Test Report issued under the responsibility of:

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number .....:	E483824-A6013-CB-1
Date of issue.....:	2020-10-18
Total number of pages .....:	67
Applicant's name.....:	**JVCKENWOOD CORPORATION**
Address .....:	**2967-3 ISHIKAWAMACHI** **HACHIOJI-SHI** **TOKYO 192-8525 JAPAN**
Name of Test Laboratory preparing the Report .....:	UL Japan, Inc. 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan
Test specification:	
Standard .....:	IEC 62368-1:2014 (Second Edition)
Test procedure .....:	CB Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62368_1B
Test Report Form(s) Originator .....:	UL(US)
Master TRF.....:	2014-03

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The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description :	GPS NAVIGATION SYSTEM / MONITOR WITH RECEIVER	
Trade Mark .....:	KENWOOD	
Manufacturer .....:	JVCKENWOOD CORPORATION 2967-3 ISHIKAWAMACHI HACHIOJI-SHI TOKYO 192-8525 JAPAN	
Model/Type reference .....:	DNX7190DABS / DMX8019DABS	
Ratings .....:	12 VDC 7 A	
Testing procedure and testing location:		
☒ CB Testing Laboratory:		
Testing location/ address ..... :	UL Japan, Inc., 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan	
Tested by (name + signature).....:	Atsushi Saito / Project Handler	A. Saito
Approved by (name + signature) .....:	Ippei Fukuda / Reviewer	
☐ Testing procedure: CTF Stage 1		
Testing location/ address..... :		
Tested by (name + signature).....:		
Approved by (name + signature) .....:		
☐ Testing procedure: CTF Stage 2		
Testing location/ address..... :		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature) .....:		
☐ Testing procedure: CTF Stage 3		
☐ Testing procedure: CTF Stage 4		
Testing location/ address..... :		
Tested by (name + signature).....:		
Witnessed by (name + signature).....:		
Approved by (name + signature) .....:		

Supervised by (name + signature) .....:		

List of Attachments (including a total number of pages in each attachment):

National Differences (9 pages)
Enclosures (56 pages)

Summary of testing:

Tests performed (name of test and test clause):	**Testing Location:**
MAXIMUM OPERATING TEMPERATURE FOR MATERIALS, COMPONENTS AND SYSTEMS (5.4.1.4, 6.2, 9.2.5 ANNEX B.2) POWER MEASUREMENTS (6.2.2.2, 6.2.2.3) NORMAL OPERATING CONDITIONS TEMPERATURE TEST (6.3) REDUCTION OF THE LIKELIHOOD OF IGNITION UNDER SINGLE FAULT CONDITIONS (6.4.3, ANNEX B.4) INPUT TEST: SINGLE PHASE (B.2.5) NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT (B.2.6) SIMULATED ABNORMAL OPERATING CONDITIONS (B.3) SIMULATED SINGLE FAULT CONDITIONS (B.4) TEST FOR THE PERMANENCE OF MARKINGS (ANNEX F.3.10) LOCKED-ROTOR OVERLOAD TEST FOR D.C. MOTORS (ANNEX G.5.4.6)	**CBTL: UL Japan, Inc., 4383-326 Asama-cho, Ise-shi, Mie, 516-0021, Japan**

Summary of compliance with National Differences:

List of countries addressed: EU Group and National Differences

EU Group and National Differences applies to CENELEC member countries: Austria , Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom

☒ **The product fulfils the requirements of:** IEC 62368-1:2014, EN 62368-1:2014 + A11:2017

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Note: The above markings are the minimum requirements required by the safety lab. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

TEST ITEM PARTICULARS:	
Classification of use by	Ordinary person, Skilled person Children likely to be present
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	+10%/-10%
Supply Connection – Type	mating connector
Considered current rating of protective device as part of building or equipment installation	15 A; equipment
Equipment mobility	for building-in
Over voltage category (OVC)	other: None
Class of equipment	Class III
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	35
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	DNX7190DABS: Approx. 2.4 kg DMX8019DABS: Approx. 1.7 kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
TESTING:	
Date of receipt of test item..... :	2018-12-18, 2019-04-11, 2020-09-02
Date (s) of performance of tests..... :	2019-01-10 to 2019-01-30, 2019-04-22, 2020-09-04 to 2020-09-21
GENERAL REMARKS:	
"(See Enclosure #)" refers to additional information appended to the report. **"(See appended table)" refers to a table appended to the report.** **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☒ **Yes** ☐ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	PT JVC ELECTRONICS INDONESIA JL. SURYA LESTARI KAV I-16B, SURYACIPTA CITY OF INDUSTRY, KEL. KUTAMEKAR, KEC. CIAMPEL, KAB. KARAWANG 41363, PROP. JAWA BARAT, INDONESIA JVCKENWOOD ELECTRONICS MALAYSIA SDN. BHD. 8, JALAN PADU, KAWASAN PERINDUSTRIAN TAMPOI, 80350 JOHOR BAHRU, JOHOR, MALAYSIA

GENERAL PRODUCT INFORMATION:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

The subject model(s) are Car AV equipment(s). Dimensions are approx. 178 mm (W) x 100 mm (H) x 160 mm (D). Speaker impedance is “4 Ω – 8 Ω”. There are no ac output terminal(s). Remote control provided as optional. (Dry-cell batteries used.) No lithium battery used. According to applicant, the subject model(s) are to be installed in vehicles and connected to Car battery, accessories and/or speakers though wiring harness by skilled person in the field. See Enclosure id. 07-01 for Connection.

Model Differences

Unless otherwise specified, all tests were applied to representative model DNX7190DABS. The model differences are shown in the Enclosure id. 07-02.

Additional application considerations – (Considerations used to test a component or sub-assembly) -

This report is based on previously conducted testing and the review of product construction of original CBTR Ref. No. E483824-A6007-CB-1-Original, dated 2020-09-30, CBTC Ref. No. JP-22170-UL issued date 2020-10-01 issued by UL Japan Inc. in which the product has been investigated to IEC 60065:2014. Refer to Section “Test performed (name of test and test clause)” covering all applicable performance tests.

Compliance with the following test requirements was determined upon the review of the previous test results where the test method and conditions are identical:

- MAXIMUM OPERATING TEMPERATURE FOR MATERIALS, COMPONENTS AND SYSTEMS (5.4.1.4, 6.2, 9.2.5 ANNEX B.2)
- NORMAL OPERATING CONDITIONS TEMPERATURE TEST (6.3)
- REDUCTION OF THE LIKELIHOOD OF IGNITION UNDER SINGLE FAULT CONDITIONS (6.4.3, ANNEX B.4)
- INPUT TEST: SINGLE PHASE (B.2.5)
- NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT (B.2.6)
- SIMULATED ABNORMAL OPERATING CONDITIONS (B.3)
- SIMULATED SINGLE FAULT CONDITIONS (B.4)
- TEST FOR THE PERMANENCE OF MARKINGS (ANNEX F.3.10)

In addition to the above, the following only limited tests were deemed necessary.

- POWER MEASUREMENTS (6.2.2.2, 6.2.2.3)
- SIMULATED ABNORMAL OPERATING CONDITIONS (B.3)
- SIMULATED SINGLE FAULT CONDITIONS (B.4)
- LOCKED-ROTOR OVERLOAD TEST FOR D.C. MOTORS (ANNEX G.5.4.6)

Explanation of the test program:

1) The subject model(s) are to be installed in dashboard of vehicle by a skilled person in the field, therefore, abonormal condition, ventilation openings covered was waived.

2) Unless otherwise specified, all tests were conducted with DAB antenna CX-DAB1 provided by applicant. According to the INSTRUCTION MANUAL, the DAB antenna is optional accessary. (Refer to Enclosure id. 07-01)

3) Unless otherwise specified, all tests were conducted with GPS antenna provided by applicant. According to applicant, the GPS antenna is shipped with the subject models. (Refer to Enclosure id. 07-01)

4) Unless otherwise specified, all tests were conducted with marked load “5 VDC 1.5 A” at USB (Gray) terminal and USB (Black) terminal.

5) Unless otherwise specified, all tests were conducted with rated load (12 VDC, 500mA) at External I/F terminal. According to applicant, Maximum power supply current is described in the INSTRUCTION MANUAL and these leads are to be connected by skilled person in the field. Therefore, marking for this supply output terminal was not required. (Refer to Enclosure id. 07-01)

6) Unless otherwise specified, all tests were conducted with Blue/White wire at ANT CONT/P. CONT (Power control/Antenna control wire) and Power control (Pin A-5 of Connector A). According to applicant, their total output (12 VDC, 350mA) is described in the INSTRUCTION MANUAL and these leads are to be connected by a skilled person in the field. Therefore, marking for these supply output terminals was not required. (Refer to Enclosure id. 07-01)

7) The INSTRUCTION MANUAL in English only. Acceptability of the INSTRUCTION MANUAL in other languages shall be evaluated by the authorities in the country where the apparatus is used. (Refer to Enclosure id. 07-01)

8) Because the subject model(s) are to be installed in dashboard of vehicle, permissible temperature rise at enclosure was applied to accessible area from customer. (Only applied to Front Panel.)

9) According to applicant’s information, the subject model is to be connected to Car’s harness by a skilled person in the field. Also, the accessories are to be connected to by a skilled person in the field. Therefore, those Car’s harness and accessories are considered to be in-accessible parts from customer. (Only applied to Front Panel, USB (Gray) terminal and USB (Black) terminal.)

10) Unless otherwise specified, TH351 (Fuzetec Technology Co., Ltd., Type FSMD020-R) was defeated during tests based on applicant’s request.

11) Based on applicant’s request, the wiring harness, DAB antenna and GPS Antenna have not been evaluated in this Test Report. Accepting NCB may require additional evaluation and/or testing.

12) Following symbols and abbreviations are used in this test report.

Pri. = Primary	Sec. = Secondary	PW = Primary Wire
KH = Knob, Handle	IB = Insulating Barrier	PCB = Printed Circuit Board
IE = Inside of Enclosure	OE = Outside of Enclosure	MT = Mains Transformer
TW = Transformer Winding	TC = Transformer Core	TP = Thermal Protector
LC = Lead Connection at PCB		BC = Body of Component
S/C = Short-Circuit	O/C = Open-Circuit	C/V = Closed Ventilation
S/L = Stalling the rotor of a drive motor		MUL = Most Unfavorable Load
NCD = No Component Damaged.		NH = No Hazard occurred
NFR = No Further Results existed		
OSC = Oscillation of Switching power supply Circuit		
E = Emitter	C = Collector	B = Base
G = Gate	D = Drain	S = Source

A = Anode K = Cathode

+ = Total overheated areas of the printed board(s) are not larger than 2 cm²

(R) = Reinforced insulation (B) = Basic insulation

(S) = Supplementary insulation (F) = Functional insulation

13) Remote controller is "optional", so not evaluated in this report due to applicant's request.

Technical Considerations

- Unless otherwise noted, all electrical tests with mating connector for external circuit "DC IN" (ES1 - not Mains connected) were conducted at 12 VDC ±10% supply source. The test supply source has enough current capacity (40A) due to the applicant request.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
All circuits	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
All circuits (+B, SW14V, BU14V) except below	PS3 (Declared)
Speaker output circuit (J1 Connector pin 10-11 in Audio PWB)	PS1
ILM12V circuit (IC1 Pin 1-9 in Audio PWB)	PS1
CD8V circuit (IC1 Pin 3-9 in Audio PWB)	PS2
A8.5V circuit (IC1 Pin 5-9 in Audio PWB)	PS1
BU5V circuit (IC1 Pin 12-9 in Audio PWB)	PS1
SW5V circuit (IC1 Pin 13-9 in Audio PWB)	PS1
ANT circuit (IC1 Pin 14-9 in Audio PWB)	PS1
EXT circuit (IC1 Pin 15-9 in Audio PWB)	PS1
After SW14V circuit (IC31, IC131, IC91 output in Main PWB)	PS2
After BU14V circuit (R8 load side in Main PWB)	PS1
After SW14V circuit (IC601 output in Digital (SoC) PWB)	PS2
After BU14V circuit (IC591 output and etc. in Digital (SoC) PWB)	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
No hazardous substances	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Edges and corners	MS1
Equipment mass	MS1

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Moving parts (Stepping, Loading, Spindle, Tilt motors)	MS1
Moving parts (Tilting function of display)	MS2
Fan blades (Plastic)	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
Accessible external parts (Front Panel)	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
LCD Panel	RS1
Optical Pick-Up of CD/DVD Drive	RS1
Indicator	RS1

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
☐ **ES** ☐ **PS** ☐ **MS** ☐ **TS** ☐ **RS**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
N/A	--	--	--	--
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Motor (Stepping, Loading, Spindle, Tilt motors, Fan)	PS3: All circuits except below (Declared).	Temperature in “N” and “A”	Complied with Annex G.5.4	N/A
Printed Wiring Board	PS3: All circuits except below (Declared).	Temperature in “N” and “A”	No ignition in “S” and min. V-1	N/A
Printed Wiring Board	PS2: CD8V, After SW14V output circuits.	Temperature in “N” and “A”	Min. V-1	N/A
All electrical components except above	PS3: All circuits except below (Declared).	Temperature in “N” and “A”	No ignition in “S” and separation from PIS	N/A
All electrical components except above	PS2: CD8V, After SW14V output circuits.	Temperature in “N” and “A”	Mounted on a PWB rated min. V-1	N/A
Other combustible materials except above	PS3: All circuits except below (Declared).	Temperature in “N” and “A” (*1)	No ignition in “S” and separation from PIS	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	--	--	--	--
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary Person	MS2: Moving parts (tilting function of display).	Instruction	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	--	--	--	--

10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	--	--	--	--
Supplementary Information:				
(1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” – Single Fault Condition (*1) Compliance determined by temperature of heat source components representative of the highest temperature of the material part.				

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Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		Pass
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2.	Pass
4.1.2	Use of components	See appended table 4.1.2.	Pass
4.1.3	Equipment design and construction		Pass
4.1.15	Markings and instructions ..... :	See Annex F.	Pass
4.4.4	Safeguard robustness		N/A
4.4.4.2	Steady force tests ..... :		N/A
4.4.4.3	Drop tests..... :		N/A
4.4.4.4	Impact tests..... :		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests ..... :		N/A
4.4.4.6	Glass Impact tests..... :	Glass less than 0.1 m² surface area or less than 450 mm major dimension.	N/A
4.4.4.7	Thermoplastic material tests ..... :		N/A
4.4.4.8	Air comprising a safeguard ..... :		N/A
4.4.4.9	Accessibility and safeguard effectiveness	No equipment safeguard for class 3 energy sources except for PS3.	N/A
4.5	Explosion		Pass
4.6	Fixing of conductors	ES1 only in this equipment.	N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to ..... :		N/A
4.7	Equipment for direct insertion into mains socket - outlets	No direct plug-in equipment considered.	N/A
4.7.2	Mains plug part complies with the relevant standard ..... :		N/A
4.7.3	Torque (Nm)..... :		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery ..... :		—
4.8.4	Battery Compartment Mechanical Tests..... :		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object ..... :	There are no such openings.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICALLY-CAUSED INJURY**		Pass
5.2.1	Electrical energy source classifications .....:	All circuits classified as ES1.	Pass
5.2.2	ES1, ES2 and ES3 limits		Pass
5.2.2.2	Steady-state voltage and current.....:	The product is supplied from vehicle battery 12 VDC as classified as ES1.	Pass
5.2.2.3	Capacitance limits .....:		N/A
5.2.2.4	Single pulse limits.....:		N/A
5.2.2.5	Limits for repetitive pulses.....:		N/A
5.2.2.6	Ringing signals .....:		N/A
5.2.2.7	Audio signals .....:	See Annex E.	Pass
5.3	Protection against electrical energy sources	No safeguard required.	N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V .....:		N/A
	b) Electric strength test potential (V).....:		N/A
	c) Air gap (mm) .....:		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material	All insulations are used as functional insulation and properly used for the purpose.	N/A
5.4.1.3	Humidity conditioning..... :		N/A
5.4.1.4	Maximum operating temperature for insulating materials .....:		N/A
5.4.1.5	Pollution degree.....:		—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature .....:		N/A
5.4.1.10.3	Ball pressure .....:		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage .....:		N/A
	a) a.c. mains transient voltage .....:		—
	b) d.c. mains transient voltage .....:		—
	c) external circuit transient voltage .....:		—
	d) transient voltage determined by measurement ..... :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....:		N/A
5.4.3	Creepage distances .....:		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group .....:		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation .....:		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz ..... :		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ) ..... :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard ..... :		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%) ..... :		—
	Temperature (°C) .....:		—
	Duration (h) ..... :		—
5.4.9	Electric strength test..... :	All circuits are classified as ES1.	N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :		N/A
5.4.10.2.3	Steady-state test ..... :		N/A
5.4.11	Insulation between external circuits and earthed circuitry..... :		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V) ..... :		—
	Nominal voltage U_{peak} (V) ..... :		—
	Max increase due to variation U_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$..... :		—
5.5	Components as safeguards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector ..... :		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable ..... :		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No protective conductors required.	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) ..... :		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2)..... :		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm). ..... :		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω) ..... :		N/A
5.6.7	Reliable earthing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current .....:		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection) .....:		—
	Multiple connections to mains (one connection at a time/simultaneous connections).....:		—
5.7.4	Earthed conductive accessible parts .....:		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V) .....:		—
	Measured current (mA) .....:		—
	Instructional Safeguard .....:		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA) .....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA) .....:		N/A
6	**ELECTRICALLY- CAUSED FIRE**		Pass
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		Pass
6.2.2	Power source circuit classifications	Particular circuit classified as PS2 or PS3 circuit. See “ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE”.	Pass
6.2.2.1	General	See “ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE”.	Pass
6.2.2.2	Power measurement for worst-case load fault....:	See appended table 6.2.2.	Pass
6.2.2.3	Power measurement for worst-case power source fault .....:	See appended table 6.2.2.	Pass
6.2.2.4	PS1 .....:	See appended table 6.2.2.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.5	PS2 .....:	See appended table 6.2.2.	Pass
6.2.2.6	PS3 .....:	The product is supplied from vehicle battery 12 VDC as classified as PS3 (declared).	Pass
6.2.3	Classification of potential ignition sources		Pass
6.2.3.1	Arcing PIS .....:	No arcing PIS involved.	N/A
6.2.3.2	Resistive PIS .....:	See appended table 6.2.3.2. Other electrical components in PS2 and PS3 circuits were considered as Resistive PIS.	Pass
6.3	Safeguards against fire under normal operating and abnormal operating conditions		Pass
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials..... :	See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6.	Pass
6.3.1 (b)	Combustible materials outside fire enclosure	Min. HB except parts that with a size of less than 1750 mm³, media, gears, cams, belts, bearings, labels, knobs and the like other parts. See appended table 4.1.2	Pass
6.4	Safeguards against fire under single fault conditions		Pass
6.4.1	Safeguard Method	The method of protection the 'Reduce the likelihood of ignition' has been considered to all PS3 circuits except other PS2 or fewer circuits which considered the 'Control fire spread'.	Pass
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		Pass
6.4.3.1	General		Pass
6.4.3.2	Supplementary Safeguards	Components are complied with sub-clause 6.4.7 and Annex G.5.4.	Pass
	Special conditions if conductors on printed boards are opened or peeled	No conductors on printed circuit boards were opened or peeled.	Pass
6.4.3.3	Single Fault Conditions ..... :	See appended table B.4.	Pass
	Special conditions for temperature limited by fuse	Fuse not complying with the IEC 60127 series opened within 1 s for three consecutive times.	Pass
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards ..... :	Component is complied with Annex G.5.4, materials are rated V-2 or better, or materials are mounted on PWB rated V-1 or better, or materials mass of less than 4 g, or not ignite during single fault conditions. See appended tables 4.1.2.	Pass
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		Pass
6.4.7.1	General ..... :	Components are materials rated V-1 or better, or mass of less than 4 g are provided.	Pass
6.4.7.2	Separation by distance	Combustible materials except above are considered.	Pass
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		N/A
6.4.8.1	Fire enclosure and fire barrier material properties	No fire enclosure or fire barrier required.	N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) ..... :		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) ..... :		N/A
	Flammability tests for the bottom of a fire enclosure ..... :		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating .....:		N/A
6.5	Internal and external wiring		Pass
6.5.1	Requirements	Insulation of internal wires in PS2 or PS3 circuits made by PVC, TFE, PTFE, FEP, polychloroprene, polyimide or VW-1 material.	Pass
6.5.2	Cross-sectional area (mm^2) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.3	Requirements for interconnection to building wiring ..... :	No interconnection to building wiring.	N/A
6.6	Safeguards against fire due to connection to additional equipment		Pass
	External port limited to PS2 or complies with Clause Q.1	Output is limited PS2 or less.	Pass
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances	No such hazardous substances involved.	N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions.....:		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010) .....:		—
7.6	Batteries ..... :		N/A
8	**MECHANICALLY-CAUSED INJURY**		Pass
8.1	General		Pass
8.2	Mechanical energy source classifications	Edge and corners, Moving parts (Stepping, Loading, Spindle, motors), Fan blades (Plastic), Equipment mass classified as MS1. Moving parts (tilting function of Display) classified as MS2.	Pass
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	MS1: No sharp edge and corner in operator accessible area.	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	MS1: Plastic fan blades. [6000 rpm / 15000 + (6 x 10^-7 x 0.012 kg x 20^2 mm x 6000^2 rpm) / 2400] = 0.44	Pass
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	MS2: Moving parts (tilting function of Display)	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.2	Instructional Safeguard ..... :	Instructional safeguard provided by the symbols IEC 60417-6057 (2011-05) where marked on in front of front sub panel. (See Enclosure id. 07-04) The following words are mentioned in the instruction manual. "Moving Panel Keep fingers away from moving panel."	—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks..... :		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard ..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)..... :		N/A
8.5.5	High Pressure Lamps	No high pressure lamps provided.	N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test ..... :		N/A
8.6	Stability	The equipment is installed into vehicle and classified as MS1.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard ..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force..... :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt ..... :		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force) ..... :		N/A
	Position of feet or movable parts ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.7	Equipment mounted to wall or ceiling	Since the equipment is installed into vehicle, the wall or ceiling mount was not considered even though the bracket for installing into vehicle was provided.	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) ..... :		N/A
8.7.2	Direction and applied force ..... :		N/A
8.8	Handles strength	No handle provided.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force ..... :		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard ..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force..... :		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C) ..... :		N/A
8.11	Mounting means for rack mounted equipment	No mounting means for rack mount provided.	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N* ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No telescoping antenna or rod antenna provided.	N/A
	Button/Ball diameter (mm) ..... :		—

9	**THERMAL BURN INJURY**		Pass
9.2	Thermal energy source classifications	Classified as TS1. See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
9.3	Safeguard against thermal energy sources	No safeguard required due to TS1.	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard	Limit accessibility to a thermal energy source to a touch temperature.	N/A
9.4.2	Instructional safeguard ..... :		N/A
10	**RADIATION**		Pass
10.2	Radiation energy source classification	Optical Pick-Up of CD/DVD Drive, Infrared and Indicating lights classified as RS1.	Pass
10.2.1	General classification	Low power application of LED is in the exempt group.	Pass
10.3	Protection against laser radiation		Pass
	Laser radiation that exists in the equipment:	RS1: Laser Pick-up.	—
	Normal, abnormal, single-fault ..... :	Class 1 Laser product.	Pass
	Instructional safeguard..... :	(None)	—
	Tool ..... :	(None)	—
10.4	Protection against visible, infrared, and UV radiation		Pass
10.4.1	General		Pass
10.4.1.a)	RS3 for Ordinary and instructed persons ..... :		N/A
10.4.1.b)	RS3 accessible to a skilled person ..... :		N/A
	Personal safeguard (PPE) instructional safeguard ..... :		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 ..... :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions .....:		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque ..... :		N/A
10.4.1.f)	UV attenuation ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.1.g)	Materials resistant to degradation UV..... :		N/A
10.4.1.h)	Enclosure containment of optical radiation ..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions ..... :	The luminance of LCD Panel does not exceed 10^4 cd/m² classified as RS1.	Pass
10.4.2	Instructional safeguard ..... :		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards ..... :		N/A
	Instructional safeguard for skilled person ..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition.....:		N/A
	Maximum radiation (pA/kg) .....:		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A) .....:		N/A
	Output voltage, unweighted r.m.s. .....:		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards.....:		N/A
	Equipment safeguard prevent ordinary person to RS2 .....:		—
	Means to actively inform user of increase sound pressure .....:		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output .....:		—
10.6.5.2	Corded listening devices with digital input		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Maximum dB(A) .....:		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A) .....:		—
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		Pass
B.2	Normal Operating Conditions		Pass
B.2.1	General requirements .....:	See Test Item Particulars and appended test tables.	Pass
	Audio Amplifiers and equipment with audio amplifiers.....:	See Annex E.	Pass
B.2.3	Supply voltage and tolerances	12.0 VDC ± 10 % were considered by applicant request.	Pass
B.2.5	Input test .....:	See appended table B.2.5.	Pass
B.3	Simulated abnormal operating conditions		Pass
B.3.1	General requirements .....:	See appended table B.3.	Pass
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test	No DC mains considered.	N/A
B.3.4	Setting of voltage selector.....:	No voltage selector provided.	N/A
B.3.5	Maximum load at output terminals.....:	See appended table B.3.	Pass
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	See appended table B.3.	Pass
B.3.8	Safeguards functional during and after abnormal operating conditions		Pass
B.4	Simulated single fault conditions		Pass
B.4.2	Temperature controlling device open or short-circuited.....:	No such device provided.	N/A
B.4.3	Motor tests		Pass
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature .....:	See appended table B.4.	Pass
B.4.4	Short circuit of functional insulation		Pass
B.4.4.1	Short circuit of clearances for functional insulation	See appended table B.4.	Pass
B.4.4.2	Short circuit of creepage distances for functional insulation	See appended table B.4.	Pass
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	See appended table B.4.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.6	Short circuit or disconnect of passive components	See appended table B.4.	Pass
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	See appended table B.4.	Pass
B.4.9	Battery charging under single fault conditions ....:		N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV involved.	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		Pass
E.1	Audio amplifier normal operating conditions		Pass
	Audio signal voltage (V) ..... :	Front Left/Right, Rear Left/Right: Maximum 7.71 Vrms.	—
	Rated load impedance (Ω) ..... :	Front Left/Right, Rear Left/Right: 4 Ω	—
E.2	Audio amplifier abnormal operating conditions	See appended table B.3.	Pass
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		Pass
F.1	General requirements		Pass
	Instructions – Language ..... :	English only evaluated.	—
F.2	Letter symbols and graphical symbols		Pass
F.2.1	Letter symbols according to IEC60027-1		Pass
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		Pass
F.3	Equipment markings		Pass
F.3.1	Equipment marking locations	On top chassis	Pass
F.3.2	Equipment identification markings		Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.2.1	Manufacturer identification ..... :	KENWOOD	—
F.3.2.2	Model identification ..... :	DNX7190DABS / DMX8019DABS	—
F.3.3	Equipment rating markings		Pass
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains	Supplied from vehicle battery.	Pass
F.3.3.3	Nature of supply voltage ..... :	(IEC 60417-5031) markings immediately follow the equipment voltage rating.	—
F.3.3.4	Rated voltage ..... :	12 V	—
F.3.3.5	Rated frequency..... :	N/A	—
F.3.3.6	Rated current or rated power ..... :	7 A	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		Pass
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :		N/A
F.3.5.2	Switch position identification marking ..... :		N/A
F.3.5.3	Replacement fuse identification and rating markings..... :	FUSE15A	Pass
F.3.5.4	Replacement battery identification marking..... :		N/A
F.3.5.5	Terminal marking location	Class III equipment	N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking ..... :	(None)	—
F.3.8	External power supply output marking	USB cables: “5VDC 1.5A” EXIT I/F: “12VDC 500mA” DC symbol is marked immediately follow voltages.	Pass
F.3.9	Durability, legibility and permanence of marking	Easily discernible.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	Marking label meet the durability test.	Pass
F.4	Instructions		Pass
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	The equipment is for building-in.	N/A
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment	IEC 60417-6057 (2011-05) is marked on equipment and instruction manual. The following words are mentioned in the instruction manual. “This symbol indicate the presence of mechanical parts that may cause injury. Be sure to carefully read instructions in this manual.”	Pass
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		Pass
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	See sub-clause 8.5.2.	Pass
G	**COMPONENTS**		Pass
G.1	**Switches**		N/A
G.1.1	General requirements	No applicable switch provided.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3	**Protection Devices**		Pass
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H) .....:		—
	Single Fault Condition .....:		—
	Test Voltage (V) and Insulation Resistance (Ω) .:		—
G.3.3	PTC Thermistors	No such devices which relied upon as a safeguard.	N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		Pass
G.3.5.1	Non-resettable devices suitably rated and marking provided	Blade fuse and Fuse (F500, F1) are tested three times under single fault condition. (See appended table 4.1.2, components that complied with IEC 60065 is acceptable based on sub-clause 4.1.1)	Pass
G.3.5.2	Single faults conditions .....:	See appended table B.4	Pass
G.4	**Connectors**		Pass
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration .....:		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		Pass
G.5	**Wound Components**		Pass
G.5.1	Wire insulation in wound components		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Time (s) ..... :		—
	Temperature (°C) ..... :		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) ..... :		N/A
	Position ..... :		—
	Method of protection ..... :		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings ..... :		—
G.5.3.3	Overload test.....:		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	**Motors**		Pass
G.5.4.1	General requirements		Pass
	Position ..... :	DC motors (Stepping, Loading, Spindle, Tilt, Fan) supplied from PS2 or PS3 circuits.	—
G.5.4.2	Test conditions		Pass
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits	Fan motor is air-handling only and where the air-propelling component is directly coupled to the motor shaft. The electronic drive circuits (IC31 on Main PWB and IC1 on DVD Mecha PWB) maintain a substantially constant drive current for motors.	N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)..... :		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) ..... :		N/A
	Electric strength test (V)..... :		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		Pass
G.5.4.6.2	Tested in the unit	Yes.	Pass

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Clause	Requirement + Test	Result - Remark	Verdict
	Maximum Temperature ..... :	See appended table B.4.	Pass
	Electric strength test (V) ..... :		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) ..... :		N/A
	Electric strength test (V)..... :		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage ..... :		—
G.6	**Wire Insulation**		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type .....:		—
	Rated current (A) .....:		—
	Cross-sectional area (mm^2), (AWG) .....:		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N) ..... :		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ... :		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry.....:		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) .....:		—
	Diameter (m) ..... :		—
	Temperature (°C) ..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.8	**Varistors**		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test ..... :		N/A
G.8.3.3	Temporary overvoltage ..... :		N/A
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA ..... :		—
G.9.1 d)	IC limiter output current (max. 5A) ..... :		—
G.9.1 e)	Manufacturers' defined drift ..... :		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) ..... :		N/A
	Type test voltage Vini ..... :		—
	Routine test voltage, Vini,b ..... :		—
G.13	**Printed boards**		N/A
G.13.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction) ..... :		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements .....:		N/A
G.15	**Liquid filled components**		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16 a)	Humidity treatment in accordance with sc 5.4.8 – 120 hours		N/A
G.16 b)	Impulse test using circuit 2 with Uc = to transient voltage ..... :		N/A
G.16 C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
G.16 C2)	Test voltage ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.16 D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
G.16 D2)	Capacitance ..... :		—
G.16 D3)	Resistance ..... :		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA): ..... :		—
H.3.2	Tripping device and monitoring voltage ..... :		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) ..... :		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
	General requirements		N/A
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance ..... :		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method ..... :		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) ..... :		N/A
K.7.2	Overload test, Current (A) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....:		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method).. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance .....:		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature.....:		—
M.4.2.2 b)	Single faults in charging circuitry.....:		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) ..... :		N/A
M.6.2	Leakage current (mA) ..... :		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *V*z (m^3/s) ..... :		—
M.8.2.3	Correction factors ..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used ..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Figures O.1 to O.20 of this Annex applied..... :	No clearance and creepage distance required.	—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C) ..... :		—
	Ta (°C) ..... :		—
P.4.2 b)	Abrasion testing ..... :		N/A
P.4.2 c)	Mechanical strength testing ..... :		N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) ..... :		—
	Current limiting method..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). ..... :		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		Pass
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Cheesecloth did not ignite		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
S.4	Flammability classification of materials	Considered.	Pass
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (test condition), (°C)..... :		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		N/A
T.1	General requirements		N/A
T.2	Steady force test, 10 N ..... :		N/A
T.3	Steady force test, 30 N ..... :		N/A
T.4	Steady force test, 100 N ..... :		N/A
T.5	Steady force test, 250 N ..... :		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test ..... :		N/A
T.8	Stress relief test ..... :		N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J) ..... :		—
	Height (m)..... :		—
T.10	Glass fragmentation test..... :		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) ..... :		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No CRT provided.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen ..... :		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		Pass
V.1	Accessible parts of equipment	Figure V.1 considered.	Pass
V.2	Accessible part criterion		Pass

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components	Pass

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Component(s) on PCB, Audio PWB	--	--	--	--	--
Blade fuse	Littelfuse	0297015.WXNV	15 A, 32 VDC	IEC 62368-1:2014	(Tested in equipment)
Fuse / F500	SkyGate Co., Ltd.	1206FT2.5A	2.5 A, 63 VDC	IEC 60065:2014	UL (Certif. No. JP-22170-UL, tested in equipment)
PCB / Audio PWB (J7J-0477-00)	Draco PCB Public Company Limited	DPC-E7	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Alternate Audio PWB material	Interchangeable (*2)	Interchangeable (*2)	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Component(s) on PCB, Main PWB	--	--	--	--	--
Fuse / F1	SkyGate Co., Ltd.	1206FT7A	7 A, 63 VDC	IEC 60065:2014	UL (Certif. No. JP-22170-UL, tested in equipment)
PCB / Main PWB (J7J-0469-00)	Guh Circuit Industry (PG) Sdn. Bhd.	ML2	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Alternate Main PWB material	Interchangeable (*2)	Interchangeable (*2)	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Component(s) on Panel PCB, PWB	--	--	--	--	--
PCB / Panel PWB (J7J-0237-10)	Guh Circuit Industry (PG) Sdn. Bhd.	ML2	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Alternate Panel PWB material	Interchangeable (*2)	Interchangeable (*2)	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Component(s) on PCB, SoC PWB	--	--	--	--	--
PCB / SoC PWB (J7J-0462-00)	CMK Corp.	PB2L	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Alternate Soc PWB material	Interchangeable (*2)	Interchangeable (*2)	Minimum V-1, Minimum 130°C	IEC 60695-11-10:2013 (UL 94, UL 796) (*1)	(UL)
Other component(s)	--	--	--	--	--
Ventilating fan	Nippon Keiki works, Ltd.	LF40K05PJK04A	5 VDC, 0.06 A, 9 impellers, 0.202 m^3/min. (Max. Air Flow)	IEC 62368-1:2014	(Tested in equipment)
Optical Pick-Up(s)	--	--	--	--	--
Laser pickup assembly	JVCKENWOOD Corp.	KDP11A(P)	Class 1 (Laser Diode; Panasonic Corp., Type HULT276S11KW)	IEC 60065:2014 (IEC 60825-1:2014)	UL (Certif. No. JP-22170-UL, tested in equipment)
Alternate Laser pickup assembly	JVCKENWOOD Corp.	KDP11B(P)	Class 1 (Laser Diode; Panasonic Corp., Type HULT276S11KW)	IEC 60065:2014 (IEC 60825-1:2014)	UL (Certif. No. JP-22170-UL, tested in equipment)
Alternate Laser pickup assembly	JVCKENWOOD Corp.	KDP11T(P)	Class 1 (Laser Diode; Panasonic Corp., Type HULT276S11KW)	IEC 60065:2014 (IEC 60825-1:2014)	UL (Certif. No. JP-22170-UL, tested in equipment)
Display(s)	--	--	--	--	--
LED panel	Chunghwa Picture tubes Ltd.	CLAA069LB02 CW	Min. 400 cd/m^2, Type 500 cd/m^2	IEC 62368-1:2014	(Tested in equipment)
Alternate LED panel	AU Optronics Corporation	C070VTN04.2	Min. 650 cd/m^2, Max. 979.6 cd/m^2	IEC 62368-1:2014	(Tested in equipment)
Others	--	--	--	--	--

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Stepping Motor	NIDEC SANKYO Corp.	MSAW016J11	3.6 VDC	IEC 62368-1:2014	(Tested in equipment)
Loading Motor	SHENZHEN JIA AI MOTOR Co., LTD.	JP12-95H130C	3.5 VDC	IEC 62368-1:2014	(Tested in equipment)
Spindle Motor	NITTOH DENKI	NBL-4062A	5 VDC	IEC 62368-1:2014	(Tested in equipment)
TILT motor	TRICORE CORPORATION	FM20181	8 VDC	IEC 62368-1:2014	(Tested in equipment)
CN601 Connector Housing on Main PWB, CN581 Connector Housing on SoC PWB	POLYPLASTICS CO LTD	E473i	LCP, V-0	IEC 60695-11-10:2013 (UL 94) (*1)	(UL)
Front Panel, J151 RCA pin jack Base material, DVD Mecha-DISC GUIDE, Tilt Mecha	Interchangeable	--	Minimum HB	IEC 60695-11-10:2013 (UL 94) (*1)	(UL)

Supplementary information:

1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

(*1) UL standard has requirements that meet or exceed the relevant IEC requirements.

(*2) Interchangeability based on specified rating.

The CBTL has verified the component information.

EN standards were used to verify the compliance of the some critical components, because EN standards were well harmonized to IEC standard and technically equivalent.

License available upon request.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	**TABLE: Stress Relief test**		—
Part	**Material**	**Oven Temperature (°C)**	**Comments**
4.8.4.3	**TABLE: Battery replacement test**		—
Battery part no. ..... :			—
Battery Installation/withdrawal		Battery Installation/Removal Cycle	Comments
		1	
		2	
		3	
		4	
		5	
		6	
		8	
		9	
		10	
4.8.4.4	**TABLE: Drop test**		—
Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	
4.8.4.5	**TABLE: Impact**		—
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**
4.8.4.6	**TABLE: Crush test**		—
Test position	**Surface tested**	**Crushing Force (N)**	**Duration force applied (s)**
Supplementary information:			

4.8.5	**TABLE: Lithium coin/button cell batteries mechanical test result**	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Test position	Surface tested	Force (N)	Duration force applied (s)
Supplementary information:			

5.2	Table: Classification of electrical energy sources						Pass
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Capacitance, nF	Upk (V)		
--	--	--	Normal	--	--		--
			Abnormal	--	--		
			Single fault – SC/OC	--	--		
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	**Table: Classification of electrical energy sources**	Pass
Test Conditions: Normal – Abnormal - Supplementary information: SC=Short Circuit, OC=Open Circuit		
See Clause 5.2.1.		

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**					Pass
	Supply voltage (V) ..... :	13.2 VDC	13.2 VDC	--	--	—
	Ambient T_{min} (°C) ..... :	See below.	See below.	--	--	—
	Ambient T_{max} (°C) ..... :	--	--	--	--	—
	Tma (°C) ..... :	See below.	See below.	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
Normal Operating Conditions Temperature Test (Test conditions: See Supplementary Information.)		A	A	--	--	--
L1 coil on PCB, Audio PWB		102	114	--	--	130
IC101 LC (AMP) on PCB, Audio PWB		109	121	--	--	130
IC1 LC on PCB, Audio PWB		92	104	--	--	130
Q391 LC (DAB) on PCB, Audio PWB		77	89	--	--	130
F500 LC (External I/F) on PCB, Audio PWB		80	92	--	--	130
Q1 LC on PCB, Main PWB		75	87	--	--	130
IC31 LC on PCB, Main PWB		83	95	--	--	130
IC131 LC (USB2 Gray) on PCB, Main PWB		97	109	--	--	130
IC91 LC (USB1 Black) on PCB, Main PWB		92	104	--	--	130
IC803 LC (GPS) on PCB, Main PWB		79	91	--	--	130
Q801 LC (GPS) on PCB, Main PWB		75	87	--	--	130
IC601 LC on PCB, SoC PWB		83	95	--	--	130
Ambient (°C)		23.0	Tma: 35	--	--	--
Touch Temperature Measurements “N” (Test conditions: See Supplementary Information.)		A	A	--	--	--
Front Panel, top (Non-metallic) / >1s and <10s		53	55	--	--	77
Display surface (Non-metallic) / >1s and <10s		38	40	--	--	77
HOME switch (Non-metallic) / >1s and <10s		32	34	--	--	77
Ambient (°C)		23.0	Calculated to 25	--	--	--
Supplementary information:						
Test conditions are as follows. A: Input 13.2 V, Test cond. No. 3 (see appended table B.2.5 for details.) Abbreviations: PWB = Printed Wiring Board, “N” – Normal Condition, “A” – Abnormal Condition, “S” - Single Fault Condition.						

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Clause	Requirement + Test	Result - Remark	Verdict

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							
Note 1: Tma should be considered as directed by applicable requirement Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)							

5.4.1.10.2	**TABLE: Vicat softening temperature of thermoplastics**		N/A
Penetration (mm)....:			—
Object/ Part No./Material	Manufacturer/trademark	T softening (°C)	
supplementary information:			

5.4.1.10.3	**TABLE: Ball pressure test of thermoplastics**		N/A
Allowed impression diameter (mm) ....:	≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
Supplementary information:			

5.4.2.2, 5.4.2.4 and 5.4.3	**TABLE: Minimum Clearances/Creepage distance**						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
Supplementary information:							
Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			N/A
	Overvoltage Category (OV):			
	Pollution Degree:			
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Supplementary information:				

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No	
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Supplementary information:						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No	
Functional:				
Basic/supplementary:				
Reinforced:				
Routine Tests:				
Supplementary information:				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information:						
X-capacitors installed for testing are: [ ] bleeding resistor rating: [ ] ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.6.6.2	TABLE: Resistance of protective conductors and terminations				N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Supplementary information:					

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	N/A
Supply voltage .....:		—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
	1	
	2*	
	3	
	4	
	5	
	6	
	8	
Supplementary Information:		

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	Table: Electrical power sources (PS) measurements for classification				Pass
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
Audio PWB: Speaker output circuit	J1 Connector pin 10-11 Load Fault	Power (W) :	3.75	--	PS1
		V_A (V) :	0.847	--	
		I_A (A) :	4.43	--	
Audio PWB: Speaker output circuit	J1 Connector pin 10-11 Source fault – S/C (IC101 7-10pin)	Power (W) :	< 10	--	PS1 (Speaker output shutdown immediately)
		V_A (V) :	--	--	
		I_A (A) :	--	--	
Audio PWB: ILM12V circuit	IC1 pin 1-9 Load Fault	Power (W) :	6.00	--	PS1
		V_A (V) :	8.61	--	
		I_A (A) :	0.697	--	
Audio PWB: ILM12V circuit	IC1 pin 1-9 Source fault – S/C (IC1 pin 1-7)	Power (W) :	53.7 m	--	PS1
		V_A (V) :	11.6	--	
		I_A (A) :	4.63 m	--	
Audio PWB: CD8V circuit	IC1 pin 3-9 Load Fault	Power (W) :	--	16.1	PS2
		V_A (V) :	--	7.69	
		I_A (A) :	--	2.10	
Audio PWB: CD8V circuit	IC1 pin 3-9 Source fault – S/C (IC1 pin 3-7)	Power (W) :	2.45	--	PS1
		V_A (V) :	11.7	--	
		I_A (A) :	0.209	--	
Audio PWB: A8.5V circuit	IC1 pin 5-9 Load Fault	Power (W) :	9.02	--	PS1
		V_A (V) :	8.43	--	
		I_A (A) :	1.07	--	
Audio PWB: A8.5V circuit	IC1 pin 5-9 Source fault – S/C (IC1 pin 5-7)	Power (W) :	0.491	--	PS1
		V_A (V) :	11.7	--	
		I_A (A) :	0.042	--	
Audio PWB: BU5V circuit	IC1 pin 12-9 Load Fault	Power (W) :	4.21	--	PS1
		V_A (V) :	4.86	--	
		I_A (A) :	0.866	--	
Audio PWB: BU5V circuit	IC1 pin 12-9 Source fault – S/C (IC1 pin 12-7)	Power (W) :	5.36	--	PS1 (IC1 and Unit damaged)
		V_A (V) :	12.0	--	
		I_A (A) :	0.447	--	

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Clause	Requirement + Test			Result - Remark	Verdict
Audio PWB: SW5V circuit	IC1 pin 13-9 Load Fault	Power (W) :	3.34	--	PS1
		V_A (V) :	3.87	--	
		I_A (A) :	0.863	--	
Audio PWB: SW5V circuit	IC1 pin 13-9 Source fault – S/C (IC1 pin 13-7)	Power (W) :	0	--	PS1 (IC1 and Unit damaged)
		V_A (V) :	12.0	--	
		I_A (A) :	0	--	
Audio PWB: ANT circuit	IC1 pin 14-9 Load Fault	Power (W) :	7.28	--	PS1
		V_A (V) :	9.11	--	
		I_A (A) :	0.799	--	
Audio PWB: ANT circuit	IC1 pin 14-9 Source fault – S/C (IC1 pin 14-7)	Power (W) :	0.139	--	PS1
		V_A (V) :	11.6	--	
		I_A (A) :	0.012	--	
Audio PWB: EXT circuit	IC1 pin 15-9 Load Fault	Power (W) :	9.70	--	PS1
		V_A (V) :	8.98	--	
		I_A (A) :	1.08	--	
Audio PWB: EXT circuit	IC1 pin 15-9 Source fault – S/C (IC1 pin 15-7)	Power (W) :	4.16	--	PS1
		V_A (V) :	11.5	--	
		I_A (A) :	0.362	--	
Main PWB: SW14V circuit	R8 load side to GND Load Fault	Power (W) :	1.49m	--	PS1
		V_A (V) :	5.38	--	
		I_A (A) :	0.277m	--	
Main PWB: SW14V circuit	R8 load side to GND Source fault – S/C (R8)	Power (W) :	0.061m	--	PS1
		V_A (V) :	11.5	--	
		I_A (A) :	0.0053m	--	
Main PWB: SW14V circuit	Across C41 Load Fault	Power (W) :	--	18.2	PS2
		V_A (V) :	--	4.78	
		I_A (A) :	--	3.81	
Main PWB: SW14V circuit	Across C41 Source fault – S/C (IC31 pin 6-7)	Power (W) :	7.50	--	PS1
		V_A (V) :	11.7	--	
		I_A (A) :	0.641	--	
Main PWB: SW14V circuit	Across C101 Load Fault	Power (W) :	9.75	--	PS1
		V_A (V) :	4.71	--	
		I_A (A) :	2.07	--	
	Across C101	Power (W) :	--	35.1	PS2
		V_A (V) :	--	10.5	

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Clause	Requirement + Test			Result - Remark	Verdict
Main PWB: SW14V circuit	Source fault – S/C (IC91 pin 2-3)	I_A (A) :	--	3.34	
Digital (SoC) PWB: SW14.4V circuit	Across C6211 Load Fault	Power (W) :	--	16.2	PS2
		V_A (V) :	--	4.89	
		I_A (A) :	--	3.31	
Digital (SoC) PWB: SW14.4V circuit	Across C6211 Source fault – S/C (IC601 pin 6-7)	Power (W) :	6.14	--	PS1
		V_A (V) :	11.1	--	
		I_A (A) :	0.553	--	
Digital (SoC) PWB: BU14.4V circuit	Across C5911 Load Fault	Power (W) :	1.053	--	PS1
		V_A (V) :	3.283	--	
		I_A (A) :	0.3206	--	
Digital (SoC) PWB: BU14.4V circuit	Across C5911 Source fault – S/C (IC591 6-7 pin)	Power (W) :	< 10	--	PS1
		V_A (V) :	--	--	
		I_A (A) :	--	--	
Supplementary Information: (*) Measurement taken only when limits at 3 seconds exceed PS1 limits Tests were conducted with Supply Voltage DC 12 V. Abbreviations: S/C = Short-Circuit					

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				N/A
Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No	
Supplementary information:					
An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (Vp) and normal operating condition rms current (Irms) is greater than 15.					

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				Pass
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No

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Clause	Requirement + Test	Result - Remark	Verdict

--	--	--	--	--	--

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation,

or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits,

regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

All components in PS2, PS3 circuits were considered as resistive PIS.

8.5.5	**TABLE: High Pressure Lamp**	N/A
Description	Values	Energy Source Classification
Lamp type .....:		—
Manufacturer.....:		—
Cat no.....:		—
Pressure (cold) (MPa) .....:		MS_
Pressure (operating) (MPa).....:		MS_
Operating time (minutes).....:		—
Explosion method .....:		—
Max particle length escaping enclosure (mm) .:		MS_
Max particle length beyond 1 m (mm).....:		MS_
Overall result .....:		
Supplementary information:		

B.2.5	**TABLE: Input test**							Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
10.8	DC	5.94	7	64.2	--	Blade fuse	5.94	Test cond. No. 1 See Supplementary information for load condition. (*)
12.0	DC	5.91	7	70.9	--	Blade fuse	5.91	Test cond. No. 2 Ditto. (*)
13.2	DC	5.86	7	77.4	--	Blade fuse	5.86	Test cond. No. 3 Ditto. (*)

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Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	TABLE: Input test								Pass
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
10.8	DC	5.98	7	64.6	--	Blade fuse	5.98	Test cond. No. 4 See Supplementary information for load condition. (**)	
12.0	DC	5.94	7	71.3	--	Blade fuse	5.94	Test cond. No. 5 Ditto. (**)	
13.2	DC	5.87	7	77.5	--	Blade fuse	5.87	Test cond. No. 6 Ditto. (**)	

Supplementary information:

Load condition:

(*) EUT: DNX7190DABS. LED Panel: Chunghwa Picture Tubes, Ltd., Type CLAA069LB02 CW

1/8 audio output, DVD play, DAB antenna CX-DAB1, GPS antenna, marked loads (5V, 1.5 A) at USB (Gray) terminal and USB (Black) terminal, rated load (12V, 500 mA) at External I/F terminal, total output (12 V, 350 mA) at ANT CONT/P. CONT (Power control/Antenna control wire) and Power control (Pin A-5 of Connector A)

(**) EUT: DNX7190DABS. LED Panel: AU Optronics Corporation, Type C070VTN04.2

1/8 audio output, DVD play, DAB antenna CX-DAB1, GPS antenna, marked loads (5V, 1.5 A) at USB (Gray) terminal and USB (Black) terminal, rated load (12V, 500 mA) at External I/F terminal, total output (12 V, 350 mA) at ANT CONT/P. CONT (Power control/Antenna control wire) and Power control (Pin A-5 of Connector A)

Speaker outputs are as follows.

Test cond. No. 1 Front Left/Right, Rear Left/Right: 2.23 V, 1.24 W; Speaker impedance

Test cond. No. 2 Front Left/Right, Rear Left/Right: 2.52 V, 1.58 W; Speaker impedance

Test cond. No. 3 Front Left/Right, Rear Left/Right: 2.73 V, 1.86 W; Speaker impedance

Test cond. No. 4 Front Left/Right, Rear Left/Right: 2.23 V, 1.24 W; Speaker impedance

Test cond. No. 5 Front Left/Right, Rear Left/Right: 2.52 V, 1.58 W; Speaker impedance

Test cond. No. 6 Front Left/Right, Rear Left/Right: 2.73 V, 1.86 W; Speaker impedance

B.3	TABLE: Abnormal operating condition tests								Pass
Ambient temperature (°C) .....:					23				—
Power source for EUT: Manufacturer, model/type, output rating ..:					--				—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
USB (Gray) terminal	MUL (1.86 A)	13.2 VDC	4 h	Blade fuse	6.06	IC131	120	No hazard. NCD.	
USB (Black) terminal	MUL (1.80 A)	13.2 VDC	4 h	Blade fuse	6.02	IC91	113	No hazard. NCD.	
ANT CONT/P. CONT	MUL (0.79 A)	13.2 VDC	4 h	Blade fuse	6.31	IC1	141	No hazard. NCD.	

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Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating condition tests								Pass
Ambient temperature (°C) .....:					23				—
Power source for EUT: Manufacturer, model/type, output rating ..:					--				—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
GPS antenna	MUL (0.16 A)	13.2 VDC	4 h	Blade fuse	5.94	IC803 Q801	102 90	No hazard. NCD.	
External I/F terminal (EXT I/F)	MUL (3.3 A)	13.2 VDC	4 h	Blade fuse	8.73	L1 F500	138 184	No hazard. NCD.	
Ditto	MUL (3.4 A)	13.2 VDC	4 h	Blade fuse	8.83 → 5.40	L1 F500	141 198	F500 opened in 2 hours. No hazard. TRSR.	
DAB antenna terminal	MUL (0.63 A)	13.2 VDC	4 h	Blade fuse	6.56	IC1 Q391	124 115	No hazard. NCD.	
Ditto	MUL (0.64 A)	13.2 VDC	4 h	Blade fuse	6.57 → 0.05	IC1 Q391	Max. 157 Max. 212	EUT shutdown in 30 min. No hazard. NCD.	
Front L Speaker terminals	S/C	13.2 VDC	4 h	Blade fuse	5.86 → 5.14	--	--	No hazard. NCD.	
Ditto	S/C	10.8 VDC	4 h	Blade fuse	5.94 → 6.02	--	--	No hazard. NCD.	
Speaker terminals	MUL (2/8)	13.2 VDC	4 h	Blade fuse	See Observation.	IC101	127	Current through Blade fuse changed from 6.88 A to 6.05 A. Audio output changed from 3.86 V to 2.91 V. No hazard. NCD.	
Ditto	MUL (8/8)	13.2 VDC	4 h	Blade fuse	See Observation.	IC101	128	Current through Blade fuse changed from 10.3 A to 6.00 A. Audio output changed from 7.71 V to 2.80 V. No hazard. NCD.	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating condition tests								Pass
Ambient temperature (°C) .....:					23				—
Power source for EUT: Manufacturer, model/type, output rating ..:					--				—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Ditto	MUL (8/8)	10.8 VDC	4 h	Blade fuse	9.61	L1 IC101	160 112	No hazard. NCD.	
Supplementary information:									
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4. Tests were conducted at 12 VDC ±10% supply source. The test supply source has enough current capacity (40A). Temp. (°C) was taken into account Tma (35°C). Abbreviations: TRSR = Test repeated similar result (total three times)									

B.4	TABLE: Fault condition tests								Pass
Ambient temperature (°C) .....:					23				—
Power source for EUT: Manufacturer, model/type, output rating ..:					--				—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
PCB / Audio PWB	--	--	--	--	--	--	--	--	
C1	S/C	10.8 VDC	5 min	Blade Fuse	--	--	--	Blade fuse opened immediately. 5 min. No hazard. TRSR.	
IC101, pin 7 -10	S/C	10.8 VDC	4 h	Blade Fuse	3.92	--	--	Audio output shut-down immediately. Current through Blade fuse decreased. No hazard. NCD.	

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	3.47	--	--	Audio output shut-down immediately. Current through Blade fuse decreased. No hazard. NCD.
C15	S/C	10.8 VDC	4 h	Blade Fuse	6.20	IC1	118	No hazard. NCD.
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	5.77	IC1	150	No hazard. NCD.
C14	S/C	10.8 VDC	4 h	Blade Fuse	4.02	IC1	146	ANT CONT/P. CONT (Power control/Antenna control wire), Power control (Pin A-5 of Connector A) and Audio output shut-down. Current through Blade fuse decreased. No hazard. NCD.
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	3.55	IC1	147	ANT CONT/P. CONT (Power control/Antenna control wire), Power control (Pin A-5 of Connector A) and Audio output shut-down. Current through Blade fuse decreased. No hazard. NCD.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
C13	S/C	10.8 VDC	4 h	Blade Fuse	6.22	IC1	116	No hazard. NCD.
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	5.68	IC1	139	No hazard. NCD.
C18	S/C	10.8 VDC	4 h	Blade Fuse	6.15	IC1	105	No hazard. NCD.
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	5.69	IC1	131	No hazard. NCD.
C19	S/C	10.8 VDC	4 h	Blade Fuse	5.91	IC1	114	ANT CONT/P. CONT (Power control/Antenna control wire) and Power control (Pin A-5 of Connector A) shut- down. Current through Blade fuse decreased. No hazard. NCD.
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	5.77	IC1	123	13.2 VDC. NCD. 4 h. ANT CONT/P. CONT (Power control/Antenna control wire) and Power control (Pin A-5 of Connector A) shut- down. Current through Blade fuse decreased. No hazard. NCD.
PCB / Main PWB	--	--	--	--	--	--	--	--
C5	S/C	10.8 VDC	4 h	Blade Fuse	0.60	--	--	F1 opened immediately. No hazard. TRSR. No hazard.

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
PCB / Panel PWB	--	--	--	--	--	--	--	--
C220	S/C	10.8 VDC	4 h	Blade Fuse	1.70	--	--	USB (gray and black) and Audio output shut-down. Current through Blade fuse decreased. No hazard. NCD.
Ditto	S/C	13.2 VDC	4 h	Blade Fuse	1.69	--	--	USB (gray and black) and Audio output shut-down. Current through Blade fuse decreased. No hazard. NCD.
Other component(s)	--	--	--	--	--	--	--	--
Ventilating fan	Locked	13.2 VDC	4 h	Blade Fuse	5.86 → 5.01	L1 IC101	121 150	No hazard. NCD.
Ventilating fan	Locked	10.8 VDC	4 h	Blade Fuse	6.06	L1 IC101	129 147	No hazard. NCD.
Sled motor	Locked	13.2 VDC	7 h	Blade Fuse	4.15 → 3.95	--	--	Sled motor stopped after 10 sec. NCD.
Spindle motor	Locked	13.2 VDC	7 h	Blade Fuse	4.15	Spindle motor IC1 BC	87.3 73.1	Spindle motor and IC1 heated. NCD.
Loading motor	Locked	13.2 VDC	7 h	Blade Fuse	4.13 → 3.95	--	--	Loading motor stopped after 30 sec. NCD.
Tilt motor	Locked	13.2 VDC	7 h	Blade Fuse	3.95	--	--	Tilt motor stopped immediately. NCD.
Supplementary information:								

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Clause	Requirement + Test	Result - Remark	Verdict

Tests were conducted at 12 VDC ±10% supply source. The test supply source has enough current capacity (40A).

Temp. (°C) was taken into account Tma (35°C).

Abbreviations: TRSR = Test repeated similar result (total three times)

Annex M	**TABLE: Batteries**									N/A
The tests of Annex M are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position? .....:										
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition										
Max. current during fault condition										
Test results:										Verdict
- Chemical leaks										
- Explosion of the battery										
- Emission of flame or expulsion of molten metal										
- Electric strength tests of equipment after completion of tests										
Supplementary information:										

Annex M.4	**Table: Additional safeguards for equipment containing secondary lithium batteries**				N/A
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (°C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				
Supplementary Information:					
Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary Information:				

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Note: Measured UOC (V) with all load circuits disconnected:							
Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)		
			Meas.	Limit	Meas.	Limit	
Supplementary Information:							
SC=Short circuit, OC=Open circuit							

T.2, T.3, T.4, T.5	TABLE: Steady force test					N/A
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Supplementary information:						

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Supplementary information:					

T.8	TABLE: Stress relief test	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Supplementary information:					

Enclosure
National Differences

EU Group and National Differences

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment - Part 1: Safety requirements)	
Differences according to	EN 62368-1:2014+A11:2017
Attachment Form No.	EU_GD_IEC62368_1B_II
Attachment Originator	Nemko AS
Master Attachment	9/22/2017
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	CENELEC COMMON MODIFICATIONS (EN)		Pass
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed “Z”.		Pass
CONTENTS	**Add** the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords		Pass
	Delete all the “country” notes in the reference document (IEC 62368-1:2014) according to the following list:		Pass

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

	For special national conditions, see Annex ZB.		Pass
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.	Manufacturer’s responsibility.	Pass
4.Z1	Protective devices included as integral parts of the equipment or as parts of the building installation:		N/A
	a) Included as parts of the equipment		N/A
	b) For components in series with the mains; by devices in the building installation		N/A
	c) For pluggable type B or permanently connected; by devices in the building installation		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
10.2.1	**Add** the following to c) and d) in table 39: For additional requirements, see 10.5.1.		N/A
10.5.1	**Add** the following after the first paragraph: For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		Pass
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
4.1.15	**Denmark, Finland, Norway and Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	**Finland, Norway and Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	**Ireland and United Kingdom** To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark:** Appliances rated ≤13 A provided with a plug according to DS 60884-2-D1:2011.		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Class I equipment provided with socket-outlets provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having rated >13 A or poly-phase equipment provided with a supply cord with a plug, plug in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus rated 2,5 A in accordance with DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a		
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a ‘standard plug’ in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

Enclosures

Type	Supplement Id	Description
Photographs	03-01	Model DNX7190DABS (Top, Front, side, tilting)
Photographs	03-02	Model DNX7190DABS (Front, tilting)
Photographs	03-03	Model DNX7190DABS, Overall View (Top, Front, side)
Photographs	03-04	Model DNX7190DABS, Overall View (Rear, Bottom, side)
Photographs	03-05	Model DNX7190DABS (Front)
Photographs	03-06	Model DNX7190DABS (Rear)
Photographs	03-07	Model DNX7190DABS (L-Side)
Photographs	03-08	Model DNX7190DABS (R-Side)
Photographs	03-09	Model DNX7190DABS (Top)
Photographs	03-10	Model DNX7190DABS (Bottom)
Photographs	03-11	Model DNX7190DABS (Label, Reference only)
Photographs	03-12	Model DNX7190DABS (Fuse Marking)
Photographs	03-13	Model DNX7190DABS (GPS and HDMI Connector)
Photographs	03-14	Model DNX7190DABS (DAB Conenctor)
Photographs	03-15	Model DNX7190DABS (USB Connectors)
Photographs	03-16	Model DNX7190DABS (Cover Removed)
Photographs	03-17	Model DNX7190DABS (Internal view)
Photographs	03-18	Model DNX7190DABS (Panel unit)
Photographs	03-19	Model DNX7190DABS (Panel unit)
Photographs	03-20	Model DNX7190DABS (Panel PWB)
Photographs	03-21	Model DNX7190DABS (Panel PWB)
Photographs	03-22	Model DNX7190DABS (LED Panel)
Photographs	03-23	Model DNX7190DABS (LED Panel)
Photographs	03-24	Model DNX7190DABS (Internal view)
Photographs	03-25	Model DNX7190DABS (Internal view)
Photographs	03-26	Model DNX7190DABS (Internal view)
Photographs	03-27	Model DNX7190DABS (Internal view)
Photographs	03-28	Model DNX7190DABS (Fan Motor)
Photographs	03-29	Model DNX7190DABS (Internal view)
Photographs	03-30	Model DNX7190DABS (SoC PWB)
Photographs	03-31	Model DNX7190DABS (SoC PWB)
Photographs	03-32	Model DNX7190DABS (Internal view)
Photographs	03-33	Model DNX7190DABS (Main PWB)
Photographs	03-34	Model DNX7190DABS (Main PWB)

Enclosures

Photographs	03-35	Model DNX7190DABS (Internal view)
Photographs	03-36	Model DNX7190DABS (Internal view)
Photographs	03-37	Model DNX7190DABS (Audio PWB)
Photographs	03-38	Model DNX7190DABS (Audio PWB)
Photographs	03-39	Model DNX7190DABS (Connecting Cables)
Photographs	03-40	Model DNX7190DABS (GPS Antenna)
Photographs	03-41	Model DNX7190DABS (GPS Antenna)
Photographs	03-42	Model DNX7190DABS (DAB Antenna)
Photographs	03-43	Model DNX7190DABS (DAB Antenna)
Photographs	03-44	Model DNX7190DABS (Blade Fuse)
Photographs	03-45	Model DNX7190DABS (Blade Fuse)
Photographs	03-46	Model DNX7190DABS (Blade Fuse)
Photographs	03-47	Model DNX7190DABS (Alt. LED Panel)
Photographs	03-48	Model DNX7190DABS (Alt. LED Panel)
Miscellaneous	07-01	Connection instructions in the INSTRUCTION MANUAL
Miscellaneous	07-02	List of Difference for DNX7190DABS etc.
Miscellaneous	07-03	Manufacturers Declaration
Miscellaneous	07-04	Instructional safeguard marking for front panel

Enclosures

Photographs ID 03-01

Enclosures

Photographs ID 03-02

Photographs ID 03-03

Enclosures

Photographs ID 03-04

Enclosures

Photographs ID 03-05

Photographs ID 03-06

Photographs ID 03-07

Photographs ID 03-08

Enclosures

Photographs ID 03-09

Enclosures

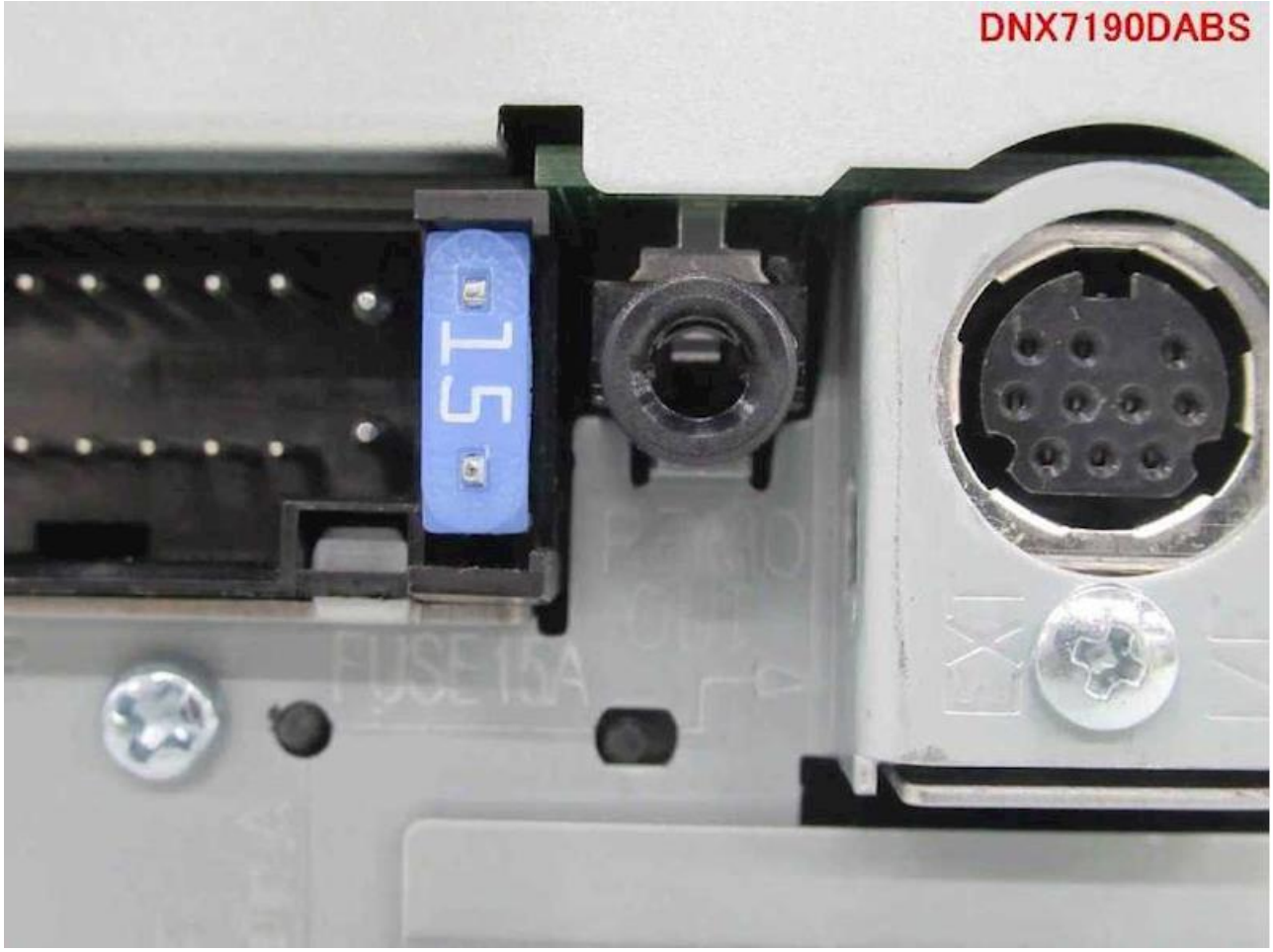
Photographs ID 03-10

Enclosures

Photographs ID 03-11

Enclosures

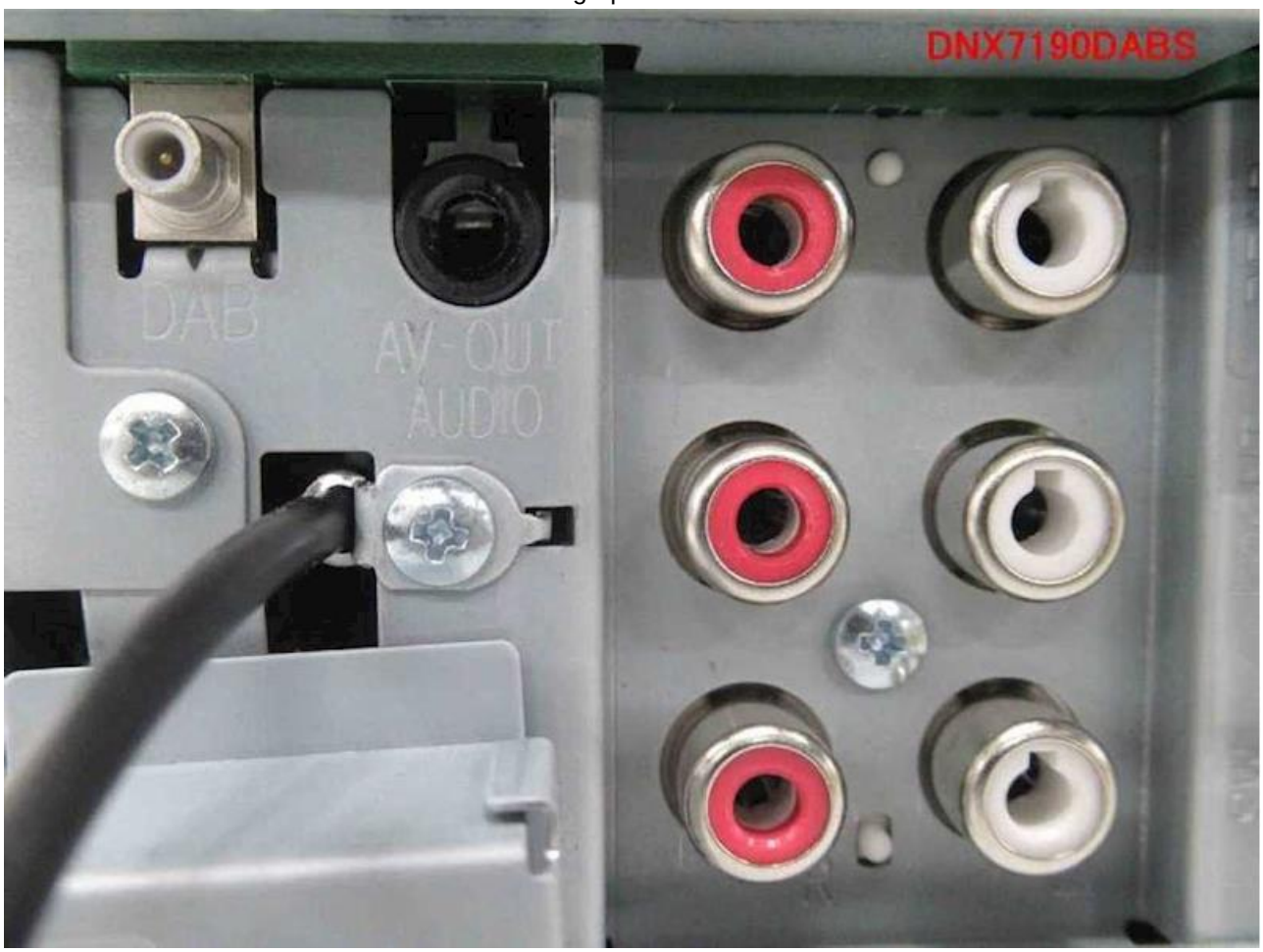
Photographs ID 03-12



Photographs ID 03-13

Enclosures

Photographs ID 03-14



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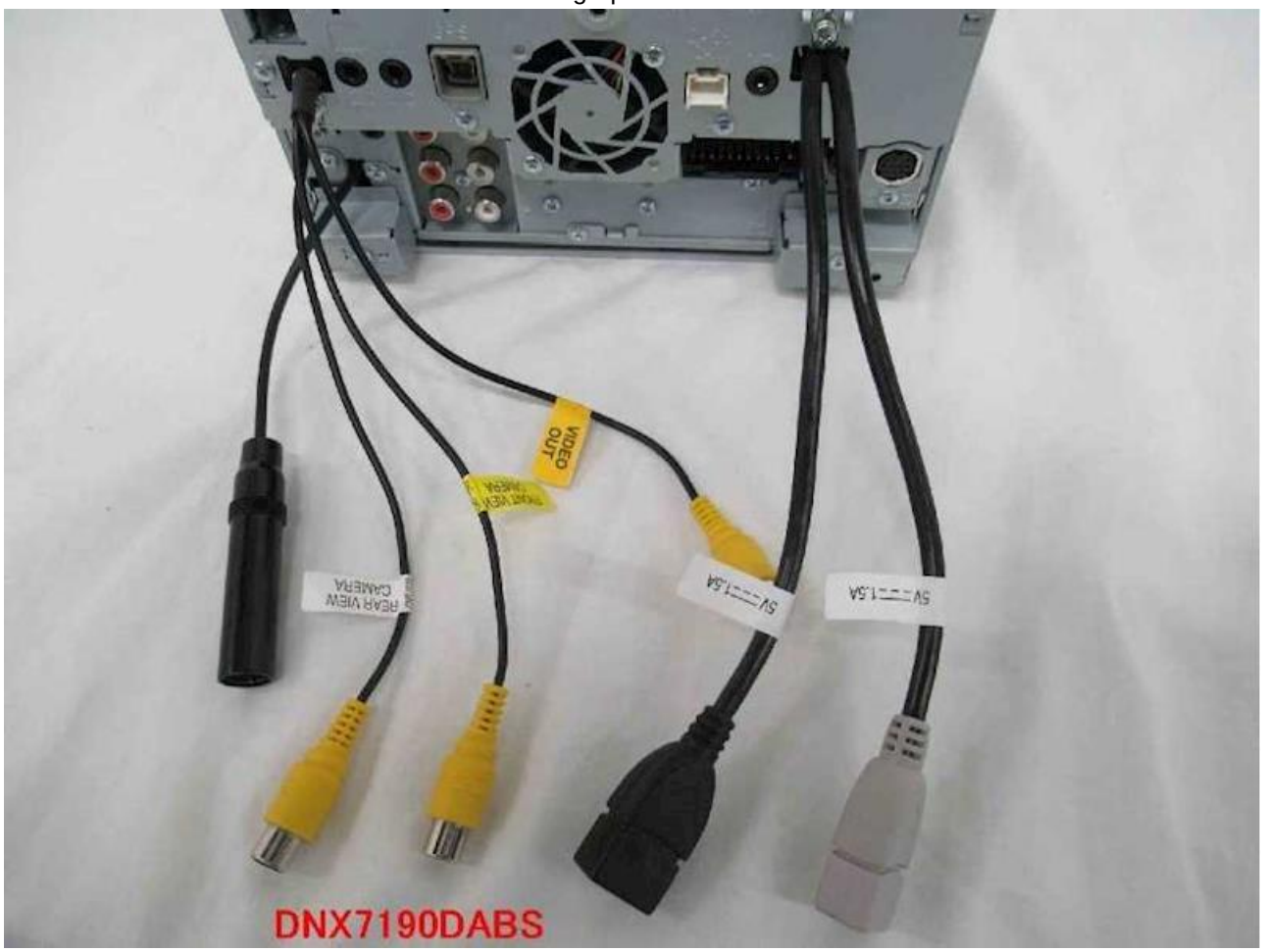


Enclosures

Photographs ID 03-16

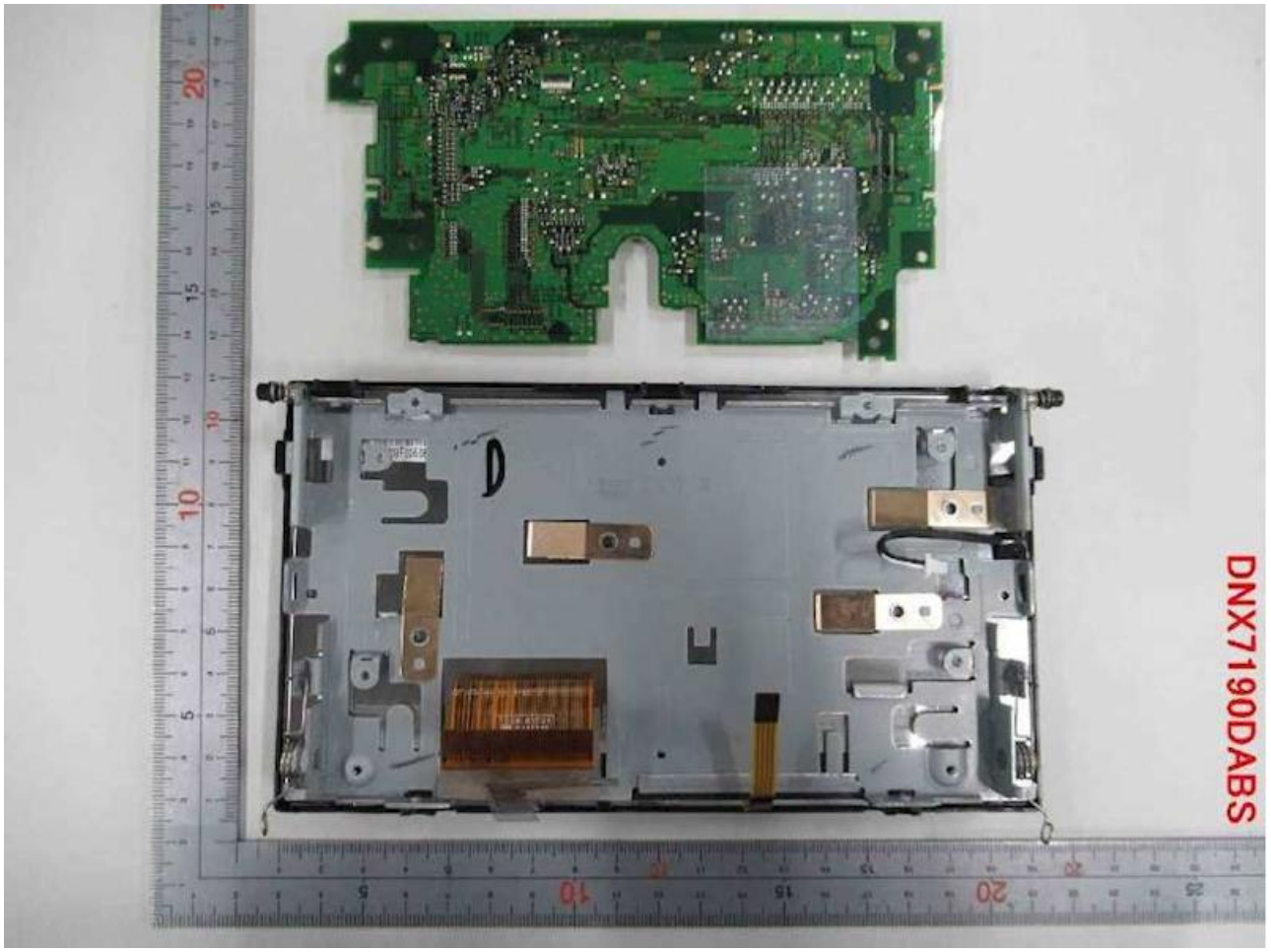
Photographs ID 03-17

Enclosures

Photographs ID 03-18

Enclosures

Photographs ID 03-19



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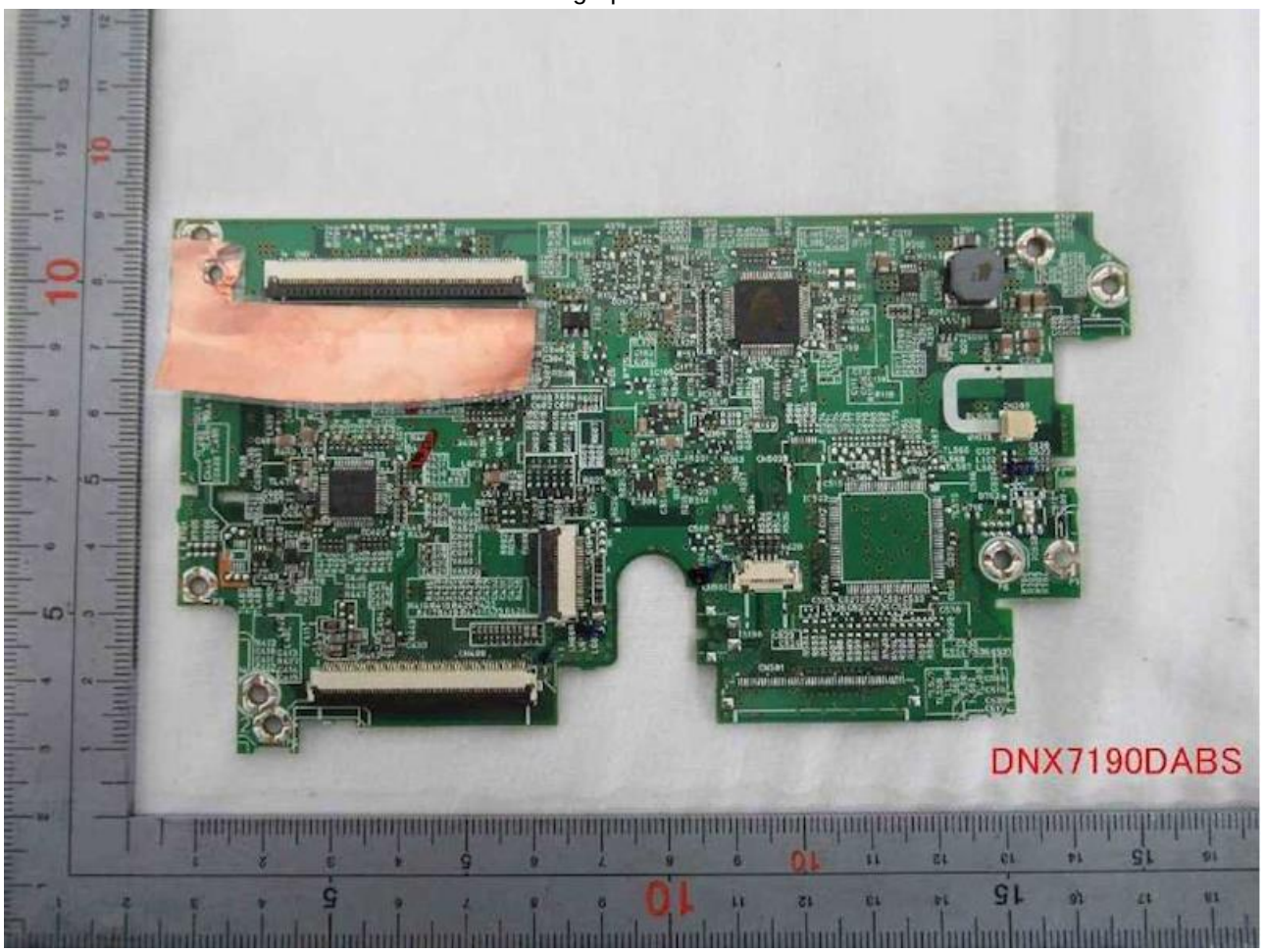

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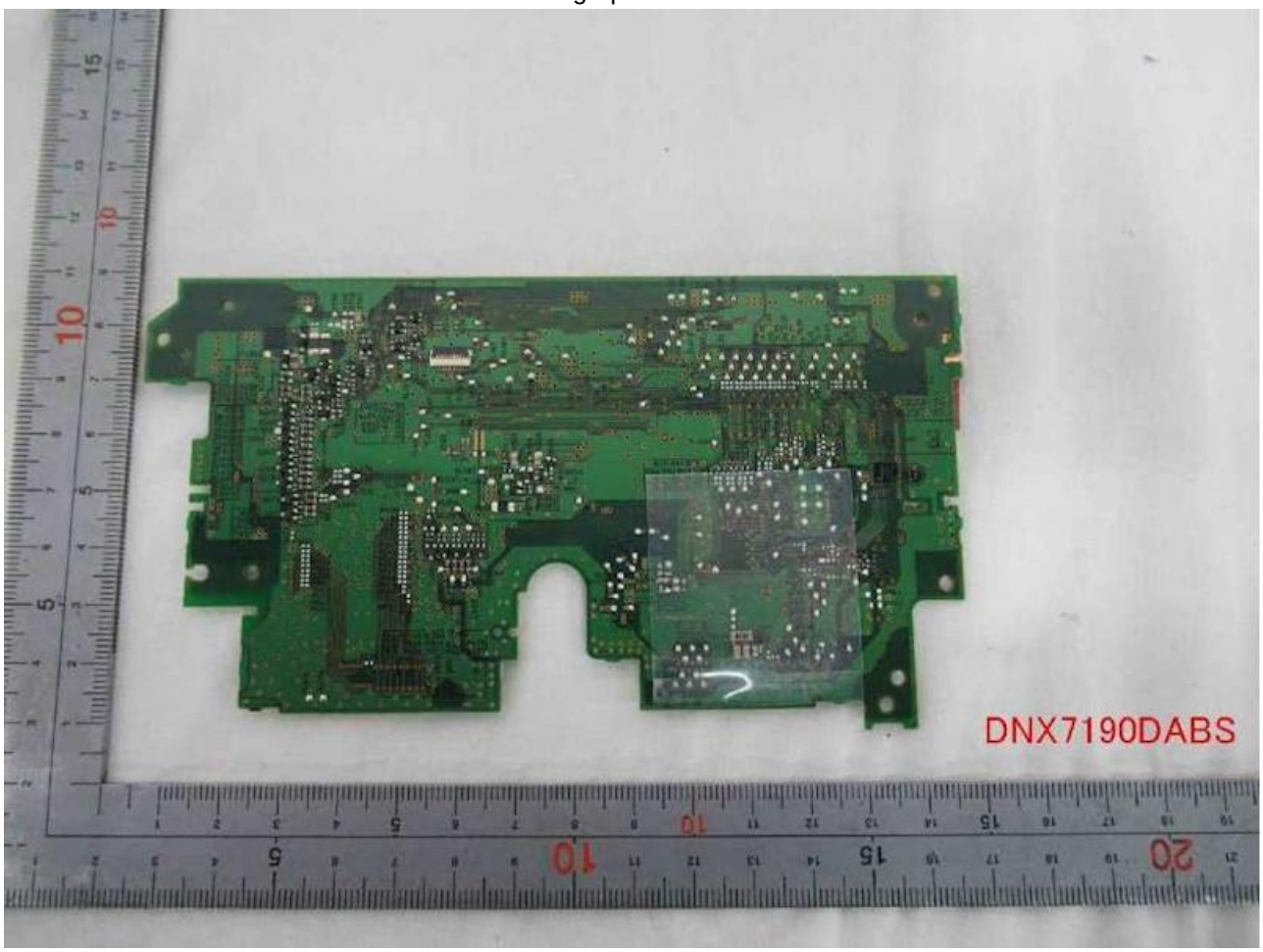


Enclosures

Photographs ID 03-22

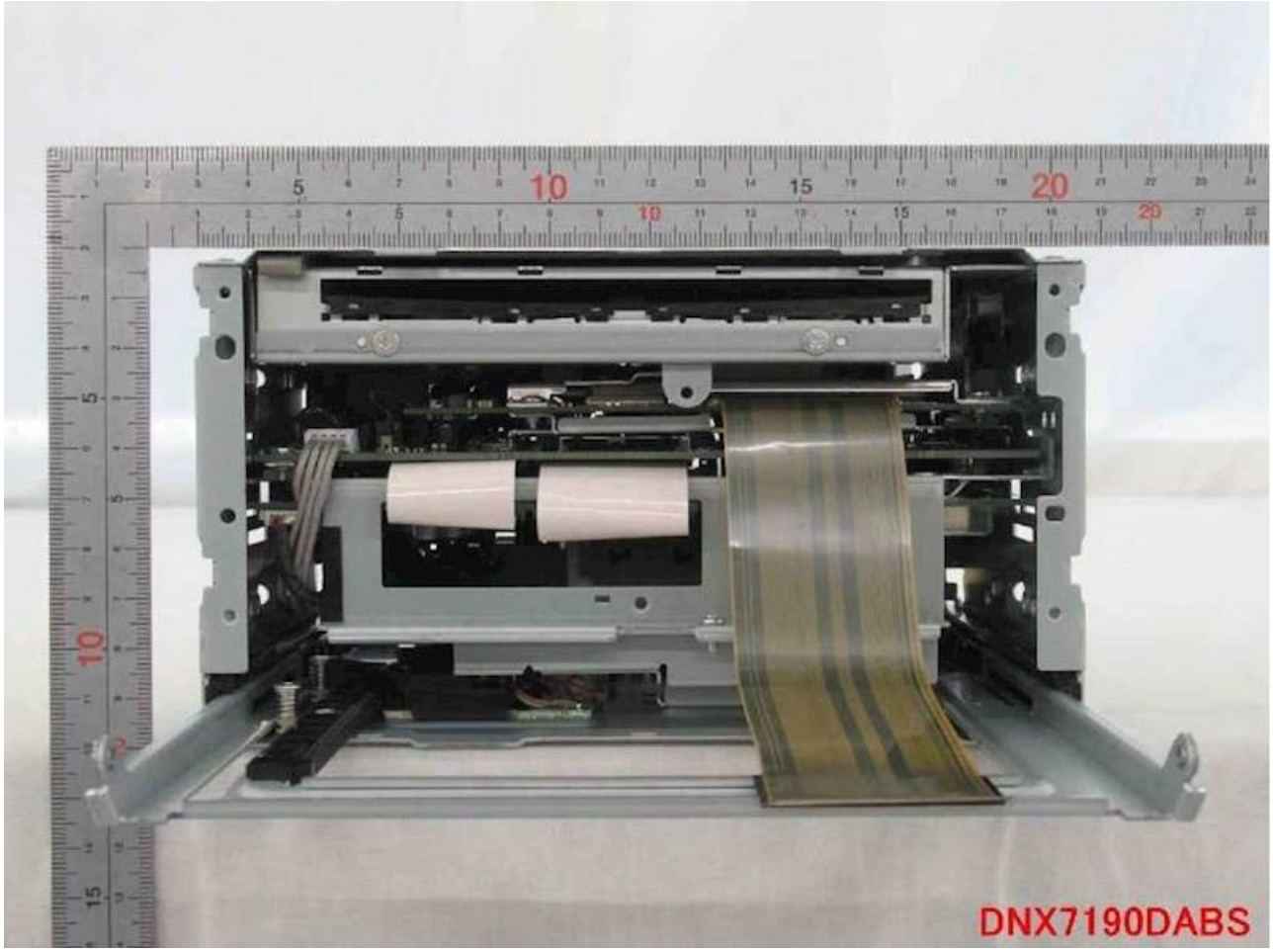
Enclosures

Photographs ID 03-23

Enclosures

Photographs ID 03-24

Photographs ID 03-25

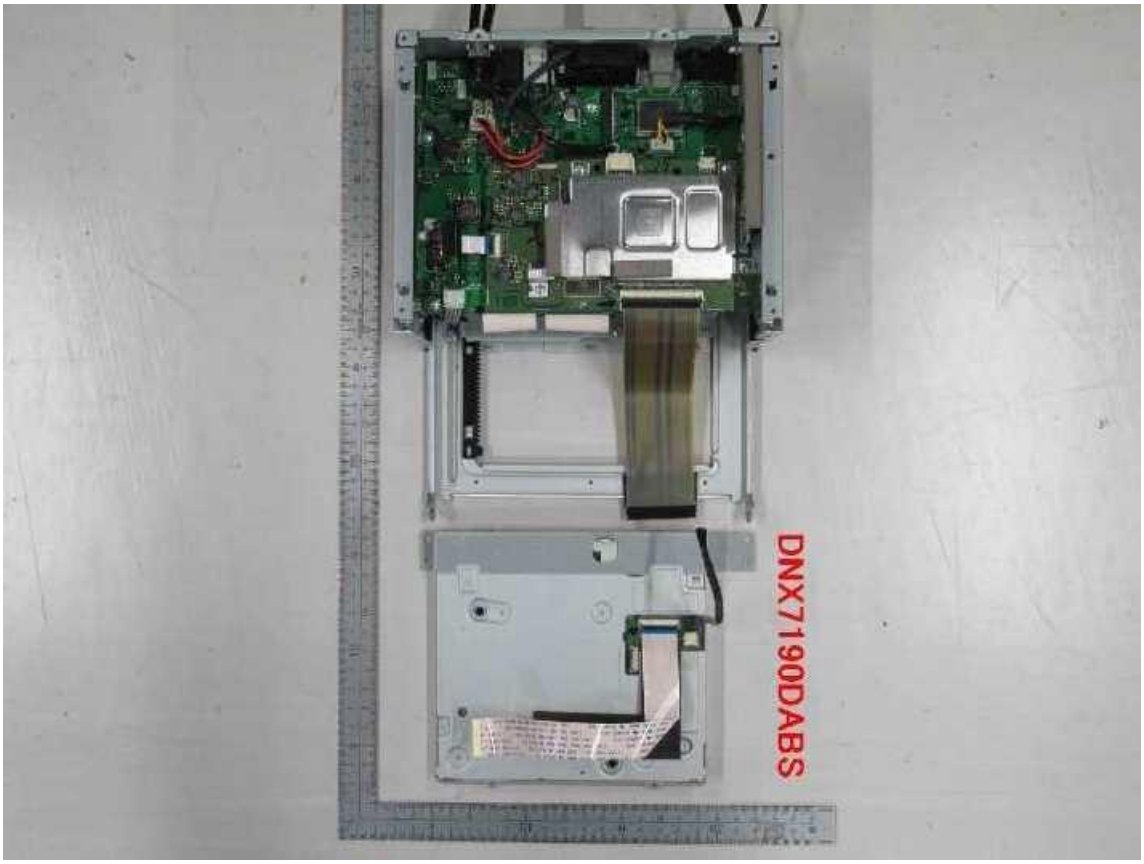


Enclosures

Photographs ID 03-26

Enclosures

Photographs ID 03-27

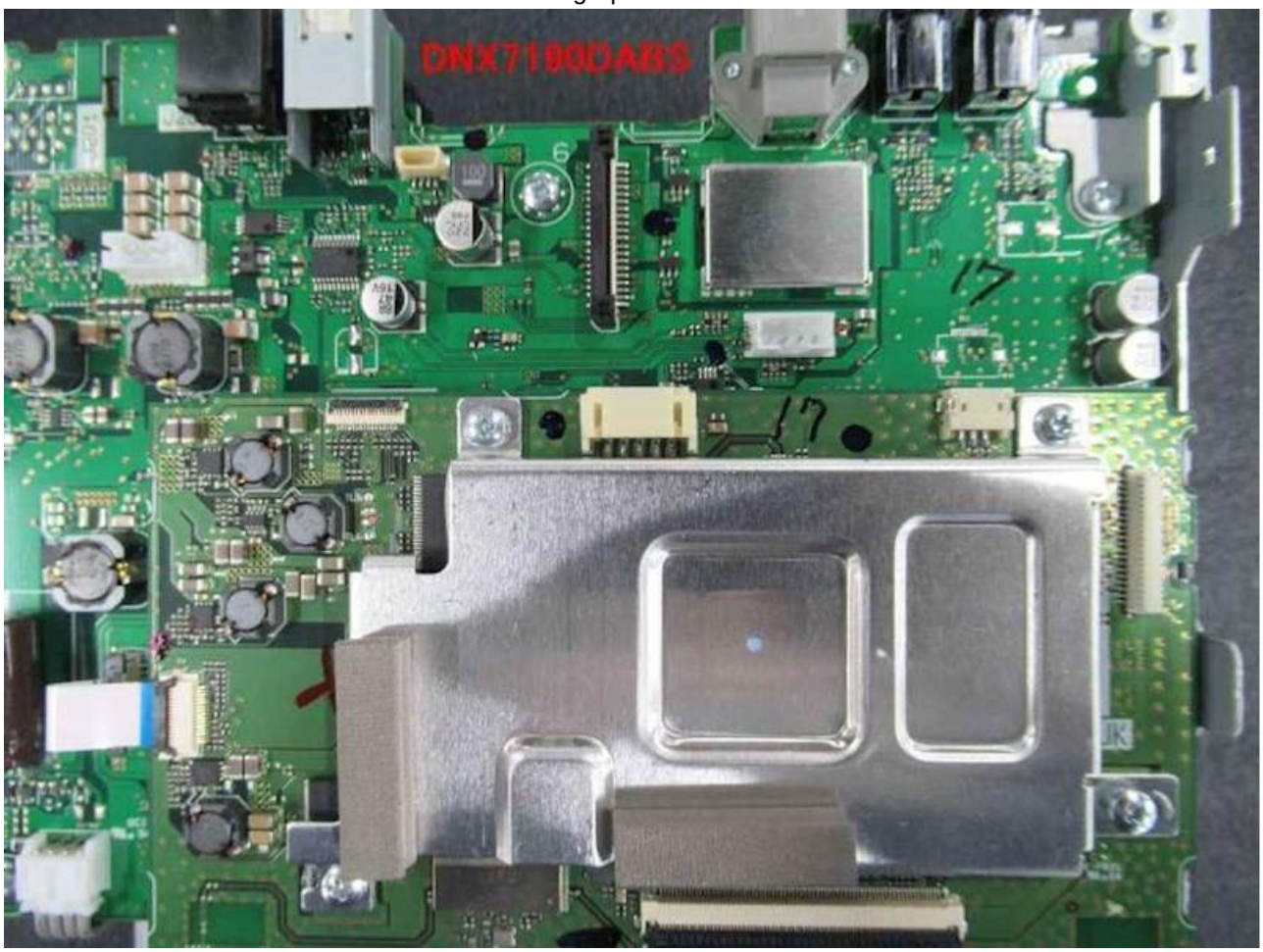


Enclosures

Photographs ID 03-28

Enclosures

Photographs ID 03-29



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Photographs ID 03-30

Enclosures

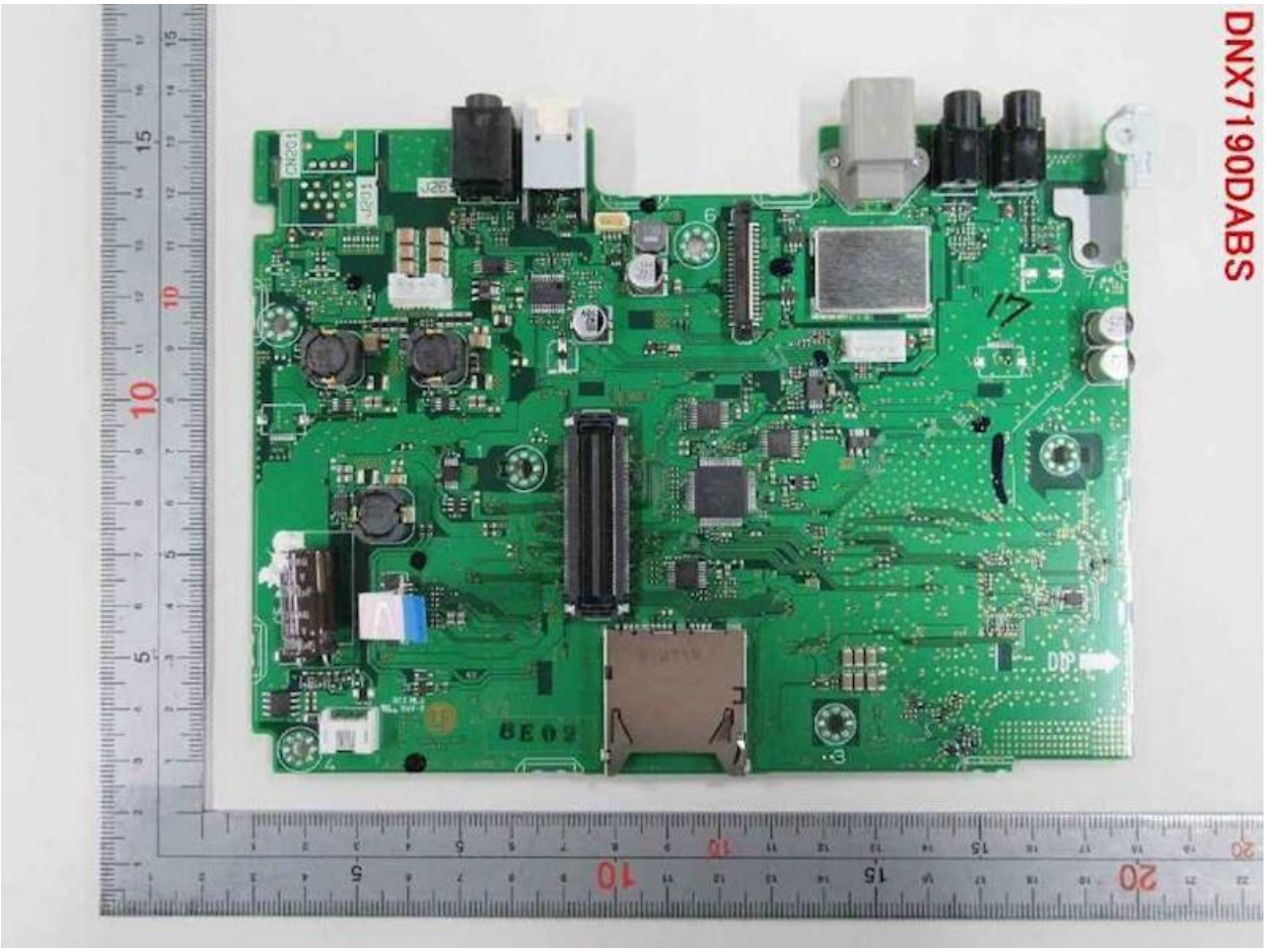
Photographs ID 03-31

Enclosures

Photographs ID 03-32

Enclosures

Photographs ID 03-33



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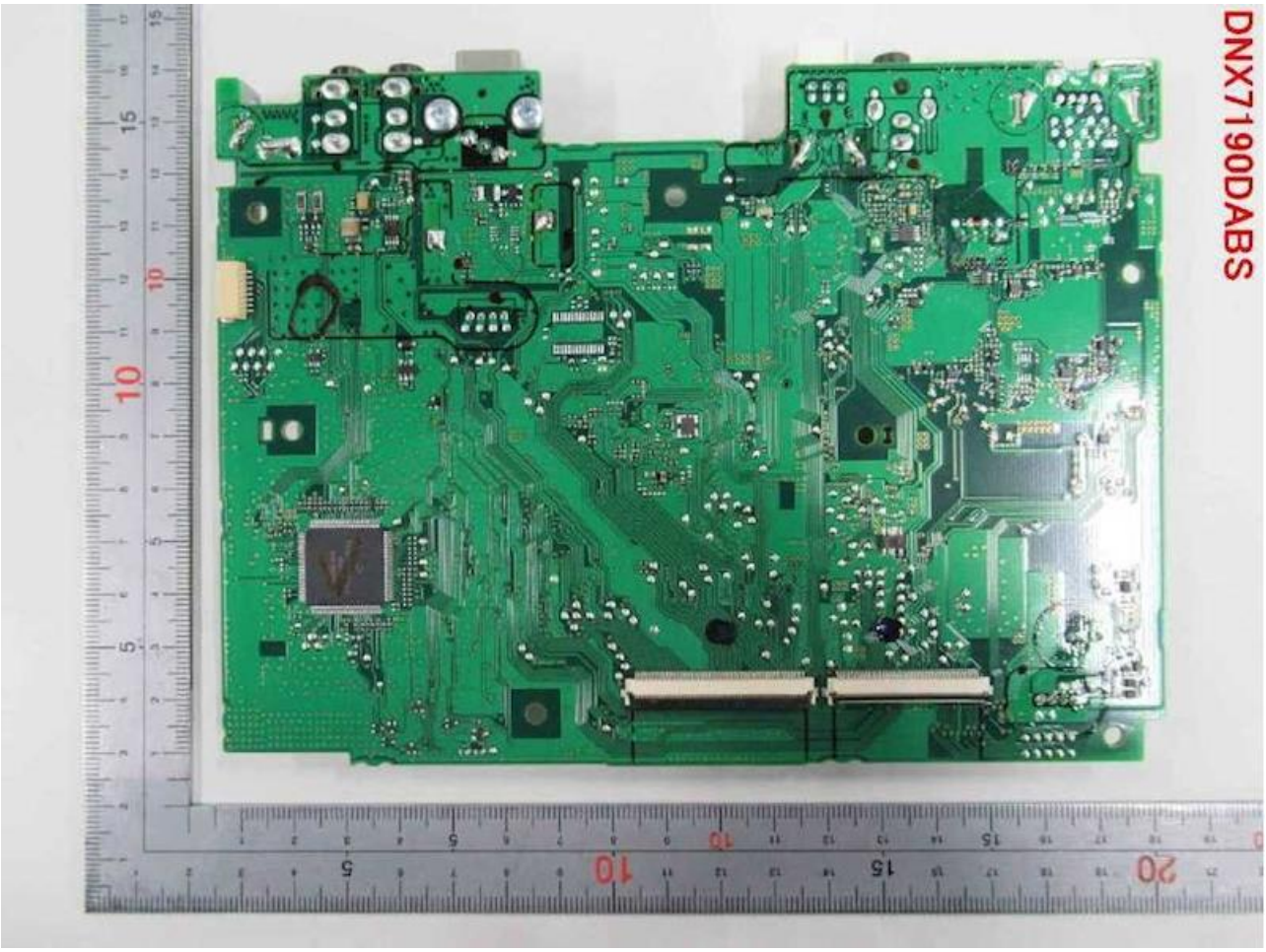

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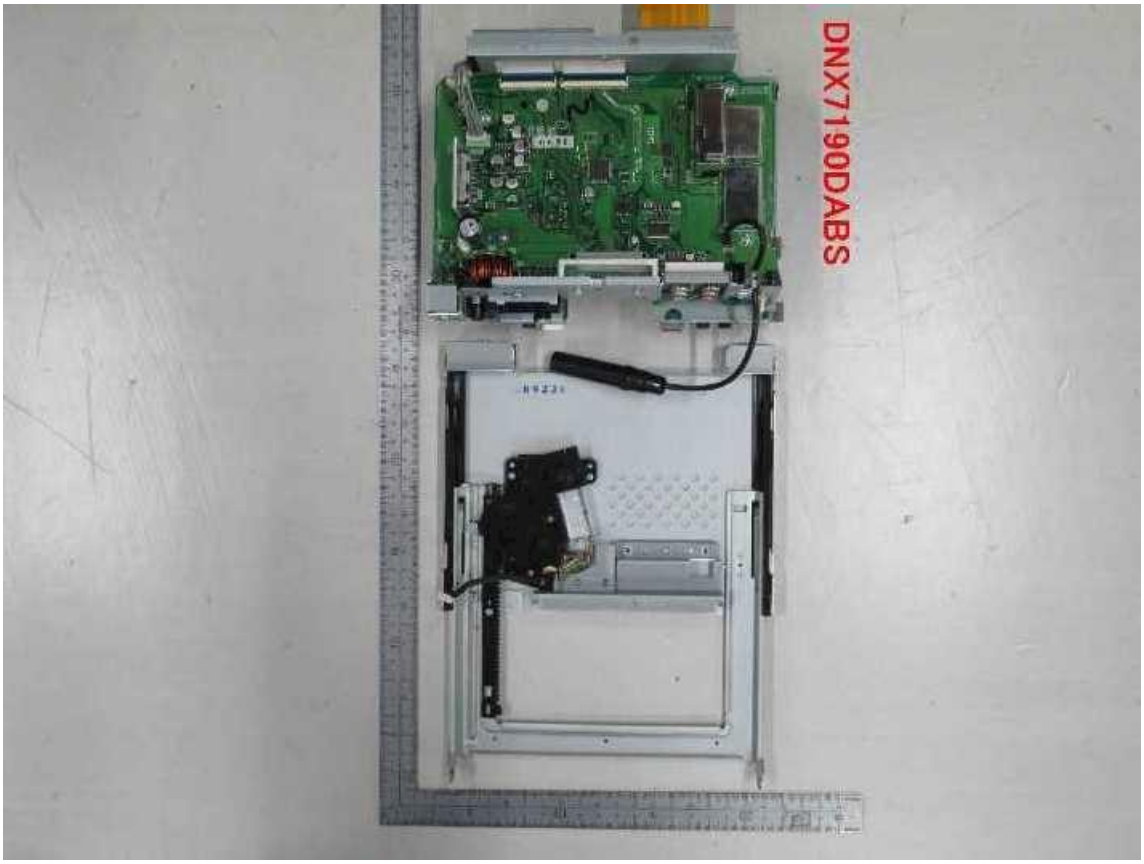

Enclosures

Photographs ID 03-36

Enclosures

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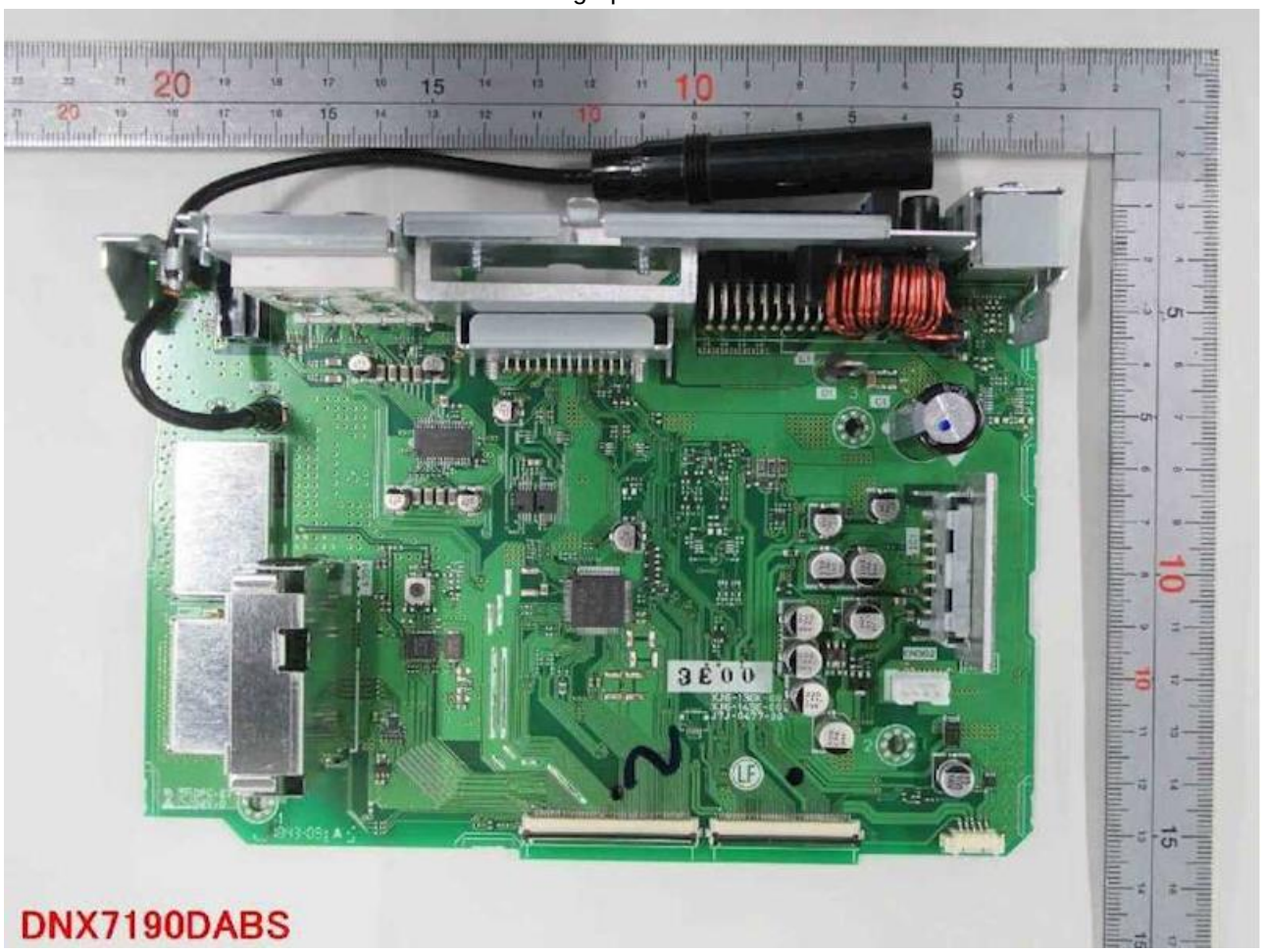

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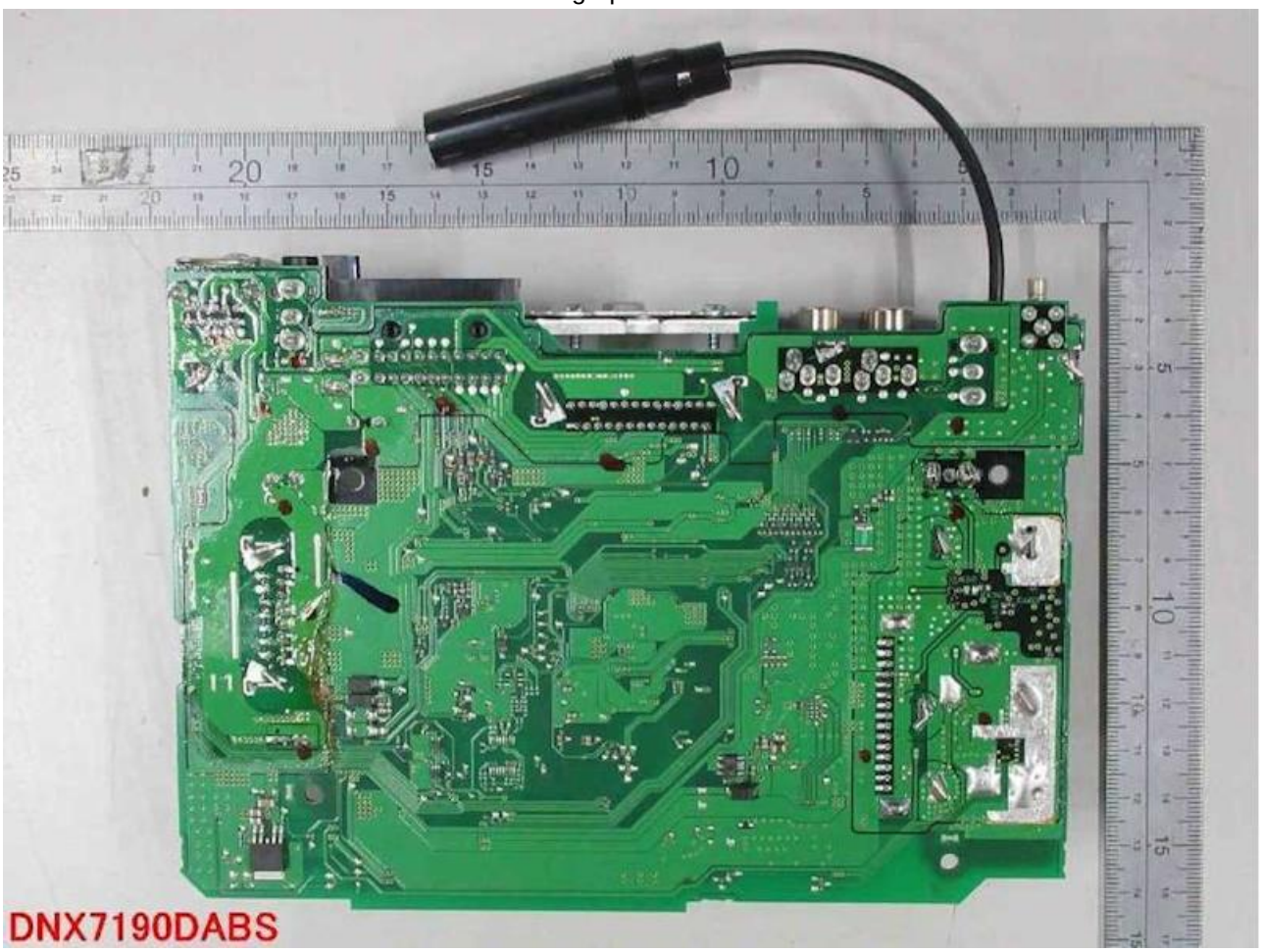

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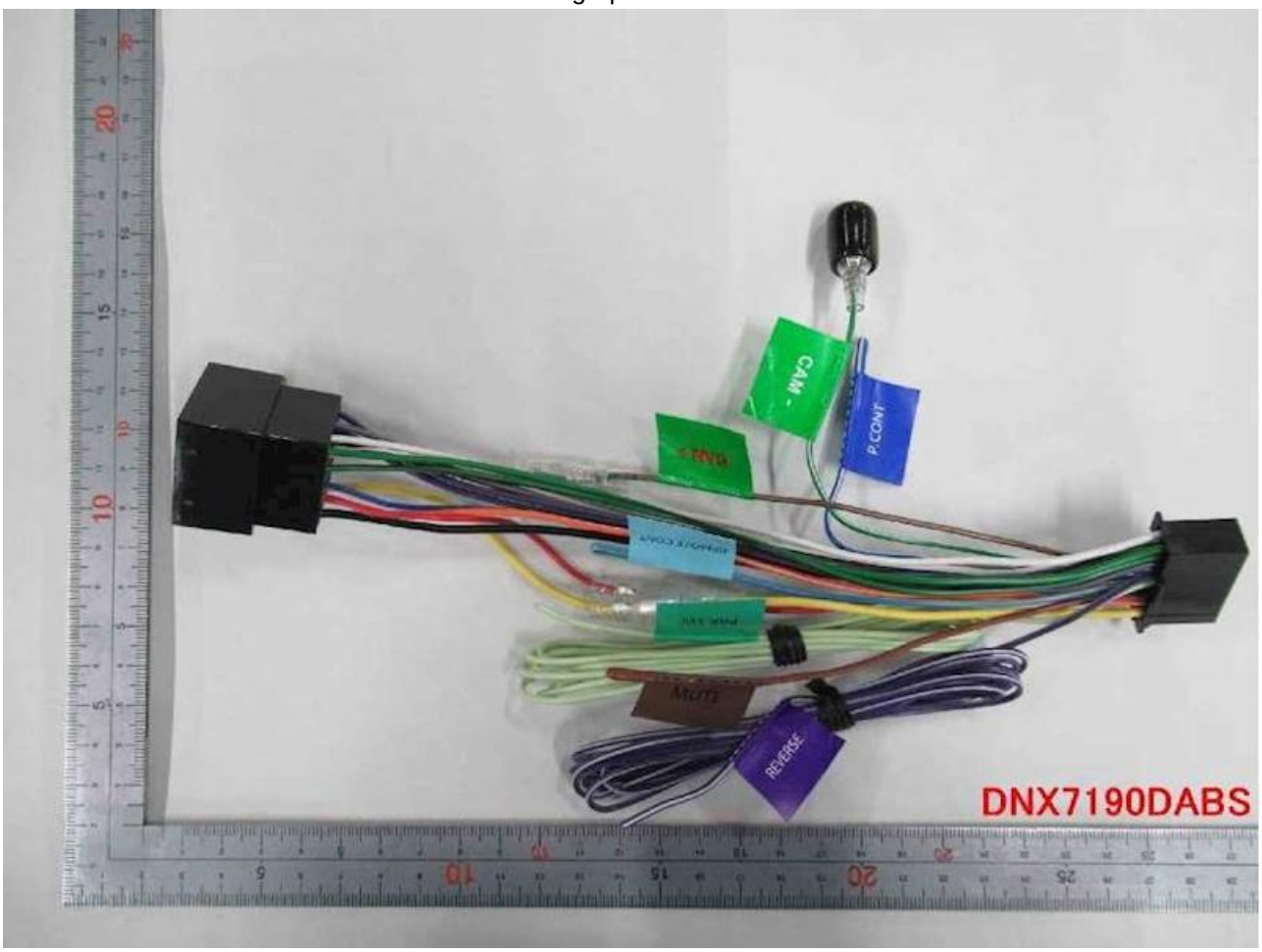


Enclosures

Photographs ID 03-40

Photographs ID 03-41

Enclosures

Photographs ID 03-42

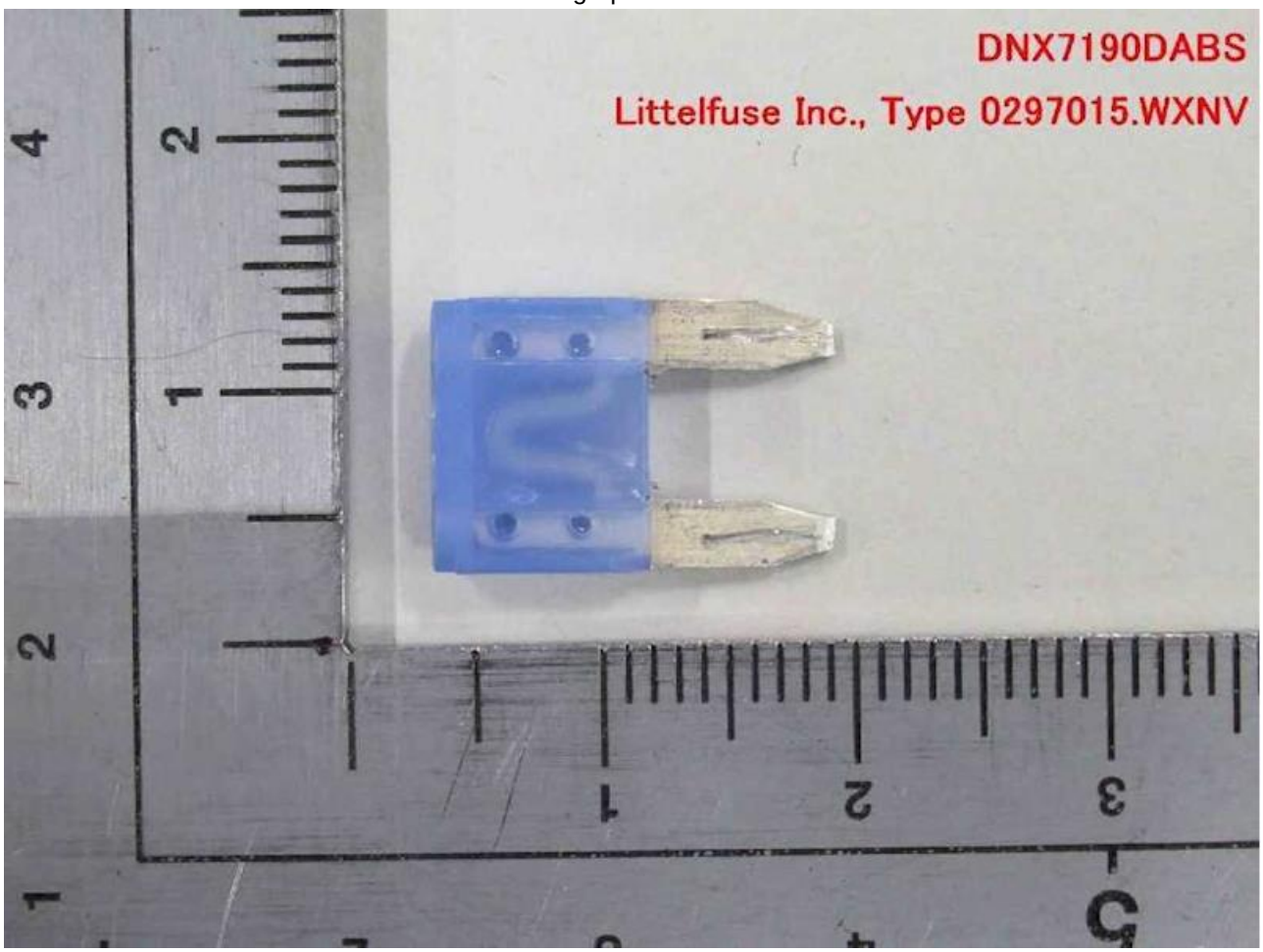
Enclosures

Photographs ID 03-43

Photographs ID 03-44

Photographs ID 03-45

Photographs ID 03-46



Enclosures

Photographs ID 03-47

Enclosures

Photographs ID 03-48

Enclosures

Miscellaneous ID 07-01

Wiring harness (Accessory ①) connector function guide

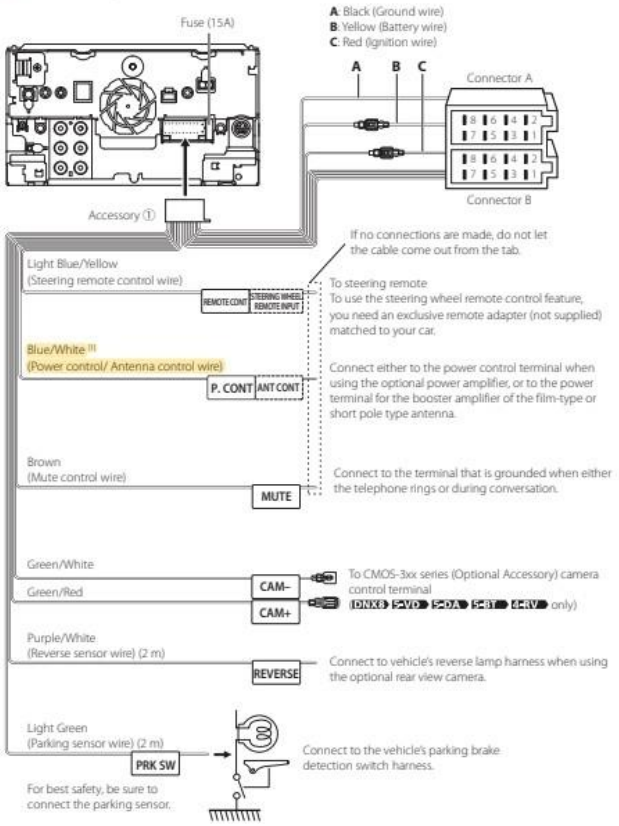
Pin	Color and function		
A-4	Yellow	Battery	
A-5	Blue/White [2]	Power Control	
A-6	Orange/White	Dimmer	
A-7	Red	Ignition (ACC)	
A-8	Black	Earth (Ground) Connection	
B-1/ B-2	Purple (+) / Purple/Black (–)		Rear Right
B-3/ B-4	Gray (+) / Gray/Black (–)		Front Right
B-5/ B-6	White (+) / White/Black (–)		Front Left
B-7/ B-8	Green (+) / Green/Black (–)		Rear Left

*Speaker Impedance: 4-8 Ω

[1] [2]: Blue/White wire is provided two wires, [1] and [2].
Blue/White wire total output ([1] + [2]):
12 V ⎓ 350 mA

Miscellaneous ID 07-01

Connecting wires to terminals



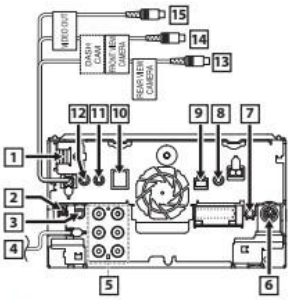
[1] [2]: Blue/White wire is provided two wires, [1] and [2]. Blue/White wire total output ([1] + [2]): 12 V ⎓ 350 mA

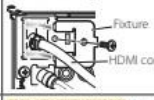
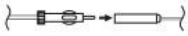
Enclosures

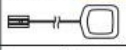
Miscellaneous ID 07-01

Connection/Installation

Connecting the system and external components



1	HDMI input When you connect the cable to HDMI terminal, remove the fixture. After connecting the cable, put the fixture again. 
2	DAB antenna CX-DAB1 (Optional accessory) DNX8 DVD DDA DB1 ARV only) ⚠ Use of a CX-DAB1 (optional accessory) as a DAB antenna is recommended. When using a commercially available DAB antenna, the diameter of the SMB connector must be Φ6.5 mm or less.
3	AV Audio output (ø3.5 mini jack)
4	FM/AM antenna input 

5	When connecting to an external amplifier, connect its ground wire to the car's chassis to avoid damaging the unit. DNX8 DVD DDA DB1 ARV only)
6	External I/F DNX8 DVD DDA DB1 ARV only) Maximum power supply current : 12 V ⎓ 500 mA
7	TV tuner remote output DNX8 DVD DDA DB1 ARV only)
8	AV-IN (CA-C3AV; Optional Accessory) input
9	Dashboard camera interface Connect a Dashboard Camera DRV-N520 (optional accessory). ***(P.86)*** DNX8 DVD DDA DB1 ARV only)
10	Accessory ⑦: GPS Antenna 
11	Accessory ④: Bluetooth Microphone
12	Connect to vehicle's steering remote harness. Contact your KENWOOD dealer for details.
13	Rear view camera input (Yellow)
14	Front view camera/ Dashboard camera input (Yellow) DNX8 DVD DDA DB1 ARV only)
15	Visual Output (Yellow)

Enclosures

Miscellaneous ID 07-02

List of Difference for DNX7190DABS etc.

		Brand	KENWOOD	
		Destination	Europe	Europe
			Base Model DNX7190DABS	Derivation DMX8019DABS
Product Name			GPS NAVIGATION SYSTEM	MONITOR WITH RECEIVER
Navigation Function			Yes	N/A
Bluetooth Function			Yes	
Wi-Fi Function			N/A	Yes
Disc Module			Yes	N/A
Terminal		USB	1.5A x 2	
		MHL	N/A	
		EXT I/F	Yes	
SD Card			Yes	
Front Panel	Size		2DIN_Standard Panel	
	LCD Type		7 inch LCD	
	Key Color		Variable	
DAB Function			Yes	
Accessary		Remote contoroller	No(purchased separately)	
		Battery type	N/A	
Rated Current Consumption			7 A	

Miscellaneous ID 07-03

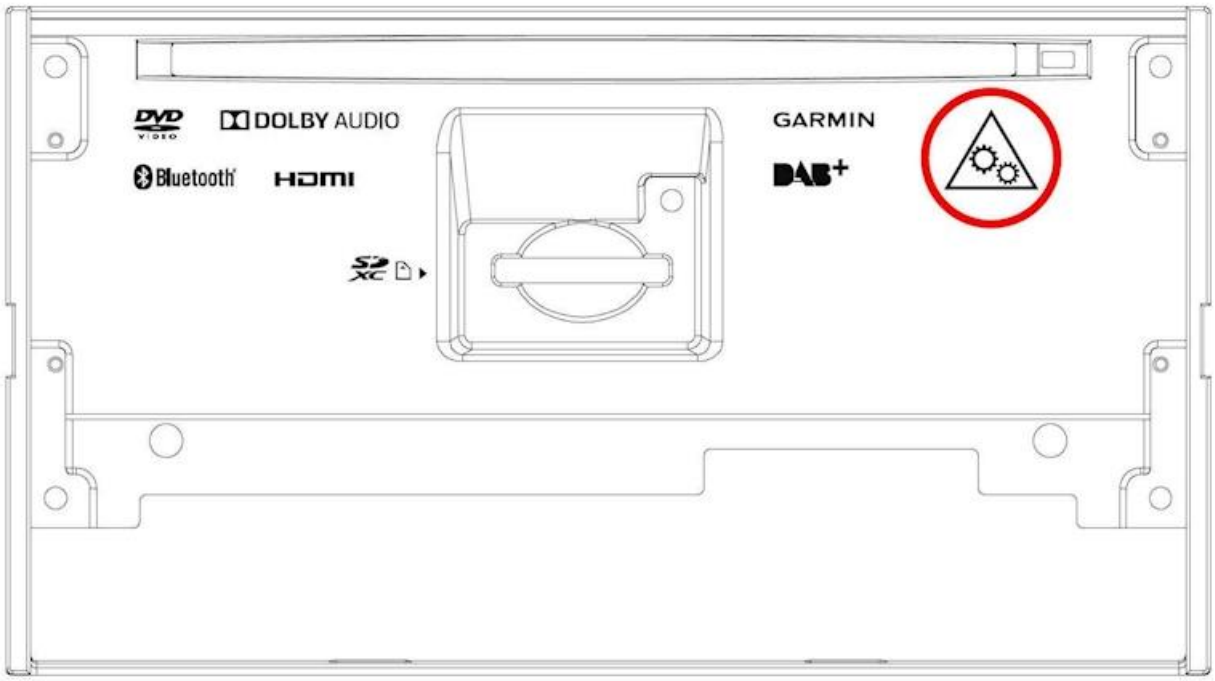
Manufacturer's Declaration under IECEE CB Scheme

（IECEE CB スキームに於ける製造者宣言書）

We as a manufacturer and/or a manufacturer of the original model declare that the submitted sample(s) described in Test Report for evaluation is/are representative of the products from the each factory in Test Report.

（製造者/オリジナルモデルの製造者として、評価のために提出したテストレポート中のサンプルは、テストレポートに記載される各工場を代表するサンプルであることを宣言します。）

Date of issue（発行日）	2020/8/31
Manufacturer name（製造者名）	JVCKENWOOD Corporation
Manufacturer Address（製造者住所）	2967-3 Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525, JAPAN
Name of person in charge（責任者名）	Kazumi Iwata
Title（役職）	Group Manager
Signature（署名）	Kazumi Iwata

Miscellaneous ID 07-04

DNX7190DABS