1:en
Safety of industrial trucks. Test methods for measuring noise emissions, 2009

SFS-EN ISO 11690-1:en
Acoustics. Recommended practice for the design of low-noise workplaces containing machinery. Part 1: Noise control strategies, 1996

SFS-EN ISO 11690-2:en
Acoustics. Recommended practice for the design of low-noise workplaces containing machinery. Part 2: Noise control measures, 1996

SFS-EN ISO 11690-3:en
Acoustics. Recommended practice for the design of low-noise workplaces containing machinery. Part 3: Sound propagation and noise prediction in workrooms, 1997

SFS-EN ISO 7235:en
Acoustics. Laboratory measurement procedures for ducted silencers and air-terminal units. Insertion loss, flow noise and total pressure loss, 2003

SFS-EN ISO 10846-1:en
Acoustics and vibration. Laboratory measurement of vibro-acoustic transfer properties of resilient elements. Part 1: Principles and guidelines, 2008

SFS-EN ISO 10846-2:en
Acoustics and vibration. Laboratory measurement of vibro-acoustic transfer properties of resilient elements. Part 2: Direct method for determination of the dynamic stiffness of resilient supports for translatory motion, 2008

SFS-EN ISO 10846-3:en
Acoustics and vibration. Laboratory measurement of vibro-acoustic transfer properties of resilient elements. Part 3: Indirect method for determination of the dynamic stiffness of resilient supports for translatory motion, 2002

SFS-EN ISO 10846-4:en
Acoustics and vibration. Laboratory measurement of vibro-acyustic transfer properties of resilient elements. Part 4: Dynamic stiffness of elements other than resilient supports for translatory motion, 2003

SFS-EN ISO 10846-5:en
Acoustics and vibration. Laboratory measurement of vibro-acoustic transfer properties of resilient elements. Part 5: Driving point method for determination of the low-frequency transfer stiffness of resilient supports for translatory motion, 2008

ISO 10847
Acoustics. In-situ determination of insertion loss of outdoor noise barriers of all types, 1997

SFS-EN ISO 11546-1:en
Acoustics. Determination of sound insulation performances of enclosures. Part 1: Measurements under laboratory conditions (for declaration purposes), 1995

SFS-EN ISO 11546-2:en
Acoustics. Determination of sound insulation performances of enclosures. Part 2: Measurements in situ (for acceptance and verification purposes),1995

SFS-EN ISO 11688-1
Akustiikka. Suositeltava käytäntö vähämeluisten koneiden ja laitteiden suunnittelemiseksi. Osa 1: Suunnittelu / Acoustics. Recommended practice for the design of low-noise machinery and equipment. Part 1: Planning, 1995

SFS-EN ISO 11688-2
Akustiikka. Suositeltava käytäntö vähämeluisten koneiden ja laitteiden suunnittelemiseksi. Osa 2: Johdanto vähämeluisen suunnittelun fysiikkaan /Acoustics. Recommended practice for the design of low-noise machinery and equipment. Part 2: Introduction to the physics of low-noise design, 1998

SFS-EN ISO 11691:en
Acoustics. Measurement of insertion loss of ducted silencers without flow. Laboratory survey method, 1995

SFS-EN ISO 11820:en
Acoustics. Measurements on silencers in situ, 1996

SFS-EN ISO 11821:en
Acoustics. Measurement of the in situ sound attenuation of a removable screen, 1997

SFS-EN ISO 11957:en
Acoustics. Determination of sound insulation performance of cabins. Laboratory and in situ measurements, 1996

SFS-EN ISO 14163:en
Acoustics. Guidelines for noise control by silencers, 1998

ISO 15665 + Cor
Acoustics. Acoustic insulation for pipes, valves and flanges, 2003/2004

SFS-EN ISO 15667:en
Acoustics. Guidelines for noise control by enclosures and cabins, 2000

SFS-EN ISO 17624:en
Acoustics. Guidelines for noise control in offices and workrooms by means of acoustical screens, 2004

ISO 15664:2001
Acoustics. Noise control design procedures for open plant, 2001

Kuulonsuojaus

SFS-EN 24869-1 / ISO 4869-1:1990
Acoustics. Hearing protectors. Part 1: Subjective method for the measurement of sound attenuation, 1990

SFS-EN ISO 4869-2:en + AC
Acoustics. Hearing protectors. Part 2: Estimation of effective A-weighted sound pressure levels when hearing protectors are worn, 1994/2004

SFS-EN ISO 4869-3:en
Acoustics. Hearing protectors. Part 3: Measurement of insertion loss of ear-muff type protectors using an acoustic test fixture, 2007

SFS-EN ISO 4869-4:en
Acoustics. Hearing protectors. Part 4: Measurement of effective sound pressure levels for level-dependent sound-restoration ear-muffs, 1998

Äänen eteneminen ja meluntorjunta

ISO 9613-1
Acoustics. Attenuation of sound during propagation outdoors. Part 1: Calculation of the absorption of sound by the atmosphere, 1993

ISO 9613-2
Acoustics. Attenuation of sound during propagation outdoors. Part 2: General method of calculation, 1996

ISO 13474
Acoustics. Framework for calculating a distribution of sound exposure levels for impulsive sound events for the purposes of environmental noise assessment, 2009

SFS-EN ISO 14257:en
Acoustics. Measurement and parametric description of spatial sound distribution curves in workrooms for evaluation of their acoustical performance, 2001

Rakennusmateriaalit ja tuotteet, äänieristys, huoneakustiikka

SFS-EN ISO 354:en
Acoustics. Measurement of sound absorption in a reverberation room, 2003

ISO 9052-1
Acoustics. Determination of dynamic stiffness. Part 1: Materials used under floating floors in dwellings, 1989

ISO 9053
Acoustics. Materials for acoustical applications – Determination of airflow resistance, 1991

ISO 10053
Acoustics. Measurement of office screen sound attenuation under specific laboratory conditions, 1991

SFS-EN ISO 10534-1:en
Determination of sound absorption coefficient and impedance in impedances tubes. Part 1: Method using standing wave ratio, 1996

SFS-EN ISO 10534-2:en
Acoustics. Determination of sound absorption coefficient and impedance in impedances tubes. Part 2: Transfer-function method, 1998

SFS-EN ISO 11654:en
Acoustics. Sound absorbers for use in buildings. Rating of sound absorption, 1997

ISO 17497-1 + Amd
Acoustics. Sound-scattering properties of surfaces. Part 1: Measurement of the random-incidence scattering coefficient in a reverberation room, 2004/2014

ISO 17497-2
Acoustics. Sound-scattering properties of surfaces. Part 2: Measurement of the directional diffusion coefficient in a free field, 2012

SFS-EN 12758
Rakennuslasit. Lasirakenteet ja ilmaääneneristävyys. Tuotekuvaukset ja ominaisuuksien määritys /
Glass in building. Glazing and airborne sound insulation. Product descriptions and determination of properties, 2011

SFS-EN 14496:en
Gypsum based adhesives for thermal/acoustic insulation composite panels and plasterboards. Definitions, requirements and test methods, 2006

SFS-EN 14759:en
Shutters. Acoustic insulation relative to airborne sound. Expression of performance, 2005

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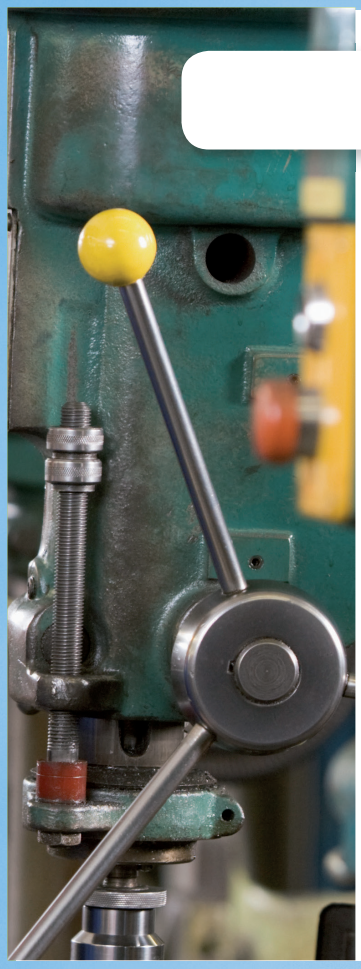

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Osa 2: Rakennusakustiikka
1. painos, 2014. 684 sivua. Hinta 351 €

SFS-käsikirja 93 Koneiden turvallisuus

Osa 14: Tärinän hallinta ja mittaus
1. painos, 2010. 483 sivua. Hinta 135 €

Osa 15: Meluntorjunnan perusteet, melualtistus
1. painos, 2011. 771 sivua. Hinta 165 €

Osa 16: Melunmittauksen perusstandardit
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