

Scope of Accreditation

(Measurement Method)

Accreditation Number : VLAC-017-1

Expiration Date : June 15, 2022

[Name of Laboratory]

TÜV Rheinland Japan Ltd.

[Test site name]

Global Technology Assessment Center

[Test site Address]

4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama-shi, Kanagawa, Japan

[Measurement Method]

Emission test

Radiated disturbance : Enclosure Port

Disturbance electric field test

[Test condition] **On the reference ground plane, In-vehicle equipment test (1m Method),
Measurement Frequency Range : 150 kHz - 2.5 GHz,**

[Test condition] **On the reference ground plane, Measurement distance : 3m/10m
Measurement Frequency Range : 30 MHz - 1 GHz**

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

Disturbance magnetic field strength measurement

[Test condition] **Loop Antenna, 3-axis loop antenna, Isotropic probe**

Disturbance electric power measurement

[Test condition] **Absorption Clamp (CMAD)**

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**

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

Conducted disturbance Measurement: DC power line port

Conductive interference test against in-vehicle equipment

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

Immunity test

Electro static discharge test **Contact discharge, Air discharge, Indirect discharge**

Radiated electromagnetic field strength **Measurement frequency: 80 MHz – 6 GHz**
against in-vehicle **Measurement Frequency Range : 200 MHz – 2 GHz**

Electrical fast transient/burst (EFT/B) **Mains port, Telecommunication/Signal port**

Immunity to transient disturbances conducted along supply lines / other than supply lines

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: 1 MHz – 400 MHz

Conducted Common mode disturbances

Radiated magnetic field

Pulse magnetic immunity test

Road vehicles - Immunity to magnetic fields

Interruptions and Voltage variations

Harmonic current

Harmonic current test

Voltage changes, Voltage fluctuations and Flicker test

Telecommunication equipment performance 1

Intentional Radiators (FCC Part 15 Subpart C)

U-NII without DFS Intentional Radiators (FCC Part 15 Subpart E)

U-NII with DFS Intentional Radiators (FCC Part 15 Subpart E)

Commercial Mobile Services (FCC licensed Radio Service Equipment) (Part 22/Part 24/Part 25/Part 27)

General Mobile Radio Services (FCC Licensed Radio Service Equipment) (Part 22/Part 90/Part 95/Part 97/Part 101)

Microwave and Millimeter Wave Bands Radio Services (FCC Licensed Radio Service Equipment) (Part 25/Part 30/Part 74/Part 90/Part 95/Part 97/Part 101)

Based on European standards and Canadian standards

Telecommunication equipment performance 2

Magnetic field strength [Test condition] Magnetic probe

Electric field strength [Test condition] Electric field probe

Voluntary EMC Laboratory Accreditation Center Inc.

Scope of Accreditation

(Test standards)

Accreditation Number : VLAC-017-1

Expiration Date : June 15, 2022

[Name of Laboratory]

TÜV Rheinland Japan Ltd.

[Test site name]

Global Technology Assessment Center

[Test site Address]

4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama-shi, Kanagawa, Japan

Test standards

Emission test

VCCI Technical Requirements: VCCI-CISPR 32*¹

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

FCC 47 CFR Part 18 :FCC MP-5 (Up to 40 GHz)

CISPR 11, CISPR 13, CISPR 14-1, CISPR 15, CISPR 22, CISPR 25, CISPR 32*¹

EN 55011, EN 55013, EN 55014-1, EN 55015, EN 55022, EN 55025, EN 55032*¹

Technical requirements under the Electrical Appliances and Materials safety Act appendix 10
Chapter 2/4/5/7/9

J55001, J55011, J55013, J55014-1, J55015, J55022, CISPRJ 32*¹, J55032*¹

AS CISPR 11, AS/NZS CISPR 13, AS CISPR 14.1, AS CISPR 15, AS/NZS CISPR 22

AS/NZS CISPR 25, AS/NZS CISPR 32*¹, AS/NZS 61000.6.3, AS/NZS 61000.6.4

ICES-001, ICES-003, CNS 13438, IEC 61000-6-3, IEC 61000-6-4, EN 61000-6-3, EN 61000-6-4

EN 13309, IEC 62236-3-2, IEC 62236-4, EN 50121-3-2, EN 50121-4

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

IEC 60601-1-2, IEC 60601-2-2/-2-16/-2-18/-2-21/-2-22/-2-23/-2-24/-2-33/-2-37/-2-47

EN 60601-1-2, EN 60601-2-2/-2-16/-2-18/-2-21/-2-22/-2-23/-2-24/-2-33/-2-37/-2-47

JIS T 0601-1-2, JIS T 0601-2-2/-2-18/-2-21/-2-24/-2-205, JIS C 61326-1

JIS C 4411-2, TCVN 7492-1, IEC 62040-2, EN 62040-2

*¹ : Except for broadcast receiver equipped products

Immunity test

CISPR 14-2, CISPR 24, CISPR 35*², EN 55014-2, EN 55024, EN 55035*²

IEC 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-9/-4-11/-4-13/-4-14/-4-16/-4-28

EN 61000-4-2/-4-3/-4-4/-4-5/-4-6/-4-8/-4-9/-4-11/-4-13/-4-14/-4-16/-4-28

IEC 61000-6-1, IEC 61000-6-2, EN 61000-6-1, EN 61000-6-2

AS/NZS CISPR 14.2, AS/NZS CISPR 24, AS/NZS 61000.6.1, AS/NZS 61000.6.2

JIS C 61000-6-1, JIS C 61000-6-2

IEC 62236-3-2, IEC 62236-4, EN 50121-3-2, EN 50121-4, EN 50130-4, EN 61547

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

IEC 60601-1-2, IEC 60601-2-2/-2-16/-2-18/-2-21/-2-22/-2-23/-2-24/-2-33/-2-37/-2-47

EN 60601-1-2, EN 60601-2-2/-2-16/-2-18/-2-21/-2-22/-2-23/-2-24/-2-33/-2-37/-2-47

JIS T 0601-1-2, JIS T 0601-2-2/-2-18/-2-21/-2-24/-2-205, JIS C 61326-1

*² : Excluding Annex A and Annex H

Harmonic Test in Public Low Voltage Systems

IEC 61000-3-2, EN 61000-3-2, EN IEC 61000-3-2^{*3}, IEC 61000-3-3, EN 61000-3-3, JIS C 61000-3-2
IEC 61000-6-3, EN 61000-6-3
AS/NZS 61000.3.2, AS/NZS 61000.3.3, AS/NZS 61000.6.3
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
IEC 60601-1-2, IEC 60601-2-2/-2-16/-2-18/-2-21/-2-22/-2-23/-2-24/-2-33/-2-37/-2-47
EN 60601-1-2, EN 60601-2-2/-2-16/-2-18/-2-21/-2-22/-2-23/-2-24/-2-33/-2-37/-2-47
JIS T 0601-1-2, JIS T 0601-2-2/-2-18/-2-21/-2-24/-2-205, JIS C 61326-1
^{*3}: Added as of October 19, 2021

Electronic equipment in vehicles

EU Directive 2004/104/EC, Annex I Clause 6.5/ 6.6/ 6.7/ 6.8/ 6.9
UN/ ECE RI0 clause 6.5/6.6/6.7/6.8/6.9 Annex 7 (ESA/RESS only)
ECE R116, Annex 9
IEC 61851-21 (EMC Part only), EN 61851-21 (EMC part only)

Telecommunication equipment performance 1

Intentional Radiators (FCC Part 15 Subpart C) : ANSI C63.10-2013 (Up to 243 GHz)
U-NII without DFS Intentional Radiators (FCC Part 15 Subpart E) : ANSI C63.10-2013
(Up to 40 GHz)
U-NII with DFS Intentional Radiators (FCC Part 15 Subpart E) : FCC KDB Publication 905462 D02
U-NII DFS Compliance Procedures New Rules v02 (April 8, 2016) (Up to 40 GHz)
Commercial Mobile Services (FCC licensed Radio Service Equipment) (Part 22/Part 24/Part 25
/Part 27) : ANSI/TIA-603-E-2016, ANSI/TIA-102.CAAA-E-2016, ANSI C63.26-2015
(Up to 200 GHz)
General Mobile Radio Services (FCC Licensed Radio Service Equipment) (Part 22/Part 90/Part 95
/Part 97/Part 101) : ANSI/TIA-603-E-2016, ANSI/TIA-102.CAAA-E-2016, ANSI C63.26-2015
(Up to 243 GHz)
Microwave and Millimeter Wave Bands Radio Services (FCC Licensed Radio Service Equipment)
(Part 25/Part 30/Part 74/Part 90/Part 95/Part 97/Part 101) : ANSI/TIA-603-E-2016,
ANSI/TIA-102.CAAA-E-2016, ANSI C63.26-2015 (Up to 243 GHz)
FCC Part 20, FCC Part 101
KDB 447498 (Calculation Method only), KDB 653005, KDB 789033, KDB 971168
IC RSS-Gen, IC RSS-210, IC RSS-247, IC RSS-310
RSS-130, RSS-132, RSS-133, RSS-139, RSS-195, RSS-252
EN 300 220, EN 300 220-1/-2, EN 300 328, EN 300 330, EN 300 330-1/-2, EN 300 440, EN300 440-1/-2
EN 301 091, EN 301 893, EN 301 489-1/ -3/ -7/ -17/ -24/ -34
EN 301 511 (Spurious emission only), EN 301 908-1(Spurious emission only)
EN 302 264, EN 302 291-1/ -2, EN 303 413, EN 303 417
ETSI TS 151 010-1 clauses 12.2.1 and 12.2.2, 3GPP TS 51.010-1 clauses 12.2.1 and 12.2.2

Telecommunication equipment performance 2

IEC 62311, EN 62311, IEC 62369-1, EN 62369-1, IEC 62233, EN 62233, IEC 62479, EN 62479
EN 50364, EN 50366, EN 50371, EN 50383, EN 50385, IC RSS-102

Voluntary EMC Laboratory Accreditation Center Inc.