

## APPENDIX 2: Data of EMI test

### 200kHz Bandwidth

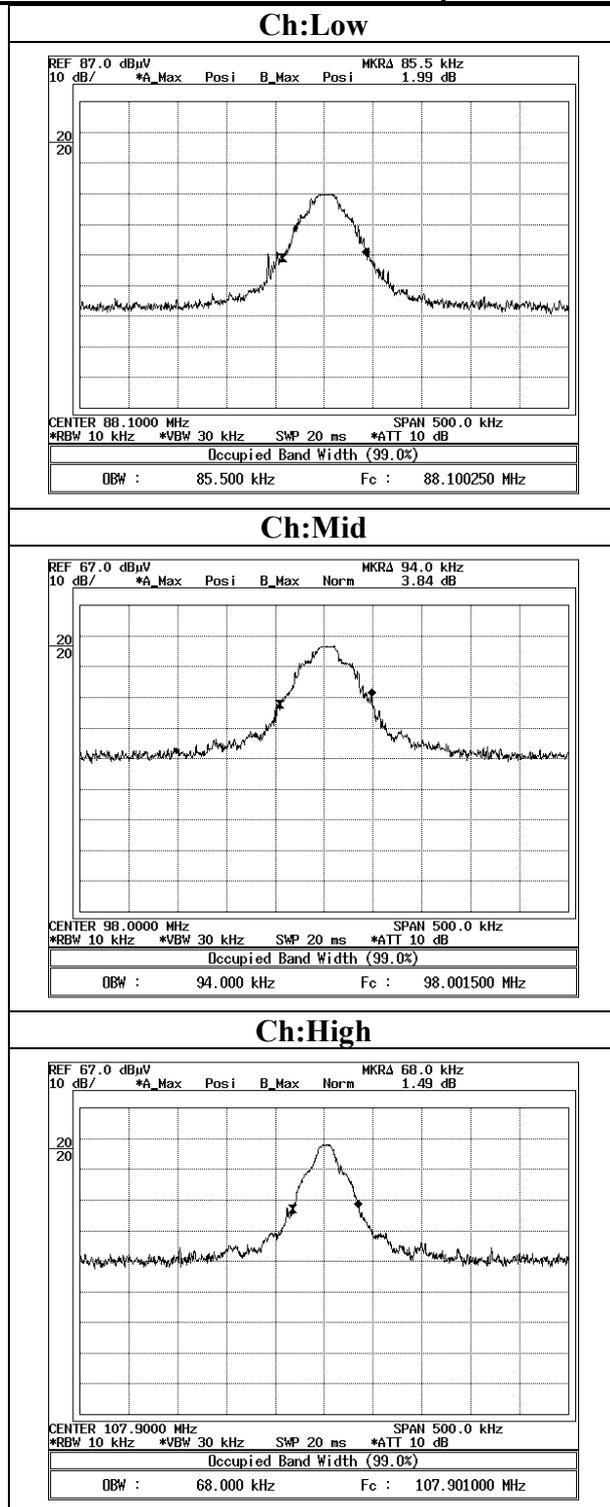
UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

COMPANY : Sony Corporation  
EQUIPMENT : Car FM Stereo Transmitter  
MODEL : DCC-NWFMT1  
S/ N : 001  
POWER : DC12.0V  
MODE : Transmitting (88.1/98.0/107.9MHz)

REGULATION : FCC15.239(a)  
PROCEDURE : FCC2.1049  
TEST DISTANCE : 3 m  
DATE : 05/07/2008  
TEMPERATURE : 20 deg.C.  
HUMIDITY : 51 %  
ENGINEER : Kazufumi Nakai

No.	FREQ [MHz]	RESULT [kHz]	LIMIT [kHz]	MARGIN [kHz]
1	88.1	85.5	200.0	114.5
2	98.0	94.0	200.0	106.0
3	107.9	68.0	200.0	132.0

## 200kHz Bandwidth and 99% Occupied Bandwidth



Test report No. : 28IE0153-HO-01-A-R1  
Page : 14 of 23  
Issued date : May 15, 2008  
Revised date : June 4, 2008  
FCC ID : AK8DCCNWFMT1

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## 20dB Bandwidth

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber

COMPANY : Sony Corporation  
EQUIPMENT : Car FM Stereo Transmitter  
MODEL : DCC-NWFMT1  
S/ N : 001  
POWER : DC12.0V  
MODE : Transmitting (88.1/98.0/107.9MHz)

REGULATION : FCC15.215(c)  
TEST DISTANCE : 3 m  
DATE : 05/07/2008  
TEMPERATURE : 20 deg.C  
HUMIDITY : 51 %  
ENGINEER : Kazufumi Nakai

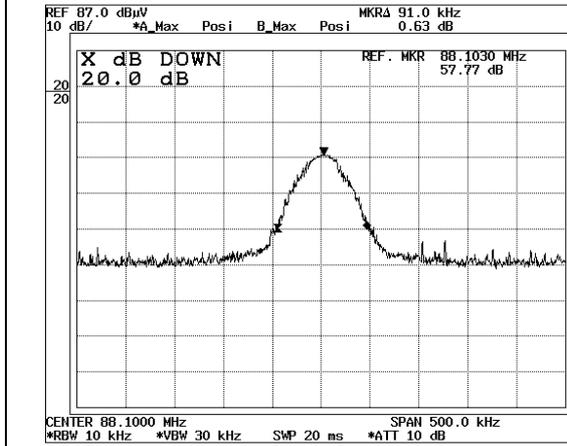
No.	FREQ [MHz]	RESULT [kHz]	LIMIT [kHz]	MARGIN [kHz]
1	88.1	91.0	-	-
2	98.0	99.0	-	-
3	107.9	70.0	-	-

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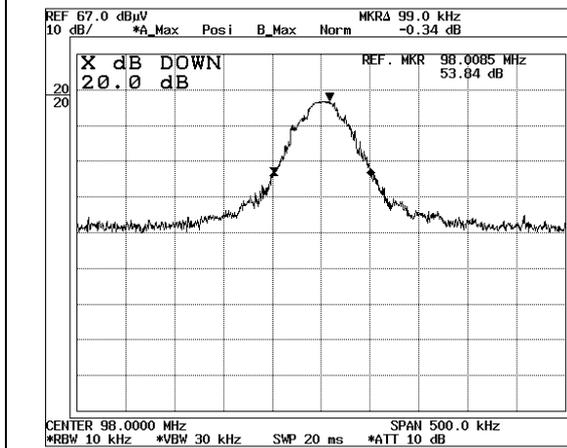
**UL Japan, Inc.**  
**Head Office EMC Lab.**  
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN  
Telephone : +81 596 24 8116  
Facsimile : +81 596 24 8124

### 20dB Bandwidth

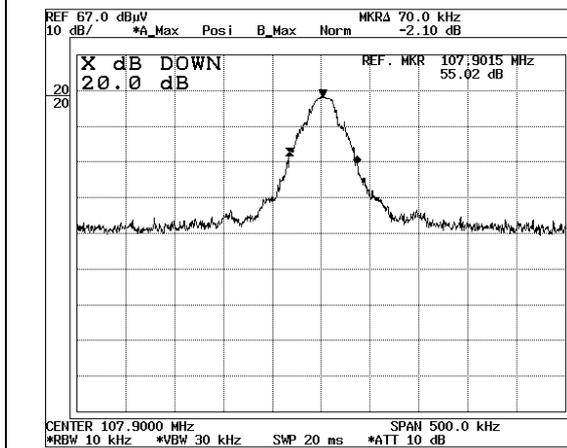
#### Ch:Low



#### Ch:Mid



#### Ch:High



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## Emissions from the Intentional radiators

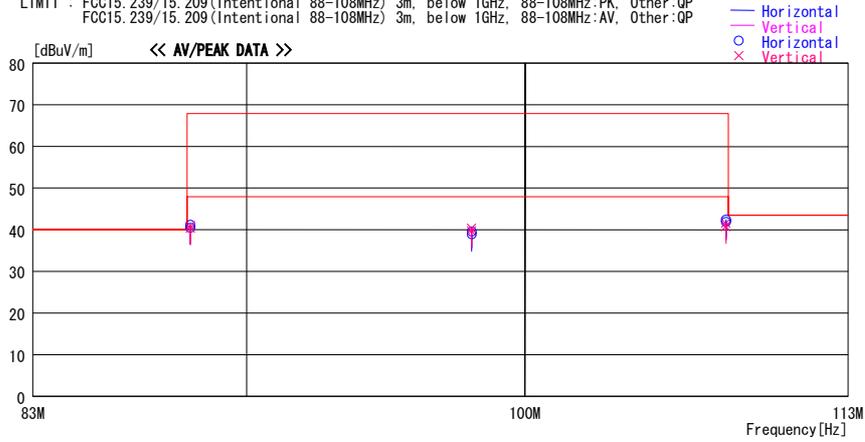
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2008/05/07

Company : Sony Corporation Report No. : 281E0153-HO-01  
Kind of EUT : Car FM Stereo Transmitter Power : DC 12.0V  
Model No. : DCC-NWFMT1 Temp./Humi. : 20deg.C. / 51%  
Serial No. : 001 Operator : Kazufumi Nakai

Mode / Remarks : Transmitting 88.1MHz / 98.0MHz / 107.9MHz, Worst-axis

LIMIT : FCC15.239/15.209(Intentional 88-108MHz) 3m. below 1GHz, 88-108MHz:PK, Other:QP  
FCC15.239/15.209(Intentional 88-108MHz) 3m. below 1GHz, 88-108MHz:AV, Other:QP



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]			[dBuV/m]	[dB]	
88.100	57.5	PK	7.8	-24.1	41.2	Hori.	67.9	26.7	
88.100	57.2	PK	7.8	-24.1	40.9	Vert.	67.9	27.0	
88.100	56.8	AV	7.8	-24.1	40.5	Hori.	47.9	7.4	
88.100	56.7	AV	7.8	-24.1	40.4	Vert.	47.9	7.5	
98.000	53.9	PK	9.6	-23.9	39.6	Hori.	67.9	28.3	
98.000	54.7	PK	9.6	-23.9	40.4	Vert.	67.9	27.5	
98.000	53.2	AV	9.6	-23.9	38.9	Hori.	47.9	9.0	
98.000	54.0	AV	9.6	-23.9	39.7	Vert.	47.9	8.2	
107.900	55.2	PK	11.0	-23.8	42.4	Hori.	67.9	25.5	
107.900	54.4	PK	11.0	-23.8	41.6	Vert.	67.9	26.3	
107.900	54.7	AV	11.0	-23.8	41.9	Hori.	47.9	6.0	
107.900	53.5	AV	11.0	-23.8	40.7	Vert.	47.9	7.2	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

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## Spurious Emissions

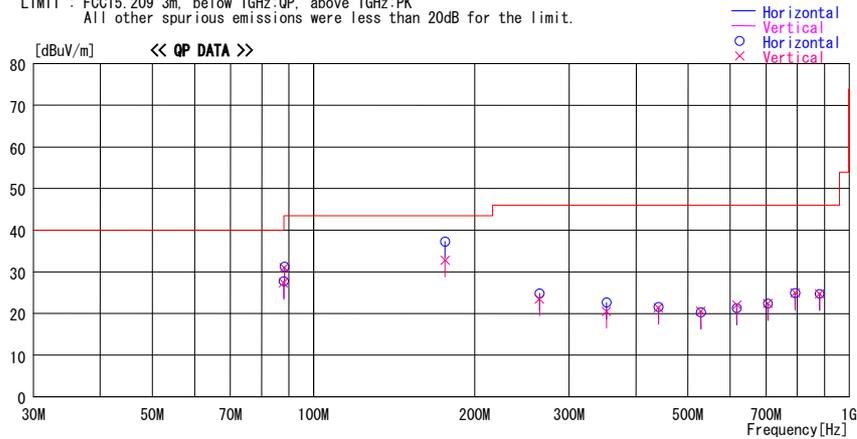
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2008/05/07

Company : Sony Corporation  
 Kind of EUT : Car FM Stereo Transmitter  
 Model No. : DCC-NWFMT1  
 Serial No. : 001  
 Report No. : 28IE0153-HO-01  
 Power : DC 12.0V  
 Temp./Humi. : 20deg. C. / 51%  
 Operator : Kazufumi Nakai

Mode / Remarks : Transmitting 88.1MHz, Worst-axis EUT(Hori:Y, Vert:Y), Antenna(Hori:0deg, Vert:0deg)

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK  
 All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss&Gain [dB]					
88.000	44.0	QP	7.8	-24.1	27.7	Hori.	40.0	12.3	Band Edge
88.000	43.7	QP	7.8	-24.1	27.4	Vert.	40.0	12.6	Band Edge
88.200	47.3	QP	7.8	-24.1	31.0	Vert.	43.5	12.5	Band Edge
88.200	47.6	QP	7.8	-24.1	31.3	Hori.	43.5	12.2	Band Edge
176.200	44.1	QP	16.3	-23.1	37.3	Hori.	43.5	6.2	
176.200	39.6	QP	16.3	-23.1	32.8	Vert.	43.5	10.7	
264.300	29.6	QP	17.6	-22.4	24.8	Hori.	46.0	21.2	
264.300	28.3	QP	17.6	-22.4	23.5	Vert.	46.0	22.5	
352.400	28.2	QP	16.1	-21.7	22.6	Hori.	46.0	23.4	
352.400	26.1	QP	16.1	-21.7	20.5	Vert.	46.0	25.5	
440.500	24.9	QP	17.7	-21.2	21.4	Vert.	46.0	24.6	
440.500	25.1	QP	17.7	-21.2	21.6	Hori.	46.0	24.4	
528.600	22.9	QP	18.4	-20.7	20.6	Vert.	46.0	25.4	
528.600	22.6	QP	18.4	-20.7	20.3	Hori.	46.0	25.7	
616.700	22.8	QP	19.4	-20.2	22.0	Vert.	46.0	24.0	
616.700	22.1	QP	19.4	-20.2	21.3	Hori.	46.0	24.7	
704.800	22.1	QP	20.0	-19.7	22.4	Vert.	46.0	23.6	
704.800	22.1	QP	20.0	-19.7	22.4	Hori.	46.0	23.6	
792.900	22.0	QP	21.7	-18.8	24.9	Vert.	46.0	21.1	
792.900	22.0	QP	21.7	-18.8	24.9	Hori.	46.0	21.1	
881.000	21.4	QP	21.3	-18.0	24.7	Vert.	46.0	21.3	
881.000	21.4	QP	21.3	-18.0	24.7	Hori.	46.0	21.3	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
 CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

## Spurious Emissions

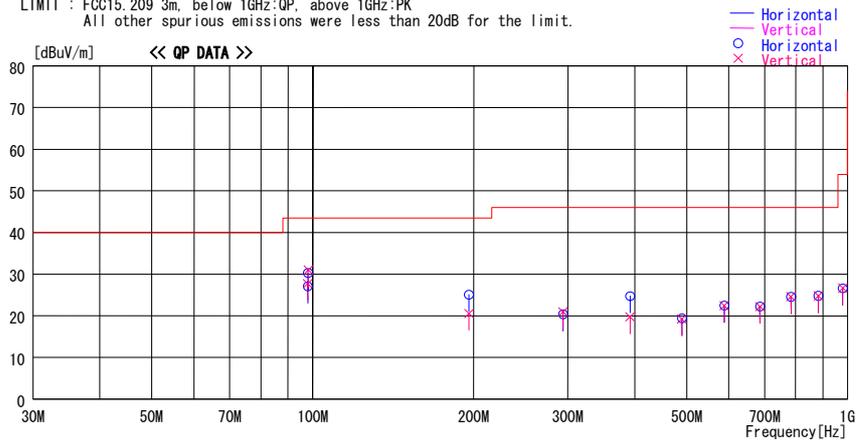
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2008/05/07

Company : Sony Corporation  
 Kind of EUT : Car FM Stereo Transmitter  
 Model No. : DCC-NWFMT1  
 Serial No. : 001  
 Report No. : 28IE0153-HO-01  
 Power : DC 12.0V  
 Temp./Humi. : 20deg. C. / 51%  
 Operator : Kazufumi Nakai

Mode / Remarks : Transmitting 98.0MHz, Worst-axis EUT (Hori:Y, Vert:Y), Antenna(Hori:0deg, Vert:0deg)

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK  
 All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]					
97.900	41.5	QP	9.6	-24.0	27.1	Hori.	43.5	16.4	Band Edge
97.900	42.1	QP	9.6	-24.0	27.7	Vert.	43.5	15.8	Band Edge
98.100	44.6	QP	9.6	-23.9	30.3	Hori.	43.5	13.2	Band Edge
98.100	45.3	QP	9.6	-23.9	31.0	Vert.	43.5	12.5	Band Edge
196.000	31.9	QP	16.3	-23.1	25.1	Hori.	43.5	18.4	
196.000	27.4	QP	16.3	-23.1	20.6	Vert.	43.5	22.9	
294.000	23.4	QP	19.6	-22.1	20.9	Vert.	46.0	25.1	
294.000	22.9	QP	19.6	-22.1	20.4	Hori.	46.0	25.6	
392.000	29.1	QP	17.1	-21.5	24.7	Hori.	46.0	21.3	
392.000	24.1	QP	17.1	-21.5	19.7	Vert.	46.0	26.3	
490.000	22.3	QP	18.0	-20.9	19.4	Hori.	46.0	26.6	
490.000	22.1	QP	18.0	-20.9	19.2	Vert.	46.0	26.8	
588.000	23.8	QP	19.1	-20.4	22.5	Hori.	46.0	23.5	
588.000	23.7	QP	19.1	-20.4	22.4	Vert.	46.0	23.6	
686.000	22.2	QP	19.8	-19.8	22.2	Hori.	46.0	23.8	
686.000	22.2	QP	19.8	-19.8	22.2	Vert.	46.0	23.8	
784.000	22.0	QP	21.5	-18.9	24.6	Hori.	46.0	21.4	
784.000	22.0	QP	21.5	-18.9	24.6	Vert.	46.0	21.4	
882.000	21.5	QP	21.3	-18.0	24.8	Hori.	46.0	21.2	
882.000	21.5	QP	21.3	-18.0	24.8	Vert.	46.0	21.2	
980.000	20.9	QP	22.8	-17.1	26.6	Hori.	53.9	27.3	
980.000	20.9	QP	22.8	-17.1	26.6	Vert.	53.9	27.3	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
 CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

\*The test result is rounded off to one or two decimal places, so some differences might be observed.

## Spurious Emissions

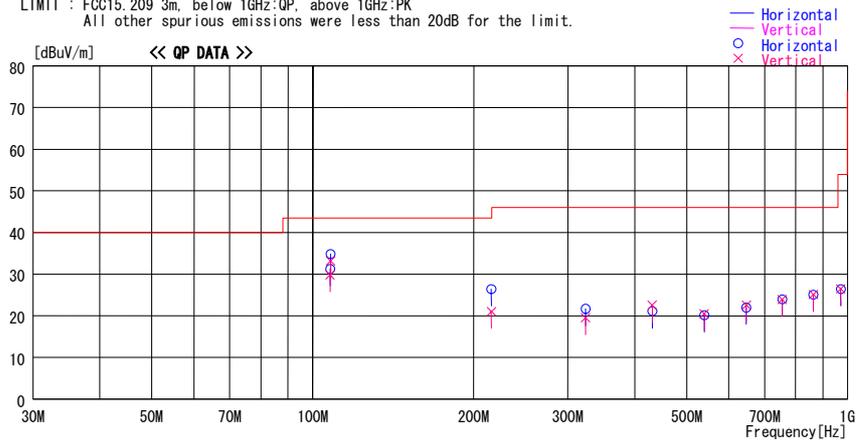
### DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Date : 2008/05/07

Company : Sony Corporation  
 Kind of EUT : Car FM Stereo Transmitter  
 Model No. : DCC-NWFMT1  
 Serial No. : 001  
 Report No. : 28IE0153-HO-01  
 Power : DC 12.0V  
 Temp./Humi. : 20deg. C. / 51%  
 Operator : Kazufumi Nakai

Mode / Remarks : Transmitting 107.9MHz, Worst-axis EUT (Hori:Y, Vert:Y), Antenna (Hori:0deg, Vert:0deg)

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK  
 All other spurious emissions were less than 20dB for the limit.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]					
107.800	42.6	QP	11.0	-23.8	29.8	Vert.	43.5	13.7	Band Edge
107.800	44.1	QP	11.0	-23.8	31.3	Hori.	43.5	12.2	Band Edge
108.000	46.0	QP	11.0	-23.8	33.2	Vert.	43.5	10.3	Band Edge
108.000	47.6	QP	11.0	-23.8	34.8	Hori.	43.5	8.7	Band Edge
215.800	32.9	QP	16.3	-22.8	26.4	Hori.	43.5	17.1	
215.800	27.5	QP	16.3	-22.8	21.0	Vert.	43.5	22.5	
323.700	28.3	QP	15.3	-21.9	21.7	Hori.	46.0	24.3	
323.700	26.1	QP	15.3	-21.9	19.5	Vert.	46.0	26.5	
431.600	26.1	QP	17.6	-21.2	22.5	Vert.	46.0	23.5	
431.600	24.7	QP	17.6	-21.2	21.1	Hori.	46.0	24.9	
539.500	22.5	QP	18.6	-20.6	20.5	Vert.	46.0	25.5	
539.500	22.1	QP	18.6	-20.6	20.1	Hori.	46.0	25.9	
647.400	23.1	QP	19.5	-20.0	22.6	Vert.	46.0	23.4	
647.400	22.5	QP	19.5	-20.0	22.0	Hori.	46.0	24.0	
755.300	22.1	QP	21.0	-19.2	23.9	Vert.	46.0	22.1	
755.300	22.1	QP	21.0	-19.2	23.9	Hori.	46.0	22.1	
863.200	21.9	QP	21.4	-18.2	25.1	Vert.	46.0	20.9	
863.200	21.9	QP	21.4	-18.2	25.1	Hori.	46.0	20.9	
971.100	21.0	QP	22.7	-17.2	26.5	Vert.	53.9	27.4	
971.100	20.9	QP	22.7	-17.2	26.4	Hori.	53.9	27.5	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
 CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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## Spurious Emissions

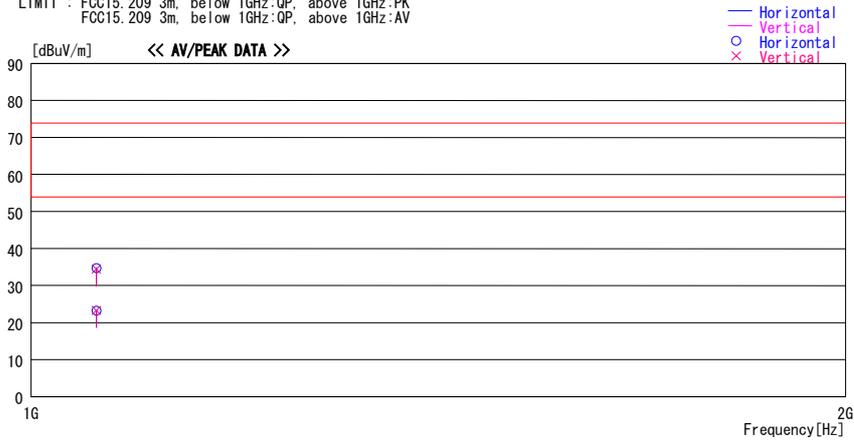
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 Serial No. : 001  
 Report No. : 28IE0153-HO-01  
 Power : DC 12.0V  
 Temp./Humi. : 20deg. C. / 51%  
 Operator : Kazufumi Nakai

Mode / Remarks : Transmitting 88.1MHz, Worst-axis EUT(Hori:Y, Vert:Y), Antenna(Hori:0deg, Vert:0deg)

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK  
 FCC15.209 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Polar.	Limit	Margin	Comment
			Factor	Gain			[dBuV/m]	[dB]	
1057.200	43.8	PK	24.3	-33.4	34.7	Hori.	73.9	-39.2	Non Signal
1057.200	43.5	PK	24.3	-33.4	34.4	Vert.	73.9	-39.5	Non Signal
1057.200	32.4	AV	24.3	-33.4	23.3	Hori.	53.9	-30.6	Non Signal
1057.200	32.4	AV	24.3	-33.4	23.3	Vert.	53.9	-30.6	Non Signal

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
 CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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## Spurious Emissions

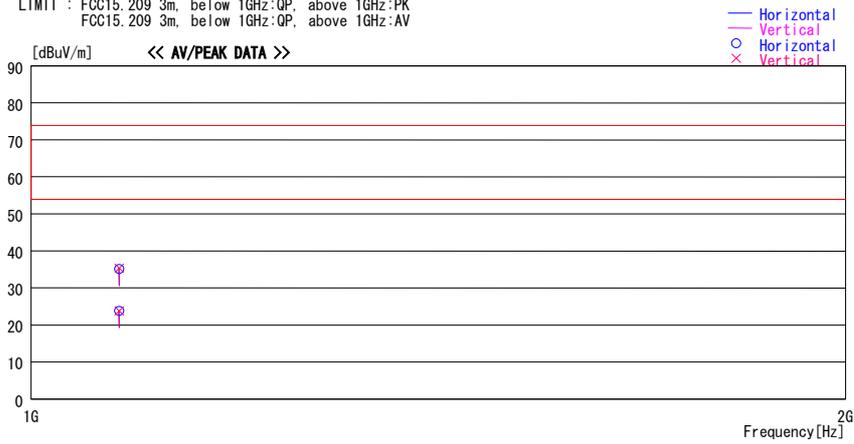
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Company : Sony Corporation  
 Kind of EUT : Car FM Stereo Transmitter  
 Model No. : DCC-NWFMT1  
 Serial No. : 001  
 Report No. : 281E0153-HO-01  
 Power : DC 12.0V  
 Temp./Humi. : 20deg. C. / 51%  
 Operator : Kazufumi Nakai

Mode / Remarks : Transmitting 98.0MHz, Worst-axis EUT (Hori:Y, Vert:Y), Antenna(Hori:0deg, Vert:0deg)

LIMIT : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK  
 FCC15.209 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]					
1078.000	44.1	PK	24.4	-33.3	35.2	Hori.	73.9	38.7	Non Signal
1078.000	44.2	PK	24.4	-33.3	35.3	Vert.	73.9	38.6	Non Signal
1078.000	32.7	AV	24.4	-33.3	23.8	Hori.	53.9	30.1	Non Signal
1078.000	32.7	AV	24.4	-33.3	23.8	Vert.	53.9	30.1	Non Signal

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN  
 CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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### APPENDIX 3: Test instruments

#### EMI test equipment

Control No.	Instrument	Manufacturer	Model No.	Test Item	Calibration Date * Interval(month)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2008/03/25 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	RE	2008/01/10 * 12
MJM-06	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MSA-09	Spectrum Analyzer	Advantest	R3273	RE	2007/12/21 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2008/02/20 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2008/01/12 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2008/01/12 * 12
MCC-51	Coaxial cable	UL Japan	-	RE	2007/07/26 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2008/03/10 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2008/03/06 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2008/04/23 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2008/03/12 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2008/03/13 * 12

The expiration date of the calibration is the end of the expired month.

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

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

#### Test Item:

RE: Radiated emission

(200kHz Bandwidth, Emissions from the Intentional radiators, Spurious Emissions,  
20dB Bandwidth, and 99% Occupied Bandwidth)

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**Head Office EMC Lab.**

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