RADIO TEST REPORT

Test Report No. : 30EE0020-HO-01-A

Applicant	:	**Calsonic Kansei Corporation**
Type of Equipment	:	**BCM SYSTEM**
Model No.	:	**BN009**
Test regulation	:	**FCC Part 15 Subpart C : 2009 Section 15.207 and 15.209**
FCC ID	:	**KBRBN009**
Test Result	:	**Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Date of test: December 8 and 9, 2009

Tested by:

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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.html

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SECTION 1: Customer information

Company Name	:	Calsonic Kansei Corporation
Address	:	2-1917 Nisshin-cho Kita-ku Saitama-shi Saitama, 331-8501 Japan
Telephone Number	:	+81-48-661-2689
Facsimile Number	:	+81-48-661-1026
Contact Person	:	Daisuke Mori

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

2.1 Identification of E.U.T.

Type of Equipment	:	BCM SYSTEM
Model No.	:	BN009
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC13.5V
Receipt Date of Sample	:	December 3, 2009
Country of Mass-production	:	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

2.2 Product Description

Model No: BN009 (referred to as the EUT in this report) is the BCM SYSTEM.

Clock frequencies	:	32.768kHz (Sleep; Keyless tuner OFF), 4MHz (Sleep; Keyless tuner ON) 40MHz (Wake up)
Equipment Type	:	Transmitter
Type of modulation	:	ASK
Frequency of operation	:	125kHz
Bandwidth	:	5kHz
Antenna Gain	:	-38dBi
Antenna Type	:	Bar Antenna
Antenna connector Type	:	RK02
Operating Temperature	:	-30 deg. C. to +85 deg. C.

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C: 2009, final revised on December 2, 2009
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.209 Radiated emission limits, general requirements

FCC 15.31 (e)
This EUT provides stable voltage (DC 13.5V) constantly to RF part regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
It is impossible for end users to replace the antenna, because the antenna is mounted inside of vehicle. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted Emission	<FCC> ANSI C63.4:2003 7. AC powerline conducted emission measurements <IC> RSS-Gen 7.2.2	<FCC> Section 15.207 <IC> RSS-Gen 7.2.2	-	N/A *1)	N/A	N/A
2	Electric Field Strength of Fundamental Emission	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> RSS-Gen 4.8, 4.11	<FCC> Section 15.209 <IC> RSS-210 2.6, 2.7	Radiated	N/A	11.0dB 0.12500MHz 0 deg. AV (Room Antenna)	Complied
3	Electric Field Strength of Spurious Emission	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> RSS-Gen 4.9, 4.11	<FCC> Section 15.209 <IC> RSS-210 2.6, 2.7	Radiated	N/A	7.0dB 645.045MHz, Vertical, QP (Room Antenna)	Complied
4	-26dB Bandwidth	<FCC> ANSI C63.4:2003 13. Measurement of intentional radiators <IC> -	<FCC> Reference data <IC> -	Radiated	N/A	N/A	N/A

Note: UL Japan, Inc.'s EMI Work Procedures No.QPM05 and QPM15.
*1) The test is not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.

3.3 Addition to standard

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS-Gen 4.6.1	RSS-Gen 4.6.1	Radiated	N/A	N/A	N/A

Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

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

Test room (semi-anechoic chamber)	Radiated emission (10m*)(±dB)			Radiated emission (3m*)(±dB)					Radiated emission (1m*)(±dB)
	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	1GHz-18GHz	18GHz-26.5GHz	18GHz-40GHz
No.1	2.7dB	4.8dB	5.0dB	2.9dB	4.8dB	5.0dB	3.9dB	4.5dB	4.4dB
No.2	-	-	-	3.5dB	4.8dB	5.1dB	4.0dB	4.3dB	4.2dB
No.3	-	-	-	3.8dB	4.6dB	4.7dB	4.0dB	4.5dB	4.4dB
No.4	-	-	-	3.5dB	4.4dB	4.9dB	4.0dB	4.6dB	4.5dB

*10m/3m = Measurement distance

Radiated emission test(3m)
The data listed in this test report has enough margin, more than the site margin.

3.5 Test Location

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

	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	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	2973C-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	2973C-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	-
No.9 measurement room	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

* 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, Data of EMI, and Test instruments

Refer to APPENDIX 1 to 3.

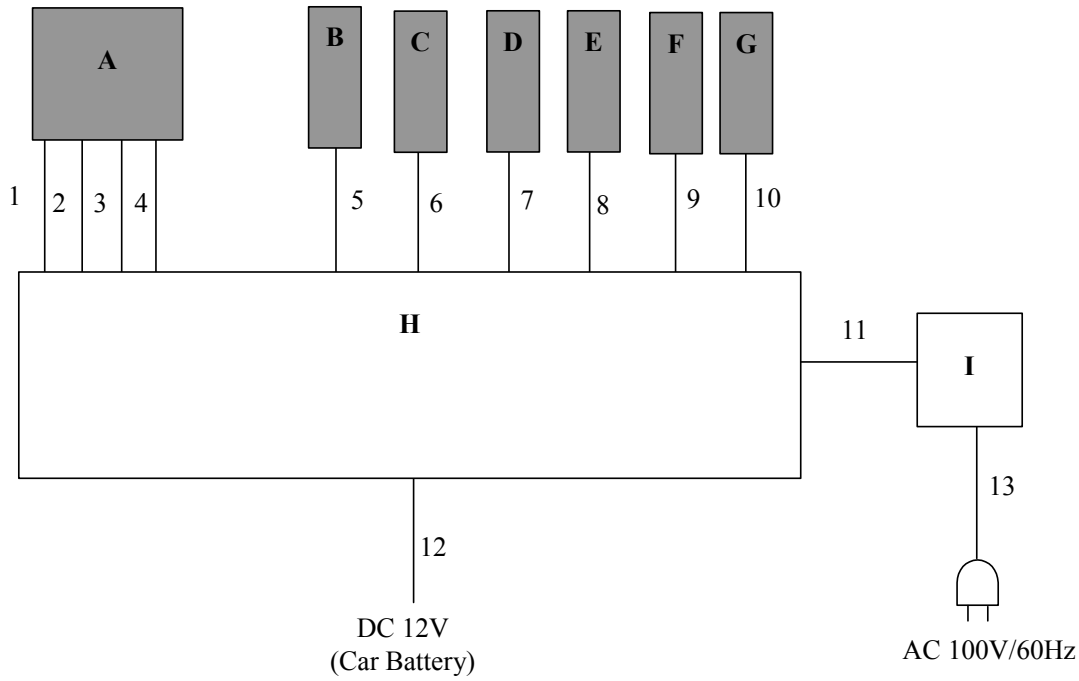
SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode is used : Transmitting mode (Room Antenna / Door Antenna)

Justification : The system was configured in typical fashion (as a customer would normally use it) for testing.

4.2 Configuration and peripherals



* Cabling and setup were taken into consideration and test data was taken under worse case conditions.
*The test was performed with item No.B as a representative, since the items No.B to No.E were equivalent in all operations.
* The door knob has built-in No.F and No.G .
The test was performed with item No.F as a representative in condition that door knob has built-in item No.F, since the items No.F and No.G were equivalent in all operations.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	BCM	BN009	001	Calsonic Kansei Corporation	EUT
B	Room Antenna	285E5 1FA0A	002	Alps Electric Co., Ltd.	EUT
C	Room Antenna	285E5 1FA0A	003	Alps Electric Co., Ltd.	EUT
D	Room Antenna	285E5 1FA0A	004	Alps Electric Co., Ltd.	EUT
E	Room Antenna	285E5 1FA0A	005	Alps Electric Co., Ltd.	EUT
F	Door Antenna	285E7 1LA0A	006	Alps Electric Co., Ltd.	EUT
G	Door Antenna	285E7 1LA0A	007	Alps Electric Co., Ltd.	EUT
H	Checker	-	-	Calsonic Kansei Corporation	-
I	Function Generator	7060 12-1-M	24XW5218	YOKOGAWA	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	Signal Cable	1.9	Unshielded	Unshielded	-
2	Signal Cable	1.9	Unshielded	Unshielded	-
3	Signal Cable	1.9	Unshielded	Unshielded	-
4	Signal Cable	1.9	Unshielded	Unshielded	-
5	Antenna Cable	3.5	Unshielded	Unshielded	-
6	Antenna Cable	3.5	Unshielded	Unshielded	-
7	Antenna Cable	3.5	Unshielded	Unshielded	-
8	Antenna Cable	3.5	Unshielded	Unshielded	-
9	Antenna Cable	3.5	Unshielded	Unshielded	-
10	Antenna Cable	3.5	Unshielded	Unshielded	-
11	Signal Cable	1.6	Shielded	Shielded	-
12	DC Cable	1.3	Unshielded	Unshielded	-
13	AC Cable	2.3	Unshielded	Unshielded	-

SECTION 5: Radiated emission (Fundamental and Spurious Emission)

Test Procedure
The Radiated Electric Field Strength intensity has been measured on No 2 semi anechoic chamber with a ground plane and at a distance of 3m.

Frequency : From 9kHz to 30MHz at distance 3m
The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for vertical polarization (antenna angle: 0deg., 45deg., 90deg., and 135 deg.) and horizontal polarization.
*Refer to Figure 1 about Direction of the Loop Antenna.

Frequency : From 30MHz to 1GHz at distance 3m
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.

Measurements were performed with a QP, PK, and AV detector.
The radiated emission measurements were made with the following detector function of the test receiver.

	From 9kHz to 90kHz and From 110kHz to 150kHz	From 90kHz to 110kHz	From 150kHz to 490kHz	From 490kHz to 30MHz	From 30MHz to 1GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200Hz	200Hz	9kHz	9kHz	120kHz

- The carrier level (or, noise levels) was (or were) measured at each position of all three axes X, Y and Z, and the position that has the maximum noise was determined.
With the position, the noise levels of all the frequencies were measured.

* Part 15 Section 15.31 (f)(2) (9kHz-30MHz)
[Limit at 3m]=[Limit at 300m]-40 x log (3[m]/300[m])
[Limit at 3m]=[Limit at 30m]-40 x log (3[m]/30[m])

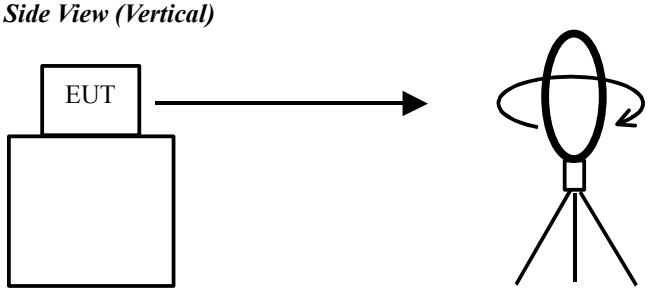
Test data : APPENDIX 2
Test result : Pass

Date: December 8, 2009
December 9, 2009

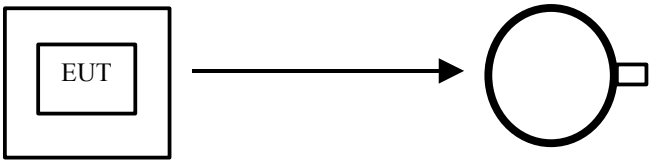
Test engineer: Tomohisa Nakagawa
Katsunori Okai

Figure 1: Direction of the Loop Antenna

Side View (Vertical)

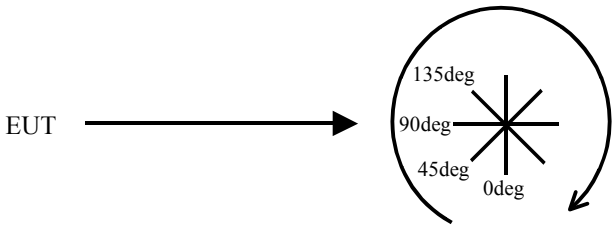


Top View (Horizontal)



Antenna was not rotated.

Top View (Vertical)



Front side: 0 deg.
Forward direction: clockwise

SECTION 6: -26dB Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data **: APPENDIX 2**
Test result **: Pass**

SECTION 7: 99% Occupied Bandwidth

Test Procedure

The measurement was performed in the antenna height to gain the maximum of Electric field strength.

Test data **: APPENDIX 2**
Test result **: Pass**