AKKREDITOITU TESTAUSLABORATORIO

ACCREDITED TESTING LABORATORY

FINAS
Finnish Accreditation Service
T313 (EN ISO/IEC 17025)

ELEFORSS OY

Tunnus *Code*	**Laboratorio** *Laboratory*	**Osoite** *Address*	**www** *www*
T313	**Eleforss Oy**	**(Visiokatu 6, Tampere)** **Kassimäenkatu 2** **30300 FORSSA** ***(Visiokatu 6, Tampere)*** ***Kassimäenkatu 2*** ***FI-30300 FORSSA*** ***FINLAND***	www.da-group.fi *www.da-group.fi*

Testausalat ***Fields of testing***
Materiaali- ja tuotetestaus ***Material and product testing***

PÄTEVYYSALUE ***SCOPE OF ACCREDITATION***		
Testattava materiaali / tuote ***Material / product tested***	**Testityyppi, mittausalue** ***Type of test, measured range***	**Testausmenetelmä** ***Test method***
Materiaali- ja tuotetestaus, EMC/RF -testaus ***Material and product testing, EMC/RF-testing***		
Sähköiset ja elektroniset laitteet *Electrical and electronic equipment*	*Electromagnetic compatibility (EMC) –* *Part 4: Testing and measurements techniques –* *Section 2: Electrostatic discharge immunity test. Basic EMC publication*	EN 61000-4-2 IEC 61000-4-2
	Electromagnetic compatibility (EMC) – *Part 4: Testing and measurements techniques –* *Section 3: Radiated, radio-frequency, electromagnetic field immunity test*	EN 61000-4-3 IEC 61000-4-3
	Electromagnetic compatibility (EMC) – *Part 4: Testing and measurements techniques –* *Section 4: Electrical fast transient/burst immunity test. Basic EMC publication*	EN 61000-4-4 IEC 61000-4-4
	Electromagnetic compatibility (EMC) – *Part 4: Testing and measurements techniques –* *Section 5: Surge immunity test*	EN 61000-4-5 IEC 61000-4-5
	Electromagnetic compatibility (EMC) – *Part 4: Testing and measurements techniques –* *Section 6: Immunity to conducted, disturbances induced by radio-frequency fields*	EN 61000-4-6 IEC 61000-4-6
	Electromagnetic compatibility (EMC); *Part 4: Testing and measurements techniques;* *Section 11: Voltage dips, short interruptions and voltage variations immunity tests*	EN 61000-4-11 IEC 61000-4-11

PÄTEVYYSALUE ***SCOPE OF ACCREDITATION***		
Testattava materiaali / tuote ***Material / product tested***	**Testityyppi, mittausalue** ***Type of test, measured range***	**Testausmenetelmä** ***Test method***
Sähköiset ja elektroniset laitteet kotitalous-, toimisto- ja kevytteollisuusympäristössä *Electrical and electronic equipment in residential, commercial and light industry environment*	*Electromagnetic compatibility (EMC) -* *Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments*	EN 61000-6-1 IEC 61000-6-1
Sähköiset ja elektroniset laitteet raskasteollisuusympäristössä *Electrical and electronic equipment in industrial environment*	*Electromagnetic compatibility (EMC) -* *Part 6-2: Generic standards - Immunity standard for industrial environments*	EN 61000-6-2 IEC 61000-6-2
Sähköiset ja elektroniset laitteet kotitalous-, toimisto- ja kevytteollisuusympäristössä *Electrical and electronic equipment in residential, commercial and light industry environment*	*Electromagnetic compatibility (EMC) -* *Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments*	EN 61000-6-3 IEC 61000-6-3
Sähköiset ja elektroniset laitteet raskasteollisuusympäristössä *Electrical and electronic equipment in industrial environment*	*Electromagnetic compatibility (EMC) -* *Part 6-4: Generic standards - Emission standard for industrial environments*	EN 61000-6-4 IEC 61000-6-4
Ajoneuvojen sähköiset ja elektroniset laitteet *Electrical and electronic functions of automotive electrical systems*	*Road vehicles – Electrical disturbance from conduction and coupling;* *Part 1: Definitions and general considerations*	ISO 7637-1
Ajoneuvojen sähköiset ja elektroniset laitteet *Electrical and electronic functions of automotive electrical systems*	*Road vehicles - Electrical disturbance from conduction and coupling* *Part 3: Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines*	ISO 7637-3

PÄTEVYYSALUE *SCOPE OF ACCREDITATION*		
Testattava materiaali / tuote *Material / product tested*	**Testityyppi, mittausalue** *Type of test, measured range*	**Testausmenetelmä** *Test method*
Langatonta lähiverkkotekniikkaa hyödyntävät laitteet (WLAN) *Devices with wireless connectivity for fixed, portable, and moving stations within a local area*	*IEEE Standard for information technology— Telecommunications and information exchange between systems—Local and metropolitan area networks— Specific requirements Part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications*	WLAN IEEE802.11 *Only Test cases Transmitter Spectrum Mask (18.4.7.3) and Transmit center frequency tolerance (18.4.7.4)* *Only Test cases Transmitter Spectrum Mask (20.3.21.1) and Transmit center frequency tolerance (20.3.21.4)*
Radioaaltoja tuottavat laitteet *Radio frequency devices*	*FCC Codes of Federal Regulations CFR 47*	CFR 47 Part 15
Teolliset, tieteelliset ja lääketieteelliset laitteet *Industrial, scientific and medical equipment*	*FCC Codes of Federal Regulations CFR 47*	CFR 47 Part 18
Luvanvaraiset radiopalvelulaitteet sekä kaupalliset mobiilipalvelut *Licensed radio service equipment and commercial mobile services*	*FCC Codes of Federal Regulations CFR 47*	CFR 47 Part 22
Luvanvaraiset radiopalvelulaitteet sekä kaupalliset mobiilipalvelut *Licensed radio service equipment and commercial mobile services*	*FCC Codes of Federal Regulations CFR 47*	CFR 47 Part 24
Luvanvaraiset radiopalvelulaitteet sekä kaupalliset mobiilipalvelut *Licensed radio service equipment and commercial mobile services*	*FCC Codes of Federal Regulations CFR 47*	CFR 47 Part 27
Yksityiset radiopalvelulaitteet *Private land and mobile radio services*	*FCC Codes of Federal Regulations CFR 47*	CFR 47 Part 90
Pienjännitteiset sähkö- ja elektroniikkalaitteet *Low voltage electrical and electronic equipment*	*Methods of measurement of radio noise emissions from low voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz*	ANSI C63.4

PÄTEVYYSALUE ***SCOPE OF ACCREDITATION***		
Testattava materiaali / tuote ***Material / product tested***	**Testityyppi, mittausalue** ***Type of test, measured range***	**Testausmenetelmä** ***Test method***
Lupavaatimuksista vapaat langattomat laitteet *Unlicensed wireless devices*	*American National Standard of Procedures for Compliance Testing of unlicensed wireless devices*	ANSI C63.10
Langattomat viestinlaitteet *Land mobile FM or PM communications equipment*	*Land mobile FM or PM - Communications equipment - Measurement and performance standards*	TIA-603
Langattomat tiedonsiirtolaitteet *Mobile broadband services (MBS) equipment*	*Mobile broadband services (MBS) equipment operating in the frequency bands 698-756 MHz and 777-787 MHz*	RSS-130
Langattomat viestinlaitteet *Cellular telephone systems equipment*	*Cellular telephone systems operating in the bands 824-849 MHz and 869-894 MHz*	RSS-132
Langattomat viestinlaitteet *Personal communications services equipment*	*Transmitters and receivers used in radiocommunications systems to provide personal communications services (PCS) in the bands 1850-1915 MHz and 1930-1995 MHz*	RSS-133
Langattomat viestinlaitteet *Advanced wireless services equipment*	*Advanced wireless services (AWS) equipment operating in the bands 1710-1780 MHz and 2110-2180 MHz*	RSS-139
Langattomat viestinlaitteet *Wireless communication service (WCS) equipment*	*Wireless communication service (WCS) equipment operating in the bands 2305-2320 MHz and 2345-2360 MHz*	RSS-195
Laajakaistaiset radiolaitteet *Broadband radio service (BRS) equipment*	*Broadband radio service (BRS) equipment operating in the band 2500–2690 MHz*	RSS-199
Lupavaatimuksista vapaat radiolaitteet *Licence-exempt radio apparatus*	*Licence-exempt radio apparatus:* *Category I equipment*	RSS-210
Langattomat latauslaitteet *Wireless power transfer devices*	*Wireless power transfer devices*	RSS-216
Radiolaitteet *Radio equipment*	*General requirements for radio apparatus used for radiocommunication other than broadcasting*	RSS-Gen

PÄTEVYYSALUE *SCOPE OF ACCREDITATION*		
Testattava materiaali / tuote *Material / product tested*	**Testityyppi, mittausalue** *Type of test, measured range*	**Testausmenetelmä** *Test method*
Tietojenkäsittelylaitteet *Information technology equipment*	*Information technology equipment (ITE) - Limits and methods of measurement for discussion - Data breach notification and reporting regulations*	ICES-003
GSM850-, GSM900-, GSM1800- ja GSM1900-päätelaitteet *GSM850, GSM900, GSM1800 and GSM1900 terminals*	*Conformance testing of GSM terminals. (Methods and tests.) GSM frequency bands included: GSM850, GSM900, GSM1800 and GSM1900*	3GPP TS 51.010-1 *chapter 12.2*
Tieteelliset, teolliset ja lääkinnälliset laitteet *Industrial, scientific and medical equipment*	*Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement*	CISPR 11 EN 55011
Audio- ja TV-vastaanottimet *Sound and television broadcast receivers and associated equipment*	*Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment*	CISPR 13 EN 55013
Mittalaitteiden ja mittausmenetelmien määrittelyt *Specification for radio disturbance and immunity measuring apparatus and methods*	*Methods of measurement of radiated disturbance phenomena in the frequency range of 9 kHz to 18 GHz Part 2-1: Methods of measurement of disturbances and immunity – conducted disturbance measurements*	CISPR 16-2-1 EN 55016-2-1
Mittalaitteiden ja mittausmenetelmien määrittelyt *Specification for radio disturbance and immunity measuring apparatus and methods*	*Methods of measurement of radiated disturbance phenomena in the frequency range of 9 kHz to 18 GHz Part 2-3: Methods of measurement of disturbances and immunity – radiated disturbance measurements*	CISPR 16-2-3 EN 55016-2-3
Tietotekniikan laitteet *Information technology equipment*	*Limits and methods of measurement*	CISPR 22 EN 55022
Tietotekniikan laitteet *Information technology equipment*	*Limits and methods of measurement*	CISPR 24 EN 55024

PÄTEVYYSALUE *SCOPE OF ACCREDITATION*		
Testattava materiaali / tuote ***Material / product tested***	**Testityyppi, mittausalue** ***Type of test, measured range***	**Testausmenetelmä** ***Test method***
Multimedialaitteet *Multimedia equipment*	*Electromagnetic compatibility of multimedia equipment – Emission requirements*	CISPR 32 EN 55032
Multimedialaitteet *Multimedia equipment*	*Electromagnetic compatibility of multimedia equipment – Immunity requirements*	CISPR 35 EN 55035
Lyhyen kantaman radiolaitteet *Short range devices radio equipment*	*Short range devices (SRD); Radio equipment to be used in the 25MHz to 1000MHz*	EN 300 220
Laajakaistaiset tiedonsiirtojärjestelmät *Wideband data transmission equipment*	*Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised standard covering the essential requirements of article 3.2 of Directive 2014/53/EU*	EN 300 328
Lyhyen kantaman radiolaitteet *Short range device radio equipment*	*Short range devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Harmonised standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU*	EN 300 330
Lyhyen kantaman radiolaitteet *Short range device radio equipment*	*Short range devices (SRD); Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Harmonised standard for access to radio spectrum*	EN 300 440
Langattomat audiolaitteet *Cordless audio short range devices*	*Electromagnetic compatibility and radio spectrum matters (ERM); Cordless audio devices in the range 25 MHz to 2 000 MHz; Part 1: Technical characteristics and test methods*	EN 301 357-1

PÄTEVYYSALUE ***SCOPE OF ACCREDITATION***		
Testattava materiaali / tuote ***Material / product tested***	**Testityyppi, mittausalue** ***Type of test, measured range***	**Testausmenetelmä** ***Test method***
Radiolaitteet *Radio equipment*	*Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU*	EN 301 489-1
Lyhyen kantaman radiolaitteet *Short range device radio equipment (SRD)*	*Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for short range devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*	EN 301 489-3
GSM-käyttölaitteet sekä niiden lisälaitteet *GSM mobile equipment and ancillary equipment*	*Electromagnetic compatibility and radio spectrum matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)*	EN 301 489-7
Langattomat audiolaitteet *Cordless audio equipment*	*Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 9: Specific conditions for wireless microphones, similar radio frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*	EN 301 489-9

PÄTEVYYSALUE *SCOPE OF ACCREDITATION*		
Testattava materiaali / tuote ***Material / product tested***	**Testityyppi, mittausalue** ***Type of test, measured range***	**Testausmenetelmä** ***Test method***
Laajakaistaiset tiedonsiirtolaitteet *Broadband data transmission equipment*	*Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband data transmission Systems; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*	EN 301 489-17
Paikannus- ja navigointi-vastaanottimet *Receive only mobile Earth stations for positioning and navigation*	*Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for receive only mobile Earth stations (ROMES) operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band (ROGNSS) providing positioning, navigation, and timing data; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*	EN 301 489-19
UTRA- ja E-UTRA -käyttölaitteet sekä niiden lisälaitteet *IMT-2000 CDMA direct spread (UTRA and E-UTRA) user equipment and ancillary equipment*	*Electromagnetic compatibility and radio spectrum matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 24: Specific conditions for IMT-2000 CDMA direct spread (UTRA and E-UTRA) for mobile and portable (UE) radio and ancillary equipment*	EN 301 489-24
Matkapuhelimet ja kannettavat matkaviestimet sekä niiden lisälaitteet *Cellular communication mobile and portable (UE) radio and ancillary equipment*	*Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for cellular communication mobile and portable (UE) radio and ancillary equipment; Harmonised standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU*	EN 301 489-52

Vaatimus/*Requirement* SFS-EN ISO/IEC 17025:2005
07.12.2017 Päätöksen päiväys / *Date of decision*
07.12.2021 Päätöksen viimeinen voimassaolopäivä / *Date of expiry*
www.finas.fi Voimassaoleva pätevyysalue / *Current scope of accreditation*

PÄTEVYYSALUE *SCOPE OF ACCREDITATION*		
Testattava materiaali / tuote *Material / product tested*	**Testityyppi, mittausalue** *Type of test, measured range*	**Testausmenetelmä** *Test method*
GSM-matkapuhelinjärjestelmät *GSM mobile stations*	*Global system for mobile communications (GSM); Mobile stations (MS) equipment; Harmonised standard covering the essential requirements of article 3.2 of Directive 2014/53/EU*	EN 301 511 *clauses 5.2.16 and 5.2.17*
5 GHz RLAN-laitteet *5 GHz RLAN equipment*	*5 GHz RLAN; Harmonised standard covering the essential requirements of article 3.2 of Directive 2014/53/EU*	EN 301 893
UTRA- ja E-UTRA -käyttölaitteet *UTRA and E-UTRA user equipment*	*IMT cellular networks; Harmonised standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Introduction and common requirements Part 2: CDMA direct spread (UTRA FDD) user equipment (UE) Part 13: Evolved universal terrestrial radio access (E-UTRA) user equipment (UE)*	EN 301 908-1 *clause 4.2.2* EN 301 908-2 *clause 4.2.4* EN 301 908-13 *clause 4.2.4*
Lyhyen kantaman induktiiviset tiedonsiirtolaitteet *Close range inductive data transmitters and receivers*	*Electromagnetic compatibility and radio spectrum matters (ERM); Short range devices (SRD); Close range inductive data communication equipment operating at 13,56 MHz; Part 1: Technical characteristics and test methods Part 2: Harmonized EN under article 3.2 of the R&TTE Directive*	EN 302 291-1 EN 302 291-2