



EMI TEST REPORT

Test Report No.: 25LE0085-HO-1a

Applicant : Sony Corporation
Type of Equipment : Car FM Stereo Transmitter
Model No. : DCC-FMT3
Test standard : FCC Part 15 Subpart C
Section 15.239: 2005
FCC ID : AK8DCCFMT3
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with 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.

Date of test:

July 27, 2005

Tested by:

Makoto Kosaka
EMC Services

Approved by :

Hironobu Shimoji
Group Leader of
EMC Services

UL Apex Co., Ltd.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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SECTION 1: Client information

Company Name : Sony Corporation
Brand name : SONY
Address : Shinagawa INTERCITY C Tower, 2-15-3 Konan Minato-ku, Tokyo,
108-6201 Japan
Telephone Number : +81-3-5769-5640
Facsimile Number : +81-3-5769-5962
Contact Person : Kikuo Murata

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

2.1 Identification of E.U.T.

Type of Equipment : Car FM Stereo Transmitter
Model No. : DCC-FMT3
Serial No. : 7
Rating : DC12/24V (Tests were performed with DC12V)
(The carrier levels were same with DC 12V and DC24Vat pre-check.)
Country of Manufacture : China
Receipt Date of Sample : July 25, 2005
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

2.2 Product Description

Model No: DCC-FMT3(referred to as the EUT in this report) is the Car FM Stereo Transmitter.

Equipment Type : Transmitter
Frequency of operation : 88.1-107.9MHz

1ch: 88.1 MHz	2ch: 88.3 MHz	3ch: 88.5 MHz	4ch: 88.7 MHz	5ch: 88.9 MHz	6ch: 106.7 MHz
7ch: 106.9 MHz	8ch: 107.1 MHz	9ch: 107.3 MHz	10ch: 107.5 MHz	11ch: 107.7 MHz	12ch: 107.9 MHz

Type of modulation : FM
Bandwidth & Channel spacing : 200kHz & 0.2MHz
Power control : No
Mode of operation : Simplex
Antenna Type : Built in model c
Antenna Cable length : 1.5m
Operating voltage (inner) : DC 12/24 V

FCC 15.31 (e)

This EUT provides stable voltage(DC5V) to the radio part constantly. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

The antenna is not removable from EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2005
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.239 Operation in the band 88-108MHz : 2005

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Deviation	Worst margin	Results
1	200kHz Band Width	FCC Part 2 Section 2.1049	Section 15.239(a)	N/A	115.2kHz (106.7MHz Vertical)	Complied
2	Emissions from the Intentional radiators	FCC Part 2 Section 2.1046	Section 15.239(b)	N/A	0.2dB (107.900MHz AV, Horizontal)	Complied
3	Spurious Emissions	FCC Part 2 Section 2.1053	Section 15.239 (c)	N/A	6.8dB (108.000MHz, QP, Horizontal)	Complied
4	A custom built telemetry Intentional radiator	-	Section 15.239(d)	N/A *1)	N/A	N/A
5	20dB Bandwidth	ANSI C63.4:2003	Section 15.215(c)	N/A	N/A	Complied

*1) This test is not applicable since this EUT is not the ordered and produced equipment for the remote measurement used in the educational organization.

Note: UL Apex's EMI Work Procedures No. QPM05

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

3.3 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications of FCC Part15 Subpart C 2005 Section 15.239.

3.4 Uncertainty

Radiated emission

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is $\pm 4.5\text{dB}(3\text{m})/\pm 4.7\text{dB}(10\text{m})$.

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 5.2\text{dB}(3\text{m})/\pm 3.8\text{dB}(10\text{m})$.

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 6.6\text{dB}$.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

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3.5 Test Location

UL Apex Co., Ltd. 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
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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	IC4247A	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	846015	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 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 and No.2 semi-anechoic and No.3 measurement room.

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

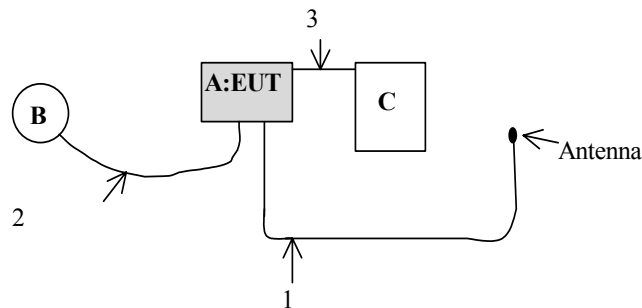
4.1 Operating Modes

The EUT was operating in a manner similar to typical use during the tests.

The mode is used : Transmitting mode (88.1/106.7/107.9 MHz) with Audio Signal 1kHz

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

4.2 Configuration and peripherals



- Cabling was 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	FCC ID
A	Car FM Stereo Transmitter	DCC-FMT3	7	SONY	AK8DCCFMT3
B	Portable CD Player	D-NE509	5115173	SONY	-
C	Car battery	40B19L	A030402	YUASA	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	Antenna Cable	1.5	N	Polyvinyl Chloride
2	Connecting Cable	1.2	N	Polyvinyl Chloride
3	DC Cable	1.0	N	Polyvinyl Chloride

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SECTION 5: 200kHz Band Width and 20 dB Band Width

5.1 Operating environment

Test place	: No.2 semi anechoic chamber
Temperature	: 26 deg.C.
Humidity	: 58%

5.2 Test configuration

EUT was placed on a platform of nominal size, 0.5m by 1.0m, 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

Test distance	: 3m
EUT position	: Tabletop
EUT operation mode	: Transmitting

5.4 Test procedure

The 200kHz Band Width and 20dB Band Width was measured with a spectrum analyzer.

5.5 Results

Summary of the test results: Pass

Date: July 27, 2005

Tested by: Makoto Kosaka

SECTION 6: Emissions from the Intentional radiator and Spurious Emissions

6.1 Operating environment

Test place : No.2 semi anechoic chamber
Temperature : 26 deg.C.
Humidity : 58%

6.2 Test configuration

EUT was placed on a platform of nominal size, 0.5m by 1.0m, 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.

6.3 Test conditions

Frequency range : 30MHz-1080MHz
Test distance : 3m
EUT position : Tabletop
EUT operation mode : Transmitting

6.4 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.

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.

The radiated emission measurements were made with the following detector function of the test receiver.

	Emissions from intentional radiator	Spurious Emissions (below 1GHz)	Spurious Emissions (above 1GHz)
Detector Type	Average/Peak	Quasi-Peak	Average/Peak
IF Bandwidth	120kHz	120kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz

6.5 Results

Summary of the test results: Pass

Date: July 27, 2005

Tested by: Makoto Kosaka

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APPENDIX 1: Photographs of test setup

Spurious Emissions

Front



Rear



Worst Case Position (0deg:Horizontal / 0deg:Vertical)

0deg



90deg



APPENDIX 2:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2005/04/11 * 12
MSA-03	Spectrum Analyzer	Agilent	E4448A	RE	2005/06/03 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2005/02/02 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2004/10/14 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2004/10/14 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2005/02/24 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2004/12/16 * 12
MPA-06	Pre Amplifier	Hewlett Packard	8447D	RE	2004/08/29 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

RE: Radiated emission

APPENDIX 3: Data of EMI test

200kHz Band Width

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY	: Sony Corporation	REGULATION	: Fcc Part15 Subpart C Section 15.239(a)
EQUIPMENT	: Car FM Stereo Transmitter	PROCEDURE	: Fcc Part2 Section 2.1049
MODEL	: DCC-FMT3	TEST DISTANCE	: 3 m
S/ N	: 7	DATE	: 07/27/2005
POWER	: DC12V	TEMPERATURE	: 26 deg.C
MODE	: Transmitting (88.1/106.7/107.9MHz)	HUMIDITY	: 58 %
	: Audio Signal 1kHz	ENGINEER	: Makoto Kosaka

No.	FREQ [MHz]	RESULT		LIMIT [kHz]	MARGIN	
		HOR [kHz]	VER		HOR [kHz]	VER [kHz]
1	88.1	72.4	62.7	200.0	127.6	137.3
2	106.7	72.0	84.8	200.0	128.0	115.2
3	107.9	59.3	79.2	200.0	140.7	120.8

20dB Band Width

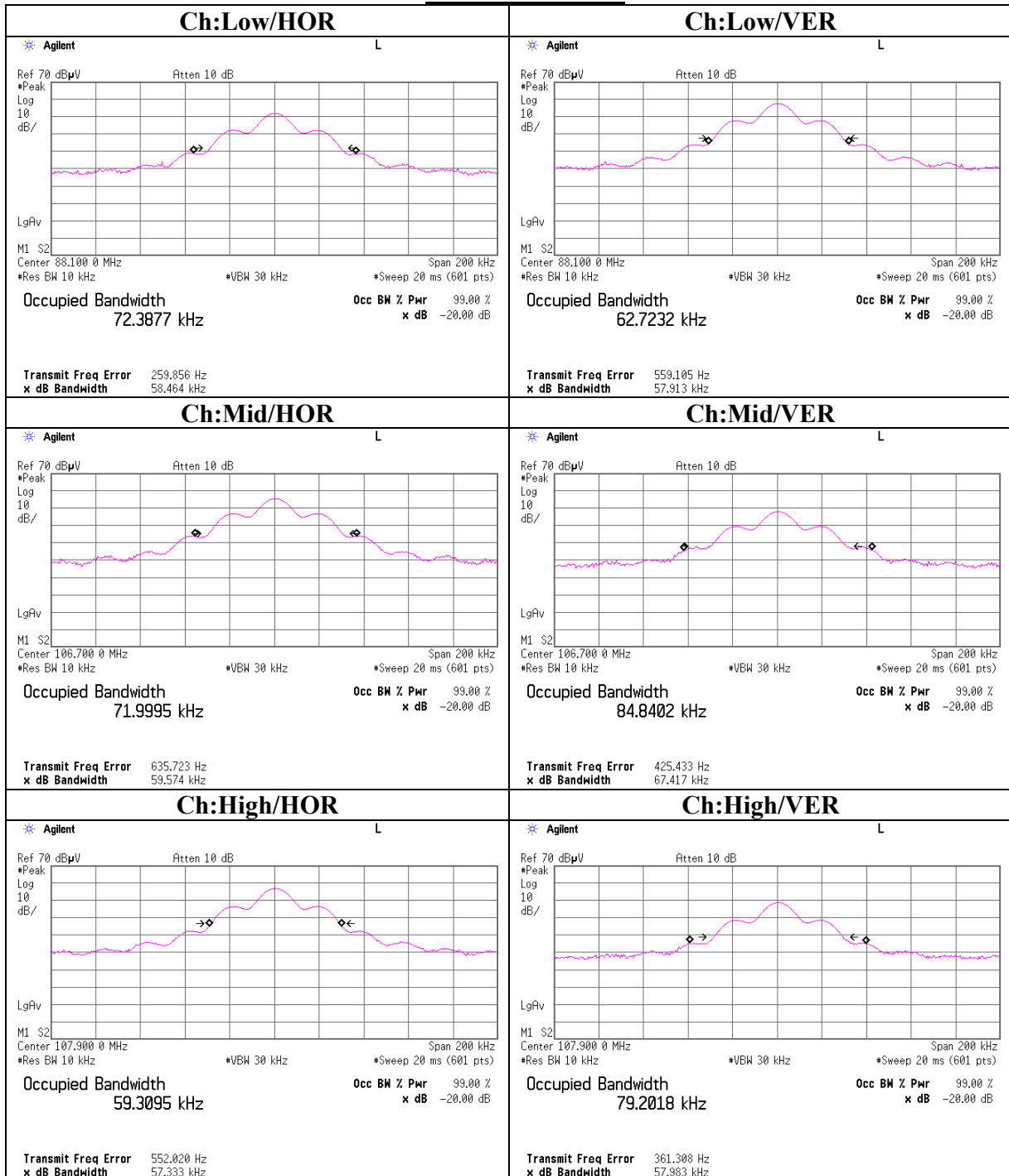
UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : Sony Corporation
EQUIPMENT : Car FM Stereo Transmitter
MODEL : DCC-FMT3
S/ N : 7
POWER : DC12V
MODE : Transmitting (88.1/106.7/107.9MHz)
: Audio Signal 1kHz

REGULATION : Fcc Part15 Subpart C
PROCEDURE : FCC Part 15 Section 15.215 (c)
TEST DISTANCE : 3 m
DATE : 07/27/2005
TEMPERATURE : 26 deg.C
HUMIDITY : 58 %
ENGINEER : Makoto Kosaka

No.	FREQ [MHz]	RESULT		LIMIT [kHz]	MARGIN	
		HOR [kHz]	VER		HOR [kHz]	VER [kHz]
1	88.1	58.5	57.9	-	-	-
2	106.7	59.6	67.4	-	-	-
3	107.9	57.3	58.0	-	-	-

20dB Band Width



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Revised date : August 3, 2005
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Emissions from the Intentional radiators

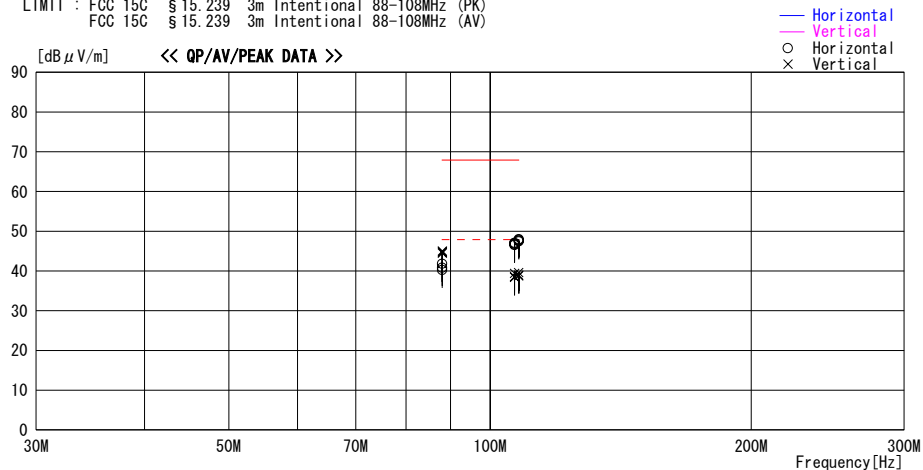
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Sony Corporation
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT3
Serial No. : 7
Report No. : 25LE0085-HO
Power : DC12V
Temp./Humi. : 26deg. C / 58%
Operator : Makoto Kosaka

Mode / Remarks : Tx ch1 88.1MHz ch6 106.7MHz ch12 107.9MHz

LIMIT : FCC 15C § 15.239 3m Intentional 88-108MHz (PK)
FCC 15C § 15.239 3m Intentional 88-108MHz (AV)



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin
			Factor	Loss& Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
88.100	54.7	PK	8.2	-21.0	41.9	0	300	Hori.	67.9	26.1
88.100	53.6	AV	8.2	-21.0	40.8	0	300	Hori.	47.9	7.1
88.100	53.1	QP	8.2	-21.0	40.3	0	300	Hori.	67.9	27.6
88.100	57.8	PK	8.2	-21.0	45.0	230	100	Vert.	67.9	22.9
88.100	57.6	AV	8.2	-21.0	44.8	230	100	Vert.	47.9	3.2
88.100	57.3	QP	8.2	-21.0	44.5	230	100	Vert.	67.9	23.4
106.700	56.5	PK	11.4	-20.8	47.1	180	270	Hori.	67.9	20.8
106.700	48.8	PK	11.4	-20.8	39.4	80	100	Vert.	67.9	28.5
106.700	48.0	AV	11.4	-20.8	38.6	80	100	Vert.	47.9	9.3
106.700	47.8	QP	11.4	-20.8	38.4	80	100	Vert.	67.9	29.5
106.700	56.2	AV	11.4	-20.8	46.8	180	270	Hori.	47.9	1.1
106.700	56.0	QP	11.4	-20.8	46.6	180	270	Hori.	67.9	21.3
107.900	57.3	PK	11.5	-20.8	48.0	180	270	Hori.	67.9	19.9
107.900	57.0	AV	11.5	-20.8	47.7	180	270	Hori.	47.9	0.2
107.900	56.8	QP	11.5	-20.8	47.5	180	270	Hori.	67.9	20.4
107.900	48.9	PK	11.5	-20.8	39.6	80	100	Vert.	67.9	28.3
107.900	48.2	AV	11.5	-20.8	38.9	80	100	Vert.	47.9	9.0
107.900	48.1	QP	11.5	-20.8	38.8	80	100	Vert.	67.9	29.1

CHART: WITH FACTOR ANT TYPE: -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN

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4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
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Spurious Emissions

DATA OF RADIATED EMISSION TEST

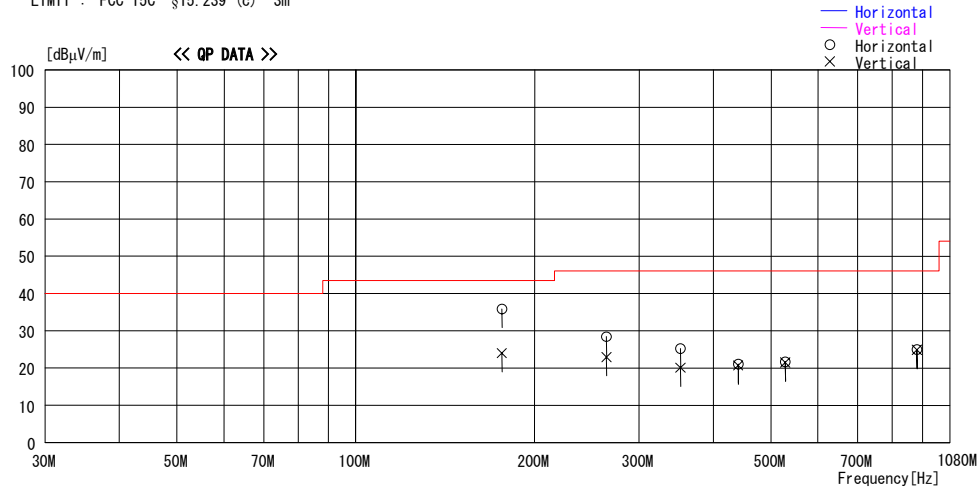
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Applicant : Sony Corporation
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT3
Serial No. : 7

Report No. : 25LE0085-HO
Power : DC12V
Temp./Humi. : 26deg. C / 58%
Operator : Makoto Kosaka

Mode / Remarks : Transmitting 88.1MHz MAX-Axis

LIMIT : FCC 15C §15.239 (c) 3m



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBμV]		[dB/m]	[dB]	[dBμV/m]	[Deg]	[cm]		[dBμV/m]	[dB]
176.225	39.1	QP	16.8	-20.0	35.9	360	185	Hori.	43.5	7.6
176.202	27.2	QP	16.8	-20.0	24.0	320	100	Vert.	43.5	19.5
264.315	29.4	QP	18.1	-19.1	28.4	228	138	Hori.	46.0	17.6
264.316	23.9	QP	18.1	-19.1	22.9	108	150	Vert.	46.0	23.1
352.400	27.3	QP	16.9	-19.0	25.2	45	100	Hori.	46.0	20.8
352.400	22.2	QP	16.9	-19.0	20.1	-1	156	Vert.	46.0	25.9
440.500	21.4	QP	18.7	-19.4	20.7	0	166	Vert.	46.0	25.3
440.500	21.8	QP	18.7	-19.4	21.1	181	100	Hori.	46.0	24.9
528.551	22.0	QP	19.1	-19.4	21.7	341	100	Hori.	46.0	24.3
528.600	21.8	QP	19.1	-19.4	21.5	0	147	Vert.	46.0	24.5
881.000	20.8	QP	21.9	-17.8	24.9	0	100	Vert.	46.0	21.1
881.002	20.9	QP	21.9	-17.8	25.0	0	100	Hori.	46.0	21.0

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN

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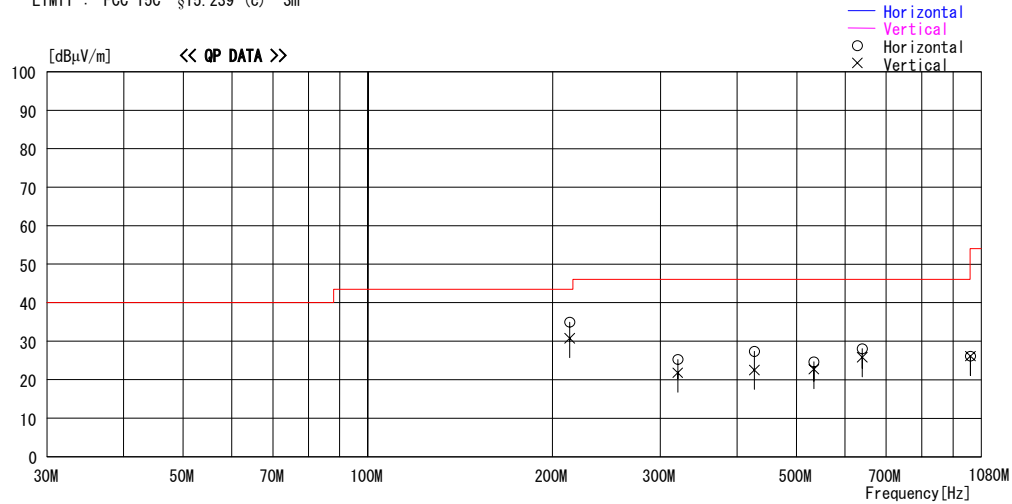
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Model No. : DCC-FMT3
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Report No. : 25LE0085-HO
Power : DC12V
Temp./Humi. : 26deg.C / 58%
Operator : Makoto Kosaka

Mode / Remarks : Transmitting 106.7MHz MAX-Axis

LIMIT : FCC 15C §15.239 (c) 3m



Frequency [MHz]	Reading [dBμV]	DET	Antenna	Loss&	Level [dBμV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin
			Factor [dB/m]	Gain [dB]					[dBμV/m]	[dB]
213.408	37.4	QP	17.1	-19.5	35.0	220	156	Hori.	43.5	8.5
213.402	33.2	QP	17.1	-19.5	30.8	333	100	Vert.	43.5	12.7
320.120	28.5	QP	15.7	-18.9	25.3	360	100	Hori.	46.0	20.7
320.125	25.0	QP	15.7	-18.9	21.8	318	100	Vert.	46.0	24.2
426.818	28.1	QP	18.7	-19.4	27.4	318	100	Hori.	46.0	18.6
426.800	23.2	QP	18.7	-19.4	22.5	117	100	Vert.	46.0	23.5
533.500	24.8	QP	19.2	-19.3	24.7	260	180	Hori.	46.0	21.3
533.500	22.8	QP	19.2	-19.3	22.7	300	100	Vert.	46.0	23.3
640.200	26.9	QP	20.0	-18.9	28.0	248	127	Hori.	46.0	18.0
640.164	24.7	QP	20.0	-18.9	25.8	280	100	Vert.	46.0	20.2
960.300	20.7	QP	22.8	-17.4	26.1	360	100	Hori.	54.0	27.9
960.300	20.7	QP	22.8	-17.4	26.1	-1	100	Vert.	54.0	27.9

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
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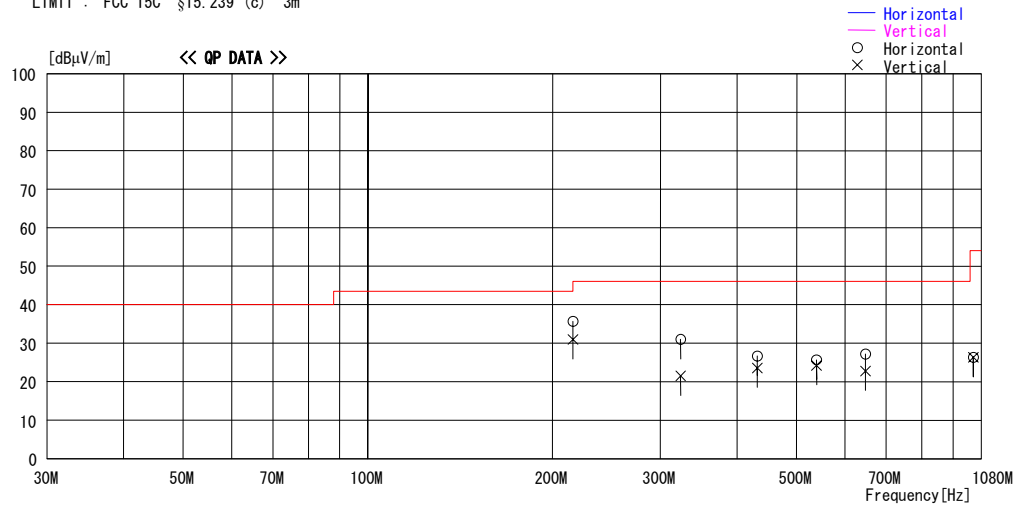
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Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT3
Serial No. : 7

Report No. : 25LE0085-HO
Power : DC12V
Temp./Humi. : 26deg.C / 58%
Operator : Makoto Kosaka

Mode / Remarks : Transmitting 107.9MHz MAX-Axis

LIMIT : FCC 15C §15.239 (c) 3m



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain					[dBμV/m]	[dB]
[MHz]	[dBμV]		[dB/m]	[dB]	[dBμV/m]	[Deg]	[cm]			
215.822	38.1	QP	17.1	-19.5	35.7	215	152	Hori.	43.5	7.8
215.805	33.4	QP	17.1	-19.5	31.0	344	100	Vert.	43.5	12.5
323.716	34.1	QP	15.8	-18.9	31.0	338	100	Hori.	46.0	15.0
323.712	24.6	QP	15.8	-18.9	21.5	109	100	Vert.	46.0	24.5
431.623	27.3	QP	18.7	-19.3	26.7	320	100	Hori.	46.0	19.3
431.600	24.1	QP	18.7	-19.3	23.5	154	100	Vert.	46.0	22.5
539.541	24.3	QP	19.2	-19.3	24.2	271	173	Vert.	46.0	21.8
539.500	25.8	QP	19.2	-19.3	25.7	251	176	Hori.	46.0	20.3
647.405	26.0	QP	20.1	-18.9	27.2	360	140	Hori.	46.0	18.8
647.403	21.6	QP	20.1	-18.9	22.8	193	176	Vert.	46.0	23.2
971.100	20.5	QP	23.0	-17.2	26.3	360	100	Vert.	54.0	27.7
971.100	20.6	QP	23.0	-17.2	26.4	-1	100	Hori.	54.0	27.6

CHART:WITH FACTOR ANT TYPE : -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN

UL Apex Co., Ltd.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

MF060b(01.06.05)

Test report No. : 25LE0085-HO-1a
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Issued date : August 2, 2005
Revised date : August 3, 2005
FCC ID : AK8DCCFMT3

Spurious Emissions(Band Edge)

DATA OF RADIATED EMISSION TEST

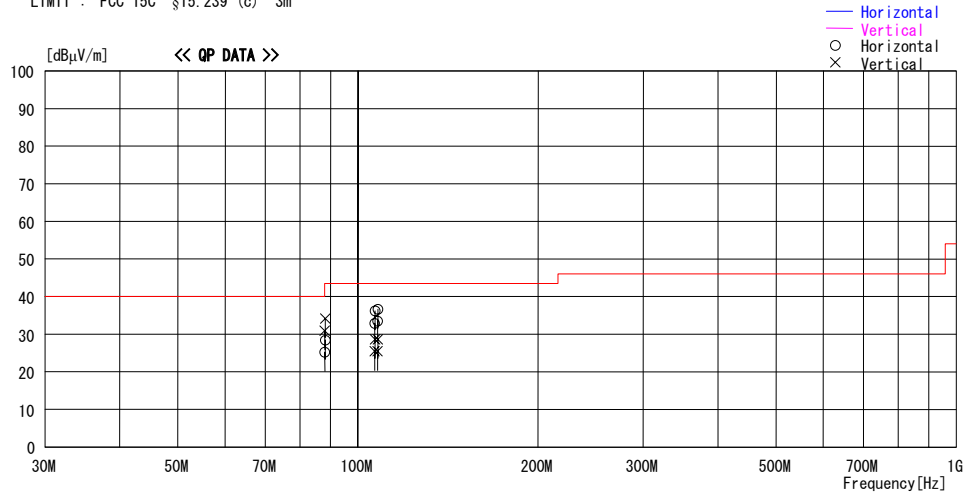
UL Apex Co., Ltd. Head Office EMC Lab. No. 2 Semi Anechoic Chamber

Applicant : Sony Corporation
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT3
Serial No. : 7

Report No. : 25LE0085-HO
Power : DC12V
Temp./Humi. : 26deg. C / 58%
Operator : Makoto Kosaka

Mode / Remarks : Transmitting 88.1/106.7/107.9MHz MAX-Axis Band Edge

LIMIT : FCC 15C §15.239 (c) 3m



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin
			Factor	Loss& Gain						
[MHz]	[dBμV]		[dB/m]	[dB]	[dBμV/m]	[Deg]	[cm]		[dBμV/m]	[dB]
88.000	38.0	QP	8.2	-21.0	25.2	0	300	Hori.	40.0	14.8
88.000	43.7	QP	8.2	-21.0	30.9	230	100	Vert.	40.0	9.1
88.200	41.1	QP	8.3	-21.0	28.4	0	300	Hori.	43.5	15.1
88.200	46.9	QP	8.3	-21.0	34.2	230	100	Vert.	43.5	9.3
106.600	42.4	QP	11.3	-20.8	32.9	180	270	Hori.	43.5	10.6
106.600	35.0	QP	11.3	-20.8	25.5	80	100	Vert.	43.5	18.0
106.800	38.0	QP	11.4	-20.8	28.6	80	100	Vert.	43.5	14.9
106.800	45.6	QP	11.4	-20.8	36.2	180	270	Hori.	43.5	7.3
107.800	34.8	QP	11.5	-20.8	25.5	80	100	Vert.	43.5	18.0
107.800	42.8	QP	11.5	-20.8	33.5	180	270	Hori.	43.5	10.0
108.000	37.9	QP	11.5	-20.8	28.6	80	100	Vert.	43.5	14.9
108.000	46.0	QP	11.5	-20.8	36.7	180	270	Hori.	43.5	6.8

CHART:WITH FACTOR ANT TYPE: -30MHz LOOP, 30-300MHz BICONICAL, 300MHz-1000MHz LOGPERIODIC, 1000MHz- HORN
Except for the data below : adequate margin data below the limits.
CALCULATION : READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - AMP. GAIN

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