EUT: Archos 9 PC Tablet, Model Number 7900
FCC ID: SOV7900

Date of issue: 2009-08-28

DAT-P-225/96

Test Report
acc. to the relevant standard
47 CFR Part 15 B – Unintentional Radiators
Measurement Procedure:
ANSI C63.4 - 2003
relating to
ARCHOS S.A.
Archos 9 PC Tablet
Model Number 7900

Measurement of Radio- Noise Emissions
from Low- Voltage Electrical and Electronic Equipment
Technical characteristics and test methods for radio equipment
in the frequency range 9 kHz to 40 GHz

DAT-P-225/96

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EUT: Archos 9 PC Tablet, Model Number 7900
FCC ID: SOV7900

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Manufacturer's details	
Manufacturer	ARCHOS S.A.
Manufacturer's grantee code	**SOV**
Manufacturer's address	12 rue AMPERE
	91430 Igny
	France
	Contact person: Mr. Joseph Fruhauf, Head of Project / R&D Phone: +33 (0)1 6933 1690 E-mail: fruhauf@archos.com
Relevant standard used	47 CFR Part 15B - Unintentional Radiators
	ANSI C63.4-2003

Test Report prepared by	
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Equipment Under Test (EUT)	
Equipment category	Personal Computer device
Trade name	ARCHOS
Type designation	Archos 9 PC Tablet, Model Number 7900
Serial no.	---
Variants	---

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1. Test results

CFR Section	Report Chapter	Requirements Headline	Test result		
15.107	11.1	Conducted emissions	**Pass**	~~**Fail**~~	~~**N.t.**~~
15.109(a)	11.2	Radiated emissions	**Pass**	~~**Fail**~~	~~**N.t.**~~

The equipment meets the requirements	**Yes**	~~**No**~~

Signature (Technical engineer) Ralf Trepper

Signature (Manager) Manfried Dudde

EUT: Archos 9 PC Tablet, Model Number 7900
FCC ID: SOV7900

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2. Test laboratory

Company name	: m.dudde hochfrequenz-technik
Street	: Rottland 5a
City	: 51429 Bergisch Gladbach
Country	: Germany
Laboratory	: FCC Registration Number: 699717 This site has been fully described in a report submitted to the FCC, and renewed with letter dated May 29, 2008, Registration Number 699717.
Phone	: +49-2207-9689-0
Fax	: +49-2207-9689-20
E-Mail	: manfred.dudde@t-online.de
Web	: http://www.dudde.com

3. Introduction

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of m. dudde hochfrequenz - technik.

This report contains the result of tests performed by m. dudde hochfrequenz - technik for the purpose of a type approval. The order for carrying out these tests has been placed by:

Manufacturer

Company name	: ARCHOS S.A.
Address	: 12 rue Ampère
Postcode	: 91430
City/town	: Igny
Country	: France
Telephone	: +33 (0)1 6933 1690
Fax	: +33 (0)1 6933 1699
E-mail	: fruhauf@archos.com
Date of order	: 2009.06.04
References	: Mr. Joseph Fruhauf

4. Product

Samples of the following apparatus were submitted for testing:

Type of equipment	: Computer device
Trademark	: ARCHOS
Type designation	: Archos 9 PC Tablet, Model Number 7900
Hardware version	: Archos 9 PC Tablet, Model Number 7900
Serial number(s)	: ---
Software release	: ---
Power used	: 12.0 V DC, 120 V AC
Generated or used frequencies	: 32.768 kHz (crystal), 10.00 MHz (crystal), 12.00 MHz (crystal) 14.318180 MHz (crystal), 27.000 MHz (crystal), 2.412 GHz to 2.462 GHz (WiFi), 2.402 GHz to 2.472 GHz (Bluetooth)
FCC ID	: **SOV7900**

5. Test schedule

The tests were carried out in accordance with the specifications detailed in chapter 8 of this report at:

- m. dudde hochfrequenz - technik, D-51429 Bergisch Gladbach

The test sample was received on:

- 2009-07-24

The tests were carried out in the following period of time:

- 2009-08-17 - 2009-08-18

6. Product and measurement documentation

For issuing this report the following product documentation was used and the following annexes were created:

Description	Date	Identifications
External photographs of the **E**quipment **U**nder **T**est (EUT)	2009-08-16	Annex no. 1
Internal photographs of the **E**quipment **U**nder **T**est (EUT)	2009-08-16	Annex no. 2
FCC ID label sample	2009-08-16	Annex no. 3
Functional description	2009-08-16	Annex no. 4
Test setup photos	2009-08-16	Annex no. 5
Block diagram	2009-08-16	Annex no. 6
Operational description	2009-08-16	Annex no. 9

The above mentioned documentation will be filed at m. dudde hochfrequenz - technik for a period of 10 years following the issue of this report.

7. Observations and comments

Additional equipment for the tests to carry on the Model Archos 9 PC Tablet:
ARCHOS Switch Power Supply
Model: KSAH1200300T1M3

8. Summary

The product is intended for the use in the following areas of application:

Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the frequency range of 9 kHz to 40 GHz

The samples were tested according to the following specification:

47 CFR Part 15B – Unintentional Radiators, ANSI C63.4 - 2003

9. Conclusions

Samples of the apparatus were found to **CONFORM WITH** the specifications stated in chapter 8 of this report.

In the opinion of m. dudde hochfrequenz - technik, the samples satisfied all applicable requirements relating to the network interface types specified in chapter 8.

The results of the type tests as stated in this report are exclusively applicable to the product item as identified in this report. m. dudde hochfrequenz - technik does not accept any responsibility for the results stated in this report, with respect to the properties of product items not involved in these tests.

This report consists of a main module, modules with test results and annexes listed in chapter 6. All pages have been numbered consecutively and bear the m. dudde hochfrequenz - technik logo, the report number and sub-numbers.

The total number of pages in this report is **19.**

Technical inspector:

Tester:

Date : 2009-08-28
Name : Ralf Trepper

Signature : 

Technical responsibility for area of testing:

Date : 2009-08-28
Name : Manfried Dudde

Signature : 

10. Operation description

7.1 EUT details

Portable personal computer device

7.2 EUT configuration

Operation: : As soon as the equipment is powered up, the device start operating

Purpose of operation : see User Manual in Annex No. 5

7.3 EUT measurement description

Radiated emission test

One configuration will be tested as stand alone device. In order to establish the maximum radiation, firstly, there have been viewed all orthogonal adjustments of the test sample. Secondly the test sample have been rotated at all adjustments around the own axis between 0° and 360°, and thirdly, the antenna polarization between horizontal and vertical has been varied. All generated frequencies, the lowest and the highest frequency of the ***Archos 9 PC Tablet,*** have been viewed. The device was tested on a stand alone basis.

In all measurement distances the 3 dB beam width of the measuring antenna, for measurements above 1 GHz, is greater than the EUT's dimensions.

Conducted emission test (AC Port)

The device was connected to the artificial mains network via switched power supply. It has been tested in two runs: first, with inactive ***WiFi mode,*** second with activated ***WiFi mode***. L1 and N have been viewed too.

11.1 Conducted limits

11.1.1 Regulation

(a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency of Emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency

(b) For a Class A digital device that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms LISN. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	79	66
5-30	73	60

(c) The limits shown in paragraphs (a) and (b) of this Section shall not apply to carrier current systems operating as unintentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

(1) For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 uV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in Section 15.109(e).

(d) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provision for, the use of battery chargers which permit operating while charging, AC adaptors or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

11.1.2 Test equipment

Type	Manufacturer/ Model no.	Serial no.	Last calibration	Next calibration	Remarks
Receiver (9 kHz - 30MHz)	Schwarzbeck FMLK 1518 (428)	1518-294	06 / 2009	06 / 2011	---
Protector limiter 9 kHz - 30MHz, 10 dB	Rhode & Schwarz ESH 3Z2 (272)	357,881052	03 / 2008	03 / 2010	---
V-LISN 50 ohms//(50 uH+5 ohms)	RFT NNB 11 (72)	13835240	03 / 2007	03 / 2010	---
V-LISN 50 ohms//(50 uH+5 ohms)	emco 3810/2 LISN (49b)	---	03 / 2007	03 / 2010	---

11.1.3 Test procedures

The EUT and the additional equipment (if required) are connected to the main power through a line impedance stabilization network (LISN). The LISN must be appropriate to ANSI C63.4: 2003 Section 7.
Additional equipment must also be connected to a second LISN with the same specifications described in the above sentence (if required).

11.1.4 Test results

TRANSMITTER CONDUCTED EMISSIONS (Section 15.207)						
Tested line	Emission frequency [MHz]	Receiver bandwidth [kHz]	Result Quasi-peak [dBµV]	Spec Limit Average [dBµV]	Margin [dB]	Remarks
L1	**0.161**	**10**	**43.0**	**53.2**	**10.2**	***2**
N	**0.161**	**10**	**41.5**	**53.2**	**11.7**	***2**
L1	0.350	10	≤-2	51.7	53.7	*1
N	0.350	10	≤-2	51.7	53.7	*1
L1	0.475	10	≤-2	47	49	*1
N	0.475	10	≤-2	47	49	*1
L1	**0.531**	**10**	**33.5**	**46**	**12.5**	***2**
N	**0.531**	**10**	**32.0**	**46**	**14.0**	***2**
L1	0.725	10	≤-2	46	48	*1
N	0.725	10	≤-2	46	48	*1
L1	0.850	10	≤-2	46	48	*1
N	0.850	10	≤-2	46	48	*1
L1	1.000	10	≤-2	46	48	*1
N	1.000	10	≤-2	46	48	*1
L1	1.125	10	≤-2	46	48	*1
N	1.125	10	≤-2	46	48	*1
L1	1.750	10	≤-2	46	48	*1
N	1.750	10	≤-2	46	48	*1
L1	4.000	10	≤-2	46	48	*1
N	4.000	10	≤-2	46	48	*1
L1	**5.762**	**10**	**30.5**	**50**	**19.5**	***2**
N	**5.762**	**10**	**32.0**	**50**	**18.0**	***2**
L1	**7.297**	**10**	**34.5**	**50**	**15.5**	***2**
N	**7.297**	**10**	**36.0**	**50**	**14.0**	***2**
L1	13.5288	10	≤-2	50	52	*1
N	13.5288	10	≤-2	50	52	*1
L1	24.0041	10	≤-2	50	52	*1
N	24.0041	10	≤-2	50	52	*1
L1	**27.346**	**10**	**30.5**	**50**	**19.5**	***2**
N	**27.346**	**10**	**31.5**	**50**	**18.5**	***2**
Measurement uncertainty			< ± 2 dB			

Remark: *[1] Noise level of the measuring instrument ≤ -2 dBµV (0.009 – 30MHz)
Remark: *[2] Quasi peak measurements lower than "Specified Average Limit"

The equipment meets the requirements	**yes**	~~**no**~~	~~**n.t.**~~

Further test results are attached	~~**yes**~~	**no**	page no:

11.2 Radiated emissions

11.2.1 Regulation

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field strength (microvolts/meter)
33-88	100
88-216	150
216-960	200
Above 960	500

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of Emission (MHz)	Field strength (microvolts/meter)
33-88	90
88-216	150
216-960	210
Above 960	300

(c) In the emission tables above, the tighter limit applies at the band edges. Sections 15.33 and 15.35 which specify the frequency range over which radiated emissions are to be measured and the detector functions and other measurement standards apply.

(d) For CB receivers, the field strength of radiated emissions within the frequency range of 25 - 30 MHz shall not exceed 40 microvolts/meter at a distance of 3 meters. The field strength of radiated emissions above 30 MHz from such devices shall comply with the limits in paragraph (a).

(e) Carrier current systems used as unintentional radiators or other unintentional radiators that are designed to conduct their radio frequency emissions via connecting wires or cables and that operate in the frequency range of 9 kHz to 30 MHz, including devices that deliver the radio frequency energy to transducers, such as ultrasonic devices not covered under Part 18 of this Chapter, shall comply with the radiated emission limits for intentional radiators provided in Section 15.209 for the frequency range of 9 kHz to 30 MHz. As an alternative, carrier current systems used as unintentional radiators and operating in the frequency range of 525 kHz to 1705 kHz may comply with the radiated emission limits provided in Section 15.221(a). At frequencies above 30 MHz, the limits in paragraph (a), (b) or (g) of this Section, as appropriate, continue to apply.

(f) For a receiver which employs terminals for the connection of an external receiving antenna, the receiver shall be tested to demonstrate compliance with the provisions of this Section with an antenna connected to the antenna terminals unless the antenna conducted power is measured as specified in Section 15.111(a). If a permanently attached receiving antenna is used, the receiver shall be tested to demonstrate compliance with the provisions of this Section.
(g) As an alternative to the radiated emission limits shown in paragraphs (a) and (b) of this section, digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement" (incorporated by reference, see § 15.38). In addition:

(1) The test procedure and other requirements specified in this Part shall continue to apply to digital devices.

(2) If, in accordance with Section 15.33 of this Part, measurements must be performed above 1000 MHz, compliance above 1000 MHz shall be demonstrated with the emission limit in paragraph (a) or (b) of this Section, as appropriate. Measurements above 1000 MHz may be performed at the distance specified in the CISPR 22 publications for measurements below 1000 MHz provided the limits in paragraphs (a) and (b) of this Section are extrapolated to the new measurement distance using an inverse linear distance extrapolation factor (20 dB/decade), e.g., the radiated limit above 1000 MHz for a Class B digital device is 150 uV/m, as measured at a distance of 10 meters.

(3) The measurement distances shown in CISPR Pub. 22, including measurements made in accordance with this paragraph above 1000 MHz, are considered, for the purpose of Section 15.31(f)(4) of this Part, to be the measurement distances specified in the regulations. (4) If the radiated emissions are measured to demonstrate compliance with the alternative standards in this paragraph, compliance must also be demonstrated with the conducted limits shown in Section 15.107(e) of this Part. [This rule paragraph was retained by accident in the R&O in ET Docket No. 98-80 and is no longer applicable.]

(h) Radar detectors shall comply with the emission limits in paragraph (a) of this section over the frequency range of 11.7-12.2 GHz.

11.2.2 Test equipment

Type	Manufacturer/ Model no.	Serial no.	Last calibration	Next calibration
Receiver (9 kHz –18.0 GHz)	Rohde & Schwarz Spectrum Analyzer FSL 18 (171a)	100.117	2008/10	2010/10
Receiver (9 kHz –40.0 GHz)	Anritsu Spectrum Analyzer MS2668C (359a)	6200163244	2009/04	2011/04
Pre-amplifier (100kHz - 1.3GHz)	Hewlett Packard 8447 E (166a)	1726A00705	2008/02	2010/02
Pre-amplifier (1GHz - 18GHz)	Narda --- (345)	---	2008/02	2010/02
Bilog antenna (30- 1000 MHz)	Schwarzbeck VULP 9168 (406)		2007/02	2013/02
Horn antenna (0.86-8.5 GHz)	Schwarzbeck BBHA 9120 A (284)	236	2008/01	2013/01
Horn antenna (2.0-14.5 GHz)	Schwarzbeck BBHA 9120 C (169)	305	2008/01	2013/01
Horn antenna (14.5-40 GHz)	Schwarzbeck BBHA 9170 (281)	41	2000/01	2010/01
RF- cable	Kabelmetal 18m [N]	K1	2009/01	2010/01
RF- cable	Aircell 0.5m [BNC]	K40	2009/01	2010/01
RF- cable	Aircell 1m [BNC/N]	K56	2009/01	2010/01
RF- cable	Sucoflex 106 Suhner 6,4m [N]	K74	2009/01	2010/01
RF- cable	Sucoflex 106 Suhner 6,4m [N]	K75	2009/01	2010/01

11.2.3 Test procedures

The EUT and this peripheral (when additional equipment exists) are placed on a turn table which is 0.8 m above the ground. The turn table would be allowed to rotate 360 degrees to determine the position of the maximum emission level. The test distance between the EUT and the receiving antenna are 3 m. To find the maximum emission, the polarization of the receiving antenna are changed in horizontal and vertical polarization, the position of the EUT was changed in different orthogonal determinations.
ANSI C63.4: 2003 Section 8 "Radiated Emissions Testing"

Radiated emissions test characteristics	
Frequency range	30 MHz - 4,000 MHz
Test distance	3 m*
Test instrumentation resolution bandwidth	120 kHz (30 MHz - 1,000 MHz)
	1 MHz (1,000 MHz - 4,000 MHz)
Receive antenna scan height	1 m - 4 m
Receive antenna polarization	Vertical / horizontal

* According to Section 15.31 (f)(1): At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

11.2.4 Calculation of the field strength

The field strength is calculated by the following calculation:

Corrected Level = Receiver Level + Correction Factor (without the use of a pre-amplifier)

Corrected Level = Receiver Level + Correction Factor – Pre-amplifier (with the use of a pre-amplifier)

Receiver Level : Receiver reading without correction factors
Correction Factor : Antenna factor + cable loss

11.2.5 Result

SPURIOUS RADIATION (Section 15.109)										
f (MHz)	Bandwidth (kHz) Type of detector	Noted receiver level **dBµV**	Test distance **m**	Correction factor **dB**	Distance extrapol. factor **dB**	Level corrected **dBµV/m**	Limit **dBµV/m**	Margin **dBµV/m**	Polarisation EUT/ antenna	Antenna height **cm**
30.0000	100, AV	≤ 3.5	3	-2.6*[5]	0	0.9	40.00	39.1	H,V/H,V	100-400
59.1000	**100, AV**	**34.0**	**3**	**-7.9*[5]**	**0**	**26.5**	**40.00**	**13.5**	**V 45°/V**	**108**
88.0000	100, AV	≤ 3.5	3	-10.8*[5]	0	-7.3	40.00	47.3	H,V/H,V	100-400
111.0080	**100, AV**	**43.5**	**3**	**-8.8*[5]**	**0**	**34.7**	**40.00**	**5.3**	**V 45°/V**	**153**
130.1000	**100, AV**	**37.5**	**3**	**-7.5*[5]**	**0**	**30.0**	**40.0**	**10.0**	**V 45°/V**	**150**
150.9080	**100, AV**	**24.1**	**3**	**-5.6*[5]**	**0**	**18.5**	**40.00**	**21.5**	**V 45°/V**	**198**
230.0000	100, AV	≤ 3.5	3	-*[5]	0		43.50		H,V/H,V	100-400
960.0000	100, AV	≤ 3.5	3	8.5*[5]	0	12.0	43.50	31.5	H,V/H,V	100-400
1700.0000	1000, AV	≤ 4.5	3	3.8*[6]	0	8.3	54.00	45.7	H,V/H,V	100-400
2250.0000	1000, AV	≤ 10	3	8.0*[6]	0	18.0	54.00	36.0	H,V/H,V	100-400
4000.0000	1000, AV	≤ 10	3	8.4*[6]	0	18.4	54.00	35.6	H,V/H,V	100-400
5000.0000	1000, AV	≤ 10	3	9.1*[6]	0	19.4	54.00	34.6	H,V/H,V	100-400
7500.0000	1000, AV	≤ 14	3	12.9*[6]	0	26.9	54.00	27.1	H,V/H,V	100-400
8300.0000	1000, AV	≤ 14	3	14.8*[6]	0	28.8	54.00	25.2	H,V/H,V	100-400
9400.0000	1000, AV	≤ 14	3	16.0*[6]	0	30.0	54.00	24.0	H,V/H,V	100-400
11000.0000	1000, AV	≤ 14	3	18.3*[6]	0	32.3	54.00	21.7	H,V/H,V	100-400
All other emissions lower than the noise level of the measuring equipment!										
Measurement uncertainty		4 dB								

Bandwidth = the measuring receiver bandwidth

Remark: *[1] noise floor noise level of the measuring instrument ≤ 3.5dBµV @ 3m distance (30 – 1,000 MHz)
Remark: *[2] noise floor noise level of the measuring instrument ≤ 4.5dBµV @ 3m distance (1,000 – 2,000 MHz)
Remark: *[3] noise floor noise level of the measuring instrument ≤ 10dBµV @ 3m distance (2,000 – 5,500 MHz)
Remark: *[4] noise floor noise level of the measuring instrument ≤ 14dBµV @ 3m distance (5,500 – 14,500 MHz)
Remark: *[5] for using a pre-amplifier in the range between 100 kHz and 1,000 MHz
Remark: *[6] for using a pre-amplifier in the range between 1.0 GHz and 18.0 GHz

The equipment meets the requirements	**Yes**	~~**No**~~	~~**N.t.**~~

Further test results are attached	~~Yes~~	**No**	

12. Additional information to the test report

Remarks

N.t.[1] Not tested, because the antenna is part of the PCB

N.t.[2] Not tested, because the EUT is directly battery powered

End of test report