



EMI TEST REPORT

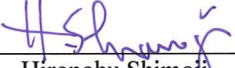
Test Report No. : 28CE0123-HO-C-R1

Applicant : Panasonic Corporation of North America
Type of Equipment : Car Audio with Bluetooth function
Model No. : CQ-EP1660G
Test standard : FCC Part 15 Subpart B Class B 2007
FCC ID : ACJ932CQ-EP1660WB
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.
5. The original test report number of this report is 28CE0123-HO-C.

Date of test: Dec. 21, 2005 to Feb. 13, 2006

Tested by: 
Mitsuru Fujimura
EMC Services

Approved by : 
Hironobu Shimoji
Assistant Manager of
EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address, <http://uljapan.co.jp/emc/nvlap.htm>

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SECTION 1: Client information

Company Name : Matsushita Electric Industrial Co., Ltd.
Address : 600 Saedo-cho, Tsuzuki-ku, Yokohama, 224-8539 Japan
Telephone Number : +81-45-938-2164
Facsimile Number : +81-45-939-1584
Contact Person : Akira Nakatsuka

* Matsushita Electric Industrial Co., Ltd. is on behalf of the applicant: Panasonic Corporation of North America.

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : Car Audio with Bluetooth function
Model No. : CQ-EP1660G
Serial No. : 10037
Country of Manufacture : Japan
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No modification by the test lab.
Rating : DC13.2V
Receipt Date of Sample : October 31, 2005

2.2 Product Description

Model No: CQ-EP1660G is the Car Audio with Bluetooth function and has a 6 Disc CD changer.

Clock frequencies in the system : 4MHz, 16.384MHz
Receiving Frequency : FM: 87.7 – 107.9MHz
AM: 530 – 1710kHz
WB: 162.400 – 162.550MHz

[Variant models]

CQ-EP1660G has the following variant models as listed below.

The difference between the original: CQ-EP1660G and variant models is software in Flash Rom.
Electrical/radio specification and cosmetics are identical.

CQ-EP1660GA
CQ-EP1660GB
CQ-EP1660GC
CQ-JP1660G
CQ-JP1660GA
CQ-JP1660GB
CQ-JP1660GC

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test Specification : FCC Part 15 Subpart B 2007 *
Title : FCC 47CFR Part15 Radio Frequency Device
Subpart B Unintentional Radiators

* The test was performed according to FCC Part 15 Subpart B: 2006. There is no difference in technical requirements applied to the EUT between FCC Part15 Subpart B: 2006 and FCC Part15 Subpart B: 2007. Therefore, the EUT complies with FCC Part15 Subpart B: 2007.

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin *0)	Result
Conducted emission	ANSI C63.4: 2003 7. AC powerline conducted emission measurements	Class B	N/A	N/A*1)	N/A
Radiated emission	ANSI C63.4: 2003 8. Radiated emission measurements	Class B	N/A	9.6dB 1149MHz, AV, Ver.	Complied
Antenna Terminal	ANSI C63.4: 2003 12.1.5 Antenna-conducted power measurements	Class B	N/A	12.0dB 495.99MHz, PK	Complied
*Note: UL Japan, Inc.'s EMI Work Procedure QPM05. *0) The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result. *1) This test is not applicable, because the EUT does not have AC mains and is installed into vehicle.					

*These tests were performed without any deviations from test procedure except for additions or exclusions.

3.3 Additions or deviations to standards

No addition nor deviation has been made from standards.

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Radiated Emission

The measurement uncertainty for this test using Biconical antenna is $\pm 4.88\text{dB}(3\text{m})$.
The measurement uncertainty for this test using Logperiodic antenna is $\pm 4.86\text{dB}(3\text{m})$.
The measurement uncertainty for this test using Horn antenna is $\pm 5.77\text{dB}$.
The data listed in this test report has enough margin, more than the site margin.

Antenna Terminal

The measurement uncertainty for this test is $\pm 3.0\text{dB}$.
The data listed in this test report has enough margin, more than the site margin.

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3.5 Test Location

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	IC4247-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	IC4247-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	6.0 x 6.0m	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.75 x 5.4 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test set up, Test instruments and Data of EMI

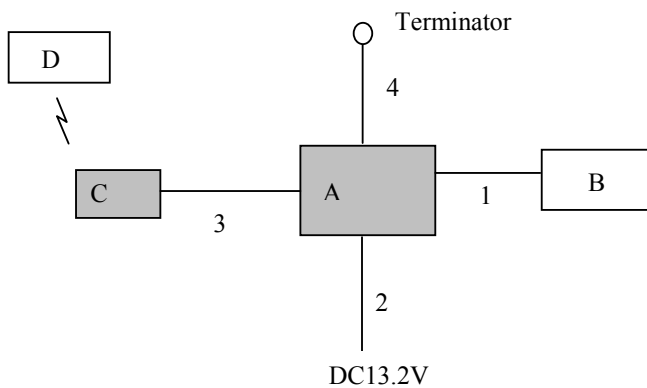
Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating modes

The mode is used : Bluetooth Communication + CD Play mode + FM Receiving (Worst case)
* Weather Band Receiving mode was also confirmed.

4.2 Configuration and peripherals



* Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Car Audio with Bluetooth function	CQ-EP1660G	10037	Matsushita	EUT
B	Display	BR204 DISP C EN.EJU	50419083	Matsushita	-
C	Antenna	AG90	A211 820 33 75	Matsushita	EUT
D	Cellular Phone	W31T	STSCC139379	TOSHIBA	-

List of cables used

No.	Name	Length (m)	Shield (Cable)	Shield (Connector)	Remarks
1	LVDS Cable	0.5	Unshielded	Unshielded	-
2	DC Cable	2.0	Unshielded	Unshielded	-
3	Antenna Cable	0.5	Unshielded	Unshielded	-
4	FM Antenna Cable	1.0	Unshielded	Unshielded	-

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SECTION 5: Radiated Emission

5.1 Operating environment

Test place : No.1 semi anechoic chamber.
Temperature : See data
Humidity : See data

5.2 Test configuration

EUT was placed on a wooden table of nominal size, 1.0m by 1.5m, raised 80cm above the conducting ground plane. The EUT was set on the center of the tabletop.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. A drawing of the set up is shown in the photos of APPENDIX 1.

5.3 Test conditions

Frequency range : 30MHz – 300MHz (Biconical antenna) / 300MHz – 1000MHz (Logperiodic antenna)
1000-2000MHz (Horn antenna)
Test distance : 3m
EUT position : Table top
EUT operation mode : See Clause 4.1

5.4 Test procedure

The measuring antenna height varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz

5.5 Test result

Summary of the test results: Pass

Date: December 21 and 27, 2005

Test engineer: Mitsuru Fujimura

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SECTION 6: Antenna Terminal

Test Procedure

The Antenna Terminal was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3
Test result : Pass

Date: February 13, 2006

Test engineer: Mitsuru Fujimura

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