

Scope of Accreditation

(Measurement Method)

Accreditation Number : VLAC-007

Expiration Date : March 22, 2023

[Name of Laboratory]

e-OHTAMA, LTD.

[Test site name]

NAKAI EMC Center

[Test site Address]

456 Sakai, Nakai-machi, Ashigarakami-gun, Kanagawa, 259-0157 Japan

[Measurement Method]

Emission test

Radiated disturbance : Enclosure Port

Disturbance electric field test

[Test condition] **On the reference ground plane: Measurement distance : 3m/10m**

Measurement Frequency Range : 30 MHz - 1 GHz

[Test condition] **On the reference ground plane, In-vehicle equipment test (1m Method)**

Measurement Frequency Range : 9 kHz - 2.5 GHz

[Test condition] **Quasi Free Space, Measurement Frequency Range : 1 GHz - 40 GHz**

Disturbance magnetic field strength measurement

[Test condition] **Loop Antenna**

Conducted disturbance Measurement: AC mains port

Voltage measurement [Test condition] **AMN, High impedance probe**

Conducted disturbance Measurement: Telecommunication port

Voltage measurement [Test condition] **ISN, AAN, Capacitive voltage probe**

Current measurement [Test condition] **Current probe**

Conducted disturbance Measurement: DC power line port

Voltage measurement [Test condition] **AMN, High impedance probe**

Conductive interference test against in-vehicle equipment

Conducted disturbance Measurement: Antenna port, RF modulator output port, Tuner port and Fiber port

Voltage measurement [Test condition] **ISN, AAN, Capacitive voltage probe**

Current measurement [Test condition] **Current probe**

Immunity test

Electro static discharge test

Contact discharge, Air discharge, Indirect discharge

**Radiated electromagnetic field strength
against in-vehicle**

Measurement Frequency Range : 26 MHz - 6 GHz

Measurement Frequency Range : 200 MHz - 2 GHz

Electrical fast transient/burst (EFT/B)

Mains port, Telecommunication/Signal port

Surge

Mains port, Telecommunication/Signal port

RF conducted interference

Mains port measurement frequency range : 150 kHz - 230 MHz

Telecommunication/Signal port measurement frequency range : 150 kHz - 230 MHz

Bulk current injection test, measurement frequency range: 20 MHz - 200 MHz

Conducted Common mode disturbances

Radiated magnetic field

Pulse magnetic immunity test

Oscillatory Immunity test

Interruptions and Voltage variations

Low frequency immunity

Dumped oscillatory wave immunity test

Ring Wave immunity test

Ripple on d.c. input power port immunity test

Mains Harmonics and Interharmonics

Harmonics and interharmonics including mains signaling at a.c. power port, low frequency immunity tests

Voltage fluctuation immunity test for equipment with input current not exceeding 16 A per phase

Variation of power frequency, immunity test for equipment with input current not exceeding 16 A per phase

Harmonic current

Harmonic current test

Voltage changes, Voltage fluctuations and Flicker test

Vehicle /In-vehicle equipment test

ESA (In-vehicle equipment) Emission

ESA (In-vehicle equipment) Immunity

Telecommunication equipment performance 1

Test based on European Standards : EMC Test only

Telecommunication equipment performance 2

Magnetic field strength

[Test condition] Magnetic probe

Voluntary EMC Laboratory Accreditation Center Inc.

Scope of Accreditation

(Test standards)

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456 Sakai, Nakai-machi, Ashigarakami-gun, Kanagawa, 259-0157 Japan

[Test standards]

Emission test

VCCI Technical Requirements:VCCI-CISPR 32, CISPRJ 32

FCC 47 CFR Part 15 Subpart B: ANSI C63.4-2014 (up to 40 GHz)

CISPR 11, EN 55011, BS EN 55011, CISPR 22, EN 55022, BS EN 55022

CISPR 25, EN 55025, BS EN 55025, CISPR 32, EN 55032, BS EN 55032

AS CISPR 11, AS/NZS CISPR 32, KN32, ICES-003

IEC 61000-6-3/-6-4, EN 61000-6-3/-6-4, BS EN 61000-6-3/-6-4, AS/NZS 61000.6.3, AS/NZS 61000.6.4

IEC 61800-3, EN 61800-3, BS EN 61800-3, IEC 61131-2, EN 61131-2, BS EN 61131-2, JIS B 3502

IEC 60945, EN 60945, BS EN 60945, IEC 60947-5-2, EN 60947-5-2, BS EN 60947-5-2

IEC 62003, IEC 62236-3-2, IEC 62236-4, IEC 62236-5

EN 12015, BS EN 12015, EN 50121-3-2, BS EN 50121-3-2

EN 50121-4, BS EN 50121-4, EN 50121-5, BS EN 50121-5

ISO 22199, ISO 8102-1^{*2}

Technical requirements under the Electrical Appliances and Materials safety Act appendix 10 Chapter 4 and Chapter 5

ETSI EN 302 608 V2.1.1(except for OBE receiver sensitivity and blocking)

ETSI EN 302 608 V1.1.1,

IEC 61326-1, IEC 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6

EN 61326-1, EN 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6

BS EN 61326-1, BS EN 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6

JIS C 61326-1

IEC 60601-1-2 :2007(Ed.3)/2014(Ed.4), IEC 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40

EN 60601-1-2 :2010/2015, EN 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40

BS EN 60601-1-2 :2010/2015, BS EN 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40

JIS T 0601-1-2, JIS T 0601-2-2/2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40/-2-201/-2-202/-2-203/-2-204/-2-205/-2-206/-2-207/-2-208

^{*2} Added as of April 20, 2021

Immunity test

CISPR 24, EN 55024, BS EN 55024, CISPR 35, EN 55035, BS EN 55035

AS/NZS CISPR 24, K00024, KN24, KN35

IEC 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-9/-4-10/-4-11/-4-12/-4-13/-4-14/-4-16/-4-17/-4-18/-4-28/-4-29

/-4-34, EN 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-9/-4-10/-4-11/-4-12/-4-13/-4-14/-4-16/-4-17/-4-18/-4-28

/-4-29/-4-34, BS EN 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-9/-4-10/-4-11/-4-12/-4-13/-4-14/-4-16/-4-17/-4-18

/-4-28/-4-29/-4-34, JIS C 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-11/-4-16/-4-34

IEC 61000-6-1/-6-2/-6-7, EN 61000-6-1/-6-2/-6-7, BS EN 61000-6-1/-6-2/-6-7
AS/NZS 61000.6.1, AS/NZS 61000.6.2, JIS C 61000-6-1/-6-2
IEC 61800-3, EN 61800-3, BS EN 61800-3, IEC 61131-2, EN 61131-2, BS EN 61131-2, JIS B 3502
IEC 60945, EN 60945, BS EN 60945, IEC 60947-5-2, EN 60947-5-2, BS EN 60947-5-2
IEC 62003, IEC 62236-3-2, IEC 62236-4, IEC 62236-5,
EN 12016, BS EN 12016, EN 50121-3-2, BS EN 50121-3-2
EN 50121-4, BS EN 50121-4, EN 50121-5, BS EN 50121-5
ISO 22200, ISO 8102-2*², JEC-2501, JEITA IT-3001A
IEC 61326-1, IEC 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6, EN 61326-1, EN 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6
BS EN 61326-1, BS EN 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6
JIS C 61326-1, IEC 61326-3-1/-3-2, EN 61326-3-1/-3-2, BS EN 61326-3-1/-3-2,
IEC 60601-1-2 :2007(Ed.3)/2014(Ed.4), IEC 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25
/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40
EN 60601-1-2 :2010/2015, EN 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25
/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40
BS EN 60601-1-2 :2010/2015, BS EN 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25
/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40
JIS T 0601-1-2, JIS T 0601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25/-2-31/-2-34/-2-35/-2-37
/-2-39/-2-40/-2-201/-2-202/-2-203/-2-204/-2-205/-2-206/-2-207/-2-208
^{*2} Added as of April 20, 2021

Harmonic Test in Public Low Voltage Systems

IEC 61000-3-2/-3-3/-3-11/-3-12, EN 61000-3-2/-3-3/-3-11/-3-12, BS EN 61000-3-2/-3-3/-3-11/-3-12
JIS C 61000-3-2, AS/NZS 61000.3.2, AS/NZS 61000.3.3, AS/NZS 61000.3.12
IEC 62003, IEC 60947-5-2, EN 60947-5-2, BS EN 60947-5-2
IEC 61326-1, IEC 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6, EN 61326-1, EN 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6
BS EN 61326-1, BS EN 61326-2-1/-2-2/-2-3/-2-4/-2-5/-2-6
JIS C 61326-1
IEC 60601-1-2 :2007(Ed.3)/2014(Ed.4), IEC 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25
/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40
EN 60601-1-2 :2010/2015, EN 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25
/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40
BS EN 60601-1-2 :2010/2015, BS EN 60601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25
/-2-31/-2-34/-2-35/-2-37/-2-39/-2-40
JIS T 0601-1-2, JIS T 0601-2-2/-2-3/-2-5/-2-6/-2-10/-2-16/-2-18/-2-21/-2-24/-2-25/-2-31/-2-34/-2-35/-2-37
/-2-39/-2-40/-2-201/-2-202/-2-203/-2-204/-2-205/-2-206/-2-207/-2-208

Electronic equipment in vehicles

EU Directive 72/245/EEC, EU Directive 2004/104/EC, Annex I, clause 6.5, 6.6, 6.8, 6.9
ECE R-10, clause 6.5, 6.6, 6.8, 6.9

Telecommunication equipment performance 1

ETSI EN 302 608 V1.1.1 (2008-11)
ETSI EN 302 608 V2.1.1 (except for OBE receiver sensitivity and blocking)

Telecommunication equipment performance 2

IEC 62233, EN 62233, BS EN 62233, EN 50366, BS EN 50366

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