

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	2006/04/10 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2006/02/02 * 12
MRENT-31	Spectrum Analyzer	Advantest	R3273	RE	2006/04/24 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2004/11/25 * 24
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MAT-07	Attenuator (6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2005/09/07 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2006/02/23 * 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

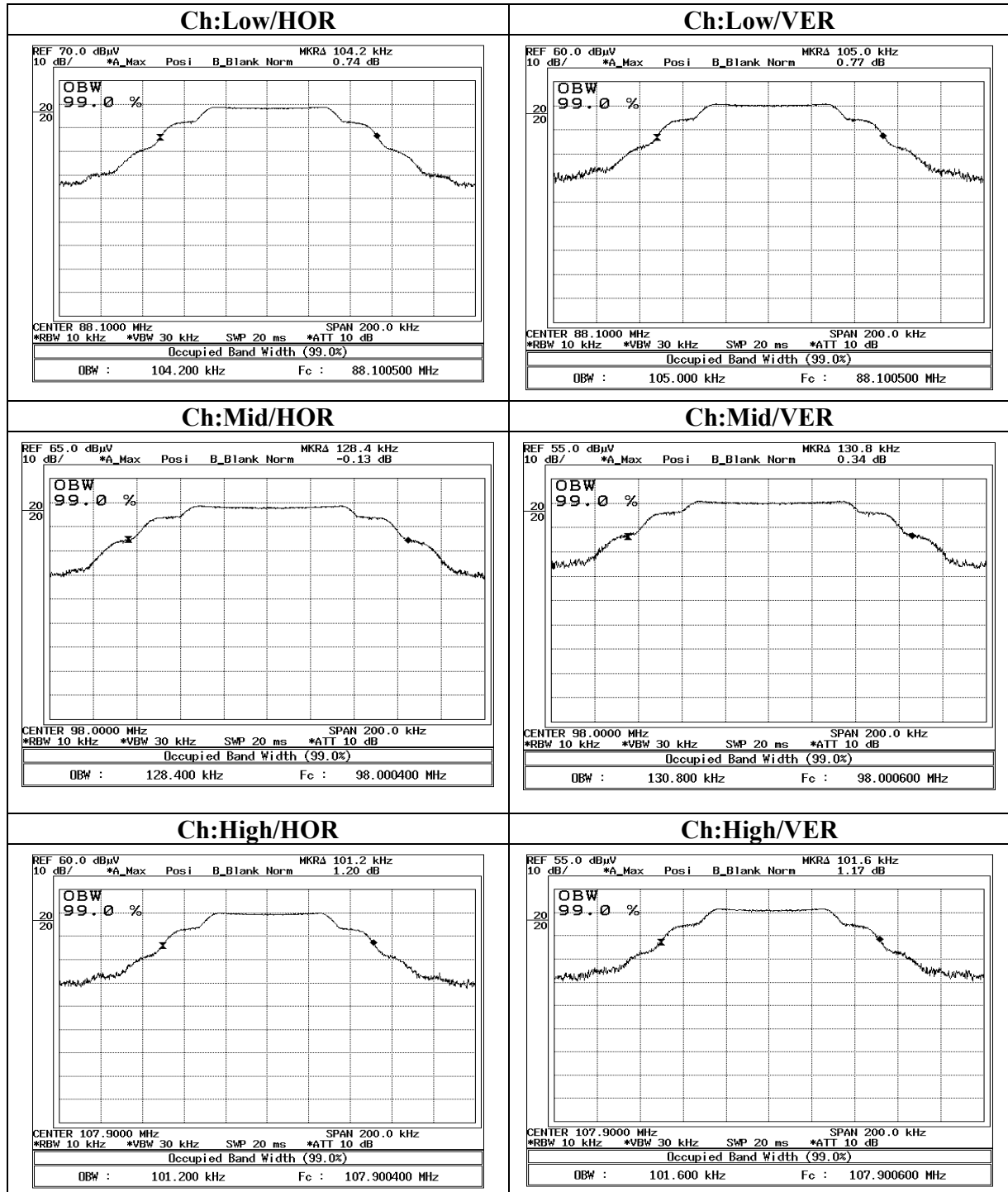
200kHz Bandwidth

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

COMPANY	: Sony EMCS Corp Saitama TEC	REGULATION	: Fcc Part15 Subpart C Section 15.239(a)
EQUIPMENT	: Car FM Stereo Transmitter	PROCEDURE	: Fcc Part2 Section 2.1049
MODEL	: DCC-FMT50U	TEST DISTANCE	: 3 m
S/ N	: 000000	DATE	: 06/13/2006
POWER	: DC12V	TEMPERATURE	: 25 deg.C
MODE	: Transmitting (88.1/98.0/107.9MHz)	HUMIDITY	: 60 %
	: Audio Signal 1kHz	ENGINEER	: Hiroka Umeyama

No.	FREQ [MHz]	RESULT		LIMIT [kHz]	MARGIN	
		HOR [kHz]	VER [kHz]		HOR [kHz]	VER [kHz]
1	88.1	104.2	105.0	200.0	95.8	95.0
2	98.0	128.4	130.8	200.0	71.6	69.2
3	107.9	101.2	101.6	200.0	98.8	98.4

200kHz Bandwidth and 99% Occupied Band width



20dB Bandwidth

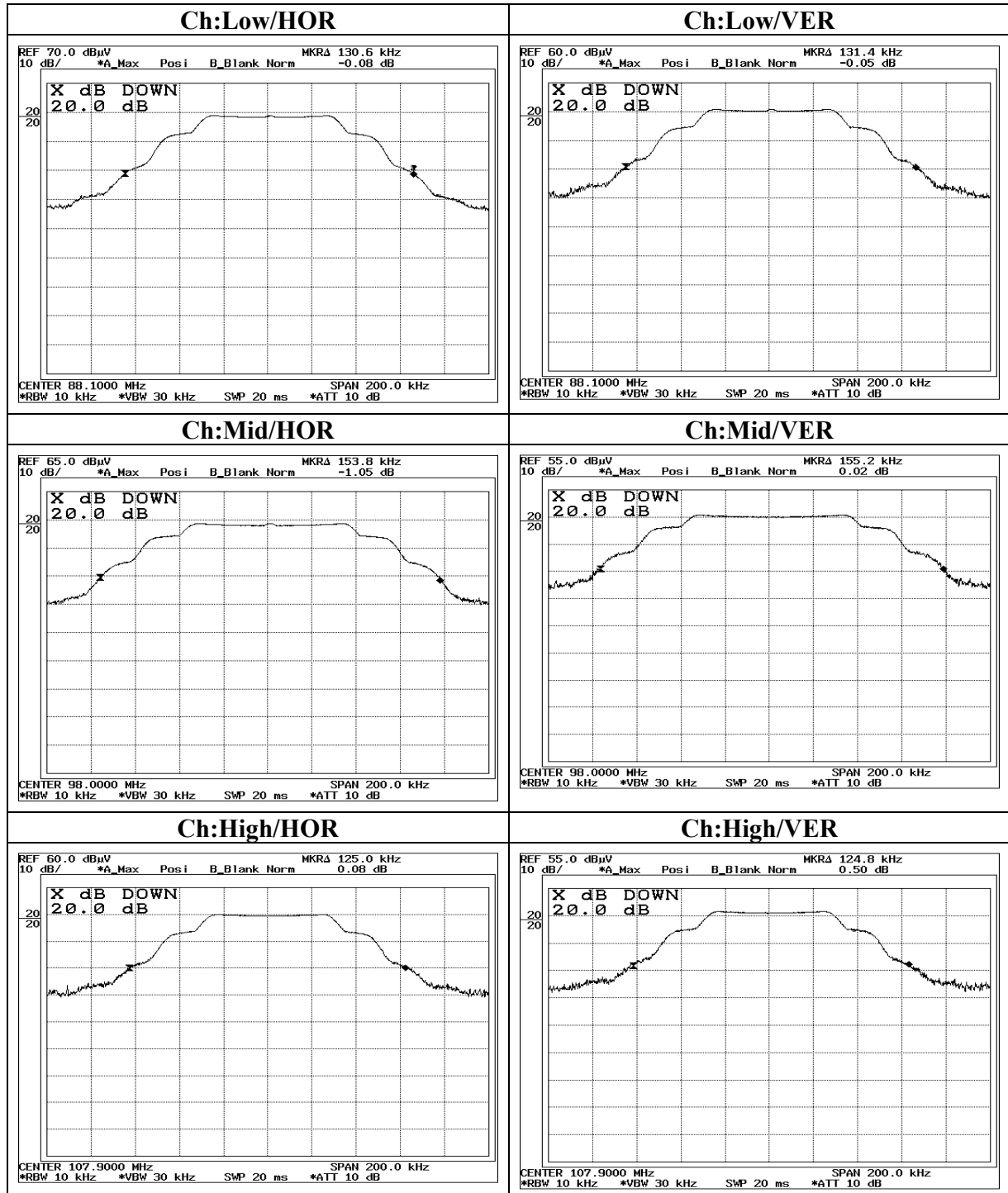
UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

COMPANY : Sony EMCS Corp Saitama TEC
EQUIPMENT : Car FM Stereo Transmitter
MODEL : DCC-FMT50U
S/ N : 000000
POWER : DC12V
MODE : Transmitting (88.1/98.0/107.9MHz)
: Audio Signal 1kHz

REGULATION : FCC Part15, Section 15.215 (c)
TEST DISTANCE : 3 m
DATE : 06/13/2006
TEMPERATURE : 25 deg.C
HUMIDITY : 60 %
ENGINEER : Hiroka Umeyama

No.	FREQ [MHz]	RESULT		LIMIT [kHz]	MARGIN	
		HOR [kHz]	VER [kHz]		HOR [kHz]	VER [kHz]
1	88.1	130.6	131.4	-	-	-
2	98.0	153.8	155.2	-	-	-
3	107.9	125.0	124.8	-	-	-

20dB Bandwidth



Test report No. : 26IE0394-HO-A-1
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Revised date : June 19, 2006
FCC ID : AK8DCCFMT50

Emissions from the Intentional radiators

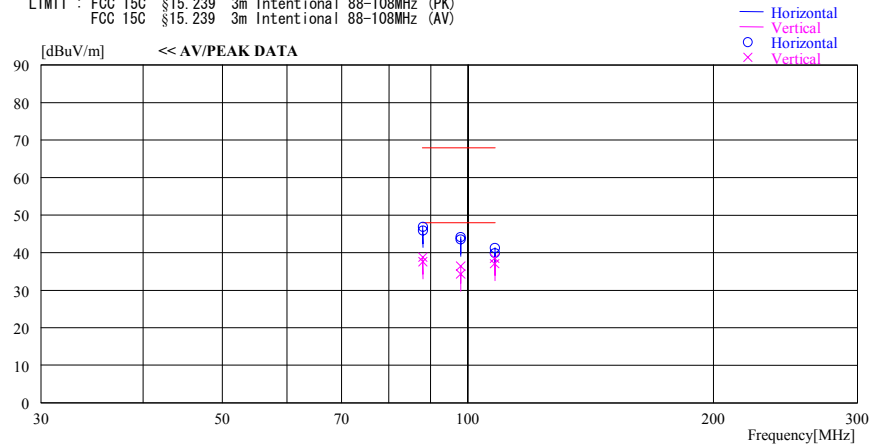
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No. 2 Semi Anechoic Chamber
Date : 2006/06/13 15:56:03

Company : Sony EMCS Corp. Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000
Report No. : 26IE0394-HO
Power : DC12.0V
Temp./Humi. : 25deg. C. / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx 88.1MHz / Tx 98.0MHz / Tx107.9MHz Max-Axis

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



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
88.100	60.7	PK	7.6	-21.4	46.9	0	340	Hori.	67.9	21.0	X
88.100	52.6	PK	7.6	-21.4	38.8	49	139	Vert.	67.9	29.1	Y
88.100	59.7	AV	7.6	-21.4	45.9	0	340	Hori.	47.9	2.0	X
88.100	51.4	AV	7.6	-21.4	37.6	49	139	Vert.	47.9	10.3	Y
98.000	56.1	PK	9.5	-21.4	44.2	0	320	Hori.	67.9	23.7	X
98.000	48.3	PK	9.5	-21.4	36.4	273	100	Vert.	67.9	31.5	Y
98.000	55.5	AV	9.5	-21.4	43.6	0	320	Hori.	47.9	4.3	X
98.000	46.2	AV	9.5	-21.4	34.3	273	100	Vert.	47.9	13.6	Y
107.900	51.5	PK	11.0	-21.2	41.3	0	320	Hori.	67.9	26.6	X
107.900	48.7	PK	11.0	-21.2	38.5	300	100	Vert.	67.9	29.4	Y
107.900	50.1	AV	11.0	-21.2	39.9	0	320	Hori.	47.9	8.0	X
107.900	47.3	AV	11.0	-21.2	37.1	300	100	Vert.	47.9	10.8	Y

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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MF060b(14.06.06)

Test report No. : 26IE0394-HO-A-1
Page : 18 of 24
Issued date : June 14, 2006
Revised date : June 19, 2006
FCC ID : AK8DCCFMT50

Spurious Emissions

DATA OF RADIATED EMISSION TEST

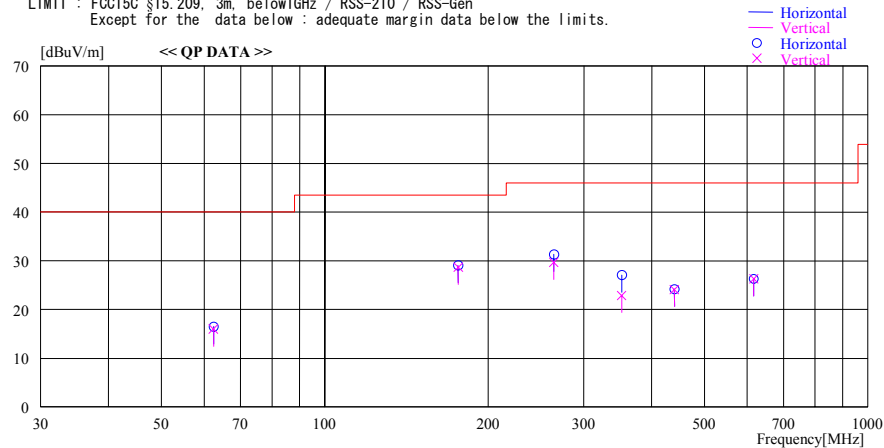
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/06/13 14:21:01

Company : Sony EMCS Corp. Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000

Report No. : 26IE0394-HO
Power : DC12.0V
Temp./Humi. : 25deg.C. / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx 88.1MHz Max-Axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
62.400	30.0	QP	7.8	-21.8	16.0	0	100	Vert.	40.0	24.0
62.400	30.5	QP	7.8	-21.8	16.5	0	313	Hori.	40.0	23.5
176.200	33.2	QP	15.9	-20.4	28.7	0	100	Vert.	43.5	14.8
176.200	33.6	QP	15.9	-20.4	29.1	92	275	Hori.	43.5	14.4
264.300	33.1	QP	18.0	-19.8	31.3	155	140	Hori.	46.0	14.7
264.300	31.5	QP	18.0	-19.8	29.7	60	100	Vert.	46.0	16.3
352.400	30.5	QP	16.2	-19.6	27.1	55	100	Hori.	46.0	18.9
352.400	26.3	QP	16.2	-19.6	22.9	337	100	Vert.	46.0	23.1
440.500	26.0	QP	17.8	-19.7	24.1	159	100	Vert.	46.0	21.9
440.500	26.1	QP	17.8	-19.7	24.2	0	100	Hori.	46.0	21.8
616.700	26.2	QP	19.4	-19.3	26.3	0	100	Hori.	46.0	19.7
616.700	26.2	QP	19.4	-19.3	26.3	0	100	Vert.	46.0	19.7

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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MF060b(14.06.06)

Spurious Emissions

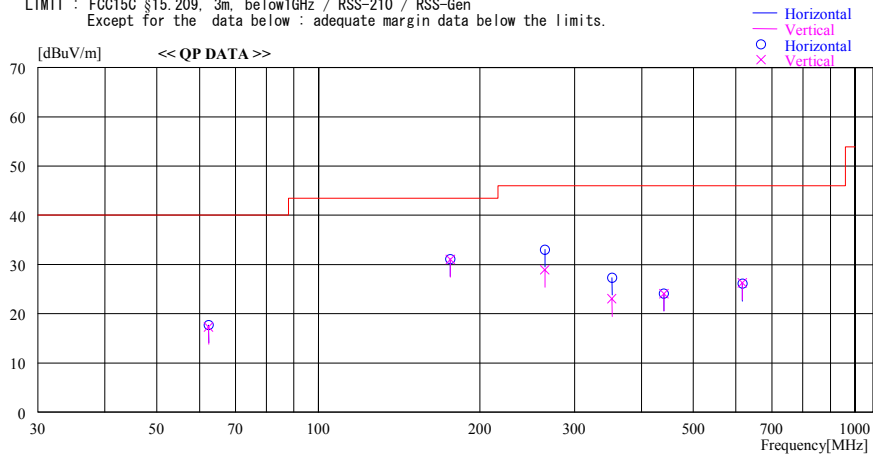
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No. 2 Semi Anechoic Chamber
Date : 2006/06/13 14:21:01

Company : Sony EMCS Corp. Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000
Report No. : 261E0394-HO
Power : DC12.0V
Temp./Humi. : 25deg.C. / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx 88.1MHz + Charging with USB Cable, Max-Axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
62.400	31.3	QP	7.8	-21.8	17.3	0	100	Vert.	40.0	22.7
62.400	31.7	QP	7.8	-21.8	17.7	0	313	Hori.	40.0	22.3
176.200	35.5	QP	15.9	-20.4	31.0	0	100	Vert.	43.5	12.5
176.200	35.6	QP	15.9	-20.4	31.1	240	165	Hori.	43.5	12.4
264.300	34.8	QP	18.0	-19.8	33.0	155	140	Hori.	46.0	13.0
264.300	30.7	QP	18.0	-19.8	28.9	0	100	Vert.	46.0	17.1
352.400	30.7	QP	16.2	-19.6	27.3	55	100	Hori.	46.0	18.7
352.400	26.4	QP	16.2	-19.6	23.0	337	100	Vert.	46.0	23.0
440.500	26.0	QP	17.8	-19.7	24.1	159	100	Vert.	46.0	21.9
440.500	26.0	QP	17.8	-19.7	24.1	0	100	Hori.	46.0	21.9
616.700	26.0	QP	19.4	-19.3	26.1	0	100	Hori.	46.0	19.9
616.700	26.2	QP	19.4	-19.3	26.3	0	100	Vert.	46.0	19.7

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)

Spurious Emissions

DATA OF RADIATED EMISSION TEST

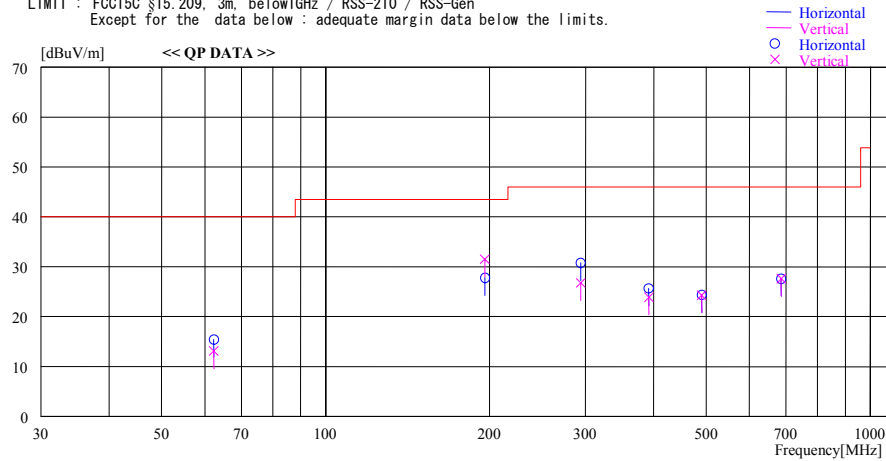
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/06/13 13:27:35

Company : Sony EMCS Corp. Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000

Report No. : 26IE0394-HO
Power : DC12.0V
Temp./Humi. : 25deg.C. / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx 98.0MHz Max-Axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen
Except for the data below : adequate margin data below the limits.



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]
62.290	29.4	QP	7.8	-21.8	15.4	329	313	Hori.	40.0	24.6
62.290	27.1	QP	7.8	-21.8	13.1	0	100	Vert.	40.0	26.9
196.000	31.5	QP	16.5	-20.2	27.8	140	220	Hori.	43.5	15.7
196.000	35.2	QP	16.5	-20.2	31.5	320	100	Vert.	43.5	12.0
294.000	30.2	QP	19.8	-19.2	30.8	40	120	Hori.	46.0	15.2
294.000	26.2	QP	19.8	-19.2	26.8	0	100	Vert.	46.0	19.2
392.000	26.0	QP	17.5	-19.6	23.9	0	100	Vert.	46.0	22.1
392.000	27.8	QP	17.5	-19.6	25.7	0	100	Hori.	46.0	20.3
490.000	26.3	QP	17.8	-19.8	24.3	0	100	Vert.	46.0	21.7
490.000	26.4	QP	17.8	-19.8	24.4	0	100	Hori.	46.0	21.6
686.000	26.1	QP	20.4	-18.9	27.6	0	100	Hori.	46.0	18.4
686.000	26.1	QP	20.4	-18.9	27.6	0	100	Vert.	46.0	18.4

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)

Spurious Emissions

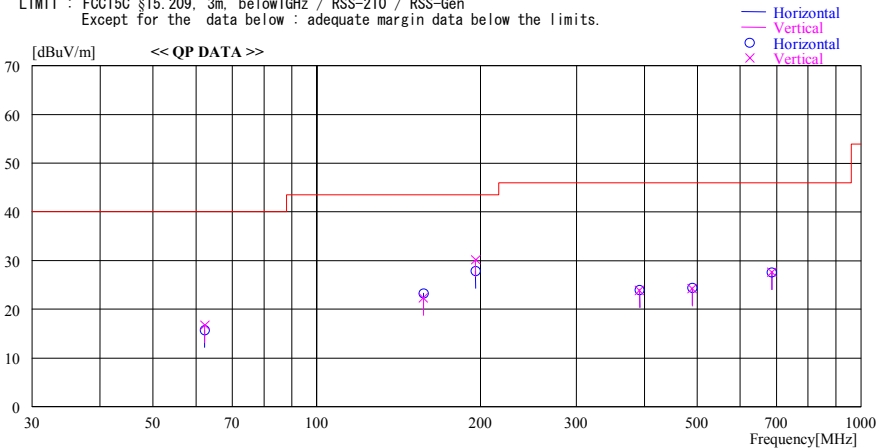
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/06/13 13:27:35

Company : Sony EMCS Corp, Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000
Report No. : 261E0394-HO
Power : DC12.0V
Temp./Humi. : 25deg.C / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx 98.0MHz + Charging with USB Cable, Max-Axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna		Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
62.290	29.7	QP	7.8	-21.8	15.7	329	313	Hori.	40.0	24.3
62.290	30.7	QP	7.8	-21.8	16.7	0	100	Vert.	40.0	23.3
157.110	28.8	QP	15.1	-20.6	23.3	0	160	Hori.	43.5	20.2
157.110	27.8	QP	15.1	-20.6	22.3	0	100	Vert.	43.5	21.2
196.000	31.6	QP	16.5	-20.2	27.9	305	313	Hori.	43.5	15.6
196.000	33.9	QP	16.5	-20.2	30.2	310	115	Vert.	43.5	13.3
392.000	26.0	QP	17.5	-19.6	23.9	0	100	Vert.	46.0	22.1
392.000	26.1	QP	17.5	-19.6	24.0	0	100	Hori.	46.0	22.0
490.000	26.2	QP	17.8	-19.8	24.2	0	100	Vert.	46.0	21.8
490.000	26.4	QP	17.8	-19.8	24.4	0	100	Hori.	46.0	21.6
686.000	26.1	QP	20.4	-18.9	27.6	0	100	Hori.	46.0	18.4
686.000	26.1	QP	20.4	-18.9	27.6	0	100	Vert.	46.0	18.4

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)

Spurious Emissions

DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/06/13 11:48:45

Company : Sony EMCS Corp. Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000

Report No. : 26IE0394-HO
Power : DC12.0V
Temp./Humi. : 25deg.C. / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx107.9MHz Max-Axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen
Except for the data below : adequate margin data below the limits.

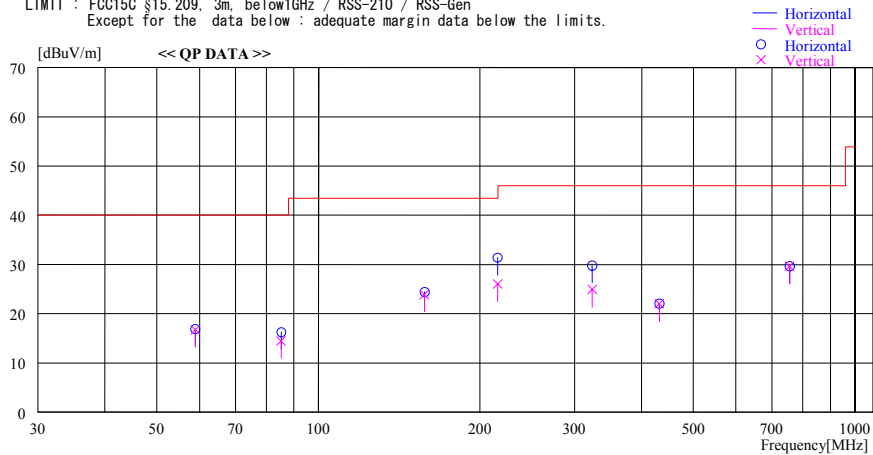


CHART: WITH FACTOR ANT TYPE : ~30MHz LOOP, 30~300MHz BICONICAL, 300MHz~1000MHz LOGPERIODIC, 1000MHz~ HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

Test report No. : 26IE0394-HO-A-1
Page : 23 of 24
Issued date : June 14, 2006
Revised date : June 19, 2006
FCC ID : AK8DCCFMT50

Spurious Emissions

DATA OF RADIATED EMISSION TEST

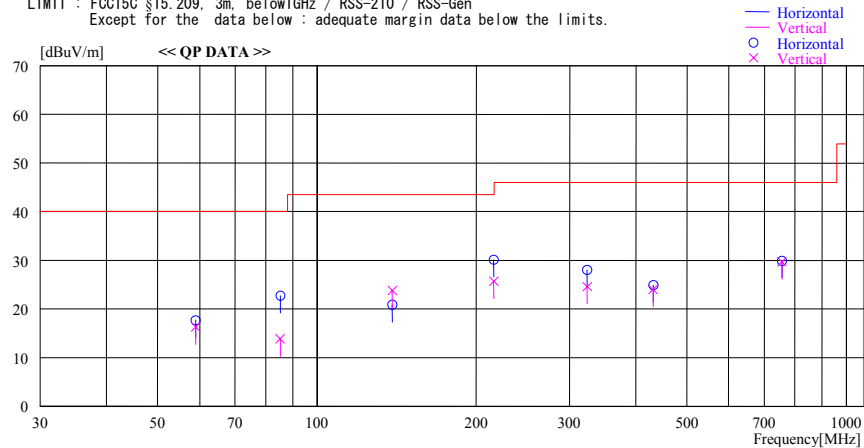
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2006/06/13 11:48:45

Company : Sony EMCS Corp. Saitama TEC
Kind of EUT : Car FM Stereo Transmitter
Model No. : DCC-FMT50U
Serial No. : 000000

Report No. : 26IE0394-HO
Power : DC12.0V
Temp./Humi. : 25deg.C / 60%
Operator : Hiroka Umeyama

Mode / Remarks : Tx107.9MHz + Charging with USB Cable, Max-Axis

LIMIT : FCC15C §15.209, 3m, below1GHz / RSS-210 / RSS-Gen
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
58.980	31.1	QP	8.4	-21.8	17.7	0	300	Hori.	40.0	22.3
58.980	29.7	QP	8.4	-21.8	16.3	35	100	Vert.	40.0	23.7
85.210	36.9	QP	7.1	-21.3	22.7	0	200	Hori.	40.0	17.3
85.210	28.0	QP	7.1	-21.3	13.8	109	100	Vert.	40.0	26.2
138.720	27.0	QP	14.2	-20.3	20.9	240	320	Hori.	43.5	22.6
138.720	29.9	QP	14.2	-20.3	23.8	0	100	Vert.	43.5	19.7
215.800	33.5	QP	16.8	-20.2	30.1	320	100	Hori.	43.5	13.4
215.800	29.1	QP	16.8	-20.2	25.7	235	145	Vert.	43.5	17.8
323.800	31.3	QP	15.1	-18.4	28.0	55	100	Hori.	46.0	18.0
323.800	27.9	QP	15.1	-18.4	24.6	0	100	Vert.	46.0	21.4
431.600	26.9	QP	17.8	-19.8	24.9	0	100	Hori.	46.0	21.1
431.600	26.0	QP	17.8	-19.8	24.0	0	100	Vert.	46.0	22.0
755.300	26.3	QP	21.1	-17.5	29.9	37	100	Hori.	46.0	16.1
755.300	26.1	QP	21.1	-17.5	29.7	0	100	Vert.	46.0	16.3

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)

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Facsimile : +81 596 24 8124

MF060b(14.06.06)

Spurious Emissions(Band Edge)

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

Company : Sony EMCS Corp. Saitama TEC
Equipment : Car FM Stereo Transmitter
Model : DCC-FMT50U
Sample No. : 000000
Power : DC12V
Mode : Transmitting (88.1/98/107.9MHz)

REPORT NO : 26IE0394-HO
REGULATION : Fcc Part15 Subpart C 15.239(c)
PROCEDURE : Fcc Part2 2.1053
TEST DISTANCE : 3 m
DATE : 06/13/2006
TEMPERATURE : 25°C
HUMIDITY : 60%
ENGINEER : Hiroka Umeyama

PK DETECT

No.	FREQ [MHz]	T/R READING		Ratio		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		Limit QP [dBuV/m]	MARGIN	
		HOR	VER	HOR	VER					HOR	VER		HOR	VER
		[dBuV/m]		[dB]						[dBuV/m]			[dB]	[dB]
1	88.0	26.9	21.7	4.0	4.0	7.6	28.7	1.3	6.0	17.1	11.9	43.5	26.4	31.6
2	88.2	26.4	21.6	4.0	4.0	7.6	28.7	1.3	6.0	16.6	11.8	43.5	26.9	31.7
3	97.9	25.3	20.9	4.7	4.6	9.5	28.8	1.4	6.0	18.1	13.6	43.5	25.4	29.9
4	98.1	24.6	20.1	4.7	4.6	9.5	28.8	1.4	6.0	17.4	12.8	43.5	26.1	30.7
5	107.8	21.4	20.2	3.7	3.6	11.0	28.6	1.4	6.0	14.9	13.6	43.5	28.6	29.9
6	108.0	22.1	20.4	3.7	3.6	11.0	28.6	1.4	6.1	15.7	13.9	43.5	27.8	29.6

RESULT=Reading + Ratio + ANT Factor - Amp Gain + CABLE LOSS + ATTEN.

Ratio: {QP value[dBuV/m] - Peak value[dBuV/m]} of intentional radiator.

*To determine the levels of spurious at band-edges, the following procedure was used:

Set the resolution bandwidth to 9 kHz in the peak detector mode of a test receiver . Measure the maximum levels of the in-band channel closest to the band edge and of the out-of-band emissions close to the same band edge. Determine the ratio of the in-band signal to the out-of-band emissions. Then, measure the level of the in-band channel in CISPR quasi-peak mode with 120 kHz bandwidth. Using the ratio obtained, the equivalent level of the out-of-band emissions to determine compliance with the limits was calculated.

The emission tests, except for the band edge, were performed with the quasi-peak mode of the test receiver.
(Bandwidth:120kHz)